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Vitamin D Deficiency in Recurrent Urinary Tract Infections in Children Under 5 Years Old in Salah Aldeen General Hospital

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ABSTRACT

The aim of this study was carried out to determine the role of vitamin D deficiency in recurrent urinary tract infection in children below 5 years of age and importance of supplementation of vitamin D in such these infections. A cross sectional study hospital based was conducted in Salah Aldeen General Hospital –Iraq, during the period between 1st November 2017 -27th February 2018. The study done on 100 children under 5 years old admitted to pediatric department, and classified into 2 groups (50 child with only recurrent urinary tract infection and free from other infections (cases) and 50 child was healthy children without infection (control). Most of cases was aged 2-3 years (26%), were female (64%), live in rural area about (84%), with only breast feeding (52%), about (64%) with illiterate mothers, most of them delivered in winter about (66%), with low socioeconomic level (60%) and insufficient sun exposure (78%), most of them with deficient serum vit .D level about (58%) with normal blood urea and serum creatinin level (96%), and urine culture of the recurrent UTI cases (34%) was positive, and (66%) was negative, about (82%) of positive urine culture results was E.coli, (12%) Proteus, and (6%) Klebsilla infection.

Keywords: *Vitamin D in recurrent urinary tract infections, Vitamin D deficiency in urinary tract infections in children below 5.*

INTRODUCTION

One of most common pediatric infections is Urinary tract Infection (UTI)^{1,2}, because it occurs in 1.7% of boys and 8.4% of girls by the age of seven years³. Around 30-50% of children will have minimum one recurrence⁴. Older children will suffer from ascending UT infections in older children, where the common organism involved include Gram negative bacteria such as Escherichia-coli (*E. coli*), Klebsiella, Proteus, Enterobacter, Pseudomonas and Serratia species⁴. Irreversible Renal cortical damage may happen in 15%-65% of affected children⁴, particularly in recurrent UTI and its chronic sequelae include hypertension and chronic renal failure which may result in end stage renal disease⁶. Recurrent UTI are common but neglected and unstudied until now in Tikrit city. As the kidney scarring related best with recurrent UTI rather than the presence of vesicoureteral

reflux, there is this research aims at study of role of vitamin D in recurrent UTI in children below 5 years of age and importance of supplementation of vitamin D in such these infections.

METHODOLOGY

A cross sectional study hospital based was conducted in Salah Aldeen General Hospital –Iraq in period between 1st November 2017-27th February 2018. The study was approved by written acceptance was obtained from all families included, and on 100 children under 5 years old admitted to pediatric department of the hospital & divided into 2 groups (50 child with only recurrent urinary tract infection and free from other infections (Patients or cases) and 50 child was healthy children without infection (control group). Clinical trial done in the study with giving vit.D supplement in children according to the age and follow after 3 month. Patients included in the study : their age less than 5 years, should have more than 2 episodes of UTI during 6 month with presence of clinical signs and symptoms such as fever, abdominal pain, dysuria, anorexia and nausea, and should have pyuria (≥ 5 white blood cells per

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high-power field in urine). Exclusion criteria were: any chronic disease which affect vitamin D like renal diseases and congenital anomalies of the kidney and urinary tract, drug history like anticonvulsant, family history of rickets, and history of vitamin D supplementation during the last year, and malnutrition or obesity. Data collection: a specially designed questionnaire was used to collect the information from mothers. Information includes: Demographic information, way of feeding, and associated symptoms, mother's education level, number of recurrence and family history of UTI, delivery time of, socioeconomic state, sunlight exposure, and any history of vitamin D supplementation.

Investigations: 1- urinalysis and urine culture was done for all patients and control, using: **A)** A midstream urine obtained after cleansing the area with soap and water. **B)** Urine bag for younger children who were difficult to collect urine by midstream. 2- Blood sample for blood glucose and blood urea by manual method (spectrophotometer).

RESULTS AND DISCUSSION

The study groups was 50 case compared with 50 control cases. The age groups in the control group were as follows; <1 year 11 (22%), 1-2 year 8 (16%), 2-3 year 12 (24%), 3-4 year 10 (20%), 4-5 year 9 (18%), and for patients group the results were follows; <1 year 9 (18%), 1-2 year 12 (24%), 2-3 year 13 (26%), 3-4 year 8 (16%), 4-5 year 8 (16%). Most of cases was aged 2-3 years 13(26%), versus 12 (24%) of controls. Regarding sex distribution in control group as follows: males 26 (52%), females 24 (48%); and the patients group as follows; males 18 (36%), females 32 (64%). Regarding residence distribution in control group as follows: urban 12 (24%), rural 38 (76%); and the patients group as follows; urban 8 (16%), rural 42 (84%). Regarding way of feeding in control group results were as follows; breastfeed 24 (48%), bottle feeding 8 (16%), mixed feeding 8 (16%), solid feeding 5 (10%), and for patients group were as follows; breastfeed 26 (52%), bottle feeding 12 (24%), mixed feeding 7 (14%), solid feeding 5 (10%). Results of total sample revealed the following results; breast feeding 50 (50%), bottle feeding 25 (25%), mixed feeding 15 (15%), solid feeding 10 (10%). Regarding mother's education level, the following findings revealed; most of patients and controls mothers was illiterate 32(64%), 31 (62%) respectively. Read and write was 13 (26%) of patients versus 9 (18%) of

controls, secondary school was among 2 (4%) of patients and 5 (10%) of controls, primary school was among 3 (6%) of patients and 5 (10%) of controls. Most of the patients were born in winter 33 (66%), as compared with controls 29 (58%), while who born in summer were 17 (34%) of patients versus 21 (42%) of controls. Most of cases and controls was from low socioeconomic state 30 (60%), 27 (54%) respectively, followed by middle socioeconomic state 15 (30%) of cases and controls. This relation was statistically not significant as shown in table 1. Vit. D was deficient among 29 (58%) of cases versus 10 (20%) of controls, and was adequate among 6 (12%) of case compared to 16 (32%) of controls. This relation was statistically significant as shown in table 3. RBS level was high among 5 (10%) of cases versus 3(6%) of controls, and was normal among 30 (60%) of case as compared to 42 (84%) of controls. This relation was statistically significant as shown in table 4. Most of the cases and controls had normal blood urea and serum creatinine level 48 (96%), 50 (100%) respectively, versus 1 (2%) of cases and non of controls with high readings, this relation was statistically not significant, as shown in table 5. About 4 (10.3%) of the subjects with deficient vit D had high RBS, compared with 3 (7.7%) of those with insufficient level and 1 (4.5%) of those with adequate level of vit. D, this relation was statistically not significant as shown in table 6. Results revealed that of urine culture of the UTI cases, case was positive in 17 (34%), and was negative in 33 (66%). Regarding the microorganisms responsible for UTI, results represents them as follows; E.coli in 14 (82%), 14 (82%) of positive urine culture results was E.coli, Proteus in 2 (12%), and Klebsilla infection in 1 (6%). Low vitamin D is the consequence of a chronic inflammatory process that caused by persistent infection.. Nseir et al and Tekin found that recurrent UTIs in pediatrics are associated with vitamin D deficiency. Our study identified that the deficient serum 25(OH)D level in children with recurrent UTI (58%) was significantly lower than that in healthy children(control groups) (20%) ($P < 0.05$). Similar results were found in the recent study of (Nseir et al and Tekin) but the serum 25 (OH)D level was much lower in children with UTI in their study than in our study. The difference may result from different sample (number, race, gender, age), study design and serum 25(OH)D measurements, COBAS method used in our study.^(7,8,9) Recurrent UTI more common in age 2-3years with low vitamin D level about (26%),(24%) in 1-2 years, and (18%) in age <1 year ($p > 0.05$). Also recurrent UTI

reported in other areas of the world like India by Bagga et al. (15.2%) and Nigeria by Bagla J. (6.6%).^(9, 10) The difference in these results could be due to different methods of collecting urine sample (including urine bag, midstream urine sample, suprapubic aspiration) with variable sensitivity & specificity. Urine bag is the method used in this study especially in 1st-3 years of age as it is difficult to collect sample by midstream urine, resulting in false positive results. While suprapubic aspiration is the method used in India & Nigeria which is associated with uncontaminated urine.^(11,12) Our results showed that serum levels of 25(OH)D₃ in females within the recurrent UTI group were significantly lower (64%) when compared with those of males (36%) ($p > 0.05$). Also, the same results in a Turkish study⁽¹³⁾, that due to the incidence of recurrent UTI is more common in females than males. Many studies have recorded female predominance among children with recurrent UTI. This observation is attributed to the short female urethra, which is in close proximity to the anus from which it can be easily contaminated by faecal matter. Also, there are studies involving children <5 years reported no gender difference in the prevalence of recurrent UTI despite the slight female preponderance in the study population by Elo et al.^(14,15) There was a significant low vitamin D level in cases of recurrent UTI in rural areas (84%) in comparison to cases living in urban areas (16%). Most of the cases and controls weren't exposed to sunlight 39 (78%), 38 (76%) respectively. This relation was statistically not significant as shown in table 2. Who are known to have a low level of hygiene and poor health consciousness, that lead to increase the incidence of recurrent UTI, this goes with the study of Elo *et al* in rural children.^(14, 16) Our study done in winter that means insufficient sun exposure for both rural and urban areas and most of the children with exclusive breast feeding in rural areas. Regarding

maternal education variation, there was a significant low vitamin D level in cases of recurrent UTI in uneducated mothers (64% illiterate, 26% only read and write) than educated mothers (4%) ($p > 0.05$), this goes with Alireza Fahimzad, this may be due to poor hygiene and inadequate education and knowledge about sources of vitamin D and little to no visits to health centers for how to receive prophylactic vitamin D. This is also consistent with a study in Ethiopia and Ghana.^{14,17} Regarding type of feeding variation, there was a significant low vitamin D level in breastfeeding infants (52%) while bottle feeding (24%). Recent studies indicate that the prevalence of serum 25(OH)D <20 ng/ml is high and worldwide in breastfeeding infants, and lack of sun exposure and vitamin D supplementation have been considered as contributing factors. Breast milk does not provide sufficient vitamin D for infants, especially when the mothers are also vitamin D-deficient. Due to insufficient exposure to sunlight and a diet not enriched with vitamin D, pregnant women that suffer from vitamin D deficiency usually lead often to birth of neonates with the same deficiency. Therefore, more additional vitamin D is needed from sunlight or vitamin D supplementation for both mothers and infants. Now recommendation that all infants have a minimum daily intake of 400 IU of vitamin D beginning soon after birth. The most recent Institute of Organization Management (IOM) report recommends 400 IU/day for infants <1 year and 600 IU/day for children aged 1 to 8 years. This is also consistent with a study in Egypt and China who were exclusive breastfeeding^{17, 18, 19, 20}. The incidence of low vitamin D level is more common in winter (66%) while in summer (34%) ($p > 0.05$), that due to winter sun ultraviolet light exposure is very low, or essentially zero, that lead to little to no vitamin D synthesis during these months. Also, there is vitamin D deficiency in the majority of North America because lies outside of the Sun Belt.

Table 1. The distribution of study groups according to socioeconomic state

socioeconomic state cases Control			study groups		Total
	High		5	8	13
		10.0%	16.0%	13.0%	
	Middle		15	15	30
		30.0%	30.0%	30.0%	
	Low		30	27	57
		60.0%	54.0%	57.0%	
Total		50	50	100	
		100.0%	100.0%	100.0%	

Table 2. The distribution of study groups according to Exposure to sun light

Exposure to sun light cases control			study groups		Total
	Yes		11	12	23
		22.0%	24.0%	23.0%	
	No		39	38	77
		78.0%	76.0%	77.0%	
Total		50	50	100	
		100.0%	100.0%	100.0%	

Table 3 The distribution of study groups according to Vit. D level

Serum level of vit. D Cases Control			study groups		Total
	Adequate		6	16	22
		12.0%	32.0%	22.0%	
	Insufficient		15	24	39
		30.0%	48.0%	39.0%	
	Deficient		29	10	39
		58.0%	20.0%	39.0%	
Total		50	50	100	
		100.0%	100.0%	100.0%	

Table 4. The distribution of study groups according to RBS level

RBS Cases Control		study groups			Total
High		5	3	8	
		10.0%	6.0%	8.0%	
Normal		30	42	72	
		60.0%	84.0%	72.0%	
Low		15	5	20	
		30.0%	10.0%	20.0%	
Total		50	50	100	
		100.0%	100.0%	100.0%	

Table 5. Distribution of study groups according to Blood urea & serum createnin level

Blood urea & serum createnin Cases control		study groups			Total
High		1	0	1	
		2.0%	.0%	1.0%	
Normal		48	50	98	
		96.0%	100.0%	98.0%	
Low		1	0	1	
		2.0%	.0%	1.0%	
Total		50	50	100	
		100.0%	100.0%	100.0%	

Table 6. Relation between according to RBS level and vitm D

Adequate Insufficient		Serum level of vit. D			Total
		Deficient			
RBS High		1	3	4	8
		4.5%	7.7%	10.3%	8.0%
normal		18	31	23	72
		81.8%	79.5%	59.0%	72.0%
Low		3	5	12	20
		13.6%	12.8%	30.8%	20.0%
Total		22	39	39	100
		100.0%	100.0%	100.0%	100.0%

CONCLUSION

The most common age of recurrent UTI is 2-3 years (26%) with female (64%). Most of the cases delivered in winter (66%) that associated with low vitamin D due to little or no sun exposure. Vitamin D deficiency was

found to be associated with recurrent UTI in children, and these results suggest that vitamin D deficiency may be a risk factor for UTI in children.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Tikrit College of Medicine, Iraq and all experiments were carried out in accordance with approved guidelines.

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Urinary Tract Infection in Malnourished Children Under 5 Years in Tikrit – Iraq

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ABSTRACT

UTI is a common problem in children. Its occurrence depends on several predisposing factors and individual immunocompetence. Children with malnutrition have impaired immune function. A cross sectional hospital based study done on children under age of 5 years old admitted to pediatric department in Salah Al Deen General Hospital to evaluate the prevalence of UTI in malnourished children during the period from 1st May to 1st September 2017. The patients will be divided into two groups: Group 1 with malnutrition, while group 2 with are well nourished and each group evaluated by prepared questionnaire including personal, demographic, medical, and clinical evaluation (concentrating on Urinary tract infection) with anthropometric measure. The total number of cases was 160 cases (51% male & 48% female), divided into 2 groups; malnourished (74 case) and well nourished (86 case). Significant bacteruria was found in (27%) of malnourished patients, and (4.65%) of control subject (P value < 0.05). The risk of bacteriuria did not increase significantly with the severity of malnutrition. This study also revealed that bacteriuria in malnourished patients were more common in rural area as (78%) of them live in rural area, also the incidence increase with low educational mother .

Keywords: *Urinary tract infection in Malnourished children, malnutrition.*

INTRODUCTION

Malnutrition is still the most important public health problems which underscore the high rate of morbidity and mortality. In fact, the association between malnutrition and infectious disease has long in history, impairment in both cellular and humeral immunity presented in cases of malnutrition aggravate infections including UTI ¹. Infection of the urinary tract is among the commonest causes of diseases in childhood. It affects the entire pediatric age group, and has been shown to be a significant cause of morbidity and long-term complications ². Malnutrition increases the risk of infection and infectious disease, and moderate malnutrition weakens every part of the immune system. Protein and energy malnutrition and deficiencies of specific micronutrients (including

iron, zinc, and vitamins) increase susceptibility to infection. In communities or areas that lack access to safe drinking water, these additional health risks present a critical problem³. There was a significant association between UTI & the degree of malnutrition (Lower secretary levels of IgA at the mucosal surface or a sub clinical vit A deficiency) present in the malnourished children may have predisposed them to UTI and it should be routinely investigated and regular surveillance of related pathogens and antibiotic sensitivity is recommended. Although the pattern of UTI etiologic agents is similar in malnourished and non-malnourished children, transferrin levels are generally reduced in severely acute malnutrition, leading to free, unbound iron in circulation. This is thought to provide a media for Gram-negative organisms to thrive, resulting in Gram-negative sepsis and subsequently UTI through the hematogenous route ¹. In severely malnourished children, respiratory, urinary and other infections are common but are not easily diagnosed because the classical signs of infection (fever, pain, inflammation etc.) may be masked because the immune system is

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inhibited and the child doesn't have the normal defense mechanisms. Severely malnourished children can develop septicemia without fever⁴. Malnutrition and infection form a vicious cycle. Incidence of urinary tract infection (UTI) in malnourished children is quite high and ranges from 5-35%. UTI in malnourished children is the rule rather than exception and whether it's the cause or effect of malnutrition remains to be investigated. Malnourished children may not present with overt symptoms/signs of UTI, hence it is most importance to identify such children and treat them accordingly to prevent the sequelae of an untreated UTI⁵.

METHODOLOGY

A cross sectional study done on a randomly selected seventy four children (their age of 2 months to 5 years were also investigated for UTI.) (Patient Group) with malnutrition were studied (34 male and 40 female) under 5 years age, attending Salah Al deen general hospital from 1st May - 30th September 2017. A control group of eighty six well-nourished children (48 male and 38 female) who were visit the outpatient department for minor illness and were randomly selected as control, their age of 2 months to 5 years were also investigated for UTI. All children's weight and height are measured, put on Z score of WHO chart, the patient on -2,-3,-4 are included in the sample. Exclusion criteria: Patients less than 2 months & above 5 years, whose have signs & symptoms of UTI, or taking antibiotics in the previous 2 weeks, who have chronic systemic diseases were excluded from the study. Data collection: A specially designed questionnaire was used to collect the information from mothers, grandmothers or other attendants with patient. The information includes: Demographic information, associated symptoms (dysuria, hematuria, change in color of urine, frequency, retention of urine, incontinence, abdominal pain, constipation, poor feeding, and vomiting). Education of the mother. Clinical examination of all children done: measurement of growth parameters (length or height , weight), blood pressure, pulse, temperature, presence of pallor, abdominal tenderness, abdominal mass and edema, wasting and other signs of malnutrition.

Investigations:

First: Urine culture was done for all patients and control, using:

A) A midstream urine-obtained after cleansing area with soap and water .

B) Urine bag for children in case of inability to obtain midstream urine

Second: Urine culture: A Calibrated loop designed to deliver a known volume either 0.01 or 0.001 ml of urine on to agar plates (Blood agar, nutrient agar, Macconkey agar and eosin methylene blue (EMB) agar. All plates were incubated at 35°C and read at 24 and 48 hours for bacterial identification and colony count.

Statistical analysis: Statistical data were expressed and comparisons of proportions was performed using chi square, p-value of <0.05 was considered as statistically significant, p-value of <0.01 as highly significant and p-value of <0.001 as extremely significant.

RESULTS AND DISCUSSION

Total number of cases 160 case (51% male & 48% female), divided into 2 groups; malnourished (74 case) and well nourished (86 case). Males forms 48 (30%) of well nourished cases in comparison to 34 (21.25%) in malnourished patients. In regard to malnourished cases ,there were 74 case (34 male and 40 female), while well nourished cases (48 male and 38 female). Results revealed that 52 (60%) of well nourished live in rural area & 34 (39.5%) live in urban area, while 58 (78%) of malnourished patients live in rural area and 16 (21.6) live in urban area. The relation between residence and nutritional state is significant as p value < 0.05. Results also revealed that 40 (54%) of malnourished patients have illiterate mothers, 25 (33.7) read and write, 9 (12%) primary school ,while in well nourished cases ; 16 (18%) illiterate, 26 (30%) read & write, 30 (34.8%) primary school and 14 (16%) secondary school. Regarding urine culture was 20 (27%) of malnourished patients (bacteriuria asymptomatic and symptomatic)) in comparison to 4 (4.6%) of well nourished children, and this is a significant relation. Study results revealed that 8 (23.5%) male and 12 (30%) female malnourished children had positive culture in comparison to 1 (2%) male & 3 (7.8%) female had positive culture in well-nourished cases. Table 1 show that malnourished patients had bacteriuria (positive culture 35%) was common in the age group (1-3 years) in comparison to the age group (2-12 months) (25.5%). Table 2 show that well-nourished patients had bacteriuria (positive culture (7.6%)) was common in the age group (1-3 years) in comparison to the age group (2-12 months) (3%). Table 3 show that bacteriuria present in cases of

(37.5%) of malnourished patients who were on bottle feeding in comparison to (18%) who were on mixed feeding and (11%) of patients who were on breast feeding. Table 4 show that positive culture is present in well nourished cases as follows; in (9%) bottle fed children, in (3.3%) of children on mixed feeding, and in (5.8%) of children on solid feeding. Results also show that the most common microorganism was *E. coli* in both malnourished (45%) and well nourished (75%). Then proteus present in (25%) of well & malnourished cases. Other microorganisms were klebsiella (20%) , enterobacter (5%) and staph. aureus (5%). The total number of patients with positive urine culture was 20 in Malnourished in comparison to 4 cases in well nourished cases. Table 5 show that 35 (47%) of patients had moderate malnutrition (40% male and 60% female), 39 (52%) had severe malnutrition (51% male and 48% female. this study show that 27% of malnourished patient have positive culture in comparison to 4.65% of control healthy children, this result is statically significant. UTI in malnourished children were reported in other areas of the world like India by Bagga et al. (15.2%) and nigeria by Bagla J. (6.6%). (6, 7) The difference in these result could be explained by different methods of collecting urine sample (including urine bag, midstream urine sample, suprapubic aspiration) with variable sensitivity & specificity. Urine bag is method used in this study especially in 1st 3 years of age as difficult to collect sample by midstream urine, resulting in false positive result (this explained why UTI more common in first 3 years). While suprapubic aspiration is method used in India & Nigeria which associated with uncontaminated urine ^{6,7}. UTI is more common in female than male, there was no significant difference in incidence of UTI among male and female as malnutrition occur in both sex with the same precipitating factors. Many studies have recorded female predominance among children with UTI. This observation is attributed to the short female urethra, which is in close proximity to the anus from which it can be easily contaminated by faecal matter. This is go with the studies involving pre-school children reported no gender difference in the prevalence of UTI despite the slight female preponderance in their study population by Elo et al., and also go with Arief et al. ^{2,8}. There was significant increase in malnourished cases in rural areas in comparison to malnourished cases

live in urban areas. Rural areas are known to have a low level of hygiene and poor health consciousness, that lead to increase incidence of UTI, this goes with the study of Alo *et al* in rural children, who find that UTI incidence increase up to 48% in this rural area. ² Also there was increase incidence of malnourished cases in uneducated mothers, there were 54% of malnourished cases have illiterate mothers, but there was no significant relation between malnutrition (and hence UTI) and education of the mother, this goes with Alireza Fahimzad, this may be due to back to front wiping in girls, poor perineal hygiene, frequency of changing diaper during the day ⁹. The most common age of UTI is 1-3 years in both well and malnourished cases. This goes with the study done by Ahmed shemran, this relatively higher prevalence of UTI in younger children can be explained by the fact that this age not toilet trained when the child is more predisposed to UTI from faecal contamination, in addition infants and young children, collection of a “clean” urine specimen is difficult. Adhesive polyethylene bag specimens are the most acceptable choice, but these may have a significant contamination rate (false positives). Compared to suprapubic aspiration, positive results on bag specimens indicate true bacteriuria in only 7.5% of specimens. The collection of confirmatory sterile culture specimens by suprapubic aspiration or urethral catheterization is too invasive and costly to be considered in a screening protocol in infants ^{1,10}. UTI is increased in formula feed infant compared to breast feeding, this is go with the result of Mamdouh et al, and Ahmed shemran. This may be due to advantage of breast feeding on immunity that prevent or reduce infection, which is deficient or absent in formula feeding. (2, 4) Distribution of microorganism between well and malnourished children show that *E. coli* is the commonest microorganism isolated in both state of nutrition, this is go with the studies done by Mamdouh R., Ahmed S., Arief W. as *E. coli* can colonies the urinary passage in malnourished children because of high rate of gastroenteritis in this type of patients, and could be due to backwash cystitis ^{1,4,10}. The high incidence of **urinary tract infection** in PEM could he attributed to a defect in the local antibody response including locally synthesized IgG and secretory Ig A that are normally present in urine and whose competences inhibit bacterial adhesion to the epithelial surface ^{4,5,7}.

Table 1. Distribution of positive culture according to the age of mal. Patients.

Age	Positive no %		Negative no %		Total
	No.	%	No.	%	
2-12 month	12	25.5	35	74.4	47
1-3 year	7	35	13	65	20
3-5 year	1	14.2	6	85.7	7
Total	20		54		74

Table 2. Distribution of positive culture according to age of well nourished cases.

Well nourished	Positive		Negative		Total
	No.	%	No.	%	
2-12 month	1	3	31	96	32
1-3 year	3	7.6	36	92	39
3-5 year	0	0	15	100	15
Total	4		82		86

Table 3. Distribution of bacteriuria according to type of feeding in malnourished patients.

Mal. patients	Bottle		Breast		Mixed		Solid food	
	No.	%	No.	%	No.	%	No.	%
Positive	15	37.5	1	11.1	4	18.1	0	0
Negative	25	62.5	8	88.8	18	81.8	3	100
Total	40		9		22		3	

Table 4. Distribution of positive culture according to type of feeding in well-nourished cases.

Well nourished	Bottle		Breast		Mixed		Solid	
	No.	%	No.	%	No.	%	No.	%
Positive	2	9	0	0	1	3.3	1	5.8
Negative	20	90.9	17	100	29	96.6	16	94
Total	22		17		30		17	

Table 5. Classification of malnourished cases according to Z score of WHO.

Type of malnutrition	Male		Female		Total
	No	%	No	%	
Moderate (-2)	14	40	21	60	35 (47%)
Severe(-3,-4)	20	51	19	48	39 (52%)
Total	34		40		74 (100%)

CONCLUSION

This study has revealed that the incidence of UTI is significantly increased in malnourished children (27%), who commonly come from rural areas and of age group 1-3 years. The most common microorganism isolated is gram -ve coliform organism such as E. coli and klebsiella species in both well and malnourished children.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Tikrit Medical College, Iraq and all experiments were carried out in accordance with approved guidelines.

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Assessment of Knowledge of Mothers Toward Caring of their School Age Children with Thalassemia at Maternal and Child Babylon Teaching Hospital

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ABSTRACT

A descriptive study that aim to assess the knowledge of mothers toward Thalassemia, data collected in a Virtual Sample in maternal and child Babylon teaching hospital by questionnaire from data analysis by frequency and percentage. Descriptive study , was carried out at maternal and child Babylon teaching hospital from 25/December/ 2017 to 1/April/ 2018. Anon-probability sample, was selected from hospital in pediatric wards for mothers attending with their children in hospital and mother who attending emergency room , the virtual sample consisted of (100) mothers , the collection was carried out at maternal and child Babylon hospital. Validity of the study instrument was determined initially through the panel of experts of different specialties related to the field of the present study , the expert's response were positive toward the study questionnaire , change and modification were made in respect to expert's suggestions and recommendation. The result show that (51%) of mothers their age between (31-40) years and (24%) of mothers their level of education, read and write, also the result shows that (77%) of mothers not work. The majority of mothers (91%) monitor the color face of the child.

Keywords: *Mothers, Knowledge, Children, Thalassemia*

INTRODUCTION

Thalassemia is a chronic, congenital hemolytic anemia in which the chief defect seems to be an inability to produce cells capable of normal incorporation¹. The term Thalassemia, which is derived from the Greek Thalassemia, meaning sea and mia blood is applied to a variety of inherited blood disorder characterized by deficiencies in the rate of production of specific globin chains in Hgb , the name appropriately refers to descendants of or those people living near the Mediterranean sea ,who have the highest of the disease , namely Italians , Greek and Syrians². There are two primary type of Thalassemia , Alpha Thalassemia disease and Beta Thalassemia disease. Beta Thalassemia (also called cooley's Anemia) is a serious illness. Symptoms appear in the first two years of live and include paleness

of skin, poor appetite, irritability, and failure to grow. Proper treatment includes routine blood seen primary in the areas surrounding Mediterranean sea, Africa, southwest Asia. Due to global migration patterns, there has been an increase in the incidence of Thalassemia in North America in the last ten years, primarily due to immigration from southwest Asia. Beta – Thalassemia is most common of the Thalassemia occurs in four forms. Two heterozygous forms, Thalassemia minor, an asymptomatic silent carrier, and Thalassemia trait, which produces a mild microcytic anemia. Thalassemia intermediate, which manifested as splenomegaly and moderate to severe anemia. Ahomozygous forms, Thalassemia major (also known cooley's anemia) , which results in anemia that would lead cardiac failure and death in early childhood without transfusion support³. The objective of supportive therapy is to maintain sufficient Hbg level to prevent bone marrow expansion and the resulting bony deformities, and to provide sufficient RBCs to support normal physical activity. Transfusions are the foundation of medical management. One of the potential complications of frequent blood transfusions is

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iron overload , because the body has no effective means of elimination the excess iron , the mineral is deposited in body tissue⁴

METHODOLOGY

Descriptive study, was carried out at maternal and child Babylon teaching hospital from 25/December/2017 to 1/April / 2018. Anon-probability sample , was selected from hospital in pediatric wards for mothers attending with their children in hospital and mother who attending emergency room , the virtual sample consisted of (100) mothers , the collection was carried out at maternal and child Babylon hospital. Validity of the study instrument was determined initially through the panel of experts of different specialties related to the field of the present study , the expert's response were positive toward the study questionnaire , change and modification were made in respect to expert's suggestions and recommendation. Data were analysis through frequent , percentage. The item were rated according to point type rating scale (Yes-No-sometimes).

RESULTS AND DISCUSSION

Table (1) shows that the high percentage of ages for participant (mothers) are (31-40) years where was(38%) , so the low level are (51 and above) was (1%) and the high percentage of level of education are (24%) read and write ,so the low level are (10%) secondary graduate and the high percentage of the Occupation of mothers (77%) housewife , so the low level (6%) and the high percentage the high percentage of the number of children are (57%) where (1-3) and the low are (1%) where (7and above) and the high percentage of Sequence of children are(3%) the first(1st) and the low are (2%) the fifth &seven and above. Table (2), (3) and (4) shows the high percentage of the children monitor well-like activity child or drowsiness are (88%) yes and the low level are (3%) no , The high percentage of observe eyes and face are (99%) yes and the low level are (0%) sometimes , The high percentage of observe situation of health for child and attention growth and development are (82%) yes and the low level are (7%) no , The high percentage of splenomegaly are (53%) yes and the low level are (8%)sometimes, The high percentage of joint pain are (73%) yes and the low level are (4%) sometimes , The high percentage of lack of appetite are (78%) yes and the low level are (7%) sometimes , The high percentage of observe sign of respond to treatment

are (87%) yes and the low level are (1%) no , The high percentage of psychological and tranquility care for the child are (70%) yes and the low level are (30%) no , The high percentage of busyness child talent that spend as drawing , music ...ect are (44%) no , and the low level are sometimes , The high percentage of let the child to express his feelings are (56%) yes and the low level (10%) no , The high percentage of commitment to treatment are (93%) yes and the low level 0% no , The high percentage of maintain the child of inflammatory respiratory system are (85%) yes and the low level (4%) no , The high percentage of maintain the child of inflammatory digestive system are (87%) yes and the low level are (6%) no , The high percentage of not contact with infected children with infectious are (60%) yes and the low level are (17%) sometimes , The high percentage of prevention of the child of sports hard (74%) yes and the low level are (12%) sometimes , The high percentage of take the vaccine in the right time are (88%) yes and the low level are (3%) sometimes , The high percentage of attention of cleanness and health dental are (67%) yes and the low level are (11%) sometimes , The high percentage of maintain the child of inflammatory gained from external are (60%) yes and the low level are (13%) no , The high percentage of maintain the child of accidents fall (78%) yes and the low level are (5%) no , The high percentage of contain the food child on vitamins , proteins , minerals are (81%) yes and the low level are (3%) no , The high percentage of reduce the percentage of iron in food children are (68%) yes and the low level are (32%) no , The high percentage of reduce the percentage fat foods the children (64%) yes and the low level are (9%) sometimes , The high percentage of give the child food rich vegetable(73%) yes and the low level are (9%) sometimes. *Table (1): demographic characteristics show that (51%) of mothers their age between (31-40) years supported by the reference⁽¹³⁾ and (24%) of mothers their level of education , read and write supported by the reference⁽¹⁴⁾ , demographical data shows that (77%) of mothers not work supported by the reference⁽¹⁵⁾ , also it shows that the percentage of children between (6-9) was (61%) supported by the reference⁽¹⁶⁾. Table (2): show that (91%) of mothers monitor the color face of the child , while (9%)of them they not monitor the color face children in a good way supported by the reference⁽¹⁷⁾ and (53%) of mothers are known to have splenomegaly in their children and (39%) are known supported by the reference. Also (68%) of mothers reduce the iron in the child food which were*

very important for thalassemia children supported by the reference⁽¹⁹⁾. In addition to that our research shows (70%) of mothers are Psychological and tranquility care for their children supported by the reference⁽¹⁹⁾.

Table 1. Demographical Data.

List	Variable	Frequency	Percentage
1	Age:		
	20 – 30	38	38.0
	31 – 40	51	51.0
	41 – 50	10	10.0
	51 and above	1	1.0
	Total	100	100.0
2	level of education:		
	Illiterate	15	15.0
	Read and write	24	24.0
	Primary graduated	15	15.0
	Intermediate graduated secondary graduated	16	16.0
	College graduated	10	10.0
	Total	20	20.0
	Total	100	100.0
3	Occupation:		
	Housewife	77	77.0
	Employee	17	17.0
	Another	6	6.0
	Total	100	100.0
4	Age of children:		
	6-9	61	61.0
	10-12	39	39.0
	Total	100	100.0
5	number of children in family:		
	1-3	57	57.0
	4-7	42	42.0
	7 and above	1	1.0
	Total	100	100.0

Table 2. Child monitor, Observe eyes and face, Splenomegaly and Joint pain

List	Situation	Frequency	Percentage
1	Child monitor well-like activity child or drowsiness:		
	Yes	88	88.0
	No	3	3.0
	Sometime	9	9.0
	Total	100	100.0
2	Observe eyes and face:		
	Yes	91	99.0
	No	9	0.0
	Sometime	0	1.0
	Total	100	100.0

Cont... Table 2. Child monitor, Observe eyes and face, Splenomegaly and Joint pain

3	Observe situation of health for child and attention growth and development:		
	Yes	82	82.0
	No	7	7.0
	Sometime	11	11.0
	Total	100	100.0
4	Splenomegaly:		
	Yes	53	53.0
	No	39	39.0
	Sometime	8	8.0
	Total	100	100.0
5	Joint pain:		
	Yes	76	76.0
	No	20	20.0
	Sometime	4	4.0
	Total	100	100.0
6	Lack of appetite:		
	Yes	78	78.0
	No	15	15.0
	Sometime	7	7.0
	Total	100	100.0
7	Observe signs of response to treatment:		
	Yes	87	87.0
	No	1	1.0
	Sometime	12	12.0
	Total	100	100.0

Table 3. Psychological and tranquility care for the child, Busyness child talent that spend as drawing, music.

List	Situation	Frequency	Percentage
1	Psychological and tranquility care for the child:		
	Yes	70	70.0
	No	30	30.0
	Sometime	0	0.0
	Total	100	100.0
2	Busyness child talent that spend as drawing , music ...etc.:		
	Yes	40	40.0
	No	44	44.0
	Sometime	16	16.0
	Total	100	100.0
3	Let the child to express his feelings:		
	Yes	56	56.0
	No	10	10.0
	Sometime	34	34.0
	Total	100	100.0

Cont... Table 3. Psychological and tranquility care for the child, Busyness child talent that spend as drawing, music.

4	Commitment to treatment:		
	Yes	93	93.0
	No	7	7.0
	Sometime	0	0.0
	Total	100	100.0
5	Maintain the child of inflammatory respiratory system:		
	Yes	85	85.0
	No	4	4.0
	Sometime	11	11.0
	Total	100	100.0
6	Maintain the child of inflammatory digestive system:		
	Yes	87	87.0
	No	6	6.0
	Sometime	7	7.0
	Total	100	100.0
7	Not contact with infected children with infectious:		
	Yes	60	60.0
	No	23	23.0
	Sometime	17	17.0
	Total	100	100.0

Table 4. Prevention of the child of sports hard, Take the vaccine in the right time and reduce the percentage of iron in food children.

List	Situation	Frequency	Percentage
8	Prevention of the child of sports hard:		
	Yes	74	74.0
	No	14	14.0
	Sometime	12	12.0
	Total	100	100.0
9	Take the vaccine in the right time:		
	Yes	88	88.0
	No	9	9.0
	Sometime	3	3.0
	Total	100	100.0
10	Attention to cleanness and health dental:		
	Yes	67	67.0
	No	22	22.0
	Sometime	11	11.0
	Total	100	100.0
11	Maintain the child of inflammatory gained from external:		
	Yes	60	60.0
	No	13	13.0
	Sometime	27	27.0
	Total	100	100.0

Cont... Table 4. Prevention of the child of sports hard, Take the vaccine in the right time and reduce the percentage of iron in food children.

12	Maintain the child of accidents fall:		
	Yes	78	78.0
	No	5	5.0
	Sometime	17	17.0
	Total	100	100.0
13	Contain the food child on vitamins , proteins and minerals:		
	Yes	81	81.0
	No	3	3.0
	Sometime	16	16.0
	Total	100	100.0
14	Reduce the percentage of iron in food children:		
	Yes	68	68.0
	No	32	32.0
	Sometime	0	0.0
	Total	100	100.0

Table 5. Physical and psychological care for children with thalassemia_

Situation	N	Mini	Max	Mean	Std. Deviation
Child monitor well-like activity child or drowsiness	100	1	3	1.21	.591
Observe eyes and face	100	1	3	1.02	.200
Observe situation of health for child and attention growth and development	100	1	3	1.29	.656
Splenomegaly	100	1	3	1.55	.642
Joint pain	100	1	3	1.28	.533
Lack of appetite	100	1	3	1.29	.591
Observe signs of response to treatment	100	1	3	1.25	.657
Psychological and tranquility care for the child	100	1	3	1.50	.859
Busyness child talent that spend as drawing , music ... etc.	100	1	3	1.76	.712
Let the child to express his feelings	100	1	3	1.78	.927
Commitment to treatment	100	1	3	1.14	.513
Maintain the child of inflammatory respiratory system	100	1	3	1.26	.645
Maintain the child of inflammatory digestive system	100	1	3	1.20	.550

CONCLUSION

During the results show that the mothers have sufficient knowledge about disease thalassemia to helping their children to reduce of severity of disease through their awareness well to reduce the percentage of iron in foods child that , it plays role of effective in the development of the disease. Also mothers have good awareness to know the food appropriate for their children, it will be necessary to contain the vegetables and fruits. In addition to that the mothers committed very well in giving therapy their children.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Paediatric and Mental Health Nursing, College of nursing / university of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Brain MRI Hyperintensity in Iraqi Migrainuers

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ABSTRACT

The preset study was aiming at evaluating MRI findings in patients with migraine in association with clinical and demographic characteristics. Eighty five migraine patients were gathered from neurology clinic in Merjan teaching hospital in Hilla, over 6 months (July - December 2014). Migraine was diagnosed according to international headache society criteria and differentiated into migraine with aura and migraine without aura. Both genders were involved. Their ages were between 12-60 years. They were asked about family history of migraines as well as duration of their headache. Severity of migraine was studied according to Migraine Disability Assessment Scale (MIDAS) questionnaires. Family history of migraines was seen in (57.6%) of patients. Only (35.3%) of migraines patients had aura, meanwhile, (24.7%) of patients had positive hyperintensity. (68.2%) of migraines patients the site of lesion were in peri-ventricular area. (69.4%) of patients had migraines for less than 5 years duration. The pain was mild in 14.1 %, moderate in 56.5 % and severe in 29.4 % of patients. There was no significant association between MRI hyperintensity and age of patients ($P > 0.05$); however, MRI intensity was significantly more common in men than in women, 43.8 % versus 20.3 % ($P = 0.050$).

Keywords: Migraine, hyperintense lesions, MRI

INTRODUCTION

Migraine is a frequent recurrent or long standing disease of deranged brain function. It is usually dominated by episodes of headache of varying severity, dysfunction of autonomic nervous system, and occasionally with an aura represented by neurologic manifestations^{1,2}. Migraineurs possess hyper-excitability of the cerebrum and are unable to accommodate to usual stimuli². Migraine disorder is widely distributed globally and frequently disabling. The prevalence rate, when taken cumulatively during lifetime, is about 43 percent in women and 18 percent in men⁽³⁾. Migraine headache is more common in women than men with a male to female ratio of about 1:2; however, its incidence is the same in boys and girls. Estrogen plays an important role. It is accepted to consider migraine as a hereditary

disorder that has polygenic pattern of inheritance. It has been shown, however, that migraine like headache may follow head trauma. Although the exact etiology is till now controversial; the underlying reasons behind the disorder may be related to the trigeminovascular system combining the 5th cranial nerve supplied region and the high cervical area through the “trigeminal nucleus caudalis (TNC)” which can explain the pain referred between the neck and the face². Polysynaptic synapses between the superior salivatory nucleus and the TNC and in the lower part of pons may explain the happening of ipsilateral autonomic events⁴. Stimulation of the trigeminovascular connections leads to peripheral sensitization of the first order neuron supplying blood vessels of dura matter, that may explain the throbbing type pain. With longstanding period, second and third order neurons acquire excitation, thereby leading to “central sensitization”⁵. “Cortical spreading depression (CSD)” is an essential event associated with migraine. The description of CSD is that of a wave of “neuronal depolarization” followed by a decline of neuronal firing with concomitant vascular flow alterations (“hyperemia followed by oligemia”). CSD travels along the cerebral

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cortex at a rate of about 3 mm per minute². The identification of Migraine is clinically categorized into migraine with aura and migraine without aura⁽²⁾. Migraine with aura occurs in only about 5% of adult population, and 90% of auras are visual⁽²⁾. Migraine without aura is dominated by episodic headache events declaring in attacks (at least five attacks) of 4 to 72 hours with at least two of the following events: unilateral distribution, pulsating nature, pain intensity that is moderate to severe and intensification by routine physical activity or even leading to avoidance of routine physical activity. At time of headache there is associated at least nausea and/or vomiting, photophobia and phonophobia that are not due to another disease. Migraine with aura is dominated by “visual and/or sensory and/or speech symptoms”. There must be at least two episodes fulfilling certain criteria². It has been suggested that migraine may be a risk factor for both stroke and asymptomatic white matter changes in adult patients complaining of chronic recurrent headache⁶. It has been shown, by meta analysis, that individuals with migraine are at least 2 folds risk of developing ischemic CVA, and at four fold more risk of having white matter lesions as demonstrated by MRIs than general population^{7,8}. This higher risk is found even in younger persons who do not possess other associated stroke risk factors, such as diabetes, hypertension, hypercholesterolemia, smoking, and use oral contraceptive pills^(7,9). Either kinds of brain abnormalities have been shown to raise the risk of adverse outcome, including physical morbidity, clinical CVA events and impairment cognitive functions, such as dementia^{10,11}. The origin of these alterations is not clear, but usually supposed to be due to ischemic changes, which is in support for the contribution of migraine to vascular events⁽¹²⁾. There is now acceptable evidence that migraine is actually an “independent risk factor” for deep white matter abnormalities¹³. A number of migraine features may participate in the pathogenesis of infarcts and hyperintense alterations⁽¹³⁾. Hypercoagulability, blood vessels constriction^{14,15} in situ intense neuronal stimulation, inflammation of neurons, release of cytokine and neuropeptide and⁽¹⁶⁾, or “excitotoxicity”¹⁷ and heart defects (such as patent foramen ovale) have been proposed as potential players or etiologic factors². The preset study was aiming at evaluating MRI findings in patients with migraine in association with clinical and demographic characteristics.

METHODOLOGY

Eighty five migraine patients were gathered from neurology clinic in Merjan teaching hospital in Hilla, over 6 months (July - December 2014). Migraine was diagnosed according to international headache society criteria and differentiated into migraine with aura and migraine without aura. Both genders were involved. Their ages were between 12-60 years. They were asked about family history of migraines as well as duration of their headache. Severity of migraine was studied according to Migraine Disability Assessment Scale (MIDAS) questionnaires. Grade I and II was regarded as mild disease, Grade III as moderate and Grade IV as severe migraine. Selected patients were sent for brain MRI study including T2 and Flair sequences in axial, coronal and sagittal sections. Brain MRI was studied for the presence of T2 hyperintense lesions, their location including periventricular, juxtacortical and infratentorial. In the presence of these hyperintense lesions, contrast was given to show if there is any enhancing lesion. Migraineurs with cerebrovascular, cardiovascular disorders, multiple sclerosis or oral contraceptive therapy were excluded from the research as these conditions are known to be associated with hyperintense lesions in brain MRI. The presence of MRI hyperintense lesions was studied for a possible association to patient and migraine parameters. MIDAS Questionnaire included the following:

1-On how many days in the last 3 months did you miss work or school because of your headaches?

2-How many days in the last 3 months was your productivity at work or school reduced by half or more because of your headaches? (Do not include days you counted in question 1 where you missed work or school.)

3-On how many days in the last 3 months did you not do household work because of your headaches?

4- How many days in the last 3 months was your productivity in household work reduced by half or more because of your headaches? (Do not include days you counted in question 3 where you did not do household work.)

5-On how many days in the last 3 months did you miss family, social, or leisure activities because of your

headaches?

A-On how many days in the last 3 months did you have a headache? (If a headache lasted more than one day, count each day.)

B-On a scale of 0–10, on average how painful were these headaches? (Where 0 = no pain at all, and 10 = pain as bad as it can be.)

Grade I—Minimal or Infrequent Disability: 0–5

Grade II—Mild or Infrequent Disability: 6–10

Grade III—Moderate Disability: 11–20

Grade IV—Severe Disability: > 20

The patients were instructed to write zero if they did not do the activity in the last 3 months.

RESULTS AND DISCUSSION

Current study included 85 patients. The overall mean age of migraine patients was (33.42±9.42) years old, and majority of the patients were females accounting for (81.2%). Family history of migraines was seen in (57.6%) of patients. Only (35.3%) of migraines patients had aura, meanwhile, (24.7%) of patients had positive hyper-intensity. (68.2%) of migraines patients the site of lesion were in peri-ventricular area. (69.4%) of patients had migraines for less than 5 years duration, table 1. The pain was mild in 14.1 %, moderate in 56.5 % and severe in 29.4 % of patients. There was no significant association between MRI hyperintensity and age of patients ($P > 0.05$); however, MRI intensity was significantly more common in men than in women, 43.8 % versus 20.3 % ($P = 0.050$), table 2. MRI hyperintensity was significantly associated with positive family history, with migraine accompanied by aura and with severe pain, table 3. The association between migraine and occurrence of intracranial alterations is an issue that has been raised by a number of authors. Nevertheless, the underlying pathophysiology by which migraine leads to brain anatomical lesions is still controversial. This study is a cross sectional study on migraine characters and their association with the development of white matter hyperintense alterations detected by brain MRI. The mean age of migrainuers in the current study ranged between 24–42 years. Most of available literatures agreed that migraine is more frequently encountered in second to forth decades when compared to childhoos or

elderly ages^(18,19). Majority of migrainuers in the current study were women (81.2%) and female to male ratio was about 4:1. This is in accordance with most studies which demonstrated that following puberty, the prevalence rate of migraine increases gradually in men but to a greater extent in women. This is often explained by theory of hormonal changes and by low threshold of pain sensation in women². This study demonstrated that Family history of migraine was present in 57.6% of patients. This is in agreement with most population (50–60%)^(21,22). Thirty patients (35.3%) were complaining of migraine with aura in the present study. This rate is higher than what was found in several articles (5–20%)^{3,23}. This difference may be attributed to two reasons; one is the racial factor and second is that many of our patients do not consult unless headache is associated with other neurological complaints (aura). Brain MRI hyperintense lesions were found in 24.7% of migraine patient. This might be in concordance with Kruit *et al*²⁴ who reported that white matter lesions roughly occur in 20% of migrainuers. Similar to others studies^{18,19,24}, hyperintense lesions were seen more in female migrainuers with statistical significance; which probably explained by the higher incidence of migraine in females. In this study, positive family history of migraine, migraine with aura and moderately severe migraine were highly associated with MRI lesions in migraine patients. Because family history of cerebral MRI white matter lesions is a risk factor for developing cerebral MRI hyper intensities, a separate study is needed to know whether family history of migraine or family history of MRI lesions is the risk. The present study supported by a study of Kruit *et al*¹³ and others²⁵, who reported that these lesions were more prevalent in patients suffering from migraine with aura than those suffering from migraine without aura. On the contrary, Cavestro *et al*, reported that 33% of migraine without aura patients and 24% of migraine with aura patients presented with these brain lesion²⁶. Moderately severe migraine was significantly associated with MRI hyperintensity in this study which is supported by another study of Kurth, *et al*²⁷ and Zhenyang Zheng, *et al*²⁸. This is in disagreement with other studies which did not report any significant association between migraine severity and acquisition of hyperintense brain lesions²⁹.

Table 1. Distribution of Migraines Patients by Medical History

Variable	Frequency (%)
Family history	
Positive	49 (57.6%)
Negative	36 (42.4%)
Total	85 (100.0%)
Type of migraines	
With aura	30(35.3%)
Without aura	55 (64.7%)
Total	85 (100.0%)
Hyper-intensity by MRI	
Positive	21 (24.7%)
Negative	64 (75.3%)
Total	85 (100.0%)
Site of lesion	
Periventricles	15 (68.2%)
Left juxta	7 (31.8%)
Total	22 (100.0%)
Duration of disease	
< 5 years	59 (69.4%)
≥ 5 years	26 (30.6%)
Total	85 (100.0%)

Table 2. Association of hyper intensity with patients' age and sex

Variable	Hyper intensity		χ^2	<i>P</i> values
	Positive (%)	Negative (%)		
Age Groups (years)				
≤ 30 years	5 (16.1)	26 (83.9)	1.930	0.165
>30 years	16 (29.6)	38 (70.4)		
Sex				
Male	7 (43.8)	9 (56.2)	3.843	0.050*
Female	14 (20.3)	55 (79.7)		

Table 3. Association of hyper intensity with patients' Medical History

Variable	Hyper intensity		χ^2	P values
	Positive (%)	Negative (%)		
Family history				
Positive	16 (32.7)	33 (67.3.6)	3.928	0.047*
Negative	5 (13.9)	31 (86.1)		
Type of migraines				
With aura	12 (40.0)	18 (60.0)	5.830	0.016*
Without aura	9 (16.4)	46 (83.6)		
Severity				
Mild	3 (25.0)	9 (75.0)	7.648	0.022*
Moderate	7 (14.9)	41 (85.4)		
Severe	11 (44.0)	14 (56.0)		
Site of lesion				
Supratentorial	14 (93.3)	1 (6.7)	0.335	0.563
Infratentorial	6 (85.7)	1 (14.3)		
Duration of disease				
< 5 years	13 (21.7)	46 (78.3)	0.740	0.390
≥ 5 years	8 (30.8)	18 (69.2)		

CONCLUSION

MRI hyperintensity was significantly associated with male gender, positive family history, with migraine accompanied by aura and with severe pain.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Medicine / Babylon University / Consultant radiologist / Radiology Department / Hilla Teaching Hospital/ Babylon province / Iraq and all experiments were carried out in accordance with approved guidelines.

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(ViewPlus IVEO) Device Effectiveness on Improving Visual Disabilities Students Skill

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ABSTRACT

This study aims to identify the effectiveness of the (IVEO PLUS) device to improve the academic skills students with visual disabilities. The sample of the study consisted of (18) visually impaired students who were divided randomly to two groups, (9) students as experimental and a control group of (9) students. For the purposes of the study, the researcher prepared a test of the academic skills (science and geography) to measure the students' skills in these subjects. The researcher applied the test of (science and geography) skills to students before applying the program, and then the program was applied to them. The program consists of (13) sessions. The researcher applied a post-science skills test to students to identify the changes that occurred before and after the application. Also, after the completion of the application of geographic skills sessions, researcher applied a test of post-geographic skills to students to identify the changes that occurred before and after the application of the sessions, and the data were processed statistically by (Person-Spearman factor and Man-Whitney test) results showed the effectiveness of the (IVEO PLUS) device, which improved the academic skills of visually impaired students.

Keywords: *DevicViewPlusIVEo–Academicskills–Students with visual disabilities).*

INTRODUCTION

The interest of educators and specialists in private education in general and their interest in this group is due to the awareness and civilization of any country. Each country, especially the developed countries, may wish to pay attention to this group of people and provide services to them to help them to develop and exploit its capabilities to the extent that they can lead to take their role in the society in which they live. Special attention to special needs groups through the development of curricula and methods of their own in proportion to their abilities and what allows them to merge with their peers in the general education classes, and paying attention to these categories must be addressed in a comprehensive manner, each side and not neglect other aspects¹. Some believe that children who lose their ability also lose the ability to communicate with others compared to their

normal peers. But at present, researches and studies have shown that blind have an intelligence level that is normal or higher than normal. These children can develop better hearing skills and abilities than those who are visually impaired and from ordinary children. Some studies have suggested that the minds of children who become blind in early ages are quickly rearrange their functions to deal with sounds in ways other than normal and better. They have a higher ability to distinguish voices and identify their sources in a way that is better than ordinary ones. The brain of children during the first two years of age has the ability on reprogramming itself to adapt to blind states². The brain is the main organ in the human body and is able to control all systems of the body and may be compared to the main computer. When one or more of the body's systems interfere with brain function, a complete lack of brain function can lead to the death of the human being³. Eye muscles have multi-level structures and many connections with optical systems, and the muscles of the eye destroy or stimulate different parts of the brain. The muscles of the eye resign from the third, fourth, and sixth nerves of the cranial nerves as well as sympathetic fibers extending from the sympathetic uterus. The

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external eye muscles consist of separate fibers that vary in diameter of 10 to 50 μm ⁴. The eye is connected to the outer membrane of the eye with six muscles that each eyeball holds. It controls the movement of the eye in all directions to monitor the moving objects. It is directly related to the brain, which is reacting in perfect harmony with the movement of the eye. In the millions, the eye reaches the brain, and the passage of information through the eye must be collected in the retina in preparation for its transition to the visual cortex positioned in the brain. During the process of chemical reaction, the brain decodes the brain signals from the signals across the eye to clarify the picture and its essence in all its details and distinctions. The part known as the optic nerve is located on the retina from the back⁵, as shown in the following figure: Science is an important subject for students with visual disabilities because they expand their limited experience, provide them with the knowledge and skills needed for their lives, develop problem solving skills through manual learning activities, and science education senses the ability of the disabled to resolve their problems and give them the opportunity to socialize with their peers and enable them to learn basic skills. Learners must be trained in different learning methods to learn science, which in turn improves students' achievement. Learners can overcome their difficulties and become able to use the skills necessary to improve their learning. As a result, there is an increasing interest in how learners acquire these sciences in a functional way that helps them apply science in daily life, which keeps them from the idea that science is for examination only and not for scientific use. Despite this interest, science teaching still suffers from some shortcomings that make learners not actively involved in dialogues and discussions that enhance knowledge capacity especially those whom have visual impairment⁶. The idea of teaching students' geographic skills is not new. Teachers have long been interested in teaching these skills, in the eighties of the twentieth century is represented in many lists of skills and educational programs, and put several ideas on how to submit and taught to students directly through the subjects, the learner needs to be equipped with skills to be able to compete effectively in present time in which success and excellence are linked to the extent of capacity and good thinking⁷. Helps the blind and other people with disabilities who know how to use the computer and the screen reader to access plain text in electronic documents that are well composed of almost any format. Many common information is presented as

plain text, but charts and graphs are common in business, science and literature. The most professional and geographically oriented maps and data such as weather maps and complex census information will be impossible to provide with words until recently, it was not possible for the authors of the main literature to be presented in graphical information, Can be accessed directly by people with print disabilities. ViewPlus IVEO allows authors to easily create or convert graphical information into a form that can be used by all people, especially people with print disabilities, where this new global technology helps with two Recent developments from the emergence of the dominant graphics language and the introduction of scalable SVG technology can be illustrated by ViewPlus⁸. The idea of teaching students 'geographical skills is not new. It has been the focus of teachers' attention for a long time. The interest in teaching these skills began in the 1980s. It is a list of skills and educational programs. Many ideas on how to present and teach students directly through the subjects of study, the learner needs to be equipped with skills to be able to compete effectively in an age in which success is linked to excellence in the ability to think well and skill. The study of (Ridha Taha) at 2013, aimed to develop some academic skills for the blind using computer. The researcher used the experimental method for the same groups (experimental and control). The study sample consisted of (12) blind and blind in the first, second and third preparatory stages. The sample was divided into (6) experimental and (6) And the questionnaire to assess the importance of using the computer (prepared by the researcher), the statistical means used was (Wilcoxon test, Man – Whitney test, Person factor, Alfa – Qrownbach factor) which lead to the importance of computer in teaching.

METHODOLOGY

It includes an overview of the procedures that have been implemented to achieve the research objectives, from research methodology, experimental design and design, preparation of research requirements and tools, and presentation of the statistical means used. The nature of the research requires a method of experimentation. This means the method used by the researcher to adjust all variables that affect the phenomenon except the experimental variable (independent) to measure its effect on the phenomenon (variable dependent)

Search community and design:

The research community represents the fourth grade students at the Institute of the Blind in the Abbasid Temple. The research sample chose the institute in Karbala governorate in a deliberate manner to encourage it. After selecting the Institute of the Blind, the researcher found that the sample consisted of (48) students and students distributed to (24) students and (24) students, ranging between 9-11 years old, the researcher applied to test the skills of the Academy (science and geography) The test application found (9) students who received the lowest scores in the academic skills test (science and geography). The sample consisted of (9) students distributed in (5) males and (4) females and will be applied (ViewPlus IVEO) them..

Search tools:

A test was conducted to measure the academic skills of the students of the research sample and the tool numbers required the following steps:

A-Academic Skills Test(Science – Geography)

Preparation of paragraphs of the scale: Through the researcher acquainted with the literature related to the research variables and the test of academic skills, the researcher has formulated the paragraphs of the academic skills test where the test skills of the science of (five activities) and each activity group on the paragraphs and give the score on the paragraphs (1,0), Of (five activities) and each activity a set of paragraphs and give the score on the paragraphs (1,0).

Preparation of the instructions of the scale: The aim of the instructions to explain the idea of the test in the simplest picture to facilitate the process of application of the choice because the clear and understandable instructions contribute to raising the coefficients of the validity and consistency and objectivity of the test, and to rely on the test must be extracted the characteristics of cykometric: The validity of the measure: was confirmed by the truthfulness of the test and the validity of the construction. The results showed that the apparent honesty obtained the proportion of agreement (80%) by the arbitrators and specialists. As for the validity of the construction, the results showed that all the paragraphs of the scale are statistically significant. Therefore, the test is an honest measurement of academic skills (science and geography).

The survey application, includes:

1) Application of the first survey: The test of academic skills (science and geography) was applied in the first stage of the survey on a group of students in the fourth grade of primary non-research sample, and the number of students (30) students and students, to knowledge and clarity of the instructions and instructions of the test and the extent of understanding and clarity of the selection of students and the calculation of the time required for the test.

2) Second survey application: The choice was made on a sample consisting of (100) students and students in the primary grade without a research sample. The purpose is to analyze the statistically significant items.

Distinguish the paragraph: The important characteristics that must be provided in the test paragraphs are the distinguishing feature and the possibility of items or paragraphs in the detection of students who have the measured character and the students who do not have them. The value was between (0.24 – 0.64) so all test paragraphs are therefore well marked and appropriate.

Stability of the test: Estimation of stability is a good test characteristic, although honesty is more important than it is because the hard test is true and the test may not be correct because it may be homogeneous in the paragraphs but it may measure a different property. To ensure the stability of the test, stability was found in two ways The Effectiveness of False Alternatives and the Method of Coder – Reddichardson 20.

1-Method of the effectiveness of wrong alternatives: Is the process of judging the validity of the alternative by comparing the numbers of respondents from the upper and lower groups, and that the number of the lower category I choose is higher than the number of the upper category. The alternative is effective and acceptable when its value is negative and large. The effectiveness of the wrong alternatives was assessed for the test scores, All were selected by the lower group students rather than the upper group students and meant that the alternatives were effective and acceptable

2- Method of the Coder - Richardson 20: The aim of this method is to arrive at an estimated value for the parameters of the stability of the tests whose binary scores are either true or zero such as the right and wrong vocabulary. It confirms the relationships between

the words included in the test, ie the stability of the examiners' answers to the test paragraphs one by one, The stability coefficient (0.79)

Program prepared according to the device:

The sessions of the program were organized according to the IVEO PLUS system, where the sessions of the program consisted of (13) sessions, in which the researcher used a group of lessons (4) lessons in science and (4) lessons in geography, and this device consists of computer and touch panel where students help To learn through the use of the following senses (hearing, sight and touch). Where students click on the images on the board using the sense of touch, which leads to hearing information on the photographers and through the repetition and practice of this information helps students to save. Statistical means used The researcher used the Ka-square test (Ka²) to identify the statistical significance differences of the academic skills in the tribal and post-test. After the researcher selected the research sample and applied the two tests for the academic skills in the two subjects (science-geographic), the program was then applied to the selected sample. The two tests were applied to the sample before applying the program. After the sample was applied, (K²) to identify the differences between the tribal and post-test the results showed that the calculated value was (17,460), which is higher than the scale value of (7,815) at the level of statistical indication (0.05), indicating the differences between the grades of students before and after application of the program in favor of the post-test , Thus rejecting the null hypothesis and accepting the alternative hypothesis. In addition, the researcher used the equation (Mac - Gujian) in the extraction of the impact size of the effectiveness of the program between tribal and post – test.

CONCLUSION

The results of the current research indicate the effectiveness of the program used to improve the academic skills of visually impaired students. The results showed that the students who were exposed to the program had significantly improved their academic skills than before. The researcher attributed this improvement to the students' use of ViewPlus IVEO in the research, where he had the ability to improve their

skills in the subjects of (science - geographic), and this indicates that the program had a positive effect in improving the academic skills, which represents the increase of their response within the classroom What the teachers and teachers of the students referred to through the answer of students on the test after the completion of the application of the program, ie the post-test and these differences statistically indicate the effectiveness of the program in improving academic skills.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under Faculty of Basic Education, University Babylon, Hillah City, Iraq and all experiments were carried out in accordance with approved guidelines.

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Affects Different Cultures Media and Physical Factors for Growth *Pleurotus ostreatus* and *Pleurotus eryngii*

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ABSTRACT

This study was carried out to examine different cultures media for growth two species of fungi belonging to the genus oyster mushroom *Pleurotus* named *Pleurotus ostreatus* and *Pleurotus eryngii*. Cultures media used for this purpose were Potato Dextrose Agar (PDA), yeast Extract agar (YEA), Malt Extract Agar (MEA) and Sabouraud dextrose Agar in addition to study effect of physical factors as temperatures and pH on growth rate of fungal mycelium. The results shown that the cultures media PDA and Sabouraud revealed best growth rate for *Pleurotus ostreatus* and *Pleurotus eryngii* which recorded 5 cm/day and 4 cm/day respectively in compared with MEA media which not show any growth. The optimum pH for growth two species of fungi were 7 that showed highest growth rate of 5 cm/day while the optimum temperature for the development of these fungus were 25 °C and a fungal growth rate were 5 cm/day and 4 cm/day for *Pleurotus ostreatus* and *Pleurotus eryngii* respectively.

Keywords: *Pleurotus ostreatus*, *Pleurotus eryngii*.pH, Culture media

INTRODUCTION

Pleurotus is genus of most commonly edible mushrooms that contain 20 species belonging to the *pleurotus* species, The meaning of the word *pleurotus* interpreted by Christensen (1981) as the side ears because most of the species of *Pleurotus* species are similar to ears and linked in the center that grows and have legs of the trees by a side leg these characters consider the main features of this genus. *Pleurotus* species lives a throw because of its ability to analyze cellulosic and lactic material to produce a wide range of enzymes¹⁻³. *Pleurotus ostreatus* is a type of mushroom that can easily be identified. Naturally grows on wood in a group of relatively large-sized shelves with white gills around an unstable short neck it appears in early October and April and is characterized by a brown cover. *Pleurotus eryngii* belongs to oyster mushrooms family which considered the third common types of mushroom production in the world, and consider the best type of all *Pleurotus* species due to excellent consistency of cap,

stem, culinary qualities in addition to excellent texture, flavor attract consumers and longest shelf life when compared with the other types of oyster mushroom and because that *Pleurotus eryngii* was been cultivated commercially in different area such as Japan, China and Taiwan. The optimal conditions for its growth are 70% humidity at 25°C. The growth velocity is 0.52 centimeters per day and biological efficiency is 137%, with high efficiency in killing bacteria and nematodes. this fungus is characterized by a fungus from the rest of the species of oyster mushroom called the king of fungus as well as the large fleshy body of as compared to the rest of this species as the diameter of the hat 3-12 cm. They are initially convex and swollen as they progress in age to a repressive form in the advanced stages and have a leg length of 10 - 3 cm The spores are white and contain innate yarns clamp connection Fruiting bodies grow individually or in small groups, the pileus of *Pleurotus eryngii* are dirty yellow to reddish-brown or graybrown, paling and lamellae of it are white or grayish with 4-5 cm in wide while the weight of single fruit body is about 300-400 gm⁴⁻⁸. Recent studies have shown that during fungus fermentation the chemical substances are concentrated and these substances have a medical benefit that increases the immunity of the human body

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thus can resist many cancers.

MATERIALS AND METHOD

The samples of mushroom were obtained from center for prevention of organic plantations

Growth of *Pleurotus ostreatus*, *Pleurotus eryngii* on different media and temperatures

The isolates were transferred to different irrigated media such as PDA, malt agar, saparoid agar and yeast agar and incubated in different temperatures 20, 25, 30, 35, and 40°C. One hundred milliliter production media tacked in 250 ml flasks with triplicates. After hardens, pour the medium in the dishes were inoculated with 1cm disk of fungus colony grown on PDA for five day for each 20 ml production media in the dish, the dishes incubated at different temperature for 7 days

Growth of *Pleurotus ostreatus*, *Pleurotus eryngii* on different pH

The pH optimized for the best production media using fermentation media at pH values 5, 6,7,8,9, and using phosphate buffer for pH values (5,6,7and 8) while glycine buffer was used for pH values (9 and 10) to study the effect of pH. Each pH consist of one hundred milliliter of fermentation media in 250 ml flask with triplicates and the pH values were set by used 1N NaOH or 4 N HCl. After hardens, pour the medium in the dishes were inoculated with 1cm disk of fungus colony grown on PDA for five day for each 20 ml production media in the dish. the dishes incubated at 25°C for 7 days.

RESULTS AND DISCUSSION

The effect of temperature on the growth rate of the fungus under study:

The results of this study in agreement with results obtained by Amar (2017) who concluded the changes in temperature incubation leads to distinct differed in grow rate of *Pleurotus ostreatus* and *Pleurotus eryngii*. Also, in agreement with Barros *et al.*, (2006), where it is reported that the growth rate of fungus *Agaricus bisporus* shows a similar pattern in growth in culture medium with different temperatures where the grow rate decrease from 2.57-2.18 mm/ day to 1.4 mm/ day with increase temperature to 35C. Hoa and Wang (2014) observed that the optimum temperature for *Pleurotus ostreatus* and *Pleurotus cystidiosus* growth is 28C while Neelam

et al. (2013) found that the optimal temperature for the growth of the *Pleurotus florida* fungus was 25 C, which is similar to that of the current study. Siwulski *et al.*, (2011) found that the best temperature for the growth of the fungus *Mycogoneperniciosa* is 25 C followed by the temperature of 20 C and this growth decrease when the temperature reaches 15C.

The effect of pH values on the growth rate of the fungus under study:

It has been shown through this experiment that the fungus under study is very sensitive to the pH change of the medium in which they growth and formation of innate yarn are highly affected figures (4-9, to 4-10). Also, The results of the study of the effect of pH on the growth rate of *Pleurotus ostreatus* and *Pleurotus eryngii* on different medium show that both fungi are equally affected by the pH of the medium and in response to changes in pH on medium. The best pH number that can be used in *Pleurotus ostreatus* and *Pleurotus eryngii* is 7 and raising the pH to more than 7 leads to a decrease in the growth rate as shown in the figures (4-9, to 4-10). Also, the reduction of pH to less than 7 has little effect where the effect is less of raising the pH for *pleurotus eryngii*. This results of the study the optimal pH of fungi showed different results, Gabriel (2004) notes that the optimum pH for the growth of the fungal strains of the *Pleurotus* species is 6.5 and that the growth of the was completely stopped when the pH of down to 4 and increase the pH to up 6.5 may help to accelerate the formation of innate yarn but fruit bodies were distorted or abnormal. Zhanxi (2007) showed that the innate yarn of *Flammulina velutipes* had the highest growth rates at pH 6 and could grow over a pH range of 4-8.4 but at lower growth rates, while Kim *et al.* (2004) found that the pH 7 was appropriate pH for *agaricus bisporus* growth. Siwulski *et al.* (2011) noted that the optimum pH for *mycogoneperniciosa* fungal growth was 5.5 and for *Verticillium fungicola* 6.5 while Barros *et al.* (2006) concluded that the best pH of *Leuco paxillus giganteus* was 6 and the difference in growth rates as pH change usually attributed to the effect Hydrogen ions free to act as histopathological enzymes, enzyme activity, nutrient readiness in the medium and mechanism of cell transfer.

CONCLUSION

The results shown that the cultures media PDA and Sabouraud revealed best growth rate for *Pleurotus*

ostreatus and *Pleurotus eryngii* which recorded 5 cm/day and 4 cm/day respectively in compared with MEA media which not show any growth. The optimum pH for growth two species of fungi were 7 that showed highest growth rate of 5 cm / day while the optimum temperature for the development of these fungus were 25 C and a fungal growth rate were 5 cm/day and 4 cm/day for *Pleurotus ostreatus* and *Pleurotus eryngii* respectively.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Science for Women, Babylon University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Attitudes of Nursing and Medicine Undergraduates Students towards Mental Illness at Kirkuk University

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ABSTRACT

The Iraqi community attitudes towards mental disorder remains at undesirable level and health care providers attitudes towards mental illness are identical their community. It is important to know the attitudes of undergraduate medical students toward mental health and mental disorder as a care provider in the future. A cross-sectional descriptive study was carried out in Nursing and Medicine Colleges at Kirkuk University among students in the final year of study (senior students). A purposive sampling implemented to select 97 undergraduate nursing and medicine students. The Attitudes Towards Mental Disorder scale were adopted to measure student's attitudes. The data were entered and analysed by using Statistical Package for Social Sciences (SPSS) version 23. The results reveal that nursing had better attitudes towards mental disorder than medicine students and significant relationship between students gender and restrictiveness sub-scale of attitudes towards mental illness. Highly significant relationship between student's age and attitudes sub-scales of (separatism, stereotyping and totals of sub-scales) in addition to a significant relationship between student's age and restrictiveness sub-scale of attitudes. The correlation among sub-scales indicates that most of them had a positive association among each other bilaterally at the 0.01 level and at the 0.05 level.

Keyword: Nursing, Medicine, Students, Mental Illness, Kirkuk

INTRODUCTION

The people having mental disorders had significant levels of disability and this might due to deficit in awareness regarding the necessity of treatment, postponement in looking for treatment, insufficiency in availability of health services and a possible absence of alliance in the society because of stigma and discrimination¹. In spite of the growing evidence at the global level regarding the value and importance of mental health on social, economic and global capitalism aspects, patients with mental problem are stigmatized and in contour undesirable propaganda publicly². The previous studies emphasize on the presence of stigmatization about mental illness³. Health care providers had more negative attitudes towards mental disorders than the

public⁴. The people with mental illnesses affected directly or indirectly by the undergraduate medical students knowledge and the attitudes towards mental health as these individuals are going to be involved in the care of these patients either during education or during their careers⁵. The Iraqi community attitudes towards the causes of mental disorder remains at undesirable level. Therefore, there must be an urgent necessity to build on the existing level of attitudes among population through harmonized education and increasing accessibility of effective mental health services, provision and supervision mental health⁶. Nurses and physicians are considered as a base of care providers of health care in the community either in health institutions or in public. The international studies on students medical towards the mental illness indicate negative attitudes⁷. After more than four decades of investigations and research on the attitudes of medical students towards mental disorders, but only during last decade the aforementioned investigational works have become explained and clarified⁸. Rezler defined an attitudes as "a relatively

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enduring organization of emotionally linked learned beliefs around an object or a situation predisposing one to respond in some preferential manner”⁹. It is important to know the attitudes of undergraduate medical students towards the mental health and mental disorder as a care providers in the future¹⁰. Romem et al., (2008) and Smith & Cashwell, (2010) proposed that health care provider attitudes towards the mental illness are identical to their community. These attitudes can interfere with the provision of health care and be a barrier to recovery^{11,12}.

METHODOLOGY

A cross-sectional descriptive study was carried out from 10th January to 12th November 2018 among students in their final year of study in Nursing and Medicine College at Kirkuk University. The aim was to assess undergraduate nursing and medical students' attitudes toward mental illness in addition to finding out the relationship with variables underlining in the study. A purposive sampling was implemented. The criteria of selection were undergraduate students at either College of Nursing or College of Medicine in the last year of the study. For the purpose of the study, 120 printed questionnaires were distributed among students and only 97 questionnaires were answered and retrieved completely. A self-report questionnaire composed of two parts was used to measure the variables underlying in the study, The first part involved sociodemographic characteristic and the second part involved the Attitude Scale for Mental Illness (ASMI)¹³. These were adopted to measure the student's attitudes. The instrument was a valid and reliable Cronbach's Alpha $r = 0.86$. The data were entered and analysed by using Statistical Package for Social Sciences (SPSS) version 23 and the analysis included descriptive (frequency and percentage) and inferential procedures (*t* test ANOVA and Pearson correlation) P value < 0.05 were considered statistically significant.

RESULTS AND DISCUSSION

The above table shows the sociodemographic characteristics of the sample. 74.2% of the students were female while 41.2% was at age of 23 years with Mean/S.D. $23.29 / \pm 1.82$. Concerning the economic status, 75.3% of the sample was in a sufficient economic status. Additionally, 84.5% of students were urban residence. By using independent t-test for comparing between means, Table 2 shows a highly significant relationship

between the students' college and attitude's sub-scales of (separatism, stereotyping, restrictiveness and totals of sub-scales). Further, the above table shows a significant relationship between the student's college and sub-scales of (pessimistic prediction and stigmatization). In Table 3, independent t-test was used for comparing between means. The finding shows a significant relationship between student's restrictiveness and benevolence attitudes sub-scale with their gender.

The statistical test Analysis of Variance (ANOVA) is used to compare between means. Statistical results shows a highly significant relationship between the students' age and attitudes at sub-scales (separatism, stereotyping and totals of sub-scales). Also, the table shows a significant relationship between the student's age and sub-scale of restrictiveness. Regarding the second and third variable, there is non-significant relationship between student's economic status and residence.

Table 7 shows the presence of significant correlation between most of the sub-scales bilaterally at the $p > 0.05$ level and at the $p > 0.01$ level. The findings of this study show that the total of sub-scales of the nursing students had a higher positive attitude towards the mental illness than medicine students. The finding agrees with the studies by Poreddi et al., (2017) Sharma et al., (2017) Chang et al., (2017)^{14,16} concerning to the total of sub-scales. Poreddi et al., (2017)¹⁴ also agrees with findings of present study regarding the separatism, pessimistic prediction and stigmatization sub-scales. On the other hand, the finding does not agree with the benevolence sub-scales. The finding of the current study shows non-significant statistical differences between students' attitudes and benevolence sub-scales. However, a previous study by Poreddi et al., (2017), found significant statistical differences, and were more positive for medical students than nursing¹⁴. This similarity and differences may be due to the total percentage of training regarding mental disorders during undergraduate studying for medicine student was only 3% while 5% of the total curricula for undergraduate nurses¹. This may be also due to the subject who had experience in dealing with the specific type of mental disease that had positive attitudes¹⁷. Another cause may be psychiatry curriculum of Medicine College does not change the students' attitudes towards clients with mental illness¹⁸. Generally, Table 3 indicated that female students had a slightly positive attitude than male students although there is non-significance relationship between students'

gender and overall attitudes towards mental illness. The findings of the current study agree with the results of both studies conducted among nursing students in India¹⁵ and Singapore¹⁵ which indicated non-significant relationship between students gender with attitudes towards mental illness. Regarding the relationship between the students gender and attitudes towards mental illness sub-scales, the result indicated a significance relationship between gender with restrictiveness and benevolence sub-scales, and this finding goes with the study carried out in Sweden that demonstrated that female students had a higher positive restrictiveness than male¹⁹. Poreddi et al., (2017) found in their study a significant relationship between students attitudes towards mental illness and their gender regarding restrictiveness sub-scale and highly significant regarding benevolence sub-scale. Contrarily non-significance relationship with other sub-scales¹⁴. This may due to that most of the present female participant had not experience in dealing with the psychiatric patients because of the absence of a psychiatric hospital in the Kirkuk city. Concerning table 4, advancing in age is positive and showed a highly significant relationship between students attitudes sub-scales of (separatism, stereotyping and totals of sub-scales) and significant restrictiveness sub-scale. Hussein, (2013) carried out a study entitled Nurses' "Attitudes towards mental illness in Dhiqar, Iraq" showing that age had a positive effect on staff attitudes towards stigma of mental illness²⁰. Concerning the total of the attitudes, the

current study goes with the study conducted in Sweden finding indicated non-significant relationship between age and attitudes toward mental illness¹⁹. The current study is incongruent with the result of Poreddi, et al., (2017) that found that the age had a significant effect on students related sub-scales' restrictiveness, benevolence, and pessimistic prediction⁽¹⁴⁾. This positive results with aging are good indicators for students to become more open minded in dealing with mentally ill clients. Regarding the second and third variables, there is a non-significant relationship between student's economic status and residence with sub-scales or total of sub-scales. Subsequently, the outcome of the current study explored that students' attitudes had a non-significant relationship with economic status and place of residency, it is congruent with Sharma et al., (2018)¹⁵. The findings of the present study go in line with the results of Poreddi et al., (2017) with all sub-scales except they found rural resident students had less pessimistic predictions than students from urban¹⁴. This may be due to that most students have enough economic status and only 2 students had insufficient and only 7 nursing students from rural area. Finally, Table 5 assesses the strength and direction of association between the students attitude sub-scales indicating that most of the sub-scales had a positive association with each other. The present finding is congruent with the results of Happell and Gough, (2014)²¹.

Table 1. Sociodemographic characteristics according to the college.

	Variable	College				Total	%
		Nursing		Medicine			
		<i>f</i>	%	<i>f</i>	%		
Gender	Male	11	11.3	14	14.4	25	25.8
	Female	44	45.4	28	28.9	72	74.2
	Total	55	56.7	42	43.3	97	100
Age	22 yrs.	24	24.7	4	4.1	28	28.9
	23 yrs.	15	15.5	25	25.8	40	41.2
	24 yrs.	8	8.2	10	10.3	18	18.6
	25 yrs.	4	4.1	3	3.1	7	7.2
	>25 yrs.	4	4.1	0	0	4	4.1
	Total	55	56.7	42	43.3	97	100
	Mean/ S.D.				23.29/ ± 1.82		

Cont... Table 1. Sociodemographic characteristics according to the college.

Economic status	Insufficient	1	1.0	1	1.0	2	2.0
	Barely Sufficient	19	19.6	3	3.1	22	22.7
	Sufficient	35	36.1	38	39.2	73	75.3
	Total	55	56.7	42	43.3	97	100
Residence	Urban	41	42.3	41	42.3	82	84.5
	Suburban	7	7.2	1	1.0	8	8.2
	Rural	7	7.2	0	0.0	7	7.2
	Total	55	56.7	42	43.3	97	100

Table 2. Relation between Students' Attitudes and college of studying.

Variable Attitude	College	Mean	Standard Deviation	t test	p Value	CS
Separatism	Nursing	3.09	.525	5.30	.000	HS
	Medicine	2.55	.479			
Stereotyping	Nursing	3.12	.757	3.962	.000	HS
	Medicine	2.55	.654			
Restrictiveness	Nursing	3.09	.776	3.96	.000	HS
	Medicine	2.69	.621			
Benevolence	Nursing	3.76	.400	1.921	.058	NS
	Medicine	3.57	.546			
Pessimistic prediction	Nursing	3.34	.702	2.269	.025	S
	Medicine	3.00	.749			
Stigmatization	Nursing	2.45	.875	2.259	.026	S
	Medicine	2.09	.592			
Total	Nursing	3.20	.365	5.62	.000	HS
	Medicine	2.80	.333			

Table 3. Relation between Students' Attitudes and their Gender.

Variable Attitude	Gender	Mean	Standard Deviation	t test	p Value	CS
Separatism	Male	2.82	.631	-.387	.701	NS
	Female	2.87	.553			
Stereotyping	Male	2.93	.755	.410	.684	NS
	Female	2.85	.773			
Restrictiveness	Male	2.64	.599	-2.498	.016	S
	Female	3.01	.759			
Benevolence	Male	3.49	.530	-2.117	.041	S
	Female	3.74	.442			
Pessimistic prediction	Male	3.08	.850	-.845	.404	NS
	Female	3.23	.698			
Stigmatization	Male	2.19	.801	-.776	.442	NS
	Female	2.33	.778			
Total Attitude	Male	2.92	.404	-1.56	.126	NS
	Female	3.07	.398			

Table 4. Relation between Students' Attitudes and Age, Economic Status and Residence.

Attitudes	Separatism		Stereotyping		Restrictiveness		Benevolence		Pessimistic prediction		Stigmatization	
	F	p Value	F	p Value	F	p Value	F	p Value	F	p Value	F	p Value
Age	4.503	.002**	4.373	.003**	3.284	.015*	1.575	.187	1.386	.245	1.788	.138
Economic Status.	.079	.924	1.128	.328	.424	.655	.385	.681	2.213	.115	.571	.567
Residence	.745	.477	.544	.582	.161	.851	.581	.562	1.567	.214	.088	.916

Table 5. Spearman Correlation (r) Matrix for Association between Students Attitude sub-scale

		Separatism	Stereotyping	Restrictiveness	Benevolence	Pessimistic prediction	Separatism
Separatism	Pearson Correlation	1					
	Sig. (2-tailed)						
Stereotyping	Pearson Correlation	.379**	1				
	Sig. (2-tailed)	.000					
Restrictiveness	Pearson Correlation	.471**	.388**	1			
	Sig. (2-tailed)	.000	.000				
Benevolence	Pearson Correlation	.143	.156	.121	1		
	Sig. (2-tailed)	.162	.126	.238			
Pessimistic prediction	Pearson Correlation	.331**	.085	.238*	.330**	1	
	Sig. (2-tailed)	.001	.407	.019	.001		
Stigmatization	Pearson Correlation	.263**	.270**	.314**	.139	.382**	1
	Sig. (2-tailed)	.009	.007	.002	.173	.000	

CONCLUSION

Nursing students had a higher positive attitude towards mental disorder than medicine. Female students had a higher mean of attitude regarding restrictiveness and benevolence sub-scales of attitudes towards mental

illness. Highly significant relationship between students' age and students attitudes sub-scales of (separatism, stereotyping and totals of sub-scales) as well as the significant relationship between student's age with sub-scale of restrictiveness. Furthermore, most of the sub-scales had a positive association with each other.

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Conflict of Interest: None to declare.

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Effectiveness of an Education Program on Dietary Regimen of Patients with Myocardial Infarction in Al Nasiriyah Hospitals

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ABSTRACT

Cardiovascular disease remains the leading cause of morbidity and mortality worldwide, and there is a rising global burden. A quasi experimental study design is carried out at AL-Hussein Teaching Hospital and An Nasiriyah Heart Center in AL-Nasiriyah City, from February, 2018 through, November, 2018. A non-probability (Purposive sample) of (100) patients diagnosed with myocardial infarction divided into two group (50) patients as control group and (50) patients as study group. The data were collected through the use of questionnaire designed by researcher, which comprised of (2) parts: Part I: related to the Socio-demographic characteristics and Part II: Assessment of compliance toward dietary, by direct interview technique with the patients. Reliability of the questionnaire is determined through a pilot study and the validity through a panel of experts. The descriptive and inferential statistical procedures were used for analysis of data. Findings of the present study indicated that the education program recorded positive and meaningful results in improving patients' compliance with dietary regimen. The results also showed that there was a non-significant relationship between socio-demographic characteristics variables and patient's compliance with dietary regimen for study in pretest stage and posttest of study group by P value < 0.05.

KEYWORDS: *Effectiveness, Education Program, Patients Compliance, Dietary Regimen.*

INTRODUCTION

Cardiovascular disease (CVD) is now one of most dominant reason of death in the world. In the nineteenth century, malnutrition and infectious diseases were the causes of greatest deaths and morbidities. Today, CVD accounts for approximately 30% of totally deaths in over 35 years old. According to statistical data at 2008 of mortality, more than 2200 Americans die of CVD every day ¹. Cardiovascular disease is the primary reason of death in various developed countries. In 2000, CVD is accountable for more than 1.9 million of death in the European Union, 4.35 million deaths in Europe, responsible for 43% of all deaths in male and 55% of all deaths in female. Cardiovascular disease is developing and has become the leading reason of death in developing countries ². Furthermore numerous risk factors have

been linked to the development of CVD including; poor dietary habits, overweight and obesity, hypertension, insulin resistance or diabetes mellitus, alcohol consumption, smoking, poor physical activity levels, and dyslipidemia. Many of these risk factors are related and reversible through a healthy diet and increased physical activity. Given that childhood obesity increases the risk of becoming obese in adulthood, and that obesity at any age is associated with numerous co-morbidities such as, type 2 diabetes, CVD risk, hypertension, asthma, depression, certain cancers, and sleep apnea, reversing current trends in obesity prevalence which seems vital ³. Studies have established the benefits of therapies, such as diet modification programs, at reducing cholesterol in secondary prevention of myocardial infraction⁴. Diet modification programs are an integral part of any rehabilitation program. It increases physical functioning, cardiac functioning, and psychosocial well-being ⁶.

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MATERIAL AND METHOD

A quantitative research approach has been used for this study. The quasi-experimental design (two-

dimensional demonstration of two-group pre-test-post-test design) conducted on patients with myocardial infarction towards education program with application of pre-post- test approach for the study group and control group in assessing their knowledge and the application of education program for the study group. It carried out in order to achieve the initial stated objectives. The study was started from December, 2017 through, February, 2019, mission to carry out the study. A non-probability (purposive) sample of (100) patients was selected. All the patients diagnosed with myocardial infarction and they had a medical records and they review cardiac outpatient clinics of the following hospitals: AL Hussein Teaching Hospital, An Nasiriyah Heart Center. The sample was divided into two groups each one contained (50) patients as control group and study group. The study group was exposed to an education program about knowledge and compliance toward lifestyle modification, while the control group was not exposed to such education program. To accomplish the study, the researcher constructed the questionnaire based on the review of previous related literature and related studies. The study instrument comprised of (2) parts: Part I: It consists of (9) items, related to the Socio-demographic characteristics of these patients which include age, gender, occupational status, level of education, marital status, monthly income, residential area, chronic diseases and family history. Part II: Assessment of compliance toward dietary regimen. This measured through (6) items of food style that include: vegetables (1 item), fruit (1 item), high-fiber cereals (1 item), red meat (1 item) such as (beef, lamb), white meat (1 item) such as (fish meat, chicken meat) and dairy (1 item) such as (milk, cream, and butter). All these items were rated and scored by six level types option scale as (take < 1 time / week) (0), once a week (1), 2-3 time per week (2), 4-6 time per week (3), ones a day(4), twice or more time a day(5), except the red meat and dairy was rated and scored as (take < 1 time / week) (5), ones a week (4), 2-3 time per week (3), 4-6 time per week (2), once a day(1), twice time or more a day(0). The high score of food style domain obtained, it means higher modification by patients, for each patient took about (30 - 45) minutes. Validity of the program and the study instruments are determined by the panel of (26) experts, who had more than five years' experience in their fields in order to achieve study objectives. Reliability of the questionnaire was determined through the use of test and re-test approach on (10) patients. The educational program was carried out in the continuous

nursing education hall of first floor in AL- Hussein Teaching Hospital and continuous medical education hall of second floor at AL-Nasiriyah Heart Center for the period from 28th March, 2018 to 25th September, 2018. The educational program was given in four sessions (50-60 minutes each) given in four weeks. One session in a week for the purpose of decreasing the cost of time and transportation. Three months after the completion of the educational program, patients were reassessed using the same study tools. Evaluation were conducted either in the outpatient clinics or in patients' homes according to patient' preference. Data were analyzed through the use of SPSS application version 0.22. Descriptive data analysis including Frequency, Percentage, Mean of score (M.S) with their Standard Deviation (S.D). Percentile Grand Mean of Score (PGMS), Percentile Global Mean of Score (PGLMS), and Relative Sufficiency (RS %). Inferential data analysis includes Pearson Correlation Coefficient, Mann-Whitney test, Wilcoxon Sign Rank test, McNemar test, Analysis of Covariance (ANCOVA).

RESULTS

Respect to subjects of studied (SDCv.), results shows that studied groups recorded no significant differences at $P > 0.05$, and that is reflecting validity of the selected subjects due to their similarity status in light of that variables, as well as preceding results indicating that two studied groups are thrown from the same population in light of (SDCv.), and that are more reliable for this study, since any meaningful deviation between studied groups should be interpreted due to effectiveness of applying the suggested program. The downward arrow direction indicates that the control group is progressing on the experiment group before applying the program. For summarizes preceding results it could be conclude that educational program in charge of style food, with education needs toward life-style modification recorded positive and meaningful effects for helpful of patients with myocardial infarction. Results shows that weak relationships are proved with (SDCv.), since no significant relationships were accounted at $P > 0.05$, and according to that it could be concludes that studied questionnaire of patient's compliance toward dietary regimen improvements through applying the suggested of an educational program for compliance toward dietary regimen of patients with myocardial infarction could be generalize on the studied population even though differences within their socio-demographical characteristics variables of studied subjects. Through

the data analysis of socio-demographic characteristics variables as shown in table (1) indicated that, the studied groups recorded no significant differences at $P > 0.05$, and that is reflecting validity of the selected subjects due to their similarity status in light of that variables. This result supported by a study carried out at (2014) showed that the demographic characteristics of the patients were matched for age, sex and family income. There was no significant difference between any of the demographic characteristics of patients in the control and teaching groups⁷. The findings of the present study reported that the MI patients' age is the range between (less than 45 years to 65 years and more) and the high percentage of their age is (60 years and more). These results were expected because age is considered as one of the major risk factors of myocardial infarction, Over 83 percent of people who die of coronary heart disease are 60 or older. Men have a greater risk of heart attack than women, and they have attacks earlier in life. Even after menopause, when women's death rate from heart disease increases, it's not as great as men⁸. The researcher believes that the reasons of this result are aging and prevalence of diabetes mellitus type 2 as well as chronic poor controlled

hypertension among these age group. Relative to gender our results indicated that Most of the sample are male. In comparing with other studies, a study conducted at Pakistan results of the study showed that the majority of patients were males⁹. Concerning to the occupation status, the results indicated that a highest percentage of the sample were employee. Supportive evidence for these findings have been found in a study conducted on 52 MI patients at Manchester University Hospital, and found that, one quarter of respondents were working as blue-collar workers, less than half were white-collar workers and less than one third of respondents were retired. This means that, stressful working life of white collar workers might be a disposing factor for MI¹¹. Regarding to monthly income, the majority of the study sample are within barely sufficient. This findings supported with a study conducted on MI patients in Iran University and found that the majority had average economic status¹². Relative to residency, the highest percentage of the study participants are living in rural area. This result agreed with a study carried out at 2011 that concluded that the highest percentage of the study sample is living in urban area which compromised (52.3%) of the entire sample¹³.

Table 1. Distribution of the studied groups according to (SDCv.) with comparisons significant

SDCv.	Classes	Control		Study		C.S. (*) P-value
		No.	%	No.	%	
Age Groups	< 45	7	14	3	6	C.C.=0.236 P=0.314 (NS)
	45 – 49	2	4	5	10	
	50 – 54	11	22	6	12	
	55 – 59	9	18	13	26	
	60 – 64	11	22	15	30	
	≥ 65	10	20	8	16	
	Total	50	100	50	100	
Gender	Male	32	64	34	68	C.C.=0.042 P=0.673 (NS)
	Female	18	36	16	32	
	Total	50	100	50	100	
Level of Education	Read & write	25	50	20	40	C.C.=0.136 P=0.865 (NS)
	Primary	11	22	13	26	
	Intermediate	4	8	7	14	
	Secondary	3	6	4	8	
	High Institute	3	6	2	4	
	Post graduate	4	8	4	8	
	Total	50	100	50	100	

Cont... Table 1. Distribution of the studied groups according to (SDCv.) with comparisons significant

Marital status	Married	42	84	42	84	C.C.=0.103 P=0.783 (NS)
	Divorced	1	2	1	2	
	Widowed	7	14	6	12	
	Separated	0	0	1	2	
	Total	50	100	50	100	

Table 2. Distribution of the studied groups according to (Style Food) with comparisons significant.

The Domain	Groups	Control				C.S.	Study				C.S. (*)	C.S. (*)	
Style Food	Response	Pre		Post			Pre		Post		Pre X Pre (C X S)	Post X Post (C X S)	
Vegetables	Less < 1 week	3	6	0	0	P=0.726 NS	1	2	0	0	P=0.000 HS	P=0.071 NS	P=0.000 HS
	Onetime Week	0	0	2	4		0	0	0	0			
	2 - 3Times weeks	8	16	9	18		9	18	4	8			
	4 - 6Times weeks	35	70	38	76		27	54	5	10			
	Once a day	1	2	0	0		9	18	15	30			
	2 or more per day	3	6	1	2		4	8	26	52			
Fruit	Less < 1 week	1	2			P=0.320 NS	3	6	1	2	P=0.000 HS	P=0.532 NS	P=0.000 HS
	Onetime Week	4	8	3	6		3	6	2	4			
	2 - 3Times weeks	18	36	17	34		21	42	10	20			
	4 - 6Times weeks	26	52	30	60		20	40	16	32			
	Once a day	1	2	0	0		3	6	21	42			
	2 or more per day	0	0	0	0		0	0	0	0			
High-fiber cereals (bread, wheat, oatmeal)	Less < 1 week	0	0	0	0	P=0.003 HS	0	0	0	0	P=0.020 S	P=0.001 HS	
	Onetime Week	0	0	0	0		3	6	8	16			
	2 - 3Times weeks	0	0	0	0		0	0	0	0			
	4 - 6Times weeks	15	30	21	42		17	34	22	44			
	Once a day	0	0	0	0		5	10	5	10			
	2 or more per day	35	70	29	58		25	50	15	30			
White meat such as (fish meat, chicken meat)	Less < 1 week	0	0	0	0	P=0.733 NS	0	0	0	0	P=0.002 HS	P=0.588 NS	P=0.0090 HS
	Onetime Week	6	12	0	0		8	16	5	10			
	2 - 3Times weeks	22	44	29	58		15	30	35	70			
	4 - 6Times weeks	20	40	21	42		23	46	8	16			
	Once a day	1	2	0	0		3	6	1	2			
	2 or more per day	1	2	0	0		1	2	1	2			

Table 3. Relationships (Analysis of Covariance) concerning Compliance Regarding to Life Style Modification in the study group and SDCv.

Groups	Source	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S. (*)
Study	Intercept	15456.0	1	15456.03	264.4	0.000	HS
	Gender	17.8820	1	17.882	0.306	0.585	NS
	Age Group	85.7	5	17.14	0.293	0.913	NS
	Education Levels	57.6	5	11.52	0.197	0.961	NS
	Marital Status	113.5	3	37.83	0.647	0.591	NS
	Occupation	22.1	4	5.534	0.095	0.983	NS
	Monthly Income	107.8	2	53.92	0.922	0.409	NS
	Residency	32	1	32.121	0.550	0.465	NS
	Error	1636.6	28	58.45	R-Squared = 0.189		
	Total	217732.1	50				

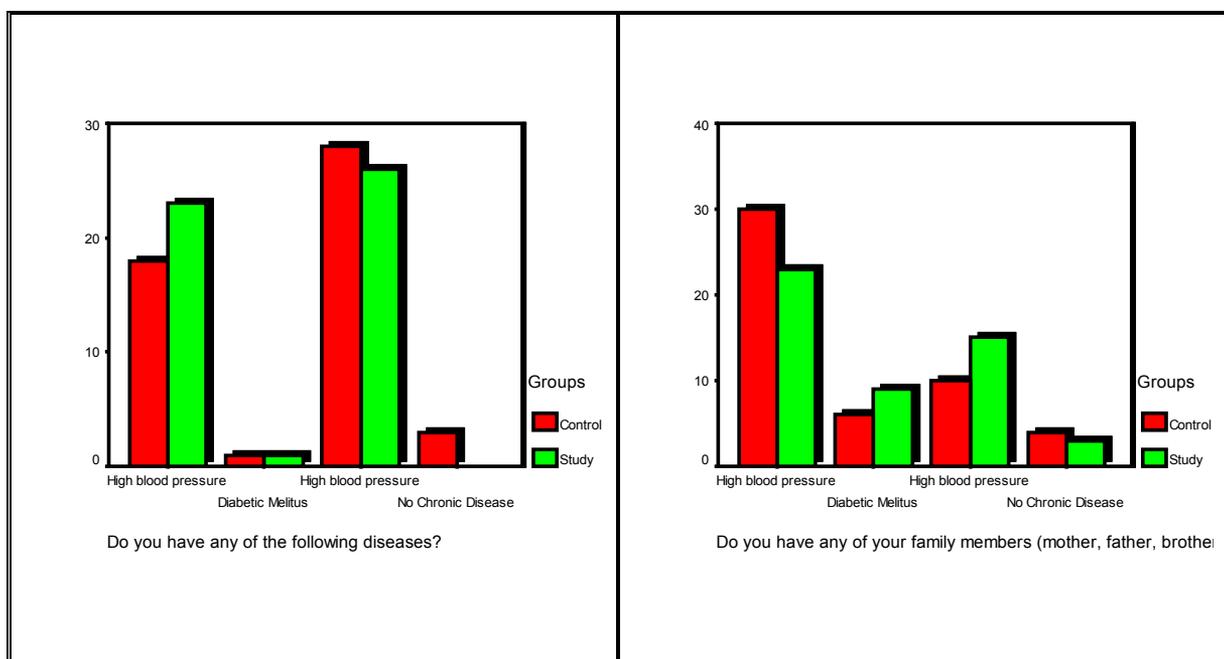


Figure 1. Cluster Bar Charts distribution of studied Chronic Diseases Parameters in the studied groups.

CONCLUSIONS

Most of the study sample were presented with lack of knowledge regarding dietary regimen. Compliance of the patients regarding dietary regimen has been improved after the implementation of the educational program in the study group as presented in the post test results. Statistically significant differences regarding compliance about dietary regimen for patients with myocardial infarction were found between study group and control group after implementation of the educational program. There is a non-significant relationship between socio-

demographic characteristics variables and patient’s compliance with dietary regimen for study in pretest stage and posttest of study group by P value < 0.05.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Adult Nursing Department, College of Nursing / University of Thiqr / Iraq and all experiments were carried out in accordance with

approved guidelines.

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Emotional Stability among Applied Scientific Fifth Grad Students and its Relationship to Self-esteem

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ABSTRACT

In the fields of psychological, educational and social sciences researchers are interested in obtaining accurate information on human personality. In order to obtain such data or information, a number of psychological tools were used, such as tests, scales, observation lists, and self-esteem lists. The research sample was taken from applied scientific fifth-grade students in the middle and high school in Baghdad governorate - Karkh first. Self-esteem and emotional stability level among students were documented. The results showed that applied scientific fifth-grade students have a high level of both self-esteem and emotional stability. Pearson correlation coefficient was used to find the relationship between self-esteem and emotional stability, and it was found that there is a positive relationship between them. The more increased emotional stability, the greater the self-esteem became. And it was recommended that it must be Highlighting the importance of emotional stability and self-esteem as an important axis of the main axes in the personality, and what it has a role in the personality of the student through psychological courses, as well as designing a guiding program to raise the level of emotional stability and self-esteem among high school students.

Keywords: Emotional stability, Self-Esteem, Likert method, Cronbach's Alpha, Test-Re-test.

INTRODUCTION

Emotional stability is the ability of the individual to control his emotions and not to excessive emotional irritation or not to move behind the impact of external events in transit and emergency so as to be subject to rapid volatility from one case to another, oncoming to the self and social adjustment without the cost of a great psychological effort (Younis, 2004: 495). Individuals with high emotional stability are characterized by being relaxed, tolerant, calm, unscrupulous, satisfied, flexible, stable, hard-working, difficulty undergoing with depression, and stress bearing (Cook, 2005: 16). (FU, 2004: 38) studied a group of the most important features that characterize individuals with emotional stability as follows, freedom from childish tendencies and attitudes, such as selfishness, jealousy, fear of responsibility, ability to control emotions, distance from recklessness and impulsivity, emotional sobriety, in the sense that

the emotional life of the individual is staid and does not fluctuate or fickle for trivial reasons between pleasure and constriction. Expressing his emotions in a stable way away from primitive childish expressions, non-volatile, and not overly sensitive. Self-esteem is an important dimension of personality but is seen by some as the most important and influential in behavior. Patho (2005) asserts that people who have a positive self-esteem are often happier, healthier, and more productive than the individuals with low self-esteem, they assert that positive self-esteem is more important than school results (Patho, 2005: 10). The researcher believes that self-esteem is a reflection of a perception or direction that expresses an individual's awareness of himself and his ability to do all his actions and behaviors. This perception is based on the needs of the individual, especially the need for independence, freedom, acceptance, and success. Self-esteem is the self-confidence and satisfaction and the respect of individual for himself and for his achievements and pride in his opinion and himself and acceptance of it, and the conviction of the individual that he has the capacity to make it a vow to others, and self-esteem gives mental equipment prepares the person

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to respond in accordance with expectations of success and acceptance and personal strength, it is, therefore, a person's judgment towards himself and this judgment and appreciation may be approved or rejected. Self-esteem is an essential feature of an individual's personality. It affects our behavior, our feelings, our adaptive abilities, and the need for positive self-esteem appear among the vital needs of the individual, and any deficiency in this need results in many psychological problems. This dimension should be taken into consideration when dealing with others because of its importance in enabling the individual to live in harmony with himself and with others (**Baucisteret et al., 2003: 58**) (**Duclos, 2004: 34**). In any case, the concept of self-esteem is an important element in predicting success and the ability to solve problems and accomplish different tasks. Good self-perception is also critical to achieving students' potential (**Wyne & Skjei, 1970, 829-835**). The current research aims to identify the relationship between the emotional stability and self-esteem among applied science fifth-grade students?

Research Hypothesis:

There is no statistically significant difference ($H_1 = H_0$) between the theoretical and arithmetical mean of the scores of applied scientific fifth graders in the emotional stability sample.

There is no statistically significant difference ($H_1 = H_0$) between the theoretical and arithmetical mean of the scores of applied scientific fifth graders in the self-esteem scale.

Is there a correlation relationship between the emotional stability and self-esteem among applied scientific fifth-grade students?

Research Limitation:

This research determined by:

Applied scientific fifth-grade students in the middle and high school in Baghdad governorate - Karkh first.

The academic year (2019 -2020) first semester.

METHODOLOGY

The procedural definition of self-esteem: It is the emotional evaluation of the person for all the mental and physical characteristics of the personality and individual ability to performance and is considered a

personal judgment of the individual on its own value while the interaction of the individual with others, this is expressed through the individual's attitudes towards his actions, beliefs and feelings, as he is aware now at the present moment, and is measured by the overall degree obtained by the respondent through his answer to the paragraphs of the self-assessment scale adopted in the current research. In line with the objectives of the current study, the descriptive approach was used; specifically, the associative approach, because it is appropriate for the study of associative relations, the procedure of the study was described as follows:

Research Population

The population of the study consists of applied scientific fifth-grade students in the city of Baghdad / Karkh first for the academic year (2019-2020), reaching (548) students / Directorate of Education Karkh first.

Research Sample

The sample consisted of (400) students from the morning study, in the manner in which the sample is chosen randomly so that the selection element is the group or the class and not the individual.

Research tools:

First: emotional stability scale: -

Formulation of the emotional stability scale paragraphs:

The researcher formulated the paragraphs in the light of the definition of emotional stability in (40) paragraph and adopted a five-track to answer the paragraphs starting from (very agree, agree, no opinion, disagree, very disagree) and the marking from (1-5).

Validity of paragraphs:

The scale is presented in the initial form with instructions to a group of arbitrators who are competent to ascertain the apparent honesty and are reached by the consensus of the arbitrators' assessment of the degree of scale measurement for the mark of the attribute, and accordingly, the paragraphs have been retained.

Survey Experiment:

The measure of emotional stability was applied to a random sample of (40) students. It was shown through

the application that the instructions are understood and the paragraphs are clear and the response time for the scales is between 30 - 20 minutes, ie 25 minutes.

Scale Marking:

The Likert method was adopted by placing a five-track in front of each paragraph (totally agree, agree, no opinion, disagree, totally disagreeable). The respondent will place the reference (✓) in front of the appropriate alternative and represent the answer to the paragraph and the marking from (5-1) to the positive response and the negative response.

Statistical analysis of paragraphs:

First: Distinction strength of paragraphs:

The scale of emotional stability was applied in its initial form to randomly selected (400) students, in order to conduct the analysis in this manner, 27% of the highest and lowest forms were selected in which each of them consisted of (108) form, thus, the number of analyzed forms were (216) form and then the (T-Test) was applied, all paragraphs were distinguished at the level of significance (0,05) and the degree of freedom (214).

Second: the relation of the paragraph to the overall degree of the scale and the field to which it belongs: Using the T value to denote the correlation coefficient. It was found that all correlation coefficients were statistically significant at level (0.05) and degree of freedom (398).

Psychometric Characteristics of emotional stability scale:

Validity:

Apparent Validity:

The paragraphs of this scale were presented to a group of experts in the field of education and psychology to express their views on the validity of the paragraphs, according to what they see fit with the deletion, addition and suggested modification, the alternatives were put before each paragraph: (valid, invalid, suggested modification).

Construction Validity:

The Point-By-Serial correlation coefficient was used to calculate the correlation coefficient of the paragraph

score at the total level, as it became clear that all the paragraphs of the scale were valid.

Reliability: The reliability of the scale was found in two ways:

Test-Re-test:

The researcher applied the scale to a sample of (60) randomly selected students and after (14) days the application was re-applied to the same sample, the coefficient of correlation (Pearson) was 0.81.

Method of internal consistency:

The scale was applied to a sample of (60) students and by applying the equation (Cronbach's Alpha) to the internal consistency with a stability coefficient of this method (0.84).

Second: Self-Esteem Scale:

For the purpose of constructing the self-assessment scale, the necessary steps were taken to construct the emotional stability scale. The paragraphs number of the self-assessment scale were (70), then the preliminary picture of the tool was presented to (12) arbitrators to express their opinions. The paragraph that approved by more than (80%) of the experts was accepted, accordingly, (61) paragraphs were retained, and then it was applied to (40) randomly selected students. It was found that all the paragraphs were understood in terms of meaning and formulation, and the average response time on the scale was 30 minutes.

Statistical analysis of paragraphs:

Distinction strength (the two terminal groups mod): The self-esteem scale was initially applied to (400) randomly selected students, and the discriminative strength of the paragraphs was calculated using Pearson to measure the ability to distinguish paragraphs. All the paragraphs were found to be statistically significant.

Psychometric Characteristics of self-esteem scale:

Validity:

Apparent Validity:

The paragraphs of the scale were presented to a committee of arbitrators (the same experts on the emotional stability scale) to judge their validity in

measuring the attribute or variable to be measured, and it takes a percentage of agreement (82%).

Construction Validity:

internal consistency:

The method of correlation of the paragraph degree to the field degree, and it turns out that all of them are statistically significant at the level of (0.05).

Reliability:

Test-Re-test:

The stability coefficient of the self-esteem scale was calculated which was (0.87) ie, it has a high degree of stability.

Internal consistency method (Cronbach’s Alpha):

By applying the Cronbach’s Alpha equation for internal consistency, the coefficient of stability of the self-esteem scale was (0.83).

RESULTS AND DISCUSION

First objective: To identify the emotional stability among applied scientific fifth-grade students. It was found that the mean of the individuals in the research sample is higher than the mean of the emotional stability for the applied scientific fifth-grade students, as shown in Table (1). The results showed that applied scientific fifth-grade students have emotional stability.

Second objective: To identify the self-esteem of the applied scientific fifth-grade students. The mean number of research sample individuals was higher than

the hypothesis mean of self-esteem among students in the applied scientific fifth grade. As illustrated in Table (2). The results indicated that students in the applied scientific fifth grade have self-esteem.

Third objective: is the relationship between the emotional stability and self-esteem among applied scientific fifth-grade students. The results showed a positive relationship between emotional stability and self-esteem. The more increased emotional stability, the greater the self-esteem became. For the purpose of knowing this relationship, the Pearson correlation coefficient was used. The calculated T value was (8,246), and the tabular value was (1.96), as shown in Table (3). The increase in the degree of emotional stability gives the student a degree of control of his actions, strength, and wisdom in dealing with others, and the feeling that self-esteem is a necessary positive need and it is the fundamental need for acceptance, respect, compassion, warmth and love. That the feelings of competence and consideration come from other people, and that self-esteem grows through positive attitudes from others. The extent of the positive relationship between emotional stability and self-esteem means that emotional stability helps greatly to perform mental functions with a system of complete harmony, which helps to self-control from whims, impulsiveness, and recklessness. And that the student’s self-recognition as worthy of appreciation and attention and stronger than the student with the low feelings works to maintain them and includes positive or negative his point of view of himself, it is like a mirror to an individual’s judgment on the extent of personal competence and direction towards himself and beliefs about them.

Table 1. Arithmetic mean, standard deviation and T values of the emotional stability scale.

Sample	Arithmetic Mean	S.D	Hypothesis Mean	D.F	T-Value		Sig.
					Calculated	Tabulated	
400	160,70	14,65	120	399	39,26	1.96	at level 0.05

Table 2. Arithmetic mean, standard deviation, and T values of the self-esteem scale.

Sample	Arithmetic Mean	S.D	Hypothesis Mean	D.F	T-Value		Sig.
					Calculated	Tabulated	
400	218,16	16,55	177	399	35,16	1.96	at level 0.05

Table 3. Relationship between emotional stability and self-esteem.

Sample	Correlation Coefficient	T-Value		Sig.
		Calculated	Tabulated	
400	0.52	8.246	1.96	at level 0.05

CONCLUSION

The sample individuals have a positive view of emotional stability and self-esteem. The results of the study show that the higher the individual is in controlling his emotions, the higher the self-esteem became, ie, there is a positive relationship between emotional balance and self-esteem.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon, College of Basic Education, Hillah, Iraq and all experiments were carried out in accordance with approved guidelines.

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Epidemiology of Developmental Delay among Children in AL-Batool Teaching Hospital in Ba'aquba-Iraq

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ABSTRACT

A cross sectional descriptive observational study done on a randomly selected sample of (200) children of age between (6-36) months who present with suspected developmental delay attended an AL-Batool teaching hospital in Ba'aquba city. The male were 88 (44%), and 112 (56%) female. The prevalence of suspected developmental delay was 16 (8%). From the children developmental delay; 7 (15.9%) had O.F.C < -2SD and 1 (2.3%) > 98th percentile, 14 (31.8%) had body weight < 3rd percentile, 12 (27.3%) had height < 3rd percentile, bottle feeding 27 (61.4%), and breast feeding represent 9 (20.5%).

Keyword: *Developmental Delay, Children, Epidemiology, Iraq*

INTRODUCTION

Screening of children for Developmental delay is an effective, cost-efficient way to diagnose possible health or behavioral problems. Studies approved that screened children for developmental delay are prone to be identified and prepare them for early and effective intervention services¹. Screening of children for Developmental delay either done by pediatricians, or parental questionnaires can help identify children who are not meeting expected milestones of development². Childhood Developmental delays can indicate serious physical or psychosocial problems³. Developmental process is a rapid & cumulative, and its early diagnosis made the early intervention possible, and the primary care settings are the most effective screening tools and depending of parental information. Parental information and concern about their children development made their children's risk for developmental disorders disabilities is eight times as great as for those whose parents have no concerns; when parents express two or more concerns, the risk is twenty times as high⁴. WHO states that globally 5% of the under 5-year children are suffered from moderate to severe D.D associated disability most

of which would have been either prevented or managed, if detected early⁵. Based on anecdotal observation⁶, children's developmental screening in the first 3 year of their life is not commonly used for children who attending pediatrics hospitals and PHCC in Iraq. This shortcoming is speculated to be the reason why children with disabilities are often detected late when dysfunctions or inefficient movement behavior have already emerged. This study therefore sought to screen the children under three years of age for developmental delay who attending AL-Batool teaching hospital in Baaquba city.

METHODOLOGY

Regarding administration and Ethical Considerations: written approval for the study was gained from Pediatric Department in college of Medicine - University of Tikrit. The study has been conducted in AL-Batool teaching hospital of pediatric and gynecology in Ba'aquba city from different residence group (rural and urban). The current study represented a cross sectional descriptive observational study done on children attended AL-Batool teaching hospital in Ba'aquba city who are aged between (6-36) months to assess the developmental milestones and identify the prevalence of developmental delay among children in such area. Each child includes in this study was assessed by a prepared questionnaire which include Name, Age, Sex, Residence, maternal education, If the child on certain drug or not (sedative or

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anticonvulsant), most common developmental milestones according to child age and risk factors that affect to the development of children. The questionnaire covers the five developmental milestones; gross motor skills, fine motor skills, communication skills, problem solving/ cognition skills and social/ personal interaction. the questionnaire also cover's the risk factors for D.D which include ; no or incomplete ante-natal care , any problems during pregnancy or labor, history of hospitalization in neonatal period, certain problems during neonatal period like severe jaundice or convulsion, family history of any physical or mental disease and If the child has any chronic or congenital disease. The measurements (weight, height, and head circumference) was taken from each child and compare it with normal values according to child age and sex. The child was examined if he/she has any phenol-typical alteration like upward slanted of eyes, exceptionally wide-set eyes, low set ears, single crease across center of palm and cleft palate. The study includes' two components; interviewer administration of questionnaire and examination clinically with measure the height, weight and head circumference of selected children.

Clinical Examination: Any child selected in study were examined clinically regarding to general appearance, any phenol-typical alteration, neurological signs. child's measurements (height, weight, head circumference) also recorded according to child's age and sex, the development was classified according to the clinical examination in to four groups ⁽⁷⁾: normal development, normal development with risk factors, development with alert, suspected developmental delay.

Exclusion criteria: children with age out 6-36 months and children on drugs which cause confusion , lethargy or drowsiness.

Statistical Analysis and Data Management: The Statistical Package for Social Sciences (SPSS, version 18) was used for data entry and analysis. Chi (χ^2) square test of association was used to compare proportions of different factors among different groups of study sample. Odds ratio (OR) was used to identify the risk. P value of ≤ 0.05 was regarded as statistically significant. Bar chart used to present the data.

RESULTS AND DISCUSSION

Two hundred child was investigated in PHCC, 88 (44%) of them were male, versus 112 (56%) female,

about 171 (85.5%) from urban area and 29 (14.5%) from rural area. Regarding maternal education 33 (16.5%) read and write, primary school 62 (31%), secondary school 57 (28.5%), college 48 (24%). The mean age group was 19.7 ± 9.6 month, nearly 50 % of the sample aged 6-21 month, 5-9 month 32 (16%), 9-13 month 38 (19%), 13-17 month 25 (12.5%), 17-21 month 24 (12%), 21-25 month 23 (11.5%), > 29 month 47 (23.5%).

Age Distribution: Among children with delayed milestones about 10 (22.7%) was aged 9-13 month versus 23 (14.5%) of the normal followed by age group 5-9 months 9 (20.5%) versus 28 (17.5%) for normal, and none of the age group 25- 29 months versus 11 (7.1%) of the normal, this relation was statistically not significant, as shown in table 1. Regarding **Anthropometric Measures of Study Group:** 12 (11.5%) of the sample was < 3rd percentile of the weight , 14 (7%) was < 3rd percentile of the height, and 7 (3.5%) < -2SD, and 1 (0.5%) > +SD of the O.F.C, as shown in table (2).

Regarding relation between developmental milestone and classification:

In the classification of developmental milestone, the normal was 122 (61%), 34 (17%) was normal development with risk factor, 28 (14%) with developmental alert, and 16 (8%) with suspected developmental delay. Regarding developmental milestone, 44 (22%) of the sample with delayed milestones, and 156 child displayed all milestones regardless presence of risk factor. **Gender distribution:** From the children with delayed milestones 20 (45.5%) was male versus 24 (54.5%) was female, while among normal children it was 68 (43.6%) male versus 88 (56.4%) female. **Residence and developmental milestone:** From the children delayed milestones 34 (77.3%) was from urban versus 10 (22.7%) from rural, while among normal children it was 137 (87.8%) from urban versus 19 (12.2%).

O.F.C and Developmental Milestone: From the children with delayed milestones 7 (15.9%) had O.F.C < -2SD and 1 (2.3%) > +SD versus 36 (81.8%) had normal O.F.C, while among normal children non had had O.F.C < -2SD or > +SD versus 156 (100%) had normal O.F.C, this relation was statistically significant ($X^2=29.54, df=2, P \text{ value} < 0.05$). **Weight and Developmental Milestone:** From the children with delayed milestones 14 (31.8%) had body weight < 3rd percentile versus 30 (68.2%) had normal weight, while among normal children 9

(5.8%) had had body weight < 3rd percentile versus 147 (94.2%) had normal weight, this relation was statistically significant ($X^2=22.88, df=1, P \text{ value}<0.05$). **Height and Developmental Milestone:** From the children with delayed milestones 12 (27.3%) had height < 3rd percentile versus 32 (72.7%) had normal height, while among normal children 2 (1.3%) had height < 3rd percentile versus 154 (98.7%) had normal height, this relation was statistically significant ($X^2=35.6, df=1, P \text{ value}<0.05$).

Maternal Education and Developmental Milestone: Children with delayed milestones most of mothers had primary school 16 (36.4%), secondary school 12 (27.3%), 10 (22.7%) read and write, and college 6 (12.6%), versus primary school 46 (29.5%), secondary school 45 (28.8%), college 42 (26.9%) and 23 (14.7%) read and write. **Type of feeding and developmental milestone:** most of children with delayed milestones were bottle feeding 27 (61.4%), mixed 8 (18.2), breast feeding 9 (20.5) while in normal children bottle feeding 70 (44.9%), mixed 52 (33.3), breast feeding 34 (21.8). **The Odds Ratio for Developmental Delay Regarding Different Factors:** the risk to have delayed milestone was OFC <-2SD 5.3, weight less than <3rd percentile 7.62, height less than <3rd percentile 28.9, if mother read and write 3.04, these relations was statistically significant as shown in table (3). Developmental problems are commonly seen by pediatricians and other physicians who work in PHCC. The primary health centers (PHCC) one of the most important places where most children younger than 5 years are seen and it is ideal for developmental and behavioral screening. Developmental screening is aimed at identifying children who may need more comprehensive evaluation⁸. Early identification of developmental delay is mandatory as it helps both children and their parents and allow the family members to feel that they are doing all they

can to assist the child and prevent secondary emotional disability⁹.

Age Distribution of the Study Sample: In this study, 200 children was investigated in PHCC, with age 6-36 months. Tmean age group was 19.7 ± 9.6 month, & nearly 50% of the sample aged 6-21 month, this goes with the Shaima Hussein study (Iraq) who screened children with age range from 8-48 months¹⁰, Amarjyothi study (India) 6- 47 months¹¹, and Catherine study (USA) 2-30 months¹². The focus point is on children with mentioned age group and particularly in the first two years of life because this is the period of most rapid development in the child's life, and requires most environmental input, protection from risks and early identification of any developmental problems¹³.

Prevalence of suspected developmental delay: of the 200 child screened in this study, 16 (8%) found with developmental delay (DD), and this agree with WHO Reports which was (10%) of the people in any country have some type of developmental impairment¹⁴, and agree with Séraphin Nguéack study (Cameroon) (7%)¹⁵. The higher male to female ratio of 1.2:1 (56.2% versus 43.5%), these results was approximate to Ebtessam study (Egypt) who reported that male to female ratio of 1.2:1¹⁶, and near to Paramleen study (India) 2.4:1¹⁷, Chun study (Taiwan) 1.5:1¹⁸, and Margaret study (USA) 1.7:1¹⁹. Nearly all developmental disorders are more common in boys than girls, one theory is that of Geschwind and Galaburda who suggests that the influence of testosterone is to delay maturation of specific processes within the brain²⁰. Other studies have shown a neurobiological difference between the brains of the males and females, indicating that the brain of the female fetus is protected from hypoxic ischemic lesions due to the effects of estrogens.

Table 1. Age distribution according to developmental milestone.

Age child does not display one or more milestones child displays all milestones		Developmental milestone		Total
	5-9 month	9	23	32
		20.5%	14.7%	16.0%
	9-13 month	10	28	38
		22.7%	17.9%	19.0%
	13-17 month	6	19	25
		13.6%	12.2%	12.5%
	17-21 month	4	20	24
		9.1%	12.8%	12.0%
	21-25 month	6	17	23
		13.6%	10.9%	11.5%
	25-29 month	0	11	11
		.0%	7.1%	5.5%
	> 29 month	9	38	47
		20.5%	24.4%	23.5%
Total		44	156	200
	100.0%	100.0%	100.0%	

Table 2. Anthropometric measures of study group.

		Frequency	Percent
weight	3rd-97 th	177	88.5
	<3 rd	23	11.5
Height	3rd-97 th	186	93
	<3 rd	14	7
O.F.C	<-2SD	7	3.5
	Normal	192	96
	> +SD	1	0.5
	Total	200	100

Table 3. The odds ratio for developmental delay regarding different factors.

Risk Estimate	Value	95% Confidence Interval			P value
		Lower	Upper	No.	
Sex (Male / Female)	1.1	0.550	2.113	20/24	>0.05
Residence (Urban / Rural)	0.47	0.201	1.106	34/10	>0.05
OFC <-2SD/normal	5.3	3.973	7.159	7/36,	< 0.05 S
Weight (<3rd/ 3rd-97th)	7.62	3.023	19.220	14/30	< 0.05 S
height *(3rd/3rd-97th)	28.9	6.162	135.313	12/32	< 0.05 S
Maternal education (read &writer / collage)	3.04	0.981	9.446	10/6	< 0.05 S
Maternal education (read &writer / primary school)	1.25	0.491	3.185	10/16	>0.05
Maternal education (read &writer / secondary school)	1.63	0.613	4.336	10/12,	>0.05

CONCLUSION

The prevalence of suspected developmental delay was 16 (8%). From the children developmental delay; 7 (15.9%) had O.F.C<-2SD and 1 (2.3%) > 98th percentile, 14 (31.8%) had body weight < 3rd percentile, 12 (27.3%) had height < 3rd percentile, bottle feeding 27 (61.4%), and breast feeding represent 9 (20.5%).

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Tikrit Medical College, Iraq and all experiments were carried out in accordance with approved guidelines.

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Professional Competencies and Thinking Methods among High School Teachers in Iraq

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ABSTRACT

The importance of the current research is that it is the result of what is called for studies at the present time is the development of the human mind in all its aspects, which comes through the use of thinking methods and the development of professional competencies, which encourages teachers to use their mental abilities and energies and employ the brain to serve the educational process at the present time. Objective: is to learn the professional competencies and thinking methods of secondary school teachers in Iraq. The sample consisted of (60) teachers and schools distributed among 30 males and 30 females, to achieve the objectives of the research, the researcher used the professional competency scale (lesson planning, implementation and classroom management, educational teaching aids, evaluation), the highest level of professional competencies for teachers was (implementation and classroom management), which reached a relative weight (35.301) and the lowest level is (teaching aids), which reached a relative weight (19.009). The scale of thinking methods was also used, the realistic thinking method was the highest method for teachers with its relative weight of (22.280) and the lowest method of thinking among teachers was the ideal with a relative weight of (17.275).

Keywords: professional competencies, thinking methods.

INTRODUCTION

The teacher faces many challenges in the present day as a result of the continuous increase in knowledge and technological and scientific explosion at all levels and different fields. It requires experiences, methods of thinking, innovative skills and high professional competencies to deal with these variables successfully, which requires a creative teacher capable of adapting to the environment in all aspects. This endeavor can only be achieved through the teacher's possession of professional competencies and modern thinking methods that accompany the times¹. The preparation of secondary school teachers has been criticized for the students low level of science. Fadel et al. (2000) have pointed to the low level of education in Iraqi schools, which has a major impact on their educational and teaching

outputs². In addition, Radi (2014) studied limited attention of teaching staff to determine the thinking methods that students should acquire and may lead to the acquisition of different types of misconceptions that lead them in their activity and solve their problems to very bad results³. A number of interviews, meetings, and individual dialogues were held with a number of teachers regarding consultation and discussion with them about their use of professional competencies and thinking methods. The current era is characterized by rapid change and great development in the field of science and technology. This rapid development and the widespread scientific trend in the fields of life and the development of the technical aspect and the world has been passing in the revolution of information in various areas of life, including teaching and education⁴. It is desirable and important for a teacher to possess professional competencies in order to carry out his or her task to the fullest, taking into account the integration of competencies with each other and the civilizational competition between nations and peoples and the change of knowledge and technology⁵. The teacher is the tool of

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creative interaction between the educational classes and the heart of moral education, and the mastermind behind the acquisition of learners ways of thinking, and the tool of human communication in the transfer of values and national culture and magnification of democracy and human rights ⁶. The interest in the study of educational competencies was increased and acquired the attention of a large number of educators, which was based on a new educational movement called the movement of education based on competencies and this is confirmed by Saadah, (1991), as he has said that (We consider the movement of teacher preparation and training on the basis of the idea of educational competencies is one of the greatest achievements of contemporary education). The professional competencies are one of the reform elements in educational institutions because the teacher is one of the variables that need to be developed in order to improve the education systems in it and for being an investments in the time and money that countries seek in the field of education through improving their knowledge and professional performance ⁶. The subject of the professional competencies of the teacher has become an important subject in the contemporary educational process and the main pillar in the process of developing the educational learning process and as an aspect of the reforms required for the development and improvement of education, the teacher must be aware of the necessary professional competencies, this leads to improving the skills and teaching competencies of teachers ⁷. Thinking is one of the most powerful abilities that transcends human beings from other creatures of God. It is one of the important needs that does not live up to the life of the individual without it and does not abandon it except in the absence of mind. The human needs to think at all stages of his age to facilitate his life ⁸. Therefore, the concept of thinking is the ability to think right is good for those who aspire to a successful life and who has the ability to think well is certainly a visionary, thought, and perception, and is qualified in all areas of life in education and non-education, but extends that success to the personal life of the individual, thinking is one of the most outstanding qualities which transcends man from other creatures and is one of the important needs that do not fit the life of the individual without it and the concept of thinking in its general sense (mental or intellectual activity is different from the sense and perception and beyond both of them ⁹. The importance of the current research is illustrated by: Enrichment of theoretical literature because there are no studies according to the knowledge

of the researchers dealt with the subject of professional competencies and methods of thinking together and thus this study will add a cognitive and logical dimension in this area. The possibility of opening the way for other studies and research in the field of research methods of thinking of creative, critical, and contemplative, as well as professional competencies in the development of teachers. Research Objectives: The current research aims to identify: Professional competencies and thinking methods among secondary school teachers in Iraq.

METHODOLOGY

The researchers used the descriptive approach in the analytical survey method in order to achieve the objectives of the research, which seeks to reach it as this approach fits this study and answers its questions. First: Research Population: for the purpose of selecting the research, the research population was identified represented by teachers of the Education Directorate in the province of Al Diwaniya and registered in the Al Diwaniyah Directorate of Education for the academic year (2017 - 2018). Second: Research Sample: A sample of (60) teachers and schools from the research Population were selected in (30) teachers and (30) schools. Third: Research Tools: In order to achieve the research objectives, the researchers adopted a scale of professional competencies represented in (planning, implementation, teaching aids, and evaluation), and the second tool is the (Harrison and Bramson) thinking methods scale. The researchers presented the two parameters in their initial form to a group of specialists and experts in (teaching methods, education, and psychology). After retrieving the arbitrators' opinions, and emptying and analyzing the data, all paragraphs remained unchanged.

Validity of the tool

In order to verify the apparent validity, the two scales were presented to a group of experts and specialists in teaching methods and psychology to show each of them his opinion in the two scales and their formulation and suitability, who were (15) experts and the results were as follows: The values of (Chi-square) for the professional competencies scale were (15 - 7,764) and the percentage of acceptance ranged between (100 - 81), while the values of the (Chi-square) for the thinking method scale were between (15 - 9.33) with an acceptance rate ranged between (100 - 81), and thus the two scales have a very good apparent validity and also indicates the validity of

the content.

Reliability of the tool:

To re-test and then re-apply the scales on a group of teachers in the province of Al Diwaniyah whom were (60) teachers distributed in (30) males and (30) females after the first application to them two weeks ago and then the results were extracted and tabulated, as well as a simple correlation coefficient was used. The results are shown in Table (2), all of which indicate a good level of reliability that can be relied on and adopted.

Cronbach's Alpha: For the purpose of increasing the reliability confirmation of the scale paragraphs, the researchers used the Cronbach's Alpha coefficient based on the results of the second application to individuals as it appeared that all paragraphs of the scales have a very good reliability.

Statistical Analysis

The researchers used the statistical methods (Chi-

square, arithmetic mean, standard deviations, and relative weights).

RESULTS AND DISCUSION

The results were in favor of the synthetic mean (56,452), the analytical (55,422), and the realistic (60,324), as well as the ideal method, was in favor of the hypothesis mean (46,765), while the practical method has no mean. From the above table it was observed that the realistic thinking method with its relative weight of (22,28035) is the first ie the highest method, the synthetic thinking method, with a relative weight of (20,85025), is the second method, the analytical thinking method, with a relative weight of (20,46982), is the third method, the practical thinking method with a relative weight of (19,127255) is the fourth, and the ideal method of thinking, with a relative weight of (17,27255), is the fifth and lowest type of thinking.

Table 1. Shows the arithmetic means, the hypothesis means and the standard deviations of the professional competencies for the secondary stage biology teachers.

Professional Competencies	Individuals No.	Hypothesis Mean	Arithmetic mean	S.D.	T-Value		Favor of
					Calculated	Tabulated (*)	
Lesson Planning	520	27	24.432	3.753	3.543	1.96	Hyp. Mean
Classroom management and Implementation	520	36	37.943	2.278	2.653	1.96	Arith. Mean
Educational and teaching aids	520	21	20.432	3.452	1.327	1.96	Hyp. Mean
Evaluation	520	21	24.6754	2.553	2.859	1.96	Arith. Mean
Total Scale	520	105	107.4824	7.563	2.823	1.96	Arith. Mean

Table 2. Relative weights of the professional competencies scale for the secondary stage biology teachers.

Professional Competencies	Individuals No.	Relative Weight	Level
Lesson Planning	520	22.73116	intermediate
Classroom management and Implementation	520	35.30159	Good
Educational and teaching aids	520	19.00962	Weak
Evaluation	520	22.95762	intermediate
Total Scale	520	(*)61	intermediate

Table 3. Shows the arithmetic means and the standard deviations to find out which is the best level of professional competencies between males and females.

Professional Competencies	Gender	Individuals No.	Arithmetic Mean	S.D.	T-Value		Sig. in Favor of
					Calculated	Tabulated(*)	
Lesson Planning	M	264	22.445	3.342	4.231	1.96	F
	F	256	26.419	2.7642			
Classroom management and Implementation	M	264	35.382	3.6482	4.984	1.96	F
	F	256	40.504	3.7564			
Educational and teaching aids	M	264	16.757	4.236	9.954	1.96	F
	F	256	24.107	4.3562			
Evaluation	M	264	23.0234	4.332	2.766	1.96	F
	F	256	26.3274	4.5463			
Total Scale	M	264	104.6959	7.532	5.533	1.96	F
	F	256	110.2689	8.422			

Table 4. Shows the arithmetic means, standard deviations, and the hypothesis means of the thinking methods for the secondary stage biology teachers.

Methods	Individuals No.	Hypothesis Mean	Arithmetic Mean	S.D.	T-Value		Favor of
					Calculated	Tabulated(*)	
Synthetic	520	51	56.452	5.873	3.7876	1.98	Arith. Mean
Ideal	520	51	46.7654	7.65756	4.561	1.98	Hypo. Mean
Practical	520	51	51.7864	6.447	1.224	1.98	Not Exist
Analytical	520	51	55.422	8.6574	3.872	1.98	Arith. Mean
Realistic	520	51	60.324	6.7654	6.8971	1.98	Arith. Mean

Table 5. Shows the relative weights and the order to determine which is the highest method retained by teachers.

Methods	Individuals No.	Relative Weight	Order
Synthetic	520	20.85025	Second
Ideal	520	17.27255	Fifth
Practical	520	19.12703	Fourth
Analytical	520	20.46982	Third
Realistic	520	22.28035	First

Table 6. Shows the arithmetic means and standard deviations to identify the differences between cognitive thinking methods according to gender variable.

Methods	Gender	Individuals No.	Arithmetic Mean	S.D.	T-Value		Favor of
					Calculated	Tabulated (*)	
Synthetic	M	264	26.239	3.654	3.109	1.96	M
	F	256	30.213	3.8876			
Ideal	M	264	20.8217	2.545	4.421	1.96	F
	F	256	25.9437	3.231			
Practical	M	264	22.2182	4.682	6.932	1.96	F
	F	256	29.5682	3.765			
Analytical	M	264	26.059	3.842	2.859	1.96	F
	F	256	29.363	4.812			
Realistic	M	264	27.3755	3.754	4.422	1.96	F
	F	256	32.9485	3.743			

CONCLUSION

The practice level of secondary school teachers in teaching came in an intermediate to (planning and evaluation) and weak in (educational aids) and good in (implementation and classroom management). The superiority of females to males depending on the gender variable was noticed in professional competencies. It was noticed that the teachers maximum method is the realistic thinking method and the teachers minimum thinking method is the ideal. The researchers observed female superiority over males according to the gender variable in thinking methods.

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Ethical Clearance: All experimental protocols were approved under the Faculty of Basic Education, Babylon University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Serum and Salivary Cancer Antigen 125 in Non-Hodgkin Lymphoma Patients Received Chemotherapy

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ABSTRACT

Aim of study: to measure salivary flow rate, serum and salivary cancer antigen 125 levels in non-Hodgkin's lymphoma patients in comparison with healthy looking subjects. Sixty (60) subjects were enrolled in this study, they were divided into two groups: Patients group comprised of 30 non-Hodgkin's lymphoma patients; Control group comprised of 30 healthy looking subjects. Saliva collected was measured and levels of serum and salivary cancer antigen 125 were measured at three times intervals; first before received chemotherapy, after received 3 cycles of chemotherapy and after one month post- chemotherapy using Enzyme-linked Immunosorbent Assay (Elisa). Present results showed that the mean salivary flow rate in non-Hodgkin's lymphoma patients was significantly decrease than in healthy looking subjects, and mean salivary flow rate in non-Hodgkin's lymphoma patients was highest significant in patient before chemotherapy and lower after received 3 cycles chemotherapy. The result showed also mean serum and salivary cancer antigen 125 in non-Hodgkin's lymphoma patients was significantly higher than control group. The mean serum and salivary cancer antigen 125 in non-Hodgkin's lymphoma patients was highest significant in patient before chemotherapy and lower at one month post chemotherapy using ANOVA test.

Keyword: Non-Hodgkin's lymphoma, Salivary flow rate, Cancer antigen 125.

INTRODUCTION

Lymphomas are the generic term given to tumors of the lymphoid system, the tissues and organs that produce, store and transport lymphocytes¹, thus such tumors give rise to lymph node swelling and systemic problems such as weight loss, fever and night sweats². Lymphomas are classified into two major categories: Hodgkin's lymphoma (HL) and non-Hodgkin's lymphoma (NHL), the first type is recognized by the presence of special cells called the reed-Sternberg cells (RS) cells where it could be constituted only 12.5% of all lymphomas, the other type is the most common type of lymphoma³. Non-Hodgkin's lymphoma is a heterogeneous group of lymph proliferative malignancies that comprise all lymphomas excepting HL, with different behaviors and prognosis⁴. The WHO classified NHL into two groups; B cell origin and T cell/natural killer (NK) cell origin³. The wide range of clinical features and histological appearances in lymphoma makes the diagnosis difficult⁵. The American Cancer Society's largely current assessment for NHL (2018). About 74,680 persons (41,730 males

and 32,950 females) would be identified with NHL. This includes both adults and children and around 19,910 patients will die from NHL (11,510 males and 8,400 females). NHL could be occurred at any time. Actually, it is one of the more frequent malignances among child, teenager, and young adult⁶. Non-Hodgkin's lymphoma in Iraqi was fifth in order of frequency among the commonest ten cancers in 1980, fourth in 1990, fifth in 2000, sixth in 2001⁷. The treatment of NHL patient is commonly through using Chemotherapy, it may be used single-handedly or combined with other therapies, such as biologic therapy drugs or radiotherapy varying on the exact type and particular stage of NHL⁸. Saliva as a diagnostic fluid suggested characteristic advantages over serum since it can be collected non-invasively and does not need special tools for collection and storage as far from blood, it does not clot. Valuable for individuals in who blood obtaining is complicated as in obese, hemophiliacs and persons who are fearful of prick. It may be used for diagnosis of several systemic diseases, because it includes serum components^{9,10}. Cancer antigen 125 (CA125) is a glycoprotein expressed in ordinary

tissues originally derived from coelomic epithelia such as peritoneum, pleura, pericardium, fallopian tubes and endometrium. CA125 levels are increased in several benign and malignant tumors that involve stimulation of these tissues; however, elevated levels have been investigated in patients with HL and NHL¹¹⁻¹³.

MATERIALS AND METHOD

Sixty (60) subjects were enrolled in this study, they were divided into two groups: Patients group comprised of 30 NHL patients; Control group comprised of 30 health looking subjects. The Patients were excluded: Smoker, pregnancy, hepatitis, diabetic patients and patients under radiotherapy. Salivary samples were collected from both study and control group, with the collection was done between 8:00 to 11:00 AM, to reduce the effects of the diurnal changeability in salivary composition. Samples were collected before meals or at least 2 h after meals. After giving instruction to wash the oral cavity with distal water to remove any possible debris or contaminated materials, unstimulated whole saliva was collected by spitting method. To avoid influence of stress on the secretion rate, all patients were told to rest for 10 minutes before registration the salivary flow rate. During the period of collection the persons were comfortably seated in a ventilated and lighted room. The saliva was collected for accurately (5minutes). All subjects were asked to achieve a passive flow of saliva without masticatory movements for 5 minutes, timed with a stop watch. Then the volume of each saliva sample was measured and the flow rate ml/5min. was calculated. Then sample were put in small cooling box after collection to reduce the growth of bacteria, the samples centrifuged at 4000 rpm for 15 minutes. Then the supernatant aspirated and stored together in deep freezer at -20 C until analysis. Venous blood samples of (5ml) were collected from antecubital area of the arm or the back (dorsum) of the hand in sterile plan disposable tubes with 21 gauge stainless steel needle syringe in sitting position. The cells and clotting factors must be removed from the blood sample by allowing adequate time (20-30) minutes for a clot to form and then centrifuged at 3000 rpm for (10-15) inutes, samples divided in parts in sterile Eppendorf tubes immediately frozen and store at -20°C until the analysis. Saliva collected was measured and levels of salivary and serum CA125 were measured at three times intervals; first before chemotherapy, after received 3 cycles of chemotherapy and at one month post chemotherapy using Enzyme linked Immunosorbent

Assay (Elisa).

RESULT AND DISCUSSION

Table (1) and figure (1) revealed that the mean value of salivary flow rate in NHL patients was (0.70± 0.09 ml/min), while for healthy looking subjects was (0.89±0.21ml/min), the salivary flow rate in NHL patients was significantly decrease than in the healthy looking subjects. The mean salivary flow rate was lowest in NHL patients after received 3 cycles chemotherapy (0.42±0.1 ml/min) and highest in patients before received chemotherapy (0.70± 0.09 ml/min) using ANOVA test, table (2). The present study revealed that the mean serum and salivary CA125 in NHL patients (190.33± 101.42 and 402.10± 109.26 IU/mL respectively) was significantly higher than healthy looking subjects (49.06±2.32 and 201.39±106.28 IU/mL respectively), table (3) and figure (2). The mean serum and salivary CA125 in NHL patients was higher significant in patient before received chemotherapy (190.33± 101.42 and 402.10± 109.26 IU/mL respectively) and lower in patients at one month post chemotherapy (102.03±75.19 and 308.8±108.71 IU/mL respectively) using ANOVA test, table (4). Chemotherapeutic agent usually causes hypo function of salivary gland, and this disorder is transitory and reversible¹⁴, as stated by some study, it seemed to modify non stimulated and stimulated saliva in a different manner. An increase in Na⁺ and K⁺ led to damage in the salivary duct transport mechanisms during ion rearrangement¹⁵. In the present study, non-stimulated whole salivary flow rate (SFR) values in the NHL patients were significantly lower than those in health looking control, As SFR quantities decreased in anxiety, saliva flow declining may be attributable to the stress of malignancy⁽¹⁶⁾.

This study showed also a significantly difference was found in the SFR distribution among NHL patients before received chemotherapy, after received 3 cycles and at one month post-chemotherapy. In a studies done by Rahnama et al., for evaluation of the influences of the chemotherapy on the oral health which showed that SFR restores to normal quantities nearly twelve months once the treatment of cancer was finished⁽¹⁷⁾. Another study done by Chaveli et al., for assessment of the dental treatment considerations in the individuals undergoing chemotherapy which revealed that chemotherapeutic agents can give rise to a transitory but clinically significant decline in salivary flow that improves as the

bone marrow recovers¹⁸. It has been proposed that the diminished salivary flow rate may be due partially to the anticholinergic antiemetic agents advised generally in malignancy patients getting chemotherapeutic agents¹⁹. In a study done by Pekka et al.,²⁰ for assessment of the effect of modern, intensive chemotherapy on salivary flow rate and composition, that included 79 patients suffering from HL and NHL were investigated at time of diagnosis, in the course of chemotherapy treatment and after finished chemotherapy, which shown no marked changes in stimulated SFR. Carbohydrate antigen 125 was commonly utilized as a cancer marker in the checking of epithelial ovarian malignancy. Its quantity has also been linked to be an important predictive factor for full remission, and survival rate in patients with lymphoma²¹. It was testified to be a dependable biological marker for the staging, for follow up and early detection of recurrent NHL in adult persons²². In present study increase serum and salivary CA125 level as compared to apparently health control showed significantly differences, no previous study could be traced in Iraq to compare the present result with regarding the possible relationship between saliva and blood, there was a positive correlation between salivary and serum CA125 in cancer patients, which revealed a remarkable positive relationship^{23, 24, 16}. Only a few studies exist in which

saliva of NHL patients had been investigated. Several analyses carried out for evaluation of serum CA125 in NHL patients which showed that CA 125 level in NHL patients was significantly higher than the controls^{22,25}. In study was conducted by Sanjeev and Bela, to assess the role of CA 125 in patients suffering from NHL that revealed CA 125 seems to be a reliable, cost effective, noninvasive method for evaluating prognosis in NHL patients and their response to treatment²⁶. The present study showed mean serum and salivary CA125 in patient with NHL was elevated before received chemotherapy and declined after received 3 cycles of chemotherapy and at one month post chemotherapy. In an analysis done by Abdelmonem et al., for evaluation of serum CA 125 in HL and NHL patients at time of diagnosis, 3 months on treatment and at end of treatment which showed a statistically remark higher quantity of CA125 in patients with advanced stage (III-IV), and the level of serum CA125 declined significantly in response to treatment in both HL and NHL patients, mostly patients moved into early remission in HL, and patients with HL showed higher survival rates compared to NHL²⁷. CA125 has been revealed to be higher in NHL by several analyses and it is proposed that cytokines liberated by lymphoma cells stimulate human mesothelial cells to produce this glycoprotein^{28,29}.

Table 1. Salivary flow rate with t-test between Non- Hodgkin lymphoma patients & control group

		N	Mean ±SD	SE	Range	P value
Salivary flow rate	Patients	30	0.70± 0.09	0.01	0.5-1.02	0.001 S
	control	30	0.89±0.21	0.03	0.3- 1.4	

Table 2. Salivary flow rate with P value in Non- Hodgkin lymphoma patients before chemotherapy, after 3 cycle’s chemotherapy and one month post-chemotherapy.

		N	Mean ±SD	SE	Range	ANOVA	P value
Salivary flow rate	Before chemotherapy	30	0.70± 0.09	0.017	0.5- 1.02	56.76	0.001 S
	After 3 cycles chemotherapy	30	0.42±0.1	0.019	0.2- 0.8		
	1 month post-chemotherapy	30	0.52±0.1	0.018	0.3- 0.8		

Table 3. Serum and salivary CA125 with t-test between Non- Hodgkin lymphoma patients & control group

		N	Mean ±SD	SE	Range	P value
Serum CA125	Patients	30	190.33± 101.42	18.51	23.1- 438.9	0.001 S
	Control	30	49.06± 52.32	9.55	10.3- 307.6	
Salivary CA125	Patients	30	402.10± 109.26	19.94	160.7- 541.2	0.001 S
	Control	30	201.39± 106.28	21.03	75.2- 375.3	

Table 4. Serum and salivary CA125 with P value in non- Hodgkin lymphoma patients before chemotherapy, after 3 cycle’s chemotherapy and at one month post-chemotherapy.

		N	Mean ±SD	SE	Range	ANOVA	P value
Serum CA125	Before chemotherapy	30	190.33±101.4	18.51	23.1- 438.9	6.69	0.002 S
	After 3 cycles chemotherapy	30	147.8±101.47	18.52	10.7-398.2		
	1 month post-chemotherapy	30	102.03±75.19	13.72	8.6- 318.4		
Salivary CA125	Before chemotherapy	30	402.1±109.2	19.94	160.7- 541.2	5.525	0.006 S
	After 3 cycles chemotherapy	30	341.6±112.7	20.58	80.3- 466.2		
	1 month post-chemotherapy	30	308.8±108.7	19.85	77.03- 436.8		

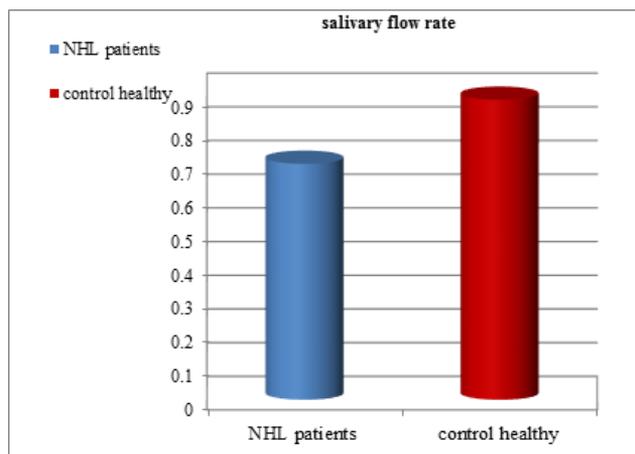


Figure1. Mean of salivary flow rate in Non- Hodgkin lymphoma patients and healthy control group.

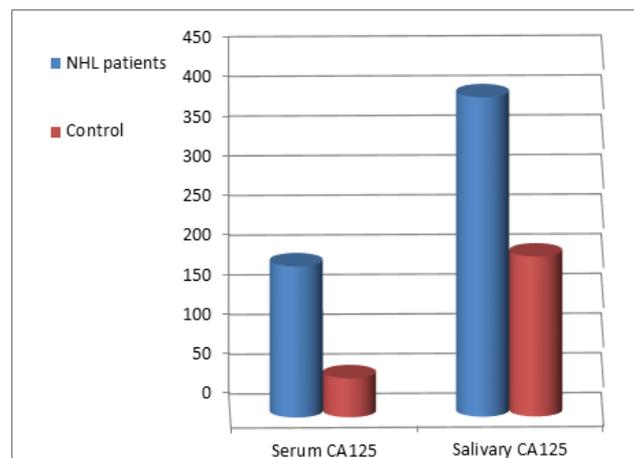


Figure 2. Mean of Salivary IgA levels in Non- Hodgkin lymphoma patients & control groups.

CONCLUSION

The results of this study showed that serum and salivary CA125 levels are frequently increased in NHL patients and could be used as tumor marker for monitoring response to treatment and in follow up of early detection of recurrent NHL.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of dentistry, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Taxonomic Study for the Genus *Bupleurum* L. (Apiaceae) in Iraq using chloroplast gene *RPL16*

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ABSTRACT

Bupleurum L. from Apiaceae family in Iraq. Present in north region in Iraq especially in Hasaro mountain (north-east of Erbil) in Rowanduz district (Mro). The identification of the plant specimens confirmed by the keys in the flora of Iraq, molecular description was done using polymerase chain reaction (PCR) to investigate the complete sequencing of the chloroplast gene *Rpl16*. which was determined for four species of *Bupleurum*. *Hohenackeria excscapa* as out group. Cluster analysis using *PhyDE* and *mega6* Software.

Keyword: *Bupleurum* L., *Apiaceae*, *Molecular Study*, *RPL16*.

INTRODUCTION

Apiaceae is one of the families in the Flora of Iraq which includes 3590 species in the world which are distributed on 440 genera¹. In Iraq includes 130 species distributed on 59 genera². In the Flora of U.S.S.R.,³ indicated that 43 species of the genus *Bupleurum* are found. While in Turkey,⁴ stated 46 species of the genus, In Europe,⁵ indicated that 39 species of the genus *Bupleurum* found. In Saudi Arabia,⁶ pointed out 2 species of the genus. In Iran,⁷ mentioned that 16 species of the genus found. In the Flora of low land Iraq stated 4 species⁷. indicated that 11 species found in Iraq mentioning the districts in which the species distribute, while¹⁹ stated that 9 species found¹¹. mentioned 10 species in Iraq.¹¹ pointed out to the presence of 4 species in Sinjar mountain.¹² and¹³, mentioned 1 species in Piramagrun mountain and Darband Gomaspan respectively.¹⁴ mentioned 4 species in Hawraman region. While^{15,16} and¹⁷ didn't mention any species of the genus in Haybat Sultan, Hujran Basin and Choman respectively.¹⁸ pointed out to the presence of 11 species

of the genus in Iraq and only *B. brevicaule* Schlecht. and *B. falcatum* Linn. possess economic value. The present study aimed to study some Molecular characters of the species *B. brevicaule*, *B. gerardi* All., *B. kurdicum* Boiss. and *B. lancifolium* Hornem. to add a small part to the information about the genus *Bupleurum* in Iraq.

MATERIALS AND METHOD

Taxon sampling and DNA Isolation

The molecular Study was carried out in the department of biology, university of Kufa and the National Science and Technology Development Agency. we sequenced the entire chloroplast gene (*rpl16*) for 4 species from the genus *Bupleurum* (Apiaceae) in Iraq. We used *Hohenackeria excscapa* as out group because of documented close phylogenetic affinity to *Bupleurum*¹⁹.

DNA Extraction

Total cellular DNA was extracted from dried leaves of species from herbarium specimens from Erbil Salahaddin Herbarium (ESUH). The total DNA was extracted in CTAB (cetyltrimethyl ammonium bromide) isolation buffer according to the protocol of [20]. Turn on water bath (60° C), label tubes, and prepare CTAB+BME first.

Add β-mercaptoethanol (BME) to the CTAB at a ratio of 1mL CTAB/1 μl. This step should be done in the

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hood because BME has a noxious odor.

Break the leaf material into smaller pieces in the mortar (bowl part) and add 300 µl of CTAB+BE. Thoroughly grind the material and use a sterile pipette tip or spatula to transfer the material to a labeled tube. Repeat the procedure using a new mortar and pestle for each sample.

Place all the samples in the 60° C water bath for 30 minutes. You should gently agitate the tubes every 5 minutes to make sure the CTAB is making contact with all of the plant material.

Spin the samples down in the centrifuge for 2 minutes and transfer the top layer to a new tube. For a double extraction add 300 µl of CTAB+BE to the plant material and repeat step 4. Combine the two top layers when you are done.

Add 600 µl of chloroform (in the hood) to the tube containing the top layer(s) and shake to mix.

Spin this down and transfer the top layer to a new tube. If the top layer does not appear clean, repeat the chloroform rinse step.

Add 400 µl of cold 100% isopropanol (stored in freezer) to the tube.

Place the tube in the freezer overnight for maximum precipitation.

Spin the samples down for 5 minutes to pellet the precipitated DNA. It is helpful to align the hinge on the lid a certain way so that you know where to expect the pellet to form in the tube.

Pour off the liquid and add 0.5 mL of cold 80% ethanol (stored in freezer). Gently roll the tube so the ethanol washes the sides.

Spin the samples for 2 minutes and pour off the liquid. Dab the top with a chem wipe and try to pipette as much liquid away from the pellet as possible without disturbing it.

Lay the tubes out to dry horizontally (this can take 10-20 minutes).

Once you are certain the ethanol has evaporated you can add 25 µl of TE buffer. Store the samples in the freezer when you are finished.

Sequencing alignment and phylogenetic analysis.

To knowing, the History of any group in hierarchical rank or taxonomic group like tribe, genus, species and variety. These question need performance phylogenetic analysis or phylogenetic relationship, which is a authoritative instrument for the interpretation of all possible solutions or relationships among any taxonomic group of phenotype and genotype²¹. Result showed that Phylogenetic analysis was a high resolution or accuracy method based on DNA sequencing data sent from National Science and Technology Development. The alignment of the *rpl16* data sets by *PhyDE* for the four species examined range in length from 678bp (*B.lancifolium*) – 850 in (*B.gerardi*) and elucidate exemplary figure in these length. The result opened in Bio Editor program, some manipulation complete in gene bases, Genetic dendrogram were draw in Mega 6 program. Depending on the dendrogram it can be celebrated two main clade (major group). Fig1. The first major clade (basal lineage) gathered *B.gerardi* and *B.kurdicum* with excellent Bootstrap value (99%) with the second major clade. The Second major clade (sister clade to the basal lineage) gather the remaining member in the genus *B.brevicaule* and *B.lancifolium* with acceptable bootstrap (55%) with the first clade. The distribution of *Bupleurum* species genotype in diverse clade and sub clade, may elucidate the segregation and diversity of species from each other, While the assemblage that shows in some species is due to the fact that these species belonging to the one genus from the family Apiaceae and inhabit in one geographical area in the northern region of Iraq and influenced by the same geographical situation in that region as mentioned by²² when she studied on some Tomato Genotypes. Moreover, similar result was founded by²³ on her investigation on diversity of *Zea mays* varieties in Iraq. The significance of distinguish genetic diversity with different markers and in particular DNA sequencing data generally in the taxonomy of different plant families. This method provides a frame work for facilitate the process of classification of plant groups and this is consistent with what it reported by²⁴ on his studied on *Cephalaris* from Caprifoliaceae.

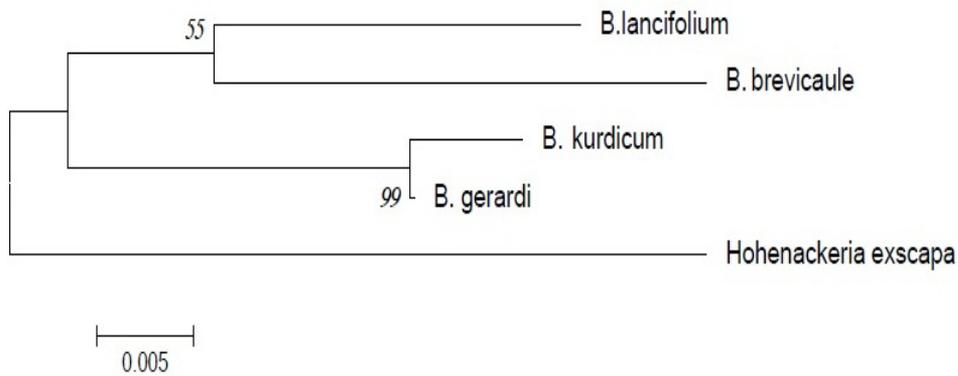


Figure 1. Dendrogram Tree according to Maximum Likelihood Methods depending on *rpl16* sequencing. The values on the clads represent Bootstrapping.

CONCLUSION

The distribution of *Bupleurum* species genotype in diverse clade and sub clade, may elucidate the segregation and diversity of species from each other, While the assemblage that shows in some species is due to the fact that these species belonging to the one genus from the family Apiaceae and inhabit in one geographical area in the northern region of Iraq. . *Hohenackeria exscapa* as out group. Cluster analysis using *PhyDE* and *mega6* Software.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Biology, College of Education of pure science, University of Kerbala, Iraq and all experiments were carried out in accordance with approved guidelines.

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The effect of Demarketing in Reducing Consumption of Medical Products through Consumer Culture (Applied Study in the Public Health Sector / Babil Governorate)

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ABSTRACT

The subject of the study is important because it is related to human health and life. Through the concept of demarketing, health organizations can reduce the demand for medical products. The main problem with the study was the lack of visibility of health organizations about the impact of demarketing in reducing the consumption of medical products through consumer culture. The study aims to determine the level of impact of demarketing in reducing or reducing the consumption of medical products through the intermediary role of consumer culture in health organizations in Babylon. The study proved the validity of the hypotheses and reached the conclusions were the most important: demarketing is counterproductive to traditional marketing to achieve benefits and objectives that serve the individual, organization and society and try to reduce the depletion of natural resources. demarketing is an important tool used to reduce demand or consumption, rationalize its use of a particular product or service and to limit the use of certain products that harm the public health of man and society.

Keywords: demarketing , consumer culture, medical products.

INTRODUCTION

Cintron (2017) ¹ refers to demarketing as a strategy designed to regulate the level and form of actual and future demand by profit and non-profit organizations, a road map designed by organizations to manage over-demand for goods and services, Through its course in the market whether it is at present or future ². The demarketing is one of the types of marketing that seeks to reduce or reduce the consumption of certain products because of their damage. This is either permanent or temporary, and its marketing mix plays an effective role in achieving the main objectives of its adoption. By organizations whether healthy or unhealthy. AL-Samydai (2018) ² demarketing is an important tool used to reduce demand or consumption, or to rationalize its use of a particular product or service, permanently or temporarily due to the scarcity of these resources and their importance. It

is used to limit the use of some harmful products Public health and society (such as smoking, alcohol, drugs, drugs, etc.). This shows that demarketing is a plan to develop a series of activities to counteract conventional marketing, through which the organization can reduce demand permanently or temporarily, and to educate consumers about depleting the country's resources whether it is water, oil or electricity. Etc. or excessive consumption of harmful products such as cigarettes, medical products, drugs and alcohol.

Dimensions of demarketing

For the purpose of achieving the main objectives of the use of demarketing in organizations, researchers also agreed ³⁻⁶ that there are dimensions of demarketing,

Raise the price: The government sometimes raise the price of a particular commodity or service through the imposition of taxes on them lead to raise the final prices of the goods or service and then reduced demand by consumers, this discourages the purchase of a larger quantity of the product or service. ^{7,8} suggests that organizations wishing to raise their product prices to

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meet excessive demand may face some of the constraints associated with this increase.

Counter advertising: The counter declaration is defined as the advertisement used to reduce the consumption or use of a product and is described as harmful to the environment and human alike, and this could be a kind of counter-advertising through which to advise consumers not to use a particular good or service. Such as non-excessive consumption of medical products or the consumption of tobacco, drugs or alcohol with serious health hazards, and this is done through printed and published ads or posters (warning leaflets).

Limited distribution : For products in general, the distribution will be in small quantities, and specific distribution outlets, whether medical products containing consumer health warnings related to the life of the consumer or other products. **Reducing the quality of the product:** Reducing the quality of the product content may lead to a gradual reduction in the demand for that product. Although this method is used in demarketing, some researchers. In demarketing as quality is a fundamental factor that cannot be compromised or exceeded. (Lamory and Laporte, (2016) refers to consumer culture as a coherent concept with a whole system of images, texts, objects, practices, identities and meanings that are marketed. The purpose of this conceptual system is to connect members' experiences and lives in specific social situations, These purposes and meanings to appear in the form of consumer behaviors and behaviors. Nozdrenko ,(2018) points out that consumer culture is one of the basic ways of interacting with society and conscious management. This fact determines the penetration of marketing in all areas of life and the continuous search for new ways to stimulate consumption achieves an understandable development. It shows that consumer culture refers to "the heritage, experience and accumulated experience acquired by the individual from his environment influenced by customs, traditions, religion, history and knowledge, and contribute to these accumulations to control his purchasing behavior by choosing and acquisition of his group of products and which seeks to satisfy the various needs. Researchers agree that there are multiple dimensions to consumer culture. The most important of which is the following: Social variables represent one of the main dimensions of consumer culture. This dimension indicates that the consumer is a social object and therefore his culture is subject to influences such as

small groups, family and social roles.

Medical Products

Medical products are a necessity of basic consumer life. Regardless of the fact that these medical products are tangible or intangible, they are at the heart of consumers' lives and are used to achieve multiple goals and objectives, all of which seek to pay harm and suffering to the medical consumer. Gabriel and others, (2018) refers to medical products as goods and services that fall within the health sectors and their consumption is subject to important controls not as in normal products, and the breach of their instructions may cause damage that may be small or large to their consumers, With a basic color that accompanies the human being and in different periods of his life. We find that medical products are goods or services provided to consumers and are in the health field adopted or provided by health organizations, pharmacies or cosmetic centers and are subject in nature, as is the case with industrial products to different marketing programs for the purpose of marketing and correct manner.

METHODOLOGY

The study problem can be described in two ways: The concept of demarketing is one of the concepts that organizations have not seriously adopted to reduce demand for products in the Arab world or in Iraq. Most of those interested in this vital aspect have been presented in the form of foreign studies and as a result of a number of researchers. In order to reduce the knowledge gap between these variables, we aim to investigate the impact of demarketing through consumer culture to reduce the consumption of medical products. Preliminary results of the views of a number of doctors in Babil province through a special group of doctors on the subject of study through social media (Facebook) and for a week, where 286 doctors and their interest in such a subject and the results of comments were 85% Their responses were in dire need of such studies, and 15% of physicians referred to other points of view. It is possible to formulate the main problem of the study ("there is no complete perception in the study sample of the impact of demarketing on reducing the consumption of medical products through consumer culture").

Sample study

The sample was randomly selected. The sample

included a group of doctors and various specialties in the government hospitals affiliated with Babil Governorate. 140 questionnaires were distributed and 125 copies were retrieved (89.3%).

RESULTS AND DISCUSION

Test the first main hypothesis:

There is no significant correlation between demarketing in its dimensions and medical products. The results of the test indicate that there is a positive correlation between demarketing (X) and medical products (y) with a simple coefficient of correlation (0.992). This value indicates the positive relationship between demarketing and medical products in the study sample The value (z) calculated (11.2) is greater than the (z) tabular value (1.96) at the level (1%)

Test the second main hypothesis:

(There is no significant correlation between demarketing and consumer culture). The results of the test indicate that there is a positive correlation between consumer culture (Y) and medical products (M). The correlation coefficient value (0.992) was at 1%. The result is that the calculated (Z) value is (11.0) The same level of previous moral.

Test the third main hypothesis:

(There is no significant correlation between the culture of the consumer and its dimensions and reducing the consumption of medical products). The results of the test indicate that there is a positive correlation between consumer culture (X) and medical products (y) with a simple correlation coefficient (0.992). This value indicates the positive relationship between consumer

culture and medical products in the study sample the value (z) calculated (11.2) is greater than the (z) tabular value (1.96) at the level) 1%).

Test the hypotheses of influence.

(There is no significant correlation between demarketing with its dimensions and medical products). Table (1) shows the estimation of the parameters of the simple linear regression model to measure the effect of demarketing in medical products. The main hypothesis is rejected (there is no relationship of significant significance for demarketing with its dimensions and medical products) and accept the alternative hypothesis (there is a significant correlation relationship of demarketing with its dimensions and medical products. (There is no significant effect relationship between demarketing dimensions and consumer culture). Table (2) shows the estimation of the parameters of the simple linear regression model to measure the effect of demarketing in its dimensions in consumer culture. The main hypothesis is rejected, which states that (there is no significant effect of demarketing on its dimensions in consumer culture). The alternative hypothesis is accepted (there is a significant correlation relationship to demarketing with its dimensions and consumer culture). (There is a significant significant relationship of consumer culture in medical products). Table (3) shows the estimation of the parameters of the simple linear regression model to measure the effect of consumer culture in medical products. This rejects the sixth main assumption that there is no significant relationship between the culture of the consumer and the medical products and accepts the alternative hypothesis (there is a significant correlation between the culture of the consumer and the medical products).

Table 1. Shows the estimation of the parameters of the simple linear regression model to measure the effect of demarketing in medical products

explanation factor R ²	values (T)		values (F)		medical products M	Constant	dependent variable y independent VARIABL X
	table (%1)	CALCULATED	table (%1)	calculated	b	a	

Cont... Table 1. Shows the estimation of the parameters of the simple linear regression model to measure the effect of demarketing in medical products

0.997	2.326	29.507	3.201	870.634	2.916	0.498	X1 increase the price
0.959		8.422		70.929	1.863	0.221	X2 counter advertising
0.916		5.736		32.897	3.148	0.549	X3 LIMITED DISTRIBUTION
0.988		15.930		253.773	3.078	0.193	x4 REDUCE PRODUCT QUALITY
0.984		13.613		185.307	0.668	0.049	X demarketing

Table 2. Shows the estimation of the parameters of the simple linear regression model to measure the effect of demarketing in its dimensions in consumer culture

EXPLANATION FACTOR R ²	value (t)		value (F)		b	a	variable
	table (%1)	CALCULATED	table (%1)	CALCULATED			
0.995	2.326	24.4	3.201	595.6	0.704	0.029	X ₁
0.972		10.2		103.3	0.991	0.097	X ₂
0.969		9.7		93.6	1.098	0.113	X ₃
0.989		16.5		273.4	0.794	0.048	X ₄
0.992		19.2		37.2	0.219	0.011	X

Table 3. Shows the estimation of the parameters of the simple linear regression model to measure the effect of consumer culture in medical products.

EXPLANATION FACTOR R ²	value (T)		value (F)		M	Constant	X Variable
	table (1%)	calculated	table (1%)	calculated	B	A	variable Y

Cont... Table 3. Shows the estimation of the parameters of the simple linear regression model to measure the effect of consumer culture in medical products.

0.991	2.326	18.4	3.201	337.5	2.054	0.112	Y1
0.960		8.5		72.8	2.877	0.337	Y2
0.954		7.9		62.2	3.181	0.403	Y3
0.987		14.9		222.6	2.317	0.155	Y4
0.985		13.8		191.8	0.638	0.046	Y

CONCLUSION

The study proved the validity of the hypotheses and reached the conclusions were the most important: demarketing is counterproductive to traditional marketing to achieve benefits and objectives that serve the individual, organization and society and try to reduce the depletion of natural resources. demarketing is an important tool used to reduce demand or consumption, rationalize its use of a particular product or service and to limit the use of certain products that harm the public health of man and society.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon Faculty of Management and Economics, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effect of the Computer Program is Interactive in the Achievement of Students of the Faculty of Basic Education in Teaching Methods

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ABSTRACT

The researcher chose the experimental design for the purpose of the research. The researcher chose a sample of the students of the third stage Geography Department in the Faculty of Basic Education at Babel University, the number of its members was (74) male and female students Were divided into two groups, one experimental (36) students, and the other officer (38) students, The researcher conducted a statistical equivalence between the students of the two groups in a number of variables. The research tool was standardized for the two groups. The test was achieved by the researcher from his sincerity and stability. After applying the test and analyzing the results statistically the researcher reached the superiority of the experimental group on the control group.

Keywords: *An interactive computer program, achievement, teaching methods*

INTRODUCTION

Despite the scientific development that has taken place in our era, in which modern technologies have entered all areas of life, we still see the majority of universities far from that development and beyond their walls, which is far from what is inside them. For years now, they have lacked the use of modern technologies¹. At the educational level, on the other hand, none of us deny the extent to which children are connected to the computer. This is the device that captures them with its various programs and tricks. If we employ the computer in the educational process, we will achieve the educational outputs in the least time and effort. Solution The problem mentioned above can be summed up in answering the following question: What is the effect of the interactive program on the achievement of students of the Faculty of Basic Education in teaching methods? Today, there is a growing need for the application of scientific thought, methods and techniques in the design of educational plans and programs, in order to achieve better education and performance more efficient and

effective commensurate with the abilities of learners and their characteristics² at different levels of education, and the science of educational design is one of the modern science that emerged in the years And the development of the concept of educational design as a result of the impact of the results of studies and research of two large schools of psychology are behavioral school and cognitive school, and also influenced by the results of research and studies in the field of Techno And the emergence of programmed education that has had the greatest impact on the emergence of different models of educational design. Since the 1980s, attention has grown to the educational design and has become one of the new areas that rely on the use of educational technology and the method of systems to design educational programs directly related to the goals and activities Education in the classroom, because the teacher's practice of the design process of education will help him to think and planning the organization, and then determine the educational goals, and teaching methods, and educational activities, and methods of assessment more effectively³. If learning is an intentional design of educational situations systematically to lead students to learning, and learning is the desired change in a student's behavior as a result of the presentation of these educational attitudes to him, ie the growth of his knowledge, skills, direction,

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or abilities, the learning process. The design of learning materials is appropriate to the student's needs, abilities and abilities to help him achieve the desired goals. This is what the educational design science aims at. The program levels vary in design from the design of a small educational unit to a specific educational goal or a limited number of goals. The learner can achieve and master the learning within the normal time of the study or less or more time., To design a program that includes a set of units in a particular sequence of subjects of the entire course, and the learner in the study according to this sequence and not move from one unit to another next to it Only after they have mastered to learn the objectives of the previous unit, and so on until the goals of all units are learned well. Therefore, we started to think about building educational and learning programs that contribute to the process of teaching and learning on the basis of which the desired educational goals are achieved. Hence, it is necessary to clarify the meaning of an educational design - learning its basic idea. The design is an integrated mental map that guides the individual to how to implement And move forward with steps in which flexibility towards the goal ⁴. On the other hand, the design means the geometry of the object in some way according to certain calculations or the engineering process of a situation, and we will discuss the stages of educational design according to the vision of Rosenberg ⁵. At this stage, the problem is identified by the needs needed and transferred to information. The needs of the learners are identified by observation, interview or questionnaire. This stage helps teachers make decisions about learning or any educational program and identify the obstacles and degree of success. Collect, study, analyze and translate information into educational activities. Multimedia programs, one of the most important applications of educational technology, have created a huge leap in the design and production of educational programs. These programs are one of the most important applications as demonstrated by their ability to deliver information, manage learning and learning processes, and help learners of all ages to switch from the automated system which is typical of a full learning environment. It works on all texts, visual presentations, images, sound, music, animation and video in a unified image within interactive computer programs, making it fun, thrilling and helps Tess T learning. The results of several studies indicate the effectiveness of the use of multimedia technology to achieve some educational objectives, such as increasing student achievement at different levels of

study ⁷. Information technology is represented in the computer and the media is one of the most successful means to provide this rich educational environment. It is possible to work in collaborative projects between different schools. Students can develop their knowledge of subjects of interest by contacting friends and experts with the same interests ⁸. It also allows the reception, storage and processing of data by transferring data to usable information and extracting the results required for decision-making. The user of the computer sees accuracy and proficiency And the speed of completion and the versatility and ease of use and is considered to be one of the most important features of the modern era, everything around us can be managed through it, has been popular in recent times in various fields of life and proved high efficiency and provided the effort and time and costs, making it the focus of attention of educators and those interested in the educational process, The educational systems were concerned with the computer and called for its use in educational institutions, whether in school administration or teaching ⁹. The use of computers in the educational field was for several reasons: It gives students the opportunity to learn according to their active nature to identify the prevailing technology in the society in the present and look forward to the future. The computer contributes to its enormous potential in the development of educational administration, especially registration processes and schedules, examinations, results and others. The computer contributes to the improvement of the educational processes themselves through the separation of education and the programming of educational materials and the development of their delivery systems. Studies have shown that computer learning has been reduced in comparison with the time taken in traditional methods and that it improves attitudes toward computer use in educational situations. These are some of the results of scientific studies. The production companies and some of the men of education echo the same results, but in different ways. Examples of what is offered in this field are that the computer helps the students to discover themselves, A play pupil of activity and participation of interaction and it helps in the coordination between the hand and the eye and works on individual learning according to the rate and encourages innovative thinking, the following are the most basic computer education for jobs in education:

Designing advanced educational programs to achieve educational and behavioral goals

Shorten the time and reduce the effort on the teacher and learner.

Multiple knowledge sources of the multiplicity of programs that can be provided by the device to one student or several students to learn the method of conclusion

The ability to store knowledge in unlimited quantities and the speed of retrieval, while ensuring accuracy in the material presented

the process of learning and the presence of elements of health and error reinforcement to the learner a good method of self-evaluation

Diversity of methods in providing and evaluating information.

Fit each program for a group of students and specific educational material

Organizing the creative thinking process of the learner (through self-learning - the uniqueness of the process of education)

It has been proven to most computer users with practical experience in many developed countries that computer education if used in the right place at the right time can achieve excellent results in the classroom and this in turn includes training teachers to optimize the use of this technology so that they can decide the appropriate plan and the appropriate place and time A study similar to the current research variables (Kampesh, 2012), the impact of using the computer on the methods of interactive learning and cooperative in accelerating the teaching of some offensive skills basketball Filleting Department of Physical Education.

METHODOLOGY

The knowledge of the research methodology and the rules to be followed, starting with identifying the problem and describing it procedurally through the selection of a specific methodology to collect data related to them and the analysis of data and the extraction of the results are important in both theoretical and applied science as the research methodology is concerned with all the steps of the stages of research and what each requires the implementation of tools Analytical and explanatory statistical measures and processes (Melhem, 2010: 47). The experimental design is an artificial position to

test hypotheses. The research community consisted of students of the faculties of basic education, and since the research society was large, the researcher chose the basic education faculty / Babylon University to be a sample of its current research (74 students), 36 students in the experimental group and 38 students in The researcher prepared the interactive computer program according to the vocabulary of the teaching methods curriculum. The program consists of a set of teaching plans in the form of interactive lessons in the computer in addition to a set of teaching aids from pictures, drawings and video clips to clarify the scientific material as well as to show how the scientific material is applied. The researcher prepared a collection test consisting of (40) test subjects of the type of multiple choice presented to a group of arbitrators and specialists in general teaching methods, educational and psychological sciences, and then the researcher conducted a survey experiment on a sample of the same research community of 100 students and students to make sure The researcher applied the test to the students of the main research sample. The researcher used the following statistical means: (t. test for two independent samples, Pearson correlation coefficient ,The Spearman-Brown equation, the coefficient of difficulty, the coefficient of discrimination, and the equivalence of the effectiveness of wrong alternatives)

RESULTS AND DISSCUSION

To determine the difference between the average scores of the two groups in the achievement test, the researcher used the T-test equation for two independent samples. The result was as shown in the following table 1. The mean scores of the experimental group (29.25), the mean of the control group (24.03), and the calculated T value (4,073), which is greater than the numerical value of (2,000) at the level of 0.05), And degree of freedom (72). The results of the study showed that the students of the experimental group who studied the subject of teaching methods according to the interactive computer program of the students of the control group who studied the same subject according to the usual method in the achievement test, reject the null hypothesis which states the following: There was no statistically significant difference at the level of significance (0.05) between the average score of the experimental group who studied the method of teaching according to the interactive computer program and the degrees of the control group who studied the same subject according to the usual method of collection. The experimental group,

which was studied according to the interactive program, exceeded the teaching methods of the students of the control group, which was studied according to the usual method in the post-achievement test. The use of the proposed interactive program makes lessons structured at all stages and distances learning from improvisation and time-use in an ideal way. The proposed program also creates a rich learning environment that enriches students. Making students the focus of the educational process - learning, and through the activities and means that have been identified within the program prepared, as some of

these methods were prepared by students and presented in the course of the lesson. The researcher believes that this is an incentive for students to strengthen their pride in their work and create a spirit of competition among students and away from the theoretical explanation of abstract educational tools and activities, and on the other make the subject close to the minds of students and increase their interest during the lesson and the desire to teach the subject

Table 1. Determine the difference between the average scores of the two groups in the achievement test

Groups	Sample size	Arithmetic average	standard deviation	Degree of freedom	Te -TEST		Statistical significance
					Calculated value	Table value	
Experimental	36	29.25	5.29	72			A function of 0,05
Control	38	24.03	5.67		4.073	2.000	

CONCLUSION

The adoption of the interactive computer program contributed to increasing student achievement in teaching methods. Teaching in accordance with the computer program to make students more interesting and interactive with the teaching methods method of teaching in the traditional way. Teaching according to the interactive computer program has helped students achieve the higher levels of cognitive goals (analysis, synthesis, evaluation). Encouraging teaching according to the interactive program students to ask questions and positive participations during a lecture, and this is an internal indicator to get the motivation to learn, which means self-confidence and expression of ideas.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Basic Education, Babylon University, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effectiveness of Interactive Technology in the Students' Achievement of College of Basic Education in the Curriculum of Educational Techniques

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ABSTRACT

This research aims to recognize: the effectiveness of interactive technology in the students' achievement of college of basic education in the curriculum of educational techniques, in order to achieve the purpose of the research, the researcher selected the experimental design in her research, for its suitability to the research aim, this curriculum is one of the most appropriate educational research curriculums to the accuracy of the results that can be achieved by applying this curriculum.

Keywords: *The Interactive Technology, the Achievement, Educational Techniques.*

INTRODUCTION

The research problem is to seek to provide students with the skills of combination technology in education through a determined design which commensurate with the directions of the Ministry of Higher Education and Scientific Research in Iraq to raise the project of combination¹ technology in education, especially in the context of the absence of a curriculum (educational techniques) that have studied in the colleges of basic education in Iraq for students of the third stage to many of the general technology skills that must be provide the most important applications to be able to be hired in in the educational process, given the limited the specialist studies in the field of electronic curriculums- within the researcher's knowledge- through our search in the available databases, and through the experience of some professors that there are complaints about the poor achievement of students in educational techniques, most of students explained that the lessons are given to them in a way that does not stimulate their motivation to learning but rely on the invocation and memorization significantly, so the researcher decided to design a curriculum that may contribute to solve the above problem which can

be summarized in answering the following question: What is the effectiveness of interactive technology in the students' achievement of college of basic education in the curriculum of educational techniques?.² The activities and methods of traditional educational in educational institutions can't provide great help to develop the components of the desired behavior, such as information, skills and attitudes, the thinking of building educational and learning systems that contribute to felicitating the educational and learning process according to the bases which on basis to achieve the desired educational aims, so the educational and learning process is a logical process that deals with the requirements of procedures to organize, develop, implement and present education in accordance with the cognitive characteristics of the learner, so It's a methodological planning process that precedes implementation of the plan to solve the problem¹. It describes the procedures that concerning of selecting the educational approach to be designed, analyzed, organized, developed and evaluated, Therefore it's a translation of the principles of learning and education into methods in which teaching approaches and activities are identified and their outputs achieved in mental and motor performances within environmental conditions and limited contexts³. The origins of the design in the educational process come back to the researches in the fields of educational psychology and education, which provided us with an inexhaustible knowledge and skills required to develop learning strategies and techniques

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that led to the emergence of different learning theories such as behavioral, cognitive and human theories, these theories aimed at explain the process of learning and proposing learning models, Programmer and individual learning in its different ways and thus develop the concept of educational design, Science of design and different models as part of the technology of education are due to the attempts and efforts made in America in World War II, and immediately after the war in order to teach a large number of persons to use modern technologies in the shortest time and less expensive ⁴. At that time, psychologists began to find out new and important information about how the human learning process, which includes the accurate details of the task which want to be learned or performed it, this provides the learner a positive and an active sharing, audiovisual specialists played a role in developing this concept, so they developed new methods, by applying the principles of psychology, educational design is a science and technique that seeks to describe the best educational methods that achieve desired educational outcomes and develop it according to certain conditions ⁶, this science serves as a link between theoretical sciences and practical sciences in the field of education, John Dewey stressed the need to link theories of learning and educational practices, as learning is done only through experience and work ⁷, the introduction of interactive technology into schools is one of the most recent developments, yet seems to have relatively little impact on the teaching methods of teachers. There are considerable evidences concerning with the extent to which students deal with information and communications technology (ICT) through study and entertainment the activities at home ⁸.

The educational design has benefits in the educational process which contributes effectively in:

Try to link theoretical and practical sciences that is interested in the functional use of teaching aids in educational situations.

Its importance also appears in facing the fast variable in our in our modern world and technological development in all aspects of life.

Provides the teacher with designs and educational models that guide to the design and planning of daily lessons or units and the method of effective education in the shortest time and effort.

Reduces the confusion and randomness of the teacher and focuses on the role of the learner and help them to clarify this role.

The attention is directed to the general aims of the subject curriculum and to the behavioral aims of each subject.

The role of feedback in the continuous development of inputs, processes and outputs of educational attitudes is highlighte ⁹ that has benefits which are :

Leads to attention towards educational aims.

Increases the probability of success of the teacher in teaching the educational curriculum.

Saving time and effort.

Facilitates communication.

Minimize stress that may arise between teachers ¹⁰ there is a study that is similar to the current research variables which is the study of ¹¹ the effectiveness of an electronic curriculum for the teaching methods in developing the teaching skills required for the students in the college of Sharia at Imam Muhammad bin Saud Islamic University.

METHODOLOGY

The choice of experimental design is the first step that the researcher have to achieve, because of the right choice ensures that the researcher access to accurate results, so the design is the planning that prepared by the researcher in order to be able to answer the questions of research and the design used expresses the researcher's ability to study and describe the exact procedures and methods used to obtain a scientific answer when studying the problem of research. The research community was represented in the students of the College of Basic Education for the academic year (2017-2018) which has selected randomly. The research consists of two groups (experimental and control group), the size of the research sample consists of (72) students, each group made up of (36) students. The researcher made a statistical equivalence between the students of the two groups in a number of variables: (age of the students by months, and the educational achievement of the parents). The Research Instrument : the achievement test, The researcher presented the test items to a group of arbitrators and specialists in teaching the Arabic

language and educational and psychological sciences, after that the researcher conducted a survey experiment on a sample of the research community, that consisted of (100) students to make sure the clarity of the items, its ambiguity and the test time, as well as to extract the coefficient of stability and after confirmation of the validity of the test and its stability, the researcher applied the test to the students of the main research sample, the researcher used the following statistical methods : (Test equation (t-test) for two independent samples, Pearson correlation coefficient, the Spearman-Brown correction equation, item difficulty, item discrimination and the effectiveness of the wrong alternatives).

RESULTS AND DISCUSION

To find out the difference between the average marks of the two groups in the achievement test, the researcher used equation test for two independent samples, so the result was as in table (1). As shown in table (1) that the average marks of pupils in the experimental group is (23.44), and its variance is (16.08), the average marks of pupils in the control group is (19.86), and its variance is (30.25), the t- computed value is (3.159) which is larger than the t-tabulated value which is (2.000) at

level (0.05), with a degree of freedom (70). The results of the study showed that the pupils of the experimental group who studied the subject of pedagogical techniques according to the interactive techniques of the pupils of the control group who studied the same subject according to the usual method in the achievement, thus reject the null-hypothesis that states the following: There is no statistically significant difference at the level of significance (0.05) between the average marks of the experimental group who have studied the subject of educational techniques according to the interactive techniques and the marks of the control group who have studied the same subject according to the usual method of achievement.

RESULTS AND DISCUSION

The adoption of interactive technology has contributed to increasing students' achievement in the subject of educational techniques. Interactive technology has an effective role on students' retention and consistency. Teaching according to the interactive technology has helped students in achieve higher levels of cognitive aims (analysis, synthesis, assessment).

Table 1. The results of t-test for two independent samples in the achievement test

Group	Number of sample	Mean X	Standard deviation	variance	Degree of Freedom (DF)	T-value		Level of significance
						Computed	Tabulated	
Experimental	36	23.44	4.1	16.08	70	3.159	2.000	A statistical function at (0.05)
Control	36	19.86	5.5	30.25				

CONCLUSION

This curriculum is one of the most appropriate educational research curriculums to the accuracy of the results that can be achieved by applying this curriculum.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon, College of Basic Education, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effectiveness of Teaching in the Gibbs Model in the Decision-Making to Solve the Environmental Problems among Students of College of Education

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ABSTRACT

This research aims to identify the effectiveness of teaching in the Gibbs model in the decision-making to solve the environmental problems among students of College of Education, in order to achieve this aim, the researcher made an experience for two months in the second semester of the academic year (2017-2018), the researchers adopted the experimental method of partial control in two groups (experimental and control) with pre-test and post-test to take the decision to solve environmental problems.

Keywords: *the Gibbs Model, the Decision-Making to Solve the Environmental Problems.*

INTRODUCTION

Recently and till now, there are asks from educators that appear in the direct of the adoption of modern methods in teaching science which based on showing coherence between learners and their environment because it becomes one of the inevitable issues in the world that suffering from all the forms of environment pollution, one of the requirements of these asks is to design sciences curriculum¹ and its methods of teaching that coherence between knowledge that is taught to students and environmental problems to show the role of knowledge in making decisions to find appropriate solutions, by preparing the learner to face the problems of life by giving them the right thinking methods and keep away from stuffing their mind with quantitative information that is often forgotten after graduation. although the modern trends in education confirm the main role of learner in the educational process, but it's still in teaching science negatively in educational situations and its role is limited to passive listening and receiving, by studying science at the undergraduate level, the researchers found that the methods used in teaching didn't enhance students' decision-making ability to

solve environmental problems, teaching is based on the automatic conservation of the theoretical framework and the memorization of the practical framework². Therefore, the researchers wanted to investigate the effect of the Gibbs model in improving students' ability to make decisions to solve environmental problems. The importance of this model lies in the fact that it is one of the models of teaching meditation which is a survey approach based on structural theory and meta-knowledge that based on the basis of active learning and participation and focuses on the degree of the teacher's awareness of his/her experiences and interest in the abilities and talents of students and the degree of awareness of the students' experiences, in which the mixture of evaluation and teaching and linking theory to practice and consider the student as a thinker, creative, organized and motivates the students to use their experiences to discover learning themselves³, by focusing on the role of the learner to reflect on the situation in front of him/her, analyze it to its elements and draw the necessary plans to understand, to reach the desired results in this situation, and then design these results through the plans that were put (**Pollard, 2002:3**). So the meditation is a kind of mental process such as thinking, but not thinking which we know. Human does not meditate on his/her daily routine works, reflective teaching applies to complex and relatively unclear ideas whereas there is no clear aim or correct answer and the other wrong"⁵. Gibbs model is one of the models of

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teaching philosophy developed by Professor Graham Gibbs, course for Reflection in writing the publication learning through work: A guide to teaching and learning methods, which was first published in 1988 by the Oxford Polytechnic Supplementary Education Unit, it was the result of a cooperative project between Graham Gibbs, Bob Farmer and Diana Eastcott. The reflective learning course enables students to link theoretical and practice by engaging in a periodic sequence of activities: description, emotion, experience assessment, analysis, conclusion and conclusion of work planning. This model has been effective in the programs of development of teachers and students who are linked with medicine.

It's a circular model with six sequential steps:

1- Description (describe the situation or the event) :

In this step, the situation or the event which reflected briefly are described, this step is one of the smallest steps of the model. It aims to include important references to what happened, a good description depends on the teacher's experiences with his/her knowledge of what does he/she describe, and on his/her skills and style in highlighting the main features of the situation or event.

2- Feelings or thoughts (self-awareness)

In this step, the teacher has the opportunity to discover any ideas or feelings that the students have, about the situation or the event, which is in the mind, and in order to reach it, it is important not to include another description and don't try to evaluate or comment on their emotions, Clear-cut thoughts and feelings. As well as, do not just use descriptive words about how you feel, and what you think about the event or the situation.

3- Evaluation of Assessment

In this step there is a chance to explore what was good about the event and what did not well. It is important to try to consider both good and bad, even if the event seems completely negative or positive. This includes what others did or did not do well. The previous step of the session is related to what happened. The next steps are to understand the event and how to improve the situation if it happens again. (Jasper,2003:79)

4- Analysis:

In this step, the situation or the event are analyzed

to its components in order to discover the details, and should be one of the largest sections of the contemplative session.

6- Making a work plan

Here is the reflection of experience for the purpose of determining what to do when facing the situation if it occurs again, and the formulation of plans, should we behave differently, or it's better to behave in the same way.

The importance of the Gibbs model lies in the following points :

To challenge students' special assumptions.

2- To discover different ideas / methods towards doing or thinking about things.

To promote self-development (by identifying strengths and weaknesses points and making procedures to deal with it)

To link practicing and theory (through the collection between doing or surveillance with thinking or applying knowledge)

This model confirms on the role of feelings and recognized its importance in thinking process.

Encourage students to re-life in past events, with a focus on developing a more effective action plan for any future events.

From the above we find that the Gibbs model enables students to adopt basic thinking processes to choose the best response among a number of alternatives, compile the information required to cover a particular topic, compare the advantages and disadvantages of alternatives, identify additional information, make decisions and judge the most effective responses. Teaching students to make a decision effectively contributes to choosing the right alternative among some alternatives by comparing alternatives, analyzing it, knowing its factors and looking at the good things and the bad things about each alternative.

Through the above we find a number of conditions for decision-making are :

The decision-making process occurs when there is a situation or problem that needs to be resolved.

There is more than one alternative and all alternatives are correct.

It should differentiate among these alternatives to choose the best through a set of criteria.

Decision-making depends on different values and information.

The environment is defined as “the physical, chemical and biological conditions of the region in which a living creature lives, and the entire globe is considered to be the environment for human beings and consists of air, water, soil and all living things. The environment has historically been seen as a distinct entity distinct from humankind. This separatist view is partly responsible for the deteriorating state of the earth planet. Fortunately, society has slowly begun to notice that humankind represents only a very small part of the system on the earth, and although we have employed our great capabilities in harnessing the environment, we are beginning to realize that every impact we make in the environment also has an effect of us. Therefore, human may enter clearly in the various environmental systems, causing a great imbalance in the natural balance, as well as that the human element of the environment, but that the practice of the wrong and irresponsible had a significant impact on the emergence of environmental problems threaten the present and future, through the above can be defined Environmental problems as “problems that arise as a result of the imbalance of the relationship between man and his environment in which he/she lives in, in addition to other reasons beyond his/her control. The two researchers suggested list some classifications which they believe correspond with the environmental problems in the research problems which they are

First: The classification of Al-Srori, (2011) who has divided it according to the nature of the source of pollution and the nature of its impact to :

Physical pollution: it includes (water pollution, air pollution, soil pollution, radiation pollution).

Non-physical pollution: It includes (visual pollution, noise pollution, electromagnetic pollution, intellectual pollution).

Second: The classification of Al-Soud, (2012) who divided into :

The problem of population explosion.

The problem of population which divided into : Physical pollution includes (air pollution, water pollution, soil pollution, food and treatment pollution). Non-physical pollution includes (electromagnetic pollution, noise pollution noise).

The problem of depletion of environmental materials. In the field of environmental problems, previous studies have been conducted one of them are Al-Asadi’s Study (2009) Which was made in the city of Najaf in Iraq, which was aimed at recognizing the effectiveness of two educational models according to the entrance of (STS) in achievement and the development of critical thinking and decision-making ability to solve environmental problems in students of the Department of Life Sciences, the sample of this study consisted of (60) female students from the second stage of the Life Sciences Department. The researcher taught environmental and pollution materials, the researcher applied the decision-making scale to solve the environmental problems on the research groups and showed that the experimental groups got the better of the control group.

METHODOLOGY

The two researchers adopted a partial experimental design with two equal groups (experimental according to the Gibbs model and a control module according to the traditional method) with both the pre- and post-tests for decision-making to solve environmental problems. The research community in all life science departments represents the faculties of education in the public universities in the Middle Euphrates region for the academic year (2017-2018), the second stage of the Department of Life Sciences at Qadisiyah University was chosen in a simple random way to represent a sample of the research community, which consists of (81) students that divided into two sections (A & B), section (A) consists of (41) and section (B) consists of (40) students, the two researchers randomly selected one of the two groups to represent the control group which was section (A), while section (B) was represented the experimental group, the two researchers made statistical equivalence among the students of the two groups in a number of variables: (age of the students by months, the IQ test and the decision-making scale), there were no statistically significant differences, a single research instrument was prepared which was the decision-making scale for solving environmental problems and the construction process was made by several steps : determining the

aim of scale, examining the previous scales for decision-making to solve environmental problems, identifying the environmental problems based on the items of scale in its initial form, verifying the validity of the items and extracting the psychometric characteristics. The two researchers applied the scales on the students of the main research sample using the following statistical methods: (t-test) for two independent samples, t-test for two linked samples and Pearson’s connection coefficient.

RESULTS AND DISCUSSION

Table (1) shows the mean X of the students’ marks in the experimental group (62.75) with standard deviation (5.69), while the control group had a mean X of (57.82) with a standard deviation of (9.99), When applying the test for two independent samples, it was found that the computed value (2.55) is higher than the tabulated value which was(2) on level of significance (0.05), with degree of freedom (79), which means this difference is statistically significant, i.e. the students of the experimental group who studied according to the Gibbs model have exceeded the decision-making scale to solve the environmental problems on the students of the control group who studied according to the traditional method, reject the null hypothesis and accept the alternative hypothesis “There was a statistically significant difference at (0.05) between the average marks of the experimental group who studied according to the Gibbs model and the average marks of the control

group students who studied according to the traditional method of decision making to solve environmental problems”. The results showed that the students of the experimental group who studied according to the Gibbs model got better of the students of the control group who studied according to the traditional method of decision making to solve environmental problems, which due to the following reasons : The use of the Gibbs model contributed to the improvement of students’ abilities to describe situations and events. This improved their interpretation and understanding abilities, which improved their environmental decisions due to increased understanding and interpretation. The Gibbs model encourages students to describe their feelings about the situations and events they face. This has contributed to the development of their own awareness and this has been reflected in their decision-making according to what they see as true. Teaching according to the Gibbs model allows students to discover the situations they are facing from a different point of view, to choose between what is good and what to do, and to be able to obtain a lot of information for the purpose of relying on judgment. According to (Kolb), reflective teaching is a basic learning experience and represents a dynamic process that adapts the individual to the surrounding environment. This has led to increasing students’ awareness of the environmental problems surrounding them and thus gaining new experiences through two basic dimensions: knowledge and processing of information.

Table 1. Shows the results of the t-test For two independent group of the research in the decision-making scale to solve environmental problems

Group	Number of students	Mean X	Standard Deviation	DF	T-Test		Level of Significance
					Computed	Tabulated	
Experimental	41	62,75	5,69	79	2,55	2	statistically
Control	40	57,82	9,99				

CONCLUSION

In this step, the issue is discovered from a different point of view after the trade-off between the choices are presented, determine what should be done, and be able to get a lot of information for the purpose of relying on the issuance of judgments, and here is developing the behavior of the learner, and what must be done in a

different method.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon/ College of

Basic Education, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Historical Narrative in the Repentance of Some Companions in the Book of Tawabeen Ibn Qudaamah

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ABSTRACT

He was born in a village in the city of Nablus in Palestine in the year (541 AH) in a family was known in sciences, and it was suffered by the occupation of the Crusaders, Iben Qudama memorized the Holly Qu'ran when he was a young boy, he lived and coexist with the difficult circumstances that he and his family faced them patiently, then they emigrated to Damascus and then moved with Ibn Khalaf al-Hafez Abdul Ghani al-Maqdisi, his newly-married sister "Rabaa Bint Qudamah" husband to Baghdad at the age of twenty years, he was seeking for knowledge so he settled in Damascus, he had been preoccupied with the sciences and knowledge, so that he wrote a lot of books in various historical, religious and Jurisprudence and other fields.

Keywords: *The city of Nablus, memorizing the Qu'oran, sea of science, Jurisprudence*

INTRODUCTION

All praise and thanks be to Allah, the Lord of the Worlds. May the peace and blessings of Allah be upon Prophet Muhammad, the unlettered prophet, his family (the ships of rescue and best creatures after the prophet of god and his companions) ¹. The Islamic religion was distinguished by its vitality and distinctive activity in its long history, As was known about the large number of scientists, thinkers and visionary since the era of the Prophet (peace and blessings of God be upon him) to this day, Unfortunately, however, some of the symbols of this religion have not received sufficient attention because of unrealistic ideas, convictions and attitudes ¹, So we did not find a thorough study of these characters, which collected a lot of information that needs to be scrutinized and diving in the process to find out what an important historical informations have hidden ². So I studied a part of the Book (Al- Tawabeen) by Ibn Qudaamah al-Maqdisi, which was rich in penalty of many historical ² events about the nations that followed and preceded Islam, where it was found in the book of Al- Tawabeen (repentants) one of the famous islamic

books, It was written by Sheikh Muwaffaq al-Din Abdullah bin Qudaamah al-Maqdisi (may Allah have mercy on him) who died (620 AH / 1223 AD), He mentioned one hundred and thirty stories of repentance, beginning with mentioning of the repentant of the angels (peace be upon them), He mentioned the story of the two angels "Harut and Marut" and then mentioned the repentant of the prophets (peace be upon them), the repentant of the kings of the last nations, the return of the nations, then the return of the last nations, he mentioned the news of repentant from the companions of the Messenger of Allah (peace be upon him), the subject of our research, and he mentioned the repentant of the kings of this nation, also he mentioned the news of a group of repentant, he sealed the book by mentioning the news of a group who converted to Islam. With the regard to the reading of this book of interest, lesson and exhortation, moving the souls to repentance and rotation by reading the situation of its people ³; But in some of the stories that he mentioned in the book, especially what he reported from the previous nations, Which needs to stop, review and criticize; Because in some of the transmission of disbelieve in the text and a strange in the context, and in contravention of the "Sharia" (doctrine), especially what was the transport of the former nations. The research was divided into two parts: the first, was author's life; the second was his narration about the repentant of the companions of the Prophet (peace be upon him) . The researcher sought sources of the

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research from the pages of the author of the book ⁴. In addition, he extract information from the doctrinal and fundamentalist books of Islamic religion scholars ,this was reinforced by the Arabic references, which varied between historical books, translations, dictionaries, and others. In spite of this, the researcher put his humble effort among the gentlemen supervisors' hands to express their informations and clarifications, which are only to support me supporting the research as well. His name is Abu Mohammed Abdullah bin Ahmed bin Mohammed bin Qudamah bin Muqdam bin Nasr bin Abdullah al - Maqdisi al-Jamaeyly Then al-Damshqi al-Salhi al-Faqih al-Hanbali Shaykh al-Madhahab, Imam the sea of the "Shariah" sciences, al-Zahed, Shaykh al-Islam, and one of the scholars ⁵, Muwaffaq al-Din. He was born in Jamaeyl, a village in the city of Nablus in Palestine (541 AH) in a family was known at sciences, He was brought to Damascus with his family and relatives when he was 10 years old. When he was a young man, he left his country with uncle after his country was hit by the occupation of the Crusaders and settled in Damascus, he participated with Saladin in his wars against the Chaldean. Mohammed bin Ahmed bin Mohammed bin Qudamah Sheikh Saleh Abu Omar al-Maqdisi, the builder of the school in which al-Sufah reads the Holly Quran, he was the brother of Sheikh Muwaffaq al-Din Abdullah bin Ahmed bin Mohammed bin Qudaamah ⁶, Abu Omar was older than him, because he was born in (528 AH) in the village of Al-Sawya. It was said in Jmaeyl, Sheikh Abu Omar grew Sheikh Muwafaq al-Din up and he was good for him and his wife, he was doing his interests, When they came from the "Holly Land" they went down to the Abu Saleh's mosque outside the "Bab al-Sharqi" , then moved from it to Sufah, it has nothing to do with architecture except Deir al-Hourani. They called us Salihin according to the mosque of Abu Saleh, then called Salihiya to this spot from that time, and Sheikh Abu Omar read the Qur'an according to the story of Abu Amro, saving the Mukhtasir Alkharqi in the jurisprudence, and then his brother conciliator explained later, he wrote his explanation by his hands. He was abandoned with his family and relatives from his home, memorizing the Holy Quran and worked since his childhood.... Let us contemplate and envision his educational upbringing in that quite difficult challenging era, The Crusaders occupied some of the Arab cities and Jerusalem and the surrounding areas. What did this young Maqdisi man do? He stayed with his family before his emigrating, receiving his knowledge to know

his religion from his life, making his life as servant like to his religion ⁷, memorizing the holly Quran during his childhood, lived and coexist with the difficult circumstances that he and his relatives were faced the difficulties with patience and determination, he emigrated to Damascus and then moved with his cousin Hafiz Abdul Ghani al-Maqdisi, the husband of his late sister Rabaa Bint Qudaamah, to Baghdad at the age of 20, seeking for knowledge. The works of Ibn Qudaamah are numerous and multi-directional, some of them are related to the doctrine, including the Qur'an and the "Sunna", others including the jurisprudence and its origins, another part includes the ethics and virtues of the Sahaabah (the prophet companions may Allah be pleased them) ⁸, history and genealogies, In which Ibn Qudamah was composed of the encyclopedias and letters, which benefited the students of knowledge in different knowledge and sciences. Limea al'iietqad , almaktab al'iislamiu bayrut ,altabea ,alrabiea 1395 AH, Dham Alaetqad, Almhq: Badr Bin Eabd Allh Albadar Alnashr: Aldaar Alsafafia - Alkuayt Altbet: Al'uwlaa, 1406 ,Edad Al'ajza': 1, Alaistibsar Fi Nisab Alsahhabat Min Al'ansar , Eabd Allah Abn Qadamat Almaqdisii , Tahqiq Eali Nuayahd , Dar Alfikr , Bayrut , 1392 Ah / 1972 M , 407 Safaha .; Alburhan Fi Bayan Alquran / Tahqiq D . Sueud Bin Eabd Allh Alfunisan / Maktaba Alhady Alnubuii Al'iislamia Bur Saeid / Altubeaalhthania 1409 H; Litabiin Fi 'Ansab Alqarshiiyn , Eabd Allah Bin 'Ahmad Bin Muhamad Bin Qadama Almaqdisii , Tahqiq Muhamad Nayif Aldalimi , Almjme Aleilmiu Aleiraqiu , T 1 , 1402 Ah / 1982 , 591 Safhatan; Alktab: Tahrir Alnazar Fi Kutib Alkalam , Almhq: Eabd Alruhmin Bin Muhamad Saeid; Dimashqiya Alnashr: Ealam Alkutub - Alsewdy - Alriyad , Altbet: Al'uwlaa, 1410h - 1990m , Eadad Al'ajza': 1; Hikaya Almunazara Fi Alquran Mae Bed 'Ahl Albidea ,Almhq: Eabd Allah Yusif Aljadie Alnashr: Maktabaalrushd - Alriyad , Altbes: Al'uwlaa, 1409 ,Edad Al'ajza': 1; Dhama Almawsusin Almuhaqaq: 'Abu Al'ashbal Alzahiriir Hasan Bin 'Amin Al Manduh Alnashr: Alfaruq Alhaditha - Maktabat Altaweia Al'iislamia Altbet: Al'uwlaa 1407 H Eadad Al'ajza': 1; Kitab Min Tahqiq Zahir Alshawysh. , Nashr Sona 1984 24 Safhatan , Almaktab Al'iislamia Liltibaea Walnashr; Rawdat Alnnazir Wajanat Almanazir Fi 'Asual Alfqih Ealaa Madhhab Al'imam 'Ahmad Bin Hnbl Alnashr: Muasasa Alryan Liltibaea Walnashr Waltawzie Altbet: Altubea Alhthania 1423h-2002m Eadad Al'ajza' 2. His narrations was about the repentance of the Companions in the time of the Prophet Muhammad

(peace be upon him), was narrated by Abu Muhammad Abdullah bin Ahmed bin Mohammed bin Qudamah which was narrated by the evidence about some of the followers of the companions of the Messenger of Allah (peace be upon him and his family). Abu Muhammad ibn Abdullah bin Mansour bin Hibtah al-Musli told us that I am Abu al-Hussain al-Mubarak bin Abd al-Jabbar al-Sirafi on the series of "Sanad" said (Abu Khaythamah who is one of Bani Salem, Lag behind the Messenger of Allah (peace be upon him) in the battle of Tabuk, led by the Messenger of Allah (peace be upon him), Abu Khithma returned one day to his family on a hot day. And he found his two women with him in his thrones, in a cool house with a good weather during the hot summer in his house, so he remembered the messenger of the God in the battle field with the heat of sun and the hot air, Then he said: The Messenger of Allah (peace and blessings of Allah be upon him) "in the sun heat and abu Khaythamah is in the shadow of cold water, well-fed food and with a beautiful woman! It's unfair, I swear to God I don't enter my home until I joined the Messenger of Allah (peace be upon him), he asked one of those two beautiful women to make food for him. Then he went out in the request of the Messenger of Allah (peace be upon him) to fight when Tabuk came down. Thalabah ibn Abdul Rahman is a boy from the supporters entered Islam religion, he served the Prophet (peace be upon him) and helping him. That the prophet sent him for a need, Thalabah passed by the door of a man of the Ansar, he saw a woman from the Ansar washing. He was afraid to bring revelation to the Messenger of Allah (peace and blessings of Allah be upon him) with what he did, so he ran away, he hid himself among the mountains between Makkah and Madinah. The Prophet (peace and blessings of Allah be upon him) missed him forty days¹⁰. Gabriel the angel (peace be upon him) came down to the Prophet of God and said: "Muhammad, your Lord recites peace to you and says to you: A man from your Islamic nation among these mountains resorted to me. The Prophet (peace and blessings of Allah be upon him) Asked "Umar and Salman" to look for him, so they came out of the city's synagogues, and met one of the shepherds of the city called Tufafa, Umar said to him, Do you know anything about a young man among these mountains who is called Thalabah? He said: Perhaps you want the man that escapes from Hell. Umar said to him: How did you know that he was escaping from Hell? He said: that man every night come out for us from among these mountains, and put his hands on his head, he called out

to his God: I wish you had captured my spirit with the souls, and my body with the bodies, and did not leave me to separate the judiciary¹². Umar said: We want him. So the shepherd went with them. And when he was in the darkness of night, he came out of them out of those mountains, was putting his hands on the mother of his head, cried out, Oh my Lord, I have fired my spirit in life. When we look at this story and before delving into the point the views of scientists and the validity of this story, we understand the meaning of repentance and the submission to God Almighty and ask forgiveness and tenderness after the Muslim commit sin, even if It's true, such a story was a sermon and avoid falling into sin and return to God Almighty. Most of the historical sources have pointed out that this story is incorrect. There are many impurities that make the story of repentance of Thalabah is untrue story. The reason is that this story is weak because the evidence (sanad) is weak.

CONCLUSION

Iben Qudama memorized the Holly Qu'ran when he was a young boy, he lived and coexist with the difficult circumstances that he and his family faced them patiently, then they emigrated to Damascus and then moved with Ibn Khalaf al-Hafez Abdul Ghani al-Maqdisi, his newly-married sister "Rabaa Bint Qudamah" husband to Baghdad at the age of twenty years, he was seeking for knowledge so he settled in Damascus, he had been preoccupied with the sciences and knowledge, so that he wrote a lot of books in various historical, religious and Jurisprudence and other fields.

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Ethical Clearance: All experimental protocols were approved under the University of Babylon, Faculty of Education for Humanities, History Department, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Impact of Communication Strategy in the Achievement of Students in the Fourth Grade Faculty of Education in the Measurement and Evaluation

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ABSTRACT

In order to achieve this, the researcher used experimental design with partial control, which consists of two groups, one experimental and the other control. The random researcher chose the University of Qadisiya, Faculty of Education, Department of History, as a place to conduct the experiment. The sample (experimental and control) was 84 students, 41 students And the officer (43) students. In a random way, group B was chosen for a pilot group to study the communication strategy, and the control group was taught in the usual way. In addition to the objective of the research, the researcher prepared a multivariate selection test. The validity of the test and its stability, as well as the statistical analysis of its vertebrates, were verified. The results showed that the t-test was superior to the experimental group studied according to the communication strategy on the control group, which was studied in the normal manner. In light of the research results, the researcher recommended using the communication strategy. The researcher also presented a set of recommendations and suggestions. The use of communication strategy in other variables, such as critical thinking, creative thinking, visual thinking and visual perception.

Keywords: communication, collection, measurement and evaluation.

INTRODUCTION

The world we live in today is built on communication because most human activities are communicative activities through what they do in some way by conveying a message that carries information, opinions, attitudes or feelings to others for a purpose through codes, regardless of what is being confused. To facilitate the process of adaptation and control of individual resources and resources within the context of the learner in different life situations, whether these resources in the form of information or experiences or tools are available in the daily life of the learner, and the need for educational communication clearly in our time T; as a result of the rapid development of the information and the enormous amount of knowledge that the human mind is unable to carry ¹. Therefore, many educators and specialists

in education and psychology called for overcoming the difficulties of communication as a result of scientific development in all positions, whether academic or social, to become the main goal is how to convey information easily and get benefit through effective thinking and proficiency in order to raise the efficiency of the learner to confront the problems of the present and the future and to enable him to challenge ambiguity and surprises, and to increase his ability to adapt to the environment in which he lives ². Therefore, the value of the learner should be raised and benefit from the information he has in order to apply to him as a successful land intelligent, which leads to the achievement of effective and continuous learning, and push him to deal with situations in accordance with the quorum, and support individuals in life situations, enabling them to adapt the life situation in order to solve the problem, It is a guiding basis for effective and effective performance³. Therefore, the need to understand the affecting variables in life generally and in the educational system particularly, in view of the multiplicity of time programs to be achieved both at the level of education and mechanisms and methods

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as well as the dates of examinations and vacations in addition to the link to multiple human elements between the student and guardian and academic and lecturer and academic supervisor to enable them to Adapting the living situation to solve the problem, as well as constituting a basis for guidance towards effective and effective performance ⁴. The two researchers go on to report that educational communication is one of the basic elements of understanding and positive interaction in educational massses as it is a representative of a vital and important phenomena of education and teaching, depending on the quality and quality of this education on the success or failure of education .Rein forcing strength points and prove weaknesses, as well as the latest balance between learning, memory, and thinking. (Sayed and Abbas, 2014: 12). Therefore, individuals need to use these communication skills of all kinds to be successful in life, and because many teaching methods need educational communication skills so there is a need to find communication strategies to keep pace with the huge explosion in communication through expanding the circle of thinking and strengthening confidence between teachers and learners ⁴. So, research in education and psychology have indicated that most students possess information and communicative abilities through books and public information. However, most students rarely reach the communicative role. The problem is determined by the students' ability to communicate and help them to judge the quality of ideas and exchange. Informations, and work to convince others of their value, which is abilities practical. Therefore, the researchers identified the problem of the research by the following question: - What is the impact of communication strategy in the achievement of third grade students Faculty of Education measurement and evaluation. Communication is a series of continuous processes or events that are constantly moving towards a position or agoal. Communication is not a static and static entity, in a world of time and place, but a profitable process that is used to convey social meanings and experiences. It aims at the truth of the generality and the spread or being known for commonality of the idea, subject, facility or issue, by moving using symbols of one meaning, and the same concept to the parties. Teaching for communication includes considering the learing process as...the expansion of activities, assessments, and teacher-student relationships. Teaching for interactive communication involves the use of a range of activities and goals that develop creative and practical thinking,

as well as memory-based learning imagination. This is coupled with "education scientists and psychologist that teaching for effective communication leads to improved performance even when teaching and evaluation rely directly on information recall ⁷. From this point of view, the researchers see the importance of using modern teaching strategies through which students are able to effectively manage their time by achieving a high level of achievement by interacting with the teacher and peers. Moreover, the use of modern strategies is appropriate for the nature of the academic content, The extent to which they have the motivation to learn, and the available physical resources, as well as the process of diversity in the use of more than the strategy of educational content is important because the repetition of boredom, diversity increases the motivation of students towards learning and thus increase activity and They have a priority which shows students acquire basic cognitive skills in the development of mental mobility they have in line with the logical management and positive interaction with others.

METHODOLOGY

First: Experimental Design: The experimental design suitable for the phenomenon to be studied in experimental research is necessary to obtain answers to the hypotheses of research and contribute to the experimental control of research and the work plan and work program for how to implement the experiment and to plan the circumstances and factors surrounding the phenomenon studied and observed.

Second: The research community and its type: The current research society is damaged from all fourth grade students / history department / faculty of education / Qadisiya University for the academic year 2017-2018 and all students of fourth grade / history department / Faculty of Education / Muthanna University. The researcher chose randomly the students of the fourth grade / history in the Faculty of Education / University of Qadisiya a sample of his society, and chose the simple random way (Division B) to represent the experimental group that will study the student According to the communication strategy, the (41) students, and chose a (A) to represent the control group that will study the student in the traditional way without exposure to the independent variable, the number of students (43) students after the exclusion of the two failsd students from last year.

Thirdly: the equality of the two groups: Before the start of the experiment, the researcher was keen to conduct an equalization of the two groups of research in terms of the age of the time and the academic achievement of the measurement and evaluation of the fourth grade / history and achievement of the parents and the degree of intelligence and the achievement of previous educational achievement in the educational materials and found that the two groups are equal in the variables studied.

Fourth: Research Requirements: Determination of the Scientific Article The researcher shall specify the scientific material to be studied for the students of the two groups of research in the academic year (2017 - 2018) according to the vocabulary of the measurement and evaluation for the fourth grade in cooperation with the material teacher in the Department of History / Faculty of Education / The basic concepts of measurement: the development of the concept of measurement, the importance of measurement, evaluation, calendar, the difference between measurement and evaluation, the tests of reference, standard tests of reference, honesty and consistency, stability and uniformity, coefficient of difficulty, Badr The test map, and for the purpose of verifying the validity of the presentation to the arbitrators with experience and competence and expressed their views in it and thus drafted in accordance with the proposed amendments.

Identify behavioral objectives

The researcher formulated the behavioral goals in a way that describes the behavior and activity of the learner if distributed according to Bloom's classification (recall, absorption, application, analysis, composition, evaluation) Of the experts in the teaching methods to express their opinion and the extent to which they meet the content of the article and in the light of their views and suggestions have been amended.

Building the test

In light of the study material and the behavioral goals, the researchers prepared a multivariate selection test. The number of paragraph (25) paragraph was presented to a group of experts and specialists in the methods of teaching to benefit from their views and observations around them promised valid after making some amendments to them and the researchers relied 80% or more criterion for the validity of the paragraphs and thus achieve the

truthfulness. The content of the course material has been analyzed to determine the desired behavioral objectives at the end of the experiment, setting the specifications table and constructing an achievement test appropriate to the specification table and consistent with the specific behavioral objectives. (28, 286). The instructions for how to answer, correct and statistical analysis of all the test subjects were also determined by applying the test to a sample of the research community from the research sample, which is the History Department / Faculty of Education / Muthanna University, (40) students And after the completion of the answer, it became clear that the instructions and test paragraphs are clear to them and that the time required is required to determine the time required to answer the paragraphs and indicate the ambiguities of the paragraphs during the answer. To answer the paragraphs did not exceed (40) minutes. The statistical analysis of the experimental paragraphs was done to find the difficulty of the paragraphs and the coefficient of their distinction and the effectiveness of their incorrect alternatives. After correcting the students' answers, the grades were ranked down and found that the coefficient of difficulty of the paragraphs lies between (0,41-0,77) and is acceptable because the acceptable range as determined by the researchers falls between (0.20 - 0.80) (0,27-0.67), which is within the acceptable range as determined by the specialists in measurement and evaluation, because the acceptable range is (0,20) and more. The coefficient of stability is (0.81). The studies indicate that the coefficient of stability can be trusted as the coefficient of stability is high (0.75) and more.

RESULTS AND DISCUSSION

The results showed the superiority of the experimental group on the control group in (achievement) where the use of the communication strategy has a positive effect in raising the level of student achievement. This may be related to: The communication strategy has enabled students to communicate positively among themselves, which gave them pleasure in the work made the measurement and evaluation lesson more vital. The superiority of the experimental group's students over the control group is attributed to their being more receptive, positive, and inclined to modern learning and communication methods in the teaching process. This may lead them to explore new aspects of the strategy in which they study measurement and evaluation and to follow them further. More than the traditional way that

they are used to. The previous studies agreed with the current study on the use of the experimental method and the study of Aoun, (2016) (the effect of teaching on the theory of intelligence in the expressive performance of the fifth students in the collection of fifth female literary), while the study Ismail, (2017) The effectiveness of teaching based on the theory of intelligence in the collection of the science of revival and the development of cognitive competence aware of the students of the fifth scientific). The studies differed in the tools of these methods, some of which are test structures for expression performance such as Aoun, (2016), while the study of Ismail, (2017) on the preparation of the achievement test and the measure of perceived cognitive competence, Such as the study of Abdel Aoun, (2016) and some of the students of the fifth grade scientific Sana'a Middle School for Girls (95) students, such as the study Ismail, (2017) The current research was appointed by students of the Faculty of Education. The present study may or may not be consistent with previous studies The communication strategy depends on the results to be reached by the researcher.

CONCLUSION

In the light of the findings of the researchers can be concluded as follows: The use of the communication strategy based on the theory of educational communication in the teaching of measurement and evaluation can achieve the educational and behavioral goals required for students at this stage better than the usual methods; as it develops the learner a general idea about the subject to be studied as the learner provides the rules that organize It can receive and install new information and call it when needed. Teaching according to the communication strategy is more effective than the learner by raising his interest in the subject of study and making it in an interactive position and freeing him from the obligations of the normal method.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under College of Basic Education / University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Impact of the “Cognitive Conflict” Strategy in Correcting the Geographical Misconceptions of Second Intermediate Students

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ABSTRACT

The current research aims to identify The Impact of the “Cognitive Conflict” Strategy in Correcting the Geographical Misconceptions of second intermediate students In order to achieve the research objective: - The following hypothesis was formulated: There are no statistically significant differences at (0.05) between the average scores of the experimental group who study the geography according to the (Cognitive Conflict Strategy), and the average score of students in the normal group who study the same subject in the usual way in correcting misconceptions of concepts. The researcher identified the article with the concepts of a geography book of the Arab world to be taught in Iraq for the academic year (2018-2019) of second intermediate students, in light of the content of this book, the researcher identified the geographical concepts (correct and false through a test prepared for this), a number of model teaching plans were prepared for both groups, the research tool was a post-test consisting of (35) paragraphs of the type of multi-test measures the three processes to form the concept and acquisition and then was determined the characteristics of the Psychometric after which the researcher used a number of statistical tools to analyze the results.

Keywords: *strategy, cognitive conflict, correction, concepts, geography*

INTRODUCTION

The changes we are now experiencing in our modern world have affected the lives of people greatly as a result of the tremendous technological development witnessed in various areas of life, which has been reflected in the field of education, which had the largest share of these developments, which made them take the greatest extent to various aspects of life, Therefore, it was necessary to be the tool of development of the educational process is the development of curricula and methods of teaching because of the adoption of modern philosophies to teach social materials, including geography, The methods and techniques used in teaching in our educational institutions are characterized by their monotony and boredom in presenting the lesson to rely on memorization and indoctrination ¹, which makes

the role of the student negative because of his actual participation in the lesson because of the absence of the elements of excitement and suspense, which generates lack of attention and concentration, So as to make them of low achievement due to their lack of tendency towards the subject. As the study of geography is a practical material interested in the study of man and nature and is concerned with the interpretation and clarification of the nature of phenomena on the surface of the Earth and the relationship of man to the environment as well as being a tool to answer questions related to the known and unknown is a science that explains the geographical phenomena and reveals to us the facts based on the experimental assets in the observation of phenomena and the collection of data in an objective manner, Data collection is based on a clear and correct understanding of geographical concepts, Natural and human aspects because most of the concepts of social materials, including geographical concepts abstract and intangible taken by students randomly without understanding ⁵, The researcher believes that the process of understanding the concept is related to the technique

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or method used in teaching, as the traditional methods random does not link the concept of the structure of the learner in a way that makes sense, this is a problem in the process of analyzing and interpreting concepts because students are influenced by previous social experiences from the formation of patterns of beliefs in the form of perceptions of some concepts different from what they knew about. Objective of the research: Identifying the misconceptions of the geographical concepts of the second intermediate students. Identifying the impact of the “cognitive conflict” strategy in correcting the misconceptions of the geographical concepts of the second intermediate students.

METHODOLOGY

Diagnosis of misconceptions of geographical concepts (diagnostic stage)

The aim of this stage is to diagnose the geographical misconceptions of the students of the research sample (second intermediate) of the chapters of the geography book of the Arab homeland, some of which were studied in previous stages (primary and first intermediate) to subject these concepts to correction.

Identification of scientific material: -The material has been identified as the subjects of a book of geography of the Arab world to be taught for the second intermediate for the academic year 2018 - 2019 AD Thirty-fourth edition of 2016, which will study to the sample of the research.

Identification of geographical concepts specified in the experiment: -

Identifying concepts:After reading the topics of the book geography of the Arab world in general to form ideas about its content and its main topics through the definition of vocabulary that includes geographical concepts, the researcher identified in a special table of concepts based on the definition of the concept and identify the elements that make up, as it reached (120) concept was analyzed in two ways, The researcher’s agreement with himself over time after the re-analysis after three weeks of the first analysis to determine the stability between the analyzes for the purpose of not remembering the researcher for the first analysis (18:25) and using the equation (Cooper) was the value of stability (0.90) This means that stability is high (0.80)) and more, the other method was by assigning teachers

to analyze studying the same material in other schools after training and inform them of the experiment. The stability was also calculated using the Koper equation between teachers. The value of stability was (82.0).

Identifying common geographical concepts repeated in previous study stages:Common concepts are the concepts that students have studied in previous stages and will be studied in the second intermediate grade. The purpose of this step is to update the common concepts with the new concepts (concepts of the research sample) while the concepts that were not studied previously were excluded, the number of common concepts previously studied by students and subject to diagnosis (24) was understood.

The research community and its design:

Research Community: The first step the researcher takes when choosing a research sample is to identify the original community. A community means the sum of the search units that are intended to obtain data (13: 66). Therefore, the research community consists of the intermediate school day for boys only in the center of Babil province (13) with the number of students (2524) students (66) division in (13) schools belonging to the province of Babylon / Directorate of Education Babylon/ Hilla.

Research sample: The purpose of the research sample is to select a part of a whole group or society according to scientific rules, methods and procedures so that the society is properly represented (15: 168).

Schools sample: Since the current research requires the selection of one intermediate school among the schools of the research community to conduct the experiment, was chosen by the random way (Al-Rafidainintermediate school) in the neighborhood of Al-Nasseej to be a place to conduct the experiment.

Students sample: After the researcher identified the simple random way in which the experiment will be applied (Al-Rafidain intermediate school), the researcher visited it based on the book “facilitate task” of the Directorate and found the school consists of (7) divisions for the second intermediate stage, therefore, two divisions had been chosen randomly are (A , E) The number of students in the two research groups are (66) students, (33) students in each division. After the exclusion of the failures, the number of the sample

became (52) students, and obtained the exclusion of the researcher believes that students retrained have experience and this experience may affect the accuracy of the results, the researcher kept them in the two divisions in order to preserve the school system, and not be deprived of the Geography lesson, In a simple random way, the Division (a) is an experimental group that is taught (in the cognitive conflict strategy), and (e) A regular group taught in the regular way.

RESULTS AND DISCUSSION

For the purpose of implementing this procedure, the researcher prepared a diagnostic test consisting of (28) paragraphs so that each paragraph represents a concept of the concepts and ratified by the arbitrators after the knowledge of the sincerity through the arbitrators agreement on each paragraph by (0.85), the results were then analyzed, including the correction of the test papers, finding the percentage of students' errors, identifying the paragraphs with the error ratio (34%) and above, in order to determine the concepts that need to be examined. (34%) and above as concepts based on misconceptions because of the adoption of this ratio in previous studies such as the studies and then this percentage is one third of the hundred where any phenomenon beyond this Descent Is a pervasive need to study (47: 89) Thus, the sum of the misconceptions that have been diagnosed (24) out of the concept of (30) concept. Table (1). Treatment phase (Phase correction misconceptions): This stage is done by aim and correct the misconceptions of the geographical concepts in the previous stage of the second intermediate grade. Table (1) shows the number of correct and false answers and the percentage of the sample of the search for diagnostic test paragraphs (Note that the concepts which have line under them are misconceptions of geographical concepts). This includes presenting the researcher's findings in the light of the hypothesis of the research and then interpreting it as follows: To verify the validity of the null hypothesis, which states that there are no statistically significant differences at the level of (0,05) between the average score of students in the experimental group that examines the geographical concepts of the strategy of cognitive conflict, and the average scores of ordinary group students who study the same concepts in the usual way in correcting misconceptions of geographical concepts, where the number of correct answers and the number of false answers for the students in the research sample were calculated on the paragraphs of the post-test (35)

paragraph, the number of correct answers to the students in the experimental group was 90 and the number of wrong answers reached 22, while the number of correct answers for students in the regular group (50) and the number of wrong answers (62). Table (2). It is clear from these results that the percentage of wrong answers for students in the experimental group was (25%), which is smaller than the proportion of the test (34%) while the percentage of wrong answers for students of the control group (69%) Which is larger than the proportion of the test and the difference tends to benefit the experimental group and using the square Kay (Kay) to identify the significance of the differences between the number of answers to the students of the sample of the research showed that the value of (Ka2) calculated amounted to (12.96) while the value of (Ka2) table has reached (3.84) At the level of significance (0.05) degree of freedom (1) where the results showed a difference of statistical significance for the benefit of the experimental group and thus reject the hypothesis is zero and this means that the correction of misconceptions was in the experimental group students, which shows the superiority of students in the experimental group in the post-test students of the control group They study in the usual way. Table (2)

Interpretation of results: In the light of the results presented, it was found that the strategy of cognitive conflict has proved its effect in the achievement of students in the second intermediate grade and the researcher believes that the reason for this is due to the following:

Teaching by the strategy of cognitive conflict is designed for the students of the research sample in an atmosphere supported by discussions through the steps of the strategy in addition to the pleasure of learning, which makes them more able to understand the geographical concepts.

Teaching by the strategy of cognitive conflict enabled the students of the research sample to be able to analyze and construct criticism and then interpret and produce the accurate results that reach the goal.

Teaching by the strategy of cognitive conflict creates a competitive atmosphere among students, which provides the opportunity to reveal their mental abilities through the additional activities that consist of reading some booklets that relate to the subject of the lesson in addition to summarizing subjects.

This result may be due to verbal interaction (encouragement), which is a mean to achieve important goals in the classroom and develop positive interaction among students, which reflects positively on the educational outcome.

Table 1. Shows the number of correct and false answers and the percentage of the sample of the search for diagnostic test paragraphs

No.	Concept	No. of correct answers	%	No. of incorrect answers	%	No.	Concept	No. of correct answers	%	No. of incorrect answers	%
1.	Location	<u>14</u>	27	38	73	16.	Ocean	37	71	15	29
2.	Form	<u>17</u>	33	35	67	17.	Surface	<u>18</u>	35	34	65
3.	Plateau	44	85	8	15	18.	Climate	30	58	22	42
4.	Plain	28	54	24	46	19.	Population	38	73	14	27
5.	Terrain	33	58	19	20	20.	distribution	<u>15</u>	29	37	71
6.	Gulf	36	69	16	31	21.	Wealth	35	67	17	33
7.	Strait	<u>20</u>	38.5	32	61.5	22.	Power	44	85	8	15
8.	homeland	41	79	11	21	23.	Farm	29	56	23	44
9.	Sea	<u>19</u>	37	35	67	24.	Basin	<u>23</u>	44	29	56
10.	Territory	<u>16</u>	31	36	39	25.	Water	31	60	21	40
11.	River	32	61.5	20	38.5	26.	Minerals	<u>12</u>	23	40	77
12.	Tributary	29	56	23	44	27.	Transport	42	81	10	19
13.	Economy	<u>22</u>	42	30	58	28.	Line	<u>21</u>	40	31	60
14.	Hamad	<u>10</u>	19	42	81	29.	Port	27	52	25	48
15.	Plant	<u>25</u>	48	27	52	30.	Style	<u>24</u>	56	28	54

Table 2. Shows the calculated and tabular values of the number of students of the research sample in the post-test.

Group	Answers of the post-test paragraphs					Unrestrained degree	Key value		Level of significance 0.05
	Correct answers	%	Wrong answers	%	Total		Calculated	Table	
Experimental	90	64.29%	22	26.19%	112	1	12.96	3.84	Function
Normal	50	35.71%	62	73.81%	112				
Total	140	100%	84	100%	224				

CONCLUSION

The advantage of using a cognitive conflict strategy rather than the usual way of correcting erroneous geographical concepts. Characterizing the results of the use of the strategy of cognitive conflict in teaching, may be due to the impact of the atmosphere and the educational environment in which the students have been living has created positive attitudes in the audit to distinguish the geographical concepts affecting the average second intermediate students. The strategy of cognitive conflict sets students in front of educational situations that allow them to search for facts and trends, so students become faced with multi-disciplinary situations and roles, unlike the usual method that depending on conservation and indoctrination.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Education for Humanities, Al-Muthanna University, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effectiveness of Multimedia Software in the Achievement of Students of the Faculty of Education in the Curriculum and Teaching Methods

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ABSTRACT

The research aims to identify the effect of the interactive program in the achievement of students of the Faculty of Education in the curriculum curriculum methods. To achieve the goal of the research, the researcher chose the experimental design for its relevance to the search term. This approach is one of the most educational research methods, In order to complete the objectives of the study, a sample of the students of the third stage was selected. The Department of Physics at the Faculty of Education at Karbala University numbered 72 students, distributed among two groups, one experimental and 36 students studying the computer program. Multiple, and the other officer was the number of Ofraha (36) students studied in the usual way, where the researcher conducted a statistical equivalence between the two students in a number of variables, namely: (chronological age of the students measured in months, and academic achievement for parents). The researcher presented the test paragraphs to a group of arbitrators and specialists in general teaching methods, educational and psychological sciences, and then the researcher conducted an exploratory experiment on a sample of the same research community, consisting of 100 students to ascertain the clarity of the paragraphs.

Keywords: *multimedia software, collection, curriculum and teaching methods.*

INTRODUCTION

The scientific and global development in our time, which is represented by the introduction of various modern technologies in all areas of life, we still see the majority of schools, institutes and universities far from that development and beyond its walls, which distanced itself from what is inside it, it has been for years and yet lacks To the use of means and activities and modern technology and this has reflected in turn on students Graduates now ¹ only have information and knowledge and facts, but their inability to apply that knowledge in the reality of their lives, creating a gap between them and reality. On the other hand, none of us deny the extent of the father If we employ the computer in the educational process, we will achieve the same outputs from the

educational outputs in the least time and effort possible, so the researcher decided to design the program ², Jasp with multimedia may contribute to solving the previous problem Which can be summarized in answering the following question: What is the effectiveness of the multimedia program in the achievement of students of the Faculty of Education in the curriculum and teaching methods? Today, there is a growing need to apply scientific and global thought and the technical and technical methods in the design of educational and learning programs and programs, in order to achieve better education and performance more efficient and effective commensurate with the abilities of learners and their characteristics at different levels of education and taking into account individual differences among them, Educational design is one of the modern sciences that emerged in the last years of the twentieth century in the field of education, and the development ³ of the concept of educational design as a result of the impact of the results of studies and research of two large schools of psychology are behavioral school and school As well as

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the emergence of programmed education, which had the greatest impact on the emergence of different models of educational design. Since the 1980s, attention has grown to the educational design and has become one of the new areas that rely on the use of educational technology and the method of systems for The design of educational programs directly related to the goals and activities of education inside and outside the classroom, because the teacher's practice of the process of design of education will help him to think and planning the organization, and then determine the educational goals, and teaching methods, and educational activities , And its methods more effectively ⁵. If learning is an intentional design of educational situations systematically to lead students to learning, and learning is the desired change in a student's behavior as a result of the presentation of these educational attitudes to him, ie the growth of his knowledge, skills, direction, or abilities, the learning process The design of learning materials is appropriate to the student's needs, abilities, and abilities in order to achieve the desired goals. This is the goal of the educational design science. The program levels vary in design from the design of a small educational unit with a specific educational goal or a limited number of goals. The student can achieve and master the learning within the normal time of the study or less or more time, to design a program that includes a set of units in a particular sequence of topics of a whole course, and the learner will proceed according to this sequence and not move from one unit to another Only after they have mastered to learn the objectives of the previous unit, and so on until the goals of all units are learned well.

The development of educational programs at all different stages to address the problems of modern life and take advantage of advanced methods in the educational system to take a new form to change the educational environment as a whole, and so many Arab countries sought to introduce the computer to the process of education not as a management tool but as an educational tool to improve the educational process And to communicate information in a better way, trying to keep pace with scientific development in this area. Multimedia programs, one of the most important applications of educational technology ⁶, have created a huge leap in the design and production of educational programs. These programs are the most important applications, as demonstrated by their ability to communicate information, manage learning and

learning processes, and help learners of all ages The standard textual system is integrated into a full learning environment. It works on all texts, visual presentations, images, sound, music, animation and video in a unified format within multimedia software programs, making it fun, exciting, and Helped to facilitate learning. The results of many studies indicate the effectiveness of the use of multimedia technology to achieve some educational objectives, such as increasing student achievement at different stages of study

METHODOLOGY

The knowledge of the research methodology and the rules to be followed, starting with identifying the problem and describing it procedurally through the selection of a specific methodology to collect data related to them and the analysis of data and the extraction of the results are important in both theoretical and applied science as the research methodology is concerned with all the steps of the stages of research and what each requires the implementation of tools Analytical and explanatory statistical measures and processes. The experimental design is an artificial position to test hypotheses ⁷. The researcher isolates the extraneous variables and examines the effect of the independent variable on the dependent variable for the purpose of ascertaining the validity of a given information or trying to arrive at generalizations that govern the behavior of the dependent variable. The experimental design helps the researcher to obtain answers to the research questions, and helps him in how to apply the treatment and control of the experimental variables and control the extraneous variables. The researcher adopted experimental design with partial control in two groups (experimental study on the computer program And an officer taught in accordance with the traditional method), The research community consisted of students of the faculties of education, and since the research community was large, the researcher chose the Faculty of Education / Karbala University to be a sample for its current research, which was 72 students, 36 students in the experimental group, 36 students in the control group , The researcher prepared the multimedia program according to the syllabus of curriculum curriculum and teaching methods ⁸. The program consists of a set of teaching plans in the form of computerized educational lessons in computer, in addition to a set of teaching aids from pictures, drawings and video clips to clarify the scientific material as well as to show how to apply the science The researcher

prepared a collection test consisting of (50) test subjects of the type of multiple choice presented to a group of arbitrators and specialists in general teaching methods, educational and psychological sciences, and then the researcher conducted an exploratory experiment on a sample of the same research community of 100. The researcher applied the test to the students of the main research sample. The researcher used the following statistical means: (t.test) for two independent samples, and the laboratories for the testing of the test and its stability. Art Pearson framework, the correction equation S Bierman- Brown, the coefficient of difficulty, discrimination coefficient, and the effectiveness of the equation wrong alternatives)

RESULTS AND DISCUSSION

The following is an overview of the results of the research and verification of the validity of the hypotheses zero, and then explain the findings of this research as follows: Results for the null hypothesis: (There is no statistically significant difference at the level of significance (0.05) between the average score of students in the experimental group studying the subject according to the multimedia program and the average score of the students of the control group, According to the traditional method of achievement testing). To verify the validity of this hypothesis, the researcher calculated the arithmetic mean and the T value using the t-test of two independent samples to compare the average scores of the experimental group and the average scores of the control group students in the achievement test, as shown in Table 2.

Table (1) shows that the experimental mean of the experimental group is 37.5 with a difference of (30.42) and a standard deviation of (5.51). The total value of the control group was 32.72 with a difference of 46.26 and a standard deviation of 6.80. The calculated T value was 2.94, which is greater than the numerical value of (2) at the degree of freedom (70) , Thus rejecting the first null hypothesis and accepting the alternative. The value of (d), which reflects the effect size of 0.70, is an appropriate value for interpreting the effect size and the average value of the variable of teaching according to

the multimedia program in the students' achievement of the curricular material and teaching methods according to Cohen's hierarchy (3). The results of the study showed that the students of the experimental group who studied the curricular material and methods of teaching according to the multimedia program on the students of the control group who studied the same subject according to the usual method of the achievement test, reject the null hypothesis which states There was no statistically significant difference at the level of (0.05) between the average score of the experimental group whose students studied the curriculum material and the methods of teaching according to the multimedia program and the grades of the control group who studied the same material according to the usual method of collection. The experimental group studied on the basis of the multimedia program of curriculum material and methods of teaching exceeded the students of the control group, which were studied according to the usual method in the post-achievement test. The researcher attributed this to several reasons interacting with each other:

The use of the proposed multimedia software provides the students with a lively, dynamic and fun-filled environment. The proposed software also provides an informative learning environment and useful facts and concepts for students.

Making students the focus of the educational process - learning, and the role of professor guided and guided in the course of the educational process, and thus will reduce the burden of the largest professor.

The use of multimedia software, which contains many questions, teaching aids and various motivational activities, will preserve the information in the students' long-term memory and take into account the individual differences between them.

As the researcher believes that this is an incentive for students in keeping pace with the development in other countries and access to different cultures, and not limited to conservation and indoctrination.

Table 1. Experimental design with partial control in two groups (experimental study on the computer program And an officer taught in accordance with the traditional method).

Group	Parity	Independent variable	The dependent variable	Collection
Experimental	1-Age calculated by months.	Multimedia software	Collection	Collection test
Control	2-Educational achievement of parents	the traditional way		

Table (2) Results of the t-test of two independent samples of the two groups in the achievement

Group	Number of student	Mean arithmetic	Variance	Standard deviatio	Degree of freedom	Calculated tabular	T value	Statistical significance at (0.05)
Experimental	36	37.5	30.42	5.51	70	2.94	2	Statistical function
Control	36	32.72	46.26	6.80				

CONCLUSION

The adoption of the multimedia software has contributed to increasing student achievement in curriculum material and teaching methods. Teaching in accordance with the computer program to make students more fun and thrill and vitality with the curriculum material and teaching methods of teaching in the traditional way. Teaching on the basis of a multimedia program makes students knowledgeable, knowledgeable and knowledgeable about other cultures. Encouraging teaching according to the interactive program students to ask questions and positive participations during a lecture, and this is an internal indicator to get the motivation to learn, which means self-confidence and expression of ideas.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon / Faculty of Basic Education, Iraq and all experiments were carried out in accordance with approved guidelines.

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A Study of the Vertical Position of the Mental Foramen using Cone-Beam Computed Tomography

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ABSTRACT

Mental foramen considered to be essential anatomical landmarks for implant placement, the facilitation of giving local anesthesia, making incisions, performing peri-apical surgeries and can be misdiagnosed with pathological conditions and some lesions in the lower 1st molar to the lower canine area of the mandible. The aim is to study the vertical position of the mental foramen using Cone-beam computed tomography. 90 individuals were divided into gender groups (45 males and 45 females) and then each gender group subdivide in to three age groups: 1st group (20-30), 2nd group (30-40) and the 3rd group (40-50) using cone-beam computed tomography. right mean mental foramen is 17.09 in 1st, 17.44 in 2nd and 17.43 in 3rd age groups, left side is: 1st group 17.09, 2nd group is 17.44, 3rd group is 17.43. in gender groups the group male is 18.37 and the female group is 16.27 in right side and 17.96 in male group and 16.58 in female group in left side. The study shows increase in the vertical position with age. Left side vertical position is higher than right side with significant difference, males show higher vertical position than females with highly significant differences

Key word: *The mental foramen, vertical position, cone-beam computed tomography*

INTRODUCTION

In gaining local anesthesia and during surgical procedures Anatomy of the mandible and possible variations in position, course and type of emergence of its neurovascular bundle is important ¹. If mental foramen (MF) is not properly identified and protected the Implant placement in mandibular premolar region will be most complicated surgical procedures due to potential inadvertent complications of neurosensory alterations in the chin and lower lip that are likely to occur. ² The chance of damage to the neurovascular bundles exiting the MF is rather high after endodontic/orthogenetic surgery and fixation of bone fractures or surgical removal of roots, teeth, cyst and tumors ³. (George A. *et al.*, 2017) ⁴ Used the inferior border of the mandible as a fixed landmark to assess the vertical location of MF and for CBCT technology which provides measurement

accuracy superior to panoramic radiography

Position of the mental foramen

The mental foramens had similar bilateral positions in 80% of the patients, while previous studies by al Jasser and Nwoku, (1998) ⁴ and al-Khateeb, 1993) ⁵. Reported similarities in 67%, 80%, and 84.4% of the cases, respectively

Vertical position

George (2017) ³ Used the inferior border of the mandible as a fixed landmark to assess the vertical location of MF and for CBCT technology which provides measurement accuracy superior to panoramic radiography. Nowadays, technological improvement of imaging techniques has provided alternatives for detailed and accurate assessments using CBCT.

MATERIALS AND METHOD

The sample: the sample composed of 90 patients who referred to al-fallah dental specialized center for CBCT scan, all the patients were agreed to participate in the study, and each patient did a CBCT scan as a

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method of investigation for different dental or maxillo-facial diseases. The sample was divided in to six groups according to age and sex: 3 male groups divided according to age in to 1st (20-30), 2nd (30-40), and 3rd (40-50) groups. 3 female groups divided according to age in to 1st (20-30), 2nd (30-40), and 3rd (40-50) groups.

Materials

CBCT machine: CBCT stands for cone-beam computed tomography which gives a three dimensional image of the skull, the CBCT machine which used in the study Kodak 9500 cone-beam 3D system manufactured by care stream origin France, year 2012. The field of view was large mode (18 cm height 20.6 cm diameter). Region of interest is: From the lower border of the mandible to the height of the alveolar bone in both sides of premolar and first molar of the mandible and the full thickness of the mandible.

Vertical position of the mental foramen

For determination of the vertical position of the mental foramen a line is drawn from the upper border of the mental foramen and the inferior border of the mandible in cross-section reconstructed image. (George A. et al., 2017)

RESULTS AND DISCUSION

Variable measurement according to age groups (Right side)

Vertical position: Mean of the vertical position in 1st age group is 17.09, 2nd group is 17.44 and the 3rd group is 17.43, there is no significant difference between age groups. (Table 1)

Left side: The mean vertical position according to age groups is: 1st group 17.09, 2nd group is 17.44, 3rd group is 17.43. (Table 1)

Vertical position of the mental foramen measurement in gender groups

Right side: The study sample divided into two groups according to gender, 1st group 45 male patients and 2nd group 45 female patients. The vertical position in the 1st group is ranged between minimum 14.20 and

maximum 22.50 and the mean is 18.37. In the 2nd group the minimum vertical position is 13.30 and the maximum is 19.60 and the mean is 16.27, there highly significant difference has been found (table4)

Left side: the vertical position in the 1st group is ranged between minimum 14.20 and maximum 21.50 and the mean is 17.96. In the 2nd group the minimum vertical position is 11.50 and the maximum is 20.10 and the mean is 16.58, there highly significant difference has been found (table 2)

Comparison between right and left measurements:

Vertical position

In 1st and 3rd age group there is a significant difference in vertical position with mean left side is higher than the right side, 2nd age groups also shows significant differences but higher mean right side vertical position, in total comparison between right and left sides results shows high significant differences with higher mean right vertical position.(Table 3)

Total Comparison between genders groups (male group and female group)

Vertical position: Highly significant difference was found in between male and female groups with higher vertical position mean in male group (18.163) and (16.424) in female group, in male group the minimum vertical position is 14.20 and 22.50 in maximum, in female group the minimum vertical position is 11.50 and 20.10 in maximum.(Table 4)

Vertical position of mental foramen: In our study we opted for the inferior border of the mandible as a fixed landmark to assess the vertical location of MF and for CBCT technology which provides measurement accuracy superior to panoramic radiography. Sheikhi (2016) ⁶ was among the few researchers investigating the vertical position of MF using the same parameters and technique on a sample of Iranian population (13.26 ± 2.34 mm in the right side and 13.37 ± 2.19 mm in the left). Males have a higher vertical position of the mental foramen than females with high significant difference and agree with studies conducted by (Sheikhi *et al.*, 2016) ⁶, (do Nascimento (2016) ⁷ and upta, (2008) ⁸

Table (1) Descriptive and statistical test (vertical position) right and left sides

Position Vertical	Age (Years)	N	Mean	±SD	Minimum	Maximum	F	P value
Right side	20-29	30	17.09	2.38	13.30	22.50	.250	.780
	30-39	30	17.44	2.34	13.30	21.00		
	40-49	30	17.43	1.66	14.20	20.20		
	Total	90	17.32	2.13	13.30	22.50		
Left side	20-29	30	17.08	1.81	13.20	21.50	6.791	0.004HS**
	30-39	30	17.29	2.12	11.50	20.10		
	40-49	30	17.43	1.44	14.20	20.10		
	total	90	17.27	1.80	11.50	21.60		

Table (2) descriptive and statistical test of vertical position between gender groups

Vertical position	Gender	N	Minimum	Maximum	Mean	±SD	T-test	df	P value
Right side	Males	45	14.20	22.50	18.37	2.01	5.349		0.000 HS**
	Females	45	13.30	19.60	16.27	1.71			
Left side	Males	45	14.20	21.50	17.96	1.61	3.913	88	0.000 HS**
	Females	45	11.50	20.10	16.58	1.72			

Table (3) Descriptive and statistical comparison between right and left vertical position and total in age groups

Age (Years)	Intra class Correlation			F Test		Sig
		Mean R.	Mean L.	value	df	
20-29	.787	17.09	17.08	4.688	29	.000**
30-39	.930	17.44	17.29	14.340	29	.000**
40-49	.575	17.34	17.43	2.355	29	.012*
Total	.819	17.32	17.27	5.513	89	.000**

Table 4 statistical and descriptive analysis for vertical position in gender groups

Variables	Gender	N	MIN.	MAX.	Mean	SD	T	df	P value
POSV	Males	90	14.20	22.50	18.163	1.823	6.597	178	0.000[HS]
	Females	90	11.50	20.10	16.424	1.712			

CONCLUSION

Vertical position of the mental foramen ranged in different location vertically and the study shows increase in the vertical position with age. Left side vertical position is higher than right side with significant difference, males show higher vertical position than females with highly significant differences.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Collage of dentistry University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Accuracy of FNAB in Diagnosis of Breast Lump

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ABSTRACT

breast cancer is the 1st one among Iraqi females. Most of them present later for diagnosis. No screening program was applied in the country. Early detection center in tertiary hospital practice FNAB for early diagnosis. Publications on accuracy are scarce. This study aimed to test the accuracy of FNAB in breast lump diagnosis. diagnostic test accuracy study, on 204 women with breast lump, attending the oncology department in 2017. Fine-needle aspiration biopsy diagnosis of histologically malignant cases were, malignant in 89 (87.3%), suspicious of malignancy in 5 (4.9%), and benign in 4 (3.9%). Complete sensitivity was 87.3%, and specificity was 100%, with 12.7% false negative results and no false positive cases. The accuracy was 94%. The study confirmed the high figures of accuracy of FNAB.

Keywords: breast cancer, fine needle aspiration, sensitivity, specificity.

INTRODUCTION

Breast cancer is commonest cancer among women, comprising about 23% of the newly diagnosed cancers among females, and 6% of all deaths worldwide.^{1,2} In Iraq, female incidence rate was 23.01 per 100,000, accounting about 34% of all reported cancer among females.³ Breast cancer survival rates tend to be poor in developing countries, most likely because of a combination of late diagnosis and limited access to timely and appropriate treatment.⁴ Iraqi patients presented at stage II, III, IV.⁵ It was explained by low index of the suspicion and use of traditional methods.⁶ Breast fine-needle aspiration biopsy (FNAB) of the breast is a minimally invasive diagnostic method, often obviating an open biopsy.⁶ Ultrasound guided FNAB has been widely used for non-palpable breast lumps.^{7,8} Although core biopsy is preferred to FNAB in most developed countries, its procedure is more expensive and time consuming as compared to FNAB.⁹ The clinical use of FNAB has been questioned because of the variation in results.¹⁰ A population based breast cancer screening program is not established in Iraq and only early detection centers, and clinics, were

established at tertiary hospitals.¹² Publishing data on the accuracy of FNAB in Iraq is scarce. The situation of screening was the impetus to carry out this study, it is objectives to evaluate the sensitivity, and specificity of FNAB.

MATERIALS AND METHOD

A total of 204 female patients were included in the study. They were recruited from women health centre in Al-Elwyiaa Maternity Teaching Hospital for the period Jan. 2017 – Nov. 2017. All selected women were subjected for FNAB. Histological examination was done after excisional biopsy or mastectomy. FNAB techniques was carried out according to the suggested Iraqi guidelines.¹³ Accuracy of FNAB was done by sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). The sensitivity and specificity is the proportion of individuals that correctly diagnosed as diseased and non –diseased, respectively. The performance of the FNAB was tested by the PPV, NPV, Sensitivity, and Specificity¹⁴.

RESULTS AND DISCUSION

Out of the total, 102 (50%) malignant cases, were diagnosed. The age of malignant and benign cases was 50.7±12.2, and 33.7±12.4, respectively. There was a significant difference in age between malignant and benign cases (t=9.834,df=202, P=0.001). Eighty nine

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(87.3%), 5(4.9%), 4(3.9%), were diagnosed as malignant, suspicious of malignancy and benign, respectively (table 1). Of those benign cases, there were 6 (5.9%), 11(10.8%), and 85(83.3%) as suspicious of malignancy, Atypical probably benign and benign, respectively. Sensitivity, specificity, PPV and NPV were 87.3%, 100%, 100% and 88.7%, respectively, as shown in table 2. For a good therapeutic management, there is a need for rapid, inexpensive, and non-invasive test. FNAB is the test of choice for this purpose because of the finer needle size and is easier/safer in certain lesions, such as very small lesions, lesions just under the skin or very close to the chest wall compared with true cut biopsy. In addition, FNAB maintains tactile sensitivity, allows multidirectional passes allowing a broader sampling of the lesion and immediate reporting where necessary. However, FNAB is less reliable at differentiating invasive cancer from DCIS, may be limited in some cases in the assessment of tumor grade and prognostic.¹⁵ The age of cases with malignant lesions was 50.7 ±12.2 year. It is consistent with that reported in Iraq (49.4 ± 11.66) years.¹⁶ This study showed that sensitivity of FNAB was 87.3%. It is lower than that reported in literature (92.7%) in Meta-analysis study.¹⁷ In the recent years automated core needle biopsy, and various suction assisted devices of increasing core diameter, with mounting numbers of tissue pieces collected from each lesion, have replaced FNAB as the 1st line of diagnosis. The accuracy of FNAB depends on the experience of cytopathologist and the physician performing the procedure. High figures

of accuracy reported in the world e.g. sensitivity (92%)¹⁸, (99.4%)¹⁹ and specificity (97%)¹⁸(100%)¹⁹. The observed figure of sensitivity (87.3%) is within the reported sensitivity range in United Kingdom (84%-93%). The calculation of observed figure was complete one i.e. considering all abnormal results in one category. However, result of FNAB in UK used distinguished classification and results. The finding was outcome of the screening established in 1987.²⁰ In Iraq, there are an early detection services rather than screening program¹². In early years of breast screening program, FNAB was used, then Core biopsy (CB) was introduced and recently, wide bore vacuum biopsy. CB has been improved and considered the standard, completely in UK.²¹ Unfortunately in Iraq research still is digging in FNAB. The positive and negative predictive values of FNAB were 100%, and 88.7% respectively. Similar finding were reported in literature.^{22, 23, 24} The FNAB is a good test for pre-operative decision, but true cut always provides a better histological diagnosis and is more accurate and more trusted. The suspicious diagnosis was found among 17 (13.2%) of the study subjects. This was lower than reported in Pakistan, (20%)²² and higher than that reported in Nigeria (12.4%).¹⁹ These variation might reflect the difficulties in the developing world, facing diagnosis of malignancy. FNAB findings influenced by the maneuver (number of times inside the lump). It was practiced as 10 times maneuver to get harvests cells for examination.^{25, 26}

Table 1. The histological (reference) and FNAB (index) tests result presentation

FNA Malignant Benign		Histological examination			Total
	Malignant		89	0	89
			87.3%	.0%	43.6%
	Suspicious of malignancy		5	6	11
			4.9%	5.9%	5.4%
	Atypical probably benign		4	11	15
			3.9%	10.8%	7.4%
benign		4	85	89	
		3.9%	83.3%	43.6%	
Total			102	102	204
		100.0%	100.0%	100.0%	

Table 2: The complete sensitivity and specify of FNA

FNAB	Histological examination		total
	Positive	Negative	
Positive	89	0	89
Negative	13	102	115
Total	102	102	204

Sensitivity= 87.3%, Specificity =100%, PPV= 100%, NPV= 88.7%, accuracy=94%
 FP = 0%, FN=12.7%,

CONCLUSION

The study confirmed the high figures of accuracy of FNAB.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Al-Alwiya maternity teaching hospital, women health center, Iraq and all experiments were carried out in accordance with approved guidelines.

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Anterior Loop Presence and Extension Using Cone-Beam Computed Tomography

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ABSTRACT

Mental foramen and anterior loop are considered to be essential anatomical landmarks for implant placement, the facilitation of giving local anesthesia, making incisions, performing peri-apical surgeries and can be misleading with pathological conditions and other lesions in the lower 1st molar to the lower canine area of the mandible. The aim is to study presence and extension of the anterior loop using cone-beam computed tomography. 90 individuals were divided into gender groups (45 males and 45 females) and then each gender group subdivide in to three age groups: 1st group (20-30), 2nd group (30-40) and the 3rd group (40-50) using cone-beam computed tomography. Anterior loop has been found in the right side in 31 individuals out of 90 and 34 in the left side with 3.10 mean extension in right side and 3.90 mean extension in the left side, In our study the incidence of the anterior loop in females (34) 37.7% is slightly higher than males (31) 34.4%. Anterior loop can be found up to 30% in patients and its presences and extension decreases with age.

Keywords: Anterior loop, cone-beam computed tomography.

INTRODUCTION

The mental foramen (MF) is one of two foramina (openings) located on the anterior surface of the mandible. It transmits the terminal branches of the inferior alveolar nerve and vessels (the mental artery) ¹. Mental foramen, an opening in the lateral surface of mandible, is important in surgical operations in the premolars because it transfers the mental nerves and vessels. Since foramen cannot be seen or touched clearly, identification of the actual clinical location of mental foramen can prevent nerve damage during surgeries and can contribute to administration of successful local anesthesia. It is seen to be oval or circular in shape. There are variations in the position, direction, size, and shape of foramen among different populations ². The inferior alveolar nerve may extend beyond the mental foramen in an anterior and inferior direction, curving back to the foramen and forming a loop, which has been termed the anterior loop of the inferior alveolar nerve ³. Failure to note this mesial loop may cause complications

like sensory disorders in the lower lip. Therefore, precise evaluation of its position before surgery is essential. Pre-surgical evaluation of three-dimensional (3D) cone-beam computed tomography (CBCT) images plays an important role in prevention of probable damage. ⁴

MATERIALS AND METHOD

The sample: the sample composed of 90 patients who referred to al-fallah dental specialized center for CBCT scan, all the patients were agreed to participate in the study, and each patient did a CBCT scan as a method of investigation for different dental or maxillo-facial diseases. The sample was divided in to six groups according to age and sex: 3 male groups divided according to age in to 1st (20-30), 2nd (30-40), and 3rd (40-50) groups. 3 female groups divided according to age in to 1st (20-30), 2nd (30-40), and 3rd (40-50) groups. CBCT machine: CBCT stands for cone-beam computed tomography which gives a three dimensional image of the skull, the CBCT machine which used in the study Kodak 9500 cone-beam 3D system manufactured by care stream origin France, year 2012.

The field of view was large mode (18 cm height 20.6 cm diameter)

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Region of interest is: From the lower border of the mandible to the height of the alveolar bone in both sides of premolar and first molar of the mandible and the full thickness of the mandible.

Presence and extension of the anterior loop

A two parallel lines is drawn between the anterior border of the mental foramen and the anterior border of the anterior loop, the distance between these two lines represent the extension of the anterior loop in panoramic reconstructed image. ⁵

RESULTS AND DISCUSSION

Anterior loop measurement according to age groups (Right side)

The anterior loop was found in all three age groups, in 1st group anterior loop was found in 13 patients and the mean extension was 3.62 in 2nd group the anterior loop was found in 10 patients the mean extension was 2.94 and in the 3rd group the anterior loop was found in 8 patients the mean extension was 2.85. (Table 1). in 1st group anterior loop was found in 14 patients and the mean extension was 3.70 in 2nd group the anterior loop was found in 13 patients the mean extension was 2.77 and in the 3rd group the anterior loop was found in 7 patients the mean extension was 2.49(table 1). Highly significant difference has been found between 1st age group and 2nd group and another highly significant difference also has been found between 1st age group and 3rd group in the anterior loop using Tukey Honestly significant difference (tukey HSD).(Table 2).

Variable measurement according to gender groups (Right side)

Anterior loop: The anterior loop has been found in 15 patients in the 1st group with minimum 2.10 and maximum 4.50 the mean is 3.31. In the 2nd group the anterior loop has been found in 16 patients with 1.60 minimum and 4.90 maximum and the mean is 3.10, there is no significant difference between the groups.(Table 3).

Left side: the anterior loop has been found in 16 patients in the 1st group with minimum 1.90 and maximum 5.60 the mean is 2.99, in the 2nd group the anterior loop has been found in 18 patients with 1.70 minimum and 4.10 maximum and the mean is 3.18, there is no significant difference between the groups. (table3).

Total Comparison between right and left measurements:

(Age groups): In 1st age group mean of the right anterior loop extension is higher the left side, but the right mean anterior loop extension is higher in 2nd and 3rd age groups, No significant difference has been found between right and left side of the anterior loop extension in all age groups and in total.(Table 4)

Total Comparison between genders groups (male group and female group)

31 anterior loops was found in male group while 34 in female group, the anterior loop mean in male group is 3.145 and ranging from 1.90 minimum to 5.60 maximum, in female group the mean is 3.144 and the minimum anterior loop extension is 1.60 and 4.90 in maximum (Table 5). Anterior loop: In both right and left sides the result shows decrease in the extension of the anterior loop as the age of patient increases, this result disagrees with ⁶ which they found no relation between age of the patient and the extension of the anterior loop, There was no correlation between the incidence and length of anterior loop and gender and side in this study, which was in accordance with the results of previous studies ⁷ and ⁸. The mean of the anterior loop was found higher in 1st age group and then in 2nd age group and at least in 3rd group. Also the number of anterior loop was identified in the samples were decreased with increase the age of the patient. In our study the incidence of the anterior loop in females (34) 37.7% is slightly higher than males (31) 34.4% with no significant differences in the presences and the length of the anterior loop between gender groups in corresponding with ⁵, ⁹ and ¹⁰.

Table (1) Descriptive and statistical test (anterior loop presence and extension)

Anterior loop presence and extension	Age (Years)	N	Mean	±SD	Minimum	Maximum	F	P value
Right side	20-29	13	3.62	.78	2.10	4.50	2.452	.104
	30-39	10	2.94	.97	1.60	4.90		
	40-49	8	2.85	.96	1.60	4.40		
	Total	31	3.20	.93	1.60	4.90		
Left side	20-29	14	3.70	1.02	2.00	5.60	6.791	0.004 HS**
	30-39	13	2.77	.60	1.90	3.60		
	40-49	7	2.49	.68	1.70	3.50		
	Total	34	3.09	.95	1.70	5.60		

Table 2 Multiple Comparisons of Anterior Loop between age groups using Tukey Honestly significant difference (Tukey HSD).

(I) Age cat.	(J) Age cat.	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
20-29	30-39	.931	.016*	.155	1.707
	40-49	1.214	.009**	.282	2.147
30-39	40-49	.284	.743	-.661	1.228

Table 3. Descriptive and statistical test of vertical position and the presence and extension of the anterior loop between gender groups

Anterior loop	Gender	N	Minimum	Maximum	Mean	±SD	T-test	df	P value
Right side	Males	15	2.10	4.50	3.31	.76	0.609	29	0.547
	Females	16	1.60	4.90	3.10	1.09			
Left side	Males	16	1.90	5.60	2.99	1.24	0.553	21.514	0.586
	Females	18	1.70	4.10	3.18	.62			

Table 4. Descriptive and statistical comparison between right and left anterior loop extension

Age (Years)	Variables	Intra class Correlation			F Test		Sig
			Mean R.	Mean L.	value	df	
20-29	AL	.474	3.62	3.70	1.902	7	.208
30-39	AL	-.288	2.94	2.77	.776	7	.626
40-49	AL	-.360.000	2.85	2.49	.003	1	.967
total	Al	.308	3.20	3.09	1.444	17	.228

Table 5. Statistical and descriptive analysis for anterior loop presence and extension between gender groups

Variables	Gender	N	MIN.	MAX.	Mean	SD	T	df	P value
ANTL	Males	31	1.90	5.60	3.145	1.031	0.004	63	0.996[NS]
	Females	34	1.60	4.90	3.144	.858			

CONCLUSION

Anterior loop can be found up to 30% in patients and its presences and extension decreases with age, with no significant differences between males and females

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Collage of Dentistry, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Assess the Level of Knowledge Regarding the use of Anticoagulant Medications among Cardiac Patient in Missan Governorate

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ABSTRACT

Objective- to identify the level of knowledge regarding using anticoagulant medications among cardiac patient. Quantitative design (connective a descriptive study) was carried out to identify the level of knowledge regarding using anticoagulant medications among cardiac patient at Maysan governorate hospitals. Starting from (1 Jun-5 October 2018). To achieve the objectives of the study, a non-probability sample (a purposive sample) consisted of (60) patients were taken anticoagulant medications. Random sample comprised of (60) patients was divided into two groups, study group consisted of (30) patients exposed to the educational program and control group consisted of (30) patient were not exposed to the program. The measurement of effectiveness of patient educational program Data were collected through the use of questionnaire which is related to patient knowledge toward using the anticoagulant medications. The questionnaire was interview with cardiac patients who were attended coronary care unit at Al-Sadder Teaching Hospital, and Maysan Center of Cardiac Disease after obtaining agreement from the patients throughout using Arabic version of questionnaire. The significant relationship between cardiac patients' knowledge relative to the demographic variables (age, gender, marital status, educational level, occupation status, and income, house ownership).

Keyword: cardiac patient, knowledge, anticoagulant medications

INTRODUCTION

Oral anticoagulation therapy has been used in clinical practice for many decades now for the prevention and treatment of thromboembolic diseases. In spite of its immense clinical convenience over the years, this therapy still has a relatively high risk/safety profile. Oral anticoagulation therapy (OAT) is affected by numerous factors related to the drug used, intensity of anticoagulation achieved, the physician's experience with the therapy and patient compliance. It also incorporates different physician, lab Furthermore tolerant related elements such as incessant lab testing, strict measurement regulation, distinguishment

and prompt medication from claiming thrombotic. Also hemorrhagic difficulties Furthermore tolerant instruction¹. With many patients being prescribed oral anticoagulation for months or for life, The part of tolerant instruction may be extremely critical in this medication for An limited restorative window. Tolerant training will be currently recognized on make a standout amongst those key Components for upgrading medicine Furthermore diminishing muddling around patients for oral anticoagulant treatment². The successful therapy depends on a patient's understanding of the treatment. However, patients' information of oral anticoagulation treatment may be needing. A percentage investigations discovered that more than. A large portion from claiming patients ahead anticoagulants needed poor information of the help³. The lack of adequate knowledge among the patients has been recognized as a risk factor for the development of adverse effects, including hemorrhages. of the most feared adverse events associated with the use of oral anticoagulants is bleeding. That fear is

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shared both by doctors and patients, which sometimes leads to under treatment of patients in whom their use is indicated⁴. nurse-led practice has developed in many areas in health care, including anticoagulant services. Traditionally, anticoagulant clinics have been managed by consultant hematologists but recently other health professionals have become involved this trend has been largely in response to several factors; an increase in demand for anticoagulant services. The role of staff managing anticoagulant clinics is to initiate patients onto oral anticoagulant therapy and to continually monitor and manage their international normalized ratio (INR). This practice is the recommended method for reporting prothrombin time results for control of oral anticoagulation⁵ The importance of an adequate education in patients who receive oral anticoagulants to favor better treatment control has been demonstrated. Some reports refer to patients who have to self-control their coagulation level and the oral anticoagulant dose. Those proposals for instruction for patients under anticoagulant treatment, as a component to streamline medication quality, have been suggested since a few A long time prior by different investigate groups, and also by establishments centered ahead guaranteeing social insurance instruction Also would substantial should this day. However, the results of educational strategies in patients not self-controlling their medications' doses have been considered inconclusive in some reports⁶.

RESULTS AND DISCUSSION

Table -3- revealed that (53.3%) and (40%) for the age of patients for both groups study and control were within the age group (50-59 years). While the gender show that majority in study and control groups were male (66.7%) and (53.3%) respectively. Concerning the level of education show that the patients (40%) in the study group and (60%) of patients in the control group were both primary school graduate. Occupational status that the half of patients (50%) in the control group were unemployed and (36.7%) of patients in the study group were retired. Concerning the property of the house the majority of patients at both groups were live in Own's House (76.7%) in the study group and (66.7%) in the control group. In relation to the monthly income that the mostly patients have (< 700000 Iraqi Dinar) in both groups (86.7%) of the study group and (53.3%) of the control group. The findings table -2- revealed that (70%) for study group while (66.7%) for control group for the starting of anticoagulant treatment

of patients the groups (between 6-10 month) and (less than 6 month), while the reasons for patients who administered anticoagulant treatment presented (43.3%) of patients in the study group and (60%) of patients in the control group were both due to stent or balloon for artery. In relation to the types of using the anticoagulant medications the majority of them were taking warfarin (80%) in the study group and (90%) in the control group. Finding of the table - 6- shows that there are highly significant differences between study and control groups at post test for patients' knowledge in all items related to using anticoagulant medications except item (17- Do you allowed to take off your teeth if you are taking anticoagulants) show that there are no significant differences between study and control groups at post test, when analysed by t-test. Through the data analysis distribution of demographic variables table (1) reports that most of the patients age are (50 -55 y and more) years old for both the study group and control group and with frequency (53.3%) for study group and (40.0%) for control group. This result is similar to the results obtained from studies done by A. Janoly-Dume'nil, (2011). These results indicate that the majority of patients age that using the anticoagulant medications are (58 y) and had mean of score is (15.2). About my study I find that the risk factor for heart disease as age above 50 y. because this more than responsibility and more than have many diseases that causes heart disease. Our study find out that the patient more than using anticoagulant medications were male with frequencies (66.7%) for study group and (53.3%) for control group this study agreement with study of Sara (2009). in this study find out the most gender are male with. My opinion as researcher student is because the male are more be facing the life difficulties as the (economic, psychological,) while the female may be can't to routine visit to the hospital. As a marital state the married state patient were more taken the anticoagulant medications for both study and control group, the frequency for study group were (67.7%), while control group were (73.3%). this result agreement with study that done by Ahmed (2015) that indicated the married state most common taken the anticoagulant medications. With regard to the level of education of cardiac patient that taken anticoagulant medications, it is demonstrated that most of the patients in study group were primary school with frequency 12(40.0), while the control with frequency(18)(60.0). this result similar to other study done by Kim, (2014) These results indicate that the majority of cardiac patient knowledge were

primary school. But this study not agreement with other study that done by Kathleen M. M(2007)that suggest the majority of cardiac patient that taken anticoagulant medications were (high school or college). My opinion as a research student this because the neglected of the importance the anticoagulant medications or not have any improvement communication with health care team About the occupational state find out that the majority of sample in study group were retired with percent 11(36.7).while in the control group the occupation state were an employee with frequency 15(50.0).this a result was agreement for the study that done by Ellis RF, Stephens MA, Sharp GB.(2010) that suggest more than occupational in sample with anticoagulant medications were retired. And Khudair, I.F., & Hanssens, Y.I. (2010). that suggest the majority of sample in control group were an employee . My opinion suggest that the retired and an employee more than suffering from cardiac diseases caused by decreased the physical activity or not enough the economic state. In relation to the monthly income that the mostly patients have (< 700000 Iraqi Dinar) in both groups (86.7%) of the study group and

(53.3%) of the control group. This disagree with study that done by Karuna & Shweta (2015) that suggest the majority monthly income for sample were(Rs 6000-10000)=(177000 Iraq Dinar). The researcher student believe this different in monthly income result from the differently of the income for each country and increased size of population of India This study in table 2- find out that the duration of anticoagulant medications for the study group were started taken between six to ten month in frequency (70%).while in control group were started less than six month with frequency (66%).this results its similar for study that done by Jisha K. Joshua and Naveen K(2014) in this study the researchers find the majority of anticoagulant medications will started between six to ten month in study group and less than six month in control group .as researcher student I suggest this duration it's important to development and increased the patient knowledge about the medications important and decreased the side effect or complications for medications.

Table (1): Distribution of Socio- Demographic characteristics for patients in The Study and Control Groups Regarding using Anticoagulant Medications in the Research sample (n=60 patient)

Variables	Groups	Study n=30 patient		Control n=30 patient	
		Freq.	%	Freq.	%
Age	> 40 years	3	10.0	6	20.0
	40-49 years	6	20.0	7	23.3
	50-59 years	16	53.3	12	40.0
	60-69 years	3	10.0	4	13.3
	70-79 years	2	6.7	1	3.3
	Total	30	100.0	30	100.0
Gender	Male	20	66.7	16	53.3
	Female	10	33.3	14	46.7
	Total	30	100.0	30	100.0
Level of Education	Read and Write	10	33.4	3	10.0
	Primary school graduate	12	40.0	18	60.0
	Intermediate school graduate	6	20.0	8	26.7
	Secondary school graduate	1	3.3	0	0.0
	College graduate	1	3.3	1	3.3
	Total	30	100.0	30	100.0
Married state	Married	23	76.7	22	73.3
	Widowed	7	23.3	6	20.0
	Divorced	0	0.0	2	6.7
	Total	30	100.0	30	100.0

Cont... Table (1): Distribution of Socio-Demographic characteristics for patients in The Study and Control Groups Regarding using Anticoagulant Medications in the Research sample (n=60 patient)

Occupational Status of Patient	Employee	3	10.0	3	10.0
	Unemployed	7	23.3	15	50.0
	Retired	11	36.7	3	10.0
	Housewife	6	20.0	3	10.0
	Free businessman	3	10.0	6	20.0

Table (2): Distribution of Clinical characteristics for patient that Using Anticoagulant Medications

Variables	Groups	Study n=30 patient		Control n=30 patient	
		Freq.	%	Freq.	%
How long ago was your present anticoagulant treatment started?	Less than 6 month	5	16.7	20	66.7
	Between 6-10 month	21	70.0	3	10.0
	Between 10-1year	4	13.3	5	16.7
	More than 1 year	0	0.0	2	6.7
	Total	30	100.0	30	100.0
As far as you know, which of the following are reasons for your present anticoagulant treatment.	Deep Venous Thrombosis	1	3.3	0	0.0
	Myocardial Infarction	12	40.0	8	26.7
	Atrial Fibrillation	2	6.7	2	6.7
	Valvular Heart Disease	2	6.7	2	6.7
	Stent or Balloon for Artery	13	43.3	18	60.0
	Total	30	100.0	30	100.0
Types of using the anticoagulant medications	Heparin	3	10.0	0	0.0
	Warfarin	24	80.0	27	90.0
	Enoxaparin	3	10.0	3	10.0
	Total	30	100.0	30	100.0

Table (3): Comparison Significant Between The Study and Control Groups Related to patients' Knowledge Toward Using Anticoagulant Medications at a Pre Test

No	Items Related to Patients' knowledge*	Control – Post n=30		Study–Post n=30		t-test	
		M.S.	S.D.	M.S.	S.D.	P _{-value}	C.S.
1	What is the nature work of anticoagulants?	0.23	0.430	0.17	0.379	0.527	NS
2	anticoagulants need treatment for a period of time?	0.20	0.407	0.13	0.346	0.497	NS
3	in most cases continue taking anticoagulants for a while?	0.17	0.379	0.10	0.305	0.456	NS
4	The important tests that take place when taking drugs anticoagulants are?	0.13	0.346	0.23	0.430	0.325	NS
5	the (coagulation time) examination is necessary for?	0.17	0.379	0.10	0.305	0.456	NS

Cont... Table (3): Comparison Significant Between The Study and Control Groups Related to patients' Knowledge Toward Using Anticoagulant Medications at a Pre Test

6	How many times a day should you take anticoagulants?	0.20	0.407	0.20	0.407	1.000	NS
7	When should you take anticoagulant Just I?	0.27	0.450	0.13	0.346	0.203	NS
8	What happens if you do not take anticoagulants?	0.37	0.490	0.50	0.509	0.305	NS
9	Can anticoagulants be taken a few hours late?	0.17	0.379	0.27	0.450	0.356	NS
10	Which of the following vitamins interfere with the medication anticoagulants?	0.20	0.407	0.23	0.430	0.759	NS
11	vitamin K is ?	0.17	0.379	0.20	0.407	0.744	NS
12	What are foods contain mostly vitamin K?	0.23	0.430	0.07	0.254	0.073	NS

Table (4): Comparison Significant Between The Study and Control Groups Related to patients' Knowledge Toward using anticoagulant medications at Post Test

No	Items Related to Patients' knowledge*	Control – Post n=30		Study–Post n=30		t-test	
		M.S.	S.D.	M.S.	S.D.	P-value	C.S.
1	What is the nature work of anticoagulants?	0.17	0.379	0.90	0.305	0.000	HS
2	anticoagulants need treatment for a period of time?	0.10	0.305	0.87	0.346	0.000	HS
3	in most cases continue taking anticoagulants for a while?	0.13	0.346	0.80	0.407	0.000	HS
4	The important tests that take place when taking drugs anticoagulants are?	0.13	0.346	0.83	0.379	0.000	HS
5	the (coagulation time) examination is necessary for?	0.20	0.407	0.87	0.346	0.000	HS
6	How many times a day should you take anticoagulants?	0.17	0.379	0.90	0.305	0.000	HS
7	When should you take anticoagulant Just I?	0.13	0.346	0.85	0.351	0.000	HS
8	What happens if you do not take anticoagulants?	0.50	0.509	0.93	0.254	0.000	HS
9	Can anticoagulants be taken a few hours late?	0.30	0.466	0.63	0.490	0.009	HS
10	Which of the following vitamins interfere with the medication anticoagulants?	0.27	0.450	0.93	0.254	0.000	HS
11	vitamin K is ?	0.20	0.407	0.87	0.346	0.000	HS
12	What are foods contain mostly vitamin K?	0.13	0.346	0.90	0.305	0.000	HS

CONCLUSION

It is important to develop the cardiac patients' knowledge toward using the anticoagulant medications that lead to decreased the mortality and morbidity and to decrease the complications with misuse the medications like as bleeding or re-formation the clotting.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols

were approved under the Department of Adult Nursing, College of Nursing, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Assessment of the Client's Psychological Wellbeing at Outpatient Consultancy Clinics of Al-Sadder Teaching Hospital in Al Amara City

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ABSTRACT

The aim of the study is to assess the client's psychological wellbeing at outpatient consultancy clinics of Al Sadder teaching hospital. A descriptive analytic study design was carried out at outpatient consultancy clinics of Al- Sadder Teaching Hospital from march 14th to June 12th 2018. Non – probability (purposive) sample of 200 clients who were coming to the Outpatient Consultancy Clinics were selected. The assessment of the client's psychological wellbeing through the Ryff scales of psychological well-being consists of 42 items of statements that measure client's psychological well-being; and these statements are loaded into 6 dimensions including: autonomy; environmental mastery; personal growth; positive relations with others; purpose in life and self acceptance. Reliability of instrument was determined through the use of Alpha Cronbach approach and the instrument validity was determined through a panel of experts. The analysis of the data was used descriptive statistics frequencies, percentages, mean, standard deviation and Chi square. In order to assess the level of client's psychological wellbeing. The findings of the present study reveal that nearly half of clients (44.5%) have high level of psychological wellbeing, 32% of clients have low level of psychological wellbeing, whereas only 23.5 % of the clients have moderate level of psychological wellbeing.

Keyword: Assessment; Clients; Psychological Wellbeing; Outpatient; Consultancy Clinics.

INTRODUCTION

There is no general agreement about a singular definition of wellbeing, but there is general agreement that wellbeing at least involves the presence of positive emotions, thought, perception and moods such as a state of happiness and satisfaction, and the absence of passive emotions such as a feeling of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome. In simple terms, Wellbeing can be qualified as judging life positively and feeling better, fulfillment and positive functioning, and satisfaction with life¹. For general health purposes,

physical wellbeing (feeling full of energy and good healthy) and psychological wellbeing are considered as crucial to overall wellbeing². Psychological wellbeing is a framework or construct that expressed the positive, favorable and productive thinking of individuals about themselves, which is measured by its subjective quality which includes various aspects such as physical, psychological and social aspects³. Psychologist's perspective is that psychological wellbeing means the individual have good emotional and mental health, high quality of life in a particular individual in several circumstances⁴. Psychological wellbeing includes the method used by people to evaluate their lives in the past and in the present; also, assessment of psychological wellbeing involved the emotional reactions of individuals to events, moods, self-acceptance, environmental mastery, and positive relations with others⁵. Psychological wellbeing is a dynamic process or system characterized by constant change, activity,

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or progress, determined by evaluation of the functional or conditional relationships among the individuals, conditions of their life and their environment, explaining the wellbeing involved the prediction and control of both behavior and environment and the interaction between the element, feature, or factor that is liable to vary or change which identified and known by the individual, such as conditional factors, constructional situation and the human being or an individual ⁶. The first category of approaches of wellbeing which focused on a feeling of happiness, satisfaction and enjoyment, or the state of being comfortable, healthy, and happy ⁷. The second category of approaches of wellbeing proposed that psychological health is completed by making someone satisfied or happy because of fully developing their character or abilities by one's potential, functioning at an optimum grade, or inquiring one's true nature. Third category of approaches of wellbeing focused on the quality of life (QoL). In the literature the term QoL is often used synonymously with wellbeing. For example, the researchers who progressed the Quality of Life also used the terms subjective wellbeing and life satisfaction ⁸. Fourth category of wellbeing is often referred to a term of (wellness). Wellness term are stabled in the counseling literature ⁹. Therefore this study aims to assess the client's psychological wellbeing at outpatient consultancy clinics.

MATERIALS AND METHOD

A descriptive analytic study design was carried out at outpatient consultancy clinics of al sadder teaching hospital from march 14th to June 12th 2018. Non – probability (purposive) sample of 200 clients who were coming to the Outpatient Consultancy Clinics. These clients were selected according to the following criteria: Both sexes of clients (Males and Females); Clients who were coming to Outpatient Consultancy Clinics; Clients who were at the age 18 years and older. For the purpose of the present study a questionnaire was designed and developed by the researchers which consists of two parts: The first part of the questionnaire concerned with determination of the sociodemographic characteristics of the sample, and the second part was adopted on a global scales designed by experts to determine psychological wellbeing for clients. Reliability of instrument was determined through the use of Alpha Cronbach approach ($r = 0.881$), and the instrument validity was determined through a panel of (17) experts. In order to achieve the early stated objectives, the data of the study

were analyzed through the use of Statistical Package of social sciences (SPSS) version 20 through statistical procedures that includes: frequency, percentage, Mean of score, standard deviation, and Chi square.

RESULTS AND DISCUSION

The results revealed that the majority of the samples (73.5%) were living in urban areas; (64%) were males; (28.5%) at age 58 years and above; (67.5%) are married; (32%) have secondary school; and 30% of them have government employee. See table 1. The results indicated that the clients have moderate level of psychological Wellbeing. This level is reflecting the level of (Autonomy, Environmental Mastery, Positive Relations, and Purpose in Life dimensions) which were moderate, the level of Personal Growth dimension which was high, whereas the level of Self-acceptance dimension was low as revealed by the table 2. The results show that nearly half of clients (44.5%) have high level of psychological wellbeing, 32% of clients have low level of psychological wellbeing, whereas only 23.5 % of the clients have moderate level of psychological wellbeing according to table 3. The findings show 38% who have low level of psychological wellbeing were female , 16% the age 58 years and above, 18.5% of them are married, 14% of them were living in rural area, 8.5% were housewives, while 21% who have moderate level of psychological wellbeing were male, 24% are married, 17.5% have secondary school, while 35% who have high level of psychological wellbeing were males, 13% at age group 48-57 years, 25% are married, 17.5% have primary school, and 14.5% have government employee. The present study indicates that the majority of the samples (73.5%) were living in urban areas, 64% are males, the highest percentage of the study sample 28.5% were at age over 58 years, More than half of the current study sample 67.5% of the samples are married, 32% have secondary school, and 30% of them have government employee. Concerning the results of the level of psychological Wellbeing according to Ryff's Scale, it was reveal that the clients have moderate level. This level is reflecting the level of (Autonomy, Environmental Mastery, Positive Relations, Purpose in Life dimensions) were moderate, the level of Personal Growth dimension was high, whereas the level of Self acceptance dimension was low. Regarding the level of psychological wellbeing according to cut off points, the findings of the present study show that about nearly half (44.5%) of clients ($n = 89$) have range of score (97.9

– 126), these indicate that they have high level of psychological wellbeing, 32% of the clients (n= 64) have range of score (42 – 69.6), these indicate that they have low level of psychological wellbeing, whereas only 23.5% of the clients (n= 47) have range of score (69.7 – 97.8), these indicate that they have moderate level of psychological wellbeing. These result is supported by the study of⁽¹¹⁾ who indicated that the clients, in general, had moderate to high level of satisfaction about their life, therefore the clients, in general, had moderate to high level of psychological wellbeing. Concerning the levels of psychological wellbeing according to demographic characteristics, the findings show 38% who have low level of psychological wellbeing were female, 16% the age 58 years and above, 18.5% of them are married, 14% of them were living in rural area, 8.5% were housewives, while 21% who have moderate level of psychological wellbeing were male, 24% are married, 17.5% have secondary school, while 35% who have high level of psychological wellbeing were male, 13% at age group 48-57 years, 25% are married, 17.5% have primary school, and 14.5% have government employee. The results of the current study is supported by¹² who found that (females reported worse mental health with more somatic symptoms and social dysfunction and reported more trait anxiety), also, the current findings agree with the results of the study of¹³ who found that there was a significant difference in the mean score between age groups, clients aged 18 to 25 years had a significantly higher mean score compared to those aged 75 years and above. Also, the current results are consistent with the results of the study of¹⁴ who reported that those who obtained the worse results on the quality of life scale were those who had only completed up to the 4th grade or lower, and reported that “Regarding employment status, those who were employed had higher quality of life when compared to unemployed”.

Table 1. Distribution of the samples by their sociodemographic characteristics

No.	Variables	(n=200)	F	%
1	Residence	Urban	147	73.5
		Rural	53	26.5
		Total	200	100.0
2	Gender	Male	128	64.0
		Female	72	36.0
		Total	200	100.0

Cont... Table 1. Distribution of the samples by their sociodemographic characteristics

3	Age (year)	18-27	24	12.0
		28-37	36	18.0
		38-47	38	19.0
		48-57	45	22.5
		58 and above	57	28.5
		Total	200	100.0
4	Marital status	Single	34	17.0
		Married	135	67.5
		Widowed	23	11.5
		Divorced	8	4.0
		Total	200	100.0
5	Level of education	Can't read and write	18	9.0
		Read and write	34	17.0
		Primary school	52	26.0
		Secondary school	64	32.0
		Higher education	32	16.0
		Total	200	100.0

Table 2. The Level of Psychological Wellbeing Dimensions (Ryff's Scale) for the Sample

Dimensions of Psychological Well-being	M.S	Level
Average mean for Autonomy dimension	3.23	Moderate
Average mean for Environmental Mastery dimension	3.12	Moderate
Average mean for Personal Growth dimension	3.65	High
Average mean for Positive Relations dimension	3.17	Moderate
Average mean for Purpose in Life dimension	3.23	Moderate
Average mean for Self-acceptance dimension	2.65	Low

Table 3. Distribution of the sample according to levels of psychological Wellbeing:

The levels according to cut off point		F	%
Autonomy	Low (7 – 11.6)	54	27.0
	Moderate (11.7 – 16.3)	51	25.5%
	High (16.4 – 21)	95	47.5%
	Total	200	100%
Environmental Mastery	Low (7 – 11.6)	63	31.5%
	Moderate (11.7 – 16.3)	51	25.5%
	High (16.4 – 21)	86	43.0%
	Total	200	100%
Personal growth	Low (7 – 11.6)	33	16.5%
	Moderate (11.7 – 16.3)	40	20.0%
	High (16.4 – 21)	127	63.5%
	Total	200	100%
Positive relation	Low (7 – 11.6)	62	31.0%
	Moderate (11.7 – 16.3)	56	28.0%
	High (16.4 – 21)	82	41.0%
	Total	200	100%
Purpose in life	Low (7 – 11.6)	59	29.5%
	Moderate (11.7 – 16.3)	47	23.5%
	High (16.4 – 21)	94	47.0%
	Total	200	100%
Self-Acceptance	Low (7 – 11.6)	108	54.0%
	Moderate (11.7 – 16.3)	35	17.5%
	High (16.4 – 21)	57	28.5%
	Total	200	100%
Total	Low (42 – 69.6)	64	32.0%
	Moderate (69.7 – 97.8)	47	23.5%
	High (97.9 – 126)	89	44.5%
	Total	200	100%

Table 4. Cross tab. for the levels of Psychological wellbeingwith regard tosociodemographic characteristics of the sample:

		levels of Psychological wellbeing							
Demographics		low		Moderate		High		Total	
F		%	F	%	F	%	F	%	
Gender	Male	16	8.0%	42	21.0%	70	35.0%	128	64.0%
	Female	38	19.0%	9	4.5%	25	12.5%	72	36.0%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %
Age	18 - 27	3	1.5%	2	1.0%	19	9.5%	24	12.0%
	28- 37	7	3.5%	14	7.0%	15	7.5%	36	18.0%
	38-47	4	2.0%	14	7.0%	20	10.0%	38	19.0%
	48-57	8	4.0%	11	5.5%	26	13.0%	45	22.5 %
	58 and above	32	16.0%	10	5.0%	15	7.5%	57	28.5%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %

Cont... Table 4. Cross tab. for the levels of Psychological wellbeingwith regard tosociodemographic characteristics of the sample:

Marital status	Single	4	2.0%	1	0.5%	29	14.5%	34	17.0%
	Married	37	18.5%	48	24.0%	50	25.0%	135	67.5%
	Widowed	11	5.5%	1	0.5%	11	5.5%	23	11.5%
	Divorced	2	1.0%	1	0.5%	5	2.5%	8	4.0%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %
Residence	Urban	26	13.0%	41	20.5%	70	35.0%	137	68.5%
	Rural	28	14.0%	10	5.0%	25	12.5%	63	31.5%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %
Level of education	can't read or write	8	4.0%	1	0.5%	9	4.5%	18	9.0%
	read and write	7	3.5%	3	1.5%	24	12.0%	34	17.0%
	Primary	13	6.5%	4	2.0%	35	17.5%	52	26.0%
	Secondary	13	6.5%	35	17.5%	16	8.0%	64	32.0%
	Higher education	13	6.5%	8	4.0%	11	5.5%	32	16.0%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %
Occupation	Government employee	12	6.0%	19	9.5%	29	14.5%	60	30.0%
	Privet work	5	2.5%	12	6.0%	28	14.0%	45	22.5%
	Retired	13	6.5%	9	4.5%	7	3.5%	29	14.5%
	Housewife	17	8.5%	6	3.0%	15	7.5%	38	19.0%
	Un employee	7	3.5%	5	2.5%	16	8.0%	28	14.0%
	Total	54	27.0%	51	25.5%	95	47.5%	200	100 %

CONCLUSION

The findings of the present study conclude that the clients have moderate level of psychological wellbeing; the level of (autonomy, environmental mastery, positive relations, purpose in life) dimensions were moderate; the level of personal growth dimension was high, whereas self-acceptance dimension was low level.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of psychiatric and mental health nursing, College of Nursing, University of Kerbala, Iraq and all experiments were carried out in accordance with approved guidelines.

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Combined Dexamethazone/Chlorpheniramine Mouth Rinse Effect on Candida Albicans and sIgA in Patients with Recurrent Aphthous Ulceration

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ABSTRACT

Aim of study: Determine the level of salivary candida albicans and secretory Immunoglobulin A (sIgA) before and after combined Dexamethasone/chlorpheniramine mouth rinse use. 65 patients with RAS were selected and divided randomly into 2 groups, study group consist of 45 patient informed to use the combined dexamethasone / chlorpheniramine mouth rinse 4 timed a day for 10 days, and control group consist of 20 patients without mouth rinse. Candida albicans (colony forming unit /ml) and sIgA were measured at starting and after 10 days for all patients. The results showed that there is a significant increase in the number of candida albicans in study group (p value is 0.028) while in control group there is no significant difference in candida albicans (p value is 0.772). sIgA results showed no significant difference neither in study group (p value is 0.598) nor in control group (p value is 0.744). Despite these results there was no clinical adverse reaction observed regarding oral candidiasis. Combined Dexamethasone/chlorpheniramine mouth rinse is safe to use in treating RAS lesions for 10 days without the need for antifungal drug to be added to the combination.

Keywords: Dexamethazone/Chlorpheniramine, *Candida Albicans*, sIgA

INTRODUCTION

Recurrent Aphthous Stomatitis (RAS) is a painful, recurrent inflammatory process of the oral mucosa which could be emerged secondary to various well defined disease processes. Idiopathic recurrent aphthous stomatitis is termed as recurrent aphthous stomatitis. The differential diagnosis for recurrent aphthous ulcerations is spacious that could be range from idiopathic causes to connective tissue disease, or even inflammatory bowel diseases. A detailed history and review of systems can play a role in determining whether it is related to a systemic inflammatory process or truly idiopathic¹. The most widely used drugs in ulcerative oral mucosal diseases are the topical corticosteroids. The aim of such treatment is to eliminate the symptoms, thereby allowing the patient to eat, speak and perform normal oral hygiene, since topical corticosteroids reduce or even suppress the pain and shorten the aphthae healing time². It is believed that the efficacy of these agents is due to modulation of the local immune response, this may lead to many adverse effects including oral candidiasis

³. In healthy individuals Candida colonizes mainly mucosal surfaces of the oral cavity, gastrointestinal and urogenital tracts without disease symptoms, where most frequently identified specie is *Candida albicans* (70%)⁴. Although *C. albicans* can be cultured from the mouth of non-infected normal individuals, it does not cause oropharyngeal candidiasis unless predisposing factors exist to allow the infection to become established⁵. Secretory IgA (sIgA) protects mucous membranes from attack by pathogenic microorganisms, it inhibit the adherence of microorganisms to the surface of mucosal cells, and preventing entry into the body tissues. Also can neutralize microbial toxins and enzymes. sIgA can influence innate defense by synergizing lysozyme in saliva and potentiate the activity of mucin by reducing negative surface charge and hydrophobicity of oral microorganisms by coating with mucins⁶. Antihistamines are a group of medications that suppress the histamine induced swelling and vasodilation by blocking the binding of histamine to its receptors, thus reducing histamine receptor activity on nerves, vascular smooth muscle, glandular cells, endothelium, and mast cells.

For that reason, antihistamine helps to soothe soreness, burning, itching and inflammation. Examples for antihistamines are diphenhydramine, chlorpheniramine (used in this study) and many others.⁷

MATERIALS AND METHODS

This study was carried out during the period between February and July 2018. The sample population of the study was complaining from Recurrent Aphthous Ulceration (RAS), patients were selected from oral medicine clinic/ oral diagnosis department, College of Dentistry, Baghdad University, Al-Yarmook Teaching Hospital/ oral and maxillofacial department and Al-Amiria specialized dental center/ oral diagnosis department. Approval was obtained from the Ministry of Health/ Alkarhk health directorate for patients examination and laboratory work which was done at Al-Yarmook Teaching Hospital/ Teaching laboratories department. Sixty five patients from both gender and different age group complaining from oral aphthe without any systemic diseases or nutritional deficiency were selected, all the patients were diagnosed clinically as having minor RAS. Patients were divided randomly into two groups

(Study group) 45 patients with RAS had been instructed to use the mouth rinse

(control group) 20 patients with RAS without mouth rinse

10 µL from the saliva were been inoculated on sabouraud dextrose agar (SDR) to determine the colony forming unit (CFU)/ml of salivary candida albicans before starting and after 10 days for both groups. Salivary sample were collected from all patients, sIgA level were assessed at starting and after 10 day for study and control groups by ELIZA test.

Inclusion Criteria:

Patients more than 18 years of old

Agree to participate in the trial

Patient has oral ulceration clinically diagnosed as RAS

Exclusion Criteria:

Patients taking medication including corticosteroids

Patients Contraindicated for corticosteroid use (immunodeficiency, severe hematological alterations, pregnancy or lactation)

Patients clinically diagnosed or suspected as having candidiasis before treatment.

Mouth rinse application

There are numerous mouth rinse formulations which could be single or many ingredients. The mouth rinse of this trial encompasses a combination of an antihistamine (as soothing agent) and steroid (to reduce inflammation). Patients were instructed to shake the bottle well before use and informed to use 5 ml of the mouth rinse 4 times daily after meals and before bed time with instructions to hold in the mouth for two minutes and not to eat or drink for 1 hour after use. The duration of the therapy was 10 days. The formula of the mouth wash in this study was:

- Dexamethazone 0.5 mg/5 ml

- Chlorpheniramine Maleate 2 mg/5 ml

Sample collection

Unstimulated saliva were been obtained by having the subject seated quietly in upright position with his/her head flexed forward and the subject spitted gently into a collection container for 5 minutes Munro (2006). In order to obtain a sample of total saliva the patient were instructed not to eat or drink (except water) for 1 hour Martinez (2007). All collections were performed between 8:30 and 11:00 AM. Saliva samples were kept in a coolbox after collection, sample had been centrifuged at speed of 3000 rpm (reduce bubble and foam) for 10 minutes, the supernatant were been aspirated then stored at -20 C freezer until immunological analysis Extemest (2000). Saliva were been collected from patients in study and control groups, then instructing the patients in study group to use the corticosteroid and antihistamine mouth wash for 10 days 4 times daily.

RESULTS AND DISCUSION

Demographic result showed no significant difference between study and control groups regarding age (p value was 0.464) and gender (p value was 0.967).

Macroscopical, Microscopical and laboratory findings: After 48 hour of incubation at 30 degree centigrade, colonies were observed in 15 samples

belongs to patients before using mouth rinse and 24 sample for patients after 10 days of mouth rinse use. While for control patients, only 9 samples developed colonies at starting and after 10 days. Colonies were soft, smooth, white creamy in color. Then germ tube test was done for each media and colony that was expected to be *Candida albicans*. Later colonies confirmed to be *Candida albicans* by germ tube test were calculated and multiply by 100 to get result by Colony Forming Unit CFU/ml table (1) shows the statistical analysis of the *Candida albicans* results at starting and after 10 days for study and control groups. Using t test there is a significant difference P value is (0.028) in *Candida Albicans* CFU/ml at starting and after 10 days of mouth rinse use. While for control patients P value is (0.772) and there is no significant difference

Clinically all the patients in study and control groups showed no observed signs or symptoms of candidiasis. These clinical results agree with (Liu C., et al., 2011; Keenan, A.V., 2012) who monitored efficiency and safety of dexamethasone ointment on RAS and found it to be safe and no observed local or systemic adverse reactions were detected. while Lozada-Nur, Huang, (1991) reported the side effects of localized candidiasis, burning mouth and hypogeusia after the use of clobetasol ointment as an adhesive paste for the treatment of chronic oral vesiculo-erosive diseases. Marable, (2016) also reported the side effect of localized candidiasis after treatment of oral lichen planus with different topical steroids. The results of this trial could be due to the use of corticosteroid for limited duration in RAS treatment. Colonies of *Candida albicans* were isolated from the saliva of 15 patients in study group and 11 patients in control group before starting mouth rinse in control group. These findings agree with Pfaller MA and Diakema, (2007) who stated that in healthy individuals *Candida* colonizes mainly mucosal surfaces of the oral cavity, gastrointestinal and urogenital tracts without disease symptoms, where most frequently identified specie is *Candida albicans* (70%). Then after 10 days of mouth rinse use in study group, colonies of *Candida albicans* were isolated from 24 patients. Which indicated that there is a significant increase in mean of *Candida albicans* colonies as compared with mean of colonies before starting of treatment. These result supported the fact that topical steroid application may lead to many adverse effects including oral candidiasis with associated burning mouth and hypogeusia by

modulation and suppression of the local immune response. Although there was no clinically observed complications in this group. While in control group there was no significant difference between the means of *Candida albicans* colonies at starting and after 10 days and the same 11 patients developed colonies of *Candida albicans* after 10 days. By comparing the means of *Candida albicans* colonies between study and control groups, there is a significant difference in the means of colonies at starting between study and control groups, while there is no significant difference in the means after 10 days. These results may be due to the limited number of patients participated in this randomized clinical trial and the difference in the number of patients between study and control groups. Furthermore, the reality that *Candida* spp. are considered as a commensal organism in the oral cavity and may be isolated in asymptomatic, healthy individuals at a rate of between 3% and 50% (Arendorf and Walker, 1980) may support these results that *Candida albicans* did not isolated from all salivary samples inoculated on SDA in this trial. The results of sIgA in this trial show no significant difference in sIgA level at starting between study and control group and sIgA level after 10 days between the two groups. These results agree with Sag, (2007) who demonstrate the effect of topical corticosteroid on salivary sIgA for more than 1 month treatment and found no significant difference in the level of sIgA before starting and after treatment. These results indicated that salivary sIgA does not affected by topical steroid application, immune modulation and immunosuppression that is thought to be part of topical corticosteroid local effect is not related to a decrease in sIgA. The results of sIgA in this trial show no significant difference between sIgA at starting (acute lesion phase) and after 10 days (remission phase) in study group and between sIgA at starting (acute lesion phase) and after 10 days (remission phase) in control groups. These results disagree with whom reported an increase in sIgA in saliva at acute phase of RAS lesion and a reduction in remission phase. While the results agree with whom reported no significant difference between acute and remission phase of the lesion. According to our knowledge sIgA level in saliva is closely related to its level in serum and it does not affected by local factors unless these factors changes its level in serum, and according to the results of this trial, combined dexamethasone/chlorpheniramine mouth rinse did not produce any change in serum IgA level and sIgA in saliva in turn was not affected by mouth rinse use.

Table (1). Shows the statistical analysis of the candida albicans results at starting and after 10 days for study and control groups.

group		No.	Lowest value	Highest value	mean	St. D.	St. E.	t. test	P value
study	Candida albicans (CFU/ml) at starting	45	0	250	35.56	60.89	9.08	-2.460	0.028 (S)
	Candida albicans (CFU/ml) after 10 days	45	0	300	51.11	70.30	10.48		
control	Candida albicans (CFU/ml) at starting	20	0	300	80.00	80.13	17.917	-0.295	0.772 (NS)
	Candida albicans (CFU/ml) after 10 days	20	0	250	82.50	84.72	18.944		

Table 2. Shows the comparison in candida albicans between patients treated with mouth rinse and control patients.

	group	No.	mean	St. D.	t. test	P value
Candida albicans at starting	Patients	45	35.56	60.89	-2.458	0.017 (S)
	control	20	80.00	80.13		
Candida albicans after 10days	Patients	45	51.11	70.30	-1.559	0.224 (NS)
	control	20	82.50	84.72		

Table (3) shows the result of sIgA (µg/ml) for patient treated with mouth rinse before treatment and after 10 days and for control patients at starting and after 10 days.

group		No.	Highest value	Lowest value	mean	St. D.	St. E.	t.test	P value
Patients	sIgA(µg/ml) at starting	45	186.686	88.897	132.38	26.04	3.93	-0.531	0.598(NS)
	sIgA(µg/ml) after 10 days	45	191.663	98.074	134.40	20.75	3.13		
controls	sIgA(µg/ml) at starting	20	177.034	90.087	134.71	22.20	4.964	-0.331	0.744(NS)
	sIgA(µg/ml) after 10 days	20	174.98	100.72	135.87	23.42	5.236		

Table (4) below shows the comparison in sIgA between patients treated with mouth rinse and control patients.

	group	No.	mean	St. D.	t. test	P value
sIgA(μ g/ml) before	patients	45	132.38	26.04	-0.347	0.730(NS)
	control	20	134.71	22.20		
sIgA(μ g/ml) AFTER	patients	45	135.20	21.20	-0.113	0.911(NS)
	control	20	135.87	23.42		

CONCLUSION

Combined Dexamethasone/chlorpheniramine mouth rinse is safe to use in treating RAS lesions for 10 days without the need for antifungal drug to be added to the combination.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Dentistry, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Determination of Menopausal Symptoms and Their Effect on General Health Related Quality of Life among Women Attending Teaching Hospitals in Al-Hilla City

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ABSTRACT

Menopause is defined as the permanent cessation of menses. The age at which natural menopause occurs is between the ages of 45 and 55 years for women worldwide. The deficiency of female hormones elicits various somatic, vasomotor, sexual and psychological symptoms that impair the overall quality of life of women. **Objectives:** To determine the menopausal symptoms and to find out the effects of menopausal symptoms on women's general health related quality of life. A descriptive analytic study design was conducted on (269) menopausal women was selected throughout the use of Non-Probability sampling approach. The sample of the study includes menopausal women who attended at teaching hospitals in Al-Hilla city. A questionnaire has been used as a tool of data collection for the period of (13th February - 30th July 2018) and; including: women characteristics (socio, reproductive); Menopausal Symptoms women's general health related quality of life. The results of the study revealed that (43.5%) of women aged (56 - 60) years with Mean \pm SD(54.57 + 4.424). Seventy four percent of participants are married, (33.5%) of them are graduated from institute and above, the highest percentage among those (39.4%) have body mass index (30-39.9kg/m²).

Keywords: Determination, Menopausal Symptoms, Effect, General Health, Quality of life.

INTRODUCTION

Menopause is caused by aging of ovaries which leads to decline in the production of ovarian Gonadotrophins estrogen and progesterone. That occurs naturally or is induced by surgery chemotherapy, or radiation. The deficiency of these hormones elicits various somatic, vasomotor, sexual and psychological symptoms that impair the overall quality of life of women¹. Vasomotor symptoms, are common physical conditions experienced by midlife women in the transition through menopause and early post menopause². Quality of life is an important outcome that reflects the way a person (women) feel and function. Assessing the impact of condition on QOL is particularly relevant in symptomatic condition such as the menopause³. Study results in Arab countries are

consistent with those performed in most Asian countries. In Jordan, muscle and joint stiffness had a frequency of 89%. In the UAE, the most frequent symptoms indicated by menopausal women were pain in the back of the neck or head, followed by aches in muscle and joints. To date, there is limited information and no published studies about menopausal symptoms and quality of life in Arab countries and Gulf countries, particularly in Saudi Arabia⁴. The presence of menopausal symptoms suggestively reduces the quality of life, and with further severity, get worse the quality of life⁵. Study the quality of life among menopausal women has become an essential component in clinical practices. Most studies on quality of life of postmenopausal women were conducted in developed countries with different socio cultural realities, which may influence not only the perception of quality of life but also the experience of menopausal symptoms. Though not all women who report menopausal symptoms are bothered by them, too many large studies have demonstrated an association between menopausal symptoms and lower quality of life⁶.

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METHODOLOGY

A descriptive analytic study design was conducted on (269) menopausal women was selected throughout the use of Non-Probability sampling approach. The sample of the study includes menopausal women who attended Babylon hospital for maternal and Children, Al-Emam Al-Sadiq teaching hospital, and AL-Hilla teaching hospital in Al-Hilla city. A constructed questionnaire has been used as a tool of data collection for the period of (13th February – 30th July 2018) and consists of three parts including: women characteristics which included (8) items, Menopausal Symptoms which consisted of (13) items, these items are rated according to four level scale (None, Mild, Moderate, severe), and scored (1,2,3,4) with length class (0.74). Their assessment by None (score 1-1.74), Mild (score 1.75-2.49), Moderate (score 2.50-3.24), Sever (score 3.25 and more) and health related quality of life which consist of (2) items related to changes in health. Cut off point (0.66), Poor & Worse (mean of score 1-1.66), Good & Same (mean of score 1.67-2.33), Excellent & Much better (mean of score 2.34 and more) and (7) items related to general health status. Cut off point (0.66), Never (mean of score 1-1.66), Sometime (mean of score 1.67-2.33), Always (mean of score 2.34 and more). A pilot study has been carried between (1st to 10th February 2018) on (19) menopausal women at Al-Hilla Teaching Hospital to test the reliability of the questionnaire and content validity has been carried out through a panel of (21) experts. Descriptive statistical and Inferential analyses are used to analyze the data. Data were analyzed using the Statistical Package for Social Sciences (SPSS version 20).

RESULTS AND DISCUSSION

Results of the present study indicated that the highest percentage of the study sample (43.5%) were within ideal menopausal age group (56-60) years. This result is advocated with⁽⁷⁾ study who found that menopausal women in India (57.27%) were in the age group (56-65) years. Moreover¹ have reported that the greater age of menopausal women were between (55-60) among their study participants. The present study revealed that the highest percentage of study sample were married, which recorded (64.7%) out of the study participants. The outcome of this study was in the same line with¹ study in Egypt conducted on 250 menopausal women, they reported (65.2%) of them were married, in addition

the greatest percentages of sample were graduated from institute and above. This findings is in agreement with⁽⁸⁾ study done in Korea that found the higher percentage of women beyond high school (47.8%), the highest percentage recorded among participants who have (30-39.9) BMI and classified within obese, it constituted (39.4%). This result is in consistent with⁹ study done in Baghdad that showed more than half of the women (58.8%) were obese, (40.4%) of them were menopausal. Moreover the result of the present study found that the (42.0%) of study participants were within moderate economic status. This result is in agreement with⁽¹⁰⁾ study that found (56.3%) of his study participants were within moderate socioeconomic status. Concerning reproductive characteristics, the present study revealed that the highest percentage of study sample (53.2%) were having (4-7) parity. This finding is in consistence with⁽¹¹⁾ study found that (55%) of his sample were having five and more children, results indicated that (48.7%) of women did not have any type of abortion during their child birth age, which composed (25.3%). This result is in same line with⁹ study, which done in Baghdad that found the highest percentage (46.8%) were haven't abortion. The highest percentage of study sample have breast fed their babies and it constituted (79.2%). This result is in same line with¹¹ study that found the highest percentage of married and fertile study sample (78.5%) had practiced breast feeding. Regarding menopausal symptoms, (Hot flushes, sweating) the highest percentage of the sample under study (46.1%) were having sever flushes. This result is advocated with⁽¹²⁾ study done in Erbil that found among (500) of menopausal (357) suffered of hot flushes and (345) of participations have night sweats. Relative to (Heart discomfort), it represent the highest percentage among the sample (36.1%) were having severity of this symptom. This result is in agreement with⁽¹³⁾ study done in India that found rapid heartbeat was the highest in postmenopausal women. The highest percentage of the sample under study (44.2%) were suffering from severity of this symptom. In regard to bladder problems, the present study distribution found the highest percentages of study sample (39.0%) were having these symptom. This result is agreed with¹ study that found the highest percentage of their sample (36.0%) were having sever bladder problems. Concerning Joint and muscular discomfort, the present study found that the majority of participants (61.7%) were having severe symptoms. This study is in consistent with¹⁶ study that reveals majority of menopausal women experienced joint and muscular

discomfort (86%). The overall assessment of present study were suffering moderate of these symptoms .This result is in agreement with ¹⁷ study that found the highest percentage of women (36.8%)were having mild climacteric symptoms, (56.3%)moderate and (6.9%) severe. HRQOL domains are less subjective and they are based on self-report and may be affected by personality also social circumstances, observed performance tests (example;: ability to walk) have rarely been used . In regard to change in health status domains the question which stated (In general, would you say your health is)

the distribution of the present study reveal the highest percentage (48.3%)and they are accounted (130) were having good health in general. . This result is agreed with a similar finding which was informed by ¹⁸ that done in Sydney, in which they found the highest percentage of their study sample (53.8%) have good health in general and they are accounted (695), concerning question (Your health compared to year ago in generally you say)the present study revealed that the highest percentage of the study sample(52.4%) have the same health as one year ago.

Table (1): Distribution of the Sample According to Their Socio Demographic and Reproductive Characteristics

Women's Socio Demographic and Reproductive Characteristics	Rating	Frequency	Percent
Age (years)	46 to 50	65	24.2
	51 to 55	87	32.3
	56 to 60	117	43.5
	Total	269	100
	Mean + Sd.	54.57 + 4.424	
Social Status	Married	199	74.0
	Widow	50	18.6
	Separated	2	0.7
	Divorced	18	6.7
	Total	269	100
Educational Level	Not read & write	70	26.0
	Read and write	53	19.7
	Primary	28	10.4
	Secondary	28	10.4
	Institute and above	90	33.5
	Total	269	100
BMI	18.5-24.9 Normal	71	26.4
	25-29.9 Overweight	62	23.0
	30-39.9 Obese	106	39.4
	Extreme obesity >40	30	11.2
	Total	269	100
Economic Status	Not Sufficient	56	20.8
	Sufficient to some extent	113	42.0
	Sufficient	100	37.2
	Total	269	100
No. of Parity	0	31	11.5
	1 to 3	60	22.3
	4 to 7	143	53.2
	8 to 11	31	11.5
	12 to 15	4	1.5
	Total	269	100

Cont... Table (1): Distribution of the Sample According to Their Socio Demographic and Reproductive Characteristics

Abortion	No found gravidity	31	11.5
	No	131	48.7
	Yes	107	39.8
	Total	269	100
Breast feeding	No found gravidity	31	11.5
	No	25	9.3
	Yes	213	79.2
	Total	269	100

Table (2): Distribution of Woman by Their Menopausal Symptoms

List	Menopausal Symptoms	Scale	F	%	M	S.D.	Assessment
1	Hot flushes, sweating (episodes of sweating)	None	29	10.8	3.06	1.037	Moderate
		Mild	49	18.2			
		Moderate	67	24.9			
		Sever	124	46.1			
		Total	269	100			
2	Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)	None	36	13.4	2.88	1.049	Moderate
		Mild	58	21.6			
		Moderate	78	29.0			
		Sever	97	36.1			
		Total	269	100			
3	Mental exhaustion(impaired memory, decrease in concentration, forgetfulness)	None	44	16.4	2.98	1.113	Moderate
		Mild	37	13.8			
		Moderate	69	25.7			
		Sever	119	44.2			
		Total	269	100			
4	Sexual symptoms (desire in sexual changes ,problems in activity of sex Also not satisfaction)	None	45	16.7	2.64	0.938	Moderate
		Mild	49	18.2			
		Moderate	133	49.4			
		Sever	42	15.6			
		Total	269	100			
5	Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)	None	54	20.1	2.84	1.151	Moderate
		Mild	41	15.2			
		Moderate	69	25.7			
		Sever	105	39.0			
		Total	269	100			
6	Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	None	13	4.8	3.41	0.866	Sever
		Mild	29	10.8			
		Moderate	61	22.7			
		Sever	166	61.7			
		Total	269	100			

Cont... Table (2): Distribution of Woman by Their Menopausal Symptoms

Overall menopausal symptoms	None	23	8.6	3.10	0.966	Moderate
Mild	44	16.4				
Moderate	85	31.6				
Sever	117	43.5				
Total	269	100				

Table (3): Distribution of the Sample by Their Change in Health Status

Chang in Health items	Scale	F	%	M.S.	S.D.	Assessment
1. Would you say your health is Good Excellent	Poor	123	45.8	1.60	0.60	Poor
		130	48.3			
		16	5.9			
2. Compared to one year ago, how would you rate your health now?						
	Much worse now than one year ago	73	27.1	1.93	0.68	About the same years ago
	About the same	141	52.4			
	Much better now than one year ago	55	20.4			
	Total	269	100			

Table (4): Exploring the visualization and procedures of women on their general health status

List	General Health Status Effects	Scale	F	%	M.S.	S.D.	Assessment
1	Have you exposed to different disease more than other	Never	25	9.3	2.33	0.639	Sometime
		Sometime	130	48.3			
		Always	114	42.4			
		Total	269	100			
2	Your general health is equal to others	Never	139	51.7	1.61	0.697	Never
		Sometime	97	36.1			
		Always	33	12.3			
		Total	269	100			
3	Your general health is getting more worse	Never	27	10.0	2.24	0.619	Sometime
		Sometime	151	56.1			
		Always	91	33.8			
		Total	269	100			
4	Your general health is excellent	Never	145	53.9	1.56	0.665	Never
		Sometime	98	36.4			
		Always	26	9.7			
		Total	269	100			

5	Ask for medical help	Never	10	3.7	2.35	0.549	Always
		Sometime	156	58.0			
		Always	103	38.3			
		Total	269	100			
6	Take medication without a prescription	Never	92	34.2	1.88	0.747	Sometime
		Sometime	116	43.1			
		Always	61	22.7			
		Total	269	100			

Table (5): Regression Effect of Overall Menopausal Symptoms on Women’s General Health Related Quality of Life domains

Women’s General Health Related Quality of Life domain	Rating	Overall Menopausal Symptoms (MRS)				D.f	Mean Square	F	p-value
		None	Mild	Moderate	severe				
Chang in Health	Poor	0	9	35	79	1	34.141	92.555	0.000 HS
	Good	15	31	47	37				
	Excellent	8	4	3	1				
	Total	23	44	85	117				
Compared to one year ago, how would you rate your health in general now?	Much better now than one year ago	0	7	29	37	1	1.797	3.668	0.057 S
	About the same	16	30	45	50				
	Much worse now than one year ago	7	7	11	30				
	Total	23	44	85	117				
General health statues effects	Never	4	1	10	15	1	0.010	0.021	0.886 NS
	Sometime	16	37	58	83				
	Always	3	6	17	19				
	Total	23	44	85	117				

CONCLUSION

A questionnaire has been used as a tool of data collection for the period of (13thFebruary - 30th July 2018) and; including : women characteristics (socio, reproductive) ; Menopausal Symptoms women’s general health related quality of life. The results of the study revealed that (43.5%)of women aged (56 - 60) years with Mean ± SD(54.57 + 4.424). Seventy four percent of

participants are married,(33.5%) of them are graduated from institute and above ,the highest percentage among those(39.4%) have body mass index (30-39.9kg/m²).

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols

were approved under the Department of Community Health Nursing, College of Nursing, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Eczema, It's Types, Microbiological Causes and Treatments

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ABSTRACT

Eczema is a chronic non-infectious disease that affects about 15% of children while only 2% of adults have infected. The origin of eczema is still unknown, however there are several factors that accompanied atopic dermatitis including some bacterial and fungal infections besides genetic predisposition and other environmental factors. Studies showed that 35% of persons with *S. aureus* infections have eczema. Other researchers showed that *Malassezia* yeast infection can lead to crusty eczema in adults. Treatments of eczema depend largely on determining the cause of it. however, some traditional herbs have proved its activity to calm the symptoms of atopic dermatitis. UVA-1 in combination with psoraline have been used to treat eczema effectively.

Keywords: *Eczema, Microbiological, Treatments*

INTRODUCTION

Atopic dermatitis or eczema is an inflammatory disease that affects skin, usually pruritic and chronic with unknown origin. However, there are many microbes are associated with eczema infection. Beside scientists have determined that combination of genes and environmental triggers can cause eczema. Both irritant and allergen can switch on the immune system. Most common symptoms are red patches and itchy on your neck, inner elbow or behind your knees. Also, can affect baby's cheeks, chin and chest. There are many types of eczema, all of them are not contagious. The word eczema is a Greek means boil over.^{1,2}

Types of Eczema

1. Atopic dermatitis can be divided into extrinsic and intrinsic subtypes depending on IgE levels, extrinsic atopic dermatitis shows high levels of IgE while an intrinsic atopic dermatitis or non-allergic dermatitis, IgE levels stay normal³.
2. Allergic contact dermatitis: occur when an irritant in contact with skin, Irritant can be nickel in earrings, chemicals in fragrance, skin creams and lotions, shampoos and others.

3. Varicose eczema: affects legs, skin of ankles becomes itchy and flamed, this type of eczema happens due to poor blood circulation.
4. Discoid eczema: round patches appear on skin of arms and legs.
5. Hand eczema: this is a chronic type, can be caused by exposure to strong detergent or latex allergy.
6. Nummular eczema: appears normally on legs, arms and chest, it represents allergic reaction to fungal infections such as athlete foot.
7. Asteatotic eczema: it's dry eczema with cracked skin, usually happened in elder people especially during winter.
8. Stasis dermatitis: poor blood circulation in lower legs lead to this type of eczema, skin becomes darkening and bumps.
9. Lichen simplex chronicus: happens due to repeated scratching and rubbing the skin in one direction.
10. Seborrheic eczema: it's scaly dermatitis, refer to it as cradle cap in infants or dandruff in adults^{4,5}.

Also, there are other types of eczema

1. Infant's eczema: it's an allergic reaction, usually occur in infants from parents with family history of asthma, eczema can be noted on infant's scalp, neck, knees and legs. It's very common in developed country.

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2. Auto eczematous disease: it's type of eczema associated with microbial infections such as bacteria, fungi or viruses. Cure is possible when microbes are treated. eczema always appear far from source of infection.
3. Eczema resulted from hidden sources such as lymphoma, or as a result of sensation to specific type of medicine.
4. Sebaceous skin inflammation in infants: chronic skin inflammation can cause eczema especially in scalp, eyebrows and face. It's resulted from biotin deficiency⁴.

Age and eczema

1. Infants eczema: it's red skin rashes, that come up like patches, occur in combination with hay fever or asthma. In hay fever, sensitivity to dust and hay leads to red patches cover face and cheeks, sometimes spread to neck, forehead and scalp. Usually appears in two months babies. Symptoms start to disappear at age 2 years. Some foods like eggs' white, cows 'milk, orange and chocolate worse the symptoms alike other inhaled allergens such as feathers, wolfs, hairs of dogs and cats. Teething and vaccination noted to make eczema more sharpening in infants. In case of eczema that combined asthma, vomiting and abdominal pain may occur especially after eating sensitized foods like eggs & milks' cows⁶.
2. Eczema in children: spread in warm areas especially in spring and summer seasons. Affected about 3% of children worldwide, 70% of them have genetic predisposing for one types of hypersensitivity. Also affected child may suffer from breathing problem and hay fever. This type of eczema affects both genders but there are more male children with eczema than female. Symptoms appear in child at 4-5 years old and continuous until 10 years old. Child usually experiences times of disappearing symptoms than reappear again, skin is increased in thickness especially knees, elbows and eye's lids⁷.
3. Adults' eczema: Few children with atopic dermatitis may develop adults' eczema. Skin becomes thick, cracked and itchy. In severe cases, pruritic skin accompanied eczema. Stress consider as a risk factor for atopic dermatitis in adults⁸.

Microbiological causes of eczema

A. Bacteriological causes: Studies showed that most eczema cases are associated with bacteria *S.aureus*. Staphylococcal infections worsen eczema and make it slowly to cure. 35% of people who have eczema were infected with *S.aureus* (table 1)^{9,10}, however it's uncertain if those people are carrier for *S.aureus* on their skin somewhere and triggered eczema in other areas or people who have eczema are more likely to be colonized by this type of bacteria. Cracked skin resulted from dryness facilitate skin colonization with *s. aureus* so bacteria can enter skin and cause infection, repeated rubbing can help in developing atopic eczema. Eczema is not contagious but persistent infection for many years help in spreading eczema to other areas of the body¹¹.

B. Fungi associated with eczema

Some elder people are suffering from a crusty eczema in necks and face, this type of eczema usually associated with colonization a specific type of yeast called malassezia. Eczema can be improved by using antifungal medicines such as Itraconazole or ketoconazole or others once a week for long time. Another yeast called Candida can cause eczema too. Candida usually colonized warm & moist areas of skin like femur, underarms, chest and diapers of infants. Table 2 explain a study for a researcher who isolated bacteria and fungi from ointments and creams used by patients with eczematous skin^{12,13}.

Treatments of eczema

Treatments of eczema depends on determining the cause, however eczema can be treated with steroids ointments and creams, also some traditional medicine prove its activity against eczema, the following are some types of medicines that used

1. Borage seed oil: used to treat atopic dermatitis, 500mg capsules are used daily¹⁴.
2. Chickweed oil: used to soothing skin problems such as red and itchy. Plant part can be mashed and used in bathtub or mixed with Vaseline cream¹⁴.
3. Tea tree oil: it's known for its antibacterial activity; tea tree oil becomes famous in US in treating eczema.
4. Lemon balm: it's known as a calm and anti-anxiety herb. It's used to treat skin with herpes (herpes

labialis)¹¹.

5. Chamomile: it's herb plants with flowers contain essential oils like flavonoids, glucosides, alpha bisabolol and tannins. Chamomile flowers has multiple medical uses such as anti-inflammatory action including eczema, relief abdominal pains and cramps & anti- allergy. 50 grams of Flowers are boiled and their extracts are applied on affected skins¹⁵.
6. Burdock roots: it's known from long times for its medical benefits, it's used for blood purifying and reducing inflammation.
7. Lupine seeds: seeds are smashed and mixed with Vaseline then applied topically.
8. Dried kidney beans: are boiled, then blended and used as cream on affected areas^{16,17,18}.
9. Almond oil: it used 3-5 times a day to treat eczema.
10. UVA-1 treatment: it's very useful to treat eczema. However, it can't be used for long times due to its harmful effects. UVA-1 used in combination with psoraline, also known as PUVA therapy. Psoraline help to make skin more susceptible to UV light so

low doses can be effective against eczema^{19,20}.

Other treatments choices

1. Sulfur: has been used for many years as a topical treatment for eczema. While there are other recent studies that showed its ineffectiveness to treat eczema.
2. Probiotics: some studies explained that taking probiotics can help in reducing eczema²¹.

Precautions tips

1. Keep skin moisturized
2. Avoid temperature changes
3. Avoid sweating and be away from warm places
4. Relief stress and anxiety
5. Avoid materials cause itching such as wool
6. Be cautious about cosmetics that enhance eczema
7. Avoid foods that trigger eczema ²²

Table 1: Shows a study for a researcher who isolated all types of bacteria from eczematous skin

Infections (n=164)		%	Possible infections (n=20)	%
Bacteriology Skin swab results	<i>S. aureus</i> + β hemolytic streptococci	62*+	<i>S. aureus</i> + β hemolytic streptococci	62
	<i>S. aureus</i> alone	35*	<i>S.aureus</i> alone	38
	β hemolytic streptococci alone	3		
Lancefield grouping of β hemolytic streptococci	Group A	68#	Group A	100
	Group B	13		
	Group C	8		
	Group G	10		
	Group L	1		
Resistance of <i>S. aureus</i>	Penicillin	70	Penicillin	100

Table 2. All types of bacteria from eczematous skin (Resistance of S. aureus, Treatment oral Antibiotics for 14 days).

Infections (n=1640)		%	Possible infections (n=20)	%
Resistance of S. aureus	Erythromycin	18		
	Tetracycline	12		
	Fusidic acid	1		
	Gentamycin	1		
Treatment oral Antibiotics for 14 days	Phenoxymethylpenicillin	94	Phenoxymethylpenicillin	81
	Flucoxacillin	63	Flucoxacillin	82
	Flucoxacillin	14	Flucoxacillin	6
	Cefadroxil	8	Phenoxymethylpenicillin	
	Phenoxymethylpenicillin	6	Phenoxymethylpenicillin+	6
	Fusidic acid and Erythromycin	3	Flucoxacillin	
	Fusidic acid	3		
Erythromycin	3			

Table 3: percentage of microorganisms that have been isolated from different products.

	Gram positive cocci	Gram Positive rods	Gram negative rods	Filamentous fungi	Yeast
Products Total n, %	18 (90)	6 (30)	4 (20)	2 (10)	4 (20)
Creams used by patients, n	37	7	-	1	4
Opening edges of tubes, n	52	10	6	3	14

CONCLUSION

The origin of eczema is still unknown, however there are several factors that accompanied atopic dermatitis including some bacterial and fungal infections besides genetic predisposition and other environmental factors. Studies showed that 35% of persons with S. aureus infections have eczema. Other researchers showed that Malassezia yeast infection can lead to crusty eczema

in adults. Treatments of eczema depend largely on determining the cause of it. however, some traditional herbs have proved its activity to calm the symptoms of atopic dermatitis. UVA-1 in combination with psoraline have been used to treat eczema effectively.

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Educational Institutions Teachers' Skills Hope in Babil

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ABSTRACT

teachers complain of weakness in educational proficiency has permeated this phenomenon in recent years, and to do this weakness is due to a weakness in their abilities and employability, education researcher found the need to conduct a study aimed at educational institutions teachers skills knowledge hope Waller Came on. So I discussed five chapters covering the first chapter search problem researcher has suggested that there is a deficiency in the educational skills of teachers researcher has studied the educational competence recognition this chapter contains important teacher and the importance of education and special education and the importance of education For individuals, the second chapter dealt with some previous studies involving research subject as well as balancing these studies with the present study, chapter III dealt with the methodology of the research that the researcher has chosen through descriptive and also research community which covers all the teachers In the schools of hope, please also search sample consisting of two (Basic, reconnaissance) and deals with the search tool that includes open question researcher directed to teachers.

Key word: Education, skills, Babil

INTRODUCTION

Provided the basic process and scientific education and social and humanitarian in every age and generation, and education is the art of the Queen and her experience and correct delivery information to the recipients, so the relationship between education and the correlation relationship and respect, science and educational spirit body this body, education Part of a comprehensive public education and education are inseparable, or Word in the Arab nation that ¹ has become immortal immortality letter said Allah almighty ((read in the name of your Lord who created man created from react and clotted)), any education with education, if text read in the name of the creator or your provider but link Education education. So the theme of education lead in civilized States experiencing prosperity and progress and bldenha of a nation experiencing progress and sophistication that have an educational curriculum which manufactured model of society you want, if the troubled educational construction disturbed community and stumbles and

development of constructive. Education has aimed at the acquisition of knowledge or skill training or save text or mathematical or physical act, the education aims at the development of the sense of taste and beauty in the universe and raising the conscience, conscience and free will wanhod conscious development of human values and modify patterns Human behavior, quality education is an educational goal which has no conflicts between their education and not any separation ² or schizophrenia, but are mutually reinforcing and complementary. Education education is the right of every human being regardless of any obstacles that may prevent their education, whether physical or mental institution with opportunities for potential of humans appearing and leadership and special education emphasizes the need to pay attention to the special needs and adapts curriculum, their teaching methods, In harmony, allowing their integration and their peers from ordinary students in general education classes, intensive scientific support functions for special education teachers and general education teachers, helping them implement education strategies both for gifted students or with various disabilities. The teacher occupies a key role in any educational system as one of the actors and stakeholders in achieving the objectives of that system and the cornerstone of any legislator to fix or whatever class efficient development of other elements of

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the educational process remains limited influence as pain there are efficient teacher prepared educationally And good discipline in addition to his creative capabilities can adapt educational innovations and develop itself and constantly updated ³. Teacher performance evaluation process helps educational institutions in achieving a set of goals, including the gauge or delaying work in accordance with objective criteria, and matching the requirements of the teaching profession and teachers ' qualifications and the psychological, cognitive and social characteristics, in addition to detecting Strengths and weaknesses in teacher performance than the institution can take actions that develop and enhance performance estoppel, (2003). sartawi, Abdul Aziz Mustafa, (1990) this study aimed to build scale in the educational skills of teachers in special education, this study was conducted in Saudi Arabia, King Saado, the sample of the study consisted of all students in the fourth level in the Department of special education Diplomat Saud University enrolled in classes and field training 87 students in the year 1999, the scale was designed in preliminary form follow the following steps:

1. Analysis of the special education teacher assignments using a number of research studies and educational skills metrics in special education.
2. Use its own UNESCO publications.
3. Use the views of a number of special education teachers and directors of special education schools and a group of special education experts study reached a scale of measurement of educational skills building for special education teachers.

Study (Abdul-Jabbar, Abdul Aziz bin Mohamed, 2002): this study aimed to identify the necessary training programmes for teachers of special education, this study was conducted in Riyadh, Saudi Arabia, King Saud University, this study showed statistically significant differences between the average grades. School community members for the importance of these programs due to variables age and educational qualification and experience and specialty training courses and research sample included 783 sample constitute milestone 31.7 of the research community, and may use the arithmetic mean and percentage and correlation coefficient (Pearson) and analysis 'M diverging, and tests (v) test Shaivism to analyze survey results, software came arranged by dimensions by

the study as follows: Ividual educational programme and General program (teaching and assessment and diagnosis, where teachers agreed with the high importance of these programs, you may use a descriptive analytical scholar in his search, use the researcher survey as a research tool, the questionnaires were distributed to all members of the sample were extracted The results of their findings. Study Al Qahtani, like Bint Salim, (2009) : this study aimed to identify the teaching strategies used by the teacher education and intellectual education institutes and programmes in Riyadh, this study was conducted in Riyadh, King Saud University, College of basic education to learn Impediments to use intellectual education teachers for some teaching strategies and relations with some ⁴ variables as a sample and teaching experience and educational environment and teaching sessions and training courses, the researcher used descriptive analytical, the sample consisted of (289) teachers spread over (72) institutes and intellectual education programme and identifying study tool was prepared by researcher to sample opinions survey in light of what is described and formulated objectives and study showed that strategies applied to it's most used by teacher education Through the results of the current study are questions and learning programmer, learning even mastering the strategy practice and scientific and educational games strategy statement the story while the following strategies are classified ⁵. The study also showed that the constraints that limit the use of teacher education institutes and programmes for some high intensity intellectual strategies in descending order as follows: large numbers of students with intellectual disability who entrust to master their teaching and lack of cooperation of parents and having students Inoperable for learning within the classroom and the lack of physical barriers and other pioneers of moral of teachers and lack of job training courses in the use of appropriate strategies for teaching with intellectual disability and the lack of a teacher assistant in class and having non-native students in class and a lack means And educational technology ⁶ and teacher education and administrative burdens multitude nature of curriculum content doesn't help to diversify the teaching strategies used in the display.

METHODOLOGY

outlining procedures carried out by the researcher to achieve, research and society includes specified and how to choose and search tool and verify its truthfulness and consistency and application of statistical methods

and tool used in analysis of offspring, the researcher has chosen descriptive A method for examination of the appropriate methodology for this research and action is a survey on the phenomenon of educational or psychological phenomena for diagnosing and detecting and defining relationships between its elements Al-zawbai, (1981). Research community and appointed by the research community represents all teachers who work in schools of hope in Babil and their count of 28 teachers divided into schools of hope, please either search sample researcher has chosen two exploratory and fundamental understanding.

Scoping sample: the researcher has chosen at random (10) teachers of schools of hope and reality (5) of each Institute.

Core sample: due to the limited research community has chosen all remaining research community researcher as a core sample, (18) teachers at the institutes (10) from the Institute of please and (8) of the Institute.

Researcher search tool open question sample of teachers numbered (10) teachers after collecting the forms open question and inform the researcher to researcher preparation literature identifying initial version consists of 7 areas spread over (99) for the purpose of display on a set of Experts for sincerity. Firming tool means consistency consistency in results, and to calculate the reliability of any tool makes search results more objective but some see specialists to extract the stability requirement for objectivity, in order to verify the stability test method the researcher used.-resolution is applied on Wednesday (20 /2 2017) and after (14) day retest correlation was between the two tests is (0.95) this indicates that there were no statistically significant differences between the two tests, this means that the tool is fixed so ready for application. Researcher used statistical correlation coefficient means Pearson to create the bibliography and the weighted percentage weight.

RESULTS AND DISCUSSION

The area of efficiencies of teachers in basic knowledge): first field (18) weighted mean exclusively between paragraph (2.88-1.27) and weights (96-33, 42). II: the second domain (domain of efficiencies chart): (14) the weighted mean exclusively between paragraph (2.88 – 1.16) and weights (96-33, 38). III: the third field (field of measurement and evaluation of efficiencies): this area (15) paragraph weighted mean exclusively between

(2.83-1.33) and weights (33, 94 – 33, 44). IV: the fourth area: the area of efficiencies teaching methods): this area (14) weighted mean exclusively between paragraph (2.55-1.44) and weights (85-48). VA: fifth area (area of efficiencies using educational technology): this area (10) paragraphs of weighted mean exclusively between 2.61-144) and weights (87-48). Vi: vi:(area of efficiencies of cooperation and communication): this area (14) weighted mean exclusively between paragraph (2.55-144) and weights (85-48). VII: VII (ethical and professional skills): this area (12) weighted mean exclusively between paragraph (2.72-1.05) and weights (66, 90-35).

CONCLUSION

the methodology of the research that the researcher has chosen through descriptive and also research community which covers all the teachers In the schools of hope, please also search sample consisting of two (Basic, reconnaissance) and deals with the search tool that includes open question researcher directed to teachers.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Babylon University – College of basic education, Iraq and all experiments were carried out in accordance with approved guidelines.

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Effectiveness of an Education program on Nurses knowledge toward Prevention of Complications Related to Valvular Replacement Surgery at Surgical Department in AL-Nasiriyah Heart Center

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ABSTRACT

Objectives: To determine the effectiveness of an instructional program on nurses knowledge toward prevention of Complications Related to Valvular Replacement Surgery. To find out the relationship between nurses knowledge and their demographic and occupational characteristic's like (Age, gender, level of education, years of experience in Surgical Units, and training sessions). A quantitative approach using quasi – experimental design has been conducted in this study to determine the effectiveness of an education program on nurses knowledge toward prevention of complications related to valvular replacement surgery with application of pre and post –test method through tow group (case and control). Data were collected by using the technique of self-report questionnaire which designed and constructed by the researcher from previous related studies. The results showed that most of the participants in the research of nurses were in the age group (20-29) years, the nurses knowledge in post –test study group were higher than their in post –test of the control group in all domain and there is high significant differences between (study and control group) at post period. The study concluded that most nurses did not have sufficient experience in work in the surgical department and most of them did not train well.

Keywords: *Valvular Replacement Surgery, Surgical Department*

INTRODUCTION

While Leonardo da Vinci documented the same heart valves in some of his early drawings more than 500 years ago, they were only available for implantation since the 1950s. With an average heart rate of 2.5 billion times in human life, the four heart valves must maintain a one-way blood flow to increase heart efficiency and provide oxygenated blood to the entire body¹ Although valve disease is usually associated with advanced age, congenital defects can also affect valves since birth. Valves may lose their function if they cannot maintain a proper payment or a full opening². Heart valve surgery is a execution for the treatment of heart valve disease. In the case of heart valve disease, at least four

heart valve valves, which save blood flow in the right direction through the heart, do not work properly³. On September 21, 1961, the first artificial valve of Stear-Edwards was introduced in a patient at the Cleveland Clinic Hospital, with a triumphant outcome. This patient is the situation in this well. The first aortic valve was replaced on November 27, 1961. On September 21, 1961, and February 29, 1964, a total of 117 aortic valve replacement and 97 replacement of mitral valve were performed as one procedure. There were 10 additional operations due to multiple valve replacement⁸. These valves include mitral valve, pulmonary valve, tricuspid valve and aortic valve. Each valve contains flaps called leaflets, for the mitral and tricuspid, and cusps, for aortic and pulmonary valves. These openings open and close once during each heartbeat. Sometimes the valves do not open or close properly, thus disrupting blood flow from the heart to the body⁴. Valve replacement is generally safe. However, as with after any surgery or procedure,

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complications can occur⁵ possibility risks associated with treatment include: Bleeding during or after treatment or damage to blood vessels . Blood clots can cause a heart attack, lung problems or stroke. Infection at the site of incision. endocarditis, is more common with valve replacementsurgery⁶·Pneumonia. Breathing problems. irregular heartbeat(Arrhythmia) or the need for a permanent pacemaker .Valve failure,more common also with replacement. Bad reaction to anesthesia⁷

METHODOLOGY

A descriptive design (a cross-sectional study was used for the present study) was carried out from December 2017 to August2018 in order to assess nurses' knowledge of preventing complications Valvular Replacement Surgery at Surgical Department as a main objective in this study. A Purposive, non –probability sample of (70) nurses who work in the surgical departments were selected based on the study criteria and after obtaining a consent from them to participate in the study. The sample was divided to two groups:(one of them is the control group and the second one is the study group) . Each one has 35 nurses. Data were collected by using the technique of self – administrative report a questionnaire was designed by the researcher through adoption and modification of the scales that contribute in achieving the objectives of this study. The questionnaire of the study is composed of four parts : the first parts, include the socio-demographic characteristics for the nurses included in this study characteristics for the nurses, the second part anatomy and physiology heart valve , third part heart valve replacement and fourth part complication heart valve replacement and nursing care. Scale of the questionnaire is (multiple choice) the correct answer code was (2) and the wrong answer code was (1) A questionnaire was designed and constructed by the researcher to measure the variables underlying the present study which was consisted of (5) parts.

1) Socio-Demographic Characteristics Questionnaire: It consists of (5) items related to the socio-demographic characteristics of the sample which include nurses'(Age, gender, level of education ,years of experience in Surgical Units, and training sessions)

2) Nurse's Knowledge Concerning Heart Valve Anatomy :This part includes (7) items.

3) Nurse's Knowledge Concerning Heart Valves Disease: It consists totally (5) items

4) Nurse's Knowledge related to Complication Heart Valve Replacement : It consists totally (16)items

5) Nurse's Knowledge related to Nursing Care: It consists totally (7)items

The validity of the questionnaire was determined through a panel experts (13 experts) . These experts were (8) faculty members from the College of Nursing / University of Baghdad , (5) specialist physicians in cardiac surgery / AL Nasiriyah Heart Center. The internal consistency of the instrument was determined through the pilot study and the computation of Alpha Correlation Coefficient (Cronbach's Alpha). The result of the reliability was ($r = 0.85$). The data were collected for the present study through the utilization of the self-administrative questionnaire, by using the Arabic version of the questionnaire for all subjects who were included in the study sample The researcher distributed the questionnaire for nurses after taking their willing to participate in this study, the interview was conducted with volunteer nurses. Statistical analyses were conducted by using statistical package for social science (SPSS) version (20) Data analysis was employed through the application of descriptive and inferential statistical approaches which were performed through the computation of the following: frequencies, percentage, standard deviation, alpha correlation coefficient and Chi-squar

RESULTS AND DISCUSION

The analysis of socio-demographic characteristics in this table for the nurses shows that half of the study group nurses are with age range 20-29 years old (77.1%) and the age group for nurses in the control group is ranging age groups of (20-29) years old (65.7%). The nurses' gender indicates that the female is the dominant gender among the current study, in which 71.4% of nurses in the study group and 65.7% in the control group are female nurses. The highest percentage related to educational levels is seen to be the nursing collage that are (51.4 %) in the study group and equal graduated between nursing college and medical institute as nurses (37.1%) in the control groups , and graduated from nursing preparatory school (study group= 17.1%, control group= 25.7%). Table 2 depicts that there is no significant relationship between nurses' knowledge with their age group among the study and control groups at $p\text{-value} \leq 0.05$. Table 3 depicts that there is no significant relationship between

nurses' knowledge with their gender among the study and control groups at p-value ≤ 0.05 . Table 4 depicts that there is no significant relationship between nurses' knowledge with their level of education among the study and control groups at p-value ≤ 0.05 . Table 5

depicts that there is significant relationship between nurses' knowledge with their prevention complication of valvular replacement Courses among the study particularly with knowledge toward nursing care (p=0.006).

Table 1: Distribution of the Nurses according to their Socio-demographic Characteristics

Variable	Study group		Control group		Chi-Square Test			
	Frequency (F)	Percent (%)	Frequency (F)	Percent (%)	Value	df	P. value	Sig.
Gender					1.26	1	.260	NS
Male	10	28.6	12	34.3				
Female	25	71.4	23	65.7				
Total	35	100.0	35	100.0				
Age					4.54	2	.103	NS
20-29 Years	27	77.1	23	65.7				
30-39 Years	8	22.9	10	28.6				
40-49 Years	0	0	2	5.7				
Total	35	100.0	35	100.0				
Mean (SD)	1.22(.42)		1.40(.60)					
Educational status					6.42	3	.378	NS
Nursing School	6	17.1	9	25.7				
Nursing institute	10	28.6	13	37.1				
Nursing College	18	51.4	13	37.1				
Master and doctorate	1	2.9	0	0				
Total	35	100.0	35	100.0				

Table (2) Relationship between Nurses' Knowledge about prevention complication of heart valvular replacement with Respect to their Age Group

Age Knowledge Domain	Study Group (N=35)						Control Group (N=35)					
	Sources of Variance	Sum of Square	df	M.S	F	P \leq 0.05 (sig)	Sources of Variance	Sum of Square	df	M.S	F	P \leq 0.05
a.Heart Valve Anatomy	Between Group	.034	1	.034	.603	.443 (NS)	Between Group	.307	1	.154	.649	.529 (NS)
	Within Group	1.85	33	.056			Within Group	7.57	33	.237		
	Total	1.88	34				Total	7.88	34			

Cont... Table (2) Relationship between Nurses' Knowledge about prevention complication of heart valvular replacement with Respect to their Age Group

b. Heart Valves Disease	Between Group	.212	1	.212	1.71	.199 (NS)	Between Group	.265	1	.133 .167	.795	.460 (NS)
	Within Group	4.07	33	.123								
	Group	4.28	34									
	Total						5.600	34				
c. Complication Heart Valve	Between Group	.034	1	.034	.603	.443 (NS)	Between Group	.277	1	.139 .125	1.106	.343 (NS)
	Within Group	1.85	33	.056								
	Group	1.88	34									
	Total						4.286	34				
d. Nursing Care	Between Group	.008	1	.008	.290	.594 (NS)	Between Group	.454	1	.227 .241	.941	.401 (NS)
	Within Group	.963	33	.029								
	Group	.971	34									
	Total						8.17	34				
Total Knowledge	Between Group	.096	1	.096	3.63	.065 (NS)	Between Group	.267	1	.134 .147	.908	.413 (NS)
	Within Group	.875	33	.027								
	Group	.971	34									
	Total						4.70	34				

Table (3) Relationship between Nurses' Knowledge about prevention complication of heart valvular replacement with Regarding their Gender

Gender Knowledge Domain	Study Group (N=35)						Control Group (N=35)					
	Sources of Variance	Sum of Square	df	M.s	F	P≤ 0.05 (Sig)	Sources of Variance	Sum of Square	df	M.S	F	P≤ 0.05 (Sig)
a.Heart Valve Anatomy	Between Group	.046	1	.046	.820	.372 (NS)	Between Group	.002	1	.002 .239	.007	.934 (NS)
	Within Group	1.84	33	.056								
	Group	1.88	34									
	Total						7.88	34				
b. Heart Valves Disease	Between Group	.286	1	.286	2.357	.134 (NS)	Between Group	.249	1	.249 .162	1.533	.224 (NS)
	Within Group	4.00	33	.121								
	Group	4.28	34									
	Total						5.35	34				
c. Complication Heart Valve	Between Group	.026	1	.026	.456	.504 (NS)	Between Group	.210	1	.210 .124	1.697	.202 (NS)
	Within Group	1.86	33	.056								
	Group	1.88	34									
	Total						4.07	34				
d. Nursing Care	Between Group	.071	1	.071	2.61	.115 (NS)	Between Group	.027	1	.027 .247	.107	.745 (NS)
	Within Group	.900	33	.027								
	Group	.971	34									
	Total						8.14	34				

a. Heart Valve Anatomy	Between Group Within Group Total	.022 4.94 4.94	2 32 34	.022 .150		.149	.702 (NS)	Between Group Within Group Total	.301 7.58 7.88	2 32 34	.150 .237		.635	.537 (NS)
b. Heart Valves Disease	Between Group Within Group Total	.212 4.07 4.28	2 32 34	.212 .123	1.71		.199 (NS)	Between Group Within Group Total	.336 5.26 5.60	2 32 34	.168 .164	1.02		.371 (NS)
c. Complication Heart Valve	Between Group Within Group Total	.135 3.40 3.54	2 32 34	.135 .103	1.31		.260 (NS)	Between Group Within Group Total	.128 4.15 4.28	2 32 34	.064 .130	.493		.615 (NS)
d. Nursing Care	Between Group Within Group Total	.933 4.66 5.60	2 32 34	.933 .141	6.60		.015 (HS)	Between Group Within Group Total	.581 7.591 8.171	2 32 34	.290 .237	1.22		.308 (NS)
Total Knowledge	Between Group Within Group Total	.001 3.54 3.54	2 32 34	.001 .107	.011		.917 (NS)	Between Group Within Group Total	.114 4.85 4.97	2 32 34	.057 .152	.375		.690 (NS)

Table (6) Relationship between Nurses' Knowledge about Regarding to their Participation in prevention complication of valvular replacement Courses

Training cures Knowledge Domain	Study Group (N=35)						Control Group (N=35)						
	Sources of Variance	Sum of Square	df	M.S	F	P≤ 0.05 (Sig)	Sources of Variance	Sum of Square	df	M.S	F	P≤ 0.05 (Sig)	
a. Heart Valve Anatomy	Between Group Within Group Total	.056 1.83 1.88	2 32 34	.028 .057		.487	.619 (NS)	Between Group Within Group Total	.800 7.08 7.88	2 32 34	.400 .221	1.80	.181 (NS)
b. Heart Valves Disease	Between Group Within Group Total	.037 4.24 4.28	2 32 34	.019 .133	.141		.869 (NS)	Between Group Within Group Total	.259 5.34 5.60	2 32 34	.130 .167	.776	.469 (NS)

Cont... Table (6) Relationship between Nurses' Knowledge about Regarding to their Participation in prevention complication of valvular replacement Courses

c. Complication Heart Valve	Between Group	.121	2	.061	1.09	.346 (NS)	Between Group	.263	2	.131	1.04	.363 (NS)
	Within Group	1.76	32	.055			4.02	32	.126			
	Group	1.88	34				4.28	34				
	Total											
d. Nursing Care	Between Group	.030	2	1.12	6.08	.006 (HS)	Between Group	2.25	2	.015	.514	.603 (NS)
	Within Group	.941	32	.185			5.91	32	.029			
	Group	.971	34				8.17	34				
	Total											

CONCLUSION

Data were collected by using the technique of self-report questionnaire which designed and constructed by the researcher from previous related studies. The results showed that most of the participants in the research of nurses were in the age group (20-29) years, the nurses knowledge in post –test study group were higher than their in post –test of the control group in all domain and there is high significant differences between (study and control group) at post period . The study concluded that most nurses did not have sufficient experience in work in the surgical department and most of them did not train well.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

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Effects of Women's Education on Child Care and Child Mortality

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ABSTRACT

The exact mechanism of education's impact on health is not known, it has been suggested that educating women alters the traditional balance of power within the family, leading to changes in decision making and allocation of resources within the house. Educated mothers are more likely than uneducated women to take advantage of modern medicine and comply with recommended treatments. This research is conducted in order to identify the most effective health education strategies for students and mothers. For example, innovative approaches may enhance traditional models for education. The best strategies will promote the four basic skills inherent in health-literate individuals: The ability to be critical thinkers and problem solvers, Responsible and productive citizens, self-directed learners, and effective communicators.

Keywords: Mechanism of education's, women's education, health education strategies, child mortality.

INTRODUCTION

Human resources considered as strategic fortune for being the main driver of the development wheel in the society, and the field of education .learning is one of the main pillars of this fortune for its great effect in the process of economic and social progress of individuals ¹. The subject of education to the concerns of many countries, as adopted national policies. And regional support and the reduction of constraints, so came our study (education hub for human development) to identify the role of education in human development and to identify the obstacles facing the education process and the extent of its impacts negatively on the process of human development also contribute to the knowledge of school enrolment and the extent of its impact on human development, and work to provide the necessary needs and requirements to raise the educational services. And gaining the study of great significance because education is one of the cornerstones of human development, it is also among the important pillars to build a knowledge-based society, it means actors to fight poverty, ignorance and extremism and the reduction of social crises and unrest political and security stability and security as it manifests the importance of this study addressed the phenomenon of development, which means the development of human society, because man is a tool

and a very economic development in all its dimensions and political and social classes and trends intellectual, scientific and cultural ¹.

Education as a Determinant of Health

In considering the determinants of health, it is important to realize that poor physical circumstances are not the only factors harmful to health. Lack of education, for example, can lead to reduced ability to find, understand and use health information. Thus, education is an important determinant of health status in both the developed and developing world. The high health returns to investing in the education of women are indisputable. Well educated individuals experience better health than the poorly educated, as indicated by high levels of self-reported health and physical functioning and low levels of morbidity, mortality, and disability. In contrast, low educational attainment is associated with "high rates of infectious disease, many chronic non infectious diseases, self-reported poor health, shorter survival when sick, and shorter life expectancy".²

Women and Health Promotion in the Family

While the exact mechanism of education's impact on health is not known, it has been suggested that educating women alters the traditional balance of power within the family, leading to changes in decision

making and allocation of resources within the household²⁻⁶. Therefore, educated mothers are more likely than uneducated women to take advantage of modern medicine and comply with recommended treatments.⁷ Furthermore, education may change mothers' knowledge and perception of the importance of modern medicine in the care of their children.⁷ In a study of child nutrition in the Philippines, access to healthcare services benefited children of educated mothers more than children of mothers with less schooling, a finding which suggested that educated mothers were more likely to take advantage of available public health services⁸. For example, findings from numerous studies of infant and child mortality conducted in developing countries over the last decade show a nearly universal positive association between maternal education and child survival.⁹⁻¹² Education can modify women's beliefs about disease causation and thus influences both childcare practices and the use of modern healthcare services.¹³ These facts reveal that women are important promoters of health education and practices within the home, and the benefits of their education extend to their children and others.

Health Education Strategies

School health education may be delivered in a variety of ways, with varying emphases on biological, behavioral, and pedagogical concepts. Teachers and other health professionals must be prepared to address the complex social, developmental, and health-related issues that youth bring to the classroom. Continued effort should be made to maximize the learning of critical issues and concepts in child and adolescent health.

In the developed world, school teachers are instructed in health education around several themes:

- 1) Teach health pedagogy skills.
- 2) provide health information from the 10 traditional health content areas (community health; consumer health; environmental health; family health; mental health; injury prevention/safety; nutrition; personal health; diseases; and substance abuse).
- 3) Examine the six adolescent risk behavior categories identified by the Centers for Disease Control and Prevention¹²⁻¹⁵.
- 4) Describe the eight components of a coordinated school health program.

More research must be conducted in order to identify the most effective health education strategies for students and mothers. For example, innovative approaches may enhance traditional models for education. The best strategies will promote the four basic skills inherent in health-literate individuals:

- (1) The ability to be critical thinkers and problem solvers.
- (2) Responsible and productive citizens.
- (3) Self-directed learners.
- (4) Effective communicators.

Health-literate students should be able to:

Understand health promotion and disease prevention concepts.

Know how to access valid health information, products, and services.

Develop positive health behaviors.

Analyze the influence of culture, media, and technology on health.

Use interpersonal communication skills to enhance health.

Develop plans through individual goal setting and decision-making.

Become advocates for good individual, family, and community health.

RESULTS AND DISCUSSION

The results of the current study are consistent with the Canadian study which relied exclusively on maternal reports found that (only) in the case of children of mothers with very low levels of education (i.e., lacking a high school education), experience of (mostly home-centered) non-maternal care in the first 2.5 years (and especially the first 9 months) reduced the risk of children being highly aggressive across their first 5 years of life. This result is consistent with others studies, though not with data from the large-scale NICHD Study, showing that non-maternal care is sometimes associated with better developmental outcomes among high-risk children¹².

1. That children are more likely to develop insecure

attachments to their mothers by 15 months of age when they experience more than 10 hours of care per week in the first year of life, or more than one child-care arrangement across the first year, or low-quality child care and mothering that is relatively low in sensitivity; when attachment is measured again at 36 months, however, only the amount of time in care through age three (i.e. >10 hours) continues to predict elevated rates of insecure attachment (when it coincides with low levels of maternal sensitivity).

2. That patterns of mother-child interaction from six to 36 months are somewhat less harmonious when children spend more rather than less time in any kind of child care (irrespective of its quality), and that the same is true, though to a lesser extent, when children experience poorer- rather than higher-quality child care; when mother-child interaction is followed up through first grade, more time in care across the first 54 months of life continues to be a predictor of somewhat less harmonious patterns of mother-child interaction for whites and somewhat more harmonious patterns of interaction for blacks.

3. That children evince higher levels of externalizing problems (as reported by caregivers, mothers and/or teacher) when they spend more time in child care across their first two, or first 4 1/2 years of life, irrespective of child-care quality, and that this is true when problem behaviour is measured at two years of age, 54 months of age, and in kindergarten and the first grade;^{19,20} this effect is no longer apparent, however, by the time children are in third grade, around the age of eight, though at this time, more time in care through the first 54 months of life is a predictor of less teacher-reported social competence and poorer academic work habits.

4. That children who spend more time in child-care centers also evince higher levels of problem behaviour, even after taking into account time spent in any kind of child care, and this is so through sixth grade.

5. That children who spent more time in any kind of non-familial child care (i.e., not just centers) were more impulsive and engaged in more risk-taking behaviour at age 15, according to adolescent self-reports.

6. That children who experience a higher rather than a lower quality of child care evince somewhat higher levels of cognitive-linguistic functioning at two, three, four and five years of age.

7. That children who experience a higher rather than a lower quality of child care scored somewhat higher on tested academic achievement at age 15, extending effects discerned across the primary-school years, and also scored lower on externalizing problems, according to adolescent self-reports.

Research on child care is largely conducted and published in sub-specializations, each with its own perspective, as reflected in the reviews. McCartney describes child care research as evolving in stages; from simple comparisons of children in and out of care to analyses of the effects of quality? Controlling for family characteristics? to examinations of the joint influences of child care and family contexts. Peisner-Feinberg categorizes research according to its focus on interventions seeking to improve education and development, or Ordinary child care available to the general population. Overall, the research gives us reason to hope and has allayed some major fears. Nevertheless, these particular reviews raise questions about whether we can expect only modest cognitive and social benefits which may be at least partially offset by modest negative effects on social behaviour and health. In my view, a more optimistic assessment of the potential of child care to improve development is called for based on a somewhat broader review of the research, with a greater emphasis on education. There also is sufficient research to conclude that child care does not pose a serious threat to children's relationships with parents or to children's emotional development. A recent study of preschool centres in England produced somewhat similar results: children who started earlier had somewhat higher levels of antisocial or worried behaviour ? an effect reduced but not eliminated by higher quality. In the same study, an earlier start in care was not found to affect other social measures (independence and concentration, cooperation and conformity, and peer sociability), but was found to improve cognitive development. However, some studies find that the quality of publicly subsidized care in some countries is so low that it harms children's development. When national policies ignore child care quality in setting subsidy rates and regulations they forego the substantial positive benefits from high quality programs and instead reap null or even negative impacts on child development. Quality education means good teaching methods and learning materials provided to those who are sufficiently healthy to benefit from what is offered to them, in an environment that is conducive to learning.

Schools that cannot provide basic amenities, such as proper toilets, clean water supply and play areas, do not lend themselves to providing quality education, particularly for girls, whose educational prospects suffer. Faced with a lack of girl-friendly facilities, many parents withdraw their daughters from school when they reach adolescence. And evidence tells us that education, especially of girls, is critical for the development and empowerment of women. It raises economic productivity, reduces poverty, lowers infant and maternal mortality, and helps improve nutritional status and health. Informal education for those not in schools can also contribute to the health and well-being of women, children and their communities. Another initiative, the Child-to-Child for School Readiness programme, provides training and materials that allow teachers to equip students to pass on the knowledge they gain to siblings who are either not, or not yet, in school. This programme has been tested in many countries and has demonstrated that it successfully spreads healthful habits and practices beyond schools and into homes and communities. The relationship between education and child and maternal health is clear. The larger lesson -- that all the MDGs are interlinked and that success in any one will only be sustainable with success across all of the Goals -- is one that informs all the United Nations system's development activities. This paper examines the role of health knowledge in the association between mothers' education and use of maternal and child health services in Iraq. The study uses data from a nationally representative sample of female respondents to the 2017 in Iraq demographic and Health Survey.

Data and sample

The dependent variable is mothers' report of use of three types of health services. Because antenatal care is consistently associated with maternal and neonatal health, the first measure is a binary indicator for antenatal care.

Women were asked, 'Did you see anyone for antenatal care for this pregnancy?' If women answered yes, they were asked the follow-up question: 'Whom did you see?' The indicator was coded 1 if the mother received care from a trained health professional. The second measure is whether the childbirth was supervised by a trained medical professional, which is associated with lower risk of maternal mortality and neonatal mortality compared with home births.

Statistical controls

The analyses account for other factors in the household and community that are likely to influence mothers' formal education, health knowledge and use of health services. The dwelling conditions and consumption patterns of the home where the mother and child live are controlled to account for socioeconomic status. Socioeconomic status is also accounted for by controlling for rural residence, husbands' education and whether the home is headed by a woman. Beyond socioeconomic factors, the region within Iraq is also controlled for to account for regional disparities in access to services. Based on prior findings, the following maternal demographic indicators are also controlled: mothers' age, total number of children, autonomy within the household and ethnicity.

CONCLUSION

Emphasize the importance of education. Raise the cultural level around the marriage of underage girls. Increasing the cultural awareness of girls in schools and the importance of teaching them the basic rules of family building. That parental leaves be extended (and preferably paid) as in some Scandinavian countries. Support families raising infants and toddlers in ways that afford parents the freedom to make the childrearing arrangements they deem most appropriate for their children, thereby reducing the economic coercion that pushes many to leave the care of their children to others, against their wishes. That, given the clear benefits of high-quality child care, more of these services are called for. Indeed, all of these recommendations could be justified on humanitarian grounds alone.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Nursing- University of Babylon/Iraq and all experiments were carried out in accordance with approved guidelines.

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Estimation of *HSV-1* and *HSV-2* in Chronic Periodontitis in Babylon Subjects

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ABSTRACT

This study was carried to detect the prevalence of *HSV-1* and *HSV-2* in periodontal pocket of healthy and chronic periodontitis infected subjects of Babylon province/ AL-Hilla city by using Real Time – Polymerase Chain Reaction technique with the amplification of Major capsid protein gene which is responsible for virulence of the these viruses as specified primer. Ethical approval and prior consent were taken. Sixty-eight subjects (21-79 years old) mean (43.95±11.79) years, included 29 males and 39 females. Supragingival plaque samples were removed. Samples of gingival crevicular fluid were collected from all participants, 38 from chronically infected periodontal patients and 30 from healthy periodontal subjects. Seven (18.42%) out of 38 samples of chronically infected subjects appeared positive result of *HSV-1*. While 10 (26.32%) samples revealed positive result of *HSV-2* in the same group. Whereas in healthy periodontal group shown six (20.00%) subjects gave positive result of *HSV-1* and 5 (16.67%) subjects exposed positive result of *HSV-2*. The coinfection of *HSV-1* and *HSV-2* was found in two (5.26%) of chronic periodontitis patients and in two (6.67%) of healthy subjects.

Key words: *HSV-1*, *HSV-2*, chronic periodontitis

INTRODUCTION

Periodontal disease as a chronic multifactorial inflammatory disorders of the tooth supporting tissues including the gums, cementum, alveolar bone, and periodontal ligament. Periodontal disease is a very common oral condition worldwide with an estimated prevalence of 20-50%. It makes a public health concern, as it is highly prevalent among adolescents, adults, and elderly people around the world. Since the condition closely related to poor oral hygiene and lack of basic medical care, it is more common in developing countries of the world¹. There are two types of periodontal disease, gingivitis and periodontitis, which are precipitated by dental plaques both on the teeth surfaces and in gingival pockets². Periodontitis represented irreversible devastating changes of periodontal supporting tissues in

contrast with gingivitis, which represent a mild reversible condition of inflammation that confined to soft tissue^{2,3}. Gingivitis clinically characterized by gingival swelling, erythema, bleeding upon stimulation, halitosis, presence of dental plaque or calculus, altered gingival contour, and loss of adaptation of periodontal tissue to teeth^{4,5}. Clinical features can be reverse with good oral hygiene and avoidance of predisposing factors². However, in periodontitis, inflammation that is more extensive results in progressive unalterable periodontal ligament destruction and alveolar bone resorption³. Consequently, tooth loss can occur, and the patient's quality of life can be severely affected. This study conducted during the period from November 2017 to April 2018 for identification of *HSV-1* and *HSV-2* prevalence in chronic periodontitis infected individuals. Since the 1990s, interest in Herpesviruses has increased as one of the cause of periodontitis. These viruses are the most common viruses in humans. There are eight members of the family Herpesviridae cause human infection, which were arranged in three sub-families, alpha, Beta and gamma. Those are *Herpes simplex virus*

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1 and 2 (*HSV1*, *HSV2*), *Varicella zoster virus*, *human herpesvirus (HHV) 6*, *HHV7*, and *HHV8*, *EBV*, *HCMV*. These viruses exploit certain leukocytes, macrophages, lymphocytes and other host supporting cells to maintain their replication, and consequently minimizing host antiviral inflammatory responses. They may cause periodontitis directly as results of their replication in infected host cells, or as results of damage caused by virus as results of host defense with increase aggressiveness of resident microorganisms. Therefore, the lineament of *herpesviruses* infections is immune deterioration. Herpesvirus correlating periodontal location also tend to resort raised intensities of periodontopathic microorganisms, including *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Campylobacter rectus*, *Tannerella forsythia*, *Dialister invisus*, *Dialister pneumosintes*/ *Treponema denticola*, *Prevotella intermedia*, and *Prevotella nigrescens*. The cohabitation of periodontal certain *herpesviruses* as, *HSV*, *HCMV*, *EBV*, and probably other different viruses, periodontopathic microorganisms, and regional host immune reactions should be viewed as a unstable balance that has a chance to lead to periodontal smashing⁶. Originally, bacterial hitting of the gingival tissue causes inflammatory cells to enter gingival tissue, with periodontal macrophages and T lymphocytes sheltering latent *HCMV* and periodontal B lymphocytes sheltering latent *EBV*. Immunoglobulin A antibodies against *HCMV*, *EBV*, and *HSV* in gingival crevice fluid appear to arise mostly from regional plasma cell synthesis rather than from acquiescent serum transudation, which is a further marker of a gingival herpesvirus existence^{7,8}. Activation of Herpes viruses leads to raise of inflammatory mediator secretion by macrophages and probably also in cells of connective tissue within the regional periodontal lesion as a responses to stimuli by these viruses. After virus load reaching a crucial level, stimulated macrophages and lymphocytes may elicit a chemokine /cytokine 'revolt' of interleukin (IL)-1 β , TNF- α , IL-6, prostaglandins, interferons, and other fulfilling several function mediators, several of which have the potency to generalize bone resorption⁹. In a violent period, the electing of cytokine responses may stimulate latent *Herpesviruses*, and that may otherwise excite periodontal disease. It is imaginable that herpesviruses depend on coinfection with periodontal microorganism to generate periodontitis and, reciprocally, periodontopathic microorganism may rely on viral presence for the origination and development of several types of periodontitis¹⁰. A lately proceeded

metaanalysis assuming a provable guide that herpes viruses play a function in chronic periodontitis; though, a reason and influence association continue to be start. The conceivable participation of *Human Herpesviruses* in the manner of development of chronic periodontitis required further research¹¹.

MATERIALS AND METHOD

A sixty- eight subject were included in this study. All of them were selected from the out-patient, whose admitted to Babylon faculty of dentistry, University of Babylon, department of periodontology. selected subjects should be free of systemic diseases, had no history of medication or previous periodontal treatment during previous 6 months, they should be above 18 years old, smoker and women who were pregnant or receiving hormone treatment were precluded. Subjects diagnosed as healthy, or had moderate to severe chronic periodontal disease, performed according to basic periodontal examination, which, included (measure of pocket depth, bleeding on probing, measure of plaque index and clinical attachment loss). Gingival crevicular fluid samples collected by sterile paper point and directly immersed in sterile 1.5 ml volume Eppendorf tubes containing Tris- HCl and stored in minus 20 °C until used. Ethical approval and prior consent given by Babylon Faculty of dentistry / University of Babylon for this study.

Primers used:

The following primer design for major capsid protein of both *herpesviruses* used in this work are:

Major capsid protein (MCP) of *HSV-1*:

Forward primer: **TTCGCTGATGAACGTTGACG.**

Reverse primer: **AAACAGCTGCTGCATGTCTG.**

MCP- *HSV- 2* primer:

Forward primer: **TCCTTCGCTCATGAACATCG.**

Reverse primer: **TCAGAAAACGCTGCTGCATG.**

MCP- *HSV- 1*: Genbank(**X04467.1**),

MCP- *HSV- 2*: Genbank (**Z86099.2**).

Genomic DNA was extracted from gingival crevicular fluid samples by using gSYAN™ DNA extraction Kit. Amplification of extracted DNA: RT-PCR used to detect the prevalence of studied viruses in collected samples using the qPCR master mix and method carried according to restriction of manufacturing company and mixtures of components was performed as seen in following table 1. The master mix components were placed in qPCR strip tubes, and then the plate mixed by Exispin vortex centrifuge for 3 minutes, at 12000 r.p.m. and then placed in MiniOpticon Real-Time PCR system.

RESULTS AND DISCUSSION

Age of studied subjects groups

The following table (2) demonstrated the mean age of both healthy and chronic periodontitis subjects groups participated in this study which were 33.2 And 54.7 years, respectively.

Gender of studied subjects groups

The demonstration of gender among studied subjects group was summarized in table -2, the male represented 43.33% in healthy subjects and 42.10% in infected group. Where as female were 56.67% and 57.90% in healthy and chronic periodontitis infected individual respectively.

Detected viruses

In the present study, we attempted to evaluate the prevalence of *HSV-1* and *HSV-2* in gingival crevicular fluid of patients with chronic periodontitis and periodontally healthy subjects. The real time PCR technique used for studied pathogens detection, due to its increased sensitivity and its ability to detect the load of examined specific genes of these pathogens. Herpes simplex virus-1 DNA was detected in seven (18.42%) of gingival crevicular fluid samples of chronically infected periodontitis subjects. Four in male and three in female participants, and in six (20.00%) of the healthy subjects, four in male and two in female. While *HSV-2* DNA was found in 10 (26.32%) of the chronic periodontitis subjects, 4 in male and 6 in female and 5 (16.67%) of the healthy participants, 2 in male and 3 in female, the coinfection of *HSV-1* and *HSV-2* was found in 2 (5.26%) of chronic periodontitis patients and also in 2 (6.67%) of healthy subjects. With non-significant differences

between both studied group., This finding was far away from recorded result of Chatzopoulou, et al., (2018) (12) whose found that *HSV-1* was detected in 11 (42.3%) of the CP and 3 (27.3%) of the healthy subjects. *HSV-2* was detected in eight (30.8%) and two (18.2%) of the chronic periodontitis and healthy participants, respectively. Coinfection by *HSV-1* and *HSV-2* was found in six (23.1%) of chronic periodontitis patients.

In addition, results of present study of chronic periodontitis not compatible with Imbronito *et al.*, (2008) (13). They detected *HSV-1* in 40% of subgingival plaque of studied subjects, whose suffering from moderate to severe chronic periodontitis, but agreement with their finding in healthy periodontal subjects, which appears 20%. Also our result non consonant with result of Laura Escalona *et al.*, (2016) (14), whose observed *HSV-1* in 27% of samples collected from patient with positive *HIV* infection and zero percent in control samples. In addition, present result non-concordant with findings of Thomas George, *et al.*, (2017) (15) who is recorded zero percent for both *HSV-1* and 2 in their pilot study concerned 11 subjects suffering from chronic generalized periodontitis. There is great variation about incidence rate of *Herpes simplex viruses* among different population worldwide depending on variation in ethnicity, religious habits, type of feeding, nourishments, geographical zone and other factors that interfere with personal and hired immunity. In study performed by Nishiyama *et al.*, (2008) (16) the *HSV-1* detection rate was 46.4% in periodontal pockets from chronic periodontitis patients, refer to more than double the rate shown by present study, which was 18.42 % while they found none of the healthy controls was *HSV-1* positive but in this study we found 20%. In other study Contreras & Slots, (2001) (17) had shown a 100% prevalence of *HSV-1* in gingival crevicular fluid samples obtained from patients with chronic periodontitis; juvenile periodontitis; HIV-associated periodontitis and from healthy gingival sites in periodontally diseased adults; whilst they failed to detect *HSV-2* in the same samples (Saygun *et al.*, 2002) (18). The demonstration of inconsistencies between studies may also be due to diverse methodology of samples summation, sample types, and quantity that tamper with amount of extracted DNA for viral recognition. For examples subgingival plaque collected by curette (Nibali *et al.*, 2009) (19), GCF collected by paper points (Contreras and Slots, 2001) (17); gingival tissue biopsies (Contreras *et al.*, 2000) (20) and saliva (Sahin *et al.*, 2009) (21) have

rendered as reliable deduction for the screening of herpes virus existence in periodontal ailment. Contreras *et al.*, (2000)(20) evidenced positive correlation between *HSV* and chronic periodontitis in the gingival biopsy samples, but not in the GCF samples. However There is insufficient evidence to support associations between *HSV*, *HHV-7* and chronic periodontitis (Ce Zhu , et al, 2015)(22).

Table (1): qPCR master mix components

PCR Master mix	Volume
gDNA template	5 µl
F. primer (10pmol)	1µl
R. primer (10pmol)	1µl
2X qPCR master mix (SYBER)	10µl
Free nuclease water	3µl
Total volume	20µl

Table (2) Demographic Age of Healthy and Periodontitis infected subjects group

Subject group	Number of subjects	Mean age (Year)	±Standard deviation(SD)	Minimum Age	Maximum Age
Healthy Subject group	30	33.2	10.31	21	56
Chronic Periodontitis Infected Group	38	54.7	13.27	25	79

Table 3. Gender distribution among individual in studied subjects group and their percent.

Subject Groups	Number of Male	Perct of Male (%)	Number of Femal	Perct of Femal (%)
Healthy Subjects	13	43.33	17	56.67
Chronic Periodontitis subjects	16	42.10	22	57.90

Table 4. Distribution of infected cases with HSV-1 and HSV-2 among participants

Participant group subjects	Virus type	No. of subjects	No. of male	No. of female	P. Value
Healthy subjects	<i>HSV-1</i>	6	4	2	0.31 N.S.
	<i>HSV-2</i>	5	2	3	
	<i>HSV-1</i> and <i>HSV-2</i>	2	1	1	
Chronic periodontitis infected subjects	<i>HSV-1</i>	7	4	3	0.14 N.S.
	<i>HSV-2</i>	10	4	6	
	<i>HSV-1</i> and <i>HSV-2</i>	2	1	1	

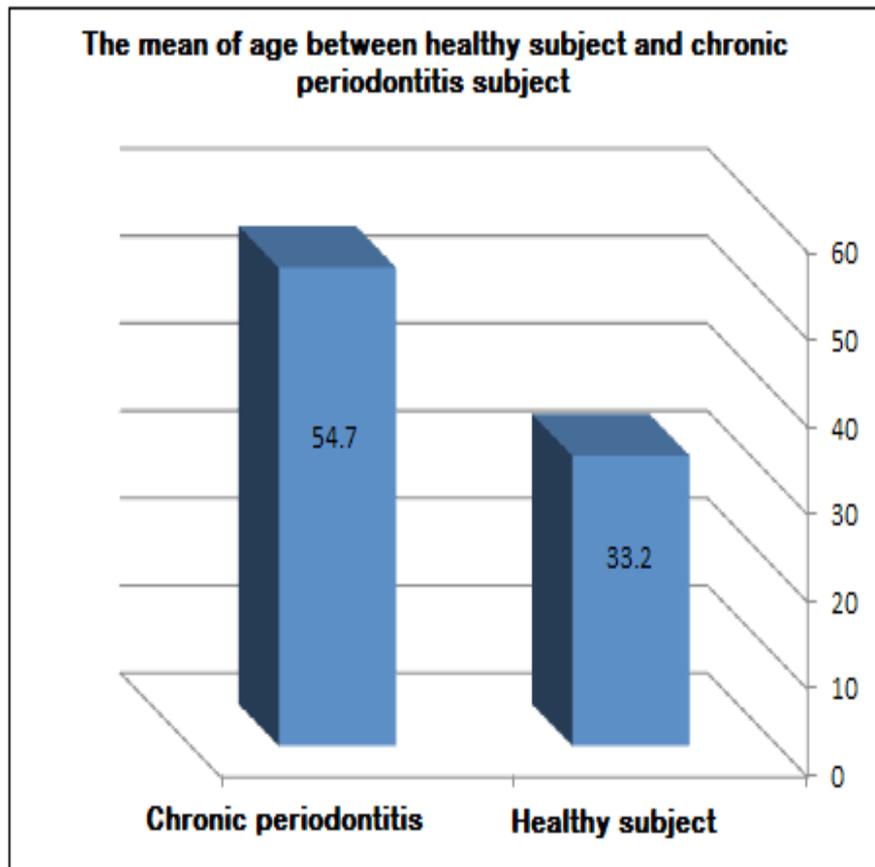


Figure 1: The mean of age between healthy subjects and chronic periodontitis infected subjects

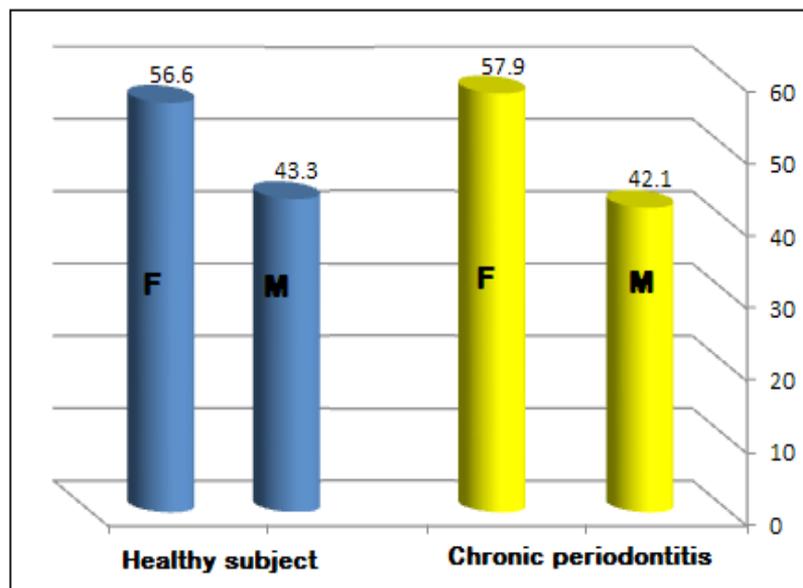


Figure 2: Gender distribution among individual in studied subjects group and their percent.

CONCLUSION

We concluded that HSV-2 present in higher prevalence than HSV-1 in chronic periodontitis While HSV-1 was present in higher prevalence than HSV-2 in healthy subjects.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Dentistry / Babylon

University, Hilla / Iraq and all experiments were carried out in accordance with approved guidelines.

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Health Beliefs of Patients with Coronary Heart Disease toward Secondary Prevention: The Health Beliefs Model as a Theoretical Framework

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ABSTRACT

A descriptive study design was carried out in the outpatient clinic at Kerbala Center for Cardiac Disease and Surgery, from the period of December 2017 to December 2018, in order to evaluate the health beliefs about the secondary prevention among patients with CHD, and to predict the correlation between some socio-demographic variables and the health belief constructs. A non-probability sampling method consists of 64 patients was selected purposively based on the study criteria. A translated Arabic language version of cardiovascular health belief scale was used to predict and evaluate patient's health beliefs concerning to secondary prevention of CHD. The data were analyzed by using the program of statistical package of social sciences (SPSS) Version 23. Both descriptive and inferential statistical analysis approaches were used in order to analyze and assess the results of the study, a p-value of <0.05 was considered statistically significant. Out of 64 participants, 43.7% were female and 56.3% were male, with an overall mean age of 56.2±0.89 years. 98.4% of the patients were married and 37.5% were housewives. The total mean scores of perceived susceptibility was 2.6±0.50, perceived severity 2.4±0.48, perceived benefits 2.7±0.61, perceived barrier 2.5±0.35, the overall mean score of HBM constructs 2.6±0.26.

KEYWORDS: Secondary Prevention, Coronary Heart Disease, Health Beliefs Model.

INTRODUCTION

Patients with coronary heart disease (CHD) having a high risk of recurrent heart attacks and cause recurrent hospital admission with greater costs to society. The WHO reported that are more than 75% of all CHD deaths may be avoided with suitable modifications of lifestyle factors¹. Although the prevention of CHD continues to be the main challenge for all population and health care team alike. The prevention of CHD are well defined, as an organized set of activities, at community and personal level, designed to eliminating, reducing, or decreasing the influence of CHD and their associated infirmity². Secondary prevention therapies are indicating for patients diagnosed with CHD and those at high risk for recurrent

heart attacks³. The primary goal of secondary prevention for patients with CHD is to expand survival from the disease; its efforts are directing to reduce the incidence of recurrent manifestation of the disease by deferring the onset and duration of disease, and therefore to decrease cardiovascular mortality. Among the recently well-known theories and models, we observe that the health beliefs model (HBM) was mostly used to clarify why some persons accept prevention behaviors of diseases whereas the others do not⁴. The HBM has six concepts that include; perceived susceptibility refers to the person's awareness of the possibility of facing a disease that will harmfully affect his/her health. Persons should be aware of being vulnerable by their recent behavioral patterns; perceived severity or seriousness refers to individual's beliefs regarding the importance of contracting a disease itself, and related medical concerns, and the collective costs.

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MATERIALS AND METHOD

The study design and setting: A descriptive study design was carried out at the outpatient clinic at Kerbala Center for Cardiac Disease and Surgery in Holy Kerbala, from the period of December 2017 to December 2018, in order to evaluate the health beliefs about the secondary prevention among patients with CHD, and to predict the correlation between socio-demographic variables and health beliefs construct.

The study sample: A non-probability sampling method consists of (64) patients was selected purposively based on the study criteria and after obtains verbal consent permission from them.

The study instrument: Part I: Designed to assess the socio-demographic data for the study sample, and **Part II:** The translated Arabic language version of cardiovascular disease (CVD) health belief scale, which was constructed by Tovar, et al (2010), was used to predict and evaluate patient's health beliefs concerning to secondary prevention of CHD, it includes a 25-items distributed into four sub-scales to evaluate the main four concepts of HBM, that's involve (5) items was used to measure beliefs related to perceived susceptibility of getting heart attack, (5) items to examine beliefs regarding perceived severity or seriousness of contracting heart attack, (6) items to evaluate beliefs regarding perceived benefits of performing modifying behaviors, and (9) items to explore beliefs regarding barriers to performing specific behaviors. All of these 25 items of the CVD health beliefs scale has a four point Likert Scale, ranging from strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD).

Statistical analysis: The data were analyzes by using the program of IBM Statistical Package of Social Sciences (SPSS) Version 23. Both descriptive statistical analysis {include frequencies (F), percentages (%), cumulative percent, MS, and standard deviation (SD)} and inferential statistical analysis approaches were used in order to investigate or predicts the relationships between variables. A p-value of <0.05 was considered statistically significant.

RESULTS AND DISCUSION

A total of (64) patient was involved in this study in order to evaluate their health beliefs about secondary prevention of CHD. Table (1) represent the socio-

demographic characteristics of participants, it is exposed that the majority (75%) of them was ≥ 50 years of ages, and approximately 19% of participants between the age of 40-49 years, the mean age of patients was 56.2 ± 0.89 years. The male represented about 56.3% of the study participants and female about 43.7%, 68.8% of them were from urban residency and 98.4% were married. In terms of participants occupation the result in table (1) represent that are about 37.3%, 17.2%, 17.2%, and 15.6% of them were housewives, governmental employed, retired/ does not working, and gainer respectively. This result comes along with the findings of the study of John and Haseena (2015) that are reported about 17 % of CHD patients were belonged to 60-69 years and only 8% of patients belonged to 70-79 years old, more than half (58.5%) of the patients were males and 41.5% patients were females, also about 95% of patients were married. A study, which was done at Al-Najaf city by Abd-Ali and AL-Rubaiyee (2015), mentioned that are the highest percentage of CHD patients were housewives followed by the employed patients. Amarasekara, et al., (2016) in a study to assess knowledge, attitudes, and practices on lifestyle and cardiovascular risk factors among metabolic syndrome patients in an urban tertiary care institute in Sri Lanka, reported that are 87% of patients involved in this study were females, and 60.7% were housewives. Another study that was done by Angosta and Speck, (2014) to evaluate the knowledge of heart disease among first-generation Filipino Americans and the risk factors prevalent among them, revealed that are 71% of patients involved in this study were employed, and 29% of them were unemployed. Concerning to the area of residency the findings of this study comes along with the results of the study of Al-Zurfy, and Muhbes, (2015) reported that the majority of CHD patients are living at urban residential area. Concerning to the education levels of participants, the result exposed that are about 40.6% of them had primary school level and the other 14.1%, 12.5%, 10.9%, 14.1% were illiterate, no formal education, intermediate and secondary school level respectively. This result was agrees with the findings of the study which was done by Al-Abbudi, (2018) to conclude the prevalence and to evaluate some of socio-demographical characteristics among CHD patients in Baghdad Teaching Hospital, reported that are about 75% of the patients were of low educational level or no read and write. Regarding the medical information, as shown in table (2) and in concerning to the family history, types, and duration of CHD among patients enrolled in this study, the result

indicates that are 53.1% of the patients reported a family history of CHD, and about 68.8% of them have had MI and the other (31.2%) had angina pectoris, and 51.6% of patients have CHD duration for more than one year. This findings was in consistent with the result of the study that was done by Zhou, et al., (2017) mentioned that are of patients with CHD 55.6% have had a family history of CHD. Result from the study of Abd-Ali and AL-Rubaiyee (2015) reported that the higher percentage

of CHD patients are suffering from angina and have had ≤ one-year duration of disease. About the pre-existing chronic disease of patients the result indicates that are approximately more than one-half (51.6%), and (53.1%) of the patients enrolled in this study was identifying as a known case of diabetes mellitus and/or hypertension respectively. This result was corresponding with the result of the study of Ahmed, et al., (2013) reported that about 59% of patients are suffering from hypertension, and in contrast with that who have had diabetes mellitus.

Table (1): Distribution of CHD patients by their socio-demographic characteristics (n=64).

Socio-Demographic Characteristics		Frequency (F)	Percentage (%)	Cumulative Percentage %
Variables	Categories			
Age Groups	20-29	2	3.1	3.1
	30-39	2	3.1	6.2
	40-49	12	18.8	25
	50-59	23	35.9	60.9
	≥ 60	25	39.1	100.0
MS= 56.2, SD=0.89				
Gender	Female	28	43.7	43.7
	Male	36	56.3	100.0
Marital Status	Single	1	1.6	1.6
	Married	63	98.4	100.0
Residency	Rural area	20	31.2	31.2
	Urban area	44	68.8	100.0
Education levels	Illiterate	9	14.1	14.1
	No formal education/ Read & Write	8	12.5	26.6
	Primary school	26	40.6	67.2
	Intermediate school	7	10.9	78.1
	Secondary school	9	14.1	92.2
	Institute Graduated	4	6.3	98.4
	College Graduated	1	1.6	100.0

Table (2): Distribution of CHD patients by their medical information (n=64).

Medical Information		Frequency (F)	Percentage (%)	Cumulative Percentage %
Variables	Categories			
Types of CHD	Angina Pectoris	20	31.2	31.2
	MI	44	68.8	100.0
Duration of CHD	< 6 months	18	28.1	28.1
	≥ 6 -1 year	13	20.3	48.4
	>1 year	33	51.6	100.0
Family history of CHD	Yes	34	53.1	53.1
	No	30	46.9	100.0
Known case of DM	Yes	33	51.6	51.6
	No	31	48.4	100.0
Known case of hypertension	Yes	34	53.1	53.1
	No	30	46.9	100.0

Table (3): Perceived susceptibility about CHD attack (n=64).

No.	Items	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)	M.S.	Standard Deviation	R.S.	Level
	It is likely that I will suffer from a heart attack in the future.	1 (1.6)	18 (28.1)	22 (34.4)	23 (35.9)	3	0.84	75	M
	My chances of suffering from a heart attack in the next few years are great.	2 (3.1)	29 (45.3)	25 (39.1)	8 (12.5)	2.6	0.74	65	M
	I feel I will have a heart attack sometime during my life.	3 (4.7)	15 (23.4)	38 (59.4)	8 (12.5)	2.7	0.71	67.5	M
	Having a heart attack is currently a possibility for me.	5 (7.8)	36 (56.3)	22 (34.4)	1 (1.6)	2.2	0.63	55	L
	I am concerned about the likelihood of having a heart attack in the near future.	9 (14.1)	18 (28.1)	25 (39.1)	12 (18.8)	2.6	0.95	65	M

Table (4): Perceived severity about CHD attack (n=64).

No.	Items	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)	M.S.	Standard Deviation	R.S.	Level
	Having a heart attack is always fatal.	4 (6.3)	37 (57.8)	15 (23.4)	8 (12.5)	2.4	0.79	60	L
	Having a heart attack will threaten my relationship with my significant other.	16 (25.0)	26 (40.6)	12 (18.8)	10 (15.6)	2.2	1.00	55	L
	My whole life would change if I had a heart attack.	3 (4.7)	23 (35.9)	28 (43.8)	10 (15.6)	2.7	0.79	67.5	M
	Having a heart attack would have a very bad effect on my sex life.	3 (4.7)	22 (34.4)	25 (39.1)	14 (21.9)	2.7	0.84	67.5	M
	If I have a heart attack, I will die within ten years.	3 (4.7)	50 (78.1)	11 (17.2)	0 (0.0)	2.1	0.45	52.5	L

Table (5): Perceived benefits regarding the prevention of CHD attack (n=64).

No.	Items	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)	M.S.	Standard Deviation	R.S.	Level
	Increasing my exercise will decrease my chances of having a heart attack.	11 (17.2)	16 (25.0)	26 (40.6)	11 (17.2)	2.5	0.97	62.5	L
	Eating a healthy diet will decrease my chances of having a heart attack.	0 (0.0)	17 (26.6)	36 (56.3)	11 (17.2)	2.9	0.65	72.5	M
	Eating a healthy diet and exercising for 30 minutes most days of the week is one of the best ways for me to prevent a heart attack.	1 (1.6)	25 (39.1)	30 (46.9)	8 (12.5)	2.7	0.70	67.5	M
	When I exercise, I am doing something good for myself.	6 (9.4)	21 (32.8)	28 (43.8)	9 (14.1)	2.6	0.84	65	M
	When I eat healthy, I am doing something good for myself.	0 (0.0)	9 (14.1)	45 (70.4)	10 (15.6)	3	0.54	75	M
	Eating a healthy diet will decrease my chances of dying from heart attack.	2 (3.1)	24 (37.5)	31 (48.4)	7 (10.9)	2.6	0.71	65	M

Table (6): Perceived barriers regarding the prevention of CHD attacks (n=64).

No.	Items	Strongly Disagree F (%)	Disagree F (%)	Agree F (%)	Strongly Agree F (%)	M.S.	Standard Deviation	R.S.	Level
	I do not know the appropriate exercises to perform to reduce my risk of developing heart attack.	3 (4.7)	5 (7.8)	25 (39.1)	31 (48.4)	3.3	0.81	82.5	H
	It is painful for me to walk for more than 5 minutes.	4 (6.3)	17 (26.6)	26 (40.6)	17 (26.6)	2.8	0.88	70	M
	I have access to exercise facilities and/or equipment.	38 (59.4)	16 (25.0)	6 (9.4)	4 (6.3)	3.37	0.89	84.2	H
	I have someone who will exercise with me.	46 (71.9)	9 (14.1)	6 (9.4)	3 (4.7)	3.53	0.85	88.2	H
	I do not have time to exercise for 30 minutes a day on most days of the week.	5 (7.8)	26 (40.6)	23 (35.9)	10 (15.6)	2.5	0.84	62.5	M
	I do not know what is considered a healthy diet that would prevent me from developing heart attack.	4 (6.3)	9 (14.1)	38 (59.4)	13 (20.3)	2.9	0.77	72.5	M
	I do not have time to cook meals for myself.	8 (12.5)	29 (45.3)	24 (37.5)	3 (4.7)	2.3	0.76	57.5	L
	I cannot afford to buy healthy foods.	3 (4.7)	12 (18.8)	29 (45.3)	20 (31.3)	3	0.83	75	M
	I have other problems more important than worrying about diet and exercise.	3 (4.7)	12 (18.8)	32 (50.0)	17 (26.6)	2.9	0.80	72.5	M

CONCLUSION

This study concludes that the patients' health beliefs such as perceived susceptibility, perceived benefit concerning to secondary prevention of heart attacks were moderate; however perceived severity, perceived barriers about secondary prevention of heart attacks was found low. The overall level of health beliefs regarding the secondary prevention of CHD was moderate. In addition to that, there are highly significant correlation were found between HBM construct and the education level, and the duration of CHD.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Adult Nursing Department/ College of Nursing/ University of Kerbala, Iraq and all experiments were carried out in accordance with approved guidelines.

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Health Status among Patients with Percutaneous Coronary Intervention at Cardiac Centers in Baghdad city

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ABSTRACT

The study aims to assess the health status among patients with Percutaneous Coronary Intervention (PCI), and to find out if there is any relationship between health status and demographic information for patients. A cross-sectional study was carried out at 25 October 2016 to 15 May 2017. A purposive (non-probability) sample of 50 patients after PCI at least 3 months ago or more and aged 18 years or older in the Ibn Al-Bitar Specialized Center for cardiac Surgery, and the Iraqi Center for heart disease. To achieve the goal of study has been prepared a questionnaire form and have been developed according to the literature review, is composed of two parts, the first includes personal data and health information for patients, the second part patients' health status after PCI was measured by using the Seattle Angina Questionnaire (SAQ). Results revealed that the majority of males where they were (72%) and females (28%) of the patients with PCI that the health status of physical deficiencies and anginal frequency domains were very low, while the other domains, stability angina, treatment satisfaction and quality of life were moderate health status. Statistically significant differences between health status of patient with PCI and, Smoking

Keywords: *health status; patients with Percutaneous Coronary Intervention, the coronary arteries.*

INTRODUCTION

The patient after Percutaneous coronary intervention (PCI) may be complaining of health problems and the nurse must be determine health status to management. Health status has gained recognition as an important outcome measure in patients with coronary artery disease (CAD) in part due to improved treatment options, but also due to subgroups of patients preferring health status and a reasonable quality of life over prolonged survival. In addition, studies have shown that health status is associated with mortality and re-hospitalization both in patients with CAD and chronic heart failure one of the goals of treatment is to enhance the patient's health status and well-being in addition to prolonging survival¹ The primary and secondary prevention reduces the seriousness of the disease and the health of coronary artery disease and problems, as well as through the

development of a plan for each case in particular, because every case where the problems are different from the other in terms of ferocity and quality². Poor self-rated health was related to cardiac events, cardiac readmission, and all-cause mortality. The associations were stronger for all-cause mortality than for events and readmissions. Physical health was more important than mental health, but both revealed an exposure–response pattern³. Many factors that affecting the coronary artery disease, social and economic situation and financial income that has an impact on quality of life and health status of the patient and preventive programs, which may cause a negative impact on the patient or be a preventive and health program for the patient⁴ The Percutaneous coronary intervention has become a mainstay in the treatment of patients with coronary artery disease in recent years. Despite increasingly complex lesions and higher-risk patients are being successfully treated, restenosis, incomplete revascularization and progression of disease continue to cause a need for a clinical, functional assessment, in order to reduce morbidity⁵ Importance to improve the health status and physiological measures of

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heart function and enhance the practices and activities of daily and know the functional status of each level of severity of the disease and try to promote and develop a mechanism to improve ^{6,7}

METHODOLOGY

A cross-sectional study was carried out to assess health status among patients with percutaneous coronary intervention at cardiac centers in Baghdad City. The ethical approval full was granted with Baghdad Alkarkh health directorate approval to Ibn Al-Bitar specialized center for cardiac surgery, and Baghdad medical city directorate approval for the Iraqi center for heart disease. Privacy was assured during personal interviews and identifying information was concealed during statistical analyses. Data collection took place between 25 October 2016 and 15 May 2017. A purposive (non-probability) sample of 50 patients after PCI at least 3 months ago or more and aged 18 years or older. Patients' health status after PCI was measured by using the Seattle Angina Questionnaire (SAQ). It was developed by Dr. John Spertus, 1995⁽⁸⁾. The SAQ is a 19-item self-administered questionnaire and consists of 5 domains: Physical Limitation (9 items), Angina Stability (1 item), Angina Frequency (2 items), Treatment Satisfaction (4 items), and Quality of Life (3 items). Item responses are coded sequentially from worst to best status and range from 1 to 6 for Physical Limitation, Angina Stability, and Angina Frequency items; 1 to 5/6 for Treatment Satisfaction items; and 1 to 5 for Quality of Life items. The demographic characteristics included age, gender, marital status, occupation, and level of education. The medical data included duration of disease, smoking (current or previous smoking), diabetes mellitus and duration of diabetes mellitus, hypertension and duration of hypertension, hyper-cholesterolemia, and body mass index. Validity was assessed by the consensus of a panel of 10 faculty members from the college of Nursing university of Baghdad. A statistical assessment of reliability was suitable, was assessed by calculating Cronbach s' Coefficient alpha (0.781). Statistical Package for Social Sciences (SPSS version 20) software was used.

RESULTS AND DISCUSSION

The demographic characteristics of (50) PCI patients Indicated that a higher percentage (72.0%) of the study sample were males at (51-60) years old, (38

%), (82%) married, and (38%) the PCI patient have no work. Regard source of income the table shows that the (56%) of patient their income were insufficient 'and high percentage of them (58.0%) of patients the educational level was primary and intermediate school. The results of table (2) indicate the highest percentages (60.0%) of the sample were smoking and only (10%) of patients who smoke were continuous smoking, the high percentage (64%) of the PCI patients complains from a disease from (1-4) years ago, (64% of patient have diabetes mellitus, and (32%) of diabetes mellitus, their duration was (1-10) years. Regard hypertension the table indicate that a higher percentage (72.0%) of the study sample were hypertensive, and duration of hypertension was (1-10) years, The table shows that the majority (86%) of PCI patients with a high lipid level in blood, and (44%) of patients with a tow artery defect. Table (3) demonstrates the responses of PCI patients regarding Seattle Angina Questionnaires the shows that the PCI patient responses about their Physical limitation and Anginal frequency domains which have very low level of health status. Regarding other domain of (SAQ) (anginal stability, treatment satisfaction, and quality of life) the items in table revealed that the mean of a score record moderate health status. Table (4) shows no statistically significant differences between health status among Patients with PCI and age, occupation, income and level of education. There are statistically significant differences have been found between Patient with PCI and gender. It shows from table (5) that statistically significant differences between the health status of patient with PCI and smoking while no statistically significant differences between the health status of patient with PCI and duration of disease, diabetes mellitus and Hypertension. Throughout the course of the present study, it has been noted that the majority of the study sample was male nurses and the remaining (28.0%) were female, These findings support through studies to determine the patients who scored high health status more in females ². The highest percentage of the present study sample (58.0%) was within the age of (40-60) years and (42.0%) were within the age (60 & over) respectively) this finding is supported by a study which reported that the participants of PCI patient were more likely to be older (mean age = 62.7 ± 11.5) ⁹. Regarding marital status, the majority (82.0%) of the sample were married, were widowed (16.0 %) and (2.0 %) of them were single. This results comes along with a study reported that the highest percentage (78.4%) of CAD patients was male, the mean age was

(68.1 ± 10.4) years, (76.4%) were married, (39.6%) High school certificate and, (48.3%) were employed¹⁰. Relative to patient's occupation, the majority of patients are no work, and unemployment. Low socioeconomic status contributes to both the risk of developing CHD and the progression of the disease¹¹. The results of the present study indicated that more than half of the study samples complain from a disease from (1-10) years ago, (46%) of the sample have diabetes mellitus, 72% of the study sample were hypertensive, 82% of them with high lipid levels in blood, and 44.0% with tow artery defects. These results come along with a study presented that the chronic smoking, high cholesterol, uncontrolled high blood pressure, inactivity and obesity increase the risk that plaque will build up in the coronary arteries¹². Many conventional risk factors associated with the development of CHD have been identified: family history, increasing age, male gender, smoking, hyperlipidemia, hypertension, abdominal obesity, diabetes, physical inactivity, unhealthy diet, harmful alcohol consumption and stress¹¹. The data analysis was conducted on the Seattle Angina Questionnaires that assessed the health status of patients with PCI. The results of the present study show the items in the domain of physical limitation were very low on items of climbing a hill or a flight of stairs without stopping, gardening, vacuuming or carrying groceries, walking more than a block at a brisk pace, running or jogging, lifting or moving heavy objects (e.g. Furniture, children), and participating in strenuous sports (e.g. Swimming, tennis) while low and moderate for items (Walking indoors on level ground, Dressing yourself and Showering. This finding is consistent with previous studies showing that the poor mobility was also an important and independent predictor of adverse clinical events at follow-up⁸ The extent of disability as perceived by the patient predicts poor prognosis⁽¹³⁾.

Table (1). Distribution of Demographic Characteristics of Patient with PCI

Variables		Frequency	Percentage%
Gender	Male	36	72.0
	Female	14	28.0
Age Categories	40-50	10	20.0
	51-60	19	38.0
	61-70	14	28.0
	71 & more	7	14.0
Marital Status	Single	1	2.0
	Married	41	82.0
	Widowed	8	16.0
Occupation	Employment	15	30.0
	Unemployment(9	18.0
	no work	19	38.0
	retired	7	14.0
Income	Sufficient	9	18.0
	somewhat sufficient	13	26.0
	Not sufficient	28	56.0
Education level	not read and write	9	18.0
	read and Write	5	10.0
	primary school	12	24.0
	intermediate school	12	24.0
	secondary school	5	10.0
	Institute	2	4.0
	College	5	10.0

Table (2): Clinical Information of Patient with PCI

Variables		Frequency	Percentage%
Smoking	No smoke	15	
	Previous Smoking	30	60.0
	Continuous smoking	5	10.0
Duration of disease	1-5	32	64.0
	6-10	11	22.0
	11-15	6	12.0
	26-30	1	2.0
Diabetes mellitus	Yes	23	46.0
	No	27	54.0
Diabetes mellitus duration	1-10	16	32.0
	11-20	5	10.0
	21-30	1	2.0
	31-40	1	2.0
Hypertension	Yes	36	72.0
	No	14	28.0
Hypertension duration	1-10	27	54.0
	11-20	6	12.0
	21-30	3	6.0
high lipid level in blood	Yes	43	86.0
	No	7	14.0
Arterial Defect	One Artery	8	16.0
	Two Artery	22	44.0
	Three Artery	17	34.0
	four or more	3	6.0

Table (3) Mean, Standard Deviation, Relative Sufficiency, and their Grade for PCI Patients According to Seattle Angina Questionnaires

Domains	Seattle Angina Questionnaires	Mean ±SD	RS	G	
Physical limitation	1	Dressing yourself	3.70 ±1.64	74	Moderate
	2	Walking indoors on level ground	3.16±1.63	63.2	Low
	3	Showering	3.70 ±1.48	74	Moderate
	4	Climbing a hill or a flight of stairs without stopping	1.36±.85	27.2	Very low
	5	Gardening, vacuuming or carrying groceries	1.44±1.05	28.2	Very low
	6	Walking more than a block at a brisk pace	1.62 ±1.26	32.4	Very low
	7	Running or jogging	1.26 ± .82	25.2	Very low
	8	Lifting or moving heavy objects (e.g. Furniture, children)	1.44 ±.97	28.2	Very low
	9	Participating in strenuous sports (e.g. Swimming, tennis)	1.32 ±.86	26.4	Very low
		Total	1.79	39.4	Very low
Anginal stability	10	Compared with 4 weeks ago, how often do you have chest pain, chest tightness, or angina when doing your most strenuous level of activity. I have had chest pain, chest tightness, or angina.	3.56 ±1.21	71.2	Moderate
Anginal frequency	11	Over the past 4 weeks, on average, how many times have you had chest tightness, or angina?	2.72 ±1.40	54.4	Very low
	12	Over the past 4 weeks, on average, how many times have you had to take Nitro's (nitroglycerin tablets) for your chest pain, chest tightness, or angina?	2.76±1.53	55.2	Very low
		Total	2.74	54.8	Very low
Treatment satisfaction	13	How bothersome is it for you to take your pills for chest pain, chest tightness or angina as prescribed?	3.46 ±1.79	72.8	Moderate
	14	How satisfied are you that everything positive is being done to treat your chest pain, chest tightness, or angina?	3.12 ±1.38	62.4	
	15	How satisfied are you with the explanations your doctor has given you about your chest pain, chest tightness, or angina?	3.60 ±1.37	72	Moderate
	16	Overall, how satisfied tie you with the current; treatment of your chest pain, chest tightness, or angina	4.22 ±1.23	84,4	High
		Total	3.6	72	Moderate

Table (4): Association Between Socio-demographic characteristics and health status (Seattle angina questionnaires) among Patients with PCI.

Sample characteristics		NO.	Mean± Std. D	Sig.
Gender	Male	36	54.9 ± 10.1	t=1.677, df=48 Sig = 0.053
	Female	14	50.0 ± 6.69	
Age Categories	40-50	10	58.9 ± 12.88	F =1.569 df =46 sig =0.210
	51-60	19	52.84 ± 6.93	
	61-70	14	50.71 ± 9.76	
	71 & more	7	53.42 ± 8.07	
Occupation	Employment	15	54.33 ± 7.71	F=0.686., df =46 Sig = 0.565
	Unemployment	9	57.0 ± 16.62	
	No work	19	51.84 ± 7.65	
	Retired (no work)	7	52.0 ± 4.35	
Income	Sufficient	9	53.77 ± 11.78	F=0.004, df =47 Sig = 0.996
	Somewhat sufficient	13	53.53 ± 7.195	
	Not sufficient	28	53.46 ± 9.938	
Level of education	Not read and write	9	49.6 ± 6.67	F=0.95., df =43 Sig = 0.47
	Read and Write	5	56.8 ± 4.43	
	Primary school	12	51.75 ± 9.10	
	Intermediate school	12	54.8 ± 11.49	
	Secondary school	5	60.4 ± 12.81	
	Institute	2	49.5 ± 10.6	
	College	5	53.2 ± 8.87	

Table (5): Association between health status (Seattle angina questionnaires) among PCI patient and their Clinical characteristic

Sample characteristic		NO.	Mean± Std. D	Sig.
Duration of disease	1-5	32	53.53±10.76	F=.631 , df=46, Sig=.598
	6-10	11	52.09±5.75	
	11-15	6	57.5±7.79	
	26-30	1	46.0± .	
Smoking	Yes	30	56.06 ±10.5	t=5.502 , df=48 Sig=.023
	No	20	49.75± 6.15	
Diabetes mellitus	Yes	23	54.08 ±11.19	t=1.124 ,df=48, p= .294
	No	27	53.07±7.917	
Hypertension	Yes	36	52.72 ± 9.29	t =.048df =48 , Sig = .828
	No	14	55.64 ± 9.97	

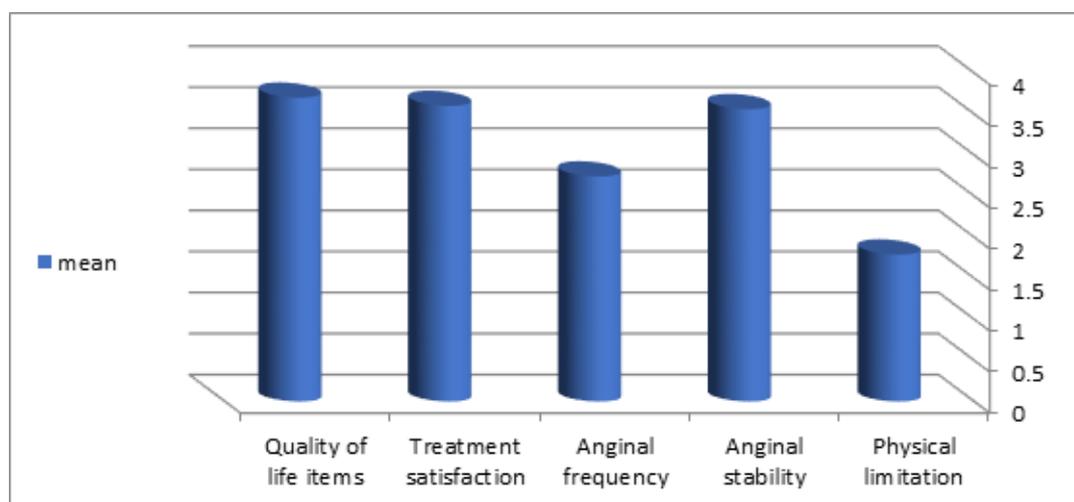


Figure (1) Total Mean of score for PCI Patients According to Seattle Angina Questionnaires

CONCLUSION

Results revealed that the majority of males where they were (72%) and females (28%) of the patients with PCI that the health status of physical deficiencies and anginal frequency domains were very low, while the other domains, stability angina, treatment satisfaction and quality of life were moderate health status. Statistically significant differences between health status of patient with PCI and, Smoking

Financial Disclosure: There is no Financial Disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Adult Nursing, College of Nursing, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Management of Overweight and Obesity in Adults in Baghdad City

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ABSTRACT

Obesity is a principal preventable reason of death and disability worldwide. Obesity increases the risk for clinically recognizable risk factors for vascular disease as well as a congregation of other metabolic, sleep, and orthopedic disorders. Coordinated and efficient interventions are needed to accomplish obesity and reduce these risks. Common managements for overweight and obesity include losing weight through healthy eating, being more physically active, and making other changes to the usual habits. The prevalence of obesity and overweight in Iraq were similar to the Worldwide. This study was carried out on 2971 people suffering from overweight and obesity in Baghdad city, using low fat diet provide 1000-1200 kcal/day for women and 1200-1500 kcal/day for men and ensure activities for one to one and half hour/day for 2-11 months. They got loss in their body weight 2-3 kg as a minimum and 10-12 kg as a maximum depending on the duration of using the low fat diet and physical exercises.

Keywords: *Obese individuals, Overweight, Obesity and BMI.*

INTRODUCTION

Obesity is a worldwide problem, WHO reported on global epidemic, about one billion adults are overweight and not less 300 million are clinically obese. Obesity happens in all age groups, and is associated with socioeconomic status¹. Obesity is a disease that requests a long-term management. It is related with serious health penalties and with decreased life expectancy. Illnesses related to obesity include type 2 diabetes, heart disease, obstructive sleep apnea and certain types of cancer. It is a complex disease that is influenced by genetic, physiological, environmental and psychological factors. The global increase in the prevalence of obesity is a public health matter that has severe cost implications to health care systems. In the world, obesity affects approximately 10–30% of adults². In clinical practice, overweight and obesity are identified by body mass index (BMI), which represents the extent of a patient's weight for their height. It is a proxy marker, not a direct measure for body fatness. BMI is highly interrelated with the percentage of body fat on a population basis As BMI increases, the health dangers such as (diabetes, coronary heart disease, deteriorating joint disease, and certain cancers)³.

The base of any obesity management comprises decreasing energy intake (food intake/diet) and/or increasing energy expenditure (PA/exercise) in order to construct a negative energy balance. The method or management strategy by which the caloric intake reduction is accomplished varies from diet to diet and results in many choices for the actual structure or type of diet. For example, some diets give emphasis to counting calories, limiting portions, or using verbalized meal replacements, whereas others reduce or limit certain types of foods or reduce or eliminate precise macronutrients in the diet. All of these strategies eventually result in a reduction in calories consumed⁴. Obesity is categorized by an increase in total body fat and is well-defined by a BMI $\geq 30\text{kg/m}^2$, based on the definition used by the World Health Organization for Body Weight Classification in Adults. Adults (≥ 18 years) with BMI of 25kg/m^2 to 29.9kg/m^2 are measured overweight and at risk of becoming obese, whereas those with BMI of 18.5kg/m^2 to 24.9kg/m^2 are exposed at low risk for morbidity⁵. The prevalence of obesity is increasing universal although the percentage varies from country to country and between environmental areas within a country. Changes in life style, dietary customs, physical activity and the social and cultural situation

are associated with the occurrence of obesity ⁶. Studies in Iraq are showed an increasing prevalence of obesity, which is expected to rise in the future to increasing urbanization ⁷. In 2002 The Food and Agriculture Organization (FAO) of United Nation, Ministry of Health and Ministry of Planning reported on BMI of adult population in three governorates in Iraq showed that 47-67% had BMI of 25 and over [8]. The prevalence of obesity and overweight in Iraq among individuals females and male aged over 25 years is 31.4%, 37.4% and 38.2%, 26.2% respectively [9]. Obese people are more susceptible to chronic non communicable diseases such as cardiovascular disease, diabetes and some cancers ¹⁰. There are two aims of this study It is the first study in Iraq to manage the overweight and obese people by using diet therapy without use any drugs. The use of different types of food patterns depending on health and nutritional status of the overweight and obese people all with the precise value of Kcal/ day for each person

MATERIALS AND METHOD

Overweight and obese patients refer from primary health centers, hospitals and private to the specific outpatient clinic from 1st January 2017-31st December 2017 were chosen for purpose of this study. BMI as indicator for overweight and obesity, BMI < 25-29.9 kg/m² = Overweight, BMI ≤ 30 kg/m² = Obese. The obesity classification was modified into, Obese Class I, BMI= 30-34.9 kg/m² Class II, BMI= 35-39.9 kg/m², Class III, BMI= ≥ 40 kg/m² [11]. Weight and height of individuals were taken by using: Unseal for weight. Height measurement Tilade Mint. Special dietary guideline was used for every patient (1200-1500 kcal/day) [12]. Special form used for interview and follow up .Epi info Version 2.3.5 used for statistical analysis ¹³.

RESULTS AND DISCUSSION

The total number of patients was 2971, 39.6% of them were male while 60.4% were female (Table 1). More than half of the patients (54%) were aged between 30-39 years, 23.7% were aged between 20-29 years, 13.4% were aged between 40-49 years, 6.5% were aged between 50-59 years and only 2.3% were aged between 60-69 years (Table 2). Depending on the BMI the prevalence of overweight patients were 61.3% while 38.7% were obese 33.4% were in class I of obesity, 4.2% in class II and only 1.1% were classify in class III (Table 3).

According to the sex, the BMI results indicated that females overweight were 39.2% while it were 23.1% in males, Obesity Class I were 17.6% and 14.8% for females and males respectively, Obesity Class II were 1.6% for male 2.6% for female while the obesity Class III were 0.1% for each of them (Table 4).

With regard to the duration of patient of attending the clinic, the high percentage were 4 and 5 months by 33.9%, 23.2% while it was 12.5% for two months 5.3% for three months, 3.6%, 7.1%, 8.9%, 1.9%, and 3.6% for six seven eight nine ten and eleven months respectively (Table 5). The higher rate of weight loss was 6-7 Kg in 35.7%, 4-5 Kg in 25%, 2-3 Kg and 8-9 kg in 14.3% for each of them and 10-12Kg in 10.7% of patients (Table 6). The percentage of weight loss 2-3 Kg in females was 5.5% compared with 8.8% in males while the percentages increased to 23.3% and 12.4% in losing of 6-7 Kg respectively. The weight loss in females was about 2/3 times more than in males (60.4%, 39.6%). Obesity prevention and treatment requires a whole of government approach in which policies across all sectors systematically take health in account, avoids harmful health impacts, and thus improve population health and health equity ¹⁴. Weight loss is an important challenge long term care of weight loss in is an even greater problem ¹⁵. Effective strategies of weight loss require management strategies in a combined approach of dietary therapy and physical activity by using behavioural interventions ¹⁶. The majority of research studies indicate that weight loose is the main goal of treatment of obesity, taking medication as an option for the treatment of obesity should be the ultimate therapeutic tool because it is associated with many side effects so proper diet and physical exercise is the ideal method for creating a negative energy balance and consequently losing weight ¹⁷. Caloric intake should be reduced by 500 to 1000 calories per day (Kcal/Day) from the current level, the diet should be low in calories but it should be not to be too low (less than 800 Kcal/Day) diets containing 1000-1200 Kcal/Day should be selected for most women and 1200-1600 Kcal/Day should chose for men. Long term changes in food choices are more likely to be successful ¹⁸. A low-fat diet is preferred because the patient will benefit from improved cardiac risk as a result of weight loss and restricted saturated fat content is healthier. Other diets and approaches are acceptable if they are hypo caloric and do not negatively impact the patient's health (e.g., some high-protein) ¹⁹.

In the study the results indicated that the females were suffering more of obesity (60.4%) than males (29.6%) and they were more interest in their treatment of the problem-comparing with other countries in Egypt 49% of males were obese and 71% of females, in Iran 14% for females and 6% for males, while in Saudi Arabia 20% females obese and 13% for males. This results indicate that Iraqi females were more obese than in Egypt, Iran and Saudi Arabia while the Iraqi males obese were less than in Egypt and more than Saudi Arabian and Iran ²⁰. Also results show that young people were more interest in attaining the clinic compared with older people. In 2015 the rates of obesity were more than 30% in Hungary, New Zealand, Mexico and the United States, which was less than in the study ²¹. The comparison between overweight and obesity show that more than 1/3 of the patients were obese while the rest was overweight this results differ than the results of the National Centre for Health Statistic in United States which (145 Million) and (74 Million) were obese which is about double ²². Most of the obese patients were classify in grade I very low percent of them were classify in grade II and III. The mean age (range 25-40 years) and more body mass index was similar for men and women, however men were heavier and taller ratio than women. Also, women are more likely to be obese than men this results were similar to that in United States ²³. Most of the patients prefer to attend clinic for 4-5 months, which show a good improvement in weight loss. For patients with a BMI >30, 10% weight loss over 6 months (0.5-1.5 Kg/week) is reasonable goal. Slower weight loss is appropriate for those with lesser degree. The loss weight also depends on the duration of the diet therapy and the obligation of the diet therapy and the obligation of the patients. The obligation response to eating right food and using the physical activities. Women were more likely to obligate than men the reasons for that may be the women give more attention to their body weight and applicant the advice of their doctors especially if they want to be pregnant. The weight loss start rapidly at the first days,

which is encouraging for “crash dieters”, however the composition of that loss may not be as expected. As much 60-70% of the weight loss attributed to water loss meanwhile, much of the remaining weight loss would be carbohydrates and to a lesser degree fat and protein.

Table (1). Distribution of patients according to their sex.

Sex	Number of patients.	%
Male	1178	39.6
Female	1793	60.4
Total	2971	100

Table (2): Distribution of patients according to their age.

Age/year	Number of patients.	%
20-29	704	23.7
30-39	1607	54.1
40-49	398	13.4
50-59	193	6.5
60≥60	69	2.3
Total	2971	100

Table (3): Distribution of patients according to BMI.

BMI	Number of patients.	%
25-29 (Over weight)	1821	61.3
30-34 (Class I)	992	33.4
35-39 (Class II)	125	4.2
40≥(Class III)	33	1.1
Total	2971	100

Table (4). The distribution of BMI according to the sex

BMI	Male		Female		Total	%
	Number	%	Number	%		
25-29	687	23.1	1164	39.2	1851	62.3
30-34	440	14.8	522	17.6	962	32.4
35-39	48	1.6	77	2.6	125	4.2
40 & More	3	0.1	30	1.0	33	1.1
Total	1178	39.6	1793	60.4	1793	100

Table (5): Distribution of patients according to the period of follow up.

Time/Months	Number of patients.	%
2	372	12.5
3	158	5.3
4	1007	33.9
5	689	23.2
6	107	3.6
7	211	7.1
9	265	8.9
10	55	1.9
11	107	3.6

Table (6): The average of weight loose.

Weight loose. Kg	Number of patients	%
2-3	425	14.3
4-5	742	25
6-7	1061	35.7
8-9	425	14.3
10 - 12	318	10.7
Total	2971	100

CONCLUSION

The prevalence of obesity and overweight in Iraq were similar to the Worldwide. This study was carried out on 2971 people suffering from overweight and obesity in Baghdad city, using low fat diet provide 1000-1200 kcal/day for women and 1200-1500 kcal/day for men and ensure activities for one to one and half hour/day for 2-11 months. They got loss in their body weight 2-3 kg as a minimum and 10-12 kg as a maximum depending on the duration of using the low fat diet and physical exercises.

Financial Disclosure: There is no financial disclosure.

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Molecular & Antibiotic Sensitivity Pattern Study of Acute Otitis Media, Tonsillitis & Periodontitis among Different Ages of Patients of Al-Hashmia General Hospital, Primary Care Centers & Private Clinic in Babylon Province

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ABSTRACT

A total of 89 specimens have included 34 swabs of periodontitis(13male,21 female) ,28 swabs of Otitis Media & 27 swabs of Tonsillitis. These samples were brought from patients consulted to Alhashmia Hospital, primary care centers & private clinic of Babylon province during the period from 5 October 2017 to 11December 2017. They were appeared (72.17)% positive cases for Streptococcus pyogenes which have gotten from patients within age ranged, which suffered from Ear infection (3 to 39 years) , Tonsillitis(1 to 60 years) & periodontitis inflammation(from less than 3years to 60 years). Biochemical examinations have included oxidase, catalase & Antibiotics sensitivity test. Results of bacterial genetics detection of sic as responsible for virulence agents of isolates bacteria, which is responsible for damage host cell components. 50 patterns (55.3%) of S. pyogenes cases of otitis media, tonsillitis & gingivitis have positive exclude 39(44.7) isolates were negative on 3% agarose gel. The volume of sic gene was 150 bp of the DNA, ladder (100 – 1000)bp. This gene of S. pyogenes specimens has amplified by PCR utilizing specific forward & reverse primers have appeared that 50 Streptococcus isolates detection of Otitis Media. , Tonsillitis & periodontitis infections have negative 27 (90%) except 2 (10%) isolates were positive.

Keywords: Sic gene, S. pyogenes , Acute Otitis Media, Tonsillitis & Periodontitis

INTRODUCTION

S. pyogenes (GAS) is a human infectious agent which infects more than 6 0 0 million of international world population that lead to about 5 0 0 , 0 0 0 deaths in one year¹ Group A Streptococcus is responsible for the slight lesions of skin & mucosal tops, on the other hand . the pathogenicity of this type of microbial agents due to secretion different kinds of enzymes such as Streptokinase , Hyaluronidase , NADase, Hemolysins, proteases and DNases as well as generation of some toxins as Erythogenic toxin or pyrogenic exotoxins

it is responsible for the erythematous rash in scarlet fever. Identification of virulence agents produced by Group A Streptococcus strains can be used to either determine pathogenic potential of the strain or as a rapid screening and typing technique , also could originate severe hostile aggressive disease such as (STSS) or (NF).² Lancefield has classified Streptococcus bacteria in to various group that produce specific carbohydrates (C carbohydrates) have well-known by consuming group specific antiserum. This classification system was used in dividing of streptococci based on many features such as colony growth characteristics (morphological culture), pattern growth on blood agar.(hemolytic reaction), Antigenic structure of group specific cell wall substance ,biochemical reaction and resistance to physical and chemical factors and Ecologic features. The streptococci that have clinical y important

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are divided under the A, B, C, D, F & G. The main sorts & groups of medical importance is *S. pyogenes* (Lancefield group A), *S. agalactiae* (Lancefield group B), Enterococci bacterium (Lancefield group D). The first class of Streptococcus causes many inflammation for the kids & the adolescents. Globally, there are detected to be more than 600 million cases of GAS sore throat & more than 100 million cases of GAS a skin infection with formation of pus yearly. Although susceptible to penicillin & still exquisitely sensitive to many other antimicrobial agents. Lancefield group A infection has continued to attending a huge medical & global health problems. The great prevalence of first group of Lancefield cause infections are of short time & are relatively benign; however, invading sickness can be severe & sudden in onset. Moreover, *S. pyogenes* vary from other pyogenic infection their possibility to generate late, non-supportive sequelae such as Skin infection, Impetigo, cellulitis, erysipelas, scarlet fever, Acute streptococcal sore throat, ear inflammation, acute otitis media and mastoiditis, infected uterus, post-streptococcal diseases and immunological sicknesses, following uncomplicated inflammations.³ The importance of the Lancefield group A infections in the U S A was fortified at the end the 20th century by recurrent of ARF as well as industrial countries such as middle East countries. Periodontal disease, an infective illness originate by bacteria, bring on about devastating alteration guiding to loss of bone & connective tissue attachment.⁴ Several mouth bacteria are considered to be realizable infective agent in gingivitis.⁸

MATERIALS AND METHOD

Specimens:

In this work, patients samples were collected from laboratory, emergency, surgical units in of Alhashmia General Hospital, primary care centers & private clinic in Babylon Governate. This samples have transferred by using media or swab & swab media. Specimens were collected from 5 October 2017 to 11 December 2017. Current study has included two parts are:

Microbiological

This part consist of cultivation, isolation, diagnosis by microbial examination, morphological characteristics, biochemical tests as well as Antibiotics sensitivity have done for isolated bacteria.

Molecular study

Molecular study was done by using DNA extraction kits (Genaid™ DNA extraction kit) to isolate the DNA which used in this work, & specific primers in Polymerase chain reaction such as sic gene

F (GTATAAACTTAGAAAGTTATCTGTAGG),

R(GGCCATAACATCGGCACCTTCGTCAAT)

Culture media:

Different media have used in this work such as:

Nutrient agar & broth media,

These general media were prepared according (Oxoid-U.K) to isolate, seeding, as well as to save bacterial strains.

Blood agar medium.

Blood agar base was prepared according to (Mast-U.K) company.

Muller Hinton agar.

This medium was used to detect ant-bacterial sensitivity to different patterns of antibiotics.

4. Gram stain solutions

The solutions of this pigment were prepared according to manufacturing company.

Methods.

Kit Components.

Protocol Procedure (DNA extraction).

All extraction was done duo to Genaid™ (Presto™ Mini gDNA Bacteria / Genomic DNA Kit (GBB100/101))

RESULTS AND DISCUSION

Morphological characteristics & biochemical tests

The data on the diameter of suppression zones yield against of bacterial isolates have submitted in Table (4.2). The results appeared that the antibacterial action noted on the Muller Hinton agar plates varied of the 17 antibiotics tested. The negative control don't produced inhibitory

impact. The findings revealed that among the 17 test agents, the diameter of inhibition zones have recorded against of *Lactobacillus* .sp. ranged between in 17 drugs namely Rifampin (16mm to 7mm), Tetracycline (30mm to 13mm), Doxycycline(20mm to 15mm), Penicillin (20 -7), Chloramphenicol (24- 6), Azithromycin(16- 7), Oxydoxycycline (22-8), Ampicillin (17- 6), & Tobramycin (18-8) while metronidazole, Optochin, Cefprozil, Amoxicillin Clavulanic Acid Cefprozil, Trimethoprim, , methicillin & Erythromycin, haven't any effect against bacterial isolates. Regarding of *Streptococcus pyogenes*(Tonsillitis & Otitis Media) the diameter of inhibition areas have observed against GAS strain ranged between in the same antibiotics which it used against periodontitis bacteria. The findings of following drugs have included in the present work is Chloramphenicol(20- 12), Azithromycin(24 -6), Oxydoxycycline(17 -8), Ampicillin (18-5), Tobramycin(18- 10), Ceftriaxone(20 – 8), Amoxicillin Clavulanic Acid(20-8) & methicillin (32 – 15), Finally, Rifampin, Doxycycline, metronidazole, Optochin, Tetracycline, Penicillin, Cefprozil Trimethoprim & Erythromycin haven't any effect against bacterial strains periodontitis isolates have sensitivity for each Rifampin Tetracycline Doxycycline, Penicillin, Chloramphenicol, Azithromycin, Oxydoxycycline

,Ampicillin, & Tobramycin respectively, while metronidazole, Optochin, Cefprozil, Amoxicillin Clavulanic Acid Cefprozil, Trimethoprim, , methicillin & Erythromycin, haven't any effect against bacterial isolates. These results were agreed with work of Jain & Pundir 2009. ⁽⁹⁾ On other h&, The isolates have got from *Streptococcus pyogenes*(Tonsillitis & Otitis Media) were revealed more susceptibility to each Chloramphenicol, Azithromycin, Oxydoxycycline, Ampicillin, Tobramycin, Ceftriaxone, Amoxicillin Clavulanic Acid, & methicillin. Finally, Rifampin, Doxycycline, metronidazole, Optochin, Tetracycline, Penicillin, Cefprozil Trimethoprim & Erythromycin haven't any effect against bacterial strains. These results have similarity with Robert study 2000 ¹⁰. The presence of the *Sic* gene was detected by utilizing PCR ^(11,12), which produced a 150-bp b& for all group A *Streptococcus* isolates (Fig. 3). Blast analysis of sequence similarities for the 25 first group of Lancefield classification isolates represented three various emm sequence kinds, the findings appear that this gene ¹⁵⁻²¹ could be utilize as an indicator gene for determination of *S. pyogenes* ⁵, fragment volume was 150 bp as cleared previously in published researches. ^{13,14}

Table 1. It has shown the kit contents according to Genaid Biotech Ltd.

component	GBB004	GBB100	GBB101	GBB300	GBB301
Gram Buffer	2ml	30ml	30ml	75ml	75ml
GT Buffer	1.5ml	30ml	30ml	75ml	75ml
GB buffer	2ml	40ml	40ml	75ml	75ml
W1 buffer	2ml	45ml	45ml	130ml	130ml
Wash buffer(add Ethanol)	1ml (4ml)	25ml (100ml)	25ml (100ml)	50ml (200ml)	50ml (200ml)
Lysozyme	8mg	110mg	N/A	250mg	N/A
Proteinase k(add ddH2O)	1mg (0.1ml)	11mg x2 (1.1ml)	11mg x2 (1.1ml)	65 mg (6.5ml)	65mg (6.5ml)
Elution buffer	1ml	30ml	30ml	75ml	75ml
GD Columns	4	100	100	300	300
2ml collection tubes	8	200	200	600	600



Figure (1). Hemolysins test on Blood Agar

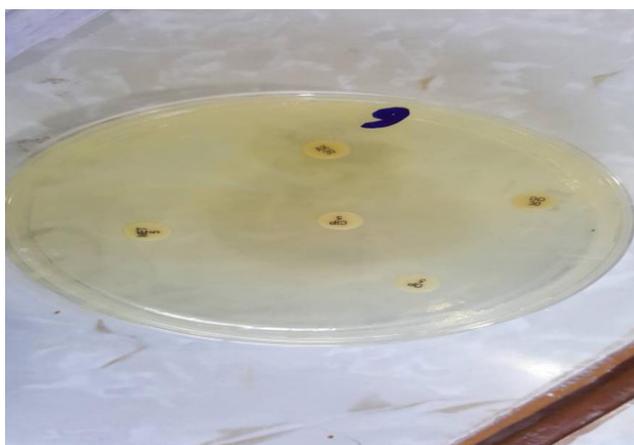


Figure (2): Antibiotics sensitivity test on Muller Hinton Agar.

4.3 Phenotypic identification of GAS:

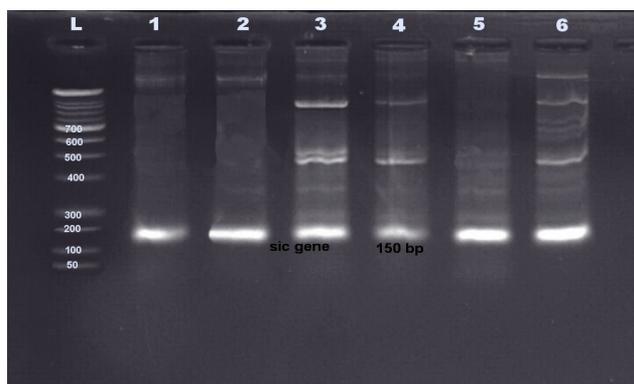


Figure (3): Detection of *S. pyogenes* virulence factors in four multiplex PCR reaction

CONCLUSION

Results of bacterial genetics detection of *sic* as responsible for virulence agents of isolates bacteria, which is responsible for damage host cell components. 50 patterns (55.3%) of *S. pyogenes* cases of otitis media, tonsillitis & gingivitis have positive exclude 39(44.7) isolates were negative on 3% agarose gel. The volume

of *sic* gene was 150 bp of the DNA, ladder (100 – 1000)bp. This gene of *S. pyogenes* specimens has amplified by PCR utilizing specific forward & reverse primers have appeared that 50 Streptococcus isolates detection of Otitis Media. , Tonsillitis & periodontitis infections have negative 27 (90%) except 2 (10%) isolates were positive.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Biology Department, College of Science for Women, Babylon University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Preferred Learning Style among Middle School Students in the Center of Babylon Governorate and Their Relation to Gender

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ABSTRACT

The aims of research is to identify: learning style patterns among Intermediate stage students in the center of Babylon province. The relationship between Learning styles and gender. In order to verify the objectives of the research, the following questions were formulated: What types of learning are preferred among Intermediate stage students in the center of Babylon province? Are the preferred Learning styles among Intermediate stage students in the center of Babylon province different according to gender? In order to answer the questions, a special questionnaire was applied to a sample of middle school students in the center of Babylon governorate. The number of students was 400 students who were chosen by stratified method with 209 students and 191 students. The scale consists of four fields: (3.81), reading (writing / reading) with mean (3.34), and (kinetic) pattern. (2.79) and (audio) with an average of (2.61). According to the results of the research, the researchers produced a number of recommendations.

Keywords: *Learning styles, Students, Intermediate stage, gender.*

INTRODUCTION

That one of the most important features of the age in which we live is scientific progress and technological development and the urgent need for science in every area of daily life ¹. This has made the educational process stands in front of major challenges calling for reconsideration of its components and elements, starting from the teacher, student, and ending with the textbook and the educational environment, so the educational process has to develop its educational system and instruction to keep pace with this scientific and technological development and the urgent need for science to reach the best possible outcome in achieving the learning objectives. Education is a part of culture and its mean of preserving and reproducing it in the best possible way. It derives from culture its characteristics, objectives, structure, content and processes, that is, education is formed from culture and performs its functions in achieving its objectives that aim to develop and empower the society ². Education plays an important

role in the building and development of societies. It aims to bring about desirable changes in human behavior, develop personality and guide it towards the service of its society. It is the process that leads to a comprehensive change in the individual's intellectual, emotional and behavior ³. Especially in the intermediate stage, because it represents great importance, as it follows the primary school and is an extension of it. It is also the basis on which the secondary stage is based. It is a period of transition between two different levels (primary and secondary) it is the basis upon which subsequent stages of education are built, such as secondary and tertiary education. Learning patterns are a major way of learning for students ⁵. Consider the level of students and their previous experiences so that the educational patterns used by the teacher are appropriate for the students' preferred learning styles and abilities.

Learning styles:

Defined by:

-(Dun&Dun,1993): as the way each learner begins to focus on, make and retrieve new information. It varies from person to person, and dictated by a methods set of personal, biological and developmental characteristics that will make learning effective with some learners and

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ineffective with others.

-(Kolb ,1984): It is the individual's preferred method of understanding and manipulating information.

The need to diagnose learning styles:

1- Determining the style of learning informs about the way learners learn.

2- The learning style helps us to understand the behavior and interactions of learners within the learning process.

3- Helps the teacher to choose the appropriate experiences that suit the learners and their personal preferences.

4- Makes learning more effective.

5- The use of preferred style increases learner motivation towards learning and makes it more positive.

6- It is easy for the teacher to address learning disabilities and help him, her to invest more effectively in learners' abilities.

Simple cognitive learning style:

1- Kinesthetic style: the advocates of this style of learning prefer sensory experiences such as touching and feeling things organically and experiments and separate the completion of the tasks of learning experience, and discover things and do not tend to written instructions and are willing to use their bodies or parts of them in learning or solving the problem or the manufacture of something, such as athletes.

2- Visual style: the advocates of this style of learning prefer to receive information and experiences through the observation and visual images, in the sense that these learners tend to the visible things, information and experiences, which can be seen with a sense of consideration, such as painters.

3- Read/Write style: the advocates of this style learn better by reading and writing, that is, they understand the ideas and experiences contained in the content of learning better, when they read or write. This means that they prefer written materials and are inclined to learn through books, dictionaries, worksheets and written lectures.

4- Aural: The learners of this type of learning

prefer to receive information and experiences through the sound, they learn by audio stimuli, so prefer audio teaching materials including audio recordings, lectures, oral instructions and direct explanation from the teacher.

Research problem

In the past, attention has been focused on the teacher as a focal point or center of the educational process, but recent trends call attention to the learner and his needs, his preferred patterns and trends, and the voices are indicative of the need to take into account individual differences in planning the educational process with all its elements. Therefore, this study has contributed to the identification of preferred learning styles among middle school students in the center of Babylon governorate to help teachers invest their students' energies and develop them to higher levels of learning and raise the level of their academic achievement. Thus, the problem of research is to answer the following questions:

Q1/ what styles of learning are preferred among middle school students in Babylon Governorate?

Q2/ What is the relationship between gender learning style?

Research Methodology

The descriptive approach includes the collection, tabulation, analysis, measurement and interpretation of data. It is a precise and systematic method of the phenomenon or problem to be examined through an objective methodology and honest to achieve the objectives of the research. (Jubouri, 2012: 178- 179)

Population of the study

The research included all students in the intermediate stage in the center of the Governor of Babel for the academic year (2017-2018). The number of (26199) students in 47 schools, 13701 students in 23 schools, 12498) are students in 27 schools, two schools are mixed, and these schools are located in the center of the province of Babylon, according to the official statistics of the Department of Statistics and Educational Planning for the academic year 2017/2018 in the Directorate of Education Babylon, see table (1).

Research Sample

The study's sample consisted of (400) students who were selected by random stratification method and

represented (2%) of the study's population, divided by grade and gender, see table (2).

The research instrument

A scale based on the Vark model developed by Jaber and Maha (2004), consisting of (80) items, was adopted as follows:

- 1- kinesthetic style (1-20).
- 2- Visual style (21-40).
- 3- Read/Write style (41-60).
- 4- Aural style (61-80).

Instructions of the scale

A- Answer instructions

Test instructions are provided with an illustrative example.

B- scoring scheme

For the purpose of correcting the students' answers, 4 points are given on the answer (always), 3 on the answer (often), 2 on the answer (sometimes) and 1 on the answer (rarely) Students are awarded a grade of 80 and a minimum score of 20.

Validity

The scale was presented to a jury of experts to express their views on its validity. The number of experts was 10, and the percentage was used to know their opinions about the validity of the paragraphs or their non-validity, and 80% All experts are agree about the validity of the standard clauses.

The application of the survey scale

1 - The first survey application: To reveal the clarity of instructions and the time taken to answer the scale of the sample on a pilot sample of non-research sample composed of (30) male and female from the middle stage in the center of Babylon province, the researcher himself supervised the application of the scale, Completion of the answer shows that the instructions for the answer and the measurement paragraphs were clear and that the average response time of the students was (43) minutes. The average time taken by all the students was calculated according to the following equation:

Average time = total time of all students / total number of students

$$= 1300/30$$

$$= 43 \text{ minutes approx.}$$

2- Second survey application: After making sure that the standard paragraphs, instructions and time were clear, the scale was applied once again to a sample of (100) middle school students in the center of Babylon province, to verify the psychometric characteristics of the scale.

A- Coefficient of discrimination: After correcting the answers of the students of the second survey sample (100) students, 27% of the highest grades and 27% of the lowest grades were chosen, the number of students (54) students for both the upper and lower group, the t-test was then used for two equal independent samples in the number. The calculated T value was between (3.50 - 8.44), the t-table value was (2,000), This indicates that the calculated (t-test) value is greater than the tabular (t-test) value, this indicates that the calculated (t-test) value is greater than the tabular (t-test) value, this means that all the paragraphs of the scale are statistically significant, all metric paragraphs are all distinct.

B- Construct validity:

1- The relation of the paragraph degree to the total scale degree

The correlation ranged from (0.35- 0.62). Thus, all of the paragraphs were significant (0,05) and D.F (79). Thus, all paragraphs of the scale (80) were retained.

2- The relation of the paragraph degree to the total field degree

The correlation of the fields of the scale ranged as follows: field of kinetic style (0.43-0.61), visual style(0.49-0.70), reading / writing style(0.50 -0.62),Aural style (0.40 - 0.68), which are good correlation. Thus, all the correlation between the paragraph and the field degree are significant. This means that these domains actually measure the learning styles.

3- The relation of the field degree to the total scale degree, See table (3).

C- Reliability : Was calculated by using Alfa-Kronbak coefficient, it amounted to (0.87), which is

conceder trusted, reliability is conceder high if it is (0.70) or higher. (Abdel Hadi, 2001: 374)

Application of scale

The researchers applied the scale to the sample of the research selected by the class method and extracted the results as follows:

RESULTS AND DISCUSION

Results for the first question:

Text of the Q1: What types of learning are preferred among middle school students in Babylon province?

To answer this question, the mean scores and standard deviations of each individual sample were calculated on each pattern, see table (4).

Table (4) shows that the averages of middle school students on the learning styles scale ranged between (2.61-3.81). It was also found that the most common learning styles among middle school students is the visual style with a mean score of (3.81) (3.34), then the kinetic style with a mean of (2.79) to the third place, then

the audio style in fourth place with an average of (2.61).

2- Results for the second question

Text of the Q2: Are the preferred learning styles among middle school students in the center of Babylon Governorate different according to gender? To answer this question, mean scores and standard deviations of the sample responses were extracted for each type of learning according to the gender variable. To test the significance of the differences, the t-test was extracted, see Table (5). Table (5) shows statistically significant differences between the responses of sample members according to gender variable as follows: The tool as a whole: There were differences in favor of males with a mean of (3.53) females with a mean of (3.33). kinesthetic style: There were differences in favor of males with a mean of (2.76) females with a mean of (2.45). Visual style: There were differences in favor of males with a mean of (3.34) females with a mean of (3.08). Reading / reading style: There were differences in favor of males with a mean of (3.95) females with a mean of (3.73). Aural style: There were differences in favor of males with a mean (3.50) on females with a mean of (3.28).

Table (1) Shows the distribution of the study population by gender and grade

Variables	Levels	Numbers	percentage
Gender	Male	13701	0.52
	Female	12498	0.48
Class	7 th grade	7823	0.30
	8 th grade	8751	0.33
	9 th grade	9625	0.37

Table (2) Shows the distribution of the sample of the study by gender and grade

Variables	Levels	Numbers	percentage
Gender	Male	209	0.52
	Female	191	0.48
Class	7 th grade	120	0.30
	8 th grade	133	0.33
	9 th grade	147	0.37

Table (3) show the relation of the field degree to the total scale degree

No.	Field	Correlation
1	kinetic style	0.83
2	Visual style	0.91
3	reading / writing style	0.85
4	Aural style	0.88

Table (4) shows the mean scores, standard deviations, and order of each type of learning

Style	mean	standard deviation	Ranking
kinesthetic style	2.79	1.08	3
Visual style	3.81	0.70	1
Read/Write style	3.34	0.70	2
Aural style	3.61	0.97	4

Table (5) shows (t-test) the significance of the differences between the average gender (males and females) in the learning styles among middle school students in the center of Babylon province.

Style	Gender	Number	Mean	standard deviation	Df	t-test	Statistical significance
kinesthetic style	Male	209	2.76	0.96	398	4.208	significant
	Female	191	2.45	0.97			
Visual style	Male	209	3.34	0.63	398	4.180	significant
	Female	191	3.08	0.74			
Read/Write style	Male	209	3.95	0.68	398	3.550	significant
	Female	191	3.73	0.96			
Aural style	Male	209	3.50	0.65	398	3.342	significant
	Female	191	3.28	0.71			
All	Male	209	3.53	0.41	398	4.451	significant
	Female	191	3.33	0.49			

CONCLUSION

Based on the results obtained from the statistical analysis the researchers conclude that most preferable learning style is Visual style then Reading / reading style then kinesthetic style then Aural style, and that the Male students mean were different than those of the females, which proves that there are indeed gender differences regarding each learning styles , thus we recommend that: Identify students' preferred learning styles at the beginning of each school year. Provide appropriate teaching strategies for learning styles. Educate teachers

and teachers about learning styles.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Directorate General of Education in the province of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Quality of Life for Adolescent Clients Who Undergone Bone Marrow Transplantation at the Specialized Bone Marrow Transplantation Center in Baghdad City: A Cross Sectional Study

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ABSTRACT

Evaluating the quality of life for teenage clients who undergone bone marrow transplantation at the specialized bone marrow transplantation center in Baghdad City, comparing the quality of life between teenage clients and to determining the relationship between these teenage clients' quality of life and their demographic characteristics of age, gender and socioeconomic status. A cross sectional design is carried out through the present study in order to achieve the objectives of the study from 4th of March 2018 to 10th of November 2018. The study is conducted on teenage clients who are visiting specialized bone marrow transplantation center in Baghdad city. The pilot study was conducted to determine the questionnaire reliability through the use of split-half techniques and the computation of Cronbach alpha correlation coefficient. The content validity of the instrument was established through penal of (15) experts. Data were analyzed by application of descriptive and inferential statistical methods. In general, the results show poor quality of life(QOL) for teenage clients who undergone bone marrow transplantation(BMT). And significant relationship between teenagers' age and their (QOL). And no significant relationship between gender, marital status and socio –economic status and their (QOL).

Keyword: *Quality of life, Bone marrow transplantation.*

INTRODUCTION

Cancer is considered now a huge public health problem issue in the whole world not only in developing nations but also in developed nations, it is also a problem that affects the life of individual and family and society as a whole. It has been widely spread as a result of social change, industrial modernization, pollution and change in lifestyle. Therefore, they are linked to the quality of life^{1,2}. Even after treatment the cancer can create difficulties in social and family roles such as the ability participating in common social activities⁽³⁾. Like all other medical innovations, basic and translational research in the field not only requires a sound scientific rationale, but also needs to take into consideration ethical, legal and social

norms. And in cancer therapy, we should is not only studying the cancer response to treatment and survival rates of the patients after (BMT), but also we should study (QOL) in survivors^{4, 5}. It is important to know changes that occur after the therapy or (BMT) and any physical or psychological transformations that occur to patients, to assist them in their life because the ultimate attention to health care is the welfare of the patient⁶. (BMT) is a potentially therapy for many disease such as malignant and non-malignant disorders, it's a medical procedure by replace the destroyed or damaged bone marrow with healthy, with chemotherapy with or without radiotherapy^(7, 8). There are two types of (BMT) the first, autologous BMT collected stem cells from the patient and given back to same patient after high dose chemotherapy, the Indications the autologous (BMT) are Hodgkin lymphoma (HL), non-Hodgkin lymphoma (NHL), multiple myeloma (MM) or sometimes solid

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tumors. Secondly, allogeneic BMT is take stem cells from a healthy donor and given to a patient after high dose chemotherapy, the Indications, Acute myeloid leukemia (AML), acute lymphoblastic leukemia (ALL), severe aplastic anemia or thalassemia ^{7,8}. (BMT) is one unique technique in medicine, now (BMT) has become a standard of treat for hematologic malignancies and some of the solid tumors, in the last two decades (BMT) use has spread worldwide and progress in the technology ^(9,10). Bone marrow is the spongy liquid tissue in the center of some bones, It's have a stem cells, and the stem cells make blood cells in body (white blood cells, red blood cells, and platelets). (BMT) mean taking stem cells from one place and putting it another place, means collected stem cells from patient or donor blood, frozen and stored, and then given to patient after the high-dose treatment. The donor could be a family member or someone other. An umbilical cord blood transplant it is also type of (BMT) ¹¹.

METHODOLOGY

A cross sectional design is carried out through the present study in order to achieve the objectives of the study from 4th of March to 10th of November 2018. The study conducted on teenage clients who are visiting specialized bone marrow transplantation center in Baghdad city. A purposive sample "non probability" of (20) teenagers (10) male and (10) female and who are undergone bone marrow transplantation, after six months from operation, with non-Hodgkin Lymphoma (NHL), Hodgkin Lymphoma (HL) and Multiple Myeloma (MM). The Criteria of sample selection (participation of subjects is voluntary directed, clients who are male and female, the age of teenager are (10-24) years old, clients who are selected from the survivor clients six months after the bone marrow transplantation. An instrument is developed out The World Health Organization quality of life, spirituality, religiousness and personal beliefs (WHOQOL-SRPB), as well as, Functional Assessment of Cancer Therapy-Bone Marrow Transplant (FACT-BMT) (Version 4) the instrument is consists of two parts. Firs part was socio-demographic characteristic include (age, gender, level of education, marital status and socioeconomic status). The second part contain six domains (Physical, Psychological, Level of independence, Social relationship, Environment, Spirituality / religion / personal beliefs). The pilot study was conducted to determine the questionnaire reliability through the use of split-half techniques and the

computation of Cronbach alpha correlation coefficient. The content validity of the instrument was established through penal of (15) experts. Data were analyzed by application of descriptive and inferential statistical methods. The data were collected by utilization of the study instrument (English version), through the interview with each clients who have bone marrow transplantation, since six months ago, the interview was in specialized bone marrow transplantation center. Each interview took approximately (25) minutes. Data were analyzed through the use of SPSS (Statistical Process for Social Sciences) version (25), the through following approaches, descriptive statistical include (frequency, percent) and inferential analysis approach (Multiple Linear Regressions).

RESULTS AND DISCUSION

Analysis of such characteristics indicates that most of teenagers is (15-19) and (20-24) years old (35%) of each age groups. Regarding their gender, teenagers are equally distributed across groups of both groups of (50%). Relative to their marital status, most teenagers are single and they are accounted for (80%) of the whole subjects. Concerning their socioeconomic status, the most teenagers with low and moderate (40%). Results of this table depict overall evaluation indicates that most of the clients have poor (QOL)(48%), regarding to physical domain for teenager reveals most teenagers have good level(QOL) (45%), with respect to psychological domain presents poor level of (QOL) (45%), independence domain shown good (QOL) (40%), Social relationship domain presented poor level (QOL) (60%), related environmental domain the majority of them reported poor (QOL) (60%) and Spirituality domain accounted good (QOL) (40%). Table 3 show there is a significant difference between teenage clients regarding to their (QOL). The result of this table show that there is a significant differences between early and middle teenagers, high a significant differences between early and late teenagers and no a significant differences between middle and late teenagers. Table 5 presents that there is high significant relationship between teenagers' age and their quality of life, and no significant relationship between gender, marital status and Socio-Economic Status and their quality of life.

Socio-Demographic Characteristics

The data analysis has shown characteristics

indicates that most of teenagers is (15-19) and (20-24) years old. Regarding their gender the data analysis has shown teenagers are equally distributed across groups. Relative to their marital status most teenagers are single. Concerning their socioeconomic status, most teenagers are low and Moderate (Table 1).

Overall Evaluation the Quality of Life for Teenage Clients Who Undergone

Bone Marrow Transplantation

Overall evaluation presents that most of the clients have experienced poor (QOL) for those who undergone (BMT) (Table 2). This finding can be resulted due to the (BMT) as complex process and affects different aspects of clients; physical, psychological, level of independence, social relationship, environmental and spiritual ones and the restoration of their (QOL) take long time, hospitalization for a long period produce psychological and social problems and causes poor (QOL). Findings of the current study are supported by Inamoto and Lee (2017) who reported that the clients after transplantation face many problems that can limit their performance and reduce their (QOL) ⁽⁶⁾. Another study by El-Jawahri and others (2016) reports that a decline in (QOL) and an increase in depressive symptoms six months post transplantation ⁽¹²⁾.

Comparative Differences between Teenage Clients' Quality of Life

Comparative differences between teenage clients after (BMT) relative their (QOL) are presented in table (3). This table detects that there is a significant difference between teenagers with their (QOL). This finding can be produced due to this age group as being considered as critical and transitional stage from early teenagers to middle teenagers and facing new social activity and fear

from reoccurrence of the disease that may affect their life. Findings of the existing study are supported by Berbis and others (2013) who stated that clients who are younger than age (18) years have lower level of (physical functioning and general health perceptions) and poor in general (QOL) after the transplantation ⁽¹³⁾.

Comparative Difference between Early, Middle and Late Teenage Clients' Quality of Life

With respect to comparative differences between early, middle and late of teenage clients post (BMT) in table (4) reveal significant difference between early and middle teenagers, high significant difference between early and late teenagers and no significant difference between middle and late teenagers. This finding can be discussed in a way that the early teenagers have physiological changes and is considered critical stage and caused the variance between these age groups. Findings of the present study are supported by Helder and others (2004) who assess the long-term effects on (QOL) of teenager more than 14 years old who undergone (BMT). They study indicates that the scores of (BMT) clients on (QOL) are not significantly different from those of healthy individuals⁽¹⁴⁾.

Relationship between Teenagers' Socio-Demographic Characteristics and their Quality of Life

The relationship between teenage clients after (BMT) and their socio demographic characteristic relative their (QOL) is presented in table (5). The result of the existing study shows only highly significant relationship between age of teenagers and their (QOL). Findings of the present study are supported by Janicsák and others (2013) who report that age of adolescent clients has a significant impact on their (QOL) after (BMT) ¹⁵.

Table (1). Disribution of Socio-Demographic Characteristics for Teenage Clients Who Undergone Bone Marrow Transplantation (n=20)

List	Socio-Demographic Charactersitics	Frequency	Percent
1	Age (Years)		
	(10-14)	6	30%
	(15-19)	7	35%
	(20-24)	7	35%

Cont... Table (1). Disribution of Socio-Demographic Characteristics for Teenage Clients Who Undergone Bone Marrow Transplantation (n=20)

	Total	20	100%
2	Gender		
	Male	10	50%
	Femal	10	50%
	Total	20	100%
3	Marital Status		
	Single	16	80%
	Married	4	20%
	Divorced	0	0%
	Separated	0	0%
	Total	20	100%
4	Socioeconomic Status		
	Low (21-51.3)	8	40%
	Moderate (51.4-81.7)	8	40%
	High (81.8-112)	4	20%
	Total	20	100%

Table (2). Evaluation the Quality of Life for Teenage Clients Who Undergone Bone Marrow Transplantation (n=20)

Domains	Poor		Fair		Good		Evaluation
	F	%	F	%	F	%	
Physical domain	3	15%	8	40%	9	45%	Good
Psychological domain	9	45%	7	35%	4	20%	Poor
Independence Domain	7	35%	5	25%	8	40%	Good
Social Relationship Domain	12	60%	3	15%	5	25%	Poor
Environmental Domain	12	60%	4	20.0%	4	20%	Poor
Spirituality	6	30%	6	30%	8	40%	Good
Overall	8	40%	7	35%	5	25%	Poor

Table (3). Comparative Differences between Teenage Clients Who Undergone Bone Marrow Transplantation Relative to Their Quality of Life (n=20)

age groups	Sum of Squares	df	Mean Square	F	Sig.	S. C.
Teenagers Between Groups	4303.633	11	391.239	3.802	.034	S
Within Groups	823.167	8	102.896			
Total	5126.800	19				

Table (4). Comparative Difference between Early, Middle and Late Teenage Clients Who Undergone Bone Marrow Transplantation Relative to Their Quality of Life (n=20).

Groups	M(SD)			Post Hoc using LSD		
	Early	Middle	Late	Early vs middle	Early vs late	Middle vs late
Teenager	68.25(6.88)	74.87(16.20)	100.75(4.27)	.002	.000	.263

Table (5). Multiple Linear Regressions for the Relationship between Teenage Clients with Bone Marrow Transplantation Socio-Demographic Characteristics and Their Quality of Life (n=20)

Teenage	Unstandardized Coefficients		Standardized Coefficients	T	Sig	S. C.
	B	Std. Error	Beta			
Age	-4.164	.859	-.749	4.254	.000	HS
Gender	-4.258	5.950	-.114	-.716	.485	NS
Marital Status	-4.233	9.789	-.068	-.432	.671	NS
Socio -Economic Status	-.045	.028	-.299	-1.580	.134	NS

CONCLUSION

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Faculty of Community Health Nursing Department, College of Nursing, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Quality of Life for Adolescent Clients with Hypermobility Syndrome in Baghdad City: A Cross Sectional Study

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ABSTRACT

The study aimed to evaluate the quality of life for adolescent clients with hypermobility syndrome, compare their quality of life between them and determine the relationship between quality of life of these clients and their socio-demographic characteristics of age, gender, marital status and socioeconomic. A cross-sectional design was employed through the present study in order to achieve the objectives of the study for the period from 1st April to 18th November, 2018. A purposive sample of (74) adolescent clients was selected; (40) male and (36) female diagnosed with hypermobility syndrome at orthopedic private clinics in Baghdad City. Validity of the instrument is determined through a panel of (15) experts in different fields of specialty. Data analysis conducted by using descriptive statistics and inferential statistics methods. The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) The overall evaluation for the quality of life for clients with HMS reported that the vast majority of the clients have experienced fair level of QOL.

Keyword: *Hypermobility Syndrome, Quality of Life, cross-sectional study*

INTRODUCTION

Hypermobility Syndrome is a global health problem that occurred among large number of population especially females more than males, which cause multiple symptoms such as pain, fatigue, discomfort, instability of joints and other symptoms. Many people with these symptoms are not familiar with their condition and suffer from symptoms for a long period without diagnosis¹. Hypermobility syndrome typically present from childhood, not clear for diagnosis because children usually have hyper elasticity of joints and muscle weakness, this condition decrease gradually with aging when the muscles, tendons, and ligaments structures become stronger and provide more stability

and control of the joints movements². Genetics is the main risk factor of HMS that has high percentage of pass from parents to their children. According to the statistical information, about (10-15) percentage of people during childhood have HMS as well as, more than 30% of males and 40% of females have the same condition during early adulthood³. Diagnosis of HMS is very important to increase knowledge and to identify how to avoid or a least minimize symptoms as possible. Clinical examination is the method that used to diagnose HMS by utilization of Beighton score criteria, this method contain of nine scores divided on nine joints of the body, each joint has one score, so when the patient collected four or more points the patient will be diagnosed with HMS. In addition to that, the deferential diagnoses of HMS become clearer among adolescent and early adult age groups⁴. Joint's movements reflect the physical interaction of the human body with the environment, which provide an essential function of the body to perform multiple daily activities throughout perform verity of movements of joints such as flexion,

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extension, abduction, adduction and rotation. In addition to that, some people with condition have a benefits form condition to perform particular sports or hobbies such as gymnastic, acrobatic and ballet dance⁵. Chronic pain is a common recurrent symptom associated with HMS, pain usually presented as a chronic condition that occur without injury and separated a lot of joints without any clear causes, as well as, about 26% from 700 clients how are visiting clinic at University College Hospital in London suffering from HMS⁶. Missed diagnosed is the most common problem of the condition, this can contribute to continuous of symptoms for a long period without being diagnosed⁷. Psychological distress is a condition linked with hypermobility syndrome that reported in most of published articles, which confirmed the relationship between joint hypermobility and anxiety, obsessive-compulsive, personality disorder and depression⁸.

MATERIALS AND METHOD

Design of the study: A cross-sectional design was employed through the present study in order to achieve the objectives of the study for the period from 1st April to 18th November, 2018. A purposive sample of (74) adolescent clients are selected; (40) male and (36) female diagnosed with hypermobility syndrome at orthopedic private clinics in Baghdad City.

Instrument: The study instrument is developed-out of the World Health Organization Spirituality, Religiousness and Personal Beliefs instrument (WHOQOL-SRPB)⁽¹³⁾. The study instrument composed of two major parts; the first part consists of socio-demographic characteristics of age, gender, marital status and socioeconomic, and the second part consist of six domains of quality of life, these are:

1. Physical domain; this domain include pain and discomfort (9) items; energy and fatigue (3) items and sleep and rest, (4) items.

2. Independence domain; this domain include activities of daily living (4) items; and work capacity (2) items.

3. Environmental domain; this domain consist of physical safety and security (3) items; home environment (3) items; opportunities for acquiring new information and skills (2) items and participation in and opportunities for recreation / leisure activities (2) items.

4. Spirituality domain; this domain contain (3) items.

5. Social domain; this domain include personal relationships, (3) items and social support, (3) items.

6. Psychological domain; that domain consist of positive feelings (2) items, negative feelings, (3) items and self-esteem, (3) items. There were total of (49) items included in the questionnaire. These items were measured, scored, and rated on a 3 level type Likert scale with 3 for always, 2 for sometimes, and 1 for never.

Validity of the instrument: is determined through a panel of (15) experts in different fields of specialty. The pilot study conducted to identify reliability of the questionnaire using the split-half techniques of alpha Cronbach correlation coefficient. The correlation coefficient is ($r=0.89$) which indicates that the questionnaire is adequately reliable measure.

Data collection: Data collection is conducted using the structured interview technique with each patient after gaining there acceptance in participating in the study through a written consent. A standard-developed questionnaire is used (English version), and each interview took approximately (25) minutes.

Data Analysis: The data analysis process conducted by using the statistical package of social science (SPSS) version (25). This statistical data analysis approaches include descriptive data analysis using frequencies and percentage, as well as inferential data analysis using ANOVA, post Hoc and regression to find-out the relationships / differences between study groups.

RESULTS AND DISCUSSION

Analysis of such characteristics indicates that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), in families with low socioeconomic status (40%) and the majority of them are singles (93.4%). Such overall evaluation indicates that the majority of the adolescent clients have experienced fair level of QOL, (44.7%) from all subjects. Evaluation of the quality of life for the adolescent clients according to its domains reported that most of them have fair evaluation in physical domain (37.8%), environmental domain (39.5%), and social relationship domain (35.5%) Good evaluation is for independence domain (92.1%), and poor evaluation is for psychological domain (43.4%).

and fair evaluation for spirituality domain (39.5%). This table of multiple linear regressions conducted to determine the relationship between adolescent clients groups and their demographic characteristics with their quality of life. The result depicts a significant relationship between adolescent's age and their quality of life, but there is no significant relationship between gender, marital status and socio-economic status with their quality of life. The result of comparing the differences in the quality of life among the three age groups of the adolescent clients through applying One-way AVOVA test indicates the significant differences in their QOL. The result of comparing the differences in the quality of life among the three age groups of the adolescent clients through applying One-way AVOVA test indicates the significant differences in their QOL. This table present with Post Hoc using Last Significant Difference (LSD) test after one-way ANOVA test, which calculated to measure the quality of life between adolescent clients groups. The results show that there are significant differences between early and late adolescents, early and middle adolescents, but there is no significant difference between middle and late groups regarding their QOL. The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) table (1). The overall evaluation for the quality of life for clients with HMS, reported that the vast majority of the clients have experienced fair level of QOL. This is obvious in the QOL'S domains in table (2), as most of them have fair evaluation in physical domain, environmental domain, spiritual and social relationship domain and poor evaluation for psychological domain. Fair evaluation for physical domain of the adolescent's QOL with HMS is related to issues of pain and discomfort during doing activities, feeling fatigue and lack of energy, difficulties in falling in sleep that those patient are experiencing. A study for adolescents with HMS disorder regarding pain and fatigue depicted that there is an association between their current condition and the present of a number of symptoms of physical activities, which effect on their QOL⁽¹⁴⁾. Environmental domain of adolescent patient's QOL evaluation is fair also, such domain is covered the issues of not living in a healthy neighborhood; not working in a place suitable for their health and they do not have adequate time to participate in leisure activities.

Supportive evidence for such finding is Molnar's study in 2004 results show that neighborhood environment and work hazards have deferent effect on adolescent's daily activities and exposed them to different environmental hazards⁽¹⁵⁾. Regarding spiritual domain, most of adolescents do not believe or not sure that their suffering from their condition is wisdom from God and they do not accept their being ill with this condition. Such believes is compatible with a survey conducted world-wide on adolescent's spirituality and religion, they consider the transitional period of adolescents can effect on their believes and faith and they become so skeptical in religion and life⁽¹⁶⁾. Regarding the social relationship domain, most of them do not initiate social relationships with others and slight friend's support when having problems. A prospective cohort study on risk factors of musculoskeletal pain for adolescence with joint hypermobility indicates that their symptoms effected on many activities including social activities and the relationship with others⁽¹⁷⁾. Poor psychological domain evaluation includes concerns that most of them believe hypermobility cannot be adaptable; they are not sure of having positive view of life; they have bad feeling since they lost some responsibilities or roles in their job or home; they may expose for joint dislocation and pain; not sure about their self-confidence for doing daily responsibilities with high quality and their family and society trust in their decision. A systematic review by Smith and others about the relationship between benign joint hypermobility syndrome and psychological distress among adolescents find out that psychological disorder such as anxiety and depression can effect on their activities and decrease roles or responsibilities toward their families or the society⁽¹⁸⁾. Fortunately, most of the adolescent clients have good evaluation in independence domain; they are capable of doing their activities of daily living, good capacity in work performance. This result supported by Ferrell and others study who reported that people with HMS have ability for doing activities and exercises which contribute to raise performance through enhancing balance and increase muscle strength, tendons and ligaments which consequently improve the HRQOL⁽¹⁹⁾. The relationship between adolescents' clients with HMS and their socio-demographic characteristics in table (3) shows that only age variable has a significant relationship with their quality of life. The comparative of means between these age groups with regards to the QOL, indicates that there is a significant difference between them and that age

variable considered a factor effects on their quality of life being with HMS (Table 4).

Table 1. Demographic Characteristics of the Study Sample (n=76)

Socio-Demographic Charactersitics		
Adolescent's Age Groups	Freq.	Per.
10-14 years old	25	32.9%
15-19	26	34.2%
20-24	25	32.9%
Adolescent's Gender	Freq.	Per.
Male	40	52.6%
Female	36	47.4%
Adolescent's Marital Status	Freq.	Per.
Single	71	93.4%
Married	5	6.6%
Divorced	0	0%
Separated	0	0%
Widowed	0	0%
Adolescent's Family Socioeconomic Status	Freq.	Per.
Low (21-51.3)	30	40%
Moderate (51.4-81.7)	24	30.3%
High (81.8-112)	22	28.7%

Table 2. Evaluation of the Quality of Life Domains for Adolescent Clients with Hypermobility Syndrome (n=76)

Domains	Poor		Fair		Good		Evaluation
	F	Per.	F	Per.	F	Per.	
Overall Eva.	21	27.6%	34	44.7%	21	27.6%	Fair
Physical	20	26.3%	29	37.8%	27	25.8%	Fair
Independence	0	0.0%	6	7.9%	70	92.1%	Good
Environment	25	32.9%	30	39.5%	21	27.6%	Fair
Spirituality	19	25.0%	30	39.5%	27	35.5%	Fair
Social Relationship	23	30.3%	27	35.5%	26	34.2%	Fair
Psychological	33	43.4%	25	32.9%	18	23.7%	Poor

Table 3. Multiple Linear Regressions for the Relationship between Adolescent Clients with Hypermobility Syndrome and their Socio – Demographic Characteristics with Their Quality of Life (n=76)

Adolescent	Unstandardized Coefficients		Standardized Coefficients	T	Sig	S. C.
	B	Std. Error	Beta			
Age	1.829	.430	.474	4.254	.001	HS
Gender	-4.338	3.515	-.129	-1.234	.221	NS
Marital Status	-5.769	7.566	-.085	-.763	.448	NS
Socio -Economic Status	-.016	.034	-.055	-.485	.629	NS

Table 4. Comparative Differences among Adolescent Clients with Hypermobility Syndrome Relative to Their Quality of Life (n=76)

Age groups	Sum of Squares	Df	Mean square	F	Sig	+ S. C.
Adolescent Between Groups	3276.837	2	342.794	6.572	.002	HS
Within Groups	18198.045	73	249.288			
Total	21474.882	75				

Table 5. Comparative Differences between Early, Middle and Late Adolescent Clients Hypermobility Syndrome Relative to Their Quality of Life (n=76)

Groups	M(SD)			Post Hoc using LSD		
	Early	Middle	Late	Early vs middle	Early vs late	Middle vs late
Adolescent	91.56 (17.12)	102.34 (15.75)	107.40 (14.37)	.017	.003	.257

CONCLUSION

The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) The overall evaluation for the quality of life for clients with HMS reported that the vast majority of the clients have experienced fair level of QOL.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Al-Russafa Health Directorate, Baghdad Governorate, Ministry of Health and Environment, Iraq and all experiments were carried out in accordance with approved guidelines.

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Quality of Life for Adolescent Patients with Hypermobility Syndrome in Baghdad City: A Cross Sectional Study

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ABSTRACT

The study aimed to evaluate the quality of life for adolescent patients with hypermobility syndrome, compare their quality of life between them and determine the relationship between quality of life of these patients and their socio-demographic characteristics of age, gender, marital status and socioeconomic. A cross-sectional design was employed through the present study in order to achieve the objectives of the study for the period from 1st April to 18th November, 2018. A purposive sample of (74) adolescent patients was selected; (40) male and (36) female diagnosed with hypermobility syndrome at orthopedic private clinics in Baghdad City. Validity of the instrument is determined through a panel of (15) experts in different fields of specialty. Data analysis conducted by using descriptive statistics and inferential statistics methods. The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) The overall evaluation for the quality of life for patients with HMS reported that the vast majority of the patients have experienced fair level of QOL.

Keyword: *Hypermobility Syndrome, Quality of Life, cross-sectional study*

INTRODUCTION

Hypermobility Syndrome is a global health problem that occurred among large number of population especially females more than males, which cause multiple symptoms such as pain, fatigue, discomfort, instability of joints and other symptoms. Many people with these symptoms are not familiar with their condition and suffer from symptoms for a long period without diagnosis¹. Hypermobility syndrome typically present from childhood, not clear for diagnosis because children usually have hyper elasticity of joints and muscle weakness, this condition decrease gradually with aging when the muscles, tendons, and ligaments structures become stronger and provide more stability and control of the joints movements². Genetics is the

main risk factor of HMS that has high percentage of pass from parents to their children. According to the statistical information, about (10-15) percentage of people during childhood have HMS as well as, more than 30% of males and 40% of females have the same condition during early adulthood³. Diagnosis of HMS is very important to increase knowledge and to identify how to avoid or a least minimize symptoms as possible. Clinical examination is the method that used to diagnose HMS by utilization of Beighton score criteria, this method contain of nine scores divided on nine joints of the body, each joint has one score, so when the patient collected four or more points the patient will be diagnosed with HMS. In addition to that, the deferential diagnoses of HMS become clearer among adolescent and early adult age groups⁴. Joint's movements reflect the physical interaction of the human body with the environment, which provide an essential function of the body to perform multiple daily activities throughout perform verity of movements of joints such as flexion, extension, abduction, adduction and rotation. In addition

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to that, some people with condition have a benefits form condition to perform particular sports or hobbies such as gymnastic, acrobatic and ballet dance ⁵. Chronic pain is a common recurrent symptom associated with HMS, pain usually presented as a chronic condition that occur without injury and separated a lot of joints without any clear causes, as well as, about 26% from 700 patients how are visiting clinic at University College Hospital in London suffering from HMS ⁶. Missed diagnosed is the most common problem of the condition, this can contribute to continuous of symptoms for a long period without being diagnosed ⁷. Psychological distress is a condition linked with hypermobility syndrome that reported in most of published articles, which confirmed the relationship between joint hypermobility and anxiety, obsessive-compulsive, personality disorder and depression ⁸.

MATERIALS AND METHOD

Design of the study: A cross-sectional design was employed through the present study in order to achieve the objectives of the study for the period from 1st April to 18th November, 2018. A purposive sample of (74) adolescent patients are selected; (40) male and (36) female diagnosed with hypermobility syndrome at orthopedic private clinics in Baghdad City.

Instrument: The study instrument is developed-out of the World Health Organization Spirituality, Religiousness and Personal Beliefs instrument (WHOQOL-SRPB) ⁽¹³⁾. The study instrument composed of two major parts; the first part consists of socio-demographic characteristics of age, gender, marital status and socioeconomic, and the second part consist of six domains of quality of life, these are:

1. Physical domain; this domain include pain and discomfort (9) items; energy and fatigue (3) items and sleep and rest, (4) items.

2. Independence domain; this domain include activities of daily living (4) items; and work capacity (2) items.

3. Environmental domain; this domain consist of physical safety and security (3) items; home environment (3) items; opportunities for acquiring new information and skills (2) items and participation in and opportunities for recreation / leisure activities (2) items.

4. Spirituality domain; this domain contain (3) items.

5. Social domain; this domain include personal relationships, (3) items and social support, (3) items.

6. Psychological domain; that domain consist of positive feelings (2) items, negative feelings, (3) items and self-esteem, (3) items. There were total of (49) items included in the questionnaire. These items were measured, scored, and rated on a 3 level type Likert scale with 3 for always, 2 for sometimes, and 1 for never.

Validity of the instrument: is determined through a panel of (15) experts in different fields of specialty. The pilot study conducted to identify reliability of the questionnaire using the split-half techniques of alpha Cronbach correlation coefficient. The correlation coefficient is ($r=0.89$) which indicates that the questionnaire is adequately reliable measure.

Data collection: Data collection is conducted using the structured interview technique with each patient after gaining there acceptance in participating in the study through a written consent. A standard-developed questionnaire is used (English version), and each interview took approximately (25) minutes.

Data Analysis: The data analysis process conducted by using the statistical package of social science (SPSS) version (25). This statistical data analysis approaches include descriptive data analysis using frequencies and percentage, as well as inferential data analysis using ANOVA, post Hoc and regression to find-out the relationships / differences between study groups.

RESULTS AND DISCUSION

Analysis of such characteristics indicates that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), in families with low socioeconomic status (40%) and the majority of them are singles (93.4%). Such overall evaluation indicates that the majority of the adolscent patients have experienced fair level of QOL, (44.7%) from all subjects. Evaluation of the quality of life for the adolescent patients according to its domains reported that most of them have fair evaluation in physical domain (37.8%), environmental domain (39.5%), and social relationship domain (35.5%) Good evaluation is for independence domain (92.1%), and poor

evaluation is for psychological domain (43.4%). and fair evaluation for spirituality domain (39.5%). This table of multiple linear regressions conducted to determine the relationship between adolescent patients groups and their demographic characteristics with their quality of life. The result depicts a significant relationship between adolescent's age and their quality of life, but there is no significant relationship between gender, marital status and socio-economic status with their quality of life. The result of comparing the differences in the quality of life among the three age groups of the adolescent patients through applying One-way AVOVA test indicates the significant differences in their QOL. The result of comparing the differences in the quality of life among the three age groups of the adolescent patients through applying One-way AVOVA test indicates the significant differences in their QOL. This table present with Post Hoc using Last Significant Difference (LSD) test after one-way ANOVA test, which calculated to measure the quality of life between adolescent patients groups. The results show that there are significant differences between early and late adolescents, early and middle adolescents, but there is no significant difference between middle and late groups regarding their QOL. The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) table (1). The overall evaluation for the quality of life for patients with HMS, reported that the vast majority of the patients have experienced fair level of QOL. This is obvious in the QOL'S domains in table (2), as most of them have fair evaluation in physical domain, environmental domain, spiritual and social relationship domain and poor evaluation for psychological domain. Fair evaluation for physical domain of the adolescent's QOL with HMS is related to issues of pain and discomfort during doing activities, feeling fatigue and lack of energy, difficulties in falling in sleep that those patient are experiencing. A study for adolescents with HMS disorder regarding pain and fatigue depicted that there is an association between their current condition and the present of a number of symptoms of physical activities, which effect on their QOL⁽¹⁴⁾. Environmental domain of adolescent patient's QOL evaluation is fair also, such domain is covered the issues of not living in a healthy neighborhood; not working in a place suitable for their health and they do

not have adequate time to participate in leisure activities. Supportive evidence for such finding is Molnar's study in 2004 results show that neighborhood environment and work hazards have deferent effect on adolescent's daily activities and exposed them to different environmental hazards⁽¹⁵⁾. Regarding spiritual domain, most of adolescents do not believe or not sure that their suffering from their condition is wisdom from God and they do not accept their being ill with this condition. Such believes is compatible with a survey conducted world-wide on adolescent's spirituality and religion, they consider the transitional period of adolescents can effect on their believes and faith and they become so skeptical in religion and life⁽¹⁶⁾. Regarding the social relationship domain, most of them do not initiate social relationships with others and slight friend's support when having problems. A prospective cohort study on risk factors of musculoskeletal pain for adolescence with joint hypermobility indicates that their symptoms effected on many activities including social activities and the relationship with others⁽¹⁷⁾. Poor psychological domain evaluation includes concerns that most of them believe hypermobility cannot be adaptable; they are not sure of having positive view of life; they have bad feeling since they lost some responsibilities or roles in their job or home; they may expose for joint dislocation and pain; not sure about their self-confidence for doing daily responsibilities with high quality and their family and society trust in their decision. A systematic review by Smith and others about the relationship between benign joint hypermobility syndrome and psychological distress among adolescents find out that psychological disorder such as anxiety and depression can effect on their activities and decrease roles or responsibilities toward their families or the society⁽¹⁸⁾. Fortunately, most of the adolescent patients have good evaluation in independence domain; they are capable of doing their activities of daily living, good capacity in work performance. This result supported by Ferrell and others study who reported that people with HMS have ability for doing activities and exercises which contribute to raise performance through enhancing balance and increase muscle strength, tendons and ligaments which consequently improve the HRQOL⁽¹⁹⁾. The relationship between adolescents' patients with HMS and their socio-demographic characteristics in table (3) shows that only age variable has a significant relationship with their quality of life. The comparative of means between these age groups with regards to the QOL, indicates that there

is a significant difference between them and that age variable considered a factor effects on their quality of life being with HMS (Table 4).

Table 1. Demographic Characteristics of the Study Sample (n=76)

Socio-Demographic Charactersitics		
Adolescent's Age Groups	Freq.	Per.
10-14 years old	25	32.9%
15-19	26	34.2%
20-24	25	32.9%
Adolescent's Gender	Freq.	Per.
Male	40	52.6%
Female	36	47.4%
Adolescent's Marital Status	Freq.	Per.
Single	71	93.4%
Married	5	6.6%
Divorced	0	0%
Separated	0	0%
Widowed	0	0%
Adolescent's Family Socioeconomic Status	Freq.	Per.
Low (21-51.3)	30	40%
Moderate (51.4-81.7)	24	30.3%
High (81.8-112)	22	28.7%

Table 2. Evaluation of the Quality of Life Domains for Adolescent Patients with Hypermobility Syndrome (n=76)

Domains	Poor		Fair		Good		Evaluation
	F	Per.	F	Per.	F	Per.	
Overall Eva.	21	27.6%	34	44.7%	21	27.6%	Fair
Physical	20	26.3%	29	37.8%	27	25.8%	Fair
Indepence	0	0.0%	6	7.9%	70	92.1%	Good
Environment	25	32.9%	30	39.5%	21	27.6%	Fair
Spirituality	19	25.0%	30	39.5%	27	35.5%	Fair
Social Relationship	23	30.3%	27	35.5%	26	34.2%	Fair
Psychological	33	43.4%	25	32.9%	18	23.7%	Poor

Table 3. Multiple Linear Regressions for the Relationship between Adolescent Patients with Hypermobility Syndrome and their Socio – Demographic Characteristics with Their Quality of Life (n=76)

Adolescent	Unstandardized Coefficients		Standardized Coefficients	T	Sig	S. C.
	B	Std. Error	Beta			
Age	1.829	.430	.474	4.254	.001	HS
Gender	-4.338	3.515	-.129	-1.234	.221	NS
Marital Status	-5.769	7.566	-.085	-.763	.448	NS
Socio -Economic Status	-.016	.034	-.055	-4.485	.629	NS

Table 4. Comparative Differences among Adolescent Patients with Hypermobility Syndrome Relative to Their Quality of Life (n=76)

Age groups	Sum of Squares	Df	Mean square	F	Sig	+ S. C.
Adolescent Between Groups	3276.837	2	342.794	6.572	.002	HS
Within Groups	18198.045	73	249.288			
Total	21474.882	75				

Table 5. Comparative Differences between Early, Middle and Late Adolescent Patients Hypermobility Syndrome Relative to Their Quality of Life (n=76)

Groups	M(SD)			Post Hoc using LSD		
	Early	Middle	Late	Early vs middle	Early vs late	Middle vs late
Adolescent	91.56 (17.12)	102.34 (15.75)	107.40 (14.37)	.017	.003	.257

CONCLUSION

The Summary statistics of the study sample's demographic characteristics shows that the sample distributed as early adolescents (32.9%), middle adolescents (34.2%) and late adolescents (32.9%), most of them are males (52.6%), and low socioeconomic status (40%) and the majority of them are singles (93.4%) The overall evaluation for the quality of life for patients with HMS reported that the vast majority of the patients have

experienced fair level of QOL.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Al-Russafa Health Directorate, Baghdad Governorate, Ministry of Health and Environment, Iraq and all experiments were carried out in accordance with approved guidelines.

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Relating Body Image with Self-esteem among Patients Seeking Aesthetic Surgery in Baghdad City

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ABSTRACT

The study aimed to assess Relating Body Image and self-esteem among Clients seeking cosmetic Surgery in Baghdad City. A descriptive - analytic study was conducted at the cosmetic Units at AL-Wasiti Teaching Hospital and Ghazi Alhariri Teaching Hospital, and two beauty centers, Barbie beauty center, Arido Beauty Center in Baghdad city. The study was carried out through the period of 2017. Which consist of 154 participant to assess Relating Body Image and psychological Distress among Clients seeking cosmetic Surgery both gender (male and female). The questionnaire was consisted of three parts: the first part is concerned demographic characteristics of the clients that included (age of client, level of education, monthly income, type of surgery employment status, marital status). The finding of the study showed that the highest percentage is located within the age group of twenties (46.8%) (130%) the of the sample was female and represents 84.8% aged 20-29 years. distribution of participants within the levels of Body Image Disorder and distributes as 29.9% having extremely severe level. 32.4% with face procedures have very high and high levels of self-esteem

Keywords: *Body image, psychological distress, cosmetic surgery*

INTRODUCTION

Body image as “a person’s perceptions, thoughts and feelings about his or her body” and as “subjective and open to change through social influence”. Body image is constructed from self-remark, the responses of others, and a hard communication of emotions, fantasies, memories, attitudes, and experience, both conscious and unconscious ¹. The body image can be considered as a multidimensional construction that represents how individuals think, feel and act in relative to their own physical qualities ². Dohnt, and Tiggemann, (2006) say that the desire for fineness is prevalent among women and teenage girls and has been lengthy to include young girls also. Girls as young as 5-7 years are displeased with their body size, desire to be smaller, and some have also endeavored to diet. Harter, (1999) write the insights of physical appearance and self-worth are inextricably linked, such that perceived appearance consistently arises as the strongest single predictor of self-esteem

among both male and female children and adolescents. There are many different factors affecting body image, including gender, media, parental relationships and puberty, as well as weight and popularity ⁵. Body image is closely linked to psychological well-being during adolescence and can have harmful effects when a child is dissatisfied with his/her body. Furthermore, the importance of body-image dissatisfaction is growing due to its implication as a risk factor for the development of eating disorders, depression, emotional distress, self-mutilation, low self-esteem, appearance rumination and unnecessary cosmetic surgery (6). Self-esteem is defined as a “positive or negative attitude toward a particular object, namely, the self” and makes the person feel that he is a person of worth (7). Rosenberg (1965) describes a person of high self-esteem as an individual, who respects himself, considers himself worthy and not better than others, recognizes his limitations, and expects to grow and improve (8). People undergoing cosmetic procedures have increased in the last decade. The American Society of Plastic Surgeons⁽¹⁰⁾ reported a 59% increase in overall procedures between 2003 and 2011, and the British Association of Plastic Surgeons BAPS (2011) reported a 303% increase in surgical operations during the same

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period. Most importantly, the huge majority of actions have been carried out on women, who consistently make up more than 90% of the yearly actions since 2006 ⁽¹¹⁾

METHODOLOGY

Design of the study: A descriptive - analytic study was conducted at the cosmetic Units at AL Wasiti Teaching Hospital and Ghazi Alhariri Teaching Hospital, and two beauty centers, Barbie beauty center, Arido Beauty Center in Baghdad city. The study was carried out through the period of 2017. Which consist of 154 participant. To assess Relating Body Image and psychological Distress among Clients seeking cosmetic Surgery both gender (male and female). The questionnaire was consisted of three parts: the first part is concerned demographic characteristics of the clients that included (age of client, level of education, monthly income, type of surgery employment status, marital status), the second one was Rosenberg Standard Self-esteem Scale consisting of 10 general sentences, five of which were expressed using positive words and five sentences using negative words. and the third one psychological distress questionnaire consists of 10 items concerned with the which provides indices of the number of intended to yield a global measure of distress based on questions about anxiety and depressive symptoms.

Sample of the Study: A purposive (non-probability) sample is selected for the study which includes (154) clients, which located in Baghdad city.

Data collection: Data was collected by using interview technique with the participants of cosmetic and who kindly accepted to participate in the study. Data was collected from

February 18th to March 7 (2018). Each interview session took approximately (20-25) minutes.

Statistical Methods: Data were analyzed through the application of descriptive statistical (Frequencies and percentages) and inferential analysis χ^2 Descriptive analysis Sample demographic Description (Table 1). Table (1) shows that the age range of the participants was varied from 19 to 50; 130 (84.4%) age ranged from more and equal 19 years to more and equal than 50 years. The highest percentage is located within the age group of twenties (46.8%).

RESULTS AND DISCUSSION

Table 1 indicates also that the majority of participants of the study is female and represents 84.8%. The participants with the level of college and more represent the majority (61.6%) and the rest are scattered as with secondary. 73 (47.4%) and 13 (8.4%) are with secondary levels. Most of cosmetic clients are house keepers 73 (48.7%); about half of them are married; 81 (52.6%) of participants have a monthly income of one million and more Iraqi dinars; and in regard to type of surgery 82 (53.2%) are with facial procedures; 58 (37.7%) are with rhinoplasty; 10 (6.5%) are with liposuction and 4 (2.6%) are with eyelid surgery. while most of the clients lives in city 146 (94.8%) Distribution of levels of Body image disorder Table (2). Table (2) gives the details regarding the distribution of participants within the levels of Body Image Disorder and distributes as 29.9% having extremely severe level; 31.2% having severe level; 24.0% having moderate level and 14.9% having mild level. Table (3) presents the distribution of levels of Body Image Disorder within the subcategories of demographic characteristics of the sample; about half of the female participants (49.3%); 31.8% of twenties of age; 28.5% of unmarried; 46.7% with college and higher levels of education; 24.6% of housekeepers; 28.5% of participants have less than million-Iraqi-dinar income; 56.5% who living in city; and finally, 32.4% with face procedures have Extremely severe and severe levels of Body Image Disorder. Table (2) gives the details regarding the distribution of participants within the levels of Body Image Disorder and distributes as 61.1% having extremely severe and severe levels; and 24.0% having moderate level and 14.9% having mild level. This result is consistent with a research, which has shown that dissatisfaction with one's body image is the main factor that motivates people to undergo cosmetic surgical procedures⁽¹⁵⁾ Frederick and his colleague (2007) suggest that body image displeasure is higher among patients seeking cosmetic surgery than people not interested in plastic surgery. The relationships between body image and cosmetic surgery have been at the centre of the recent studies. According to⁽¹⁷⁾, this represents a new generation of research on the psychological aspects of aesthetic plastic surgery, because the main aim of every type of cosmetic surgery is to facilitate the psychosocial functioning of the patient by changing their body image⁽¹⁸⁾. Table (3) depicts the distribution of levels of Body Image Disorder within the subcategories

of demographic characteristics of the sample; it was found that about half of the female participants (49.3%); 31.8% of twenties of age; on the other hand, the study revealed that 28.5% of the sample were unmarried; it can be noted from this table about 46.7% with college and higher levels of education; 24.6% of housekeepers; and 28.5% of participants have less than million-Iraqi-dinar income; as well as about 56.5% from clients who living in city; and finally, 32.4% with face procedures have extremely severe and severe levels of Body Image Disorder. Table (4) portrays the details regarding the distribution of participants within the levels of self-esteem and distributes as 33.7% having very high and high levels; and 49.4% having intermediate level a and 16.9% low level of self-esteem. Table (5) presents

the distribution of levels of self-esteem within the subcategories of demographic characteristics of the sample; about half of the female participants (49.4%); 31.8% of twenties of age; 28.5% of unmarried; whereas, 46.7% of participants with college and higher levels of education; 24.6% of housekeepers; 28.5% of participants have less than million-Iraqi-dinar income; also 56.5% of clients were living in city; and finally, 32.4% with face procedures have very high and high levels of self-esteem. Table (6) indicates that significant association between gender and psychological distress (level of education and body image (p-value= 0.01); as well as occupation and psychological distress, p-value= 0.05).

Table 1. Demographic Characteristics of the sample

Sample Demographic Characteristics					
Gender			Marital Status		
	No.	%		No.	%
Female	130	84.4%	Married	75	48.7%
Male	24	15.6%	Single	65	42.2%
Total	154	100.0%	Divorced	5	3.2%
Total 154		100.0%	Widowed	9	5.8%
Age			Level of Education		
	No.	%		No.	%
≤19	13	8.4%	Illiterate	1	.6
20-29	72	46.8%	Read & Write+ Primary	13	8.4
30-39	35	22.7%	Secondary	45	29.2
40-41	28	18.2%	Collage & above	95	61.7
≥50	6	3.9%	Total	154	100.0
Total	154	100.0%			
Occupation			Income		
	No.	%		No.	%
House Keeper	73	47.4%	≤Half Million	33	21.4%
Students	37	24.0%	≤ Million	81	52.6%
Employee	39	25.3%	≥ Million	38	24.7%
Retired	1	0.6%	≥5 Million	2	1.3%
Free work	4	2.6%	Total	154	100.0%
Total	154	100.0%			

Table 2. Distribution of the Sample according to the levels of Body Image at Baseline

Levels of Body Image Disorder									
Ext. Severe		Severe		Moderate		Mild		Total	
No.	%	No.	%	No.	%	No.	%	No.	%
46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%

Table 3. Distribution in levels of Body Image Disorder according to demographic characteristics of the sample at Baseline

Demographics No.		Levels of Body Image Disorder									
		Ext. Severe		Severe		Moderate		Mild		Total	
		%	No.	%	No.	%	No.	%	No.	%	No.
Gender	Female	37	24.0	39	25.3	34	22.1%	20	13.0%	130	84.4%
	Male	9	5.8	9	5.8	3	1.9%	3	1.9%	24	15.6%
	Total	46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%
Age	≤19	2	1.3	3	1.9%	6	3.9%	2	1.3%	13	8.4%
	20-29	23	14.9	26	16.9%	13	8.4%	10	6.5%	72	46.9%
	30-39	11	7.1	10	6.5%	10	6.5%	4	2.6%	35	22.7%
	40-41	8	5.2	7	4.5%	8	5.2%	5	3.2%	28	18.1%
	≥50	2	1.3	2	1.3%	0	0.0%	2	1.3%	6	13.9%
	Total	46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%
Marital Status	Married	21	13.6%	20	13.0%	23	14.9%	11	7.1%	75	48.7%
	Single	21	13.6%	23	14.9%	13	8.4%	8	5.2%	65	42.2%
	Divorced	2	1.3%	1	0.6%	0	0.0%	2	1.3%	5	3.2%
	Widowed	2	1.3%	4	2.6%	1	0.6%	2	1.3%	9	5.8%
	Total	46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%
Education	Illiterate	0	0.0%	0	0.0%	0	0.0%	1	0.6%	1	0.6%
	Primary	3	1.9%	1	0.6%	4	2.6%	5	3.2%	13	8.4%
	Secondary	6	3.9%	12	7.8%	18	11.7%	9	5.8%	45	29.2%
	Collage↑	37	24.0%	35	22.7%	15	9.7%	8	5.2%	95	61.7%
	Total	46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%
Occupation	House Keeper	17	11.0%	21	13.6%	22	14.3%	13	8.4%	73	47.4%
	Students	15	9.7%	10	6.5%	8	5.2%	4	2.6%	37	24.0%
	Employee	13	8.4%	16	10.4%	6	3.9%	4	2.6%	39	25.3%
	Retired	0	0.0%	0	0.0%	0	0.0%	1	0.6%	1	0.6%
	Free work	1	0.6%	1	0.6%	1	0.6%	1	0.6%	4	2.6%
	Total	46	29.9%	48	31.2%	37	24.0%	23	14.9%	154	100.0%

Table (4). Distribution of the Sample according to the levels of Self-esteem at Baseline

Levels of Self-esteem									
Very High		High		Intermediate		Low		Total	
No.	%	No.	%	No.	%	No.	%	No.	%
19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%

Table (5) Distribution in levels of Self-esteem according to demographic characteristics of the sample at Baseline

		Levels of Self-esteem									
Demographics		Very High		High		Intermediate		Low		Total	
No.		%	No.	%	No.	%	No.	%	No.	%	
Gender	Female	16	10.4	27	17.5	63	40.9	24	15.6	130	84.4
	Male	3	1.9	6	3.9	13	8.4	2	1.3	24	15.6
	Total	19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%
Age	≤19	3	1.9	3	1.9	3	1.9	4	2.6	13	8.4
	20-29	10	6.5	16	10.4	35	22.7	11	7.1	72	46.8
	30-39	4	2.6	9	5.8	18	11.7	4	2.6	35	22.7
	40-41	2	1.3	4	2.6	16	10.4	6	3.9	28	18.2
	≥50	0	0.0	1	0.6	4	2.6	1	0.6	6	3.9
	Total	19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%
Marital Status	Married	8	5.2	20	13.0	37	24.0	10	6.5	75	48.7
	Single	9	5.8	13	8.4	31	20.1	12	7.8	65	42.2
	Divorced	1	0.6	0	0.0	2	1.3	2	1.3	5	3.2
	Widowed	1	0.6	0	0.0	6	3.9	2	1.3	9	5.8
	Total	19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%
Level of Education	Illiterate	0	0.0	0	0.0	0	0.0	1	0.6	1	0.6
	Primary	0	0.0	1	0.6	10	6.5	2	1.3	13	8.4
	Secondary	7	4.5	12	7.8	16	10.4	10	6.5	45	29.2
	Collage↑	12	7.8	20	13.0	50	32.5	13	8.4	95	61.7
	Total	19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%
Occupation	House Keeper	12	7.8	15	9.7	32	20.8	14	9.1	73	47.4
	Students	3	1.9	8	5.2	23	14.9	3	1.9	37	24.0
	Employee	4	2.6	9	5.8	18	11.7	8	5.2	39	25.3
	Retired	0	0.0	1	0.6	0	0.0	0	0.0	1	0.6
	Free work	0	0.0	0	0.0	3	1.9	1	0.6	4	2.6
	Total	19	12.3%	33	21.4%	76	49.4%	26	16.9%	154	100.0%

Table 6. Association between demographic characteristics and body image, self-esteem and psychological.

Studied Variables						
Domains	Body Image			Self-esteem		
Demographics	² ×	df	<i>p-value</i>	² ×	df	<i>p-value</i>
Gender	2.6	1	0.5	1.53	1	0.7
Age	9.9	4	0.6	8.92	4	0.7
Marital Status	8.5	3	0.5	7.62	3	0.6
Level of Education	32.2	3	0.01	13.9	3	0.1
Occupation	14.1	4	0.3	11.4	4	0.5
Income	14.1	3	0.1	13.4	3	0.2
Type of Surgery	8.4	3	0.5	7.8	3	0.6
Residency	3.0	1	0.4	1.5	1	0.7

CONCLUSION

The study concluded that Clients seeking cosmetic Surgery have moderate and severe level of Body Image and self-esteem. A significant association was found between body image and psychological distress, also the study indicated that significant association with level of education and body image, occupation and self-esteem (p -value= 0.05).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under College of Nursing, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Risk Factors Associated with Epilepsy among Children in Al-Najaf Province: A Case Control Study

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ABSTRACT

Epilepsy is a most common neurological disorder related to abnormal electrical activity in the brain. This study aimed to identify risk factors associated with epilepsy among children. A descriptive case-control study was adopted in order to achieve the stated objectives. The study began from October 8th 2017 until September, 3rd 2018. A descriptive case-control study, Non-Probability (a Purposive Sample) of (100) Children with epilepsy as case group, and (100) healthy children without epilepsy as control group. Reliability of instrument is determined by the use of Cronbach Alpha, and the Validity of questionnaires were determined through a panel of experts. The data are analyzed through the use of the descriptive and inferential statistics. This study revealed that most children aged (10-12) years and most of those were males. Most of children were from urban residential area. There was a significant and high significant association between epilepsy and most of the factors involved in this study.

Key words: Risk factor, Epilepsy, children.

INTRODUCTION

Epilepsy defined as a chronic neurological disease is described as an abnormal electrical activity in the brain that leading to seizure and requires regular and prolonged anti epileptic drugs ¹ P Epilepsy affects About 70 million peoples of all ages worldwide ². The higher incidence/prevalence relates to more acquired brain disease through high rates of meningitis, encephalitis, head injury, etc. In Arab countries, the estimated prevalence of epilepsy in children ranges from 3.6 to 10.5/1000, depending on the age brackets subject ³. The incidence of epilepsy in European regions 4.5 - 5.0 / 1000 and the annual incidence rate is estimated to 70/100 000 (4). In Iraq, Baghdad, the preschool age children were 152 (82 . 16 %) of children and 33 (17 . 83 %) were at school age children, the prevalence of epilepsy is more in preschool age children ⁵. According to Iraqi Ministry of Health Statistic in Baghdad, epilepsy is an increasingly health problem and the numbers of patients were raised in the

last years up to risen average in 2011, in the same year the number of patients who admitted to Iraqi Hospitals in 1991 was 898 and this number was increased to 4409 in 2011. In Iraq, the prevalence of epilepsy in Baghdad city was 8.2/1000 this result is near to the results of prevalence carried out in World Health Organization reports in 2001 ⁶. In Al Najaf City, the incidence rate of epilepsy represents 18 per 100000/year ⁷. The risk (etiologic) factors of epilepsy in pediatrics patients are different from the risk factors that cause epilepsy in the elderly or in those were epilepsy occur latter in their life not in childhood period this due to in children many risk factors may occurs and can cause epilepsy such as asphyxia, and CNS infections and neurological impairment, history of FS, head injury ⁸. Many factors may predispose a child to epilepsy as head trauma, brain tumor and metabolic disorders such as hypoglycemia, Other anticipated causes are some medications, toxicity and infection ⁹.

METHODOLOGY

Design of the Study: A descriptive case-control study was adopted in order to achieve the stated objectives. The study began from October 8th 2017 until

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September, 3rd 2018. A Non-Probability (a Purposive Sample) of (100) Children with epilepsy as case group, and (100) healthy children without epilepsy as control group; both epileptic and healthy children are involved in the sample of study. The study instrument is constructed by the researcher to assess the risk factors of epilepsy. The instrument of study consists of (2) parts: Part 1 Demographic Characteristics consists of demographic characteristics of the child . Part 2 Factors related to child. This part consists of 1- Factors related to Perinatal period. 2- Factors related to Postnatal period (Neonatal complications). 3- Factors related to child health.

Statistical Analysis

Descriptive data analysis includes tables (Frequencies, and Percentages) and

Inferential Data Analysis includes Chi-square test is used for testing the difference between study and control group.

RESULTS AND DISCUSSION

Table (1) shows that the child age (10-12) years is (40%) for both the study and control groups. Gender , males (58%) were for the study and control groups while females were (42%) for the study and control groups. Child ranking between sibling of the study group high percentages: first, about (26%) and the control group with the high percentages to be second, about (25%). Residence was (63%) for the study group and (96%) for the control group were urban. Educational status was (56%) for the study group (illiterate) and (72%) for the control group (continuous in primary school). Type of child hobbies was (37%) for the study group and (33%) for the control group (no hobbies) and (33%) for the control group (TV watching). There is a high significant association between the epilepsy occurrence and child residence, educational status and type of hobbies. While there is a non- significant association with the others demographic data. Table (1) shows that there is a high significant association between epilepsy occurrence place of birth. There is a significant association with presentation at delivery , mode of delivery and congenital anomalies. A Non- significant association between epilepsy and other factors related to perinatal period. Table (2) shows that there is a high significant association between epilepsy occurrence and asphyxia , prematurity, jaundice, seizure, and anemia. There is a significant association between epilepsy and neonatal

hypoglycemia

Table (3) shows that there is a high significant association between epilepsy occurrence and febrile seizure, cerebral palsy, meningitis, ADHD, psychomotor retardation, mental retardation, head trauma and exposure to domestic violence. In additions there is a significant association with brain tumor, anemia and intake toxic substance. A Non significant association between epilepsy and other factors related to child health . The child age for both the study and control groups show high percentage in (10-12)years. This result matches the result of Jyoti *et al.*, 2015, in their study the majority of epileptic children were belonged to age group of 10-12 years. In addition, the child gender for the study and control group male more than female (58- 42)% respectively. This result supported by the result of Daoud *et al.*, 2003, in their study that the males were more than females. There is a high significant association between residence and epilepsy. This result is in agreement with Asadi-pooya and Hojabri, 2005, in their study who found that the residence was among the risk factors of epilepsy, especially in rural areas. Concerning child educational status, there is a high significant association with epilepsy. This result agree with Burton *et al.*, 2012, in their result who found that epilepsy was strongly associated with poor scholastic attainment. Epilepsy affects on learning and causes learning difficulties. Concerning child type of hobbies, there is a high significant association with epilepsy. This result agrees with the result of Panayiotopoulos, 2010, who mentioned that children playing video games, watching television, and natural flickering light are at the risk of seizure occurrence. Table (1) shows there is there is a significant association between the presentation at delivery and epilepsy. This result disagrees with the result of whitehead *et al.*, 2006, in their study who found a Non significant relationship between epilepsy and presentation of baby at delivery. There is a significant association between mode of delivery and epilepsy. This result is supported by Asadi-pooya and Hojabri, 2005, in their study who reported that NVD increased the risk of epilepsy development slightly while many other studies maintained that C/S was significantly associated with occurrence of seizure . The forceps delivery was found to increase the risk of epilepsy in another studies. The place of birth has a high significant association with epilepsy. This result is in agreement with the result of Mansy *et al.*, 2012, in their study who found that the

place of birth (home delivery) increased the risk of developing epilepsy. There is a significant association between epilepsy and congenital anomalies. This result is supported by whitehead *et al.*, 2006, in their study who found that children with congenital anomalies (CNS anomalies) were at higher risk of developing epilepsy. Concerning the neonatal complications table (4.2.2), there is a high significant association between asphyxia, prematurity and epilepsy. These results disagrees with the results of Asadi-pooya and Hojabri, 2005, in their study reported that the asphyxia, and prematurity (neonatal complications) not significantly associated with the epilepsy occurrence. About neonatal jaundice, there is a high significant association with epilepsy. This result confirmed the result of Cansu,

et al., 2007, in their study who found that neonatal jaundice increased the risk of epilepsy development. Regarding the neonatal seizure, there is a high significant association with epilepsy. This result comes along with whitehead *et al.*, 2006, in their study who found that the highest relative risk for childhood epilepsy was associated with neonatal seizure. Regarding to table (3) there is a high significant association between epilepsy and febrile seizure. This result agrees with Cansu *et al.*, 2007, in their study who reported that febrile seizure was found to be highly correlated with epilepsy development. In addition, there is a significant association between intake toxic substance and epilepsy. This result is supported by Sharma and Hoffman, 2011, who studied the toxin related seizure and found that the toxicity of high dose of some drugs affects brain and made seizure.

Table (1): Factors related to child and the association with epilepsy occurrence: factors related to perinatal period:

Items	Rating and intervals	Study		Control		Chi-Square	P-value (Sig.)
		Freq.	%	Freq.	%		
Type of gestation	Single	97	97	100	100	3.046	0.081 (NS)
	Twin & more	3	3	0	0		
Presentation at delivery	Vertex	80	80	92	92	6.413	0.040 (S)
	Breech	15	15	7	7		
	Others (transverse)	5	5	1	1		
Mode of delivery	Normal delivery	67	67	85	85	9.281	0.010 (S)
	Caesarian section	32	32	15	15		
	Forceps vaginal delivery	1	1	0	0		
Place of birth	Hospital	86	86	99	99	12.180	0.0001 (HS)
	Home delivery	14	14	1	1		
Coiling of umbilical cord	Yes	4	4	1	1	1.846	0.174 (NS)
	No	96	96	99	99		
Trauma during delivery	Yes	2	2	0	0	2.020	0.155 (NS)
	No	98	98	100	100		
Congenital anomalies	Yes	5	5	0	0	5.128	0.024 (S)
	No	95	95	100	100		

Table (2) Demographic Characteristics of Study Sample and the association with epilepsy occurrence

Demographic data	Rating and intervals	Study group		Control group		Chi-Square	P-value (Sig.)
		Freq.	%	Freq.	%		
Child Age / years	1--3	6	6	6	6	0.000	1.000 (NS)
	4--6	27	27	27	27		
	7--9	27	27	27	27		
	10-12	40	40	40	40		
Gender	Male	58	58	58	58	0.000	1.000 (NS)
	Female	42	42	42	42		

Cont... Table (2) Demographic Characteristics of Study Sample and the association with epilepsy occurrence

Child ranking between sibling	First	26	26	23	23	7.827	0.451 (NS)
	Second	21	21	25	25		
	Third	24	24	15	15		
	Fourth	16	16	16	16		
	Fifth & more	13	13	11	11		
Residence	Rural	37	37	4	4	33.410	0.0001 (HS)
	Urban	63	63	96	96		
educational status	Illiterate	56	56	25	25	24.703	0.0001 (HS)
	Interrupted from primary school	7	7	3	3		
	Continuous in primary school	37	37	72	72		
Type of child hobbies	Computer and mobile games	34	34	16	16	18.253	0.0001 (HS)
	TV Watching	26	26	33	33		
	Play football	3	3	18	18		
	No hobbies	37	37	33	33		

Table (3): factors related to postnatal period (Neonatal complications) and the association with epilepsy

Items	Rating and intervals	Study		Control		Chi-Square	P-value (Sig.)
		Freq.	%	Freq.	%		
Asphyxia	Yes	37	37	0	0	45.399	0.0001 (HS)
	No	63	63	100	100		
Prematurity	Yes	16	16	3	3	9.828	0.002 (HS)
	No	84	84	97	97		
Jaundice	Yes	79	79	27	27	54.275	0.0001 (HS)
	No	21	21	73	73		
Seizure	Yes	17	17	0	0	18.579	0.0001 (HS)
	No	83	83	100	100		
Anemia	Yes	7	7	0	0	7.254	0.007 (HS)
	No	93	93	100	100		
Hypoglycemia	Yes	5	5	0	0	5.128	0.024 (S)
	No	95	95	100	100		

Table (4): Factors related to child health and the association with epilepsy occurrence:

Items	Rating and intervals	Study		Control		Chi-Square	P-value (Sig.)
		Freq.	%	Freq.	%		
Febrile seizure	Yes	78	78	0	0	127.869	0.0001 (HS)
	No	22	22	100	100		
Cerebral palsy	Yes	12	12	0	0	12.766	0.0001 (HS)
	No	88	88	100	100		

Cont... Table (4): Factors related to child health and the association with epilepsy occurrence:

Hydrocephalus	Yes	1	1	0	0	1.005	0.316 (NS)
	No	99	99	100	100		
Encephalitis	Yes	2	2	0	0	2.020	0.155 (NS)
	No	98	98	100	100		
Meningitis	Yes	23	23	0	0	25.989	0.0001 (HS)
	No	77	77	100	100		
Brain tumor	Yes	4	4	0	0	4.082	0.043 (S)
	No	96	96	100	100		
Attention deficit hyperactivity disorder	Yes	21	21	0	0	23.464	0.0001 (HS)
	No	79	79	100	100		
Psychomotor retardation	Yes	41	41	1	1	48.222	0.0001 (HS)
	No	59	59	99	99		
Mental retardation	Yes	20	20	0	0	22.222	0.0001 (HS)
	No	80	80	100	100		
Diabetes mellitus	Yes	3	3	0	0	3.046	0.081 (NS)
	No	97	97	100	100		
Anemia	Yes	40	40	25	25	5.128 (1)	0.024 (S)
	No	60	60	75	75		
Head trauma	Yes	49	49	1	1	61.440	0.0001 (HS)
	No	51	51	99	99		
Intake toxic substance	Yes	5	5	0	0	5.128	0.024 (S)
	No	95	95	100	100		
Exposure to domestic violence	Yes	37	37	19	19	8.036	0.005 (HS)
	No	63	63	81	81		
Exposure to car accident	Yes	6	6	2	2	2.083	0.149 (NS)
	No	94	94	98	98		

CONCLUSION

The study conclude that among the risk factors associated with epilepsy for the present study were child residency, place of birth, presentation at delivery , mode of delivery , congenital anomalies, neonatal complications (asphyxia , prematurity, jaundice, seizure, anemia , hypoglycemia) , febrile seizure, cerebral palsy, meningitis, ADHD, psychomotor retardation, mental retardation, head trauma and exposure to domestic violence, brain tumor, anemia and intake toxic substance.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Pediatric health Nursing, Faculty of Nursing, University of Kufa and all experiments were carried out in accordance with approved guidelines.

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Self – Efficacy of Sickle- Cell Anemic Adult Patients at Blood Disease Wards in Baghdad Teaching Hospitals

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ABSTRACT

Objectives of the study: To assess the self-efficacy of patients with sickle – cell anemia at blood disease wards in Baghdad Teaching hospital. - To find out the association of some demographical characteristics of the sample with self-efficacy. A descriptive design of study was carried out, for the period 1st Oct, 2017 – 15th of May, 2018, to identify the self – efficacy of sickle cell patients, A 40 patients was participate at the study. The setting was Baghdad Teaching Hospital, Ghazi –Al Hariri Teaching Hospital IBN-Al Belady teaching hospital. The result of the study showed that most of the sample were female at age of 26-29 , with level of education mediterren only, not married, student, the 4th was there family ranking& they were frequently hospitalized because of they affected from disease before 10 years. Also the participant of the research experience very poor self- efficacy at most of the items, while there was statistical significant association between gender, which present Male participants have a better self-efficacy of activity of daily living than female participants of activity of daily living, level of education, age, family ranking & financial social status.

Key words: *Patients, Baghdad Teaching Hospitals, Sickle- Cell Anemic.*

INTRODUCTION

Sickle cell disease (SCD) is an inherited blood disorder affecting predominantly persons of African descent ¹⁻³. Diagnosis of SCD is typically made at birth during newborn screening. Disease management focuses on pain, hydration, and preventing infections and other complications that result in vaso-occlusive crises ⁴.

Sickle cell disease (SCD) represents a group of serious inherited blood disorders associated with acute and chronic morbidity, recurrent unpredictable and unrelenting episodes of pain, increased risk of infection, stroke, organ damage and other debilitating complications ⁵. The Sickling of the cells causes impaired blood circulation which results in pain. This is the most common complication of sickle cell disease. It can begin as early as infancy and can happen unpredictably

throughout life ⁶. Hematopoietic stem cell transplantation has shown promising outcomes, particularly when donors are human leukocyte antigen (HLA) matched siblings; however, older age (transplantation has optimal outcomes during childhood) and advanced disease are associated with poor transplant outcomes ⁷. The pain may be mild, moderate, or severe, and has been described as sharp, throbbing, stabbing, deep, achy, lacerating, or shooting ⁵.

METHODOLOGY

A descriptive analytic design of study was carried out, for the period 1st Oct, 2017 – 15th of May, 2018, to assess the self – efficacy of sickle cell patients, A 40 patients was participate at the study. The setting was Baghdad Teaching Hospital, Ghazi –Al Hariri Teaching Hospital IBN-Al beldy teaching hospital. Administrative and ethical agreements In order to conduct the study, the researcher first must get the approval of the council of Nursing College for the study and submitted a detailed description including the objectives of the study to the Ministry of Health in Iraq (Department of Planning / Health research suction) and the obtain an official

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permission to carry out the study, The consent form facilitated having access to the hospital facilities, as well as meeting, once written permission was given by the patients for their participation in the study. The study instrument was composed of two parts, the first part was socio- demographical information & clinical characteristics consist of 15 items which include gender, age, level of education, occupation, health Status & other items. The second part was the scale to measure the self- efficacy with some modification to be adapted the sickle- cell Iraq- patients & it was consisted of 31 items. The self –efficacy scale was rated & scored by assigning each sickle- cell adult patients response an ordinal value, three levels options (sure, some sure never). The validity of the questionnaire was determined through a panel of (15) expert. The reliability of the present study instrument was determined by Test-Retest, the result was coefficients for the patients ($r=86$). Data were analyzed through the application of descriptive & inferential data analysis approach by using SPSS version 20.

RESULTS AND DISCUSSION

Table -1- Most of study participants are females ($n = 24$; 60.0%), More than a third are within the age group of (22-25) years-old ($n = 14$; 35.0%), they were at high school graduate ($n = 11$; 27.0%), followed by those who are middle school graduates ($n = 10$; 25.0%), those who are both elementary school graduate and hold a bachelor's degree ($n = 6$; 15.0%), and those who are unable to read and write ($n = 3$; 7.5%). More than a half are married ($n = 22$; 55.0%), followed by those who are married ($n = 12$; 30.0%), those who are divorced ($n = 5$; 12.5%). Less than a third are students ($n = 12$; 30.0%), followed by those who are self-employed ($n = 11$; 27.5%), those who are out of work ($n = 8$ 20.0%), those who are officers ($n = 5$; 12.5%), and those who are housewives ($n = 4$; 10.0%). Concerning patients' birth rank order, more than a quarter came in the fifth rank ($n = 11$; 27.5%), followed by those who came in the fourth rank ($n = 10$; 25.0%), those who came in the third rank ($n = 7$; 17.5%), those who came in the sixth rank ($n = 4$; 10.0%), those who came in the first rank ($n = 2$; 5.0), and one participant who came in the seventh rank ($n = 1$; 2.5%). Less than a half reported that their father is the affected person ($n = 18$; 45.0%), followed by mothers ($n = 11$; 27.5%), relatives ($n = 6$; 15.0%), and both parents ($n = 5$; 12.5%). Regarding health status, the health of the majority are fair ($n = 32$; 80.0%), followed by those who have poor health ($n = 6$; 15.0%), and those who have

good health ($n = 2$; 5.0%). More than two-fifth reported that they are hospitalized (4-6) times per year ($n = 17$; 42.5%), followed by those who are hospitalized (1-3) times ($n = 14$; 35.0%), those who are hospitalized (4-6) times ($n = 7$; 17.5%), and those who are hospitalized (10-12) times ($n = 2$; 5.0%). All patients reported that they have been treated for more than 10 years ($n = 40$; 100.0%). The majority reported that they are not alcoholics ($n = 36$; 90.0%), most are non-smokers ($n = 27$; 67.5%), and most have fair self-efficacy ($n = 27$; 67.5%). Table -2- Participants experience very poor self-efficacy in the items 24, 19, 12, 30, 27, 25, 18, 23, 1, 4 (Mean [SD] = $1.18 \pm .38$, $1.38 \pm .62$, $1.58 \pm .71$, $1.80 \pm .64$, $1.82 \pm .50$, $1.88 \pm .68$, $1.90 \pm .63$, $1.95 \pm .45$, $1.98 \pm .42$, $2.02 \pm .53$) respectively. Table presented, There is a statistically significant difference, of Male participants have a better self-efficacy of activity of daily living than female participants of activity of daily living between gender groups (Mann-Whitney $U = .500$, p -value = .000). Table presented that there is a statistically significant difference between Participants who were within the age group of (18-21) years-old have a better self-efficacy than those who were within the age group of (22-25) years-old, those who were within the age group of (26-29) years-old, and those who were within the age group of (30-33) years-old. Participants' self-efficacy of activity of daily living among age groups (Chi-square = 33.016, $df = 3$, p -value = .000). There is a statistically significant difference in participants', who were unable to read and write have a better self-efficacy than those who were elementary school graduates, those who were middle school graduates, those who were high school graduates, those who hold a bachelor's degree, and those who have other educational qualification. Self-efficacy of activity of daily living among the level of education groups (Chi-square = 36.481, $df = 5$, p -value = .000). Participants who were singles have a better self-efficacy than those who were married, those who were widowed, and those who were divorced, There is a statistically significant difference in participants' self-efficacy of activity of daily living among the marital status groups (Chi-square = 27.579, $df = 3$, p -value = .000). Demographical & clinical characteristics of the sample, the result of the study demonstrated that majority of the sample were female at age group of (22-25) years-old, level of education graduated from elementary school, self-employee, More than two-fifth reported that they are hospitalized (4-6) times per year (42.5%), followed by those who are hospitalized (1-3) times (35.0%),

those who are hospitalized (4-6) times (17.5%), and those who are hospitalized (10-12) times (5.0%). All patients reported that they have been treated for more than 10 years (100.0%). The majority reported that they are not alcoholics (90.0%), most are non-smokers (n = 27; 67.5%), and most have fair self-efficacy (67.5%). Sickle cell disease (SCD) represents a group of serious inherited blood disorders associated with acute and chronic morbidity, recurrent unpredictable and unrelenting episodes of pain, increased risk of infection, stroke, organ damage and other debilitating complications.

Table 1. Distribution of the demographical& clinical characteristics of Participants.

Variables	Frequency	Percent
Gender		
Male	16	40.0
Female	24	60.0
Total	40	100
Age (Years)		
18-21	8	20.0
22-25	14	35.0
26-29	12	30.0
30-33	6	15.0
Total	40	100
Educational Level		
Unable to read and write	3	7.5
Elementary school graduate	6	15.0
Middle school graduate	10	25.0
High school graduate	11	27.0
Bachelor's degree	6	15.0
Other	4	10.0
Total	40	100
Marital Status		
Single	22	55.0
Married	12	30.0
Widowed	1	2.5
Divorced	5	12.5
Total	40	100
Occupation		
Student	12	30.0
Officer	5	12.5
Self-employed	11	27.5
Out of work	8	20.0
Housewife	4	10.0
Total	40	100
Variables	Frequency	Percent
Family Members		
Three	4	10.0
Four	11	27.5
Five	14	35.0
Six	7	17.5
Seven	3	7.5
Eight	1	2.5
Total	40	100

Cont... Table 1. Distribution of the demographical& clinical characteristics of Participants.

Patient's birth rank order		
First	2	5.0
Second	5	12.5
Third	7	17.5
Fourth	10	25.0
Fifth	11	27.5
Sixth	4	10.0
Seventh	1	2.5
Total	40	100

Table 2. Distribution of Participants' Self-Efficacy responses.

Items	Always	Sometimes	Never	Mean (SD)	Assess.
How sure are you that you can do something to cut down on most of the pain?	3 (7.5%)	33 (82.5%)	4 (10.0)	1.98 ± .42	Fair
How sure are you that you can keep doing most of the things you do day-to-day?	15 (37.5%)	23 (57.5%)	2 (5.0%)	2.32 ± .57	Fair
How sure are you that you can keep sickle cell disease pain from interfering with your sleep	9 (22.5%)	28 (70.0%)	3 (7.5%)	2.15 ± .53	Fair
How sure are you that you can reduce your sickle cell disease pain by using methods other than taking medication	6 (15.0%)	29 (72.5%)	5 (12.5%)	2.02 ± .53	Fair
How sure are you that you can control how often or when you get tired?	7 (17.5%)	32 (80.0%)	1 (2.5%)	2.15 ± .42	Fair
How sure are you that you can do something to help yourself feel better if you are feeling sad or blue?	13 (32.5%)	24 (60.0%)	3 (7.5%)	2.25 ± .58	Fair
As compared with other people with sickle cell disease, how sure are you that you can manage your life from day-to-day?	21 (52.5%)	19 (47.5%)	0 (0.0%)	2.52 ± .50	Good
How sure are you that you can manage your sickle cell disease symptoms so that you can do the things you enjoy doing?	11 (27.5%)	28 (70.0%)	1 (2.5%)	2.25 ± .49	Fair
How sure are you that you can deal with the frustration of having sickle cell disease?	8 (20.0%)	29 (72.5%)	3 (7.5%)	2.12 ± .51	Fair
How sure are you that you can marry and make a family?	27 (67.5%)	13 (32.5%)	0 (0.0%)	2.68 ± .47	Good
How sure are you that you can get a job?	11 (27.5%)	27 (67.5%)	2 (5.0%)	2.22 ± .53	Fair
How sure are you that you can be in high places?	5 (12.5%)	13 (32.5%)	22 (55.0%)	1.58 ± .71	Poor
How sure are you that you can keep a balanced nutrition system?	19 (47.5%)	16 (40.0%)	5 (12.5%)	2.35 ± .70	Good
How sure are you that you can be away of dehydration?	33 (82.5%)	7 (17.5%)	0 (0.0%)	2.82 ± .38	Good
Items	Always	Sometimes	Never	Mean (SD)	Assess.
How sure are you that you can keep yourself calm (not feel with cold)?	35 (87.5%)	5 (12.5%)	0 (0.0%)	2.88 ± .33	Good
How sure are you that you Can walk?	40 (100.0%)	0 (0.0%)	0 (0.0%)	3.00 ± .00	Good

Cont... Table 2. Distribution of Participants' Self-Efficacy responses.

How sure are you that you can run?	11 (27.5%)	27 (67.5%)	2 (5.0%)	2.22 ± .53	Fair
How sure are you that you can do sports or exercise?	6 (15.%)	24(60.0%)	10 (25.0%)	1.90 ± .63	Fair
How sure are you that you can left heavy things?	3 (7.5%)	9 (22.5%)	28 (70.%)	1.38 ± .62	Poor
How sure are you that you can take bath or shower?	38 (95.0%)	2 (5.0%)	0 (0.0%)	2.95 ± .22	Good
How sure are you that you can do chores around house?	15 (37.5%)	24 (60.0%)	1 (2.5%)	2.35 ±.53	Good
How sure are you that you can doing things other peers do?	13 (32.5%)	27 (67.5%)	0 (0.0%)	2.32 ± .47	Fair
How sure are you that you Have low energy?	3 (7.5%)	32 (80.%)	5 (12.5%)	1.95 ± .45	Fair
How sure are you that you Feel afraid or scared?	0 (0.0%)	7 (17.5%)	33 (82.5%)	1.18 ± .38	Poor
How sure are you that you Feel sad or blue?	7 (17.5%)	21 (52.5%)	12 (30.0%)	1.88 ± .68	Fair

Table 3.association of sample self-efficacy response & gender groups;

	Ranks				Mann-Whitney U	Asymp. Sig.
	Gender	N	Mean Rank	Sum of Ranks		
Self-Efficacy	Male	16	32.47	519.50	.500	.000
	Female	24	12.52	300.50		
	Total	40				

Table 4. Association of sample response of self-efficacy among age groups:

	Ranks			Chi-Square	Df	Asymp. Sig.
	Age	N	Mean Rank			
Self-Efficacy	18-21 years	8	36.50	33.016	3	.000
	22-25 years	14	24.32			
	26-29 years	12	13.75			
	30-33 years	6	3.75			
	Total	40				

Table 5. Difference in self-efficacy among the level of education groups:

	Ranks			Chi-Square	df	Exact Sig.
	Educational Level	N	Mean Rank			
Self-Efficacy	Unable to read and write	3	37.00	36.481	5	.000
	Elementary school graduate	6	35.50			
	Middle school graduate	10	26.30			
	High school graduate	11	15.82			
	Bachelor's degree	6	8.17			
	Other	4	2.50			
	Total	40				

Table 6. Difference in self-efficacy among the marital status groups:

Ranks				Chi-Square	df	Exact. Sig.
	Marital Status	N	Mean Rank			
Self-Efficacy	single	22	28.75	27.579	3	.000
	married	12	13.75			
	widowed	1	7.50			
	divorced	5	3.00			
	Total	40				

CONCLUSION

More than a third of study participants are within the age group of (22-25) years-old & within the age group of (26-29) years, were female, The result of the study showed that most of the sample were female at age of 22-25, with level of education meditreneh only, not married, student, the 4th was there family ranking& they were frequently hospitalized because of they affected from disease before 10 years.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Pediatric Health Nursing Department, College of Nursing, University of Baghdad, Baghdad city, Iraq and all experiments were carried out in accordance with approved guidelines.

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Study and Identification of Parasites (Protozoa) in Sampled in Filtered Water of Baghdad

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ABSTRACT

In spite of promotion of people's hygiene in the recent years, parasitic infection problems are present in many parts of the world especially in tropical and subtropical areas. Water is one of the major sources for acquiring parasitic infections, especially protozoan parasites, This study was conducted to evaluate the present parasitic agents in filtrated water in the Baghdad. The study included the taking of 120samples (filter water) from the Baghdadfor a specific period in 2018 (to investigate the spread of *all parasite*)by using the iodine stain to detect stages of parasites, the study showed that the no found any type of parasites in the filter water which showed this result no significant differences ($p<0.01$).

Key words: Parasites, Protozoa, filtered water

INTRODUCTION

Safe potable drinking water is vital to human life and its quality is of great public concern, not only to the consumers, but also to water suppliers and authorities. World Health Organization/United Nations Children's Fund (WHO/UNICEF)¹ stated that an estimated 1.1 billion people do not have access to improved water supplies². Moreover, Clasen and Bastable³ reported hundreds of million people consumed water that was contaminated during collection, transport and storage. Surface water (i.e., rivers, lakes, reservoirs, and basins) and groundwater are the two main sources of water supplies. Numerous studies have been conducted globally to investigate the quality of untreated (lake water) and treated (municipal water) water supplied to the consumers. The supply of safe drinking water is crucial and it requires multiple barriers to prevent the entry and transmission of pathogens. Water supplies are routinely checked to ensure that water is safe for consumption via water treatment processes that include a series of treatment processes (e.g., coagulation, flocculation, clarification through sedimentation, filtration and

disinfection) that help in the reduction of microorganisms that pose threat to public health. The increasing world population coupled with industrialization and urbanization will have serious impact on the availability of safe drinking water supply, hence, contributing to a rapid growth in waterborne disease outbreaks⁵⁻⁷. The possibility of contaminated drinking water affecting large number of people has been reported and has caused various health hazards, and may lead to major illnesses. A review done by Karanis et al. reported that *Giardia duodenalis* and *Cryptosporidium parvum* accounted for a majority of outbreaks worldwide with 40.6% and 50.8%, respectively, followed by other protozoan parasites such as *Entamoeba*, *Cyclospora*, *Toxoplasma*, *Isospora*, *Blastocystis* and *Balantidium*. Both *Giardia* and *Cryptosporidium* are parasitic intestinal protozoa, transmitted via fecal-oral route, which cause giardiasis and cryptosporidiosis, respectively. They remain public health concerns, as demonstrated by continued outbreaks⁹⁻¹⁵. Webb reported that four members of a group of 22 travellers from Kansas, USA were confirmed with giardiasis and two probable cases were identified while travelling to a resort in Mexico whilst a recent outbreak caused by cryptosporidiosis occurred in Germany following an extreme river flooding with 24 cases being notified. In addition, several studies have also documented outbreaks caused by free-living amoebae (FLA) such as *Acanthamoeba* and *Naegleria* that are

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mostly found in the environment 18 and can be isolated from soil, air, water, dust, sewage and sediments ¹⁹. There have been numerous studies conducted throughout the world on waterborne parasites and FLA taken from environmental samples such as rivers, lakes and other recreational areas including samples from wastewater. However, limited studies are available in drinking water treatment plants. In Malaysia, previous studies documenting on the occurrence of protozoan parasites, specifically, Giardia and Cryptosporidium, in drinking water treatment plants were reported by Ahmad et al. and Tan . Meanwhile, no studies have been carried out on free-living amoebae. Furthermore, there is a scarcity of information regarding drinking water quality in East Malaysia, especially in Sarawak and Sabah. The aim of this study is to determine the occurrence of waterborne parasites (Giardia and Cryptosporidium) and free-living amoebae in drinking water at various processing sites of drinking water treatment plants in. Qualitative data on the detection of fecal coliform and other parasites were also collected to improve understanding on the types of microbial contamination in these treatment plants ²¹.

MATERIALS AND METHOD

120 water samples were collected from different sources of the studied area (filter water). The samples were examined by routine parasitology methods using light microscopy., used Iodine stain to detection the parasite. Dilute Lugol’s Iodine 1:5 with sterile de-ionized water. (This working solution should be prepared fresh approximately every 3 weeks), Prepare a direct smear of the specimen, Place a coverslip over the sample and examine the wet mount preparation for the presence of motile protozoa. The organisms are very pale and transparent and are more easily observed under low light intensity, Once the wet mount has been thoroughly examined, a drop of Lugol’s Iodine (working solution) can be placed at the edge of the coverslip, or a new mount can be prepared using iodine alone, Examine the slide for the presence of brown parasitic structures ²²⁻²⁴

RESULTS AND DISCUSION

There was no parasitic contamination in all 120 samples from the 120 water-selling stations and treated water, agreement with ²⁵. Parasitic agents were not seen in market supplied water because of appropriate filter techniques agreement with ^{26,27}. Drinking water treatment plant plays a key role in providing safe drinking water to consumers and the findings from this study will give us

an insight on the water quality as well as processing sites that needs regular monitoring and intervention steps to be taken. Raw water is easily contaminated, thus, drinking water need to be processed in the treatment plant before being distributed. Coagulation and flocculation process is considered an essential component in a treatment plant to assist filtration process to function effectively, hence, able to remove microorganisms as well as other solid matters caused by soil erosion or decaying vegetation ²⁸. Finished water is then placed in a closed tank or reservoir before being distributed. Nonetheless, the multi-barrier system is considered to be the best option to reduce waterborne pathogens in drinking water. However, even though the treatment plant is equipped with proper facilities and technologies, microorganisms may still be able to penetrate through these treatment processes ²¹. Other study showed that the rate of parasitic infections in drinking water is considerably high. The refractory system of water organization should be promoted by using effective disinfect techniques while the reconstruction of pipe water network should be considered. Until the achievement of these goals, personal protection should be done by using house filter systems. Furthermore, to find a seasonal pattern for water contamination, using molecular techniques for precise identification of parasites is recommended ²¹.

Table (1) show the number Parasites in 120 Samples of filter Water

No.	Kind of Sample	Result
1	Filter water	0

Table (2) Parasitic Infection Frequency of filter Water Samples Collected From Treated Water, and Water Selling Stations During 2018

Parasite	Water Selling station or treated water
Entamoebaspp	0
Cryptosporidium spp	0
Giardia spp	0

CONCLUSION

Water quality problems and massive fecal contamination remain unsolved. Therefore studies

of water quality and sanitation should be continually performed in most countries especially in tropical areas with defected water network structures.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Medical Analysis/AL-Bayan University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Attitudes of Male Students Toward Women Violence at University of Kufa

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ABSTRACT

The aims of this study were to assess the degree of violence against women among Kufa University students. It also to identify the relationship between the degree of violence against women and students demographic characteristics of: college, stage, age, residence area, father and mother educational level. A descriptive design a cross sectional study was carried out to assess the degree of violence against women among Kufa University students . The study was conducted from (from medical group colleges (Medicine, Pharmacy and Nursing) and other college January 2017 to March 2017): A disproportional strata randomization sample of (302) student of sciences , jurisprudence and Arts and at University of kufa. The Study Instrument: The scale is derived from a psychological study (psychology of violence against women in the Iraqi society) by Ali Abdul Rahim Saleh. This scale contains a number of positive and negative items (32) that measure the degree of violence towards women. The responses to these items ranging with three alternatives: I agree, I do not know. Disagree. The findings of present study presented that those students have high degree of violence toward women.

Keywords: Students, violence, attitudes.

INTRODUCTION

Violence against women or gender based violence is a very complex, widespread issue and constitutes one of the most serious forms of violation¹. Violence against women is one of the crucial social mechanisms by which women are forced into a subordinate position compared with men². For women aged 15-44 worldwide, acts of violence cause more death and disability than cancer, malaria, traffic accidents, and war combined³. Global estimates published by WHO indicate that about 1 in 3 (35%) of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence in their lifetime⁴. Violence against women affects women everywhere. It impacts women's health, hampers their ability to participate fully in society, Recent studies has shown that women who

have been subjected to violence by their partners have greater chances of having a low birth weight baby, are at much greater risk of depression, and more likely to have an induced abortions⁵

MATERIALS AND DISCUSSION

A descriptive design a cross sectional study was carried out to assess the degree of violence against women among Kufa University students . The study was conducted from (from medical group colleges (Medicine, Pharmacy and Nursing) and other college January 2017 to March 2017).

Study instrument: A disproportional strata randomization sample of (302) student of sciences , jurisprudence and Arts and at University of kufa. The Study Instrument: The scale is derived from a psychological study (psychology of violence against women in the Iraqi society) by Ali Abdul Rahim Saleh. This scale contains a number of positive and negative items (32) that measure the degree of violence towards women. The responses to these items ranging with three alternatives: I agree, I do not know. disagree.

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Statistical analysis: Data were analyzed through the application of the descriptive data analysis approach (frequency and percentage) and the inferential data analysis approach of (Chi Square Test).

RESULTS AND DISCUSSION

Table 1 shows that the majority of sample ranging from 19 - 44 (94.4%). 22.5%.of them were from Arts college.About one third 28.1 of sample in first stage .Majority of them were lived in Najaf 74.2 More than half 58.9 % of sample had fathers and mothers with college graduation. A majority of students had employed mothers and un employed fathers. This analysis reveals that there are significant relationships between the students attitudes of violence toward women and their

sociodemographic characteristics of college and stage. Violence against women is a social phenomenon prevalent in many societies, especially Arab societies. The current study findings showed that college students had a high degree of violence against women that support the need to consider cultural factors to better understand the valuation of traditions and social customs and raising human awareness regarding the dangers of this phenomenon and its disastrous consequences. These results provide a confirmation with⁶ that suggest values within the culture may relate to more specific views about responsibility for partner violence. One of the most consistent predictors of perceptions that support violence against women is gender role attitudes.

Table (1) Distribution of the Study Sample by Their Socio-Demographic Characteristics

Variable	Items	Frequency	Percent
Age	<= 18	15	5.0
	19 – 44	285	94.4
College	Faculty of Medical	50	16.6
	Faculty of Nursing	53	17.5
	Faculty of pharmacist	43	14.2
	Faculty of sciences	46	15.2
	Faculty of Arts	68	22.5
	Faculty of jurisprudence	42	13.9
Stage	First class	85	28.1
	second class	57	18.9
	third class	80	26.5
	fourth class	75	24.8
	fifth class	5	1.7
Provinces	Babylon	13	4.3
	Baghdad	5	1.7
	Basra	2	.7
	Basrah	1	.3
	Dhi Qar	18	6.0
	Diyala	1	.3
	Karbala	6	2.0
	Karbala	2	.7
	Kirkuk	1	.3
	Maysan	3	1.0
	Mosul	3	1.0
	Muthanna	3	1.0
	Najaf	1	.3
	Najaf	224	74.2
Qadisiyah	1	.3	

Table (2) Attitudes of the Study Sample to the overall assessment woman-violence.

Overall assessment of woman-violence			
Assessment	Items	Frequency	Percent
Overall Assessment woman-violence	High degree	210	69.5
	Low degree	92	30.5
	Total	302	100.0

Table (3) Relationship between Socio-Demographic Data with Overall Assessment woman-violence

Socio-Demographic Characteristics	Items	woman-violence		Sig.
		High	Low	
Age	<= 18	12	3	p-value (.421) d.f = 2 NS
	19 – 44	196	89	
	72+	2	0	
COLLEGE	Faculty of Medical	41	9	p-value (.002) d.f = 5 S
	Faculty of Nursing	37	16	
	Faculty of pharmacist	34	9	
	Faculty of social sciences	37	9	
	Faculty of Arts	36	32	
	Faculty of jurisprudence	25	17	
Stage	First class	56	29	p-value (.015) d.f = 5 S
	second class	37	20	
	third class	55	25	
	fourth class	57	18	
	five class	5	0	

CONCLUSION

The study concludes that those students were with high degree of violence. The phenomenon of violence is part of the structure and social systems that have been nurtured by generations from eternity until now.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Community Health Nursing Department, University of Kufa/ College of Nursing, Iraq and all experiments were carried out in accordance with approved guidelines.

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Comparative Study on the Protective Effect of L-Carnitine in Combination with Beta-Carotene against Overdose Acetaminophen Induced Hepatotoxicity and Nephrotoxicity in Adults Male Rats

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ABSTRACT

This study was designed to evaluate the protective effect of exogenous L-carnitine alone and their combination with beta-carotene against acetaminophen (paracetamol) induced hepatic and renal damage in adult male rats. Thirty male rats 175-200 gram, 12-13 weeks old were randomly divided into five equal groups, 6 animals per each as follows: Control group (negative control): received distilled water orally 1ml/kg/day. First treated group (positive control, T1): received paracetamol 500 mg/kg/day I.P for 14 days. Second treated group (T2): received paracetamol 500 mg/kg/day I.P for 14 days and after 1 hours later received L-carnitine orally 500 mg/kg/day. Third treated group (T3): received paracetamol 500 mg/kg/day I.P for 14 days and after 1 hours later received beta-carotene dissolved in olive oil (50%, 1:1v/v) orally 20 mg/kg/ day. Fourth treated group (T4): received paracetamol 500 mg/kg/day I.P for 14 days and after 1 hours later received half a dose above of L-carnitine 250 mg/kg/day + beta-carotene 10 mg/ kg/ day orally. The obtained results illustrated that male rats treated with PCM significantly increase AST, ALT, ALP, MDA, urea, and creatinine.

Key words: L-Carnitine, Beta-Carotene, Paracetamol, Hepatotoxicity, Nephrotoxicity

INTRODUCTION

Acetaminophen (APAP) commonly referred to as paracetamol [N-(4-hydroxyphenyl) acetamide (C₈H₉NO₂)] is a generally used analgesic and antipyretic drug ¹. In overdoses, it recognized a conjugated bond with glucuronic acid or sulphate, an essential component is metabolized by hepatic cytochrome P450 system ². This may be leads to generation of reactive toxic metabolic like N-acetyl p-benzo-quinon imine (NAPQI) interacting with sulfhydryl groups in glutathione (GSH) molecule via covalently binding to vital hpataocellular protein ³. Thus, PCM toxicity is evaluated by generation amount of NAPQI and insufficient GSH ⁴. At high doses with APAP depletes cellular GSH content, resulting

dysfunction, ATP depletion, oxidative stress, DNA damage and necrosis of parenchymal cells ⁵. The overdose of PCM causes severe toxicity in liver and kidney which may lead to death ⁶. Several studies reported that declines levels in antioxidant enzyme and increases in formation of reactive oxygen species (ROS) are detected due to PCM-induced tissue damage ⁷⁻⁹. However, PCM overdose is the mainly repeated source of severe liver injury in the world and has a mortality rate of 90% ¹⁰. L-carnitine (γ -three methyl amino- β -hydroxyl fatty acid) is an antioxidant agent endogenously synthesized mainly in liver and kidney from amino acid lysine and methionine in body ^{11,12}. It is an important cofactor in mitochondrial respiratory chain, play an imperative role in transport of long chain fatty acids from cytosol to the mitochondria, where they oxidized to produced ATP and reduce toxicity induced by accumulation of LCFAs ¹³. Initially, carnitine and acyl-CoA form acylcarnitine in outer mitochondrial membrane ¹⁴. Therefore, acyl groups may well be transported from cytosolic CoA to

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mitochondrial membrane by replace with free carnitine with an antiport mechanism. The acyl groups are subsequently transported from carnitine to CoA within mitochondria¹⁵. L-carnitine is stored and arrested by muscle because there is no synthesis of carnitine in muscle¹⁶. Also, L-carnitine has a protective effect via free radical scavenging such as superoxide anion, hydrogen peroxide, and hydroxyl radicals, inhibits lipid peroxidation and mitochondrial apoptosis^{17,18}. The mechanisms of helpful role of L-carnitine on hepatotoxicity is the ability to stabilize fluidity of cell membrane through regulation the levels of sphingomyeline¹⁹. L-carnitine has protective role against mitochondrial damage induced by drug use²⁰. Beta- carotene (BC), lipid soluble carotenoids, is a naturally antioxidant pigment found in various vegetables and fruits found among carotenoids, is the main precursor of vitamin A with many immune and antioxidant properties²³. It is increases antioxidant defense system by suppressing singlet oxygen and scavenging peroxide radical, and reacting directly with peroxy radical via stabilizing lipids membrane from attacks to free radical^{24,25}. However, BC inhibits and ameliorates the harmful effects of APAP on liver tissues²⁶. Several studies suggested that BC, have a protective role against genetic damage and cancer development induced by carcinogenic agents and caspase-3 activity²⁷. It have been propose that BC play a vital role in reducing incidence of cancer²⁸ and cardiovascular disease²⁹.

MATERIALS AND METHOD

Chemicals

Acetaminophen (APAP) were obtained via Sigma Chemical Co (St. Louis, MO, USA) dissolved in warm normal saline and administered intraperitoneally (I.P) at a dose of 500 mg/kg/day after 16 hour overnight fasting to deplete hepatic GSH levels. L-carnitine were obtained from Sigma Chemical Co (Aldrich, Germany) dissolved in distilled water and administrated orally daily by gastric gavages. Beta-carotene was obtained from Sigma Chemical Co (St. Louis, MO, USA) dissolved in olive oil (50%, 1:1v/v) and administrated orally (P.O) as single doses daily. The working stock solutions was prepared weekly and kept in a plane bottle at 4°C.

Experimental animals

Thirty adults male rats (*Rattus norvegicus*) weighing 175-200 gram, 12-13 weeks old. The rats were housed in the animal house of college of veterinary medicine/

university of basrah. They were left for 2 weeks for an adaptation previous to the experiment. Each 6 animal was housed in an individual cage measured as 15 × 35 × 50 cm and kept under normal temperature 22 - 28 °C and daily light period was 12 hours by use of two fluorescent lamps, and the humidity rate was about 50 %. Animals were provided with water and diet *ad libitum*.

Experimental design

After acclimatization period, animals were randomly divided into five equal groups. All animals were sacrificed at end of experiments. However, the rats before sacrifice were first weighed and then anaesthetized by placing them in a closed beaker containing cotton sucked with chloroform for anesthesia. The abdominal cavity was opened up through a midline abdominal incision to take samples. Blood samples were collected via cardiac puncture according to method of³⁰. Then, blood sample were drops directly from heart by using 5 ml disposable syringe. The blood put in plane tube until it was coagulated, then centrifugated (3000 rpm for 15 minutes) to obtain the serum. The serum samples separated into many Eppendorf tubes to avoid repeated thawing. All tubes were stored at (-4c) until they were analyzed.

Evaluation of serum malondialdehyde (MDA)

The principle was based on spectrophotometric assessment. Thiobarbituric acid (TBA) obtained from Fluka® analytical (Sigma-Aldrich) reacts with MDA to form thiobarbituric acid reactive substance (TBARs). The absorbance of the resultant pink product measured at 535nm.

Estimation of hepatic and renal biomarkers

The alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), blood urea and creatinine were evaluated using commercially available kits (Biomerieux, France), and according to the manufacturer protocols according to method of³¹.

Histopathological examination

The liver and kidney were immediately removed and separated from surrounding tissues and lipid, then weighed with an electronic balance. Sorted fragments of liver and kidney were collected from all groups and prepared and fixed by using 10% formalin for

histological examination according to ³² with aid of the light microscope.

Statistical analysis

Computerized SPSS (Statistical Package for Social Sciences, version.13) program was used for analysis of results of the present study. The data were expressed as mean ± standard deviation (mean ± SD). Least significant difference test (LSD) was used to test the difference between means (groups); P ≤ 0.05 was considered significant (SPSS, 2001).

RESULTS AND DISCUSSION

The results on table (1 and 2) showed that male rats received PAPA significantly increase (P < 0.05) serum levels of AST, ALT, ALP, MDA, urea and creatinine compared to control group. Whereas, groups that treated with L-carnitine 500 mg/kg and Beta-carotene 20 mg/kg showed significant decreased (P < 0.05) in serum AST, ALT, ALP, MDA, urea and creatinine compared to groups treated with PAPA. It is also clear from table (1 and 2) that combination of L-carnitine and Beta-carotene caused a highly significant declined in AST, ALT, ALP, MDA, urea and creatinine levels and almost return to its normal level compared with control value.

Histopathological studies of the liver and kidney

The results on figure (1-B) pointed out male rats that received APAP caused various degree of liver injury such as fatty degeneration, loss of radiation around central vein, vacuolated of hepatocytes, dilated of sinusoid, and infiltration of inflammatory cells after 14 days of exposure compared to control group (Figure 1-A). While, male rats treated with L-carnitine and Beta-carotene showed congestion of central vein, vacuolated hepatocytes and dilated sinusoid (Figure 1-C and D) respectively. It is also observed from figure (1-E) that combination of L-carnitine and Beta-carotene showed normal structure of central vein and hepatocytes compared to control and other treated groups. In the kidney, results on figure (2-B) pointed out male rats that received APAP caused severe damage of glomeruli, necrosis, and damage of renal tubules after 14 days of exposure compared to control group (Figure 2-A). While, male rats that treated with L-carnitine and Beta-carotene showed observe large space between glomeruli and Bowmans capsules, necrosis and obstruction of some renal tubules, but characteristic were apparent

to distinguish close to control (Figure 2-C and D) respectively. It is also observed from figure (2-E) that combination of L-carnitine and Beta-carotene showed normal structure of glomeruli, normal renal tubules compared to control. The results in the current study reflect the role of L-carnitine as direct antioxidant which prevent the acute toxic effect of acetaminophen (APAP) in male rats. These results was in agreement with results obtained by ³³⁻³⁶. Similarly, antioxidant effect of L-carnitine was effectively utilized to prevent the toxic effect of several chemicals. For example, cisplatin-induced nephrotoxicity where oxidative stress and lipid peroxidation are thought to play a major role in nephrotoxicity, administration of L-carnitine in rats normalized kidney function. In addition, L-carnitine attenuated increased MDA and reduced GSH levels ³⁷.

Table (1): The effect of APAP 500 mg/kg and the protective role of L-carnitine 500 mg/kg and Beta-carotene 20 mg/kg on AST, ALT and ALP of male rats for 14 day of exposure. Mean ± SD

Parameters Groups	AST (U/L)	ALT (U/L)	ALP (U/L)
Control D.W 1ml/kg/day	52.16 ± 4.42 c	21.10 ± 1.70 c	107.3 ± 3.20 c
APAP 500 mg/kg/day	87.68 ± 2.61 a	37.13 ± 2.01 a	158.2 ± 3.20 a
APAP 500 mg/kg/day + L -carnitine 500 mg/kg/day	68.67 ± 4.37 b	27.28 ± 2.33 b	129.1 ± 1.3 b
APAP 500 mg/kg/day + Beta-carotene 20 mg/kg	70.69 ± 4.36 b	30.41 ± 2.32 b	131.1 ± 1.2 b
APAP 500 mg/kg + L -carnitine 250 mg/kg+ Beta-carotene 10 mg/kg	58.71 ± 5.52 c	22.56 ± 2.34 c	117.1 ± 1.3 c
LSD	10.00	4.72	12.00

Table (2): The effect of APAP 500 mg/kg and the protective role of L-carnitine 500 mg/kg and Beta-carotene 20 mg/kg on MAD, urea and creatinine of male rats for 14 day of exposure. Mean ± SD

Parameters Groups	MDA (µm / L)	Urea (mg/dL)	Creatinine (mg/dL)
Control D.W 1ml/kg/day	1.42 ± 0.28 c	41.42 ± 2.10 c	0.15 ± 0.02 b
APAP 500 mg/kg/day	9.22 ± 1.17 a	84.23 ± 3.65 a	0.34 ± 0.03 a
APAP 500 mg/kg/day + L -carnitine 500 mg/kg/day	5.46 ± 0.17 b	63.67 ± 2.54 b	0.17 ± 0.02 b
APAP 500 mg/kg/day + Beta-carotene 20 mg/kg	5.50 ± 0.26 b	61.63 ± 2.51 b	0.18 ± 0.02 b
APAP 500 mg/kg + L -carnitine 250 mg/kg+ Beta-carotene 10 mg/kg	4.41 ± 0.26 b	57.66 ± 2.61 b	0.15 ± 0.02 b
LSD	2.99	16.24	0.16

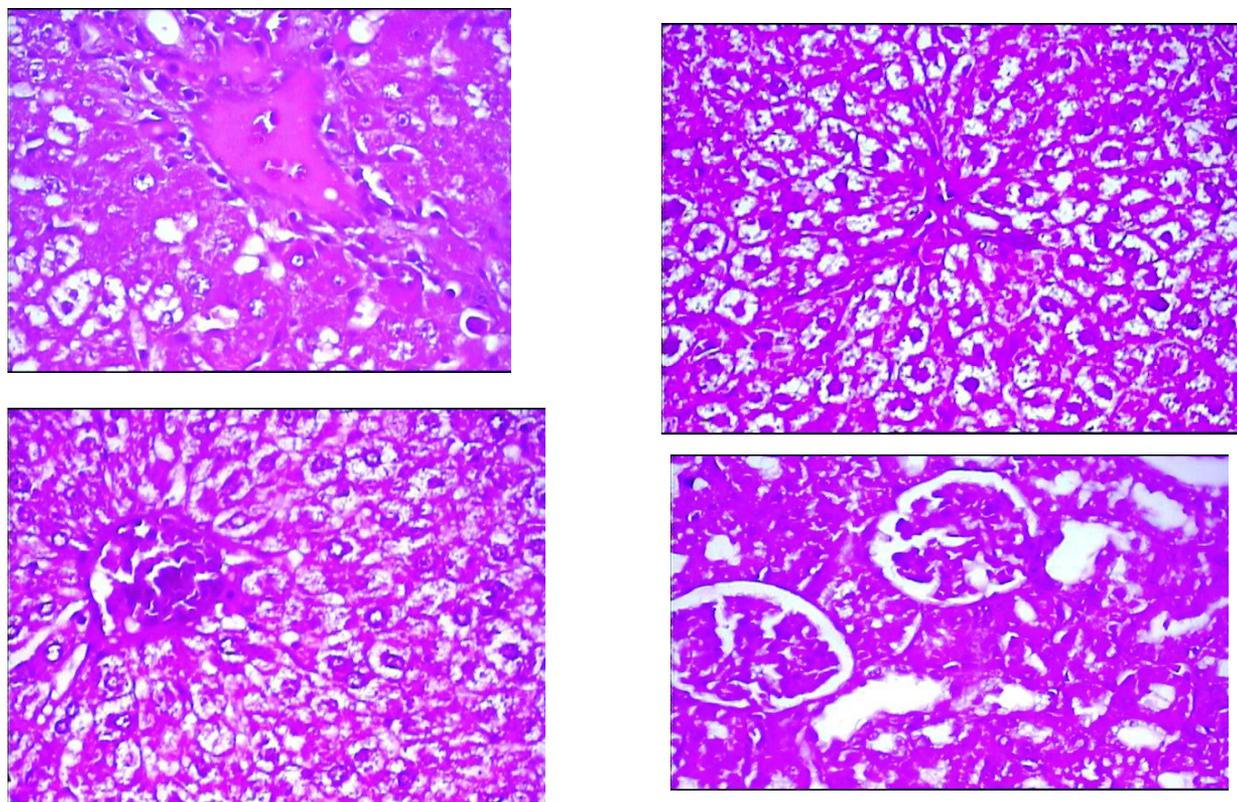


Figure (1): The histological structure of rats liver slowing control group, treated with 500 mg/kg APAP (B), treated with 500 mg/kg L-carnitine , treated with 20 mg/kg Beta-carnitine , and treated with combination of 250 mg/kg L-carnitine + 10 mg/kg Beta-carnitine

CONCLUSION

It has been concluded that L-carnitine and beta-carotene have a evident protective effect against liver damage induced by PCM leading to a declined MDA level and reduced lipid peroxidation. Thus, L-carnitine and beta-carotene are potential therapeutic antioxidant agents on hepatotoxicity and nephrotoxicity by suppressing hepatic and renal oxidative stress.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Animal Production, College of Agriculture, University of Sumer, Thi-Qar, Iraq and all experiments were carried out in accordance with approved guidelines.

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Effect of physical effort according to (Fartlek Training Method) on the Flow and the Speed of Blood and the Mechanical and Chemical Energy for the Heart Muscle of the Football Players

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ABSTRACT

The process of improving performance and achievement is achieved only through knowledge of the changes and responses occurring in the internal environment at rest or during physical exertion, through employing many measurements and tests including the laws of physics and how to use them to know the differences or level of adaptation of players in the circulatory system and the heart muscle it allows workers in training to standardize physical loads in a way that matches their abilities as well as discovering their levels. So it must have to choose the content of the exercises in a manner consistent with the characteristics and features of the game Which is practiced and compatible with the performance in the competition and the change in the game of football, which is characterized by rapid change from the attack to the defense to seek to take possession of the ball and this requires players can change their positions and places quickly in accordance with the requirements of their positions of the schematic and skillful in the case of fast transmission and different types of speed, as well as running throughout the game, so the researchers chose the physical effort.

Key words: physical effort, Fartlek, chemical energy, mechanical energy, blood flowing

INTRODUCTION

The accelerated in the scientific progress that the world has witnessed in recent years in the fields of various sciences has made sport education closely linked to many sciences, especially physiology and physic¹. Which play a large role in the process of improving performance and achievement and knowledge of changes and responses occurring in the internal environment in the rest or during the performance of physical effort and the blood circulation process has a significant impact on the player's ability and the level of his achievement, especially the heart muscle and the laws of physics was employed in a way to solve many of the scientific issues, including changes in the circulatory system as well as recognition of the response of blood vessel

and heart muscle The heart muscle is one of the easy measurement, which it easy to measure, a complex in its formation, function, responsiveness, close association with the responses and work of the rest of the other vital organs in the body as the growth and adaptation that affects the rest of the organs and members significantly for its role in delivering blood carrying oxygen and food ², as well as the safety and adaptation of the blood vessel is part of the performance of this function in the case of transport and delivery in addition to the disposal of harmful products to produce energy, which accelerates during the performance of physical effort that the athlete must maintain the components of extracellular fluid at its components relatively natural to maintain the effectiveness of cells, for its relative natural components to the continued effectiveness of cells, including muscle's cells to carry out the external efforts and the removal of the phenomenon of the fatigue. Hence, the importance of the research and the need for it in the statement of the importance ³ of the laws of physics and how to employ them to identify the responses occurring

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in the circulatory system and the heart muscle, which shows the level of adaptation to them and allows the field of training to regulate the severity and physical loads in accordance with their abilities and the discovery of their levels, Which contributes to train them according to their individual differences.

METHODOLOGY

In order to arrive at scientific and objective facts, it is necessary to choose the appropriate method of research, so the descriptive approach has been used to suit the nature of the problem to be resolved. Which aims to collect facts and data about a particular phenomenon or position with an attempt to interpret these facts sufficiently, so that we can draw attention from these data which collected from a part of society results in the ratification of the whole society. The research community selected (Al-Menaa club) a group of young men as a football club. The researchers chose a sample as a deliberate manner after consultation with the coach of the team. The team was selected with (10) players representing the starting line or the most participating in their competition in the matches. In order to ascertain the homogeneity of the sample and the normal distribution of the sample, the researchers used the difference coefficient for the results of the field survey in the measurements (biological age, training age, length, weight). As shown in Table 1. This means good sample distribution and homogeneity, where the value of the difference coefficient as close to (1%) is a high homogeneity and if it was more than (30%) means that the sample is not homogeneous”

Physical effort

The researchers chose to carry out the physical exertion test, the walking device, which is a unique research instrument in the technique of physical effort. As it involves the most muscle groups and the work of a larger motor, and the extent of changes occurring in the body organs through adaptations under the influence of training programs. Through the experience of the researchers and the scientific sources that have been examined, it was identified physical effort that fits the sample of the research has chosen the proposed physical effort by running Fartlek way is more consistent with the positions of the game, the changing of speed was the total time of the test (8) minutes and the speed changes as follows for every minute With the corner of the moving device changed

The main experiment

The researchers started the main experiment on 15/4/2017 at 4 pm and maintained the temperature of the laboratory between 28 and 30 percent. It was measured by a specialist doctor and in his clinic Before taking the measurements on the sample, they were given a rest period about (10 minutes) then a sample was taken by a specialist of venous blood (5 cc) to measure the blood density, then measure blood pressure (systolic and diastolic) in the lying condition and then measure the heart production and the diameter of the aorta of the aortic device by ultrasound scan “Eco”. Then the same tests previous measurements were repeated after the physical effort which prepared by the researchers, in the same mechanism as the previous one.

Statistical means:

For the purpose of processing the data obtained by the researchers, the following statistical methods were used:

- Arithmetic mean.
- standard deviation.
- Coefficient of difference.
- Test (T) for interrelated samples.

The data was processed by a computer device according to the statistical program SPSS VER11

Presentation, analysis and discussion of results

Presentation and discussion of the results of measurements and tests of variables under study before and after physical effort.

Cardiac output (C.O) ml / min:

The T-test showed significant differences between the before and after the test in cardiac output. The mathematical mean before the physical exertion was (5756) and the standard deviation was (13.75). The mathematical mean after the physical exertion was (24030) and its standard deviation is (20.39). The calculated value (T) was (11.31), which is greater than the tabular value. Therefore, there are statistical differences for the test after physical effort.

The researchers found that the flowing output of about 24 liters per minute showed a relative increase in

the functional efficiency of athletes in general, as well as the efficiency of the heart muscle in particular.

Researchers also agree with (Bett):

«It can be affected by several factors such as heart size, physical condition, physical exertion performed by athlete, sex, contraction, duration of shrinkage, preloading and subsequent»

Second: the arterial blood pressure (systolic):

T-test showed significant statistical differences between pre-test and post-systolic blood pressure. The arithmetic mean of the physical activity was (122.56) and the standard deviation was (4.34) while the arithmetic mean after the physical effort was (170.12) and the standard deviation is (6.47). The calculated value (T) was (3.56), which is greater than the tabular value. Therefore, there are statistical differences for the post-test. It appears that systolic blood pressure increases after physical exertion as blood pressure changes which based on the changes that result from the physical effort of the increasing the amount of blood which being blown by the heart, blood volume and diameter of the blood vessels, however, the increasing in cardiac output leads to increase blood flow in the arteries. To increase pressure on blood vessels, as stated (1998) Stalin et.al. That the speed of blood flow increases when performing exercises, which causes the increasing pressure on the walls of vessels, Wafa Abdulrahda (2009) and Falah Abboud (2005) have confirmed that one of the main reasons that increase blood pressure is due to increasing cardiac pumping during physical exertion, which increases the pressure exerted by the blood mass on the walls of the aorta and the remaining arteries.

Third: diastolic blood pressure:

T-test showed significant differences in statistical significance between the pre-test and post-test in diastolic blood pressure. The arithmetic mean before the physical exertion was (80.83) and the standard deviation was 5.86. The arithmetic mean after the physical exertion was 79.78 and the standard deviation was 3.05. The calculated value (T) was (4.69), which is larger than the tabular value. Therefore, there are statistical differences for the post-test.

It has been shown that blood pressure and diastolic blood pressure decreased after physical exertion. The

researchers see increased muscle demand for blood, which increased blood flowing and cardiac output which it is consistent with the expansion of the diameter of the blood vessels, causing a slight contraction in diastolic pressure. The study noted that diastolic blood pressure had decreased significantly after the effort.

4: Blood density

There was a statistically significant difference between the pre-test and the post-test in the blood density. The arithmetic mean before the physical exertion was (1.067) and the standard deviation was (0.131). The arithmetic mean after the physical exertion was 1.512 and its standard deviation is (0.241). The calculated value (T) was 0.92, which is smaller than the tabular value. Therefore, there are no statistical differences between the two tests.

Fifth: Mechanical Energy Of The Heart Muscle:

The test (T) showed significant statistical differences between the pre-test and the post-physical test in mechanical energy. The arithmetic mean before the physical exertion was (1.56) and the standard deviation was (0.21) The arithmetic mean after the physical exertion was (9.07) and the standard deviation is (1.78). The calculated value (T) was 2.11, which is greater than the tabular value. Therefore, there are statistical differences for of the post-test.

The heart muscle is characterized by two factors: strength and speed Which increases the speed of contraction and the strength of contraction, the factors that control the speed and strength of the heart muscle is the extent of muscle expansion before contraction, and the extent of resistance to the ventricle during contraction, the contraction of the heart muscle, which it is the basis of heart mechanism «.

Sixth: Chemical energy of the heart muscle:

The test (T) showed significant statistical differences between the pre-test and post-tests in chemical energy. The arithmetic mean before the physical exertion was (7.84) and the standard deviation was (2.89). The (arithmetic mean) after the physical exertion was (45.36) and the standard deviation is (5.05). The calculated value (T) was (2.21), which is greater than the tabular value. Therefore, there are statistical differences in favor of the post-test.

The chemical energy is directly proportional to the amount of oxygen consumed by the heart muscle as the tension that occurs in the heart muscle during the contraction of the time period of contraction and is associated with high blood pressure arterial, corresponding to a greater consumption of oxygen, which causes the consumption of the chemical energy.

Seventh: Blood velocity in the aorta:

The(T) test showed significant differences between the pre-test and the post-test in blood of the artery. The mathematical mean before the physical exertion was (37.70) and the standard deviation was (7.21). The mathematical mean after the physical exertion was (81.59)and the standard deviation (5.897). The calculated value (T) was (3.18), which is a greater than the tabular value. Therefore, there are statistical differences for the post-test.

And the speed of blood flow depends on the area of the aorta, which is one of the factors diameter of the artery in addition to the blood flow coming from the strength of contraction and blood pressure, that drives the blood column, which are all affected by the physical effort, which increases the speed of flow

Eighth: diameter of the aorta:

The(T) test showed significant statistical differences between the pre-test and the postural test in the diameter of the aortic artery. The Arithmetic mean before the physical exertion was (18) and its standard deviation was (3.75). The mathematical mean after the physical exertion was (25)and its standard deviation is (4.81). The calculated value (T) was (13.38), which is greater than the value of the table, so there are statistical differences for the post test.

Table (1). It shows the computational circles, standard deviations and coefficient of variation values for the research sample in biological age variables, training age, and body measurements (height - weight)

Variables	Unit of measurement	arithmetic mean	standard deviation	variation coefficient%
Biological Age	Year	24.666	2.108	0.43
The training age	Year	5.793	1.01	17.43
Length	cm	176.740	8.116	4.588
the weight	Kg	74.850	9.186	12.27

Table (2). It shows the Angle Of Inclination (Degree), Time, Speed and speed average.

Time	Speed (Km / H)	Angle Of Inclination (Degree)	Speed, M / Min))	Speed Average (M / S)
First Minutes	8	5	133.33	2.22
Second Minutes	10	4	166.66	2.77
Third Minutes	6	6	100	1.66
Fourth Minutes	12	3	200	3.33
Fifth Minutes	14	3	233.33	3.88
Sixth Minutes	6	6	100	1.66
Seventh Minutes	16	4	266.66	4.44
Eighth Minutes	18	2	300	5
Total			1499.98	3.125
Arithmetic Mean	11.25	4.125		

Table (3) Showing the arithmetic mean, standard deviation, average variance, standard error of variance, the value of (T) calculated statistical significance in pre-physical and post-physical testing of variables under study

changes	Before the physical effort		after the physical effort		Average differences	Standard error of differences	Calculated T value
	Arithmetic mean	standard deviation	Arithmetic mean	standard deviation			
Systolic blood pressure mm g	122.56	4.34	170.12	6.47	47.56	2.45	58.28*
Blood pressure diastolic mm g	80.83	5.86	79.78	3.05	1.05	1.45	0.724
Cardiac Output Mill / min	5756	13.75	24030	20.39	18274	12.75	4299.7*
Diameter of the aorta	18	3.75	25	4.81	7	1.23	17.07*
Blood density gm / cm 3	1.067	0.131	1.512	0.241	0.445	2.78	0.160
Mechanical energy of the heart muscle with watt	1.56	0.21	9.07	1.78	7.50	1.14	15.95*
The chemical energy of the heart muscle is watt	7.84	2.89	45.36	5.05	37.51	2.78	40.5*
Blood velocity in the aorta (cm / s)	37.70	7.21	81.59	5.897	43.89	4.73	27.84*
Area of the arterial section (mm2)	254.47	33.89	490.87	23.26	236.4	14.746	47.91*
Blood flow in the artery (gm / s)	102.36	12.34	605.55	9.25	503.19	24.93	58.28*

CONCLUSION

All functional and physical variables under study were within the normal criteria before physical exertion. Increases cardiac output in a way to increase physical

effort and is accompanied by increased arterial blood pressure for the research sample. High mechanical and chemical energy in the research sample due to high cardiac output and arterial blood pressure. Increasing the

speed of blood flowing after the effort in accordance with the need of the body and the strength of contraction of the muscle and returned blood. The diameter of the aorta is accompanied by changes associated with physical exertion such as increased cardiac output and arterial blood pressure. The changes under study, especially after the physical exertion, show the control mechanisms adapted to the physical effort.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Physical Education and Sports Sciences, Albasrah University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Effects of *ERUCA SATIVA* Seeds Powder on Performance and Immunity of Broilers

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ABSTRACT

This study provides a possible insight on the effect of using *Eruca sativa* seeds powder (ESS) on the performance and immunity of the broiler. One hundred and sixty one- day unsexed broiler (Rose 308) were divided randomly into four groups of 40 birds each, and subdivided into two replicates of 20 birds each. The first group (G1) was kept on basal diet without any additives, Second group (G2) was given 0.25 % *E. Sativa* seeds/diet. Third group (G3) was given 0.5 % H₂O₂ / water and the fourth group (G4) was treated similar to (G2) and (T3) groups. Both *E. Sativa* seeds and H₂O₂ were added from 7th days to the end experiment (42 days) for each T2, T3, and T4 groups. The results from this study showed that the supplement dietary that was given to broilers *E. Sativa* seeds (T2) led to increase live body weight significantly (P<0.05), weight gain. Also in same group, increase in feed intake, and a significant (P<0.05) improvement in feed conversion ratio (FCR) was also noticed compared to control and another groups. On the other hand, a significant (P<0.05) reduction in the same parameters was noticed in group T3 (H₂O₂) compared to T1, T2 and T4 groups.

Keywords: *Eruca Sativa* ; hydrogen peroxide ; broilers ; performance ; immunity

INTRODUCTION

As a result of forbidden use of antibiotics as growth stimulators in poultry industry, a significant amount of studies are conducted to find an alternative way to avoid all the problems from misusing the antibiotics and also to give positive effects on poultry industry¹. Most of the herbs and spices contain secondary metabolites in their structure, which is reported to have biological activities. The side effects of misuse of antibiotics inspired the scientists and researchers to search for new alternative methods that are plant origin². This alternative plant is noticed to contain positive effects by enhancing the appetite, improving food intake via increasing the digestive activity, enhancing the immune system, regulating the microflora and it also has antioxidant activity and antibacterial effects in their structure³⁻⁵. A study has indicated that *Eruca sativa* might have therapeutic activity such as anti-inflammatory and

antioxidant properties⁶. It has been observed that ethanolic extract of *Eruca sativa* contains prophylactic and treatment activity toward oxidative stress through decreasing the free radical by increasing antioxidant molecules⁷⁻⁹. A study showed that *Eruca sativa* was able to reduce the negative effects of abamectin, which is caused by renal damage to the rats. Also *Eruca sativa* extract led to improve the kidney parameters such as urea, creatinine and serum uric acid in the rats that were given abamectin. Suggesting that *Eruca sativa* could be used as a therapeutic agent for kidney dysfunction¹⁰. Previous study showed that given an *Eruca sativa* extract to the hyperthyroidism mice led to increase T4 and T3 and decrease in the TSH in tested mice. Also the affected thyroid tissue was improved in response to given a *Eruca sativa*, suggesting it has a protective role against thyroid problems such as goiter¹¹. Many effects of herbal plants on the immune system may be including inhibition and stimulation of the indicators of non-specific defense mechanism, cellular and humoral immunity. A critical determinant of immune responses is nutrition^{12,13}. Several studies have been conducted to define the immune stimulating activities of herbal plants in human, mouse and chicken¹⁴⁻¹⁶. It has been shown

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that supplying rocket salad seeds in the roosters led to a significant increase in the calcium, protein, activity of ALP in blood and a significant decrease in the glucose and cholesterol concentration¹⁷. A previous study indicated to the effects of *Eruca sativa* oil on the performance and some blood test of broiler, showed that the oil was able to improve the performance of these broiler and suggested to add *Eruca sativa* oils supplementary with diets¹⁸. However, the effect of the *Eruca sativa* seeds powder on the performance and immunity status in the poultry has not fully explored yet. Therefore this study is aimed to explore the role of *Eruca sativa* as growth promoter and improve immunity in broiler¹⁸

MATERIALS AND METHOD

A fully controlled environment was used to conduct this study on the chick boilers between 4 Apr. to 15 May 2018. One hundred and sixty days old of unsexed chicks (Ross 308) were purchased from local commercial hatchery. These chicks were randomly divided into four groups of 40 birds each, and subdivided into two replicates of 20 birds each. 1st group (T1) was kept on basal diet without any additives, 2nd group (T2) was given 0.25 % *E. Sativa* seeds/diet. 3rd group (T3) was given 0.5 % H₂O₂ / water, and the 4th group (T4) was treated similar to (T2) and (T3) groups. Both *E.Sativa* seeds and H₂O₂ were added from 7th days to the end experiment (42 days) for each T2, T3, and T4 groups. A stander management were applied on these birds, for both management and nutrition. The Food and water were provided via ad-libitum. The birds in this experiment were fed with a fixed type of diets, which started over the period of experiment (42 days). *E. sativa* seeds were purchased from local market and grinding with grain mill and mix with stander diet daily. H₂O₂ purchased from local pharmacy with 25% concentration then diluted to 0.5% to add it into the drinking water later. All the birds in experiment were vaccinated against Gumboro and New-castle disease depending on their age during the experimental period (42 days). The performance was conducted by including the following parameters: body weights; body weight gain, feed consumption and feed conversion ratio. These parameters were recorded every week during the time of experiment. At the end of experience, blood was collected from wing vein in a sterile tube without anticoagulant, and allowed to colt and centrifuged for 10 minutes at 3000 rpm to then the separated serum is kept in a deep freeze -20C^o¹⁹.

Titer of antibodies against IBD and ND viruses were estimated by using ELISA kits. Statistical analysis were achieved according to²⁰ and significant means were separated by²¹.

RESULTS AND DISCUSSION

The results of body weight BW, weight gain WG, feed intake FI and feed conversion ratio FCR in tables (1),(2), (3)and (4) were shown: firstly, the broiler chicks that were received 0.25%*E.Sativa* seeds/diet (T2) showed a significant (P<0.05) increasing in the body weight, weight gain, feed intake, and a significant(P<0.05) decrease in feed conversion ratio compared with another groups. Whereas, a significant (P<0.05) decrease in these parameters except in FCR(significantly increasing(P<0.05)) was noticed in 0.5% H₂O₂ treatment group (T₃)comparing with another group. While, no significant differences in body weight was observed in (H₂O₂+ *E. Sativa* seeds) group (T₄), compared with control group (T1). The performance improvement that was noticed in the *E. Sativa* seeds group could be explained that *Eruca sativa* seeds might have a positive effects on feed conversion ratio. previous studies have shown that *Eruca sativa* able to increase the energy metabolism, increase appetite, help digestion and increase the secretion of bile, Also it has a high content of protein and many amino acids and fatty acids²²⁻²⁵ have demonstrated that Rocket Seeds might contains a stimulant and digestive effect via their aromatic substance or essential oils leading to increase the feed consumption and growth performance parameters. Similar results were observed by¹⁶ in boilers. stated that replacing the soybean protein with the *Eruca sativa* seeds in New Zealand rabbit diet led to in a significant increase in WG, FCR, BW, and FE. Also, (ALSAIG 2009)²⁴ observed a significant improvement in the reproductive and productivity efficiency in the male lamb which were consumed a diet with 5% *E. sativa* seeds. In addition, find the same finding of the positive role of *E. sativa* seeds on Nile tilapia compared to the control group OSMAN *et, al* is indicated that replacing the soybean meal by radish meal to broiler diets have no a significant effect on feed consumption. However, the group that fed a rocket with their diet showed a significant increasing in feed consumption. The current results disagreement with and OSMAN who are both indicated that substitution of soybean protein with radish or rocket seed meal have no significant effects on the body weight and weight gain in broiler. However, indicated that consumption of

more than 30% of mustered cake, same family of *Eruca sativa*, did not effect on the rabbit performance. This study also indicated that the chicks in the (T3) H₂O₂ group had a significant deterioration in the body weight, weight gain, and food intake and food conversion ratio. This might due to the oxidative stress that produced by hydrogen peroxide. Oxidative stress may be have a role in deterioration of pathological condition, production and welfare in farm animals ³⁴. For example, the humid and heat condition might reduce the meat quality and growth. The decrease in the body weight in response to H₂O₂, results are in an agreement with in broiler chicks, ³⁷ in mice, ³⁸ in chicks and ³⁹ in rabbit. Natural herbs is widely used as immune activator, this due to the positive effects on the immune system through the secondary metabolites. The results of the present study showed that *E. Sativa* seeds at 0.25%, was able to improve

the specific antibodies titer response against ND and IBD virus, as compared to all other groups tables (5) respectively. This may be due to that the *Eruca sativa* contains a flavonoid compound are able to mediate production of inflammatory cytokines. In terms of the immunity, this study indicated that the group that given ESS showed a significant increase in the immunological parameters (antibodies titer of ND and IBD viruses) compared with control. However, H₂O₂ administration to group (T3) led to immune suppression if compared with control and another groups .While, a significant improvement in antibodies titer of ND and IBD viruses in T4(H₂O₂ + ESS)if compared to T3(H₂O₂ group). Over all, this study suggested that *E. Sativa* seeds might have a protective effects against side effects of oxidative stress that is induced by hydrogen peroxide (H₂O₂) on performance and immunity in broiler.

Table (1) effect of 0.25%*E. Sativa* seeds on body weight in broiler chicks subjected to 0.5% hydrogen peroxide

treatments	1 st week	2 nd week	3 rd week	4 th week	5 th week	6 th week
T1	124±1.01 A	320.25±5.21 A	658.05±3.91 A	1184±23.01 B	1787.55±19.54 B	2498.55±21.22 B
T2	123.55±2.13 A	323.60±5.25 A	666.40±5.05 A	1217.05±19.21 A	1892.50±21.03 A	2674±20.60 A
T3	123.95±2.09 A	318.25±8.01 A	632.35±3.23 B	1139.4±15.10 C	1684±14.91 C	2301.92±12.09 C
T4	123.8±1.99 A	318.5±5.20 A	643.40±3.41 A	1160.35±18.91 B	1754.14±15.13 B	2445±15.53 B

Table (2) effect of 0.25%*E. Sativa* seeds on body weight gain in broiler chicks subjected to 0.5% hydrogen peroxide

Treatments	2 nd week	3 rd week	4 th week	5 th week	6 th week	7-42 days
T1	196.25±1.21 A	337.8±5.21 A	525.95±3.22 B	603.55±8.19 B	711±5.31 B	2374.55±18.81 B
T2	200.05±1.92 A	342.8±3.99 A	550.65±4.90 A	675.45±7.21 A	781.5±5.03 A	2550.45±18.30 A
T3	194.3±1.87 A	314.1±4.51 A	507.05±3.91 B	544.6±4.95 C	617.92±4.07 C	2177.97±14.05 C
T4	194.7±1.71 A	324.9±4.92 A	516.95±3.95 B	593.79±3.91 B	690.86±3.57 B	2321.2±12.21 B

Table (3) effect of 0.25% E. Sativa seeds on feed consumption in broiler chicks subjected to 0.5% hydrogen peroxide

Treatments	2 nd week	3 rd week	4 th week	5 th week	6 th week	7-42 days
T1	311.40±6.91 A	470.25±3.64 A	731.8±6.08 A	1044.15±10.11 B	1260.21±21.30 B	3817.81±25.75 B
T2	311.75±7.21 A	473 ± 4.11 A	743.55±6.45 B	1060.5±9.50 A	1270.94±23.53 A	3859.19±24.3 A
T3	310.50±8.14 A	470 ± 3.81 A	727.30±6.09 A	1025±11.03 C	1248.20±18.18 C	3781±20.10 C
T4	310.20±8.09 A	470.75±4.05 A	735.1±6.12 A	1051.18±8.92 B	1255±20.25 B	3822.23±23.01 B

Table (4) effect of 0.25%E. Sativa seeds on feed conversion rate (FCR) in broiler chicks subjected to 0.5% hydrogen peroxide

Treatments	2 nd week	3 rd week	4 th week	5 th week	6 th week	7-42 days
T1	1.59±0.03 A	1.39±0.001 A	1.39±0.03 A	1.73±0.11 A	1.77±0.17 A	1.61±0.57 A
T2	1.56±0.01 A	1.38±0.09 A	1.35±0.04 A	1.57±0.12 B	1.63±0.19 B	1.51±0.55 B
T3	1.60±0.01 A	1.5±0.05 A	1.43±0.01 B	1.88±0.01 C	2.02±0.17 C	1.74±0.51 C
T4	1.59±0.005 A	1.45±0.01 A	1.42±0.001 A	1.77±0.57 A	1.82±0.15 B	1.65±0.43 A

Table (5) effect of 0.25%E. Sativa seeds on antibodies titer against ND and IBD virus in broiler chicks subjected to 0.5% hydrogen peroxide

Treatments	ND	IBD
T1	3790 ± 135.8 B	9533 ± 17.32 B
T2	4903 ± 113.5 A	11252 ± 37.56 A
T3	3220 ± 148.9 C	9488 ± 22.94 C
T4	3752 ± 143.2 B	9574 ± 25.08 B

CONCLUSION

The results from this study showed that the supplement dietary that was given to broilers *E.Sativa* seeds (T2) led to increase live body weight significantly ($P<0.05$), weight gain. Also in same group, increase in

feed intake, and a significant ($P<0.05$) improvement in feed conversion ratio (FCR) was also noticed compared to control and another groups. On the other hand, a significant ($P<0.05$) reduction in the same parameters was noticed in group T3 (H₂O₂) compared to T1, T2 and T4 groups.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Veterinary Medicine, University of Kerbala / Iraq and all experiments were carried out in accordance with approved guidelines.

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High Risk of Osteoporosis and Related Fractures for Irritable Bowel Syndrome (IBS) Patients

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ABSTRACT

A large number of populations is affected by the Irritable Bowel Syndrome (IBS) condition, thus changing the manner in which they live and this presents us with the challenge of studying the condition. We aim to determine whether IBS patients have a higher risk of osteoporosis and its related fractures than those without the syndrome through the use of the National Emergency Department Sample (NEDS) database. We utilized data from the National Emergency Department Sample (NEDS) database and random sampling method was employed to select patients diagnosed with IBS and controls without IBS. We found out that osteoporosis diagnosis was identified in 23,287 patients and concurrent fracture diagnoses in 3,093 cases. IBS patients have a higher risk of osteoporosis and fractures associated with the condition. The identified high number of IBS patients diagnosed with osteoporosis and related fractures showed that IBS increases the risk of having the disease and experiencing such fractures.

Keywords: *IBS, NEDS, Osteoporosis*

INTRODUCTION

IBS is a chronic disorder that affects the digestive system mostly the colon and requires long-term management of lifestyle, diet, and stress¹⁻³. Approximately 15% of the total population is affected by the condition negatively changing the manner in which they live and is one of the functional gastrointestinal disorders¹⁸. The female and older people are at a higher risk of having the syndrome according to researcher. IBS can be addressed by dealing with stress and changing diet and lifestyles. Osteoporosis is a disease characterized by decreased mass density of bones and is linked to fractures of the wrist, hip, and vertebrae²¹. The disease affects many people around the world and some of its risk factors include sedentary lifestyles, low calcium intake and excessive alcohol intake. IBS is associated with osteoporosis and a study was conducted to determine whether the syndrome increased the chances of having osteoporosis and fractures associated with the disease.

The paper discusses the details of the study including the methodology applied, literature review on aspects related to the study, ethical aspects considered, study results and analysis as well as a discussion on study results obtained.

MATERIALS AND METHOD

Study sample and methods

Descriptive design was used during the study. It is a scientific method that involves the observation and description of the behavior of a specific subject without any influence¹⁷. Descriptive studies help to describe the pattern of occurrence of a particular disease in relation to certain factors. Random sampling method was employed to select patients diagnosed with IBS and controls without IBS. The 2016 NEDS database was utilized to determine the number of IBS patients diagnosed with osteoporosis and other related fractures. NEDS was suitable due to its large sample size which enabled the study of the Irritable Bowel Syndrome and the osteoporosis disorder. Quantitative data was obtained from the database. The study focused on IBS patients within the United States whose medical information was provided on the NEDS database.

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Ethical consideration

Patient personal information is encrypted by NEDS to protect the privacy of patients and identification numbers that are anonymous to associate with information of patients' claims like date of birth, sex, medical services received, and prescriptions are provided to researchers. The confidentiality of patients was maintained during the study as their personal information was not disclosed. Patient consent was not necessary to access the National Emergency Department Sample database.

Study results and analysis

Medical claims data from 2013 to 2016 were obtained using the NEDS database. 80,000 visits at the emergency department for patients with IBS were selected from the 2016 NEDS database which were then compared to the controls without IBS. Along with the potential predictive factors, an evaluation was done within the IBS cohort for the presence and risk of osteoporosis and fractures associated with the condition. Statistical methods were used to analyze the quantitative data collected from the database. Within the cohort assessed, osteoporosis diagnosis was identified in 23,287 patients and concurrent fracture diagnoses in 3,093 cases. 68.2% of the patients evaluated were female while 31.2% were male. The majority of the IBS patients who represented 71.9% of the total number evaluated were aged 35 years and above. In comparison with the controls, the risk for osteoporosis and osteoporotic fracture was evaluated among the patients with IBS. As compared to patients with Crohn's disease and ulcerative colitis, those with IBS were at a higher risk for wrist and hip fractures. Based on the study results, the risk for osteoporosis was found to be greater in IBS cohort regardless of their sex or age but a slight increase was demonstrated among the older patients. Among the IBS patients, fractures of the hip, wrist, and vertebrae were common and wrist fractures had the greatest risk increase.

RESULTS AND DISCUSSION

Irritable Bowel Syndrome

IBS involves a mixture of belly pain or discomfort and trouble with bowel habits that are more or less than normal like constipation or diarrhea or having stool that is different from the normal (soft and liquid, thin or hard)². The syndrome is also referred as 'irritable colon' and 'spastic colon'. Between 25 and 45 million Americans

who are mostly women are affected by irritable bowel syndrome¹⁰⁻¹². One in every five Australians experiences symptoms of IBS. Individuals who are in their late teens to those in early 40s are the most likely to have the condition²⁴. Although the condition is not a risk factor for other colon conditions like colon cancer, ulcerative, and Crohn's disease and is not life-threatening, it can be a long-lasting health problem which changes how people live their lives. Irritable Bowel syndrome is categorized into four types which include IBS involving diarrhea (IBS-D), mixed IBS (IBS-M) which involves diarrhea alternating with constipation, IBS involving constipation (IBS-C), and the un-subtyped IBS (IBS-U) which is for the individuals who do not fit in into any of the three categories⁷. The prevalence of the different types of IBS varies as shown in figure 2. The symptoms of IBS include constipation, diarrhea, bloating, mucus in stool, a belly that sticks out, cramps or belly pains in the lower part of the belly that worsen after meals and seize after a bowel movement, constipation alternating with diarrhea, and harder or looser stool than normal which may be in form of flat ribbon or pellets²¹. The symptoms can become worse if one is stressed and some people with the condition may have sexual problems and urinary symptoms. Although there are certain things that trigger the symptoms of the condition, its specific causes are not known. Based on studies colon becomes hypersensitive and overreacts to mild stimulation. The bowel muscles, as a result, spasm instead of having rhythmic and slow movements causing constipation or diarrhea¹⁴. A different theory suggests that IBS may involve chemicals produced in the body like gastrin and serotonin which control nerve signals between the digestive tract and the brain. Although not backed up by studies, some people believe that since the condition mostly affects women, hormones may play a role while others think that it is a result of failure of the bowel muscles to squeeze normally which affects stool movement. The specific cause of IBS is not yet known. Mental illness and a history of physical, emotional, and sexual abuse are risk factors for IBS as depression, anxiety and other mental health-related issues are associated with the syndrome²². People with a history of IBS in their family are also likely to have the syndrome as genes may play a role. Chronic diarrhea and constipation which are associated with IBS can cause hemorrhoids. IBS is also associated with mood disorders like anxiety and depression as well as poor quality of life. IBS can be improved over time and its symptoms reduced through basic changes in

activities and diet which include avoiding caffeine and smoking, eating small meals more often, exercising more and reducing stress in life, taking at least four glasses of water daily, and adding more fiber in diet through intake of vegetables, fruits, nuts, and whole grains⁶. Bulking agents which include wheat bran, psyllium, and corn fiber are the drugs used to treat IBS as they help to relieve its symptoms and slow food movement through the digestive system¹³. Ways of dealing with stress such as progressive relaxation exercises and counselling also help to ease or reduce the symptoms of IBS.

Osteoporosis

Osteoporosis is a disease of the bones that results when a patient's body makes too little or loses too much bone¹. The bones get weaker and brittle and may fracture or break from sneezing, coughing, a fall or minor bumps. The osteoporotic bones contain an abnormal tissue structure since they have lost mass or density. Osteoporosis simply implies 'porous bone' since when viewed through a microscope, a healthy bone resembles a honeycomb but the spaces and holes become larger when the disease occurs. Osteoporosis is a common disease and approximately 54 million people in America have the disease and reduced bone mass. In the United Kingdom (UK), it affects over 3 million people¹⁶. Based on studies, about one in four men and one in two women aged 45 years and older break a bone due to osteoporosis which is a serious complication²⁵. Although the disease affects people of all races, the white and Asian women especially those who are past menopause are at the highest risk. The bone breaks mostly occur in the wrist, spine and hip causing permanent pain. The disease causes loss of height in some patients and hunched or stooped posture if bones of the spine or vertebrae are affected. It limits the mobility of patients leading to isolation and depression and also complications related to the disease and surgery cause death of approximately 20% of older people who break their hips¹⁵. Osteoporosis is costly as it accounts for about 2 million broken bones and related costs of about \$19 billion annually⁸. Experts predict that by 2025, the disease will be responsible for about 3 million fractures and costs of about \$25.3 billion annually¹¹. Many health problems and some medical procedure are considered to increase the likelihood of having osteoporosis which include autoimmune disorders, cancer, mental illness, gastrointestinal bypass procedures, hormonal disorders, neurological disorders and digestive and

gastrointestinal disorders like the IBS and IBD. Some medicines like aluminum-containing antacids, cancer chemotherapeutic drugs, steroid medicines, and lithium also cause bone loss and osteoporosis⁴. Some of the risk factors for osteoporosis include one's sex, age and race whereby women, the older, Asians and whites are at an increased risk of the disease¹⁹. Individuals whose families have a history of the disease are at greater risk and those with small body frames tend to be more likely to have osteoporosis due to their less bone mass²³. The disease is also more common in individuals whose bodies have too little or too much of specific hormones like the thyroid and sex hormones. Low calcium intake, excessive consumption of alcohol, sedentary lifestyles, and smoking or use of tobacco are also risk factors for osteoporosis. The disease is diagnosed through the use of a special x-ray-based scan referred as DEXA. Bone loss and osteoporosis can be prevented and weak bones strengthened through medications, weight-bearing exercise, and healthy diet²³. Some of the drugs used to prevent and treat the disease include bisphosphonates, RANK ligand inhibitors, calcitonin, antagonists and parathyroid hormone.

Risk of osteoporosis among IBS patients.

IBS is currently seen as a risk factor for osteoporosis. The results obtained from a large scale study conducted in Taiwan showed that individuals who had IBS had higher rates of osteoporosis than the patients who did not have the syndrome²⁰. Another large-scale study aimed at determining the number of IBS patients who had previously experienced an emergency room visit was done. The study results showed that as compared to patients without IBS, those with the syndrome had a higher risk of being diagnosed with osteoporosis and its related fractures of the wrist, hip or vertebrae. The association between IBS and osteoporosis and related fractures has been investigated by few authors. According to a study that included over 300,000 IBS patients from the NEDS database, a higher rate of osteoporosis and fragility fractures was shown in patients with IBS than those without²⁰. Although the reason why patients with IBS have a higher risk for osteoporosis is not yet clear, three possible theories are stated by researchers. First, altered levels of serotonin are associated with the disease as the production of elevated levels in the gastrointestinal tract is the possible cause for osteoporosis as it decreases bone formation⁵. Serotonin contributes to bone mass density and the symptoms of IBS. Second, higher levels

of cytokines that are pro-inflammatory like the IL-6 are also demonstrated in IBS patients than those without the syndrome and are considered to contribute to decreased bone mass density ⁹.

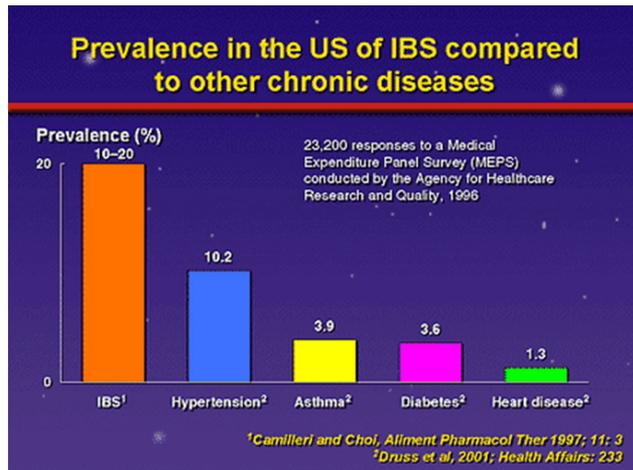


Figure 1: prevalence of IBS and other chronic diseases in the United States.

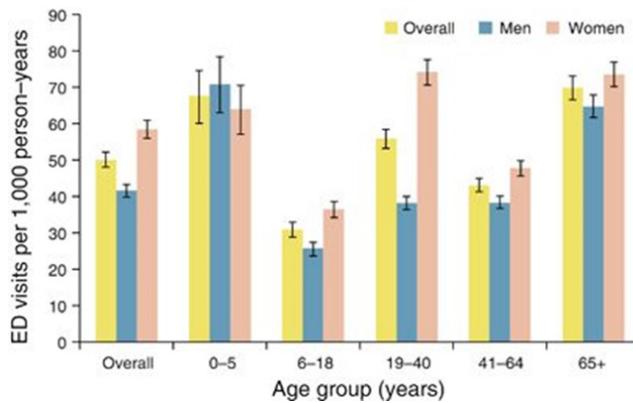


Figure 2: Emergency department (ED) visits with primary gastrointestinal diagnoses by gender and age.

CONCLUSION

We utilized data from the National Emergency Department Sample (NEDS) database and random sampling method was employed to select patients diagnosed with IBS and controls without IBS. We found out that osteoporosis diagnosis was identified in 23,287 patients and concurrent fracture diagnoses in 3,093 cases. IBS patients have a higher risk of osteoporosis and fractures associated with the condition. The identified high number of IBS patients diagnosed with osteoporosis and related fractures showed that IBS increases the risk of having the disease and experiencing such fractures.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Maysan Health Department, Maysan governorate, Iraq and all experiments were carried out in accordance with approved guidelines.

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Serum Vitamin D Levels in a Sample of Iraqi Female Patients

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ABSTRACT

Background: Recurrent aphthous stomatitis (RAS) is one of the most common oral mucosa diseases characterized by recurrent, shallow, round or oval painful oral ulcers surrounded by inflammatory erythematous halos, the condition is chronic and self-limiting in immunocompetent patients. **Aim of the study:** to investigate the serum vitamin D levels in Iraqi female patients with RAS and the relationship between vitamin D levels and the severity of RAS. In this cross sectional study 30 female patients with idiopathic RAS, and 30 age and sex matched healthy controls were included, the severity of RAS is assessed by the number of oral aphthous ulcers in each attack and the frequency of attacks. Serum 25(OH) D levels were determined by the Enzyme-Linked Immunosorbent Assay (ELISA) method in both RAS patients and control groups. The mean serum vitamin D (25(OH)D) levels were found to be below the normal range (< 30 ng/ml) in both the RAS patients (13.9±12.72 ng/ml) and the control (22.08 ±17.779 ng/ml) groups, with statistically significant difference between the groups ($p=0.045$). There was a significant correlation between the serum levels of 25(OH) D and the number of oral aphthous ulcers in each attack ($r=0.435$; $p=0.016$).

Keywords: *serum vitamin D, recurrent aphthous stomatitis, oral aphthous ulcer.*

INTRODUCTION

Recurrent aphthous stomatitis (RAS) is one of the most common oral mucosa diseases, characterized by recurrent, shallow, round or oval painful oral ulcers surrounded by inflammatory erythematous halos¹ The condition is chronic and self-limiting in immunocompetent patients; may affect up to 25% of population with a predominance among women (particularly in the second and third decades of life) and in higher socio-economic groups² and about 40 % in children⁽³⁾. Recurrent aphthous stomatitis lesions are likely to occur on non-keratinized, non-attached oral mucosa⁽⁴⁾. Three clinical forms have been classified as minor aphthae (MiRAS), major aphthae (MaRAS) and herpetiform aphthae (HeRAS), MiRAS constitutes about 80–85% of all the cases and is characterised by 1-5 erosions < 1 cm in diameter, healing spontaneously within 5–10 days without scarring, while MaRAS occurs

as long-lasting ulcers exceeding 1 cm and leaving a scar, The herpetiform presentation consists of dozens of very small erosions that spread throughout the oral cavity, healing within 14 days without leaving a scar⁴. there are many hypotheses that are put forth for the etiology of RAS⁽⁵⁾. there is no definitive evidence regarding the etiopathogenesis of RAS, host Factors include genetic factors, food allergy, vitamins deficiency, immune dysregulations, physical or emotional stress, while environmental factors like local trauma, chemical injury or physical trauma, infections, smoking, these factors could be the initiating or triggering factor for ulcer formation, those individuals who are susceptible when exposed to the triggering factors for certain duration tend to develop ulcers⁶. dysregulations of the function of the immune system in genetically predisposed individuals is considered to be definitive in many cases in the aetiology of this entity, both humoral and cellular types of the immunological response may be disordered in patients with aphthae, resulting in e.g. activation of neutrophils and complementary ingredients, increased number of NK cells and B lymphocytes, disrupted CD4/CD8 ratio (< 1, especially in MaRAS), and elevated levels of T cell receptors in the peripheral blood⁷. the presence of

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antibodies for different antigens of the epithelium in RAS patients also suggests an autoimmune sign of the disease⁸. Many authors have indicated the importance of increased production of pro-inflammatory Th1 type cytokines (IL-2, IL-12, TNF- α , IFN- γ) and decreased anti-inflammatory Th2 type cytokines (IL-4, IL-5, IL-10, IL-13) and transforming growth factor β (TGF- β) in the pathogenesis of RAS⁹. Hyperactivity of the immune system results in a non-specific inflammation in the affected tissues, with neutrophils being predominant in the ulcerated area in the immediate phase, as well as massive leukocyte infiltration in the ulcer-surrounding area (consisting mainly of T lymphocytes, but also including B lymphocytes, macrophages and monocytes), dilatation of blood vessels is also observed in the histological picture¹⁰. Vitamin D is a steroid hormone. There are two prehormone forms, 25(OH) D; vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol), which are converted to the active form, 1,25-dihydroxy vitamin D (1,25(OH)₂D or calcitriol) by subsequent hydroxylation reactions in the liver and kidneys, Vitamin D2 is provided by dietary sources (oily fish and fortified dairy products), D3 is synthesized in the skin on exposure to sunlight, cutaneous synthesis is the main source of vitamin D in the human organism¹¹. The role of vitamin D in calcium phosphorus homeostasis and bone metabolism is well determined, but recently increasing evidence suggests that vitamin D affects the function of the immune system, the biological effects are due to mediation by the ligand-activated vitamin D receptor (VDR). Vitamin D receptor has been found in most of the immune system cell types, including antigen-presenting cells (APCs), such as macrophages and dendritic cells, and T-cells. Vitamin D suppresses antigen presentation, proliferation of T-cells and production of antibodies by B-cells. It stimulates monocyte differentiation and synthesis of an active form of vitamin D in macrophages¹². The amount of secreted cytokines is altered by vitamin D; production of Th1 cytokine type is decreased and production of Th2 type is increased. The immunomodulatory effect of this vitamin has raised an interest in its possible role in aetiology of immunodependent entities. It has been suggested that the vitamin D deficiency may be a risk factor for autoimmunisation, many evidence suggests that vitamin D has immunomodulatory effects and plays an important role in the pathogenesis of T-cell-mediated autoimmune diseases such as rheumatoid arthritis (RA)¹³ and systemic lupus erythematosus (SLE)¹⁴ and Behçet disease (BD)¹⁵. The enhanced production of pro-inflammatory Th1

type cytokines and the decreased production of anti-inflammatory Th2 type cytokines and TGF- β have been defined as a risk factor for autoimmunisation in RAS by many authors^{9, 16, 17}. Vitamin D activates the innate immunologic response mechanisms via Toll-like (TLR) membrane receptors. One such outcome is the enhanced production of antibacterial proteins: cathelicidins and defensins¹⁸. In addition, significantly increased salivary human neutrophil peptide-1 concentrations in comparison to healthy controls were observed in RAS and BD¹⁹. Several studies have shown a potential link between two syndromes with recurrent aphthous ulcers involved, BD and periodic fever, aphthous stomatitis, pharyngitis, and cervical adenitis syndrome^{20, 21}.

The aim of this study was to investigate the status of vitamin D in patients with RAS and the relationship between vitamin D levels and the severity of RAS.

MATERIALS AND DISCUSSION

In this cross sectional study 30 female patients with idiopathic RAS, and 30 age and sex matched healthy controls were included. Patients with at least 3 minor aphthous oral ulcers in a year without any known cause for RAS are determined as idiopathic RAS, RAS is diagnosed by oral medicine specialist according to the clinical characteristics of ulcers. The study group is selected consecutively from the patients attending to the oral medicine clinic of college of dentistry, Baghdad University between March to April 2018. Exclusion criteria are the treatment with vitamin D supplements, steroids, colchicine, disease modifying anti-rheumatic drugs (DMARDs), and anticonvulsant drugs in the past 6 months; the use of anti-solar creams; pregnancy; chronic renal failure, liver disease, thyroid and parathyroid disorders; malnutrition; BD and fibromyalgia. The severity of RAS is assessed by the number of oral aphthous ulcers in each attack and the frequency of attacks. The duration of RAS and frequency of attacks will be documented on patient self-reporting. Separated serums will be collected and stored at -20°C until laboratory tests will be performed. Vitamin D status will be determined by the Enzyme-Linked Immunosorbent Assay (ELISA) method. According to the serum 25(OH) D level, each given participant will be defined as Normal ($30 < 25(\text{OH}) \text{ D} < 100 \text{ ng/dl}$), Insufficient ($10 \leq 25(\text{OH}) \text{ D} \leq 30 \text{ ng/dl}$), or Deficient ($25(\text{OH}) \text{ D} < 10 \text{ ng/dl}$)²².

Statistical analysis: Statistical analysis were

performed by the SPSS software version 18.0 (SPSS Ins, Chicago, IL). Results are expressed as median (minimum–maximum values), or mean SD and independent t- test was used to assess the significance of any differences between the two groups. All correlations were evaluated using the Pearson Correlation test and the statistical significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

In this study demographic and clinical characteristics of both study groups are presented in Table (1). The mean serum vitamin D (25(OH)D) levels were found to be below the normal range (< 30 ng/ml) in both the RAS patients (13.9 ± 12.72 ng/ml) and the control (22.08 ± 17.779 ng/ml) groups, with statistically significant difference between the groups ($p = 0.045$) as shown in table (2). The levels of 25(OH) D were correlated to the clinical characteristic of RAS. No correlation was found between the serum levels of 25(OH) D and the duration of RAS ($r = 0.016$; $p = 0.932$), frequency of attacks ($r = 0.105$; $p = 0.581$), while there was a significant correlation between the serum levels of 25(OH) D and the number of oral aphthous ulcers in each attack ($r = 0.435$; $p = 0.016$) in RAS group in Table (3). In this study it was shown that the mean 25(OH) D level in the RAS group was lower than that in the control group and this agree with Khabbazi *et al.* who examined 46 patients suffering from an idiopathic MiRAS and 49 controls, The mean 25(OH) D serum level was found to be lower in the RAS group than in the control group (12.1 ± 7.7 ng/ml vs. 27.4 ± 9.7 ng/ml) ⁽²²⁾. vitamin D has

an important regulatory role in the function of immune system VDRs are present in most of the immune system cell types, therefore the immunomodulating effect of this hormone is indisputable. the profile of secreted cytokines is altered by vitamin D, hence the production of Th1 cytokine type is decreased and the production of Th2 type is increased ¹⁷, while the increased activity of Th1-type immune response accompanied by the decreased anti inflammatory Th2 type cytokines and TGF- β levels are typical features of autoimmune diseases ⁹. in this study, the mean serum 25(OH) D levels were lower than optimal (< 30 ng/ml) in both the RAS and control groups. And this agrees with other studies ^{22, 23}. females in Iraq and the Middle East countries, serum 25(OH) D levels were reported to be less than optimal despite the lower latitude and high insolation. possible reasons for this situation may include a lifestyle that avoids sun exposure and wearing traditional clothing, skin pigmentation and diet ²⁴. in this study there was a significant correlation between serum levels of 25(OH) D and the number of oral aphthous ulcers in each attack, epidemiological evidence also indicates an association between the vitamin D deficiency and an increased incidence of immune mediated diseases. There was a study showed a relationship between circannual vitamin D serum levels and disease activity in RAS in northern and Western Europe ²⁵.

In conclusion, the results of this study suggest that vitamin D deficiency may have a role in the pathogenesis of RAS.

Table 1: Demographic data and characteristics of the recurrent aphthous ulcers.

Age(Years)	RAS	Control	P value
	36.43±14.18	33.60±11.06	0.392[NS]
Disease duration	2.57±2.81	-----	-----
Frequency attacks	1.2±0.48	-----	-----
Aphthous number	2.03±1.07	-----	-----
NS, non significant; RAS, recurrent aphthous stomatitis			

Table 2: vitamin D status in the recurrent aphthous ulcer patients and control

Groups	Mean	Std. Deviation	T test	P value
Control	22.080	17.779	2.048	0.045[Sig]
RAS	13.907	12.720		

Table 3: Correlations of Vitamin D with clinical characteristics of recurrent aphthous ulcer.

	Disease duration (years)	Frequency of attacks (month)	Aphthous ulcers numbers per attack
Pearson Correlation	0.016	0.105	0.435
Sig. (2-tailed)	0.932[NS]	0.581[NS]	0.016 [Sig]

CONCLUSION

Serum 25(OH) D levels were determined by the Enzyme-Linked Immunosorbent Assay (ELISA) method in both RAS patients and control groups. The mean serum vitamin D (25(OH)D) levels were found to be below the normal range (< 30 ng/ml) in both the RAS patients (13.9±12.72 ng/ml) and the control (22.08 ±17.779 ng/ml) groups, with statistically significant difference between the groups ($p = 0.045$). There was a significant correlation between the serum levels of 25(OH) D and the number of oral aphthous ulcers in each attack ($r = 0.435$; $p = 0.016$).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of oral diagnosis, College of Dentistry, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Vascular Endothelial Growth Factor/Vascular Permeability Factor and VEGF Gene Polymorphisms is Detectable Rheumatoid Arthritis Patients

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ABSTRACT

VEGF is a crucial mediator of angiogenesis. It has been implicated in neovascularization associated with cancer metastasis, as well as arthritis. Hypoxia present in the inflamed joints, as well as hypoxia-inducible factors mediate VEGF production that leads to endothelial cell proliferation and angiogenesis. Serum VEGF levels have been associated with the clinical activity of rheumatoid arthritis. VEGF targeting using anti-VEGF and anti-VEGF receptor antibodies, small molecule inhibitors of VEGF signalling has been utilized in oncology and, very recently, in arthritis therapy. A total of 70 unrelated IRAQ patients with RA and 40 healthy Iraqi volunteers with no family histories of any autoimmune diseases were recruited. The promoter VEGF gene polymorphisms were genotyped gene polymorphism implemented used RFLP technique. Serum VEGF levels in RA patients and controls were measured by ELISA. The results show The genotype distributions and allele frequencies of VEGF gene polymorphisms in RA patients were significantly different from healthy Statistically significant differences were observed in genotypes for VEGF gene. The frequencies of the A allele on the VEGF gene were significantly increased in RA patients.

Keywords: VEGF gene, VEGF protein, RFLP. Rheumatoid arthritis.

INTRODUCTION

VEGF has been implicated in inflammatory mechanisms, as well as in angiogenesis underlying rheumatoid arthritis (RA) ¹⁻³. VEGF is primarily produced by synovial fibroblasts in the pannus ⁴. Proinflammatory cytokines such as TNF- α and IL-1, stimulate synovial fibroblasts and other cells to release VEGF ¹⁻⁵. VEGF induces endothelial cell proliferation and migration in *in vitro* culture systems and it also stimulates capillary formation in *in vivo* models of angiogenesis ¹⁻⁵. Abundant production of VEGF has been described in RA ⁴⁻⁷. In addition, increased serum VEGF levels were correlated with disease activity in RA ^{4,8,9}. In, akylosing spondylitis and psoriatic arthritis ^{8,9,12}. RA patients with moderate disease activity had VEGF pro-

duction comparable to healthy controls. Only RA patients with high disease activity exerted significantly higher serum VEGF levels in comparison with either patients with moderate disease activity or healthy subjects. Serum VEGF levels could be correlated with systemic inflammation indicated by erythrocyte sedimentation rate (ESR) but not with rheumatoid factor. This study supports reports by other authors indicating that VEGF may serve as an activity marker in RA. Furthermore, increased VEGF production was associated with longer disease duration. Previous studies attempting to correlate VEGF production with disease duration have given conflicting results ^{13,14}. VEGF is one of the most potent proangiogenic factors, which expression is potentiated in response to the hypoxic state in the rheumatoid joints and by several of pro- and anti-inflammatory cytokines ¹⁵. It stimulates angiogenesis by promoting of endothelial cells proliferation and migration to form new blood vessels and increase vascular permeability as well as it induces several of proinflammatory changes in chronic inflammation ¹⁶. Although the role of VEGF in joint

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inflammation is known, its role in joint destruction is not well understood¹⁷.

MATERIALS AND METHOD

Sampling and data collection

This a case-control study consisted of 70 patients with RA and 40 healthy persons without a history of immunological diseases as a control group. All subjects signed an informed consent, and clinical data of patients were collected from patient files and questionnaires. Our study was approved by the Research Ethics of the Iraqi Ministry of Health. About 2 ml of whole blood was collected from all subjects

DNA extraction and purification

Genomic DNA was extracted from whole blood collected in EDTA-tubes from all subjects (patients and control individuals) using Genomic DNA Extraction Blood DNA Mini Kit (FAVORGENE). The concentration (ng/ml) and purity (260/280 nm) of the DNA extracts were measured at 260 nm and 280 nm with a NanoDrop spectrophotometer (OPTIZEN POP – Korea).

Genotyping

The candidate SNP (1154 A/G (rs1570360) was investigated using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) technique. The amplification reaction was done with 5 µl of 200ng/ µl of genomic DNA, 12.5 µl of 1X Master Mix (Promega), 2 µl of 10 pmol of each specific primer pair (forward and reverse primer), and completed the volume of 25 µl PCR mixture with DNase free water.

The source of the primer was Bioneer (South Korea). Primer sequences of *VEGF* 1154G/A (rs1570360) were forward (5'- TCCTGCTCCCTCCTCGCCAATG) and reverse (5'- GGCGGGGACAGGCGAGCCTC ') ¹⁸. The technique for PCR included a pre-denaturing temperature at 95°C for 10min, followed by 30 cycles at 95°C for 45 s; 62°C for 45 s; and 72°C for 30 min with a final extension at 72°C for 10 min. Ten µl of PCR products (487 bp in length) was digested according to Promega company protocol, which the digestion reaction mixture (36 µl) composed of 0.5 µl *MnII*, 2 µl of buffer B, 0.2 µl BSA buffer, 7 µl of 1X Muti core buffer and 16.3 µl of DH₂O; the reaction was incubated at 37°C for 16h. Subsequently, The product was separated on a 1.5% agarose gel for 45min and power 70 volt and 20mA.

Finally, The gel was viewed by RedSafe™ Nucleic Acid Staining (iNtRON) under ultraviolet light. *MnII* digestion of the PCR product yielded 206 bp for the undigested allele A/A, 184bp and 22bp G/G genotype was completely digested into 150 bp, 34 bp and 22 bp fragments; all 4 fragments (184 bp, 150 bp, 34bp, and 22 bp) corresponded to the heterozygous G>A genotype (Figure 2).

Assay for serum levels of VEGF

Serum samples were separated from peripheral venous blood and collected at -86°C until analysis. VEGF levels were determined using a human VEGF quantitative enzyme-linked immunosorbent assay (ELISA), according to the manufacture instructions. The minimum level of detection for VEGF was 9 pg/ml. All analysis was run in duplicate and the intra-assay coefficient of variation was <10%. The plates were read using an ELISA reader at 450 nm.

Statistical analysis

Comparison of genotype distribution and allele frequencies between RA patients and the control group were estimated by computing odds ratios (ORs) and 95% confidence intervals (CIs).

RESULTS AND DISCUSSION

Examined VEGF protein expression levels in serum from 110 RA patients and 40 healthy subjects, recruit from the genetic study cohort. The VEGF protein expression levels were significantly higher in RA patients than in healthy controls (352 vs 176 pg/ml; p<0.0004). VEGF production was significantly increased in RA patients in comparison with healthy controls. Patients with longer disease duration exerted significantly higher serum VEGF levels in comparison with patients with early RA. Certainly, the targeting of VEGF is a feasible anti-inflammatory and anti angiogenic therapeutic strategy in arthritides, as well as in malignancies^{19,20}. VEGF inhibition may include the use of monoclonal antibodies to VEGF, soluble constructs, small molecule VEGF inhibitors or inhibitors of VEGF signaling²¹. Apart from malignancies, VEGF inhibition has been recently introduced to arthritis trials²². Additional studies are required in order to determine the role of VEGF in early versus late arthritis, as well as its involvement in joint destruction. More VEGF and HIF inhibitors may be introduced to the therapy of arthritis in the future. The PCR products of the *VEGF*

target sequences were digested with *MnII* ((5' C A T ▼ A 3') restriction enzyme (Fig.1) to detect the rs21570360 SNP in 5'-flanking region of *VEGF* gene (Fig. 2). The results of PCR-RFLP showed that the *VEGF* polymorphism frequencies of the homozygous alleles GG and AA were 42.8% and 22.8% in the patient group with RA of alleles, respectively comparison with the healthy control group who had all polymorphic alleles GG, AA & AC at frequencies 67.5%, 22.5 % & 10% respectively, as shown in table (2). The 206-bp PCR product of *VEGF*-1154G>A was digested with *MnII* restriction endonuclease and the G allele was replaced by the A allele with a loss of digestion site. The homozygous A/A genotype was digested into 184bp and 22bp fragments; the homozygous G/G genotype was completely digested into 150bp, 34bp and 22bp fragments; all 4 fragments (184bp, 150bp, 34bp, and 22bp) corresponded to the heterozygous G>A genotype (Figure 2). In this study we analyzed SNP in the *VEGF* gene at position -1154 A/G, identified SNP, which are strongly associated with susceptibility of RA. These findings indicated that VEGF may be involved in the RA pathogenesis association between genetic variants in VEGF, serum level of VEGF protein and RA²³. To the best of our knowledge this is the first report showing the positive association between VEGF gene polymorphisms and susceptibility to RA. In this study, we presented that the minor allele of the two polymorphisms at position -1154 A/G and -2578 A/C, located in the 5'-flanking region of the VEGF gene, may be a genetic risk factor for RA in the Polish population. Moreover,

the RA patients who carried the haplotype GCG or GCC of -1154/-2578/-634 were more susceptible to RA, suggesting that the effect of the gene on disease risk may not be limited to a single SNP. In contrast, a study on a Korean, England, Spanish and China populations found no association between the VEGF -1154 A/G and -2578 A/C polymorphisms and RA²⁴. The endothelial cell activation marker VEGF is an excellent candidate for the monitoring of disease activity, erosive progression and treatment response in rheumatoid arthritis patients²⁵. The most important factor leading to chronic RA as well as deformity development is the pannus formation²⁶. Moreover, inhibition of angiogenesis, which in animal models of arthritis leads to attenuation of severity of the arthritis, has been discussed as a therapeutic target in the arthritis and new intervention in RA (30). In this study we analyzed SNPs in the *VEGF* gene at position -1154 A/G, -2578 A/C and -634 G/ C and identified two SNPs, which are strongly associated with susceptibility of RA. These findings indicated that VEGF may be involved in the RA pathogenesis and confirm previously. The endothelial cell activation marker VEGF is an excellent candidate for the monitoring of disease activity, erosive progression and treatment response in rheumatoid arthritis patients³². It is suggested that VEGF play a central role in the pannus formation and joint destruction, not only by angiogenesis but also by the enhancement of inflammation through the recruiting monocytes to the synovium³⁴. Angiogenesis, which is involved in the regulation of several soluble and cell surface-bound factors, play a central role in the RA pathogenesis for a long time³⁵.

Table (1). Levels of VEGF for both gender of patient and control .

Group Parameters	Control Mean ± SD	Rheumatoid Arthritis Mean ± SD	P value
<i>VEGF</i> (pg /ml)	176.36 ±39.83	352.72 ± 104.44	0.0004*

Table (2) Distribution of allele frequency and genotype of VEGF in case-control study.

Genotype	Patients N(% 70(100%))	Control N(% 40(100%))	TEST X ²	Odd ratio	CI 95%
GG	30(42.8%)	27(67.5%)	0 0.003*	2.400	0.9508 to 6.0578
GA	24(34.2%)	9(22.5%)			
AA	16(22.8 %)	4 (10%)		3.60	0.9508 to 6.0578

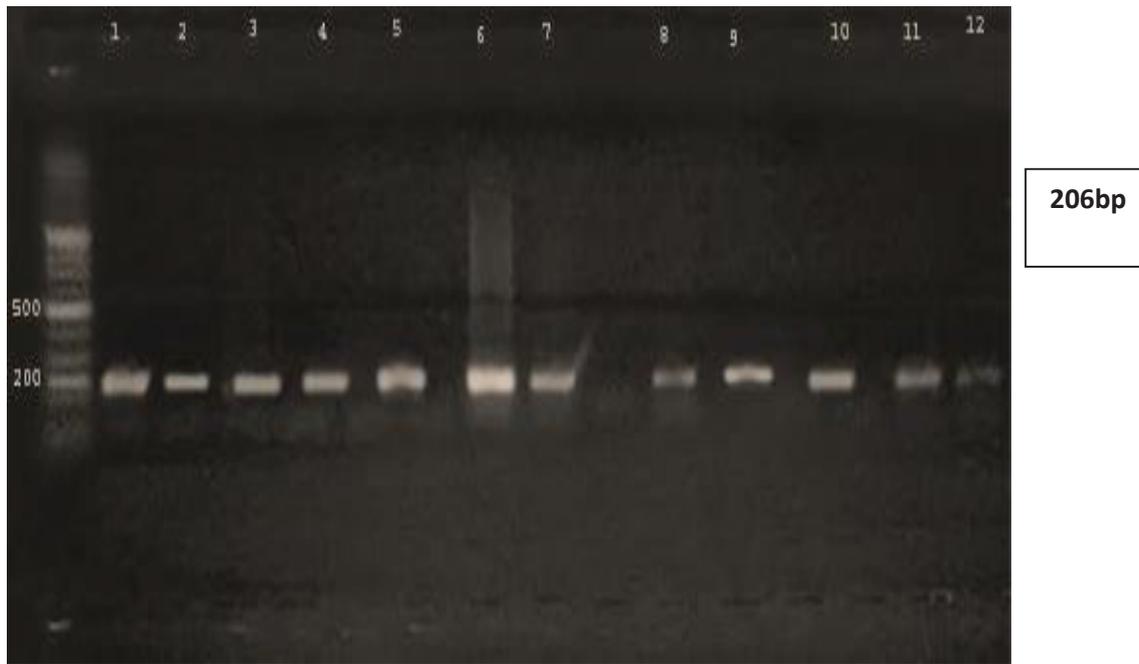


Figure (1) Electrophoresis pattern of (rs1570360) (VEGF) Amplification using PCR technique 2% agarose, 75V, 20mA, for 60 min, line 1 (100 bp) DNA marker, line 1-8 genotype rs1570360 for patients, lane 9-12 rs1570360 genotype for control.

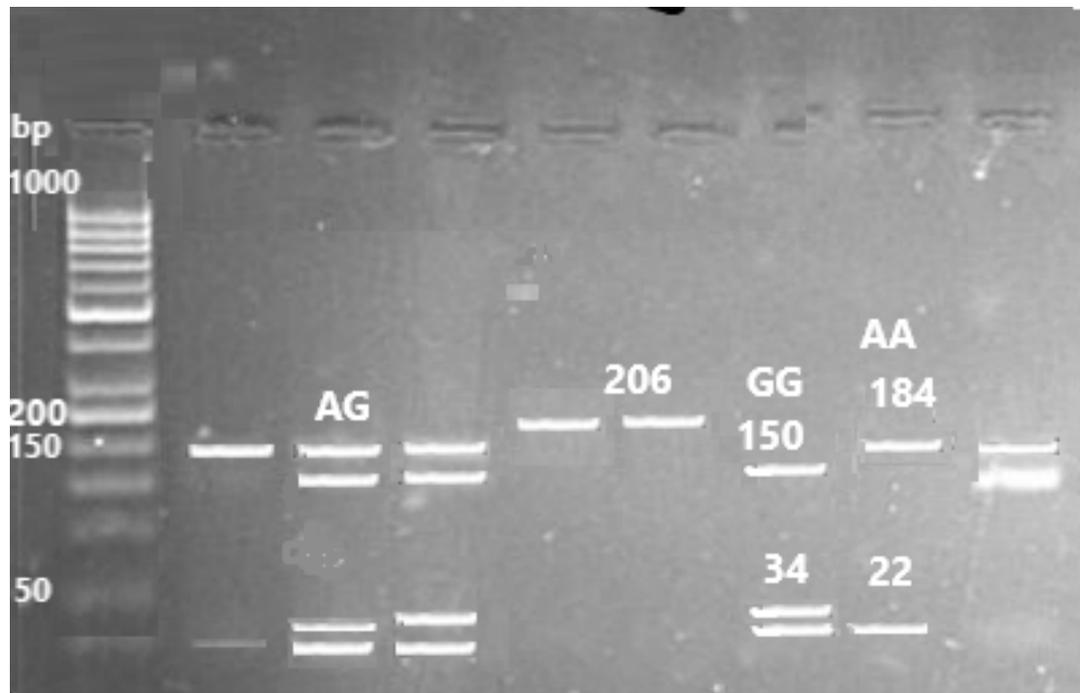


Figure (2) Electrophoresis pattern of *VEGF* genotyping using RFLP technique 1.5% agarose, 70V, 20mA, for 60 min, line 1 (100bp) DNA marker, line 6 G/G homozygous genotype; line 7 A/A homozygous genotype; lanes 2,3 G>A heterozygous genotype.

CONCLUSION

Present findings indicated that VEGF genetic polymorphism as well as VEGF protein levels of RA susceptibility and severity of RA in Iraqi.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were

approved under the Department of Biology, Science For Women, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Antibacterial and Anti-Fungal Activity of Methanolic Extract of *Passiflora caerulea*

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ABSTRACT

The aims of our research were analysis of the secondary metabolite products and *in vitro* antibacterial and anti-fungal activities. *Passiflora caerulea* is a woody vine capable of growing to 25 metres (82 ft) high where supporting trees are available. The FTIR analysis of *Passiflora caerulea* leaves proved the presence of Alkenes, alkyl halides, Amide, Acid and Alkane which shows major peaks at 875.68, 1016.49, 1024.20, 1197.79, 1317.38, 1614.42, 1716.65, 2850.79 and 2922.16. In the current study, the anti-microbial activity of *Passiflora caerulea* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Passiflora caerulea* was very highly active against *Aspergillus flavus* (6.37±0.22).

Keywords: *Passiflora caerulea*, FT-IR, Anti-Bacterial, Anti-Fungal Activity

INTRODUCTION

Passiflora caerulea is a woody vine capable of growing to 25 metres (82 ft) high where supporting trees are available. The leaves are alternate, palmately five-lobed (sometimes three, seven, or nine lobes), and are up to 10 centimetres (3.9 in) in length while being linear-oblong shaped¹⁻⁶. The base of each leaf has a flagellate-twining tendril 5–10 centimetres (2.0–3.9 in) long, which twines around supporting vegetation to hold the plant up. The flower is complex, about 10 centimetres (3.9 in) in diameter⁶, with the five sepals and petals similar in appearance, whitish in colour, surmounted by a corona of blue or violet filaments, then five greenish-yellow stamens and three purple stigmas⁷⁻¹². The fruit is an oval orange-yellow berry, 6 centimetres (2.4 in) long by 4 centimetres (1.6 in) in diameter, containing numerous seeds. It is edible to

humans when ripe, but tends to have an undesirable flavor. Though the fruit is edible, it is rather insipid when eaten raw. A tea can be made of the flower which is said to alleviate stress and anxiety. Often, the plant is boiled into a tea and used as medicine to relieve insomnia and allow deep, restful sleep. However, tetraphyllin B and epi-tetraphyllin B, cyanogenic glycosides (which liberate hydrogen cyanide when activated by enzymes), have been found in the leaves. It is possible to boil away most of the cyanide¹³⁻²². The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc. The medical utility of very few species of *Passiflora* has been scientifically studied. Passionflower extracts have been classified into several categories of chemical activities like anxiolytic, spasmolytic, hypnotic, sedative, narcotic and anodyne²³⁻³¹. These extracts are part of a treatment that has successfully treated outpatients with adjustment disorder and anxious mood. Many species have been found to contain beta-carboline harmala alkaloids with

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anti-depressant properties. The flower and fruit has only traces of these chemicals, but the leaves and the roots are often more potent and have been used to enhance the effects of mind-altering drugs. Once dried, the leaves can also be smoked³²⁻⁴⁰. *Passiflora quadrangularis* is used by traditional healers for snake bites. Snake bites cause blood clotting and eventually burst blood vessels around the bite, this is known as haemorrhaging.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in airtight container to avoid the effect of humidity and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Passiflora caerulea* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm⁴¹⁻⁴⁶.

Determination of antimicrobial activity of crude bioactive compounds of *Passiflora caerulea*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty mL of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in methanolic extract of *Passiflora caerulea*, shown in **Table 1**. Chromatogram FTIR analysis of the methanol extract of *Passiflora caerulea* showed the presence of ten major peaks and the components corresponding to the peaks were determined as follows. The FTIR analysis of *Passiflora caerulea* leaves proved the presence of Alkenes, alkyl halides, Amide, Acid and Alkane which shows major peaks at 875.68, 1016.49, 1024.20, 1197.79, 1317.38, 1614.42, 1716.65, 2850.79 and 2922.16. In the current study, the anti-microbial activity of *Passiflora caerulea* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Passiflora caerulea* was very highly active against *Aspergillus flavus* (6.37±0.22). Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. *P. caerulea* is a perennial vine native to South America (southern Brazil, Argentina, Paraguay and Uruguay), which has been deliberately introduced as an attractive flowering plant to many parts of the world. It has become established as an invasive species in New Zealand, Hawaii, offshore Chilean islands and possibly other Pacific islands. The species is considered valuable as an attractive ornamental vine, is reputed to have herbal activity as a sedative and anticonvulsant, and is often used as a relatively disease-resistant rootstock for the edible passionfruit (*P. edulis*). However, where it has escaped and become invasive, it can smother native species and suppress the establishment of native seedlings.

Table 1. FT-IR peak values of solid analysis of *Passiflora caerulea*

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	875.68	81.563	Strong	=C-H	Bending	Alkenes	650-1000
2.	1016.49	63.828	Strong	C-F	Stretch	alkyl halides	1000-1400
3.	1024.20	63.550	Strong	C-F	Stretch	alkyl halides	1000-1400
4.	1197.79	80.489	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1317.38	81.051	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1614.42	80.833	Bending	N-H	Stretch	Amide	1550-1640
7.	1716.65	89.259	Strong	C=O	Stretch	Acid	1700-1725
8.	2850.79	89.239	Strong	C-H	Stretch	Alkane	2850-3000
9.	2922.16	85.898	Strong	C-H	Stretch	Alkane	2850-3000

CONCLUSION

The FTIR analysis of *Passiflora caerulea* leaves proved the presence of Alkenes, alkyl halides, Amide, Acid and Alkane which shows major peaks at 875.68, 1016.49, 1024.20, 1197.79, 1317.38, 1614.42, 1716.65, 2850.79 and 2922.16. In the current study, the antimicrobial activity of *Passiflora caerulea* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Passiflora caerulea* was very highly active against *Aspergillus flavus* (6.37±0.22).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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Association of Growth Hormone Gene Polymorphism with Birth and Weaning Weight of Nuimi and Awassi Sheep at Kerbala Province

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ABSTRACT

A study was conducted at Barakat Abul- Fadhul Station for Sheep Production located in Kerbala province on a total of 63 pregnant ewes from two local breeds (36Nuimi and 27 Awassi) to find out the association of growth hormone gene polymorphism with the body weight performance of lambs at two stages of life , birth and weaning stages. Polymerase Chain Reaction–Restriction Fragment Length Polymorphism (PCR-RFLP) technique was used to detect polymorphism of growth hormone gene by using restriction enzyme (Hae III) to determine fragment of 422 base pair from growth hormone gene. Lamb weights at birth and at weaning age were measured. The results revealed that 3 genotypes of growth hormone gene were detected in both breeds (AA, Aa and aa) with significant effect of genotypes on mean birth and weaning weights in both breeds. The results also indicated that AA genotype in Nuimi breed recorded the highest value (6.35±0.70) kg in the mean birth weight and (21.50±3.50) kg in mean weaning weight with a significant effect (P<0.05). However, the results of Awassi breed reported that a genotype had highest values in the mean birth weight (6.82±0.68)kg with a significant effect (p<0.05) and mean weaning weight was (23.09±1.50) kg.

Key words: growth hormone gene, polymorphism, Nuimi sheep, Awassi sheep, Birth weight, weaning weight, kerbala.

INTRODUCTION

Growth hormone possesses large physiological roles like appetite control, ageing, body composition, growth, reproduction ⁶ and immune responsiveness ¹⁰. However, growth hormone gene plays role in influence of wool quality and quantity ⁴. The structure of sheep growth hormone gene is similar to other growth hormone gene but more homologous from cattle growth hormone gene ⁶. Growth hormone gene in sheep found in chromosome 3 ⁶. The long of growth hormone gene in sheep is about 1.8kb ⁸. However, the development of technologies of molecular genetic has made it easy to identify differences among individuals on the level of DNA ¹⁵. Lately, genetic polymorphism in candidate

genes has affecting role in production traits, have encouraged considerable research interest due to their ability for utilization as an aid to genetic determination and to demarcate evolutionary relationships in different animals farm breeds ^{1,14}. Polymerase Chain Reaction” (PCR) and Restriction Fragment Length Polymorphism” (RFLP), these technique, in turn, assist to study the specified genes and to amplify them in vitro. Many researchers studied an association of polymorphism of growth hormone gene with body weight and growth like Tamer et al.,(2016) ¹⁵ who reported that the sheep with homozygote mutant alleles had highest body weight and the daily live-weight gain (DLWG), Malewa et al.,(2014) recorded that Donggala and East Java sheep had significantly highest in weaning weight with genotype AA compare with BB genotype, but , AB genotype did not show significant differences in weaning weight in both mentioned breeds. Depsion (2017) worked on thin-tailed sheep in Jambi province reported that the genotype (+/+) had highest body weight and body weight gain in

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mentioned breed. The aim of this study was to find out the relationship of growth hormone gene polymorphism with body weight performance in Nuimi and Awassi sheep raised at Kerbala province.

MATERIALS AND METHOD

Experiment animals

The experiment was conducted on 63 pregnant ewes from two local breeds Nuimi (36 ewes) and Awassi (27 ewes) reared at "Barakat Abul-Fadhil station" for sheep production located in Kerbala Governorate during the period 20/9/2017 to 1/7/2018. The ages of pregnant ewes varies from 2-5 years.

Flock management: Animals were raised in semi-open barns (35% covered and 65% opened) designated for sheep production. Ear tags were used to identify sheep under study. The flock is managed according to a program that includes special feeding program for mothers during pregnancy (barely 60% per ton, bran 39% per ton, alfalfa 0.5kg to each ewe, coarse feed 0.5 to each ewe and salt 1% per ton) and special nutrition for lambs after parturition (barely 60% per ton, barn 29% per ton, crushed corn 10% per ton, soya 8% per ton, limestone 1% per ton, premix 1% per ton, salt 1% per ton). The flock was provided with the required veterinary services including vaccination programs against endemic diseases and dipping schedule for eradication of external parasites by using insecticides.

Blood collection: Blood samples from pregnant ewes of two local breeds (36 samples Nuimi and 27 samples Awassi) were collected from the jugular vein of animals using a 5ml syringe after cleaning the jugular vein area and sterilizing the area with the alcohols in 5ml into "EDTA tube", then numbered these tubes according to number of pregnant ewes, later on the lambs have the identical numbers of their mothers. The samples stored at -8C° until further use.

DNA extraction: Laboratory work was carried out in "The Research Laboratory" at the College of Veterinary Medicine/Kerbala University. DNA of these samples was extracted by using DNA extraction kit (Geneaid extraction kit, Korea). The efficiency of the extraction process was detected by using 1% agarose gel electrophoreses as in (figure1).

Primer design and PCR amplification: Detection

of growth hormone gene was indicated by selection of primer for amplification of this gene. A fragment 422 bp of exon 2 was amplified by using forward primer: F: CTCTGCCTGCCCTGGACT and reverse primer R: R:GGAGAAGCAGAAGGCAAC (Hue et al., 2009). The amplification reaction of PCR was carried in a total volume of 25µl containing of 5µl Maxime PCR PreMix (INTRON Biotechnology, Korea), 1µl of primer and 5µl of DNA template than mixture was completed to the total volume of 5µl with 13µl of D.W. The programmed thermal cyclers of PCR conditions were done as in table (1). The PCR products were separated by 2% agarose gel electrophoresis and visualized by exposure to ultraviolet light (302 nm) after ethidium bromide staining.

The restriction enzyme reaction: the restriction enzyme reaction was made by using 1.5µl restriction enzyme HaeIII (TAKARA) and the 5µl of PCR product and 3.5µl buffer for growth hormone. The mixture was incubated at 37°C for 3 hrs. and were visualized by using ethidium bromide staining in 2% of agarose gel.

Determination of lambs weight: Birth weight was determined within 24 hrs. and Weaning weight was also determined after 15 weeks by using balance modified for small ruminants.

Statistical analysis

We used a statistical analysis of data which was performed by using SAS (statistical analysis system – version 9.1th ed.) significant differences were compared with the "Duncan Multidimensional Test" ($p < 0.05$).

RESULTS AND DISCUSSION

The PCR product was digested by RFLP technique using the Hae III restriction enzyme for this regions. The results showed three different sizes of genotypes in both studied breeds which were shown in the region of 422 bp: AA undigested one fragment at 422 bp; Aa with three digest fragments at 422 bp, 366 bp and 56 bp; aa Two digest fragments at 366 bp and 56 bp (Fig. 1 and 2) The results were partly consistent with those obtained by Zaid et al., (2018) who worked on three breeds of sheep in Iraq (Awassi, Hamadani and Karadi) they found 3 genotypes which were identical with those reported by our study. Table (2) recorded the AA genotype of Nuimi breed was excelled on (Aa and aa) genotypes in birth weight and weaning weight and genotype AA have significant effect ($p < 0.05$) in weaning weights of

lambs, The mean birth weights of lambs that possess genotypes (AA, Aa and aa) were (6.35, 4.50 and 5.05) kg ,respectively. However, the weaning weights of lambs that possess genotypes (AA, Aa and aa) were (21.50, 19.09 and 20.09)kg, respectively,whereas, genotype Aa has lower mean weights in both birth weight and weaning weight. The results of Awassi breed in table (3) revealed the means lambs birth weight of genotypes (AA , Aa and aa) were (6.25,4.94 and 6.82)kg ,respectively and the aa genotype has higher value in birth weight and significant effect (p<0.05), while Aa genotype has lower value in mean birth weight . Lambs weaning weights of genotypes (AA , Aa and aa) were (21.79, 19.65 and 23.50)kg , respectively and aa genotype also has higher value in weaning weight and significant effect (p<0.5) while Aa genotype has lower value of mean weaning weight. The outcome in table (2) revealed the impact of genotypes on birth and weaning weights in Nuimi sheep, our outcomes recorded AA genotype had higher values in birth and weaning weights (6.35, 21.5)kg separately, while aa genotype had (5.05kg) in birth weight and (20.09kg) in weaning weight. Nevertheless, Aa genotype had (4.50kg) in birth weight and (19.09kg) in weaning weight,our consequences of the impact of genotypes on Nuimi breeds were concurrence with Malewa (2014) who acted on Donggala and East Java sheep in Jambi province and revealed that AA genotype had significantly higher weaning weight than BB genotype both in Donggala (11.6 kg vs 9.68 kg) and East Java

(10.83 kg vs 9.37 kg) sheep. AB Genotype did not show significant differences in weaning weight compared to AA genotypes both in Donggala and East Java sheep. Depison (2017) dealt with Thin – tailed sheep in Jambi found that (+/+) genotype had higher body weight. The outcomes in table (3) revealed the impact of genotypes on birth and weaning weights in Awaasi breeds , our outcomes indicated aa genotype had the higher value in birth weight (6.82kg) and (23.5 kg) in weaning weight. While, AA genotype had (6.25kg) in birth weight and (21.79kg)in weaning weight. Anyway, Aa genotype has lower values in birth weight (4.94kg) and in weaning weight (19.65kg).These outcomes were concurrent with Al-Salihi(2017) who worked on Awassi sheep and his study yielded 3 genotypes (AA, AG.GG), GG genotype had a higher values in birth weight (4.53kg) and weaning weight (21.26kg).While AA genotype had (3.92kg) in birth weight and (20.32kg) in weaning, However, AG genotype had lower values in birth weight (3.59kg) and weaning weight (18.26kg). Our outcomes additionally in concurrence with Tamer (2016) who dealt with a Harri sheep and recognized three genotypes (GG, GA, AA) and recorded the AA genotype had a higher value in birth weight (2.2 kg) while genotype GG has (1.5 kg) and AG genotype had (1.8 kg). The outcomes likewise concurrence with Cauveri (2016) work on Nilagiri sheep revealed three genotypes (GG, AG, AA) and Showed AA genotype had significantly (p<0.01) in weaning weight and higher weaning weight (13.49 kg).

Table 1. Molecular detection program using PCR technology

Sq.	Steps	Temperature C°	Time	Number of Cycles
1	Start Denaturation	94	5 min	1
2	Denaturation Annealing Extension	95	30 sec.	13 cycles and decrease the temperature about 1C° per each cycle
		65	30 sec.	
		72	45 sec.	
3	Denaturation Annealing Extension	95	30 sec.	35 cycles
		52	30 sec.	
		72	45 sec.	
4	End extension	72	7 min	
5	Finish	4	Unlimited	

Table 2. Relationship of genotypes of growth hormone gene with birth and weaning weights in Nuimi sheep

Genotype	Number of ewes	Means ± Standard Error	
		Birth weight(kg)	Weaning weight (kg)
AA	14	6.35 ± 0.70 A	21.50 ± 3.50 A
Aa	20	4.50±0.50 A	19.09±0.26 B
aa	2	5.05 ± 0.36 A	20.09 ± 0.44 AB
Significant level		N.S	0.05

Table 3. Relationship of genotype of growth hormone gene with birth and weaning weights of Awassi sheep.

Genotype	Number of ewes	Mean ± standard Error	
		Birth weight(kg)	Weaning weight (kg)
AA	12	6.25 ± 0.23 A	21.71 ± 0.73 AB
Aa	13	4.94 ± 0.22 B	19.65 ± 0.40 B
aa	2	6.82 ± 0.68 A	23.50 ± 1.50 A
Significant level		0.05	0.05

Figure 1. DNA extraction of blood samples to Nuimi and Awassi breeds.

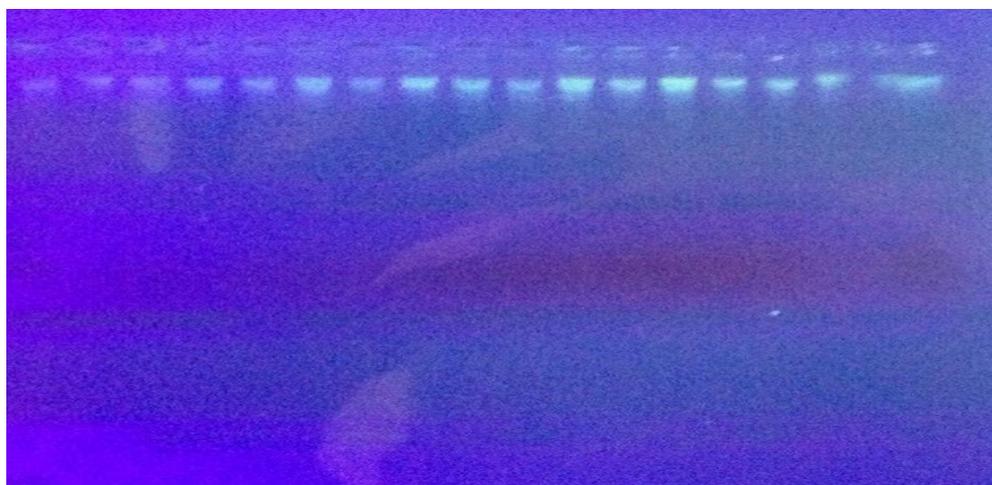
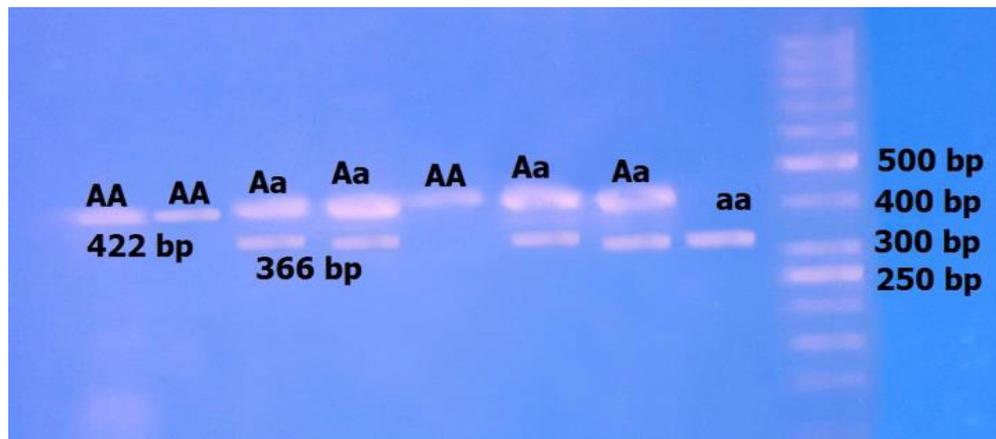
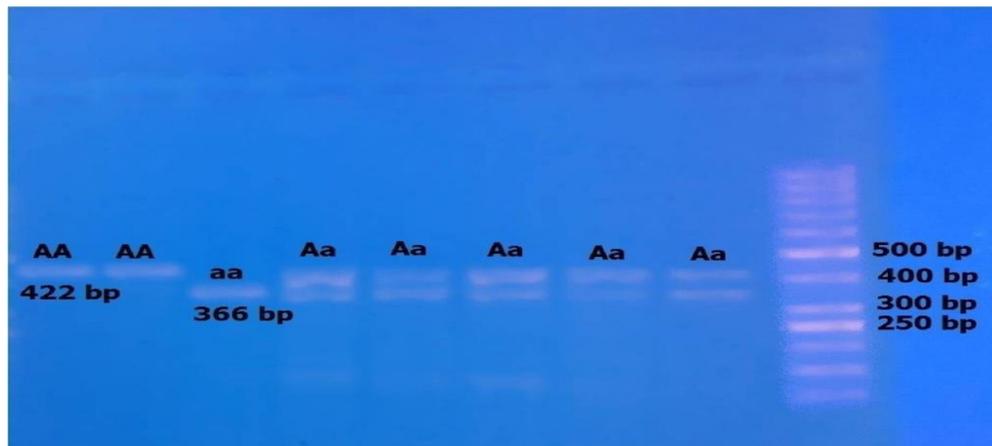


Figure 2. Enzymatic digestion of PCR products to the Nuimi pregnant ewes, 422bp & 366 bp fragments were appeared, the



fragments of 56 bp was not appeared.

Figure 3. Enzymatic digestion of PCR products to the Awassi pregnant ewes, 422bp& 366 bp fragments were appeared ,the



fragments of 56 bp was not appeared.

CONCLUSION

The results also indicated that AA genotype in Nuimi breed recorded the highest value (6.35 ± 0.70) kg in the mean birth weight and (21.50 ± 3.50) kg in mean weaning weight with a significant effect ($P < 0.05$).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of physiology, College of Veterinary Medicine, University of kerbala and all methods were carried out in accordance with approved guidelines.

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Cerebral Palsy Epidemiology in Tikrit- Iraq

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ABSTRACT

Prenatal risk factors were the commonest (59%), the most important risk factor was prematurity (21%) followed by asphyxia (19%) and kernicterus (17%), while it was unknown in majority of cases (31%). Spastic diplegia accounted for (40%) of the total cases, spastic quadriplegia (34%), spastic hemiplegia (14%), and extrapyramidal cases were (12%). Spastic CP was the major form in both sexes, and was mainly diplegic (23% in males), (17% in females). Spastic diplegia was the commonest form of CP in low and middle SES (22%, 8% respectively), while in high SES it was equal between diplegia and quadriplegia (10% for both). Spastic types of CP were the major form in both rural and urban areas and diplegia being the commonest (39%, 16% respectively). Cortical brain atrophy was the commonest neuroimaging finding (59%) followed by PVL (19%), ICH (7%), ischemia (3%), and normal findings were found in (12%) of cases. Cortical brain atrophy was the main neuroimaging finding in spastic quadriplegia (34%) and extrapyramidal CP (10%), PVL was the main neuroimaging finding in spastic diplegia (18%), ICH and ischemia were the main neuroimaging findings in spastic hemiplegia (6%, 3% respectively), while most of normal findings were in spastic diplegia (9%).

Keyword: Cerebral Palsy, Epidemiology, Tikrit

INTRODUCTION

Cerebral palsy (CP) is the principle cause of childhood physical disability¹. CP occur in 1.5-2.5 children/1000 live births. CP is a spectrum of disorders with wide presentations, etiology, co-morbid conditions, severity, functional implications and service needs and despite this variability, the main unique CP feature is an early onset motor disorder due to a non-progressive congenital or acquired cerebral lesion or abnormality². Neuroimaging used to discover the cerebral lesions or abnormalities that underlie CP. There is a published practice parameter recommending routine neuroimaging of all children suspected of having CP³. CP's Neuroimaging studies has the potential to improve pediatrician understanding of CP individual, by providing insight into its pathogenesis, etiology, and timing⁴. The reason of choosing this subject was the increased number of cases of CP patients

and complications noticed attending the hospital. This study aims at identifying some of risk factors of CP for early and better diagnosis to decrease its morbidity and mortality.

METHODOLOGY

Setting of the Study: This study was carried out in pediatric department (ward and emergency room) in Tikrit Teaching Hospital (Tikrit city) which located about 200 Km. north of Baghdad city, Iraq.

Design of the Study: Hospital based case control study was done on 123 patients (23 were excluded by exclusion criteria) with CP (previously or newly diagnosed) and between the ages of 3 months-13 years attending the emergency room and those who had been admitted to Pediatric ward during the period from 1st September 2012 - 31st January 2013 over a period of 5 months. A specially designed interview sheet was used to collect the information's from mothers, grandmothers, or any other care giver. The sheet includes sociodemographic information's of the studied sample as name, age, weight, gender, residence, age of parents and socioeconomic status. Regarding SES, we

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used Kuppusswami index which depends on:

1. Education: (profession or honours, graduate or post graduate, intermediate or post high school diploma, high school certificate).

2. Occupation: (profession, semi profession, clerical or shop owner, skilled worker or semi-skilled).

3. Income.

Other information's of the study sample that were collected in the questionnaire sheet are: The way of delivery, date of admission (and whether newly or previously diagnosed), birth weight (>1500gm,<1500gm), parental consanguinity, and family history of CP and/or epilepsy. Also prenatal condition (maternal infection, maternal medical problems, maternal drug use, maternal bleeding, term preterm or premature, attendance to health care center or clinic). Natal condition (prolonged or obstructed labor or any other complication, maternal bleeding or fever, fetal presentation, PROM, fetal hypoxia or cyanosis and admission to NICU, gestational age (>37wk,<37wk). Postnatal condition (CNS infection, medications, seizures, head trauma, coagulopathies, hyperbilirubinemia requiring photo therapy and blood exchange. Risk factors of CP that we concentrated on were (asphyxia, prematurity, kernicterus, CNS infection, intracranial bleeding, CNS malformation, stroke, and trauma). And presentation of the patient also was included. Physical and neurological examinations were performed; patients were classified as having Spastic (diparetic, hemiparetic, quadriparetic) or Extrapyrmidal CP.

Statistical Analysis: Statistical analysis was done by using SPSS for windows and Microsoft Excel 2007 system. Data was statistically analyzed to provide descriptive statistics for namely frequencies and percentages for categorical data, and mean and standard deviation for quantitative data.

Criteria for Selection of the Sample:

Cases previously diagnosed and who have neuroimaging study.

Cases with motor deficit and/or neuro-developmental delay (≥ 1 delayed milestones).

Motor or neuro-developmental delay cases that

don't have any other diagnosis.

Exclusion Criteria: this study excluded the cases with other clear diagnosis of their motor condition rather than CP, cases without a neuroimaging study, and children without clear diagnosis in whom clear signs of CP might not have been manifested, and cases of progressive or degenerative neurologic disorders.

Patient Preparation: All patients were send for neuroimaging (CT scans and MRI) by their treating specialist or after taking their approval, and reports were done by radiology specialist and these reports were taken in to account in the current study. All the newly diagnosed patients received diazepam (according to weight and recommended dose, since chloral hydrate was not available) before taking the neuroimaging procedure.

RESULTS AND DISCUSSION

The majority of cases were males with 58 cases (58%) while female cases were 42 (42%), with a male to female ratio of 1.3:1. The majority of cases were from rural areas 70 (70%) and the rest were from urban areas 30 (30%). Most cases were from low socioeconomic environment with 57 cases (57%), 27 cases with middle SES (27%), and 16 cases with high SES (16%).

Risk Factors of CP:

Risk factors were categorized according to time of occurrence into prenatal, natal, and postnatal and as follows: **Prenatal:** [maternal Infection 11 cases (11%), maternal medical problems 4 cases (4%), maternal drug use 3 cases (3%), maternal bleeding 4 cases (4%), IUGR 11 cases (11%), preterm delivery 21 cases (21%), and breech presentation 5 cases (5%)]. **Natal:** [fetal hypoxia and cyanosis 19 cases (19%), maternal bleeding 1 case (1%), maternal fever 8 cases (8%), prolonged labor 2 cases (2%), obstructed labor 2 cases (2%), birth weight <1500gm 9 cases (9%), and premature rupture of membranes 6 cases (6%)]. **Postnatal** [hyperbilirubinemia 17 cases (17%), CNS infection 5 cases (5%), seizures 7 cases (7%), coagulopathies 1 case (1%), and head trauma 2 cases (2%)]. Unknown: cases were 31 (31%). As in the table (1).

Functional Classification: Spastic diplegia accounted 40 cases (40%) of the total cases, spastic quadriplegia 34 cases (34%), spastic hemiplegia 14

cases (14%), and extrapyramidal cases were 12 (12%), as in As in table (2).

Gender Distribution to Functional Classification: Regarding males there was 23 cases of spastic diplegia (23%), 21 cases of spastic quadriplegia (21%), 9 cases of spastic hemiplegia (9%) , and 8 cases extrapyramidal (8%). Regarding females there was 17 cases of spastic diplegia (17%), 13 cases of spastic quadriplegia (13%), 5 cases of spastic hemiplegia (5%), and 4 cases extrapyramidal (4%). As in table (2).

Socioeconomic Distribution to Functional Classification: Regarding low SES ,spastic diplegia cases were 22 (22%), spastic quadriplegia were 19 cases (19%), spastic hemiplegia cases were 7 (7%), and extrapyramidal cases were 6 cases (6%). Regarding middle SES, there was 8 cases of spastic diplegia (8%), 5 cases of spastic quadriplegia (5%), 5 cases of spastic hemiplegia (5%), and 4 extrapyramidal cases (4%) . Regarding high SES, spastic diplegia cases were 10 (10%) ,10 cases of spastic quadriplegia (10%) ,2 cases of spastic hemiplegia (2%), and 2 extrapyramidal cases (2%). table (3).

Residence Distribution to Functional Classification: In rural areas, spastic CP cases were (60%) and extrapyramidal cases were (10%), while in urban areas, spastic CP cases were (28%) and extrapyramidal cases were (2%). Regarding urban areas, there were 9 cases of spastic diplegia (9%), 25 cases of spastic quadriplegia (25%), 2 cases of spastic hemiplegia (2%), and 2 extrapyramidal cases (2%). Regarding rural areas, there were 31 cases of spastic diplegia (31%), 9 cases of spastic quadriplegia (9%) ,12 cases of spastic hemiplegia (12%), and 10 extrapyramidal cases (10%) table (4). **Neuroimaging Findings in Relation to Functional Classification:** Cortical brain atrophy was the commonest neuroimaging finding (59%) followed by PVL (19%), ICH (7%), ischemia (3%), and normal findings were found in (12%) of cases. Regarding spastic quadriplegia, 34 cases had cortical atrophy (34%), no cases had PVL, ICH, or ischemia ,nor were normal. Regarding spastic diplegia, 12 cases had cortical atrophy (12%), 18 cases had PVL (18%), one case had ICH (1%), and 9 cases were normal (9%). Regarding spastic hemiplegia ,3 cases had cortical atrophy (3%), 6 cases had ICH (6%), 3 cases had ischemia, and 2 cases were normal (2%). Regarding extrapyramidal CP, 12 cases had cortical atrophy (12%), one case had PVL (1%), and

one case normal (1%), table (5).

Maternal Infection: In this study , infection due to various causes (not only TORCH), (A myriad of viral, bacterial, and protozoan transplacental infections causes permanent central nervous system damage to the fetus. In addition to the classical TORCH infections ¹⁷⁾ were 11 cases (11%), which is similar to the result of Stanly F 17 (congenital infections may account for as many as 5% to 10% of the cases of CP).

Maternal medical problem: it included (HT, DM, heart problem, coagulopathies), there was 4 cases (4%) ,other studies reported that (About 10-20% pregnancies are considered as high risk and these include those who have severe cardiac, pulmonary, circulatory problem and diabetes mellitus etc.

Maternal drug use: were 3 cases (3%).

Maternal bleeding: were 4 cases (4%), which agrees with AL-Naddawi study.

Breech presentation: were 5 cases (5%), which agrees with AL-Naddawi (8%).

Preterm delivery (<37wk): were 21 cases (21%) which agrees with Oztürk A. et al. [21] in which 78% of patients were term and 22% were born at gestational age from (30-36 wk). Also agrees with AL Karagully, and AL-Naddawi (26%).

IUGR: were 11 cases (11%) which agrees with Lukman study which showed that (20%) have IUGR, the small difference could be justified by lack of medical records which confirm presence or absence of intrauterine growth retardation, because in this study we obtained the history of birth weight from mothers and some of them did not give us specific figure but a rough assessment.

Natal Risk Factors:

Maternal fever during delivery: were 8 cases (8%).

Maternal bleeding: were 1 case (1%).

Prolonged labor: were 2 cases (2%).

Obstructed labor: were 2 cases (2%).

PROM: were 6 cases (6%), close to that of AL-Naddawi (13%).

Asphyxia: were 19 cases (19%) similar results were obtained in suleimanya research.

Birth weight <1500gm: were 9 cases (9%), close to studies that showed (14%- 17% for children with birth weights of 1000-1500 grams-from 2 pounds, 3 ounces to 3 pounds, 5 ounces).

Table 1. Risk Factors of CP in Relation to Prenatal, Natal , and Postnatal Periods.

No.	Risk Factors	Prenatal	Natal	Postnatal	Total
1	Maternal Infection	11%	--	--	11%
2	Maternal Medical Problem	4%	--	--	4%
3	Maternal Fever During Delivery		8%		8%
4	Maternal Drug Use	3%	--	--	3%
5	Maternal Bleeding	4%	1%	--	5%
6	Breech Presentation	5%	--	--	5%
7	Fetal Hypoxia and Cynosis	--	19%	--	19%
8	Prolonged Labor	--	2%	--	2%
9	Obstructed Labor	--	2%	--	2%
10	PROM	--	6%	--	6%
11	Hyperbilirubinemia	--	--	17%	17%
12	CNS Infection	--	--	5%	5%
13	Seizure	--	--	7%	7%
14	Coagulopathy	--	--	1%	1%
15	Head Trauma	--	--	2%	2%
16	IUGR	11%	--	--	11%
17	Preterm	21%	--	--	21%
18	Birth Weight<1500 gm	--	9%	--	9%
19	Unknown	--	--	--	31%
	Total	59%	47%	32%	----

Table 2. Functional Classification of CP According to Gender.

Type of CP	Gender					
	Male		Female		Total	
	No.	%	No.	%	No.	%
spastic diplegia	23	23%	17	17%	40	40%
spastic quadriplegia	21	21%	13	13%	34	34%
spastic hemiplegia	9	9%	5	5%	14	14%
extrapyramidal	8	8%	4	4%	12	12%
Total	61	61%	39	39%	100	100%

Table 3. Showing Functional Classification of CP According to SES.

Type of CP	SES							
	Low SES		Middle SES		High SES		Total	
	No.	%	No.	%	No.	%	No.	%
spastic diplegia	22	22%	8	8%	10	10%	40	40%
spastic quadriplegia	19	19%	5	5%	10	10%	34	34%
spastic hemiplegia	7	7%	5	5%	2	2%	14	14%
extrapyramidal	6	6%	4	4%	2	2%	12	12%
Total	54	54%	22	22%	24%	24%	100	100%

Table 4. Showing Functional Classification of CP According to Residence.

Type of CP	Residence					
	Rural		Urban		Total	
	No.	%	No.	%	No.	%
spastic diplegia	39	39%	16	16%	55	55%
spastic quadriplegia	9	9%	10	10%	19	19%
spastic hemiplegia	12	12%	2	2%	14	14%
extrapyramidal	10	10%	2	2%	12	12%
Total	70	70%	30	30%	100	100%

Table 5. CP Functional Classification of According to Neuroimaging Findings

Type of CP	Neuroimaging Findings											
	cortical atrophy		PVL		ICH		ischemia		Normal		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
spastic diplegia	12	12%	18	18%	1	1%	0	0	9	9%	40	40%
spastic quadriplegia	34	34%	0	0	0	0	0	0	0	0	34	34%
spastic hemiplegia	3	3%	0	0	6	6%	3	3%	2	2%	14	14%
extrapyramidal	10	10%	1	1%	0	0	0	0	1	1%	12	12%
Total	59	59%	19	19%	7	7%	3	3%	12	12%	100	100%

CONCLUSION

From this we conclude that the majority of cases of CP were males, cases of CP were in general from rural areas, most cases of CP were from low SES, prenatal risk factors were the commonest, the most important risk factor was prematurity followed by asphyxia and kernicterus while it was unknown in majority of cases

.spastic CP was the commonest form and the rest were extrapyramidal, spastic diplegia being the commonest then spastic quadriplegia and spastic hemiplegia, spastic CP was the major form in both sexes, and was mainly diplegia, spastic diplegia was the commonest form of CP in low and middle SES while in high SES it was equal between diplegia and quadriplegia, spastic types of CP

were the major form in both rural and urban areas and diplegia being the commonest, cortical brain atrophy was the commonest neuroimaging finding followed by PVL, ICH, ischemia.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Medicine-Tikrit University, Iraq and all experiments were carried out in accordance with approved guidelines.

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***Daucus carota*: In vitro Antimicrobial Activity and Bioactive Compounds of Methanolic Fruit Extract Using FTIR Spectroscopic Analysis**

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ABSTRACT

Plant showed nutritional and therapeutic benefits including antimicrobial, antioxidant, anticancer, hypolipidemic, cardiovascular, central nervous, respiratory, immunological, anti-inflammatory, analgesic antipyretic and many other pharmacological effects. Phytochemical analysis showed that the root of *Daucus carota* contained alkaloids, carbohydrates, chlorogenic acid, flavonoids, phenols, essential oil, terpenoid and coumarin. The objectives of this study were analysis of the secondary metabolite products using Fourier-transform infrared spectroscopic profile and evaluation of its anti-microbial activity. In the current study, the anti-microbial activity of *Daucus carota* methanolic extract was evaluated by determining the zone of inhibition against nine bacteria and eight fungi and yeast. Maximum zone formation was against *Staph aureus* (4.17±0.15) and very highly active against *Aspergillus flavus* (4.59±0.16). The FTIR analysis of *Daucus carota* proved the presence of alkyl halides, Alkenes, Aromatic and Amide which shows major peaks at 667.37, 873.75, 921.97, 1026.13, 1139.93, 1234.44, 1317.38, 1379.10, 1415.75, 1519.91, 1598.99, 1740.72, 2852.72, 2922.16, 3223.05, and 3265.49.

Keywords: *Daucus carota*, Antimicrobial Activity, FT-IR.

INTRODUCTION

The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. Carrot is the one of the major vegetable crops cultivated worldwide. The domesticated types are divided into two groups: the Eastern or Asian carrots (var. *atrorubens*), with mainly purple and yellow roots; and the Western carrots (var. *sativus*) with mainly orange roots. Carrots were thought to be domesticated in Afghanistan as the primary centre of diversity and they were spread over Europe, Asia and the Mediterranean area, and the origin of

western cultivated carrots were thought to be in the Asia Minor Centre, primarily Turkey¹⁻⁶. The stems are erect and branched, generally about 2, feet high, tough and furrowed. Both stems and leaves are more or less clothed with stout, coarse hairs. The leaves are very finely divided, the lowest leaves considerably larger than the upper; their arrangement on the stem is alternate, and all the leaves embrace the stem with the sheathing base. The blossoms are densely clustered together in terminal umbels, or flattened heads, in which the flower-bearing stalks of the head all arise from one point in rays, each ray dividing to form a secondary umbel, or umbellule of white flowers, the outer ones of which are irregular and larger than the others. *Daucus carota* was cultivated for the enlarged fleshy taproot, eaten as a raw vegetable or cooked in many dishes. Eaten sliced, diced, cut up, or shoe-stringed, carrots were used in many mixed vegetable combinations. They were sold in bunches, or canned, frozen, or dehydrated⁷⁻¹⁵. They may be baked, sauteed, pickled, and glazed, or served in combination with meats, in stews, roasts, soups, meat loaf or curries.

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Roasted carrot was used as coffee substitutes. Essential oil was used to flavor liqueurs and perfumes. Seeds were aromatic, carminative, diuretic, emmenagogue, stimulant, and were used for dropsy, chronic dysentery, kidney ailments, worms, as aphrodisiac, nervine tonic, and for uterine pain¹⁶⁻²³. Roots were refrigerant and used in infusion for threadworm, as diuretic and eliminating uric acid.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials²⁸, the leaves were stored in airtight container to avoid the effect of humidity and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture²⁹⁻³³.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Daucus carota* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm³⁴⁻⁴².

Determination of antimicrobial activity of crude bioactive compounds of *Daucus carota*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty mL of plant extract was loaded on the bored wells. Antifungal activity was evaluated

by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control⁴³⁻⁵³. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in methanolic extract of *Daucus carota*, shown in **Table 1**. The FTIR analysis of *Daucus carota* proved the presence of alkyl halides, Alkenes, Aromatic and Amide which shows major peaks at 667.37, 873.75, 921.97, 1026.13, 1139.93, 1234.44, 1317.38, 1379.10, 1415.75, 1519.91, 1598.99, 1740.72, 2852.72, 2922.16, 3223.05, and 3265.49. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. It is hoped that this study would direct to the establishment of some compounds that could be used to invent new and more potent antibacterial drugs of natural origin. Further work will emphasize the isolation and characterization of active principles responsible for bio-efficacy and bioactivity. The ethnobotanical uses of this species also included applications in the treatment of cough, diarrhea, dysentery, cancer, malaria, tumors, as an antiseptic, abortifacient, aphrodisiac, carminative, stimulant, stomachic and tonic [68]. *Daucus carota* was used by the Ancient Egyptians as a stimulant, carminative, diuretic, anthelmintic and as a decoction for infantile diarrhea.

Table 1. FT-IR peak values of solid analysis of hexan extract of *Daucus carota*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	667.37	63.602	Strong	C-Cl	Stretch	alkyl halides	600–800
2.	873.75	75.464	Strong	=C–H	Bending	Alkenes	650-1000

Cont... Table 1. FT-IR peak values of solid analysis of hexan extract of *Daucus carota*.

3.	921.97	76.037	Strong	=C-H	Bending	Alkenes	650-1000
4.	1026.13	54.832	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1139.93	72.360	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1234.44	79.518	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1317.38	80.927	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1379.10	78.194	Strong	C-F	Stretch	alkyl halides	1000-1400
9.	1415.75	75.384	Medium	C=C	Stretch	Aromatic	1400-1600
10.	1519.91	83.275	Medium	C=C	Stretch	Aromatic	1400-1600
11.	1598.99	75.718	Medium	C=C	Stretch	Aromatic	1400-1600
12.	1740.72	87.747	Strong	C=O	Stretch	Aldehyde	1720-1740
13.	2852.72	86.395	Strong	C-H	Stretch	Alkane	2850-3000
14.	2922.16	81.542	Strong	C-H	Stretch	Alkane	2850-3000
15.	3223.05	81.889	Bending	N-H	Stretch	Amide	3100-3500
16.	3265.49	80.746	Bending	N-H	Stretch	Amide	3100-3500

CONCLUSION

The FTIR analysis of *Daucus carota* proved the presence of alkyl halides, Alkenes, Aromatic and Amide which shows major peaks at 667.37, 873.75, 921.97, 1026.13, 1139.93, 1234.44, 1317.38, 1379.10, 1415.75, 1519.91, 1598.99, 1740.72, 2852.72, 2922.16, 3223.05, and 3265.49.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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Detection of Bioactive Compounds of *Vitex agnus-castus* and *Citrus sinensis* Using Fourier-transform infrared spectroscopic profile and Evaluation of Its Anti-microbial Activity

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ABSTRACT

Vitex agnus-castus is a supplement derived from berries. It is also called Vitex, Chaste Tree, or Chasteberry. The objectives of this study were analysis of the secondary metabolite products using Fourier-transform infrared spectroscopic profile and evaluation of its anti-microbial activity. In the current study, the anti-microbial activity of *Vitex agnus-castus* and *Citrus sinensis* methanolic extract was evaluated by determining the zone of inhibition against nine bacteria and eight fungi and yeast. Maximum zone formation was against *E.coli* (5.26±0.19) and very highly active against *Aspergillus terreus* (5.01±0.17). The FTIR analysis of *Vitex agnus-castus* proved the presence of Alkenes, alkyl halides, and Aromatic which shows major peaks at 715.59, 1014.56, 1047.35, 1095.57, 1234.44, 1242.16, 1317.38 and 1597.06. The FTIR analysis of *Citrus sinensis* proved the presence of alkyl halides, Alkenes, alkyl halides, and Amide which shows major peaks at 675.09, 692.44, 738.74, 813.96, 974.05, 1008.77, 1049.28, 1093.64, 1232.51, 1276.88, 1606.70, and 1647.21

Keywords: *Vitex agnus-castus*, *Citrus sinensis*, FT-IR, Anti-Bacterial, Anti-Fungal Activity.

INTRODUCTION

Infrared spectroscopy provides a useful method for herbal analysis and elucidate the compounds structures as well as for quantitative analysis of drugs. Fourier transform infrared spectrometry is a physico-chemical analytical technique and one of the most widely used methods to identify the structure of unknown composition or its chemical group, and the intensity of the absorption spectra associated with molecular composition or content of the chemical group. The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. *Vitex agnus-castus* (Verbenaceae), commonly called “chasteberry”, a small deciduous tree that grows in Asia, Europe (especially in Mediterranean region) and North America. It bears slender spikes of violet blue, 8-10 cm flowers. It is popularly used in folk medicine to treat ovarian insufficiency, uterine bleeding, premenstrual syndrome, fibroid cysts, infertility and acne in teenagers¹⁻³. It has

also been traditionally used as a digestive aid, sedative and anti-infective. There have been several reports on its chemical constituents. It includes iridoid glycosides (agnuside, aucubin); flavonoids (vitexin, kaempferol, casticin, quercetagenin); progestins (progesterone, hydroxy progesterone, androstenedione); alkaloids (viticin); volatile oil (1,8-cineol, limes, α -pinenes, β -pinenes) and essential fatty acids (palmitic acid, oleic acid, stearic acid)⁴⁻⁹. Several other *Vitex* species are also reported to possess biological activities Viz. *Vitex rotundifolia* has repelling activity against *Aedes aegypti* mosquitoes, *Vitex negundo* L act as a larvicidal agent of mosquito's and antioxidant. *V. pinramidata*, *V. pubescens*, *V. gaumeri* are folk remedies to treat diarrhea, gastro intestinal affections, malaria, colds and cough spells. The aims of our research were analysis of the secondary metabolite products using Fourier-transform infrared spectroscopic profile and evaluation of its anti-microbial activity.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in airtight container to avoid the effect of humidity¹⁰⁻¹⁷ and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture¹⁸⁻²³.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Vitex agnus-castus* and *Citrus sinensis* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm²⁴⁻³¹.

Determination of antimicrobial activity of crude bioactive compounds of *Vitex agnus-castus* and *Citrus sinensis*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty mL of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control³²⁻³⁹. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in

methanolic extract of *Vitex agnus-castus* and *Citrus sinensis*, shown in **Table 1** and **Table 2** respectively. The FTIR analysis of *Vitex agnus-castus* proved the presence of alkyl halides, Alkenes, and Amide which shows major peaks at Alkenes, alkyl halides, and Aromatic which shows major peaks at 715.59, 1014.56, 1047.35, 1095.57, 1234.44, 1242.16, 1317.38 and 1597.06. The FTIR analysis of *Citrus sinensis* proved the presence of alkyl halides, Alkenes, alkyl halides, and Amide which shows major peaks at 675.09, 692.44, 738.74, 813.96, 974.05, 1008.77, 1049.28, 1093.64, 1232.51, 1276.88, 1606.70, and 1647.21. Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology⁴²⁻⁴⁹. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc.. Recently, a number of plants have been reported for antibacterial properties across the world. Based on the present study, it is concluded that the whole plants of *A. lanata* contains various bioactive components with high degree of antibacterial activity against various pathogens. It is hoped that this study would direct to the establishment of some compounds that could be used to invent new and more potent antibacterial drugs of natural origin⁵⁰⁻⁵³. Further work will emphasize the isolation and characterization of active principles responsible for bio-efficacy and bioactivity.

Table 1. FT-IR peak values of solid analysis of *Vitex agnus-castus*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	715.59	67.897	Strong	=C-H	Bending	Alkenes	650-1000
2.	1014.56	58.136	Strong	C-F	Stretch	alkyl halides	1000-1400
3.	1047.35	58.483	Strong	C-F	Stretch	alkyl halides	1000-1400
4.	1095.57	63.618	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1234.44	78.418	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1242.16	78.354	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1317.38	80.864	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1597.06	76.023	Medium	C=C	Stretch	Aromatic	1400-1600

Table 2. FT-IR peak values of solid analysis of *Citrus sinensis*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	675.09	67.825	Strong	C-Cl	Stretch	alkyl halides	600-800
2.	692.44	69.075	Strong	C-Cl	Stretch	alkyl halides	600-800
3.	738.74	72.075	Strong	=C-H	Bending	Alkenes	650-1000
4.	813.96	76.441	Strong	=C-H	Bending	Alkenes	650-1000
5.	974.05	65.287	Strong	=C-H	Bending	Alkenes	650-1000
6.	1008.77	54.765	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1049.28	58.347	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1093.64	64.409	Strong	C-F	Stretch	alkyl halides	1000-1400
9.	1232.51	80.641	Strong	C-F	Stretch	alkyl halides	1000-1400
10.	1276.88	80.140	Strong	C-F	Stretch	alkyl halides	1000-1400
11.	1606.70	79.503	Bending	N-H	Stretch	Amide	1550-1640
12.	1647.21	79.220	Variable	C=C	Stretch	Alkene	1620-1680

CONCLUSION

Medicinal property of *Vitex agnus-castus* and *Citrus sinensis* methanolic extract is due to presence of secondary metabolites. Twenty phytoconstituents were identified by (FT-IR) analysis. This plant derived bioactive compounds used as source of antibiotic properties and pharmaceutical industries used for drug formulation.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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Detection of Human Bocavirus amongst Kids Tormented by Respiratory Tract Infections in Hilla Town

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ABSTRACT

Boca virus (hBoV) is the main disease of Respiratory Tract Infections (RTI) death of children in all countries, it is classified in family (Parvoviridae) The current work aimed to detect the role of (h BoV) in the Lower respiratory tract Infection (LRTI) in Hilla- Iraq. 50 samples were collected from children who suffering from (LRTI), 25 pharyngeal swabs and 25 blood samples were collected at the period (January- April 2017) from children hospitalized in Hilla city Maternity and Children Hospital. The outcomes demonstrated that the share of kids infected with hBov accounted 24% 12/50 with decrease respiratory Tract Infections (LRTI) when they analyses by polymerase chain reaction (PCR) hBoV turned into located in 18 of the tested sufferers. This study demonstrated that conserved HBoV1 circulates in Iraq.

Key word: *Bocavirus, Respiratory Tract Infections, Hilla*

INTRODUCTION

(hBoV) it is DNA virus, the circle of relatives Parvoviridae, it became found in (2005) in specimens from children, (hBoV) turned into first detected in youngsters have acute respiration tract infections¹. It turned into located in children with breathing tract infections and gastroenteritis², the first discovery of (hBoV) is in the breathing tract infection in adult immunocompromised affected persons had been pronounced by Kupfer et al, this file become supported the role of (hBoV) as pathogen even in adults¹. Bocavirus additionally detected as a rising pathogen in youngsters stricken by gastroenteritis (thirteen). (hBoV) 1 and a couple of had been reported in respiration samples, (hBoV) indicating as international endemic nature. The usa³, The virus has been diagnosed in Europe⁶, the prevalence of Bocavirus levels among 1.5 to 19.3%. Primary infection with Bocavirus occur early in youngsters a while of 6–24 months seem to be often affected⁷, children also can be inflamed greater than newborn might also grow to be blanketed by means of antibodies wick obtains in mother milk⁷.

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(hBoV) detection on Nasopharyngeal swab and blood samples, traditional PCR, as its sensitivity approach, and decreased of time. This look at goals to molecular phylogeny of Bocavirus isolates winning in youngsters with respiratory tract contamination in Iraq

MATERIALS AND METHOD

(50) Nasopharyngeal swabs and blood were collected from children suffering from (LRTI) were collected in period (January -April) 2017 from the (delivery and children hospital) in Hilla city, The children's age was from (5 months - five years). Clinical symptoms and histories were reported. swabs were kept in 1.5 ml saline and kept at 4 C until they tested. (DNA) Extracted: Virus DNA was obtain from 150 ml of the collected samples using (Favour gen kit), after DNA extraction the samples amplified in thermal cycler device (PCR), Thermal Cycling: Put the tubes in the (PCR) device, and run the program.

Cycling Profile

94°C to 2 minutes, then

94° to 1 minute

57°C to 30 seconds

72°C to 1 minute

For 35 cycles,
72°C to 5 minutes
4°C soak.

RESULTS AND DISCUSSION

This have a look at investigated the prevalence of hBoV in sufferers with breathing tract infection in hilla town. The presence of the predominant viral causes of the breathing disease in hBoV superb cases turned into additionally screened, hBoV changed into detected in 18 of fifty the examined sufferers (36%) with age range from 5 months to five years, hBoV has been detected in samples from sufferers elderly among five months and 2 years. Overall , of the 50 patients suffering from lower Respiratory tract infections were tested by PCR technique 18 samples (36%) were positive 6 male and 12 female Higher rate of positive results were in children group in comparison of adult group ,and we see that 90% of the patient were live in rural placed while 10% live in urban ,in other side 66% of infected children were female while 33% was male and the dominant age of patient were in the age from 5month to 1 year table (1). the main clinical symptoms of children who infected with virus were fever (55%)vomiting (33%) coughing (100%)and sometimes diarrhea (22%) and gastroenteritis is (22%), table (2) figure (1). This study look at became reported the frequency of hBoV.In children in hilla Iraq metropolis aged less than 5y – extra than five month suffering from breathing tract infections in hilla town of

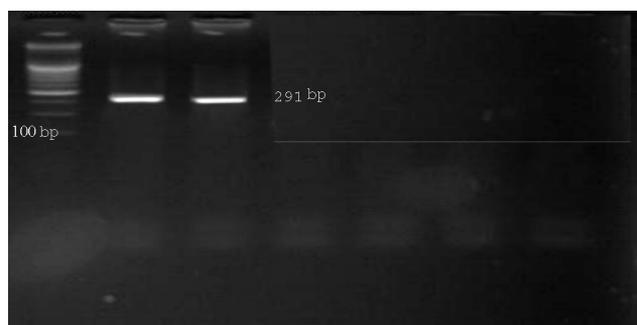
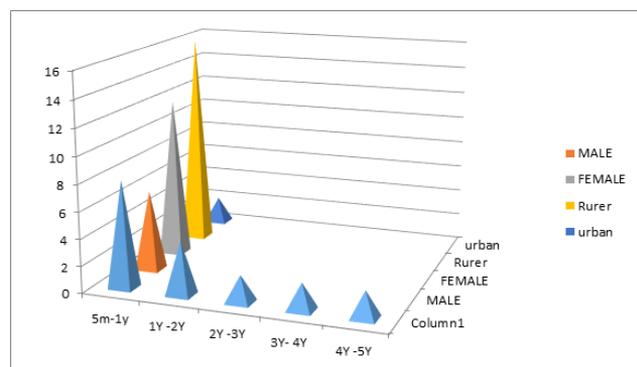
Iraq all through the January –April in 2017 (5month) on this have a look at hBoV changed into detected in 18 (36)% out of 50 samples ,As shown in desk (1) massive distinction have been determined in repute with regard age institution and samples respectively (p=0.038),that imply the virus is commonly inflamed children beneath 2 years of age (five,8,9). the antibodies against HBoV obtained from their mothers may be protect youngsters under 5 months from (HBoV) infections ¹¹ steady with other research ^{1,11}, the prevalence charge of (HBoV) changed into higher in kids beneath 2 years ,at the same time as current look at confirmed 21.Five% prevalence among children (12).Even as it become 9 out of 133 respiration samples , (6.Eight)% in Seyed alireza et. Al look at (thirteen). In this have a look at we see 22% of patients had been have respiratory tract infections and gastroenteritis case that imply the virus infect the digestive system and caused ailment in it (thirteen) or co-infection with enteric virus like rotavirus it turned into in tremendous samples. In this take a look at none of the swabs samples acquired from children yielded virus that suggest the virus is not found or hardly ever located in respiration machine but it located in circulatory gadget (eleven). Additionally we see that ninety% of the affected person have been stay in rural placed while 10% stay in city, that specify the misplacement just like the pollution of water and unwholesome situations of rural because of deficiency of the fitness criteria and reduce of materialistic situations and absent of cultural and sanitary records’s and dlibs care with youngsters.

Table 1. Prevalence and distribute of patient who’s infected with (hBoV)

No.	Age	No.	%	□	□	Rural	Urban
1	(5month-1 year)	8	44%	2	6	6	2
2	(1year- 2 year)	4	22%		6	4	
3	(2year -3year)	2	11%		2	2	
4	(3 year - 4 year)	2	11%	2		2	
5	(4 year – 5year)	2	11%	2		2	
T		18	100%	33%	66%	99%	11%

Table 2. Clinical features of patients infected with (HBoV)

No.	Clinical symptoms	No.	Percente
1	Coughing	18	100%
2	Fever	10	55%
3	Vomiting	6	33%
4	Diarrhea	4	22%
5	Gastroenteritis	4	22%

**Figure 1. Positive results of hBov in blood samples collected from children suffered from Respiratory Tract Infections in Hilla city in Iraq.****Figure 2. Prevalence and distribute of patient who's infected with (HBoV)**

CONCLUSION

The outcomes demonstrated that the share of kids infected with hBov accounted 24% 12/50 with decrease respiratory Tract Infections (LRTI) when they analyses by polymerase chain reaction (PCR) hBoV turned into located in 18 of the tested sufferers. This study demonstrated that conserved HBoV1 circulates in Iraq.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of science for women, university of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Effectiveness of Educational Program on Nurses' Knowledge regarding Pre and Post-Operative Nursing Management

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ABSTRACT

A study is conducted to assess the effectiveness of educational program on nurse's knowledge regarding pre and post-operative nursing management at Al-Sadder Medical City. The program and instrument are constructed and developed by the researcher to reach the purpose of the study. A quasi-experimental design study has been carried out in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate / Al-Sadder Medical City from January 12th, 2018 to, September 13th, 2018. Purposive sample is comprised of 40 nurses divided into two groups: study group consists of 20 nurses which exposed to the educational program and control group consists of 20 nurses not exposed to the program. Measurement of effectiveness for educational program carried out through the use of knowledge test that include (40) items. Reliability of instrument is determined through the use of test and re-test, and the instrument validity is determined through a panel of experts. The results of the study show that the effectiveness of educational program about nurses' knowledge regarding pre and post-operative nursing management is positive and evident. It also shows that there is a good development with highly significant differences in study group between pre and post-test in all items related to pre and post-operative nursing management.

Keywords: effectiveness, educational program, nurses, knowledge, Preoperative, Postoperative, Surgical, patient, Management

INTRODUCTION

Surgery is an invasive procedure that has various purposes, degrees of urgency with different levels of risk ¹⁵ Approximately 187-281 million surgery are performed worldwide annually, with no less than seven million patients yearly will experience serious problems as a result of surgical procedure and around one million patients can pass away as a result complications after surgery. The numbers of major complications subsequent operation can be registered as approximately 22 percent with death of 0.8% ⁽⁸⁾. Moreover, annually over a million major operations are carried out globally with evidence propose that problems postoperatively are an essential reason for decease ¹⁶. Nurses have the duty to meet patients' needs and expectations in

relation to preoperative and postoperative nursing care. In preoperative assessment, the nurse expected to assess the patient in order to plan for their care and taught about their condition ²¹. If the patient confirm fit to undergo surgery and ensure patients' safety during their journey of care. Pre-operative education is usually directed by a specialist nurse, and includes a review of the patient's case notes, a detailed history and clinical examination, and additional tests and investigations ¹. This preoperative care should be planned according to the particular needs present for every patient based on scientific evidence, health status, type of surgery, time available from admission to surgery⁷. Nursing care postoperatively in surgical ward involves maintaining the airway, monitoring vital signs, assessing the effects of anesthetic agents, assessing patients for complication and providing comfort and pain relief this is an immediate postoperative care which is usually provided in a Post-anesthetic Care Unit (PACU), which is before the patient is taken back to the surgical ward which represented immediate postoperative nursing care ²¹. In

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the postoperative management, it has great importance specially when educating patients concerning health care such as deep breathing and effective coughing. Because deep breathing exercises, such as breathing with whole lung capacity and with emphasis on the use of diaphragm can open the alveoli and improve postoperative hypoxemia. This exercise is one of the responsibilities of nurses, which proper implementation can reduce the cost and duration of hospitalization ¹⁹.

METHODOLOGY

Design of the Study: A quasi-experimental design study has been used in the present study to evaluate the effectiveness of an educational program on nurse's knowledge regarding pre and post-operative nursing management at Al-Sadder Medical City during the December 12th, 2018 to, September 13th, 2018. Purposive sample consist of (40) nurses. The sample is divided in two groups; (20) nurses as study group are exposed to the nursing education program, and the other (20) nurses are not exposed to the program considered as the control group. The two groups have proximately the same demographic. Characteristics. Those who met the criteria for selection were nurses who were working at the teaching hospitals. Education program is established based on the nurse's knowledge. They have decided that the program is designed professionally to increase nurse's knowledge about pre and post-operative nursing management. The program is formed to offer the nurses with information about general approach regarding surgery, type of surgery and risk factors that impact on surgery outcome, preoperative nursing management, and postoperative nursing management. Instrument Construction to estimate the effectiveness of nursing educational program on nurses' knowledge regarding pre and post-operative nursing management at Al-Sadder medical city.

Statistical Analysis

The data of the present study were analyzed through the use of statistical package of social sciences (SPSS) version 19. The following statistical data analysis approaches were used in order to analyze and assess the results of the study. Descriptive Data Analysis: Frequencies (F), and Percentage (%). Mean of scores (MS) =(1.5) due to two levels of measurement correct and incorrect answers and scored as 2 and 1 respectively. With two levels of assessment pass (mean of scores

equal or more than 1.5 and fail mean of scores less than 1.5) charts: Bar charts. Inferential Data Analysis: These were used to accept or reject the statistical hypothesis, which included the following: Reliability Coefficients : (test and retest). Chi-square to test the association between the nurses' knowledge and their demographic data. Independent sample t-test to test the differences between the study and control groups scores.

RESULTS AND DISCUSSION

Table.1 reveals that the high percentage of participants is (40%) at age groups (25-29) years in the study group, and the high percentage of participants is (35%) at age groups (20-24) years in the control group. In addition, the table shows that foremost participant of the gender in both group (55%) in the study group and (65%) in the control group are males. Regarding the marital status, the high percentage is (65%) of the sample in study group, and (55%) in the control group are married. In regard to the level of education, (40%) of the sample in study group are graduated from nursing institute, and (40%) of the control group are nursing secondary school. In regards to years of experience in surgical units, the table reveals that (40%) of the sample in each group (control and study) have (1-5) years of experience in surgical unit. Regarding training session in Iraq, there are (75%) of sample size in study group and (65%) in control group have training inside Iraq. Concerning the number of the training sessions, the highest percentage in the study group is (35%) for nurses who have (1-3) training courses, while only (30%) of the nurses who have (4-6) training courses in the control group. In addition there is no one of the sample has training session outside Iraq. This table shows that there is a high significant difference between the study group knowledge in pre-test and post-test with accept to the mean at p-value (0.001). The result indicates that there is an improvement in the nurses' knowledge after application of the education program. The results of above table show that no significant mean difference among control group relative to their Pre-Test and Post-Test Scores at p-value (0.12). Table 4. Shows there is a high significant difference between the nurses' knowledge for both study and control groups during the post-test. With respect to the statistical mean at p-value (0.001), the study results indicate that the study group knowledge is better than the control group. In another word educational program is effective. According to (Table 1) the result related to demographic data found

that majority of the sample in study group were (40%) at age groups (25-29) years. The result of age group in the study group match with the results of another two studies done by ^{21,3} they found that the majority of nurses in the study group their age group were between (25-29) years old. Also another study done by ⁽⁵⁾ who found in his study that the majority of the study subjects age were between (18-29) years old in study and control groups. Also this result is in agreement with another study done by ⁽⁷⁾. They found that control group are within the age group (20 - 24). According to the results shows in tables (Tables 2,3) another study done by Hassanin & Mohammed (2016) in their study, they claimed that the majority of the studied nurses gave incorrect answer before implementing the educational program but after implement the post- educational program the finding show that majority of nurses have high knowledge level ¹⁰. In a study prepared by Alshvang (2018) about preoperative nurses teaching for open heart surgery patients, she found that the knowledge of the nurses who attended the first session increased from a baseline score of 87% to a posttest score of 95% after the educational intervention and the second session increased from a baseline score of 90% to a posttest score of 100% after the educational intervention ⁴. The study by Al-Hamza & Nasir (2017) they found during the study assessment of the participants control groups prior to performing the education program (pre-test) indicates that the

investigation was frustrated in control group ³. Present study is supported by shmran & hamza(2016):Jabber& Nasir(2017) shows that no Significant difference between pre-test and post-test scores of control group members and the nurses knowledge among the control group didn't changed in post -test, and stabilized in all their knowledge measures. In regards to the result in tables 4, this table show The educational program regarding pre and post-operative nursing management is associated with a significant increasing knowledge of study group. This result is in agreement with a study implemented by Hussein & Jaddoue (2015) they found from the mean of score and to the relative sufficiency for nurses' knowledge in pre and post-tests that there is high level of knowledge for nurses after implementing the educational program to the study group ¹³. Present study is supported by shmran & Hamza (2016) which mentioned that there are highly significant difference about nurses' knowledge in post-test between study and control groups ²¹. another studies done by Hassan & Hassan(2012); Naseer & Hassan(2013) in their studies they revealed that there were highly significant differences at posttest between study and control groups. Also another's study show that the study group has been improved after exposure to educational program ^{9,16}. This is indicated by the significant difference between pre-test and post-test results, which is supported by a previous studies that indicated there is a significant difference between pre-post test ²

Table 1. Demographic Characteristic of the Study Sample with Statistical Differences

Demographic Data	Rating And Intervals	Grouping			
		Study		Control	
		F.	%	F.	%
Age	20-24	5	25	7	35
	25-29	8	40	5	25
	30-34	3	15	3	15
	35-39	2	10	2	10
	40 And More	1	5	2	10
Gender	Male	11	55	13	65
	Female	9	45	7	35
Marital Status	Single	6	30	9	45
	Married	13	65	11	55
	Divorcee	1	5	0	0
Levels Of Education	Nursing Secondary School	4	20	8	40
	Nursing Institute Graduated	8	40	6	30
	Nursing Collage Graduated	7	35	6	30
	Postgraduate	1	5	0	0

Cont... Table 1. Demographic Characteristic of the Study Sample with Statistical Differences

Years of experience in surgical ward	1-5	8	40	8	40
	6-10	4	20	4	20
	11-15	2	10	4	20
	16 And More	1	5	1	5
Training Session In nursing	Yes	15	75	13	65
	No	5	25	7	35
Number of Training Sessions Inside of Iraq	<= 0	5	25	7	35
	1 - 3	7	35	4	20
	4 - 6	4	20	6	30
	7 - 9	2	10	1	5
	10+	2	10	2	10

Table 2. Mean Difference between the Mean of the Study Group Responses in Pre-Test and Post-Test

Levels of nurses' knowledge	Measures						Improvement percentage
	Pre-test			Post-test			
	F.	%	Mean	F.	%	Mean	95% H.S
Fail	19	95%	1.36	0	0%	1.92	
Pass	1	5%		20	100%		
Total	20	100%		20	100%		
Paired t-test value (21.6), d.f. (19), p-value (0.001) HS							

Table 3. Mean Difference Between the Mean of the control Group Responses in Pre-Test and Post-Test

Levels of nurses' knowledge	Measures					
	Pre-test			Post-test		
	F.	%	Mean	F.	%	Mean
Fail	19	95%	1.36	17	85%	1.39 NS
Pass	1	5%		3	15%	
Total	20	100.0%		20	100%	
Paired t-test value (1.6), d.f. (19), p-value (0.12) NS						

Table 4. Overall Assessment of Nurses' Knowledge (Study and Control Groups) after the Application of the Program (post-test)

Post-test	Groups					
	Study Group			Control Group		
	Freq.	%	Mean	Freq.	%	Mean
Pass	20	100%	1.92	3	15%	1.39
Fail	0	0%		17	85%	
Total	20	100%		20	100%	
Independent sample t-test value (17.58), d.f. (38), p-value (0.001) HS						

CONCLUSION

Most of nurses in surgical units had knowledge deficit concerning management regarding pre and post-operative nursing management. There were no differences between the knowledge in both study and control groups in the pretest. There is an improvement in the knowledge of the nurses in study group after exposure to an educational program concerning management of pre and post-operative nursing management. The effectiveness of program show strong difference between the nurses' knowledge for both study and control groups during the post-test.

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Ethical Clearance: All experimental protocols were approved under the Adults Nursing, Faculty of Nursing, University of Kufa, Iraq and all experiments were carried out in accordance with approved guidelines.

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Estimation of Heavy Metal Concentration for Sediments of Shatt Al-Basrah Canal by using Ecological Indices

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ABSTRACT

This study was conducted to describe the distribution of metals in sediment of Shutt Al-Basra canal south of Iraq, where involved the measuring of four substantial metals Cd, Cr, Fe and Mn in residue for five locations. For the estimation of heavy metals effect a three indices was utilize; Contamination Load Index (PLI) and Sediment Quality Criteria (QSm) and Metal Index (MI). The concentration of metal appear to be uniform distribution and have an identical pattern and it didn't exceed the acceptable level over the research time (2014-2015) except Iron were its concentration exceed the limit all the time in all stations. The result of the indices for the 5 stations was as following: PLI (1.3411, 1.24340, 1.1658, 1.1665, 1.4392), QSm (0.86355, 0.95191, 0.72032, 0.67163, 0.87784) and MI (2.45, 2.8, 1.88, 1.68, 2.51) respectively.

Key word: Heavy Metal, Sediments, Shatt Al-Basrah, Canal

INTRODUCTION

Overwhelming metals in soils are gotten from the soil parent material (lithogenic source) and different anthropogenic sources, a large portion of which include various metals. There are a wide range of anthropogenic wellsprings of heavy metal pollution influencing both horticultural and urban soils^{1,2}. In Nature the sources of Heavy elements are rock weathering, soil erosion, and the dissolution of salts in water, which move through the system of river water without any deleterious effects^{3,4}. Many effect on vegetation, soil and on human health especially in countries with inappropriate emission control^{5,6}. Heavy metals (HM) should be taken in concern based on water quality requirement because of their direct and indirect effect toxicity on population and aquatic life. Even a Low concentration of heavy metals can become a toxic because of their bio-accumulation,

where this feature put HM in the front of some danger contamination in nature⁷. Sediments are various solids began with organic matters (main components) and hydroxides/oxides, sulfates, carbonates, and silicates⁸. This sediment plays a significant role by be the sinks of heavy metals and cycling the element in aquatic system, pollution could transport and carry by the sediment⁹. Many factor control the releasing of metals in to the water such like chemical fraction of metals and physical-chemical characteristic of the aquatic environment^{9,10}. Many methods was used to evaluate and analyzing the pollution level of heavy metals in sediment such as Contamination Factor (CF),¹¹ and Pollution Load Index (PLI)¹² and Metal Index (MI)¹³. The aim of this study was to evaluate the sediment quality in Shatt Al-Basrah canal reliance on the levels of heavy metals and inclusive distribution pattern, and determination the situation of sediment pollution by heavy metals (HM) in this canal was by using the ecological risk indices.

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MATERIALS AND METHOD

Study Site

Sahatt Al-Basrah is artificial canal which is located

in Al-Basrah city/ southern of Iraq. Al Basrah canal was constructed to stop flood and to drain the excessive water in flood season as a replacement of Shatt al Arab. This canal was built between 1971 and 1983. Its length about 40 km and began from Garmat Ali river to the Khor Al-Zubair. This canal is basically used for the purposes of agriculture for Al-Faw town and Al-Zubair area.

Sampling and Experimental Analysis

Five locations were chosen to take the samples, which was collecting by Van Veen grab sampler throughout 2014 -2015 at Shatt al Basrah, starting from Garmat Ali River to Al-zubair, Table (1) shows the coordinates of the sampling sites. The samples in this study were dried at 105 C° by the oven until it loses all its moist content. 200 µm mesh was used to sieve the dried samples. Atomic Absorption Spectrophotometry (AAS-6300, Shimadzu, Japan), was utilize to measure four heavy metals (Cd, Cr, Fe, Mn) according to the Standard Methods¹⁴. SPSS statistical analysis software (ver.22) was employed to illustrate the heavy metal concentration values.

Assessment of Metal Contamination

Three diverse Indices were utilized to survey danger hazard and residue quality status of the canal (Table 2). Sediment Quality Criteria (QSm) and Metal Index (MI) are single indices, while the Pollution Load Index (PLI) is integrated index.

Pollution load index (PLI)

The Pollution Load Index (PLI) created by¹⁵, it has depend on calculation of pollution Factors (CF), which is figured by using the metal concentrations that's measured in sediment (C_{metal}) and sediment quality criteria ($C_{\text{background}}$) recommended by²⁰ in order to rate the status of sediment quality of the canal.

Sediment quality criteria

The quality criteria are extremely helpful as it permits to take an effectively choice of the sediment toxicity hazard in a brief timeframe. The calculated metal doses (C_{mi}) are utilized to decide Sediment Quality (Q_{si}) w.r.t to allowable boundary in sediment quality criteria (SQC_i) endorsed by²⁰, and afterward is utilized to study the mean quality in sediment (QSm).

Metal Index

Metal index depend on the total ways of estimation

of the existing status. When the water quality is bad the concentration of metal is more than its respective MAC value. Where MI value less than 1 (>1) is a threshold of warning²⁰.

Where C_i : is the concentration of each element and MAC: is the maximum allowable concentration.

RESULTS AND DISCUSSION

Heavy metals concentrations values were compared with sediment quality guidelines (ISQG) to evaluate the environmental health and the effect of industrial and economic activities in studying area. Cd, Cr, Fe and Mn concentration demonstrated a homogeneous appropriation and almost identical pattern (Table 3). The circulation of metals in residue of Shatt Al-Basrah channel has been evaluated in order to portray the geochemistry of Cd, Cr, Fe and Mn in sediment and to realize the impact of human activities on biogeochemical process in this channel system. In spite of the fact that, the metal condensation in the canal was in the adequate level prescribed by ISQG [20] at research time for Cd, Cr, and Mn, except Fe at all season were been exceeded the allowable concentration. This outcome might be because of bring water ebb and flow up in this waterway that causes the increase of chemical interaction between metals and sediment. Moreover, silt particles measure is a noteworthy parameter in affecting the heavy metal fixation on the grounds that the coarser particles in this waterway have less heavy metal than smaller ones. This because to the coarser particles have low capacity to adsorb heavy metals from water-going framework²¹. The contamination factor (table 4), Pollution Load Index of heavy metals and their Quality Criteria in sediment as shows in Table 4, were PLI found to range from 1.1658 to 1.4392, while the mean PLI of the canal was assessed as 1.2712, all value of PLI are above 1 (PLI > 1), so as motioned in the Description of PLI ranking all sites are polluted. The data demonstrate that the CF of heavy metals in researching areas are less than 1 (<1) except Fe which have reading higher than 1. Therefore, the Fe is responsible to raise the PLI score more than 1. The danger hazard of heavy metals in sediment of Shatt Al-Basrah is important as its appear by the annual mean quality in sediment (QSm) 0.81705 for the five sites, in general all sites fall in the third categorization of QSm (QSm>0.5: risk is non-negligible) where the values of QSm ranged between 0.67163 -0.95191, lowest value recorded in site 4 and highest value located in site 2

(Table 3). So based on the QSm reading the sediment has a possible hazard for aquatic life especially to benthos. Another index was used to determine the heavy metal pollution in the sediment of Sutt AL-Basra, which is Metal index (MI) were its highest value reached to 2.8 in site 2 and the lowest reached 1.68 in site 4, but broadly all sites declared the threshold of warning according to MI standard (MI value >1 : threshold of warning). The contamination of sediment was determined by evaluate a bulk of chemical concentrations of individual metals and comparing them with background values (ISQG). the value of the three indices declared that sediment of Shatt Al-Basrah have polluted with heavy metals, this high value retune in the first place to the high concentration of Iron that recorded in this study where its concentration are high in all site during entire the study. One of the main source of Fe are anthropogenic metals loaded due to industrializing²² so the increasing of Fe in the studied

area may could return to the nature of this area which include the biggest industrial complex plant²³. The study results can utilize as basic information to indicate a serious threat for aquatic life and human health.

Table 1. Coordinates of the water sampling sites by GPS "Garmin navigator".

Sites	East (m)	North (m)
1	762827	3376145
2	764353	3372646
3	765334	3370484
4	766132	3368609
5	767178	3366304

Table 2. Indices used in assessing risk and pollution of sediment in Shatt Al-Basrah

INDICES	EQUATION	DESCRIPTION
Pollution Load Index (PLI) [15,16]	$CF = C(\text{metal}) / C(\text{background})$ $PLI = (CF_1 \times CF_2 \times CF_3 \times \dots \times CF_n)^{1/n}$	PLI<1; no polluted (perfection). PLI=1; only baseline levels of pollutants are present PLI>1; polluted.
Sediment Quality Criteria (QSm) [17]	$Q_{si} = C_{mi} / SQC_i$ $Q_{sm} = Q_{si} / n$	QSm<0.1; toxicity risk is negligible. QSm 0.1< <0.5; risk is low, but the nonhazard of sediments must be checked. QSm>0.5; risk is non-negligible and its Possible hazard for aquatic life.
Metal Index [18,19]	$MI = \sum C_i / (MAC)$	MI value >1 : threshold of warning

Table 3: Heavy metals concentrations in sediment samples (Mean and standard deviation/ main-max).

Sites	Cd mg/kg	Cr mg/kg	Fe mg/kg	Mn mg/kg
site 1	0.0166-0.0098 0.0021-0.0232	0.9207-0.343 0.4578-1.2006	98.806-13.3797 87.514-116.378	2.8829-0.5108 2.3413-3.5664
site 2	0.01145-0.0094 0.0048-0.0181	0.9004-0.1654 0.7834-1.0174	109.72-7.863 104.164-115.28	2.8521-0.7892 2.2941-3.4102
site 3	0.0162-0.0059 0.0085-0.0227	0.8292-0.3285 0.4172-1.2209	82.387-25.859 54.848-115.86	2.2424-0.9724 1.2338-3.5721
site 4	0.0163-0.0025 0.0145-0.0181	0.88515-0.3165 0.6613-1.109	76.452-5.5408 72.534-80.37	2.2661-0.0456 2.2339-2.2984
site 5	0.0183-0.0061 0.0122-0.0241	1.0734-0.2705 0.7326-1.3939	100.2-15.9489 81.408-113.902	2.9302-0.5682 2.3485-3.4446
ISQG (mg/Kg)	0.6	25	30	30

Table 4. Ecological indices of heavy metals concentration in Shatt Al-Basrah

Sites	Metal	CF	PLI	Qs	Qsm	MI
Site 1	Cd	0.02775	1.3411	0.02775	0.86355	2.454212
	Cr	0.036831		0.036831		
	Fe	3.293533		3.293533		
	Mn	0.096098		0.096098		
Site2	Cd	0.019083	1.2434	0.019083	0.95191	2.807638
	Cr	0.036016		0.036016		
	Fe	3.657467		3.657467		
	Mn	0.095072		0.095072		
Site3	Cd	0.027125	1.1658	0.027125	0.72032	1.881277
	Cr	0.033169		0.033169		
	Fe	2.746233		2.746233		
	Mn	0.074749		0.074749		
Site4	Cd	0.027167	1.1665	0.027167	0.67163	1.686511
	Cr	0.035406		0.035406		
	Fe	2.5484		2.5484		
	Mn	0.075538		0.075538		
Site5	Cd	0.030625	1.4392	0.030625	0.87784	2.511368
	Cr	0.042936		0.042936		
	Fe	3.340133		3.340133		
	Mn	0.097673		0.097673		

CONCLUSION

Cd, Cr, Fe and Mn concentration demonstrated a homogeneous appropriation and identical pattern. The CF result of heavy metals in this research area are lower than (<1) for all metals except Fe which show values more than 1. The PLI were ranged from 1.1658 to 1.4392, the estimated average PLI of was 1.2712; polluted ($PLI > 1$). Basid on QSm The hazardous risk in sediment with average 0.81705: $QSm > 0.5$ risk is non-negligible, QSm ranged between 0.67163 -0.95191 in the five location. MI results indicate to exceed all sediment sites the threshold of warning.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Environmental Research Center, University Of Technology, Baghdad, Iraq and all experiments were carried out in accordance with

approved guidelines.

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FTIR Spectroscopic Analysis of Fruit Extract of Selected Medicinal Plant [*Chrysanthemum morifolium*] and Anti-Fungal Activity

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ABSTRACT

Chrysanthemum morifolium Ramat, family Asteraceae, is one of the oldest cultivated flowers. Despite many species of this genus, only one group, *Chrysanthemum morifolium* Ramat is grown on large scale. The purpose of our research were analysis of the bioactive chemical compounds of selected medicinal plant of *Chrysanthemum morifolium* using fourier transform infrared spectrophotometer analysis and evaluation of anti-fungal activity. Nine bioactive compounds were identified in the methanolic extract of *Chrysanthemum morifolium*. The Fourier transform infrared spectrophotometer analysis of *Chrysanthemum morifolium* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1014.56, 1242.16, 1317.38, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84. In the current study, the anti-fungal activity of *Chrysanthemum morifolium* methanolic extract was evaluated by determining the zone of inhibition against fungi. *Chrysanthemum morifolium* was very highly active against *Aspergillus terrus* (6.004±0.20).

Keywords: Bioactive chemical screening, Medicinal plant, *Chrysanthemum morifolium*

INTRODUCTION

Chrysanthemum morifolium is a plant of the family Asteraceae and native to Asia and northeastern Europe. It has many pharmacological and therapeutic properties including antimicrobial, antifungal, anti-inflammatory, immunomodulatory humoral and cellular, and mononuclear phagocytic activities; therefore widely and effectively being used in the treatment of many diseases as a herbal medicine. Essentially, medicinal plants are known to have the ability to synthesize a wide range of chemical compounds and secondary metabolites¹⁻³; also the active biological functions and medicinal values of such plants is attributed to the presence of bioactive compounds. Plants used in traditional medicine may

constitute an important source of new biologically active compounds. There is a continuous and urgent need to discover new antimicrobial compounds with diverse chemical structures and novel mechanism of action for new and re-emerging infectious diseases. *Chrysanthemum* tea can help detoxify blood⁴⁻¹¹, regulate blood pressure and calm the nerves. *Chrysanthemum morifolium* Ramat and its herbal infusions are used in the treatment of bacterial and viral infections, sinusitis, blood pressure, digestive, skin problems, influenza virus PR3, leptospira. The purpose of our research were analysis of the bioactive chemical compounds of selected medicinal plant of *Chrysanthemum morifolium* using fourier transform infrared spectrophotometer analysis and evaluation of anti-fungal activity.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in

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airtight container to avoid the effect¹²⁻¹⁷ of humidity and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture¹⁸⁻²⁵.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Chrysanthemum morifolium* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm²⁶⁻³⁸.

Determination of antimicrobial activity of crude bioactive compounds of *Chrysanthemum morifolium*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty μ L of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control 39-51. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Analysis of compounds was carried out in methanolic extract of *Chrysanthemum morifolium*, shown in Table 1. Chromatogram GC-MS analysis of the methanol extract of *Chrysanthemum morifolium* showed the presence of thirteen major peaks and the components

corresponding to the peaks were determined as follows. The Fourier transform infrared spectrophotometer analysis of *Chrysanthemum morifolium* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1014.56, 1242.16, 1317.38, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84. In the current study, the anti-fungal activity of *Chrysanthemum morifolium* methanolic extract was evaluated by determining the zone of inhibition against fungi. *Chrysanthemum morifolium* was very highly active against *Aspergillus terrus* (6.004 \pm 0.20). The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc. Recently, a number of plants have been reported for antibacterial properties across the world. Based on the present study, it is concluded that the whole plants of *A. lanata* contains various bioactive components with high degree of antibacterial activity against various pathogens. *Chrysanthemum morifolium* Ramat is known to have antioxidant, anti-inflammatory, antimutagenic, antimicrobial, antifungal, antiangiogenic and nematocidal properties (Yeasmin et al., 2016). This plant is also known to produce flavonoids of medicinal value. Some of the compounds in *Chrysanthemum* are flavonoids like luteolin, apigenin and acacetin, choline and vitamin B1. *Chrysanthemum morifolium* Ramat extract (CME) has the protective effect on cardiovascular diseases. Luteolin and apigenin are two major bioactive components in vivo when CME is orally administrated to experimental animal. The flowering head of *Chrysanthemum morifolium* Ramat known in China as “Ju Huan”, is an important traditional Chinese medicine (TCM) used for scattering cold, cleaning heat and toxin and brightening eye, and used as an important component in many TCM formulas. In Chinese medicine, *C. morifolium* Ramat is widely used as a dietary supplement or herbal tea

Table 1. FT-IR peak values of *Chrysanthemum morifolium* methanolic extract

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	921.97	80.755	Strong	=C-H	Bending	Alkenes	650-1000
2.	1018.41	65.504	Strong	C-F	Stretch	alkyl halides	1000-1400
3.	1242.16	84.097	Strong	C-F	Stretch	alkyl halides	1000-1400
4.	1315.45	85.759	Strong	C-F	Stretch	alkyl halides	1000-1400

Cont... Table 1. FT-IR peak values of *Chrysanthemum morifolium* methanolic extract

5.	1377.17	84.830	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1413.82	83.609	Medium	C=C	Stretch	Aromatic	1400-1600
7.	1610.56	83.285	Bending	N-H	Stretch	Amide	1550-1640
8.	2854.65	88.593	Strong	C-H	Stretch	Alkane	2850-3000
9.	2922.16	84.451	Strong	C-H	Stretch	Alkane	2850-3000

CONCLUSION

The Fourier transform infrared spectrophotometer analysis of *Chrysanthemum morifolium* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1014.56, 1242.16, 1317.38, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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***Harpagophytum procumbens* and *Cordia myxa*: In vitro Antibacterial Activity and Bioactive Compounds of Methanolic Fruit Extract Using Fourier-Transform Infrared Spectroscopic Technique**

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ABSTRACT

Harpagophytum Procumbens (commonly called Devil's Claw) is a tuber vegetable that is used for combatting lower back pain as well as arthritis (both osteoarthritis and rheumatoid arthritis). The objectives of this study were analysis of the secondary metabolite products and evaluation of antibacterial activity. The FTIR analysis of *Harpagophytum Procumbens* proved the presence of alkyl halides, Alkenes, and Amide which shows major peaks at 669.30, 831.32, 918.12, 1016.49, 1029.99, 1240.23, 1608.63, 2358.94, and 3251.98. The FTIR analysis of *Cordia myxa* proved the presence of alkyl halides, Alkenes, Aromatic, Amide, and Alkane which shows major peaks at 669.30, 684.73, 827.46, 873.75, 927.76, 1010.70, 1236.37, 1313.52, 1417.68, 1604.77, 2358.94, 2918.30, and 3269.34. Antibacterial activity was evaluated by determining the zone of inhibition. Maximum zone formation was against *Staphylococcus aureus* (5.13±0.19) and (6.59±0.21) for *Harpagophytum Procumbens* and *Cordia myxa* respectively.

Keywords: FT-IR analysis, *Harpagophytum procumbens*, *Cordia myxa*, Anti-Bacterial Activity

INTRODUCTION

WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. *Harpagophytum procumbens* (devil's claw) has been used as an analgesic, a remedy for fever and allergies.

The major chemical constituents of *Harpagophytum* are iridoid glycosides¹⁻¹³, phytosterols, aromatic acids, and flavonoids. Glycosides found in the tubers of the plant appear to be the most therapeutically important constituents. Whole-plant extracts appear to have a better therapeutic effect than those prepared from isolated parts. Devil's claw (*Harpagophytum procumbens*) is reported to have an anti-inflammatory effect in humans and laboratory animals. The active ingredients are various iridoid glycosides, acetylated phenolic glycosides, and terpenoids. Devil's Claw is primarily marketed for its painkilling and anti-inflammatory properties, and has many testimonials claiming relief from rheumatism and other joint disorders. The plants of genus *Cordia* comprise of trees and shrubs which are widely¹⁴⁻²² distributed in warmer regions. Various compounds like flavonoids, triterpenes, tannins, alkaloids and fatty acids possessing wide range of bioactivities were isolated from different plant parts of *Cordia* species. *Cordia myxa* fruit (family: Boraginaceae), is popularly used

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for the treatment of chest and urinary infections, and as an anthelmintic, diuretic, astringent, demulcent and expectorant agent. The aims of this study were analysis of the secondary metabolite products and evaluation of antibacterial activity

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials²³⁻²⁹, the leaves were stored in airtight container to avoid the effect of humidity and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture³⁰⁻³⁷.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Harpagophytum procumbens* and *Cordia myxa* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm.

Determination of antimicrobial activity of crude bioactive compounds of *Harpagophytum procumbens* and *Cordia myxa*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty μ L of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control⁵¹⁻⁵⁵. Amphotericin B and fluconazole were used as reference antifungal agent³⁸⁻⁴⁹. The tests were carried

out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in methanolic extract of *Harpagophytum procumbens* and *Cordia myxa*, shown in Table 1 and Table 2. The FTIR analysis of *Harpagophytum Procumbens* proved the presence of alkyl halides, Alkenes, and Amide which shows major peaks at 669.30, 831.32, 918.12, 1016.49, 1029.99, 1240.23, 1608.63, 2358.94, and 3251.98 Table 1. The FTIR analysis of *Cordia myxa* proved the presence of alkyl halides, Alkenes, Aromatic, Amide, and Alkane which shows major peaks at 669.30, 684.73, 827.46, 873.75, 927.76, 1010.70, 1236.37, 1313.52, 1417.68, 1604.77, 2358.94, 2918.30, and 3269.34 Table 2. The very strong absorption band observed around 669.30-1240.23 cm^{-1} may be due to the presence of bonded C-H/O-H stretching of alkyl halides Alkenes. The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc.. Recently, a number of plants have been reported for antibacterial properties across the world. Based on the present study, it is concluded that the whole plants of *A. lanata* contains various bioactive components with high degree of antibacterial activity against various pathogens. It is hoped that this study would direct to the establishment of some compounds that could be used to invent new and more potent antibacterial drugs of natural origin. Further work will emphasize the isolation and characterization of active principles responsible for bio-efficacy and bioactivity.

Table 1. FT-IR peak values of solid analysis of *Harpagophytum procumbens*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	669.30	59.096	Strong	C-Cl	Stretch	alkyl halides	600–800
2.	831.32	75.631	Strong	=C–H	Bending	Alkenes	650-1000
3.	918.12	74.543	Strong	=C–H	Bending	Alkenes	650-1000
4.	1016.49	53.947	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1029.99	53.825	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1240.23	77.627	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1608.63	72.518	Bending	N-H	Stretch	Amide	1550-1640
8.	2358.94	73.485	Unknown	-	-	-	-
9.	3251.98	73.653	Bending	N-H	Stretch	Amide	3100-3500

Table 2. FT-IR peak values of solid analysis of *Cordia myxa*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	669.30	59.416	Strong	C-Cl	Stretch	alkyl halides	600–800
2.	684.73	63.115	Strong	C-Cl	Stretch	alkyl halides	600–800
3.	827.46	74.505	Strong	=C–H	Bending	Alkenes	650-1000
4.	873.75	72.300	Strong	=C–H	Bending	Alkenes	650-1000
5.	927.76	69.360	Strong	=C–H	Bending	Alkenes	650-1000
6.	1010.70	48.730	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1236.37	79.328	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1313.52	79.285	Strong	C-F	Stretch	alkyl halides	1000-1400
9.	1417.68	73.681	Medium	C=C	Stretch	Aromatic	1400-1600
10.	1604.77	77.448	Bending	N-H	Stretch	Amide	1550-1640
11.	2358.94	79.466	Unknown	-	-	-	-
12.	2918.30	81.850	Strong	C-H	Stretch	Alkane	2850-3000
13.	3269.34	74.844	Bending	N-H	Stretch	Amide	3100-3500

Table 3. Zone of inhibition (mm) of test bacterial strains to *Harpagophytum procumbens* bioactive compounds and standard antibiotics.

<i>Harpagophytum procumbens</i> Antibiotics	Bacteria				
	<i>Staphylococcus aureus</i>	<i>Escherichia coli</i>	<i>Proteus mirabilis</i>	<i>Klebsiella pneumonia</i>	<i>Pseudomonas eurogenosa</i>
<i>Harpagophytum procumbens</i>	4.00±0.31	4.90±0.13	5.00±0.16	4.63±0.41	4.12±0.11
Rifambin	1.01±0.10	0.77±0.41	0.98±0.11	1.00±0.30	1.05±0.42
Streptomycin	0.91±0.27	1.60±0.29	1.90±0.10	0.96±0.47	0.87±0.20
Kanamycin	0.42±0.18	1.12±0.46	0.40±0.12	1.00±0.10	0.90±0.47
Cefotaxime	0.87±0.95	0.96±0.27	0.93±0.25	0.92±0.18	0.71±0.13

CONCLUSION

Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. Infrared spectroscopy provides a useful method for herbal analysis and elucidate the compounds structures as well as for quantitative analysis of drugs. Twenty two phyto-constituents were identified by (FTIR) analysis.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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In vitro Antibacterial and Anti-Fungal Activities of Methanolic Extract of *Mentha pulegium*

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ABSTRACT

The aims of our research were analysis of the secondary metabolite products and in *vitro* antibacterial and anti-fungal activities. Infectious diseases which are one of the main causes of morbidity and mortality worldwide represent a critical problem to health. Pharmacological industries have produced number of new-antibiotics in the last three decades, but microbial resistance to these antibiotics has increased because of genetic ability of the bacteria to acquire and transmit the resistance against therapeutic agents. *Mentha pulegium* is a species of flowering plant in the family Lamiaceae. The FTIR analysis of *Mentha pulegium* leaves proved the presence of alkenes, alkyl halides, aromatic, and amide which shows major peaks at 958.62, 985.62, 1012.63, 1026.13, 1093.64, 1242.16, 1255.66, 1593.20, 1606.70 and 2362.80. In the current study, the anti-microbial activity of *Mentha pulegium* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Mentha pulegium* was very highly active against *Aspergillus terreus* (6.37±0.22).

Keywords: *Mentha pulegium*, In vitro, FT-IR, Anti-Bacterial, Anti-Fungal Activity

INTRODUCTION

The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids ¹⁻¹⁰, glycosides, flavonoids, steroids, saponins etc.. Recently, a number of plants have been reported for antibacterial properties across the world. Based on the present study, it is concluded that the whole plants of *A. lanata* contains various bioactive components with high degree of antibacterial activity against various pathogens. It is hoped that this study would direct to the

establishment of some compounds that could be used to invent new and more potent antibacterial drugs of natural origin ¹¹⁻¹⁶. Further work will emphasize the isolation and characterization of active principles responsible for bio-efficacy and bioactivity. The Lamiaceae family contains wide variety of aromatic plants mainly in temperate countries which is native in Europe, North Africa, Asia Minor, and near East. This plant is a perennial aromatic herb with 10 to 45 cm height and a 4 angles stem with small green long-stalked leaves that grows in moist damp streams. Medicinal aromatic plants like as *Mentha pulegium* due to their chemical components with therapeutic effects are important for treating human diseases¹⁷⁻²³. This plant has been traditionally used due to its antiseptic effect for treatment of cold, sinusitis, bronchitis, cholera, food poisoning and tuberculosis. Microorganisms including gram positive and gram negative bacteria have been recognized as the main causes of various human infections. With regard to the occurrence of multidrug resistant bacteria, it is necessary to discover new antibiotic sources and plants can be potential source for this purpose ²⁴⁻²⁹. The objectives

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of our study were analysis of the secondary metabolite products and *in vitro* antibacterial and anti-fungal activities.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in airtight container to avoid the effect of humidity and then stored at room ³⁰⁻³⁶ temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis ³⁸⁻⁴². It was again filtered through sodium sulphate in order to remove the traces of moisture.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Mentha pulegium* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm.

Determination of antimicrobial activity of crude bioactive compounds of *Mentha pulegium*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty mL of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in methanolic extract of *Mentha pulegium*, shown in **Table 1**. Chromatogram FTIR analysis of the methanol extract of *Mentha pulegium* showed the presence of ten major peaks and the components corresponding to the peaks were determined as follows. The FTIR analysis of *Mentha pulegium* leaves proved the presence of alkenes, alkyl halides, aromatic, and amide which shows major peaks at 958.62, 985.62, 1012.63, 1026.13, 1093.64, 1242.16, 1255.66, 1593.20, 1606.70 and 2362.80. In the current study, the anti-microbial activity of *Mentha pulegium* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Mentha pulegium* was very highly active against *Aspergillus terreus* (6.37±0.22). Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. One important finding in this study was this fact that active components of this plant affect cell wall. As a common rule those antibacterial agents that can disrupt cell wall or inhibit its biosynthesis are of great importance. These agents act as bactericidal agents and so it is unlikely that after their usage the infection relapses. In most medicinal plant studies this step is ignored while finding those medicinal plants that can affect bacterial cell wall can help to find effective bactericidal agents. Finally it should be noticed weather condition is very decisive in producing active substances in plants and hence this plants that grown in different climate area should be screened for bioactive compounds.

Table 1. FT-IR peak values of *Mentha pulegium* methanolic leaves extract.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	958.62	77.147	Strong	=C-H	Bending	Alkenes	650-1000
2.	985.62	71.466	Strong	=C-H	Bending	Alkenes	650-1000
3.	1012.63	65.604	Strong	C-F	Stretch	alkyl halides	1000-1400
4.	1026.13	65.029	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1093.64	72.698	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1242.16	81.648	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1255.66	81.607	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1593.20	79.968	Medium	C=C	Stretch	Aromatic	1400-1600
9.	1606.70	78.913	Bending	N-H	Stretch	Amide	1550-1640
10.	2362.80	83.382	Unknown	-	-	-	-

CONCLUSION

The FTIR analysis of *Mentha pulegium* leaves proved the presence of alkenes, alkyl halides, aromatic, and amide which shows major peaks at 958.62, 985.62, 1012.63, 1026.13, 1093.64, 1242.16, 1255.66, 1593.20, 1606.70 and 2362.80. In the current study, the antimicrobial activity of *Mentha pulegium* methanolic extract was evaluated by determining the zone of inhibition against bacteria, fungi and yeast. Maximum zone formation was against *Staphylococcus aureus* (5.89±0.20). *Mentha pulegium* was very highly active against *Aspergillus terreus* (6.37±0.22).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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Phytochemical Screening by FTIR Spectroscopic Analysis and Anti-Fungal Activity of Fruit Extract of Selected Medicinal Plant of *Ruta graveolens*

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ABSTRACT

Ruta graveolens (the common rue) has been used for various therapeutic purposes, including relief of rheumatism and treatment of circulatory disorder. The purpose of our research were analysis of the bioactive chemical compounds of selected medicinal plant of *Ruta graveolens* using fourier transform infrared spectrophotometer analysis and evaluation of anti-fungal activity. Thirteen bioactive compounds were identified in the methanolic extract of *Ruta graveolens*. The Fourier transform infrared spectrophotometer analysis of *Ruta graveolens* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1004.91, 1014.56, 1242.16, 1317.38, 1595.13, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84. In the current study, the anti-fungal activity of *Ruta graveolens* methanolic extract was evaluated by determining the zone of inhibition against fungi. *Ruta graveolens* was very highly active against *Aspergillus fumigatus* (5.39±0.21).

Keywords: Phytochemical screening, FTIR spectroscopic, Medicinal plant, *Ruta graveolens*

INTRODUCTION

In recent years there has been a great scientific advance regarding chemical and pharmacological studies of medicinal plants aimed at obtaining new compounds with biological properties. Among the countless species of medicinal interest, there are plants belonging to the Rutaceae family, which has species of economic, ecological and therapeutic importance. The Rutaceae family, also named as Rutaceae, belongs to the order of Sapindales with about 150 genders and over 1600 species. In recent years, there has been a growing interest in researches looking for possible uses of plant products as antimicrobial instead of several synthetic antibacterial which can cause several

side effects. Historically, natural products and their derivatives have been an invaluable source of therapeutic agents. When in vitro, antimicrobial assays have effectively served as reliable methods to detect several classes of secondary metabolites with high antimicrobial activity¹⁻⁴. *Ruta graveolens* commonly known as rue, is a dicot herb, belongs to Rutaceae family and native to Mediterranean region but widely distributed all over the tropical regions. The leaves are bipinnate or tripinnate with a feathery appearance and green to strongly glaucous blue-green in colour⁵⁻⁹. This plant is used by the Iraqi populations, systemically for its antispasmodic and analgesic effects and externally for its anti-rheumatic activity. The methanol, petroleum ether, ethyl acetate and water-methanol extracts of *R. graveolens* were found to possess antimicrobial and cytotoxic activities. *Ruta* in combination with Ca₃(PO₄)₂ is found to be effective in treatment of brain cancers, particularly glioma. Leaf extracts also reported to possess strong anti-inflammatory activity¹⁰⁻¹⁶. However, no significant reports are available about the antimicrobial activity of *Ruta graveolens* stem; therefore, present investigation

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was undertaken to examine the antimicrobial activities of stem extract of *Ruta graveolens* using various pathogenic microbial strains.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in airtight container to avoid the effect of humidity¹⁷⁻²⁵ and then stored at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture²⁶⁻³¹.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Ruta graveolens* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm³²⁻³⁹.

Determination of antimicrobial activity of crude bioactive compounds of *Ruta graveolens*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty μL of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control. Amphotericin B and fluconazole were used as reference

antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Analysis of compounds was carried out in methanolic extract of *Ruta graveolens*, shown in **Table 1**. Chromatogram GC-MS analysis of the methanol extract of *Ruta graveolens* showed the presence of thirteen major peaks and the components corresponding to the peaks were determined as follows. The Fourier transform infrared spectrophotometer analysis of *Ruta graveolens* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1004.91, 1014.56, 1242.16, 1317.38, 1595.13, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84. In the current study, the anti-fungal activity of *Ruta graveolens* methanolic extract was evaluated by determining the zone of inhibition against fungi. *Ruta graveolens* was very highly active against *Aspergillus fumigatus* (5.39±0.21). Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents, clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc.

Table 1. FT-IR peak values of *Ruta graveolens* methanolic extract.

No.	Peak (Wave number cm^{-1})	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	667.37	56.899	Strong	C-Cl	Stretch	alkyl halides	600-800
2.	873.75	73.673	Strong	=C-H	Bending	Alkenes	650-1000
3.	921.97	71.567	Strong	=C-H	Bending	Alkenes	650-1000
4.	1004.91	52.162	Strong	C-F	Stretch	alkyl halides	1000-1400

Cont... Table 1. FT-IR peak values of *Ruta graveolens* methanolic extract.

5.	1014.56	51.019	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1242.16	77.325	Strong	C-F	Stretch	alkyl halides	1000-1400
7.	1317.38	77.311	Strong	C-F	Stretch	alkyl halides	1000-1400
8.	1595.13	73.531	Medium	C=C	Stretch	Aromatic	1400-1600
9.	1614.42	72.276	Bending	N-H	Stretch	Amide	1550-1640
10.	2330.01	83.341	Unknown	-	-	-	-
11.	2357.01	77.583	Unknown	-	-	-	-
12.	3228.84	73.851	Bending	N-H	Stretch	Amide	3100-3500
13.	3282.84	72.556	Bending	N-H	Stretch	Amide	3100-3500

CONCLUSION

The Fourier transform infrared spectrophotometer analysis of *Ruta graveolens* proved the presence of alkenes, alkanes, and alkyl halides which shows major peaks at 667.37, 873.75, 921.97, 1004.91, 1014.56, 1242.16, 1317.38, 1595.13, 1614.42, 2330.01, 2357.01, 3228.84 and 3282.84. In the current study, the anti-fungal activity of *Ruta graveolens* methanolic extract was evaluated by determining the zone of inhibition against fungi. *Ruta graveolens* was very highly active against *Aspergillus fumigatus* (5.39±0.21).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance with approved guidelines.

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Prevalence and Correlates of Lifetime Water Pipe and Internet Addiction among Attendee in Café in Al-Hilla City

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ABSTRACT

Water pipe is a kind of tobacco smoking that depends on special instrument that is used to smoke specially made with tobacco that comes with different flavors. Objectives: To identify knowledge and attitudes of water pipe smoking among attendee in café and identify relationship between overall knowledge and socio demographic variables and assess the prevalence of Internet addiction among young. Descriptive study is carried out in Al-Hilla City/ Babylon University, from August, first 2018 to November, 15th, 2018. A non-probability (convenient sample) of (300) water pipe smokers who attend a café in Al-Hilla and those who used internet. The data were collected through the utilization of the developed questionnaire after the validity and reliability are estimated, and by means of interview technique. Reliability of the questionnaire is determined through a pilot study and the validity through (16) experts. The data analyzed through the use of the descriptive and inferential statistical analysis procedures. The findings of the present study indicate that most of water pipe smokers had fair knowledge and most of them had negative attitudes and indicate that the overall assessment for internet application compliance level of addiction was severe.

Key words: Prevalence, Water Pipe' Internet addiction, Café.

INTRODUCTION

Currently good epidemiological trend data on water pipe smoking is lacking, in part due to the absence of its inclusion in national health surveys. The full picture is further complicated by the fact that water pipe users do not generally self-identify as smokers, resulting in a tobacco-using population that healthcare professionals are not able to routinely identify¹. Water pipe smoking is a broad term given to a device whereby smoke (usually sourced from a tobacco mixture) is passed through water prior to inhalation². Water pipe tobacco smoking is a form of tobacco consumption that utilizes a single or multi-stemmed instrument to smoke flavored or non-flavored tobacco, where smoke is designed to pass through water or other liquid before reaching the smoker³. There has been an explosive growth of internet usage worldwide and this is expected to continue with its use becoming an integral part of everyday life. The internet has become more accessible in homes, schools, colleges,

libraries and internet cafes; access is further aided with the increasing affordability of home computers and high-speed connections over the last decade⁴. The Internet is spreading rapidly and influencing all aspects of everyday life, a task is assigned to the academic and clinical circles to establish a diagnosis and provide treatment for disorders brought about by its dysfunctional use, the most frequent problems and difficulties in dealing with individuals complaining of the symptoms of Internet use disorder, as well as some suggestions for overcoming and alleviating these problems⁵. The internet provides tremendous educational benefits including access to information across a wide variety of topics, establishing educational links and enhancing communication with teachers and classmates⁶. However, excessive internet use can lead to negative outcomes such as poor school performance, social isolation, and might impede an adolescent's achievement of psychosocial developmental tasks⁷. As such, internet addiction has become a growing area of concern, interest, research, and debate⁸. Essentially, internet use becomes pathological when it interferes with one or more major areas of life functioning such as significant relationships, occupation, school, mental

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health, or physical health⁹. The study aims to identify knowledge and attitudes of water pipe smoking among attendee in café and identify relationship between overall knowledge and socio demographic variables and assess the prevalence of Internet addiction among young.

METHODOLOGY

Descriptive study is carried out in Al-Hilla City/ Babylon University, from August, first 2018 to November, 15th, 2018. A non-probability (convenient sample) of (300) water pipe smokers who attend a café in Al-Hilla and those who used internet. The data were collected through the utilization of the developed questionnaire after the validity and reliability are estimated, and by means of interview technique. Reliability of the questionnaire is determined through a pilot study and the validity through (16) experts. The data analyzed through the use of the descriptive and inferential statistical analysis procedures. Each subject takes off approximately (20-30) minute to complete the interview.

The study instrument

A questionnaire is adopted and developed by after extension literature review and review the articles which were related to this field. The final study instrument consists of two parts:

Part 1: Knowledge regarding Water pipe smoking Scale:

This part of the questionnaire is comprised of (10) question, including the knowledge regarding water pipe smoking. The statistical data analysis approaches were used in order to analyze the data of the study under application of the statistical package (SPSS) ver. (24), and the Microsoft excel (2016). Data were presented using descriptive the in from of frequencies and Percentages. Summary Statistics tables including: Mean, Mean of scores (M.S), standard deviation (SD). Relative sufficiency (R.S): used to assess of patients' compliance regarding therapeutic regime with coronary heart disease by three grades (good, fair, poor) scoring by (79-100, 56-78, 33-55). Person's correlation coefficient: was used to estimate the scale reliability through the application

Part 2: Internet Addiction

This part of the questionnaire is comprised of (10) question, including the internet addiction test. The

statistical data analysis approaches were used in order to analyze the data of the study under application of the statistical package (SPSS) ver. (24), and the Microsoft excel (2016). Data were presented using descriptive the in from of frequencies and Percentages. Summary Statistics tables including: Mean, Mean of scores (M.S), standard deviation (SD). Relative sufficiency (R.S): used to assess of patients' compliance regarding therapeutic regime with coronary heart disease by three grades (severe, moderate, mild) scoring by (79-100, 56-78, 33-55). Person's correlation coefficient: was used to estimate the scale reliability through the application.

RESULTS AND DISCUSSION

Table 4 show that the highest percentage of water pipe smoking sample (61%) were between age (18-20) years old; (73%) marital status (single); (49%) occupation (employment); (38.7%) level of education (institute and college); (92.2%) residency (city) and (66) water pipe smoking (no). Table 2 shows that levels of knowledge overall responses are fair at the water pipe smoking. Table 4 show that the highest percentage of water pipe smoking sample (61%) were between age (18-20) years old; (73%) marital status (single); (49%) occupation (employment); (38.7%) level of education (institute and college); (92.2%) residency (city) and (66) water pipe smoking (no). Table 4 shows that levels of knowledge overall responses are sever at the internet addiction. It appears from this table that there was high significant difference in the overall antenatal care services with demographic data regard to their residency and monthly income at ($P \leq 0.01$), shows that there was significant difference concerning with their age at ($P \leq 0.05$) and it appears from this table that there was no significant difference concerning with their occupation and level of education at ($P > 0.05$). It appears from this table that there was high significant difference in the overall antenatal care services with demographic data regard to their residency and monthly income at ($P \leq 0.01$), shows that there was significant difference concerning with their age at ($P \leq 0.05$) and it appears from this table that there was no significant difference concerning with their occupation and level of education at ($P > 0.05$). The finding of the study revealed that more than half of study samples were within age group (18–25) years old which represent (61%). The finding of the study seems to be in agreement with Smith-Simone *et al.*, (2008), a study conducted in Al-Hassa, Saudi Arabia among 201 male and female gender, found that most of the participants

were young adults between age (1– 25). The result of the current study showed that the entire study sample was male. This is congruent with the study conducted by Karimy *et al.*, (2013) in city of Iran among 400 male students. It showed similar results with the work developed by Shaikh *et al.*, (2008) in a descriptive cross sectional study among 202 males. As per my opinion; this is related to culture and social issue in our region where there is observation regarding the female who smoke water pipe or Cigarette. Regarding Marital status more than two-thirds (73.0%) of the study, the sample was single. A quite similar finding has been reported by Doski & Ahmed, (2015), which was conducted in all venues of cafes and restaurants located geographically in Al-Hilla city, who found that (72.6%) of study samples were male. A cross-sectional descriptive study of a 150 sample of Iraqi male college students aged ≥ 18 years in the College of Medical and Health Technology, Baghdad who found most of the study samples were single. The study showed that (49%) of the samples were unemployed. The finding of our study agrees with Mohammed, (2013) that study conducted in Waterloo, Ontario. Canada has 342 participants, who found that most of the study samples were unemployed. Most of the study samples (92.7%) were from the city may be due to the fact that our study focused on the center of Al-Hilla city. The finding of the study agrees with the study of Burhan, (2012) that was conducted in Sulaimania who found that majority (78%) of the participants among 100 people were from the city (urban). More than one-third (38.7%) of study samples were graduated in College and Institute. Therefore, if this is the case, the volume of moderate to severe negative consequences reported may be an elevated finding making the harmful effects of Internet overuse greatly overstated. This result shows a significant discrepancy from the stereotypic profile of an “Internet addict” as a young, computer-savvy male. While these limitations are significant, this exploratory study provides a workable framework for further exploration of addictive Internet use. Individuals were able to meet a set of diagnostic criteria that show signs of impulse-control difficulty similar to symptoms of pathological gambling. In the majority of cases, Dependents reported that their Internet use directly caused moderate to severe problems in their real lives due to their inability to moderate and control use. There was a highly significant association between the marital status and the overall knowledge of study sample. There was a highly significant association between the

residence and the overall knowledge of study sample as well.

Table 1. Distribution of the Study Sample by their Demographic Characteristics

Demographic Variable		F	%
	Less than 18	18	6
	18 -25	183	61
Age (year)	26 -33	81	27
	34 -41	16	5.3
	More than 42	2	0.7
Total		300	100
Marital status	Single	219	73
	Married	81	27
Total		300	100
	Unemployed	127	49
Occupation	Student	101	33.7
	Employ	52	17.3
Total		300	100
	Illiterate	14	4.7
Level of education	Primary	52	17.3
	Secondary	111	37
	Institute and College	116	38.7
	Postgraduate	7	2.3
Total		300	100
Residency	City (urban)	278	92.2
	suburban	22	7.3
Total		300	100
Water pipe smoking	Yes	198	66
	No	102	34
Total		300	100

Table 2. Overall Evaluation of the levels of knowledge about Water pipe smoking

Level of internet addiction	F	%	M.S	RS	Assessment
Mild	20	6.7	2.64	88	Sever
Moderate	70	23.3			
Severe	210	70			
Total	30	100			

Table 3. Distribution of the young’s sample according to water pipe smoking

List	Knowledge Aspect of Water Pipe Smoking	N0 F	%	Yes F	%
1	WPS is harmful for health.	79	26.3	221	73.7
2	WPS is more dangerous than cigarette smoking.	123	41	177	59
3	WPS contains less nicotine than cigarettes	190	63.3	110	63.7
4	WPS sharing can cause communicable disease.	154	51.3	146	48.7
5	Water in WP filters toxin substances	197	65.7	103	34.3
6	WPS lead to cardio vascular disease.	138	46	162	54
7	WPS leads to lung cancer.	126	42	174	58
8	Fruit flavor in WP have benefit	231	77	69	23
9	WPS lead to dental problem.	144	48	156	52
10	Water pipe smoking does not irritate the bronchi	187	62.3	113	37.7

Table 4. Overall Evaluation of the levels of knowledge about internet addiction

Levels of knowledge	F	%	M.S	RS	Assessment
Poor	41	17.7	2.16	72	Fair
Fair	171	57			
Good	88	29.3			
Total	300	100			

CONCLUSION

The study concluded that Water pipe smoking was more prevalent among the age group 18-25 and between institute and university level of study sample. The overall knowledge of the study sample was poor especially about the health risk of water pipe smoking. There was a false belief that the tobacco contains healthy fruits and thus smoking is beneficial for health. The results of this study confirmed negative and bad attitudes that water pipe smoking was acceptable to the society and parent. There was a highly significant association between the marital status and the overall knowledge of study sample. There was a highly significant association

between the residence and the overall knowledge of study sample as well.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Faculty of Nursing, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Psychological Problems among Infertile Couple with and without In vitro Fertilization Procedure: Comparative Study

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ABSTRACT

A Descriptive comparative study design was used in this study aims to assess the psychological problems among infertile couple with and without IVF and to find out the relationship between infertile couple psychological problems and their demographic characteristic. The period of study is from 15th October 2017 to 18th September 2018. A Non-Probability (convenience sample) sampling of (100) infertile couple (100 wives and 100 husbands) have been selected from the Fertility Center in AL-Sadder Medical City in AL –Najaf Al-Ashraf province. The questionnaire consists of two parts; demographic characteristics and psychological scale (General Health Questionnaire- 28). The data are collected through the utilization of the developed questionnaire by using an interview technique with patients. The result of the study show that most of the infertile wives were at age group (25–32) years (46%), while infertile husbands were at age (36–43) years (42%), duration of marriage (2–13) years), duration of infertility (1–10), and most of them had primary infertility. Also the result of the study show that most of the wives with and without IVF had psychological problems more than husbands. Also there are psychological problems among infertile couple without IVF more than couple with IVF.

Keywords: *Psychological problems, In Vitro Fertilization, Infertile Couple.*

INTRODUCTION

Infertility is a reproductive inability and a significant loss influencing female and male, reproductive health according to world health organization (WHO) that description of health as a condition of complete physical, social well-being and mental, addresses conceptive capacities at all phase of life, among these capacities was the person's ability to reproduce. Therefore, motherhood and childbearing usually were associated with positive feeling to spouse and family. Generally in most culture individuals need to have kids for its delight as well as profound want to keep their generation and leave a significant memory of the themselves. So, conceptive disappointment, like infertility can cause responses of stress ^{1,2}. Psychological problems effect of infertile couple may run from feeling inadequacy

and worry to interpersonal relationship to anxiety and major depression, women will probably experience the effects of psychological disturbance, particularly in social orders where women are for the most part to be the cause for couple's incapability to get pregnant and social ethic and social pressure and norms are one of the main contributing influences in the development of the psychological issue in a few societies e.g muslim social childlessness can particularly be exceptionally troubling for infertile women because their religious belief and culture enable male to have more than one wives at exactly the same time and female's failure to conceive gives them a quite decent reason to remarry ³. Infertility is defined as the inability of couple of reproductive age to achieve pregnancy after 12 months inspite of unprotected intercourse. Infertility is classified as primary when pregnancy has not occurred previously and secondary when the female has not achieved subsequent pregnancy, not bothering about its outcome, all the most world, infertility is considered by individual and couples as stressful situation ⁴. The reasons for infertility may be caused by female factor (about 45–65% of all cases)

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or male factor (about 25-45%) or be a problem of both man and women (about 10%)⁵. Couples undergoing infertility often seek medical advice and help including assisted reproductive technology (ART) treatments, which is one of these technique is in vitro fertilization (IVF), in the past ten years number of couples treated with ART had increased. An estimated about five million kids and more have been born a cross the world when the first successful IVF child was born. Therefore, many couples who are suffering fertility problems have been found treatment with IVF hope and resolution of their problems. However, This technique lead to many physical, economic, and psychological burdens⁶. ART is considered some of the risk factor that can cause strain in couple who are used this type of treatment. Current studies show that the infertile couples who attempt to have baby through IVF procedure feel to have high degree of anxiety, depression, social dysfunction and stress of childbearing in (20% - 40 %) of infertile couple can be found because of infertility investigations and the procedure of IVF⁷.

MATERIALS AND METHOD

Design of the Study:

A comparative study design was adopted in order to achieve the stated objectives. The study began 15th October 2017 to 18th September 2018.

Setting of the Study:

The study was conducted in Al-Najaf Province /Al-Najaf Al-Ashraf Health Directorate / Al-Sadder Medical City, at Fertility Center.

Sample of the Study:

A Non-Probability (convenience Sample) of (100) infertile couple (100 wives and 100 husbands) those who had problems with fertility and visited the Fertility center.

Study Instrument:

The tool of the study adopted and developed by the researcher to assess the infertility upon psychological problems. The questionnaire consists of four parts:

Part 1: Demographic Data: Demographic characteristic sheet consisted of 6 items which included gender, age (wife and husband), level of wife and husband education, occupation status for wife and

husband, marital relationship between spouses and socio-economic status that include (residence and monthly income)

Part 2: Clinical Data: The second part of the clinic characteristics sheet consisted of 3 items including smoking, BMI, chronic disease.

Part 3: Reproductive history: The reproductive history sheet, which included age at marriage, duration of marriage, duration of infertility, type of infertility, pervious IVF technique.

Part 4: The Psychological problems scale:

An assessment tool used to assess the psychological problems among infertile couple with and without in vitro fertilization procedure. The General Health Questionnaire-28 (GHQ-28) is one of the best tools for screening and determine the psychological problems among infertile couple. The original version of GHQ contain 60 questions. Now, there are three version shortened of GHQ scale (12-30-28) question. GHQ-28 items is most used in studies than other versions of GHQ scale, because it had the highest level of reliability, sensitivity and specificity (8). Golberge introduced the first copy off GHQ in 1979. The scale had four domains had 7 items to test the psychological problems. These four domains are the foundation of the mental health. First domain (1-7) related to somatic symptoms, second domain (8-14) related to anxiety, third (15-21) related to social dysfunction, and the last domain (22-28) related to depression (9). The GHQ is designed to identify two main classes of problem: "inability to carry out one's normal 'healthy' functions, and the appearance of new phenomena of a distressing nature. It focuses on breaks in normal functioning rather than on life-long traits; therefore it only covers personality disorders or patterns of adjustment where these are associated with distress (10). The scale has four options, the participant can be select the suitable option to their state during last two weeks. The scale had two kinds of items (negative and positive).

Data Collection:

The data were collected through the utilization of the developed questionnaire, and by means of structured interview technique with the subjects who were individually interviewed, by using the Arabic version of the questionnaire and they interviewed in a similar way,

by the same questionnaire for all those subjects who were included in the study sample

Validity of the Instrument:

A content validity of the study instrument conducted through a group of experts who have more than 10 years of experience in nursing field.

RESULTS AND DISCUSSION

Table (1) shows statistical distribution of infertile couple by their socio-demographic data. It explains that the majority of the infertile wives are those with ages between (25-32) years old (46%), while the highest percentage of infertile husbands are at age (36-43) years old (42%). Regarding the subjects' levels of education. The results show that the most of the study sample with primary school educational level (35%) and most of the husbands (27%) graduated from college or institute, with regards to the occupationl (50%) of the infertile husbands are free jobs, while wives (82%) are housewives. The above table also shows that most of the study sample (73%) wives and husband are from urban areas, finally those with moderate economic status (32%) wives and (38%) husbands. About (88%) of the infertile wives and (78%) husbands had good marital relationship before diagnosis with infertility, and only (70),(72) after diagnosis with infertility. Also the infertile wives were 18% who increased work hours after diagnosis with infertility.while (23%) decreased work hours. While the infertile husbands 13% have increased work hours after diagnosis with infertility, and 17% have decreased work hours. This table summarize and shows statistical distribution (frequency and percentage) of infertile couple by their reproductive history. It explains that the majority of the subgroup is : age of marriage : for wives between (13-20) years (60%), for husbands between (25-34) years old (53%), those with duration of marriage between (2-13) years (85%), and (84%) is for (1-10) years as a duration of

infertility, couple with primary infertility (76%). The same table also shows that (66%) of them did not IVF technique. About (64.7%) of those with IVF technique had negative results, while (35.3) had positive results, and about (61.8%) have one previous IVF. Figure (1) shows that the overall assessment of the psychological problems among husbands is pass, while is the wives, the overall assessment of the psychological problems is failure Figure 2 shows that the overall assessment of the psychological problems among husbands with IVF is pass. Also, is the wives with IVF. The overall assessment is pass. Table (3) shows association between overall psychological problems assessment and reproductive data for infertile couples . The test of contingency shows that there is no significant association (p value >0.05) between overall psychological problems assessment and reproductive data for infertile couples except for duration of infertility and type of infertility which show significant association (p value <0.05). Regarding to the age of the study infertile couple, the results showed that the highest percentage of infertile wives (46%) are at age (25-32) years old, these results might come because of women in this age are more likely to be pregnant and this age is a preferable for pregnancy, so they seek for medical help. These findings coincide with the findings of Manna *et al.*, (2014) who reported that most common age of infertile women was (25-34) years,. While the most of infertile husband (42%) are at age (36-43) years old, this age group which was ranked highest is the stage of concern and the husband feels the need to reproduce and fear of not having children. In addition, the high marriage expenses that strain in the majority of young people in Iraqi society and the low economic situation in the country. This result is reinforced by the study of Sehhatie *et al.*, (2014), the result of their study is most common among the age of infertile male which was (30-40)years old. According to the couples' education level, the study reveals that most of the wives (35%) graduated from primary school, this might be due to early marriage of young girls in our culture.

Table 1. Statistical distribution (frequency and percentage) of infertile husbands and wives by their Demographic Data

Items	Subgroup	N=100		N=100		
		Husbands		Wives		
	Wives	husbands	F	%	F	%
Age / Years	17-24	20-27	14	14	21	21.0
	25-32	28-35	35	35	46	46.0
	33-40	36-43	42	42	23	23.0
	41-48	44-51	9	9	10	10.0
	Mean ± SD	Mean ± SD	35.39 ± 6.78		30.29 ± 6.76	
	Range	Range	20-50		17-47	
Levels of Education	Illiterate		9	9	20	20.0
	Read & write		10	10	12	12.0
	Primary school		24	24	35	35.0
	Secondary school		25	25	9	9.0
	College or Institute		27	27	22	22.0
	Postgraduate		5	5	2	2.0
Occupation	Housewife		50	50	82	82.0
	Students		4	4	5	5.0
	Governmental employee		41	41	13	13.0
	Private sector employee		5	5	0	0

Table 2. Statistical distribution (frequency and percentage) of infertile couple by their reproductive history

Items	Sub-groups	Study group Total = 100	
		F	%
Age at Marriage (wiveS)	13-20	60	60
	21-28	28	28
	29-36	6	6
	37-44	6	6
	Mean ± SD	21.3 ± 6.76	
	Range	13 – 42	
Age at Marriage (husbandS)	15-24	30	30
	25-34	53	53
	34-44	16	16
	45-54	1	1
	Mean ± SD	25.39 ± 6.04	
	Range	15 – 43	
Duration of marriage (years)	2-13	85	85
	14-25	15	15

Cont... Table 2. Statistical distribution (frequency and percentage) of infertile couple by their reproductive history

Duration of infertility (years)	1-10	84	84
	11-20	16	16
Type on Infertility	Primary	76	76
	Secondary	24	24
Did you have previous IVF technique?	Yes	34	34
	No	66	66
Results of Previous IVF (Total No. = 34)	Positive	12	35.3
	Negative	22	64.7
No. of IVF Trials (Total No. = 34)	1	21	61.8
	2	11	32.4
	3	1	2.9
	4	1	2.9

Table 3. Association between overall psychological problems assessment and reproductive data for infertile couples:

Demographic Data	Chi Square	Coefficient of Contingency	P value
Age at Marriage (Female)	2.96	0.12	0.36
Age at Marriage (Male)	2.24	0.17	0.53
Duration of marriage (years)	2.35	0.27	0.13
Duration of infertility (years)	10.38	0.38	0.03
Type on Infertility	11.25	0.44	0.02
Did you have previous IVF technique?	1.31	0.19	0.35
Results of Previous IVF (Total No. = 34)	1.33	0.25	0.26
No. of AVF Trial (Total No. = 34)	2.44	0.24	0.14

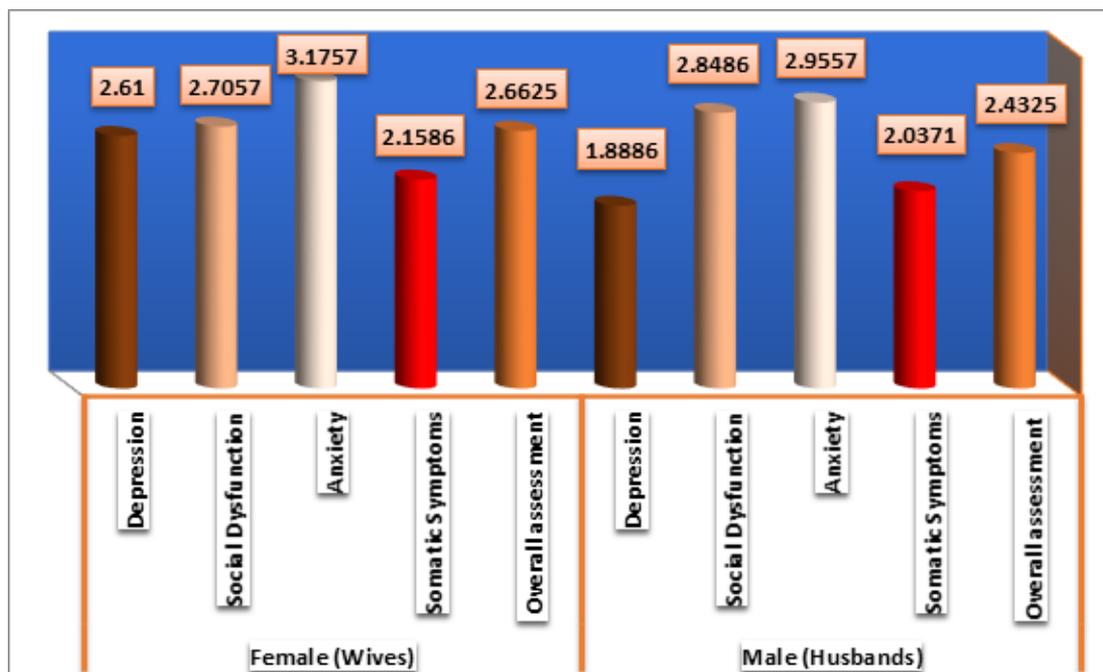


Figure 1. Overall Assessment of psychological problems among couples without IVF.

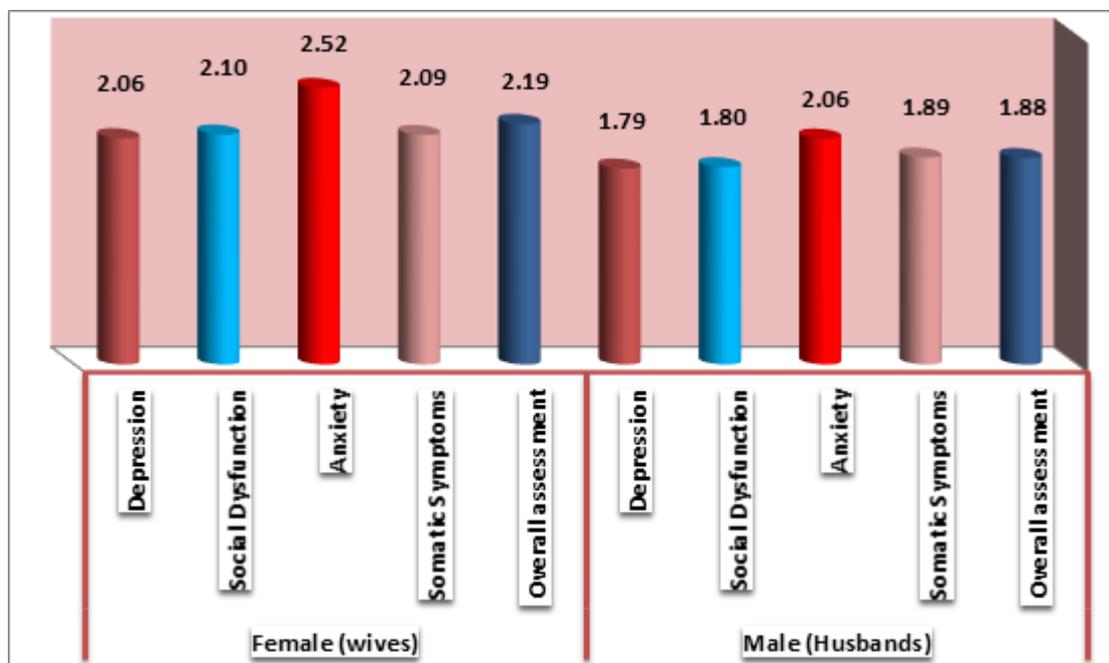


Figure 2. Overall Assessment of psychological problems of couples with IVF.

CONCLUSION

Women without IVF are more affected than their husbands by psychological aspects. The psychological problems of couples who have IVF compared to couples without IVF are reduced. Infertile husbands with IVF which shows a significant association (p value < 0.05) with psychological problems.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Faculty of Nursing, University of Kufa, Iraq and all experiments were carried out in

accordance with approved guidelines.

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Screening of Bioactive Chemical Compounds of *Orbanche nana* Using Fourier-Transform Infrared Spectroscopic Profile and Evaluation of Its Anti-bacterial Activity

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ABSTRACT

Orobanchaceae is a genus of holoparasitic flowering plant that has lost its autotrophic properties in favor of a parasitic lifestyle. It belongs to the family Orobanchaceae which comprises 170-200 species of parasitic herbaceous plants mostly native to the temperate Northern Hemisphere. The objectives of this study were analysis of the secondary metabolite products and evaluation of antibacterial activity. The FTIR analysis of *Orbanche nana* proved the presence of Alkenes, alkyl halides, Amide, and Alkane which shows major peaks at 819.75, 1018.41, 1238.30, 1317.38, 1379.10, 1614.42, 2850.79 and 2920.23. Antibacterial activity was evaluated by determining the zone of inhibition. Maximum zone formation was against *Klebsiella pneumonia* (5.12±0.23).

Keywords: FT-IR analysis, *Orbanche nana*, Anti-Bacterial Activity

INTRODUCTION

O. nana produces leafless flowering stems, 15-20(-30) cm high, usually very branched, bearing alternate scales, less than 1 cm long. The plant is pale, completely lacking any chlorophyll. The base of the stem, below ground, is normally swollen and tuberous. The inflorescence, occupying approximately half the length of the stems carries many acropetally developing flowers, arranged in spikes or racemes, each subtended by a bract 6-10 mm long with two additional bracteoles, attached to the base of the calyx and of similar length. The calyx has 4(-5) lobes, more-or-less deeply divided into two segments, 6-8 mm long. The corolla, 10-20 mm long, is tubular, inflated at the base, with two approximately equal lips, the lower is 3-lobed. The corolla is whitish below and cream, blue or violet distally (occasionally

all white). Filaments are inserted in the corolla tube, 3-6 mm above the base¹⁻⁵. A capsule develops up to 6-10 mm long and may contain several hundred seeds, each about 0.2 x 0.4 mm. A single plant carries ten to several hundred flowers and hence may produce up to a quarter million seeds. Plants have formed the basis of sophisticated traditional medicine systems that have been in existence for thousands of years and continue to provide mankind with new remedies. From ancient literature to modern scientific records of traditional medicinal knowledge, there is evidence that plants supply the main medicinal source for peoples' healthcare in developing Asian countries⁶⁻¹⁴. According to the WHO, 80% of the world's population primarily those of developing countries rely on plant-derived medicines for their healthcare needs¹⁵⁻¹⁹. Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. WHO encourages countries to provide safe and effective traditional remedies and practices in public and private health services and it also published two monographs on medicinal plants with information on pharmacopoeial summaries for quality assurance: botanical features²⁰⁻²⁵, distribution, identity tests, purity requirements, chemical assays, and active or major chemical constituents,

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clinical applications, pharmacology, contraindications, warnings, precautions, potential adverse reactions, and posology.

MATERIALS AND METHOD

Collection and preparation of plant material

The leaves were purchased from local market in Hilla city, middle of Iraq. After thorough cleaning and removal foreign materials, the leaves were stored in airtight container to avoid the effect of humidity and then stored²⁶⁻²⁹ at room temperature until further use.

Preparation of sample

About 20 grams of the plant sample powdered were soaked in 100 ml methanol for 16 hours in a rotatory shaker. Whatman No.1 filter paper was used to separate the extract of plant. The filtrates were used for further phytochemical analysis. It was again filtered through sodium sulphate in order to remove the traces of moisture³⁰⁻³⁵.

Fourier transform infrared spectrophotometer (FTIR)

The powdered sample of *Orbanche nana* was treated for FTIR spectroscopy (Shimadzu, IR Affinity, Japan). The sample was run at infrared region between 400 nm and 4000 nm.

Determination of antimicrobial activity of crude bioactive compounds of *Orbanche nana*

The test pathogens were swabbed in Müller-Hinton agar plates. Sixty μ L of plant extract was loaded on the bored wells. Antifungal activity was evaluated by measuring the zone of inhibition against the test microorganisms. Methanol was used as solvent control. Amphotericin B and fluconazole were used as reference antifungal agent. The tests were carried out in triplicate. The antifungal activity was evaluated by measuring the inhibition-zone diameter observed after 48 h of incubation.

RESULTS AND DISCUSSION

Identification of biochemical compounds

Analysis of compounds was carried out in methanolic extract of *Orbanche nana*, shown in **Table 1**. The FTIR analysis of *Orbanche nana* proved the presence of alkyl halides, Alkenes, and Amide which shows major peaks at 669.30, 831.32, 918.12, 1016.49, 1029.99, 1240.23, 1608.63, 2358.94, and 3251.98 Table 1. The very strong absorption band observed around 669.30-1240.23 cm^{-1} may be due to the presence of bonded C-H/O-H stretching of alkyl halides Alkenes. Infrared spectroscopy provides a useful method for herbal analysis and elucidate the compounds structures as well as for quantitative analysis of drugs. Fourier transform infrared spectrometry is a physico-chemical analytical technique and one of the most widely used methods to identify the structure of unknown composition or its chemical group, and the intensity of the absorption spectra associated with molecular composition or content of the chemical group. The present study involves an assessment using FT-IR spectroscopic techniques to investigate the authenticity of commercial sample of the herbal drug by analyzing their fingerprints. The presence of antimicrobial activity in a particular part of a particular species may be due to the presence of one or more bioactive compounds such as alkaloids, glycosides, flavonoids, steroids, saponins etc. Recently, a number of plants have been reported for antibacterial properties across the world. Based on the present study, it is concluded that the whole plants of *A. lanata* contains various bioactive components with high degree of antibacterial activity against various pathogens. It is hoped that this study would direct to the establishment of some compounds that could be used to invent new and more potent antibacterial drugs of natural origin. Further work will emphasize the isolation and characterization of active principles responsible for bio-efficacy and bioactivity.

Table 1. FT-IR peak values of solid analysis of *Orbanche Nana*.

No.	Peak (Wave number cm ⁻¹)	Intensity	Type of Intensity	Bond	Type of Vibration	Functional group assignment	Group frequency
1.	819.75	80.609	Strong	=C-H	Bending	Alkenes	650-1000
2.	1018.41	61.727	Strong	C-F	Stretch	alkyl halides	1000-1400
3.	1238.30	81.739	Strong	C-F	Stretch	alkyl halides	1000-1400
4.	1317.38	83.193	Strong	C-F	Stretch	alkyl halides	1000-1400
5.	1379.10	81.889	Strong	C-F	Stretch	alkyl halides	1000-1400
6.	1614.42	79.693	Bending	N-H	Stretch	Amide	1550-1640
7.	2850.79	86.184	Strong	C-H	Stretch	Alkane	2850-3000
8.	2920.23	81.949	Strong	C-H	Stretch	Alkane	2850-3000

Table 2. Zone of inhibition (mm) of test bacterial strains to *Orbanche Nana* bioactive compounds and standard antibiotics.

/ <i>Orbanche Nana</i> Antibiotics	Bacteria				
	<i>Staphylococcus aureus</i>	<i>Escherichia coli</i>	<i>Proteus mirabilis</i>	<i>Klebsiella Pneumonia</i>	<i>Pseudomonas eurogenosa</i>
<i>Orbanche Nana</i>	3.97±0.21	4.83±0.22	5.12±0.23	4.09±0.20	3.78±0.21
Rifambin	1.11±0.10	1.07±0.10	1.86±0.13	0.88±0.08	0.99±0.09
Streptomycin	1.04±0.09	1.00±0.09	2.00±0.14	1.95±0.17	0.79±0.08
Kanamycin	0.66±0.09	0.92±0.09	0.63±0.08	0.79±0.08	0.83±0.09
Cefotaxime	0.91±0.10	1.76±0.11	1.99±0.11	1.05±0.16	1.00±0.10

CONCLUSION

Herbal drugs are being proved as effective as synthetic drugs with lesser side effects. Infrared spectroscopy provides a useful method for herbal analysis and elucidate the compounds structures as well as for quantitative analysis of drugs. Twenty two phyto-constituents were identified by (FTIR) analysis.

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Conflict of Interest: None to declare.

Ethical Clearance: In our research, all protocols were approved under the Department of Biology, College of Science for women, University of Babylon, Hillah city, Iraq and all methods were carried out in accordance

with approved guidelines.

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Synthesis and Antibacterial Activity of Some New Derivatives Containing Thiazole moiety and Study of Their Effects on MAO Enzyme Activity (*In vitro*)

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ABSTRACT

The study includes synthesis and characterization of several heterocyclic systems such as 1,2,3 triazoles(5), some pyrazole derivatives(8a-c) and (12a,b), thiazole(10) and chalcone derivatives(11a,b) by reaction of 4-nitro aniline with appropriate reagents. All synthesized derivatives containing thiazole moiety. These derivatives were characterized by IR, ¹HNMR and mass spectroscopy. Newly synthesized compounds were *in vitro* screened against several bacterial species as well as *S. aureus* and *E. coli*. Effect of the prepared compounds was studied on monoamine oxidase (MAO) in healthy human serum. The results showed that all compounds cause competitive inhibition with enzyme except (2,7b,10,11a,12b) cause uncompetitive inhibition and (6,8a,8c) caused mixed inhibition.

Key words: Antibacterial activity, MAO activity, thiazole, pyrazole, 1,2,3-triazole

INTRODUCTION

Thiazole and its derivatives are most important in medicinal chemistry¹ such as anti-inflammatory drugs², anti-microbial agent³⁻⁷, antibiotics⁸, anti-oxidants⁹, Anti-viral¹⁰ and anticancer properties¹¹⁻¹⁴. They are also used in the treatment of Alzheimer's disease, hypertension¹⁵, anti-allergies^{16,17}, diabète^{18,19}, hepatitis C²⁰ and anti-HIV^{21,22}. Monoamine oxidase (MAO) (E.C.1.4.3.4) is an enzyme that catalyzes the oxidation of amines (monoamine and polyamine) and amino acids to peroxide. MAO inhibitors play an important role in treatment of neurological disease which is caused by low serotonin, dopamine, and norepinephrine such as depression, Parkinson²³, phobia, anxiety and Alzheimer²⁴. Unfortunately, most of the existing monoamine oxidase inhibitors, such as phenelzine and pargyline, have been shown to induce hepatotoxicity. The development of new monoamine oxidase inhibitors for neuro-related diseases is urgently needed. Thiazole derivatives appear to be

an important intermediate in reactions of enzymes involving interaction of an enzyme with a carbonyl or an amino group of the substrate.

MATERIALS AND METHODS

All reagents used in this work were commercially available and used without further purification. FTIR spectra were recorded on a Shimadzu model FTIR-8400. ¹HNMR spectra were obtained with Bruker spectrometer model at 300 MHz ultra shield in DMSO-d₆ solution with TMS as internal standard. Mass spectra were recorded on a Shimadzu GCMS-QD 1000EX. Melting point was measured by using Hot-stage Gallen Kamp melting point apparatus uncorrected.

Synthesis of 4-nitro[(chloro acetyl) amino] benzene

A mixture of 4-nitro aniline (1 gm, 10 mmol) and chloro acetyl chloride (10 mmol) in dimethyl formamide (20 ml), and anhydrous potassium carbonate, was refluxed for 5-8 hrs. The product was poured in ice water (200 ml); the solid mass was filtered and recrystallized from ethanol. Green crystals, yield 70%, m.p 148-150 °C; IR(KBr, cm⁻¹): 3228(N-H), 3072

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(C-H_{ar}), 2941 (C-H_{al}), 1685 (C=O), 1597,1502(C=C)
¹HNMR(300 MHz_Z, DMSO-d₆): δ(ppm) 7.6-8.5 (4H, M, H aromatic), 11.0(1H, s, NH), 4.5(2H,s, CH₂), GCMS m/z : 214.5(M+H)⁺ for C₈H₇ClN₂O₃.

Synthesis of 4[(2-amino-1,3 thiazole-4-yl) amino] nitro benzene(2)²⁶

4-nitro[(chloro acetyl) amino] benzene(0.01 mol) and thiourea (0.01 mol) has been dissolved in (30 ml) ethanol and refluxed for 10 hrs. The mass obtained was filtered and recrystallized from methanol. yellow crystals, yield 50%; m.p 207-208 °C; IR(KBr, cm⁻¹): 3481, 3358 (NH₂), 3066(C-H_{ar}), 1627 (C=N), 1595, 1491 (C=C), ¹HNMR(300 MHz_Z, DMSO-d₆): δ(ppm) 7.2-7.8(4H,m, H aromatic), 7.3 (1H, d, Hthiazol), 7.5(2H, s, NH₂), GCMS m/z : 236 (M+H)⁺ for C₉H₈SN₄O₂.

Synthesis of 4-nitro(2-azido-1,3thiazole-4-yl) amino] benzene(4)²⁷

Synthesis of 4-nitro[(2-(4carboxylic acid-5-methyl-1H-1,2,3-triazole)-1,3thiazole-4yl) amino] benzene(5)²⁷

Synthesis of 4-nitro[(hydrazinyl-1,3-thiazol-4-yl) amino]benzene(6)

In ethanol (30 ml), a mixture of compound (1) (0.01 mol) and thiosemicarbazide (0.01 mol) was heated under reflux for 10-12 hrs. The resulting residue was cooled at room temperature to get the solid product. The final product was recrystallized using ethanol. Milky precipitate, yield 72%, m.p 273-275 °C; IR(KBr, cm⁻¹): 3479, 3354(NH₂), 1628 (C=N), 1585, 1504 (C=C), 3244 (NH), ¹HNMR(300 MHz_Z, DMSO-d₆) δ(ppm) : 9.2(1H, s, NH), 4.1 (2H, d, NH₂), 7.2 (1H, d, H thiazole), 7.3-7.8 (4H, m, H aromatic), 6.4 (1H, d, NH).

General procedure for synthesis of N-(4-nitro[(1,3-thiazol-4-yl) amino] phenyl-N-(1-phenyl-ethylidene) hydrazines(7a-c)²⁸

Synthesis of 4-nitro phenyl thiourea(9)²⁹

Synthesis of 2-[(4-nitro phenyl)amino]-(3,5 H)-1,3-thiazol-4-one(10)³⁰

Synthesis of chalcones.

Synthesis of (5Z)-5-(arylidene)-2-[(4-nitro phenyl) amino]-1,3-thiazolidin-4-one (11a,b)³⁰

MAO Activity Assay

Enzyme activity: MAO activity was detected by using manual method as follow^{31,32}:

Test: 300µl serum added in test tube, then 325 µl phosphate buffer with pH7.4 and 75 µl benzylamine (substrate) were added, then shaking the tube in water bath shaking 3 hrs. at 37°C, then 75 µl perchloric acid and 750 µl cyclohexane were added, then centrifuge for 10 min. at 3500 rpm then read absorbance at wave length 242nm for supernatant.

Blank: use the same step in **Test** except the addition of benzylamine which added after water bath shaking. Different concentrations of each thiazole derivatives were prepared (0.05,0.01,0.005,0.001,0.0001)M from stock solution (0.1)M. The effect of derivatives on MAO was detected by using MAO assay with replace 325 µl phosphate buffer with 300 µl +25 µl thiazole derivatives. Different concentrations of substrate (benzylamine) (0.01,0.04,0.06,0.08, 0.1)M were used with constant concentration of each thiazole derivatives (0.001M) to illustrate the type of inhibition and kinetic parameters (K_m,V_m).

RESULTS AND DISCUSSION

The synthesis of all new derivatives are shown in Scheme 1 and 2: The 4-nitro [(chloro acetyl) amino] benzene(**1**) was prepared by reaction of equivalents moles of 4-nitro benzene with chloro acetyl chloride using dry DMF as solvent in K₂CO₃ medium. The FTIR spectrum of compound (**1**) showed the disappearance of NH₂ stretching peak with the appearance of C=O acyl absorption bands at 1685 cm⁻¹ and absorption band the C-H aliphatic absorption band at 2941 cm⁻¹ and a new band in the region 710-775 cm⁻¹. The derivative 2- amino -1,3 thiazol -4-yl (**2**) was synthesis by reaction of **1** with thiourea in good yield. This compound characterized by FTIR, ¹HNMR and mass spectroscopy. The mass spectrum of compound **2** is shown in figure -1. Reaction of Azide with β-keto esters for triazole synthesis by 1,3-dipolar cycloaddition [27]. In conclusion, 2-azido-1,3-thiazol (**4**) was synthesized by diazotization of 2-amino 1,3-thiazol derivative (**2**) and subsequent treatment with sodium azide. This method can be a good synthetic route to new (1,3- thiazol -4-yl)1H-1,2,3-triazole derivative(**5**). The structure of the compound was established on the basis of their spectral(IR,NMR). The ¹HNMR of (**5**) showed in figure-2. The peaks as a singlet at δ

10.0 ppm due to carboxylic protons, three protons of CH₃ group appear as a singlet at δ 2.4 ppm and multiplet signals in the region δ 7.4-8.1 ppm may be attributed to four aromatic protons. (2-hydrazinyl-1,3-thiazol-2-yl)amino derivative (6) was synthesized by refluxing one mole of compound (1) with one mole of thiosemicarbazide in absolute ethanol. The FTIR spectra of this compound indicated the presence of asymmetric and symmetric stretching vibrations of NH₂ at 3479-3354 cm⁻¹ and an NH function 3244 cm⁻¹ and 1628 cm⁻¹ due to C=N. while the ¹H NMR spectra compound (6) in (DMSO-d₆ as a solvent) showed a singlet signal at δ 9.2 ppm can be attributed to two protons of NH₂ group, a signal at δ 6.4 ppm due to proton NH and a multiplet signal in the region δ 7.2-7.8 ppm due to five aromatic protons.

Anti-bacterial activity

Inhibition Potency of the Compounds

Enzyme activity of these prepared compounds were studied with monoamine oxidase activity (MAO) in healthy human serum in vitro. Biochemical tests show that all synthesized compounds have inhibitory effects on MAO, as shown in table 2. All derivatives inhibited

MAO enzyme activity through the interaction of amine group of thiazole derivatives with amino acids in active site of enzyme. The differences in percentage of inhibition between derivatives depending on the substituted group in NH₂. It is well known that most of the MAO inhibitors belong to group of nitrogen heterocycles such as pyrrole, oxadiazole, benzimidazole and thiazole with other related heterocycles also bearing reported. The results observed that the percentage of inhibition increase with compound concentration increase, compound 8b has higher percentage of inhibition 88.58% at 0.05M, while the compound 8c has lower percentage of inhibition 54.87%, as shown in table 2.

Enzyme kinetic studies

The MAO enzyme kinetic of the most active compounds 8b, 7b, 5, 11a was studied. The nature of MAO inhibition, caused by these compounds were investigated by the graphical analysis of steady state inhibition data. Table 3 and figure 1, 2, 3 and 4 show the kinetic parameters (K_m, V_m), and inhibition type depending on Lineweaver-Burk plot.

Table 1. Antibacterial activity of thiazole derivatives represented by % inhibition against different bacterial species.

Compound	Inhibition Zone against (in mm)			
	Gram negative		Gram positive	
	<i>E. Coil</i>	<i>p.aeruginosa</i>	<i>S.aureus</i>	<i>Streptococcus SPP</i>
2	21	14	14	14
5	-	-	17	21
6	20	-	18	11
7a	12	11	-	19
7b	-	14	18	12
7c	14	12	9	11
8a	11	18	12	-
8b	19	-	21	14
8c	14	19	-	12
11a	12	17	21	14
11b	9	10	-	-
12a	-	20	11	8
12b	-	15	-	12
Amoxicillin	22	23	22	25

Table 2. Inhibition activity (%) of the thiazole derivatives (2-12b) against MAO enzyme.

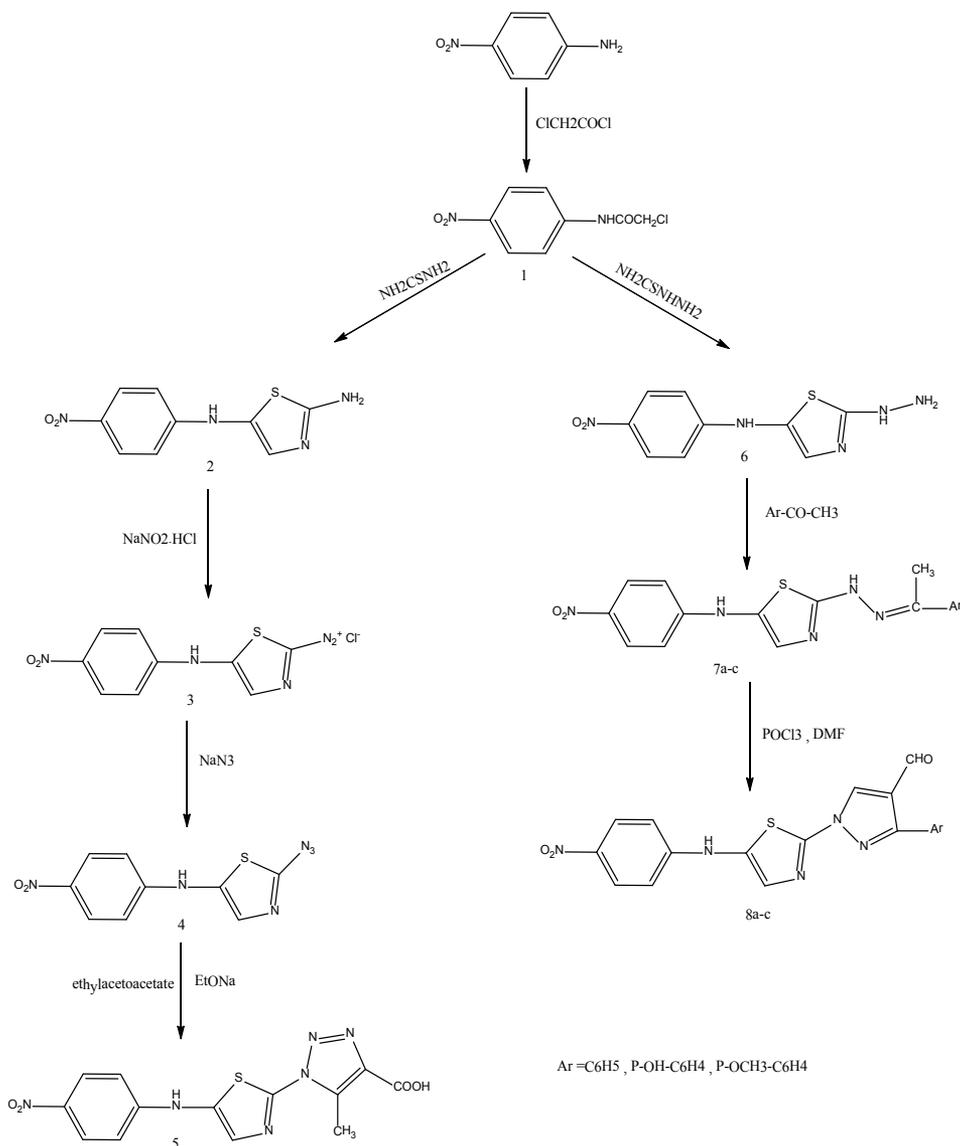
Compound	MAO Inhibition				
	5×10 ⁻² M	10 ⁻² M	10 ⁻³ M	5×10 ⁻⁴ M	10 ⁻⁴ M
2	80.82	67.05	53.02	52.82 38.29	
5	86.06	77.96	76.96	46.48 26.07	
6	57.43	51.43	39.28	31.08 13.17	
7a	64.98	62.57	47.57	36.09	14.09
7b	86.46	76.41	61.34	52.62	40.39
7c	65.96	55.41	44.32	37.09	8.42
8a	76.14	61.04	41.57	15.46	6.00
8b	88.58	73.69	69.14	53.28	49.47
8c	54.87	49.86	47.58	45.68	21.07
10	83.08	77.71	62.08	42.83	26.87
11a	85.16	69.04	64.66	60.88	42.93
11b	76.37	67.62	39.28	18.64	10.33
12a	72.99	63.90	43.73	32.21	28.07
12b	65.06	64.79	62.27	57.23	46.18

Table 3. The kinetic properties of MAO with thiazole derivative

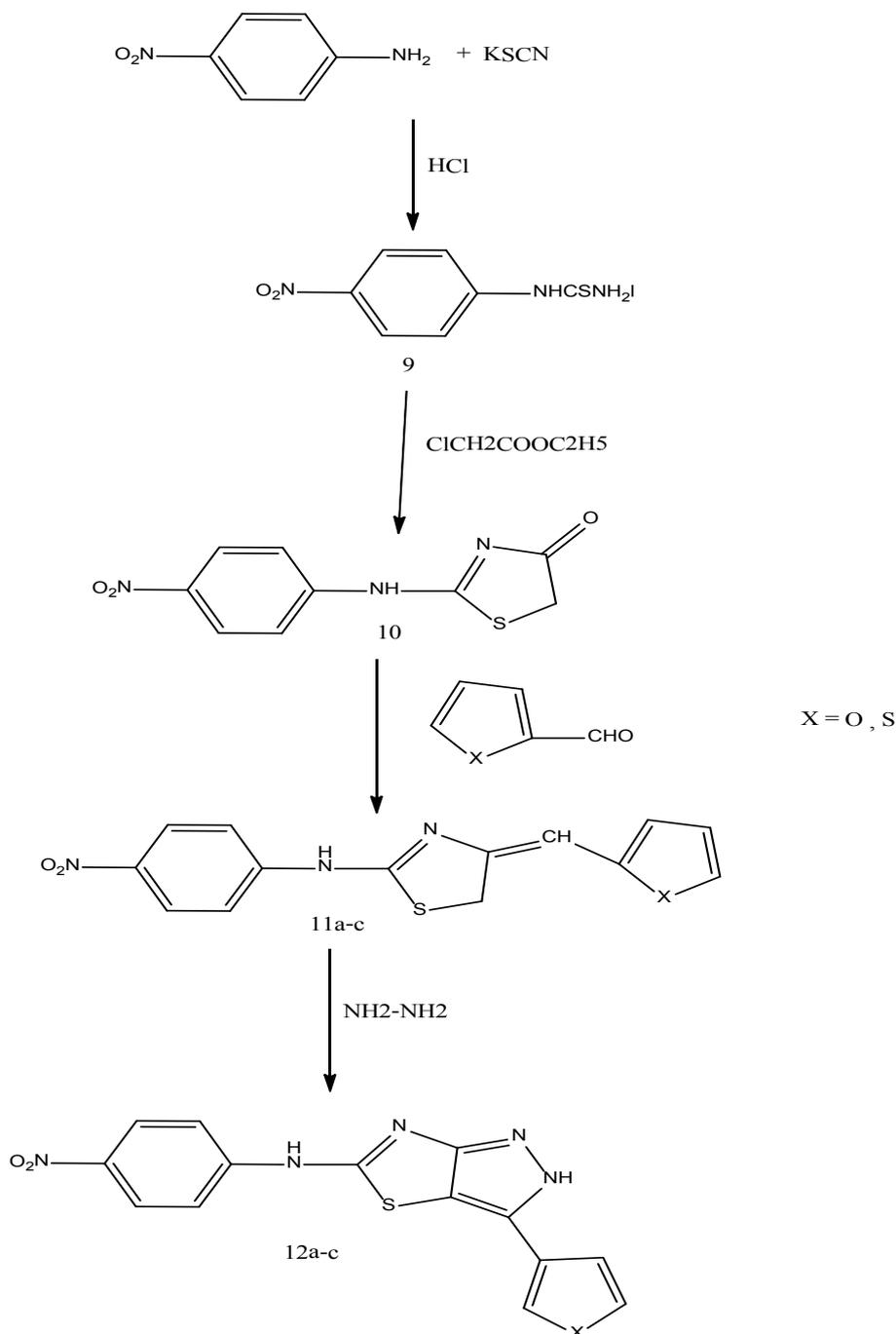
compound	V _m (mol/min/L) ⁻¹	K _m (M) ⁻¹	Inhibition type
1	50	0.056	competitive
2	40	0.03	Non-competitive
4	50	0.05	competitive
5	66.67	0.11	competitive
6	41.67	0.05	mixed
7a	76.9	0.13	competitive
7b	52.63	0.18	Non- competitive
7c	83.3	0.26	competitive

Cont... Table 3. The kinetic properties of MAO with thiazole derivative

8a	40	0.05	mixed
8b	53.19	0.1	competitive
8c	40	0.05	mixed
9	55.5	0.17	competitive
10	52.63	0.12	Non- competitive
11a	43.5	0.048	Non- competitive
11b	83.3	0.14	competitive
12a	62.5	0.15	competitive
12b	38.46	0.11	Non- competitive



Scheme 1. Synthesis of compounds 1-8c



Scheme 2. Synthesis of compounds 9-12b

CONCLUSION

The study includes synthesis and characterization of several heterocyclic systems such as 1,2,3 triazoles(5),some pyrazole derivatives(8a-c)and(12a,b), thiazolo(10) and chalcone derivatives(11a,b) by reaction of 4-nitro aniline with appropriate reagents. All synthesized derivatives containing thiazole moiety. These derivatives were characterized by IR, ¹HNMR and mass spectroscopy. Newly synthesized compounds were

in vitro screened against several bacterial species as well as S.aureus E.coli . effect of the prepared compounds were studied on monoaminoxidase (MAO) in healthy human serum. The results showed that all compounds cause competitive inhibition with enzyme except (2,7b,10,11a,12b) cause uncompetitive inhibition and (6,8a,8c) caused mixed inhibition.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Chemistry, College of Science, University of Mustansiriyah, Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effect of the Proposed Program for the Development of the Professional Competences for the Students of Colleges of Education for Purely Sciences (Applicants)

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ABSTRACT

The research aims to know The effect of the proposed program for the development of the professional competences for the students of department of Mathematics, fourth grade in University of Karbala, to verify the aim of the research, the researcher put the following null-hypothesis : There is no statistically significant difference at the level (0.05) between the mean marks of the students of the experimental group who will study according to the teaching program and the mean marks of the students of the control group who will study according to the traditional method in the development of professional competencies, in order to verify of it, he achieved his experience in the second semester of the academic year (2017-2018), whereas the research sample consists of (100) students in the fourth grade in Mathematics Department, they have divided into two groups (50) students in each group, the two groups have equaled by the following variables : chronological age, IQ test, pre-test for the professional competencies, through the relative importance of content and behavioral purposes, the achievement test had prepared consisted (40) items of multiple choice questions (MCQs)

Keywords: *Training Program, Development, Professional Competences, for the Students of Colleges of Education for Purely Sciences.*

INTRODUCTION

The present period is characterized by technological development, that has had a great effect on the educational process, However, there are many teachers who lack to the professional and good skills to deal with educational situations in the classroom, in addition, the teachers didn't keep pace with the fast development and technical progress¹. The scientific approach to solving many of the problems of teacher training is to identify training requirements, Which makes the training is benefit to the teacher, the identification of training requirements of the teacher through which to answer five important questions are: Where is the training place? Who is the trainer? What is training content? What are the results

of the training? How do we make training results a reality? ². The twenty-first century teachers face many responsibilities, challenges and problems concerning with new generations, the National School for Teaching in the United States of America reported that the challenges in schools require teachers to prepare better than before, this is confirmed by the emergence of many international and local calls for care and preparation of the teacher, As well as numerous research and educational studies, And how to prepare them for constructive participation in community ³. Therefore, the ability of the teacher to perform the roles related to the ability to acquire and use the necessary competencies necessary to perform these tasks, the behavioral approach to adequacy followed other cognitive approaches, the person's ability to be competent, according to some researchers, means that this individual will primarily employ a range of skills, knowledge and abilities that will have an impact on the task to be accomplished ⁴, thus we note that the concepts of cognitive orientation such as skills, knowledge, abilities, procedural knowledge, conditional knowledge,

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representations, etc. gradually replace behavioral habits. This cognitive approach is gradually being determined in the context of situations. Cognitive approaches have been synergized and combined to propose competencies identified in the operation of mental abilities and skills⁵. The Competence defined as : a complex mixture of knowledge, skills, understanding, values, and desire that leads to effectiveness, which embodies man's work in the world in a particular field⁶.

METHODOLOGY

It includes a presentation of the procedures that were carried out to achieve the research aims, starting with the research methodology, experimental design, defining the research community and its design, the equivalence of the research groups (experimental group & control group), preparation of the research requirements and instruments, the procedures of experimental applied, the presentation of used statistical methods which will show in the following forms:

The Experimental Design of the Research

It includes an independent variable (the proposed training program) and its effect in the dependent variable (the development of the professional competences) in order to study the impact of the independent variable in the dependent variable the researcher used the partial experimental design of two equal groups, one of them is experimental group and the other is control group.

Research Community

The research community included Colleges of Education for Purity Sciences at the universities of the Middle Euphrates in Iraq, where Mathematics Departments are available.

Research Sample

The researcher chose (the Department of Mathematics - College of Education for Pure Sciences - University of Karbala) deliberately to make his research, being the researcher one of the teachers of this college, knowing that the College contains the Department of Mathematics and the fourth grade of the academic year (2017 - 2018), which consists of two sections (A & B), section (A) was selected to represent the experimental group, while section (B) to be the control group which studied according to the traditional method, the number of students in the experimental group was (56) students,

after excluding (6) students the number of students in the experimental group became (50) students, because of being they are teachers, the control group was consisted of (55) students and excluded (5) students because they are educational teachers and because of the experience available to them, they excluded, so the number of students in the control group also (50) students.

Equation of the Two Research Groups: The researcher made the equivalence before applying the experience in some variables that may affect in the results of the research (the age by months, intelligence, pre-test of professional competencies) depending on the procedures of statistical method.

The Extraneous Variables Control

Although the researcher checked the equivalence of the two groups of the research in some variables that are believed to affect in the process of the experience, but tried to minimize the effect of some variables extraneous, these are some of variables and how to control them :

1- Accidents:

The members of the sample were not exposed to any accident affecting the dependent variable besides the effect of the experimental variable impact.

2- Experimental extinction:

The two research groups were not allowed to leave, break or move throughout the experimentation.

3- Differences in sample selection :

The two groups of research were selected in the same way, and the equivalence of the two groups was determined in some variables.

4- The Factor of Maturity :

Is a psychological and biological growth processes. The researcher controlled this variable by parity between the two research groups with age of the students and by conducting tests in one time period for the two groups under similar circumstances. Therefore, this factor didn't affect in the research.

5- The Effect of Experimental Procedures :

The researcher worked on the effect of experimental procedures that could affect in the dependent variable during the time of the experience.

Preparation of Research Requirements:

The research has basic requirements on which the research is based on which the procedures of the research are implemented and these requirements are:

1- The Scientific Curriculum :

The scientific curriculum was identified which the researcher teaches it by himself for the students of the two research groups during the period of the experience (the first semester) of the academic year (2017 - 2018). The scientific curriculum included the study of the professional competencies that required by the students, and which have prepared by The researcher in small brochure for the two research samples, which was presented to a group of arbitrators and specialists in teaching methods to benefit from their opinions and their suggestions.

2- Preparation of Teaching Plans:

Preparation of the teaching plan considered one of the important requirements un teaching, the researcher put the plans included in the program according to the table method of the experimental group and other plans of the control according to the traditional method and topics decided to teach during the experience period, The researcher presented the plans of the program to a group of specialists in teaching methods to benefit from their opinions and their suggestions then adopted the proportion of agreement (80%) is the power to judge the validity of the plans of the program.

Research Instrument

The steps to form the research instrument are prepared (the achievement test tor professional competences) are presented in the following:

Determining the Purpose of the Achievement Test

The purpose of the achievement test of professional competencies is to measure the achievement of students in the fourth stage (information and experience) on professional competencies.

Determining the Aims of the Test

The aims of the test determined to recognize the achievement and the researcher formulated a number of behavioral aims.

Determination of the test items

The researcher determined the number of items that constitute the test achievement, as the number of items of the test (40 items).

Find out the Test Items

The achievement test was formed with the first form through what does the test map contain, the researcher chose the type of test (multiple choice questions "MCQs") which is one of the best objective tests, the test consisted of (50) items distributed over (5) main parts of professional competencies, which are: (competencies aims for the study of Mathematics - the competencies of the organization - the competence of implementation - the competencies of teaching methods - the competencies of the timetable).

The Test Instructions

Specific instructions were written on how to answer (answer all items, choose one correct alternative to the item, answer time, write the triple name, class and section in the suitable place)

The Correction of the Test Answers

A standard has been established to correct the answers. One mark for each correct test item and (0) for the wrong answer, the left item that the student didn't answer, the item for which more than one choice is given. the final mark is (50 marks) and the minimum mark is (zero).

The Test Validity

Virtual Validity: The authenticity of the test was verified and the content was authenticated. The results showed that the apparent validity achieved 80% of the agreement by the arbitrators and specialists.

Content Validity: Content validation results showed that all test marks are statistically significant, so the achievement test is true in measuring the comprehension of students in the fourth stage of Mathematics.

The Pilot Applying Test :

The pilot applying test used to recognize the time that needs to answer, and to recognize the clarify of its items and instructions, the researcher applied the test on a sample of (32) students in Department of Mathematics

(C) section, the time was (25-45 minutes).

Statistical Analysis of the Achievement Test Items

: the test items were analyzed as follows:

1- The Item Difficulty : after making the statistical analysis of the achievement test items, it was found that the Item Difficulty of the items ranged from (0.36 - 0.69) so the test items are all good and its difficulties are suitable.

2. The Item Discrimination: The distinguishing feature of the item means the possibility of items that showing individual differences to students. The test items considered valid if the Item Discrimination is more than (20.0), the Item Discrimination for the achievement test ranged between (0.37-0.70), So the subjects of the achievement test have a good and appropriate item discrimination.

3 - Effectiveness of the Wrong Alternatives : The researcher made a statistical analysis (highest 27% and lowest 27%) degree and found the effectiveness of the wrong alternatives ranging from (-0.11 - 0.33) that showed the alternatives of the test items are all effective and thus all suitable.

The Test Stability : The stability of the test means using the mid-split is calculated to calculate the stability coefficient because it is one of the methods used to measure the stability of the tests and their suitability to the conditions of the present research .

Applying the Experience Instrument :

The researcher applied the achievement test to the students of the two groups at the same time after informing them of the test date a week before it was done in order to achieve equivalence between the students of the two groups in the preparation for the test. The researcher corrected the answers of the students

according to the typical answers which put by the researcher.

Statistical Methods

The researcher used the t-test equation for two independent samples to make the parity between the experimental and control groups, the Pearson’s correlation coefficient, so the researcher used the equation to correct the correlation coefficient between the test segments (odd and even score items) after the Pearson’s correlation coefficient Chi – Square (Chi 2), statistical pouch and SPSS.

RESULTS AND DISCUSSION

To test the null hypothesis, which states that: (There is no statistically significant difference at the level of (0.05) between the mean marks of the students of the experimental group who studied the professional competencies of the program and the mean marks of the students of the control group who studied professional competencies in the traditional method). For this purpose, the researcher applied the post-test of the two groups and corrected the students’ answers, after process the data statistically by using the T-test for two independent samples table 1. Since the mean marks of the experimental group is greater than the mean marks of the control group, and the Computed T value is greater than the tabulated t-value, this means that there is a statistically significant difference in favor of the experimental group, thus rejecting the null hypothesis. This indicates that the training program had a clear effect in increase the level of professional competencies in the students of the experimental group, and this is consistent with the previous studies that confirmed the experimental group who was studied according to the training program got better of the control group who was studied according to the traditional method.

Table 1. Post-test of the two groups and corrected the students’ answers

Group	No. of Students	Mean X	SD.	T-Value		DF.	Level of significance
				Computed	Tabulated		
Experimental	50	45,58	6,516	7,509	1.98	98	Statistically significance
Control	50	35.50	6,902				

CONCLUSION

The training program has the positive effect in increasing the achievement of students in the fourth stage in the development of competencies and increase their ability to understand information, facts and knowledge and increase their academic level. The training program has a role in making students the focus of the educational process through their active participation in the educational situation, which will increase their self-confidence and encourage them to persevere to increase their scientific level. The importance of acquiring and practicing professional competencies in the teaching process and working on developing it. The traditional program adopted by the College of Education / in Mathematics department in preparing the applied students is less effective to achieve the educational aims.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon / College of Basic Education / Babylon-Iraq and all experiments were carried out in accordance with approved guidelines.

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The Strategic Impact of Cognitive Metaphors and Picturing the Idea in Creating Writing for the Fourth Scientific Grade Students (Biology)

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ABSTRACT

The purpose of this study is to know the strategic impact of cognitive metaphors and drawing the idea in creating writing for the fourth scientific grade students (Biology). The researcher follows the experimental method as the appropriate method to achieve the goal of research. The researcher chooses the General Directorate of Education in Babylon Governorate as a research society and identified the Jihad Preparatory School for boys located in the center of Hilla city as a sample for research. The researcher uses the following statistical methods (analysis of mono-variance, Pearson correlation coefficient, and Kai square). The results show that the experimental groups were superior to the control group and statistically significant. The researcher comes out with a set of conclusions, recommendations and proposals.

Keywords: Strategy, Illustrated, Conceptual Drawing, Creative Writing, Teaching Methods

INTRODUCTION

The lack of the curriculum, the lack of quotas, the neglect of correction, the weak link between the branches of language, and the lack of use of the teacher methods of teaching modern, As the teacher is often preoccupied with teaching his student grammatical rules that do not benefit them; because they do not have the ability to speak or write ¹. There are many factors that underlie students' lack of expression: Some teachers in schools do not increase the outcome of students fluent language isolate the expression of the rest of the branches of the language. Some Arabic teachers do not train their students to converse in the right language, and train them to talk more about their experiences and observations in fluent language, and some teachers often focus on descriptive topics away from the students' surroundings and minds. The lack of follow-up teachers for the work of expressive students, especially neglect some of them to assess the subjects of the written students, and only to consider or put a specific reference on the subjects as the teacher resort to a large number of write-off and correction; because this leads to weak confidence of the student himself and dislike the article, and lack of interest in creating the incentive to say Or writing, and in this harm to students from two aspects: First: those

who make mistakes of them do not know the error of the failure, and the second: that the students of the class strong and weak enthusiasm for the expression of the expression, and ascertaining it, the students feel that they support the work has no glamor and beauty in it. 5 - The number of students in the class, and the large number of classes placed on the teacher two other reasons limit the ability of the teacher to do his duty in the lessons of expression and others.

6 - The family that raise children to the introversion and fear of talking to the community, in addition to some families living in a poor cultural environment.

7 - Teaching methods used in our schools, which make the teacher take the talk and does not give the student a chance to participate, which is reflected on the student and his ability to participate in various situations.

8 – The lack of reading It is established facts that the close link between reading and expression, and that the expression cannot be served except the most read. 9. Not to associate the expression with the colors of the language activities that are practiced outside the classroom such as radio, theater, dueling competitions, school press and writing advertisements.

10 - The student is not trained and helped to understand the literature of listening and listening and modern literature and literature debate and literature.

11 - Specific lessons are not devoted to alert students and explain the shortcomings and weaknesses in their writings². The researcher can formulate the problem according to the following question: Is there an “effect of the two strategies of visual metaphors and the idea of creative writing in the students of the fifth grade scientific”

Top of Form Top of Form beginning of the twenty-first century, has witnessed tremendous progress in the various fields of life, including the field of education. There have been many transformations and transformations at all levels, Therefore, it is necessary to carry out a revolution of education, which is a radical change in the system of education, because education is important in the lives of people and as a result, since ancient ages have been carefully cared for by parents, philosophers and all moralists³⁻⁷. Language is an intellectual system composed of spoken voices, written on specific rules and disciplines. It is a science from the human sciences concerned with the grammatical meaning of every nation and the laws of those words. This science gives the laws of pronunciation,⁸. The expression includes social, educational, and artistic values that the teacher must take care of and focus on.

1. Social values: The importance of editorial expression is reflected in the need for society in which different knowledge and sciences are recorded. Public and private works are preserved and their value is clearly reflected in the preservation of human heritage in its different stages, ancient and modern, and the main factor in linking the achievements of the peoples present with their past. This value takes its place in the high degree of talent in the expression of respect and prestige in the community and rely on them in various matters of life, political matters and guidance and aesthetic art.

2. Educational values: This value stems from giving students the space to think and think, and then choose the structures and selection of words and order of ideas in addition to the coordination of style and quality of the formulation. The technical values: The intended product to achieve is to enable students to create articles, write messages and write down their thoughts, thoughts and observations wherever they are imposed on them in any valid way, in a clear and effective manner, which will lead to the reader’s reading⁸. Because the educational process today is an organized way of planning, implementation and design, it is based on a clear psychology based on the

knowledge in which the learner occupies the top position in terms of understanding the principles of his behavior and the different characteristics and nature of his thinking because of their role in determining the educational goals and content of the material and presentation. The learner’s thinking and the development of his concepts are essential in planning the curriculum and in the implementation of learning and learning processes¹⁰.

METHODOLOGY

The researcher adopted the experimental method because it is the appropriate method for his research procedures. The experimental approach is based on the use of experience in proving hypotheses, in which all variables and basic factors are controlled, except for the variable chosen by the researcher and measuring its effect in the process¹¹. This curriculum is one of the most accurate research methods in the educational and psychological sciences. It does not stop at just describing the situation or determining the situation. Which are subject to study, but the researcher uses independent factors and determine, and how they affect the factors dependent, and this is done with carefully controlled strips¹².

Experimental Design

The experimental design represents a framework in which the exact conditions for obtaining the data used by the researcher¹¹ are determined and the design chosen is appropriate for the problem of his research objectives and hypotheses, and be appropriate for testing the validity of hypotheses and the characteristics of the sample chosen¹⁴

Research Community

The current research community consists of the total number of day schools for Boys in Babil Governorate for the academic year 2018-2019.

Research Sample

The sample is a sample that includes part of the original community units of the study being representative of the common characteristics so that the researcher can generalize the results of his study to the original community. The sample is based on the following:

A - Sample schools

Student Sample

The Equivalence of the Two Research Groups

The effect of the independent variable on the dependent variable needs to adjust the variables that the researcher can adjust. Therefore, try to enhance the control of his experiment. Before the start of the experiment, try to equalize the three groups in a number of variables:

1. The student's age is calculated in months.
2. Arabic language scores (previous achievement)
3. Educational achievement of parents.
4. The educational achievement of parents
5. Educational achievement of mothers.
6. Pre-test of expression.

Measuring Tool It is intended to leave or leak some of the sample and not to continue in the experiment, which leads to the impact of the results negatively or positively, as this factor enters the independent variable in the report results, thus reducing the internal credibility of the experiment. Effect of experimental procedures. Experimental procedures themselves affect the dependent variable. These actions may cause unconscious signals to affect the results obtained.

Search Privacy

The feeling of the subjects that they are under an experiment whose effects are reflected in the dependent variable will not have the same effect in subjects who do not feel that they are part of a trial procedure. The sense of the control group that they are in competition with an experimental group may increase their performance.

Teaching Aids: The researcher used the blackboard, writing pens, illustrations, and PowerPoint slides as statistical means

Duration of the Experiment: The research experience lasted a full semester

Experimental Characteristics

Experimental individuals differ in the level of perception, visual acuity and time of return, as well as other characteristics such as perseverance, self-confidence, and motivation, or one of which enables the material more than the other, which may have some effect on the adequacy of the application of treatments or the measurement of variables

Distribution of Lessons: The researcher took the three groups by teaching himself and the schedule was equal in terms of lesson time

School Building: The school building was one of the three experimental groups, the Jihad Boys' Preparatory School

The study subject is determined by eight subjects chosen by the researcher himself, commensurate with the age and mental age of the students.

Formulation of Behavioral Objective

The behavioral goals are a translation of the general educational goals in a special procedural manner and are formulated in clear terms that reflect observable and observable educational outcomes. The behavioral objective is formulated in specific words that do not call for a difference in interpretation, but must include procedural and procedural behavior that represents a specific observable and measurable learning outcome, describing the behavior of the learner, not teacher behavior or learning activity. The researcher formulates (98) behavioral goals for the eight subjects.

Eighth - Preparation of Teaching Plans

The daily plan is a tangible guide to the teacher's preparation, which is likely to be taught more effectively and successfully. The planning of teaching is a pre-defined, structured and written process. The researcher prepares (24) study plans for the experimental groups and the control group.

Table 1. The Results of the analysis of the variance of the scores of the students of the three research groups in the creative writing test

Level of significance (0.05)	Alphanumeric value		Average The squares	Degree of Freedom	sum The squares	Source of Contrast
	diagrammed	accounted				
Statistically significant	2.995	7.62	1659.85	2	3319.70	Among groups
			217.98	133	28991.33	Within groups
				135	32311.03	total

CONCLUSION

The strategy of visual metaphors has a positive impact on the progress of the level of fourth grade students in the expression material through the test of creative writing. The strategy of drawing the idea contributed to the progress of creative writing among fourth grade students.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Basic Education, University of Babylon, Hillah, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Strategic Intelligence for the Distinguishing Students in Secondary Level

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ABSTRACT

The current research aims to know the level of strategic intelligence for the outstanding students and on the differences of statistical significance depending on the variables (stage – sex) , the researcher depended on the descriptive course and applied the tool of the research after forming all points by the researcher that consist of 60 points distributed on five fields applied on a sample consist of 300 students on two levels (fourth and fifth) , the researcher approved that there is a level in strategic intelligence for the outstanding students because the value (t) calculated (3,259) is bigger than the scaled value (1,96) in the level of statistical significant (0.05) the degree is freedom (299) , there are differences in statistical significant between sex(males and females) and it was for the benefit of females.

Keyword: *Strategic, Intelligence, Distinguishing*

INTRODUCTION

The strategic intelligence is one of the a fine form of the human activity and it had been from the fifth of the last century, the problem of the scientific research in many countries especially developing ones, that it was necessary to find an intelligent and creative energy to exceed the technology of tool in the time and place in speeding up the achievement and perfects and quality⁴. Maccoby,2001 Maccoby confirms that the strategic intelligence is to facilitating the activity of the students in all levels in the studying during many of strategies that helping students to know the dangers and difficulties and how to manage those risks that they face, and it determines the method of studying the opportunities in the way helping students to deal with all challenges in the future to providing opportunities to succeed students in all fields of life. The strategic intelligence is about integrated system consist of many fields that help people to understand and forming the future and those fields are (foresight , systems thinking , the sight of future , stimulation , partnership) all these elements are gathered to help people to look forward the bright

future and knowing the external environment in high accuracy and to simulating their readers to achieve their goals². Gaston vieux (1961-1899) mentioned that the intelligence is the ability to understand and adapt the relationships that founded in the elements of particular mode and compactable with it to reach to one's own aims To understanding and create the achieved aims is must be done with arranging the elements of psychological field , bejah said “ the inelegance is the reconstruction in many stages of frequent balance that the work starts in all stages of rebuilding the acquired place from the previous stage but in the form of more limited⁵. The emerge of The strategic intelligence in racing development and reflecting for the educational , and political and economical and social and technology changes in the 20th century , especially with increasing the need to the mental strategically processes in high levels and takes its role in educational field and other fields , that contributed step by step in psychology of knowledge and arranging that developed with (The strategic intelligence) that it was in direct contact with intuition and creation and vision , imagination and parapsychology, also this type consists of the intelligence on the abilities of supervising and intuition and innovation and creation that can be able to characterized the students to be in high flexibility and give data in suitable picture for the future to reach to the reach aim and new ideas³.

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The strategic intelligence refers to the availability of necessary skills to make one's practices to the strategies that made to achieve certain aim. Making his own to be able to examine and analyze elements of environment and preparing for future predictions that must be adaptive with environmental circumstances for the student and to generate new and creative ideas⁶. Therefore when we are born, the cells of brain are formed in people which are hundred billion neurons cell, throughout the life of human, the brain must treat 3 billion stimuli every second and the intelligence of average human brain are (100) in a someone special, in genius person (160), for the ordinary person uses 4% from allover of mental capacity¹. The role of the strategic intelligence in activating the creative capabilities for the establishment studying case in Sidal. The study was conducted in Algeria, this studying aimed to measure and analyze the adapted relations and its effect between strategic thoughts and creative establishments during its competents (capacity, ability on compatibility, ability on thinking) the researcher used questionnaire to get data, the sample is (74) managers in Sidal complex, it is used the statistical method (arithmetic average, standard deviation, coefficient of selection(R2) percentage, coefficient of correlation sperman and the value of (F) for the multiple and simple regression and the program of (spss) the researcher reached to results one of these results are the adaptive relation between the strategic thinking and sub-variables, these results are: There is effecton on the level of significance (0.05) for the strategic thinking and its ability for creation for institution to confirm the validity of the first main hypotheses. There is A significant effect at the level of significance (0.05) of the element of strategic intent in creative capacities, which confirms the validity of the first hypothesis. There is effecton on the level (0.05) for the element of organizational imagine and for the the element of leading of hypotheses and element of of thinking in time and for the element of intelegent oportunities on the creative ability that insists the truth of hypotheses (second, third, fourth, fifth).

METHODOLOGY

The Methodology of the research includes presentation for all procedures That were carried out to achieve the objectives of this research, so the description approach is used to because it is suitable with requirements of the current research, and to certain the community and the sample of research and prepare

the scales for the research, and present all used statistical methods, that is known as survey on phenomenon as it is found in present time which to diagnosis it and detect about its aspects and determine the relations between its elements or between it and other pheromone.

The community of the research and its sample

The community of the research consists of students (Alwaeely secondary school for distinguishing) that have (800) students (Al-Hilla secondary for distinguishing) that have (711) students, and the number for all levels The sample of reserch, resercher choses the random sample (non-random) because it is suitable with requirements of research, and it is the sample that we need to measure the strtigitic inttelegnece and skills for the knowlede of outstanding students are found only in these two schools (Alwaeely secondary school for distinguishing) and in (Al-Hilla secondary for distinguishing) this sample of studying are 300 students from 150 students from secondary.

The tool of reseach: the tool is developed to measure the stratigic intelegence for the outsatnding students and we prepare the following steps:

preparing points for scales

Research had formulated some points for scale during returning to previous studies and reserches in this field because what resercher found was measure the leaders and managers and employers (which is not suitable with the catagery that we need to measure) they are the outstanding students, reseches depened on series on previos studies and on the resoures. After that making points that are (60) points in the फिल्ds of the strtigitic intellegence and gave an alternative answers that applying in(high degree, applying meduim degree, applying in low degree, not applicatable) and degrees are The highest degree for scale is (240) and lowest degree is (60)

Preparing instructions for scale

These instructions aim to help student answering on all points of scale which included certaing how to answer on the points of measurement and not leave any point without the answer them and choose more than one answer for point and determine the increasing the honesty and stability for the scale and depending on it in extracting the psychometric properties for the scale.

The truth of measurement

the truth of measurement (testing) the most important characteristic in a good testing it will be true if it was measured what was meant to measure, the truth is always specific for main objective for the tool is used for testing that dealing with the truth in situation for the aim which is not enjoying with truth in different situation or for another aim.

The applying of exploring measurement

The applying of the first exploring is the scale of the sample consist of (30)students from (15) students from (Al-waeely secondary school) and (15)students from (Al-Hilla secondary school for distinguishing) and also in two stages In the date of 22/3/2018, the all points are measured and understood clearly and the time of answering is between (25-35) minutes. The applying of the second exploring it was done on the sample (300) amle and female students, the perpous of it, is analyzing the points of the statistical scale

Distigushng points: the abilty of distigushing the indivual diffeneces between people that they know the answer and also those who do not know the correct answer for each point which means the ability on distinguishing between excellent students and weak students, it is found that the value of the sechuded hestitaion for the powerful distinguishing to points are (1,98) on the level of statistical significance (0,05) and free degree (160) so all points are distitinct

stability of scale

The main feature for a good testing and it is nessessary to calculate the stability of scale because it indicates to the degree that people can get a sample of research when answering about all points of measuring this will be applied on it twice, if degree in both applications are similar that means the scale is satblite, to find a a fixed measure in stratigic intellegence, researcher depended on two ways they are:

scale of ALfakeronbagh(Cronbach Alpha) scale of ALfakeronbagh is the scale or indicator to stablitate the testing that you can depend on it in internal consistency and giving a thought about this consisiency of questions with each other and with all questions .to achieve this stability in this way ALfakeronbagh applied stability coefficient on a sample which are (30)students, the

accounted stability coefficient in this way is(to field of vision, the filed of systems thiking, the filed of vision of future, partnership) the method of (test –reset) This method depends on calculation of coefficient correlation among people on testing, when we apply this again after certain peroid of time which is the simplest and the easiest way in determing the stability of testing (Abdu-AL_RAhman 180:2008) The researcher was able to achieve consistency by applying the scale to a sample of (30) students and after (15) days was applied to the same sample after the completion of the application was calculated correlation coefficient between the students in the first application of the scale and the second application of the scale

The used statistical methods:

The test of box KAY, the TAE test for 2 smaples (t-test) coefficient of correlation of BERSON, ALfakeronbagh scale, the TAE test (t-test) for one sample to extract the analyzed resurlts

RESULTS AND DISCUSSION

The first objective is (to identifying the level of the stratigic intellegence for outstanding students) to achieve the first objective, researcher collected all data and unloaded in in the programm of statistical bag(Spss) appeared that the arthemitic method for a sample is (188,7100) stanard deviation(46,291) the average hypothese (180) to know the diffrence between average of sample and average of hypothese for measurment, reasearcher used the test (T) for one sample, for one sample found that the value (T) calculated is (3,259) that (students of secondary of third and fourth class) have high level in stratgic intellegence because the value (T) calculated (3,259) is bigger than fro the value scheduled (1,96) in the Level of of statistic indicater (0.05) and free degree (299). To reach to achieve the third objective, researcher collected all data and unloaded in the programm of statistical bag(Spss) after using analysis of binary variation for a sample which is not similar. 1- between sex (male – female) total of boxes (13521,803) and average of boxes (13121.803) the value of calculated F (6,522) is bigger than the schaduled value (3,84) so there is the difference in the statistic indicater for females Box averges (189,402) is bigger than Box averges for males (181,487) this result shows that statistic indicaterfor both sex (male-female) is females use stratigic intellegence more than males, females

have the ability in balancing between thinking and implement and also not hurry in achieving the duties and give an enough time to it and they have a wide thinking in planning the future. The stage (fourth- fifth) total of boxes (24935,586) boxes average (24935,586) the value of calculated $F(12,028)$ is bigger than the calculated $F(3,84)$ so the difference is for (fifth class) the average box for fifth class (194,341) and for fourth (179,017). The results indicate to students of fifth class students having a wide intelligence bigger than the fourth class students, this is due that their high educational level and they have a high skill in strategic intelligence field. Furthermore they have a knowledge in the symbolic systems and thoughts and curiosity, independence, ability to control all outside dispersants that they face to it, a strong memorizing, acquiring a lot of informations about one subject, the language for them is highly developed, they can use a complex sentences leads to the meaning, their behaviour is clear and strong, they keep in developing their life. the interaction between sex x and stage: there is no difference in statistic indicator between sex and stage because the value of calculated $F(0,00005)$ is lower than scheduled value (3,84) in degree of free (1) and (299) and statistic indicator level (0,05). In this result that the researcher reached indicates there is no differences in statistic indicator in interaction between (sex and stage) for strategic intelligence. These results indicate that the current research there is high level in strategic intelligence for the distinguished students, this is due to nature of a sample of people who enjoying in high level strategic intelligence in their fields that attached in their educational level, people who enjoying in intelligence, have the ability to see the future correctly, their thinkings are sequentially and they have a power to achieve the work to reach the aim, they participate with each other to reach to the aim, also the results of this research that students of fifth class have intelligence more than students of fourth class, this due to their high educational level and skills in many fields of strategic intelligence furthermore they have a knowledge in the symbolic systems and thoughts and curiosity, independence, ability to control all outside dispersants that they face to it, a strong memorizing, acquiring a lot of informations about one subject, the language for them is highly developed, they can use a complex sentences leads to the meaning, their behaviour is clear and strong, they keep in developing their life.

CONCLUSION

The researcher approved that there is a level in strategic intelligence for the outstanding students because the value (t) calculated (3,259) is bigger than the scaled value (1,96) in the level of statistical significant (0.05) the degree is freedom (299), there are differences in statistical significant between sex (males and females) and it was for the benefit of females.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Collage of basic education, Babylon University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Antibacterial Activity of Synergistic Effect of colicin and Gold Nanoparticles against *Klebsiella pneumonia*

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ABSTRACT

Fifty of urine samples were collected from patients with urinary tract infection (UTI). The samples were collected from AL- Yarmuk hospital in Baghdad. All of the isolates were diagnosed using biochemical test and vitek. The result showed that 30 (60%) isolates identified as *E.coli* from 50 urine samples. The colicinogenic isolates were determined using cup assay methods. The results showed that 10 out of 30 isolates (33.3%) were detect as colicin producers from 30 isolate identified as *E.coli* depending on the clear zone that observed against the sensitive isolate. Colicin was extracted from the efficient isolate. Colicin activity (320 U/ml) was determined by well assay method. The protein concentration (520 µg/ml) estimated by using Bradford assay. The watery extract of Chilli papers (*Capsicum baccatum*) was extracted and used it as reducing and capping agent for gold nanoparticles synthesis. The characterization of the gold nanoparticles was done by UV-Visible Spectrophotometer, Transmission Electron Microscope (TEM), and resulting spherical nanoparticles with diameter ranging between (35-70 nm). The antibacterial activity of colicin alone and gold nanoparticles alone and combination of colicin with gold nanoparticles against ten isolates *Klebsiella pneumonia* isolated from urine samples, using tube method.

Keywords: Colicin, gold nanoparticles, Chilli papers, antibacterial

INTRODUCTION

Escherichia coli is an important genus belong to the family Enterobacteriaceae that found in human and animal intestine because its share in facilitation of digestion and fermentation of food¹⁻². There are some bacteria secrete substances which as a protein in nature used as a defensive mechanism against related or another genus of bacteria, from these the colicin that secrete by *Escherichia coli* and these character benefit in use the colicin as antibiotic in treated some diseases and inhibition growth of some bacteria³. Some researcher define the colicin as a protein substance that secreted by different genus of bacteria and characterized by have bactericidal activity against other strains, and mode of action depend on specific receptor in sensitive cell

for these colicin^{4,5}. There are some scientist said that the colicin it's a toxic protein produce by some strain of *E. coli* and became active against related or nearby strain⁶. The colicin is a weapon that the *E. coli* uses it in competitive war against other *E. coli* or other bacteria to get nutrient⁷. Colicins are proteins that consist from three specific domains, amino-terminal translocation (T) domain, central receptor-binding (R) domain, and carboxy-terminal cytotoxic (C) domain^{8,9}. The colicin particles was proteins in nature, also some colicins are composed from protein with carbohydrate or lipids but its few, for these we find the colicin particle is similar to any protein particle composed from amino acids that form small peptide chain and these peptide bind with each other to produce three dimensional shape of protein¹⁰. The colicin made and secreted in few amount in the bacterial cell that have plasmid only¹¹, but various external factors affecting the regulatory expression of colicin have been revised extensively by Cascales *et al.*, in 2007⁸. The term of nanoparticles (NPs) usually gain for the particles that have size ranging from 1-100 nanometers (nm). The raw metals have inert properties and when decrease in the sizes of the metals to the

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atomic level their properties changing to the benefit form¹², the nanoparticles have unique physico-chemical and biological properties which can be used in different suitably applications¹³. Certain nanopowders possess antimicrobial properties. When these powders contact cells of *E. coli*, or other bacteria species and viruses, over 90% are killed within a few minutes¹⁴. Due to their antimicrobial effect, nanoparticle of silver and titanium dioxide (<100nm) are assessed as coatings for surgical masks. Zinc Oxide nano particles can decrease the antibiotic resistance and enhance the antibacterial activity of Ciprofloxacin against microorganism, by interfering with various proteins that are interacting in the antibiotic resistance or pharmacologic mechanisms of drugs¹⁵. The application of using the gold nanoparticles in biomedical products is being developed for drug delivery, cancer therapy, diagnostic devices, biosensing, and bacterial growth inhibition¹⁶.

MATERIALS AND METHOD

Bacterial isolation and identification

Fifty of urine samples were collected from patients with urinary tract infection (UTI) the samples were collected from AL- Yarmuk hospital in Baghdad. All urine Samples were collected in sterilized containers, in the laboratory within aseptic conditions; the collected samples were streaked directly on MacConkey agar and EMB agar (Himedia/India) and incubated for 24h at 37°C. Pink colonies were picked. Further identification tests included the morphological characteristics and biochemical tests were carried out depending on Harley and Prescott in 2002, and Brenner in 2005^{17,18}.

Extraction of crude non-bound colicin¹⁹.

After determination of colicinogenic *E. coli* using cup assay methods [20] the colicin extracted from efficient isolate as following:

The overnight culture of bacterial isolates in volume 2.5 ml of nutrient broth was used to inoculate 100 ml of sterile nutrient broth supplemented with 5 % glycerol and incubated in shaker incubator for 14 hrs at 37 C.

At cell density of about 3×10^8 cells/ ml (14 hrs. incubation of late log phase), Mitomycin- C was added at a final concentration of 2 µg / ml, and incubate in shaker incubator for another 3 hrs.

The culture was centrifuged at 5000 rpm for 30 min

in cooling centrifuge. The supernatant was taken for assay of colicin using well methods²¹, and the concentration of protein was determined²².

Chloroform ((10 %) was added for killing any cells may be found in the supernatant. All supernatants were cultured on Brain heart infusion agar in order to confirm the absence of *E. coli* cells.

Synthesis and characterization of Gold Nanoparticles (Au NPs).

Gold nanoparticles were synthesis by green method using chilli papers (*Capsicum baccatum*) as reducing and stabilizing agent²³. The morphological feature of gold nanoparticles identified using UV-Vis Spectral Analysis [24] and Transmission Electron Microscope (TEM) [25].

Antibacterial activity

Antibacterial activity of colicin alone and gold nanoparticles alone and combination of (colicin + gold nanoparticles) were investigated by using an tubes method²⁶ against ten isolates of *Klebsiella pneumonia* that isolated from burn samples.

RESULTS AND DISCUSSION

Isolation and identification:

Thirty isolates (60%) identified as *E. coli* from 50 urine sample and others were not *E. coli*. The highest percentage of *E. coli* isolation from UTI revealed that *E. coli* was the main causative agent of UTI. the *E. coli* cause 90% of the urinary tract infection²⁷.

Determination efficient colicinogenic *E. coli*.

The main purpose of collection and identification of *E. coli* was for determination of the efficient isolate that able to produce colicin. There are several methods can be used for screening about colicin but in this study we used cup assay method and resulting 10 out of 30 isolates identified as *E. coli* isolate (33.3%) as colicin producers according to inhibition zone resulting from these processes one efficient isolate had been selected from ten colicin producers isolates, because it gave a higher inhibition zone (23 mm) against the sensitive isolate among producers isolate.

Characterization of Synthesis Gold Nanoparticles (Au NPs).

The first method for characterization of biosynthesis gold nanoparticles was UV–Vis spectrophotometry. The figure (1) explained all obtained results. Three UV–Vis tests were piloted in different time intervals and observed that the color changed of the gold nanoparticles with a time progresses. In the first (30) minutes no color change with no peak observed; After four hours the color change from yellow to red with a peak showed in wave length at (552.50 nm) and absorption (0.694), after 24 hours the color converted to a ruby red and the peak detected in wave length at(550.00 nm) and absorption value (1.490). The result showed revealed that the color change play an important role in detected the formation of nanoparticles, and this was confirmed by the appearance of the peaks in conjunction with the absorbance during the time progresses. The peaks were appears gave a spectroscopic signature to form a surface plasmon resonance (SPR) of gold nanoparticle ²³. The peaks shifted not much with time from (552.50nm) to (550.00 nm) with increase in absorbance from (0.694) to (1.490) were revealed a linked point between the more reduction reaction and formation nanoparticles[28]. This study was agreement with study reported by Kumar *et al.*, in 2015 that when appearance the dark color confirm the formation of nanoparticles and efficient reduction the to.

Determination of Antibacterial activity of colicin, gold nanoparticles, combination of (colicin + gold nanoparticles) against *Klebsiella pneumonia* isolated from urine samples, using tube method

The activity of colicin against 10 isolates of *Klebsiella pneumonia* is shown in table (1), and showed the different concentration of colicin has antibacterial activity for different strains of *Klebsiella pneumonia*. The highest colicin activity appears at concentration (16.25 µg/ ml) with activity 32U/ml against two strains (K1 and K3). The recent work revealed the crude extract of colicin extraction from producer *E. coli* showed a wide activity spectrum on other gram negative bacteria in different concentrations, this was because the colicin active against related or nearby strain. The table (2) showed the affected of *Klebsiella pneumonia* by gold nanoparticles, and you will see the higher concentration of gold nanoparticles(1395 ng/ ml) inhibit growth all strains, and the higher activity of gold nanoparticles was (1024 U/ml) at concentration (2.73 ng/ ml) as in isolates (K1 and K2). The table (3) represents the activity of the combination against *Klebsiella pneumoniae* and shows that most of the isolates affected by different concentration of combination.

Table 1. Antimicrobial effect of crude colicin extracted from *E. coli* against *Klebsiella pneumonia* isolated from urine samples, using tube method.

Isolates		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Dilution	Protein conc. µg/ ml	(-) Growth / (+) No growth									
1/2	260	+	+	+	+	+	+	+	+	+	+
1/4	130	+	-	+	+	+	+	+	+	+	+
1/8	65	+	-	+	+	+	+	+	-	-	+
1/16	32.5	+	-	+	+	+	+	-	-	-	-
1/32	16.25	+	-	+	-	-	-	-	-	-	-
1/64 to 1/1024	8.125 to 0.507	-	-	-	-	-	-	-	-	-	-
Activity U/ml		32	2	32	16	16	16	8	4	4	8

Table 2. Antimicrobial effect of Gold Nanoparticles Against *Klebsiella pneumonia* isolated from urine samples, using tube method.

Isolates		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Dilution	GoldNanoparticles conc. ng/ ml	(-) Growth / (+) No growth									
1/2	1395	+	+	+	+	+	+	+	+	+	+
1/4	697.5	+	-	+	+	+	+	+	+	+	+
1/8	348.75	+	-	-	-	-	-	-	-	-	+
1/16	174.38	+	-	-	-	-	-	-	-	-	+
1/32	87.19	+	-	-	-	-	-	-	-	-	+
1/64	43.59	+	-	-	-	-	-	-	-	-	+
1/128	21.81	+	-	-	-	-	-	-	-	-	+
1/256	10.91	+	-	-	-	-	-	-	-	-	+
1/512	5.45	+	-	-	-	-	-	-	-	-	+
1/1024	2.73	+	-	-	-	-	-	-	-	-	+
1/2048 to 1/4048	1.36 to 0.68	-	-	-	-	-	-	-	-	-	-
Activity U/ml		1024	2	4	4	4	4	4	4	4	1024

Table 3. Synergistic effect of colicin and Gold Nanoparticles against *Klebsiella pneumoniae* isolated from urine samples, using tube method.

Isolates			K1	K2	K3	K4	K5	K6	K7	K8	K9	K10
Dilution	Protein conc. µg/ ml	GoldNanoparticles conc. ng/ ml	(-) Growth / (+) No growth									
1/4	130	697.5	+	+	+	+	+	+	+	+	+	+
1/8	65	348.75	+	-	+	+	+	+	+	+	+	+
1/16	32.5	174.38	+	-	+	+	+	+	+	+	+	+
1/32	16.25	87.19	+	-	+	+	+	+	+	+	+	+
1/64	8.125	43.59	+	-	+	+	+	+	-	+	+	+
1/128	4.06	21.81	+	-	+	-	+	-	-	+	+	-
1/256	2.03	10.91	+	-	+	-	+	-	-	-	+	-
1/512	1.015	5.45	+	-	-	-	-	-	-	-	+	-
1/1024	0.507	2.73	+	-	-	-	-	-	-	-	+	-
1/2048	0.253	1.36	+	-	-	-	-	-	-	-	-	-
1/4096 to 1/8192	0.126 to 0.063	0.68 to 0.34	-	-	-	-	-	-	-	-	-	-
Activity U/ml			2048	4	256	64	256	64	32	128	1024	64

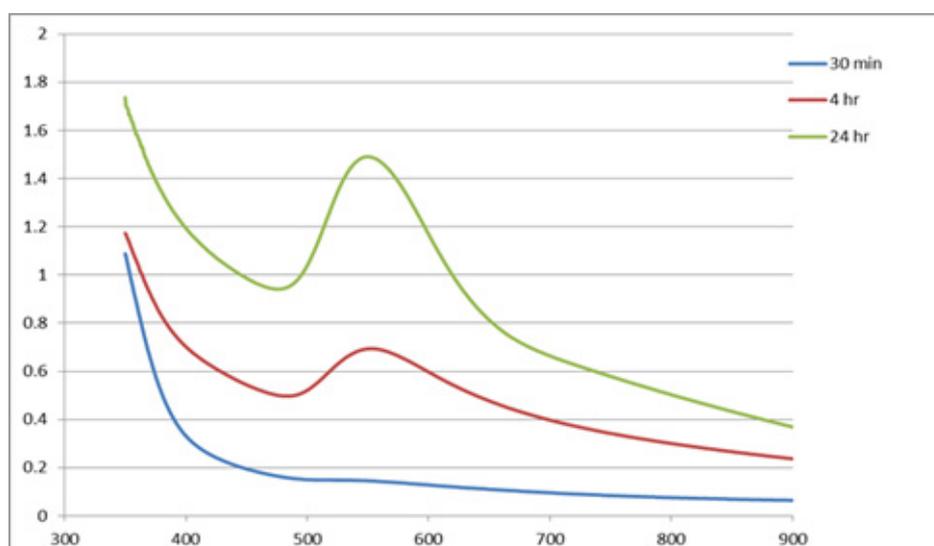


Figure 1. UV-Vis spectrophotometry of gold nanoparticles synthesis by chilli papers extract.

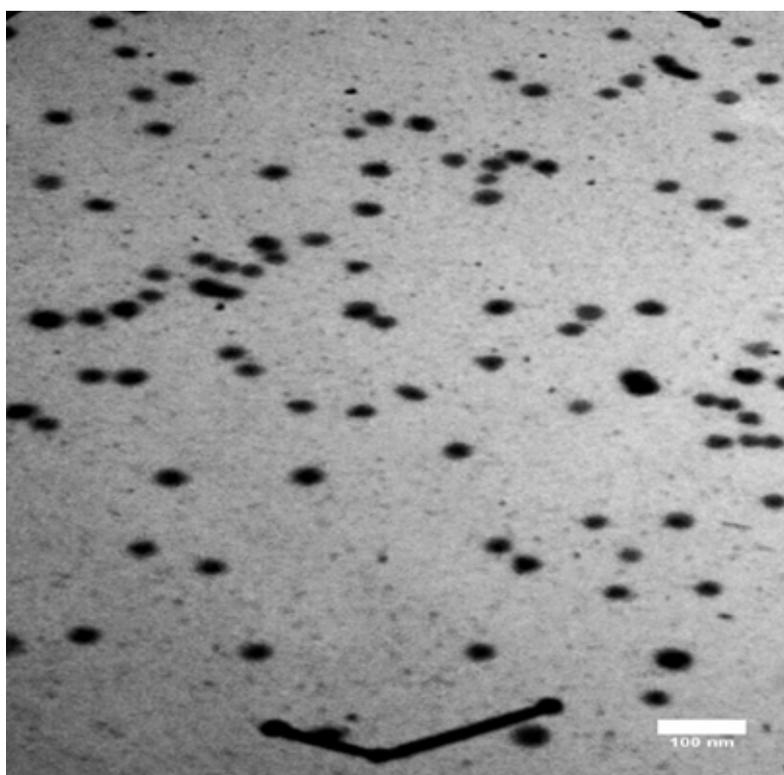


Figure 2. Transmission electron microscopic (TEM) images of Au NPs Synthesized using chilli papers extract.

CONCLUSION

The characterization of the gold nanoparticles was done by UV-Visible Spectrophotometer, Transmission Electron Microscope (TEM), and resulting spherical nanoparticles with diameter ranging between (35-70 nm). The antibacterial activity of colicin alone and gold nanoparticles alone and combination of colicin with gold nanoparticles against ten isolates *Klebsiella pneumonia* isolated from urine samples, using tube method.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Biology, College of Science, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Assessment of Attention Deficit Hyperactivity Disorders among Primary School Children in AL-Najaf City

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ABSTRACT

(ADHD) or Attention-deficit hyperactivity is a disorder characterized by persistent and developmentally inappropriate pattern of hyperactivity, inattention, and impulsivity which result in functional or developmental impairment. The worldwide prevalence of ADHD is about 2.5% for adults and 5% for children, affect about 3–5 % of school –age children. The prevalence rate in Arab world was between 2.7 and 20.5% for school aged students. The ratio of male to female 4:1 in childhood and in adulthood. A descriptive cross sectional study was carried out in order to assess (ADHD) among primary school children through Conner’s classroom rating scale, and to find the relationship between ADHD and socio-demographical data. The study has begun from November 1, 2017 through September 18, 2018. A Probability (simple random Sample) of (500) primary school child are included in the study. The data are collected through the utilization of the developed questionnaire by using an self-report technique. The validity of the questionnaire is determined through (Face Validity), and the reliability was achieved through the application of Alpha Cronbach’s technique. The findings of the present study indicate that the overall assessment of attention deficient hyperactivity disorder in primary school children is about 25%.

Keyword: ADHD, Conner’s classroom rating scale, Children, Primary school.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is defined as a disorder that is identified through constant developmentally disproportionate pattern from inattention, hyperactivity, and impulsivity which result in functional or developmental impairment ¹. ADHD can be classified in to three categories according to severity of symptoms: Mild: few symptoms and these symptoms must cause a minor impairment in functioning occupationally , functionally or academic. Moderate: symptoms are mild but must result in ether mild or moderate impairment in development or functioning. and Severe: many symptoms are present or symptom are sever which lead to marked impairment in functioning or development ¹. According to a number of studies, the ADHD affects about 3–5 % of school –age children. Nigg, (2015) ² estimates that the worldwide prevalence

of ADHD is about 2.5% for adults and 5% for children . The studies of epidemiology in Arab countries show that the prevalence of this disorder among school age children was from more than two and half to twenty and half percent ³. The ratio of male to female 4:1 in childhood and in adulthood. The inattentive type is mostly present in females and it is mostly not diagnosed so is not treated ⁴. The prevalence of comorbid psychiatric disorders with ADHD may be as high as 84 percent⁵ Aggressive and oppositional behaviors always occur concurrently with ADHD in addition to anxiety, low self- esteem and learning disabilities which persist along childhood and adolescence, these cause an appreciably functional impairment; they are generally meddling with academic and behavioral functioning at school, and they may also disrupt relationships whether with counterpart or in the family. While ADHD can begin during the preschool stage, it must be treated at school age, around the seventh to ninth years of age ⁶. Controlling ADHD involve the management of ADHD involve account from two basic domain: non-pharmacological (academic therapy, person and care giver psychological

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remediation) and medications. Clinicians have at their disposal a variety of psycho-social interferences for treating attention deficit hyperactivity disorders, which are portions of conventional psychotherapy, which addresses underlying emotions, tutors are available to help children develop strategies for improving academic performance and interpersonal relations. Tutors may help the kid through proficiencies within regulation and arrangement according to priority, and playing like adviser, supporter, and inspirational members⁷). The teacher is the most important member in providing the data for detecting and diagnosing ADHD. According to a survey that investigates the diagnosis of ADHD, about two-thirds of the survey respondents determined that teachers are most frequently the primary referral for a child to be checked for ADHD. Teachers and parents, reports are predominant in the course of the diagnosis. Usually, teachers initiate the referral for an ADHD evaluation because the deliberate school status means that children with problems of inattention, hyperactivity and impulsivity display attitudes with which the other children and their teachers cannot confront. ADHD occurrence, severity and the duration are affected by the genetic and social factors. These two factors also influence the co-occurrence of anxiety and depressive symptoms in children with ADHD. Some findings show that heritability for ADHD is as high as 0.7 to 0.8. According to some studies, the worst ADHD symptoms can be a result as a negative feedback for critical feedback from parents about the child's ADHD behaviors which strain the relationship in the family and increase the risk of developing comorbid mental disorders. Alternatively, poor adaptive skills and cognitive biases of parents can be learned by their children and, thus, increase the risk of anxiety, depression, and other mental disorders in the children. So, we can consider ADHD an important clinical and public health problem by taking together the relatively high prevalence, the often life-long impairment, behavioral disorders and the frequent occurrence of comorbid psychiatric and⁷. ADHD recognition has been increased in the last years and the number of treated children has also increased: from an estimate of 0.5 per 1,000 children diagnosed in the UK thirty years ago, to more than 3 per 1,000 getting treatment for ADHD in the late 1990s. The rates in the US have risen too, but from a much higher base; from about 12 per 1,000 thirty years ago to more than 35 per 1,000 in the late 1990s, with the escalation ongoing. The terminology in European countries has also alternated,

and 'ADHD' has become the diagnostic expression most frequently used in practice, even when more restrictive principle are being used (NICE, 2018)

MATERIALS AND METHOD

A descriptive cross sectional study was carried out in order to achieve the stated objectives. The study has begun from November 1, 2017 through September 18, 2018. The settings of the study includes: (25) primary schools; (12) schools for boys, (12) schools for girls, and (1) school for boys and girls and which are distributed in the center of Najaf Governorate. These schools are randomly selected A simple random sample of (750) subjects is selected throughout the use of probability sampling. The sample of study is divided into two stages which include: First stage: schools selection by (a systemic sample). From the Directorate of Education of Najaf Governorate records, the researcher chooses 50 schools by a system sample. Firstly the schools are classified into boy's schools (118), girl's schools (119) and 12 schools for boys and girls from each section. The first school chooses is randomly selected and then each fifth school is selected after. The researcher chooses (25) schools of boys and girls, (12) schools for boys, (12) schools for girls and (1) school for boys and girls. Second stage: students' selection by (simple random sample). From each school (30) students are randomly selected, (5) students from each stage. The total of students are selected (750) students, (375) boys and (375) girls. The collection of data is performed out of the utilization of the developed questionnaire, and by means of the self-report technique with the subjects who were individually interviewed in the schools. The investigator gives the questionnaire sheet to teachers after randomly selecting students from school's records. Some students are excluded according to the information obtained from teachers, and also those who don't agree to fill in the sheet are excluded, All students and teachers respond to the same questionnaire for all those subjects who were included in the study sample. The data collection process has been performed from January 10, 2018 until the March 29, 2018. A self-administrative questionnaire was constructed by the researcher for the purpose of the present study. An assessment tool was adopted and developed by the researcher to assess the ADHD in a primary school. The researcher translated the scales: (the Connor's teacher rating scale). The questionnaire was divided into two parts: first part is for content of child's socio-demographical data and the second part is

for content of the Connor’s teacher rating scale.

Part I:

A socio-demographical data sheet, divided into the sections below :

A-Child’s socio-demographical data:

B-Child’s health history:

C- Mother’s health history during pregnancy with this child:

Part II

The Connor’s teacher rating scale ⁸ is used for assessment of children by their teachers. The scale consist from 26 item which determines if the child suffers from ADHD or not and the type of ADHD. The validity of an instrument concerns its ability to gather the data that it is intended to gather. The face validity for the early developed questionnaire is determined through the use of a panel of experts to investigate clarity, relevancy, and adequacy of the questionnaire to measure the concepts of interest. A preliminary copy of the questionnaire is designed and presented to (16) experts, who have some years of experience

RESULTS AND DISCUSSION

The study results indicate that the majority of the study sample are boys. This result matches with the result of the study done by (Aghar, 2017) ⁸ who studied the ADHA among Lebanon children and he found that the dominant gender for the study subjects are boys. Concerning their age, the study subjects are

had same percentage between age groups because the researcher desired to give an equal opportunity to all age groups. Regarding residency, the highest number of the study subjects are living in urban areas, about (99%), and this come, because the selected schools are located in urban areas rather than rural ones. Also, ⁹, studied the prevalence and the factors affecting attention deficit hyperactivity disorder among school children in Khartoum State. Their results indicate that the majority of the study sample were boys and they were from urban residential areas than from rural. As for the school stage, the present study shows that the majority of study sample are in the fourth school stage which disagrees with result of ⁹ which found that the majority of the study sample were in the first the stage and this was because of the children loss of questioner’s sheet in the first 3 stage and examination load on the two last stage. Regarding the number of un-passed years, the majority of study sample passed. UNICEF (2017) reported an increased in un-passing grade from the first attempt. According the number of brothers and sisters, the majority of the study sample have 1-3 brothers and sisters. Albatti *et al.* (2017) ³ showed that the dominant number of siblings was less than 5. Represents the overall assessment of ADHD, the study results indicate that the majority of the study subject have no ADHD, and about 25% of the children have ADHD. The high prevalence may be return for used of Conner’s classroom rating scale, which consider primary diagnostic tool. Rowland *et al.* (2015) ¹⁰ who used population-based study using DSM-IV criteria, 15.5% of school children enrolled in Grades 1 to 5 have ADHD. The study combined the results of rating scales filled out by teachers and telephone interviews of parents for 7,847 children.

Table 1. Child’s Demographic Data

Child’s Demographic data	Rating and intervals	Freq.	%
Age / years	9 and Less	260	52
	More Than 9	240	48
	Total	500	100
Gender	Male	255	51
	Female	245	49
	Total	500	100
Residency	Urban	495	99
	Rural	5	1
	Total	500	100

Cont... Table 1. Child’s Demographic Data

School stage	First	75	15
	Second	98	19.6
	Third	76	15.2
	Fourth	104	20.8
	Fifth	73	14.6
	Sixth	74	14.8
	Total	500	100.0
Number of un pass years	No	411	82.2
	1 - 2	86	17.2
	3+	3	.6
	Total	500	100.0
Number of brothers and sisters	<= 0	6	1.2
	1 - 3	264	52.8
	4 - 6	198	39.6
	7 - 9	29	5.8
	10+	3	.6
	Total	500	100.0

Table 2. Overall Assessment of Children for ADHD

Main domains	Levels	Frequency	Percent
Overall Assessment of Children for ADHD	ADHD	125	25
	No ADHD	375	75
	Total	500	100

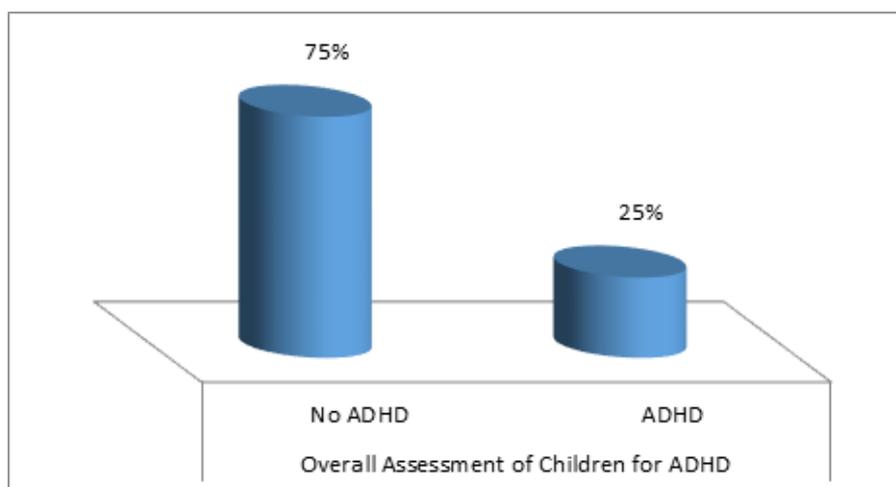


Figure 1. Overall Assessment of Children for ADHD

CONCLUSION

The study depicts that the majority of children with ADHD are males and their age is less than nine years. Most Parents of children with ADHD are graduate at primary schools, fathers are free workers while most of mothers are housewives. Children with ADHD have a delay in school performance. Most children with ADHD

suffer from prenatal problems.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols

were approved under the Faculty of Nursing, University of Kufa, Iraq and all experiments were carried out in accordance with approved guidelines.

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Construction a Scale for Dignose Pupils with Exceptional Needs According To DSM Norm

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ABSTRACT

This research aims to build a standard for the diagnosis of students with special needs according to the DSM standard. To achieve this, the current research has determined the teachers and teachers of students with special needs enrolled in their schools and centers for the academic year 2017-2018. (30) teacher and teacher while the sample of statistical analysis (100) teachers and teachers distributed to schools and centers of special education and to achieve the goal of research must be applied to measure the diagnosis of students with special needs of special education groups (learning disorder identified, Behavioral and emotional injuries, disorder, communication disorder, hyperactivity and attention deficit - impulsivity) with the sample they are teachers of students with special needs, The researcher has built a scale for the diagnosis of students with special needs followed the steps to follow when building the scale. The researcher relied on the standard DSM-5 Anwar Al Hammadi's image in the construction of the scale.

Keywords: Pupils, Construction, DSM Norm.

INTRODUCTION

The process of measurement is a fundamental process in the work of the specialist who works in the field of measurement and diagnosis in general, especially in the field of special education, and because of the nature and conditions of the measurement process and procedures with unusual children, and even give the measurement process, whatever its field results to help decision-makers to make the right decision, There must be many conditions in the instrument of measurement itself, and then there are other conditions in the examiner or the specialist in the measurement, The sources of error in measurement may come from three sources: measuring instrument, measurement subject, and tester¹. The general conditions of the measuring instruments are more important than the success of the measurement process. The most important of these conditions is the accuracy and stability of the measuring instrument and the provision of its own standards, in addition to other conditions It appears in the cost of the measuring

instrument and the procedures for its application, correction and interpretation. According to Leton (1966), diagnosis should facilitate and facilitate access to treatment decisions, and Kirk and McCarthy have made it even more clear that diagnosis "means that the child may be evaluated in a way that helps initiate the educational or therapeutic program. The assessor could not assess the child in a way that leads to specific treatment, and the assessment can not be considered as a diagnosis³. Despite the positive expected to be achieved through the use of measurement and diagnosis methods in special education, there are some issues and problems related to these tools, such as the lack of trained cadres on the use of measuring tools. Special education centers lack specialists with a bachelor's or master's degree in special education or the field of psychology, which is reflected negatively on the classification of cases of unusual children and turn them to the appropriate place and the issue of adoption of traditional methods In the measurement and diagnosis, such as observation and interview only, or use of a particular type of methods such as medical or psychometric method, the variation in the use of measurement and diagnosis methods from one center to another governmental and non-governmental centers and the lack of local standards for many methods of measurement and diagnosis In special

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education^[4]. Then there are problems and difficulties related to the diagnosis of disabilities, especially in the early years. It is known that the educational difficulties, speech problems, minor mental retardation and some behavioral disorders are difficult to identify before entering the first grade. Moreover, proving or denying a disability is very difficult when it comes to children so that these children change rapidly and significantly⁵. There are many problems with the diagnosis of children with special needs: the lack of sufficient or appropriate tests and measures for the age groups. There are large age groups of persons with disabilities that are difficult to determine. 3. There are no standardized tests for the environment in which the scale will be applied or 4. Lack of competencies that apply tests and standards¹⁶. Based on the progress and as a result of the researcher's sense of the existence of these problems that accompany the diagnosis of these children accurately and the absence of a reliable objective measure in this area, the problem of the current research was identified as follows: Building a standard for diagnosing students with special needs according to the DSM standard. The process of measuring and diagnosing special categories of education is an essential element of the education of children in the extraordinary because of the importance of this process, which seems to identify these categories and diagnose them using their own measurement tools and then determine the appropriate educational place (placement) and the number of educational programs and methods. As a result of the flourishing of the movement of measurement and diagnosis in the field of special education, in which there are indications of sincerity, consistency and criteria that justify their effective use. The DSM-5 is used by psychiatrists and researchers to diagnose and classify mental disorders, a 10-year effort that represents the efforts of global experts in all areas of mental health. The efforts made to produce this guide have produced documentation, definitions and classifications of mental disorders to support and guide both diagnostic and treatment workers as well as research. The latest product expands the cycle of life and discussion, called the American psychologists Life Span Development, which includes the stages of early childhood, to the stages of intellectual maturity, and then the pyramid and death, to focus on the disorders that occur within natural neurological developments⁷. The new DSM-5 is used by psychiatrists and researchers to diagnose and classify mental disorders, an effort that has taken 10 consecutive years and represents the efforts of

global experts in all areas of mental health. The efforts made to produce this guide have produced documentation, definitions and classifications of mental disorders to support and guide both diagnostic and treatment workers as well as research. The latest product expands the cycle of life and discussion, called the American psychologists Life Span Development, which includes the stages of early childhood, to the stages of intellectual maturity, and then the pyramid and death, to focus on the disorders that occur within natural neurological developments⁸. Thus, the importance of this study is reflected in two aspects and as follows: First: - Theoretical side This study is one of the important studies in our country and adds a study at the level of the country. The researcher did not find a single local study aimed at building a standard for diagnosing students with special needs according to DSM-5, This aspect. This study may contribute scientifically to help teachers identify and care for pupils with difficulties in order to provide services that suit their needs. Second: The practical aspect: The practical importance of providing a tool (a measure for the diagnosis of people with special needs), which contribute to the detection and diagnosis of some special education classes, which provides benefit to the teacher to be able to deal with these children or convert them to specialists for their care and education and to benefit the knowledge to benefit. In the implementation of new guidelines and strategies in dealing with these children. The study of the miller (2008) "Building a measure to diagnose the disorder of attention deficit and hyperactivity and verify its effectiveness in ordinary students with learning disabilities and mental disability and autism in a Jordanian sample. The aim of this study was to construct a measure to diagnose the impairment of attention deficit and hyperactivity and to verify its effectiveness in ordinary students, people with learning difficulties, mental disabilities and autism in a Jordanian sample, by finding indications of the veracity of the scale and its stability and effectiveness. To achieve this, the scale was built in its final form. The study sample consisted of (432) subjects, ranging in age from (6 - 11) years, and there were indications about the validity of the scale. (80%), and the correlation between the performance on the scale and the list of behavioral behavior was calculated. The coefficient (0.91) (n = 50). There was an indication of the validity of the scale meter through the method of observation of attentional behavior. It was found that (12) factors explain (65%) of the variance. Performance on the paragraphs of the scale,

either the effectiveness of the paragraphs of the scale. The correlation coefficients ranged between 0.35 - 0.76 between the degree on the paragraph and the degree on the dimension. There were also indications of the difference between the difference between the class and the age group. There were no significant differences (0.90), in the internal consistency method (0.95), and in the semi-semantic manner where the value of the coefficient was (0.95) and the mean value of the coefficient 0.85) ⁹.

METHODOLOGY

This chapter includes a description of the methodology of the research and the procedures carried out by the researcher in terms of determining the methodology used in the research and society and its description and selection of the representative sample and clarify the research tools and steps and characteristics of cykometers, as well as the statistical means used for data analysis and treatment statistically. The descriptive approach can be used to study the characteristics, abilities, tendencies and trends, and to study the interrelationships between variables and the detection of individuals and the differences between them in order to describe and analyze the phenomenon studied. The research community and its model The research community includes teachers and teachers of students with special needs in schools and government centers affiliated to the Directorate General of Education in Babylon for the academic year (2017 - 2018). The research sample chose the teacher teachers of special needs pupils in schools and primary center. Research tool to achieve the objectives of the research, the researcher has built a scale for the diagnosis of people with special needs based on the standards of dsm-5 and requires the construction of the scale follow the following steps: Preparation of paragraphs of the scale: The researcher based on the standard DSM-5 formula (120) paragraphs have been distributed as follows the category of specific learning disorder (21) poverty, the category of communication disorder (35) poverty, and the category of hyperactivity - distraction and impulse (24) , And the category of behavioral and emotional disorder (40). The researcher took care that the content of the paragraph is clear and that the paragraph contains only one idea, and has given alternatives to answer (apply to him very much, apply to him to a large degree, apply to him to a medium degree, Never apply)) And grades (5, 4, 3, 2, 1) are given. Preparing the Scale Instructions The

meter's instructions serve as the guide that guides the respondent on how to answer. Therefore, the researcher is careful in preparing the instructions to be clear, easy to understand and suitable for the level of the subjects. The instructions are intended to explain the idea of the scale in its simplest form to facilitate the application of the scale In order to rely on the scale, it is necessary to extract the cykometr properties

RESULTS AND DISCUSSION

The results showed that the virtual honesty obtained the percentage of agreement (80%) by the arbitrators and specialists. As for the validity of the construction, the results showed that all the paragraphs of the scale are statistically significant, therefore, it is a true measure in the diagnosis of students with special needs.

Application of the scale: It includes the following:

The first survey application: The measurement of the diagnosis of students with special needs was applied to a group of teachers and teachers. The number of teachers and teachers was (30) teachers and teachers. It is meant to know the clarity of the learning and the comprehension and clarity of the scales. Second survey application: The scale was applied to a sample of teachers and teachers consisting of (100) teacher and teacher and its purpose is to analyze the paragraphs statistically. Discrimination of the paragraph: An important feature that must be provided in the paragraphs of the scale is the distinguishing feature, which means the possibility of paragraphs in the detection of students who have the measured character and the students who do not own them. The value of the coefficient of measurement of the scales ranged from 0.65-0.28 All test paragraphs are therefore considered to have a good and appropriate discrimination coefficient. Stability of the scale: Estimation of stability of properties is a good measure, although honesty is more important than it, because the true measure is fixed and may not be a fixed measure is true because it may be homogeneous paragraphs but may measure other property that is prepared to measure, In order to achieve the stability of the scale, stability was found in the Vaccronbach method. Vaccronbach method: The Vkronbach equation is often used to calculate the stability of psychological measures that depend on the variance of the degrees of individuals on the paragraphs of the scale, and uses the coefficient of Vkronbach because it provides us with a good estimate in most situations, if depends on the stability of the individual

performance on the positions of the scale, The stability of the current research is 0.86, which is a high stability coefficient. The measure is internally consistent because this equation reflects the consistency of the paragraphs internally, and the stability indicators for the diagnostic measure for students with special needs are good and acceptable. This goal was achieved by constructing a measure for the diagnosis of students with special needs according to DSM-5 in the light of the steps required in constructing the interface. These steps were explained in Chapter 3. Of the specialized experts in the fields of special education and educational psychology, and have obtained the paragraphs of the scale to the approval rate of more than (80%) and the scale is valid for the application, the researcher applied the scale to a sample of teachers (teachers and teachers) prepared for the current study on a sample survey component Of (30) teachers and teachers , After the statistical processing, their scores were calculated on the scale, reaching the arithmetic mean on the DSM-5 (185.07) and with a standard deviation of (8.24) while the mean mean (166). After applying the test for one sample, The calculated T value (32.72) is greater than the scale value of (1.96) at the level of significance (0.05) and the degree of freedom (52) which is a statistical function, that is, there are statistically significant differences. Interpretation of the results: The results of the current research proved the ability of the scale in the diagnosis of students with special needs (specific learning disorder, behavioral and emotional disorders, communication disorder, hyperactivity disorder and attention deficit - impulse), the results have shown positive effect of the scale in their diagnosis and identification in Survey respondents. The results also showed the importance of the role played by the standard in the diagnosis of students with special needs (specific palpitations, behavioral and emotional disorders, communication disorders, hyperactivity disorder and attention deficit disorder), by providing diagnostic criteria that allow the teacher to correctly diagnose students and provide pupils with opportunities To overcome their problems and adjust their behavior. The standard developed for the diagnosis of students with special needs has included a variety of criteria and each category includes a stand-alone measure that has had a clear impact on the achievement of the research objective of building a standard for the diagnosis of students with special needs according to DSM-5. Cooperation of the management of schools and centers for pupils with special needs and teacher cooperation led

to positive results.

CONCLUSION

The sample of statistical analysis (100) teachers and teachers distributed to schools and centers of special education and to achieve the goal of research must be applied to measure the diagnosis of students with special needs of special education groups (learning disorder identified, Behavioral and emotional injuries, disorder, communication disorder, hyperactivity and attention deficit - impulsivity) with the sample they are teachers of students with special needs, The researcher has built a scale for the diagnosis of students with special needs followed the steps to follow when building the scale. The researcher relied on the standard DSM-5 Anwar Al Hammadi's image in the construction of the scale.

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Conflict of Interest: None to declare.

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Data Encryption Using Zigzag and Sequences of Bio Molecular Information

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ABSTRACT

This paper proposed a new encryption algorithm for secure file communication. It consists of three stages of protection: DNA computation, generating keys, and encryption. The first stage, the file is converted to protein sequences. The second stage, an enormous number of random keys are generated of length ranged from (2^8 to 2^{512} bits) using mRNA and zigzag array and lastly the encryption procedure is executed as the last stage. This procedure will improve the security of the encryption technique for data and correspondence frameworks and additionally including greater unpredictability. Proposed encryption and key generation methods solved the problem of exchanging secret data between the client and server. In this work a new Biomolecular table is utilized by providing value to the protein codons as a result of the existence of a variety of ribonucleic acid that generate same protein codons. A chemical property was utilized of the RNA sequences as an indexing key to authenticate the communications and hide data from exploitation techniques used by intruders specially frequency analysis-based attacks. We take this into account to go through current security methods and encryption algorithms to propose a modified algorithm to enhance the security and complexity of an encryption mechanism.

Keywords: DNA Sequence, Zigzag, Encryption, Security, Bioinformatics and Key Generation.

INTRODUCTION

Procedure of changing over messages from plain content to figure content is called cryptography. Cryptography is a strategy for accomplishing security for interchanges by encoding plain instant messages to make it incoherent ¹. DNA based bimolecular cryptography configuration is a system that uses the gigantic parallel handling abilities of bio atomic calculation which changes over short messages from hexadecimal and ASCII structures and afterward back to scramble and decode the data. This has been utilized in various applications, however, this method considered as defend to deallocate data with the expansion of the key age system from the bio-sub-atomic properties of

the DNA groupings. DNA is considered as a medium for ultra-smaller data stockpiling, surpassing the capacity of ordinary electronic media. A couple of grams of DNA may hold all information put away in the advanced mediums on the planet [2]. The one of a kind property of DNA encoding is utilized for calculations, enhancing the security and to alleviate the imperfections of the present security instrument. In this paper the methods can be practiced on manuscript files and these files include different data (Arabic and English characters, numbers and symbols). We consider to experience current security strategies and encryption calculations to propose an altered calculation to upgrade the security and multifaceted nature of an encryption component. Gehani et al. 2000 introduced one-time-pads based on DNA to propose an encryption method ². The strategy utilized substitution procedure to change over DNA arrangements to figure organize utilizing a predefined mapping table. The presented enter in one-time-cushion is just utilized once making it difficult to break. The one-time-cushion is put away in an expanded size library

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of codes, which is utilized once. In DNA –Public Key Cryptography (PKC), there are two types of keys 2010³; initial one to be utilized for encryption and second one to make a signature. A unique message is encoded utilizing an open 26 key and is decoded by just the individuals who claim a private key. To make a mark a sender signs the message, utilizing a private key, which is de-coded by just the comparing open key. Ken Halvorsen, Wesley P. Wong, 2012⁴, exhibited a basic and secure framework for scrambling and unscrambling data utilizing DNA self-gathering. Twofold information is encoded in the geometry of DNA nanostructures with two unmistakable compliances. Evacuating or forgetting a solitary part decreases these structures to a scrambled arrangement of ssDNA, though, including back this missing “decoding key” causes the unconstrained development of the message through self-get together, empowering fast read out by means of gel electrophoresis. Ashwak Alabaichi, 2018⁵, This study proposes the use of a 3D chaotic system, DNA sequence, and the key-dependent DNA S-box of AES to encrypt and decrypt color images. The proposed algorithm includes five steps: block transcription, encoding of DNA base, reverse/reverse complement of DNA, use of a 3D chaotic map, and key-dependent DNA Sbox of AES.

DNA Encryption

DNA groupings speak to natural data, for example, skin shading, weight, nose shape, eye, and hair and additionally different highlights⁶. A DNA arrangement is of a long particle with four bases called nucleotides Adenine (A), Guanine (G), and Cytosine (C) and Thymine (T). As a result of frail powers between the successions, they combine as A-T and G-C. The request and successions of these bases give data about people, for example, people groups’ name framed with in sequential order appearance⁷. DNA comprises of two chains contorted around and frame twofold strand helix. A and T are bond together while C and G bond in a contrary chain. The compliment of the strands empowers data to be duplicated self-sufficiently utilizing an integrating layout¹. DNA based bio atomic cryptography configuration is a library of one-time cushions collected covertly in the course of action of DNA strands which is utilized to encode or unscramble messages². The

calculation completed utilizing a DNA arrangement is called DNA Registering. Watson⁸ has consolidated customary cryptography with DNA groupings to present mixture security. DNA strands are mapped to numbers and in sequential order letters and different properties and broadly utilized for encoding and translating and additionally advanced putting away of information. Data encryption utilizing DNA successions can be utilized on the correspondence encryption techniques, particularly the ones needing a strong information encryption plan to challenge unapproved get to [9]. DNA and RNA both offer regular codons; A, G, C. DNA has an extra T codon while RNA has an extra U codon, both these extra codons are utilized to shape proteins. The three bases (AGC) in DNA duplicated to (AGC) in mRNA while T codon supplanted with U codon. The mix and arrangement of the three letter codons of mRNA decide the request of the Amino Acids. The portrayal of every RNA codons to Amino Acids is delineated in table 1¹⁰. DNA arrangement is a principal examination strategy to discover basic examples between groupings, recognize imperative areas, which comprise of coordinating characters between two successions or more, and situating them effectively in a section. A check of the coordinating characters brings about a measure of similitude between the successions⁹.

Proposed Algorithm

The proposed framework illustrated in figure(1) comprises of two stages: encryption and decryption. The encryption phase includes three stages: DNA computation to convert (plaintext message) to Amino Acid representation, the second stage related with key generation process. The third stage concerns with performing the encryption process using one time pad. The decryption algorithm has been done in reverse order of the encryption algorithm. The steps for the proposed encryption algorithm are explained in the following subsections (4.1, 4.2, and 4.3). The encryption process started with first generating the keys, next to select the file to be encrypted it and after that the file would be converted to binary form, next the binary data is converted to RNA form according to the RNA table(2), after that the RNA data is converted to protein form also according to the protein table(3).

Step 1: Convert message to binary

```
//output="010000110110111101101101011100000111010101110100011001
01011100100010000001010011011000110110100101100101011011
100110001101100101"//
```

Step 2: Convert binary data to RNA sequence using table2 by comparing each 2 bits of previous step with a Table2 according to the column number (the location for the current 2 bit mod 8) and the 2 bits represents the row data. Row=2 bits and the column=7 from 0 to 7, columns represent the count means equal to 4 bits. Let the current 2 bits=01 then this represents the row=01 and let the count (current location) then column=0, the intersection of row and count refers to a DNA sequence and here it was equal to C.

```
///CACGAAAACCGUACUUCUAUACCUCCAUAUCUCACCCAUAUACCCG
AAGGCCAUAAACCCCGAACG///  
//
```

Step 3: Convert RNA sequence into Amino Acid Sequence; using table3//eg. CAC=His2 according to table3//

```
//output="His2His2Glu1Asn2Arg1Thr1Ser1Lle3Pro1Pro3Tyr2Ser3Pro2Lle
1Thr2Arg3Arg6Pro3Sto1Thr2Pro4Asn2"//
```

End

Key Generation

The process for generating Keys depended on the User ID and the User Private Key; the length of the generated Key depended on the remainder of ID mod 8. If the remainder equal to 0 then the Key length will be equal to 8 characters (256 bits). Depending on RNA generated symbols, 64 characters (18446744073709551616 bits) will be generated and distributed randomly depending on the ZigZag which is shown below:

	C1	C2	C3	C4	C5	C6	C7	C8
R1	1	2	6	7	15	16	28	29
R2	3	5	8	14	17	27	30	43
R3	4	9	13	18	26	31	42	44
R4	10	12	19	25	32	41	45	54
R5	11	20	24	33	40	46	53	55
R6	21	23	34	39	47	52	56	61
R7	22	35	38	48	51	57	60	62
R8	36	37	49	50	58	59	63	64

Algorithm2:key generation**Input:**User ID and User Key//*Let UserID=8 and UserKey=Computer Science.***Output:**n Number of Keys //*n=64*K=64//***Begin:**Step1:Compute $K = \text{userID} \bmod 8 // K=0 //$ If $K=0$ then $K=1 // K=1 //$ Step2:Compute $n=64*K // n=64 //$

Step3:Convert User Key to RNAform (Table2)

*//output="CACGAAAACCGUACUUCUAUACCUCCAUAUCACCCAUU
ACCCGAAGGCCAUAAACCCCGAACG"//*Step4:If the length of RNAdata less than 64 characters,then does appending to
64 characters//*The length of RNAdata from step2=64 characters//*Step5:Perform Zigzag operation by selecting data from bottom to up depending
on K value and table4//*If the K value=7 the select RNAcods from row8
to row1 aacording to the distributed locations in table4.Using Zigzag
array to generate a random keyof current example K=0 the
output="CAAUUUA"//*Step6:Repeat step 7 to 10 (let $j=2$) // *j=1 for the first generated key /*

Step7:Conversion of user key to

binary//*output="010000110100000101000001010000010101010101
01010101010101000001"//*Step8:Shift left (L1) by reminder valueif reminder value=0 then reminder
value=1*//output="100001101000001010000010100000101010101010101010101
01010000010//*

Step9:Conversion S to character form

Step10:Until the stop condition is reached ($j=2^{\wedge}(n/8)$)**End.**

In case of ID=User ID=8 and User Key="Computer Science"the Output of algorithm2 is equal to 64 keys from 0 to 63means the minimum generated keys equal to 64 keys,It is important to mention that the number of keys depends on user IDof length (2^8 to 2^{512} bits); in the following example the number of keys equal to 64 keys of length 256 bits (2^8) and this is the minimum key length.If the

remainder=3 then the selection will be according to the distribution from row3 to row1 and the result=**GCAUCUCG CAACCACCCAAAUUA** (row3---row2—row1)

EEE...E	EE...E E	...E EEE	.E EEE..
#####UUU#	##UUU##	UUU#####	U#####UU
õ:õ:	õõ:õõ=	...õ=	õõ:õ
4==JUT=	=JUT=4=	UUT=4==J	T=4==JUU
h((*..i()*.i(h(..i(h((*	i(h((*..
PPUUUPP	PUUUPP:P	UUPP:PPU	PP:PPUUU
©©©...©¹	©...©¹©©	..©¹©©©.	©¹©©©...©
AAAUUAC	AUUACAA	UUACAAU	ACAAUUU
EEE...E	E...E EE	..E EEE..	E EEE...E
#####UUU##	##UUU#####	UU#####UU	#####UUU
õõõõ:õõ	õõõõ:õõ	õõõõ:õõ	õõõõ:õõ
==JUT=4	JUT=4==	UT=4==J	=4==JUT
))*..i(h	*..i(h((.i(h((*..	(h((*..i
PPUUUPP;	UUUPP:PP	UUP:PPUU	P:PPUUUP
©©...©¹©	...©¹©©©	..©¹©©©..	¹©©©©...©
AAAUUACA	UUACAAA	UACAAUU	CAAAUUUA

keys generated from algorithm2 when *UserID*=8 and *UserKey*=Computer Science

Encryption

In this stage the encryption algorithm is dependent on shift left and XOR operations between AminoAcidSequence of plaintext (the output of algorithm1) and generated keys (the output of algorithm2).The algorithm uses ‘Exclusive-OR’ operation of plain code and cipher key sequence.Each 2 bits of binary form can be converted to one codon (RNAform).The RNAsquence also mapped alphabet and alphanumeric values to be represented in protein form (AminoAcidSequence).

Algorithm3:Encryption Process

Input:AminoAcidSequence of plain message andkeys generated//*message=ABC,key=Computer Science*//

Output:Ciphertext

Begin:

Step1:Conversion the Plain file to AminoAcidProtein form by applying algorithm1.

Step2:Cipher=XOR between AminoAcid and keys generated (character by character).

Step3:Shift left(Cipher,Reminder value)//reminder value=*ID mod 8* if the reminder value=0 then reminder value=1//

End

Example:input 1- plaintext="ABC"; output of algorithm1=*output="His2Sto2Ser2Thr4"*;

2- After applying XOR operation.Output=*"Σ3.sh!:p\$3s##:u"*

3- After applying LeftShiftoperation for the above example.Output=*"3.sh!:p\$3s##:uΣ"*

Decryption

In this stage the decryption algorithm is performed depending on shift right,XOR operation between ciphertext (the output of algorithm3) and generated keys (the output of algorithm2),conversion to AminoAcidProtein,conversion to binary and ascii code to retrieve the plaintext which is means the application of encryption process in reverse order as shown in figure1.

Algorithm4:Decryption Process

Input:ciphertext//*ciphertext=3.sh!:p\$3s##:uΣ* and **key=Computer Science//**

Output:plaintext

Begin:

Step1:Applying RightShift operation for ciphertext by the remainder value

Step2:Cipher=XOR between the results of step1 and Generated keys (character by character)//*output=Pro2Sto1Ser2Pro4//*

Step3:Conversion the output of XOR operation to AminoAcidProtein form

Step4:Conversion the results of the previous step to binary,after that convert binary data to its ascii code and finally convert the ascii code to characters.

End

Experimental Results

In order to test the performance analysis of the algorithms.The complexity of generating keys,the times of encryption,decryption process and statistical properties for encrypted and plain file are measured. In the proposed system any data sets can be used such as (employee data,Iraqi voter data,heart disease data,medical information of Spain and Germany products.....etc) are used for testing the performance of the proposed system.

Speed analysis for encryption and decryption

The speed of the calculation can be described by

estimating the time required for changing over to Amino Corrosive arrangement,encryption and decoding.The ideal opportunity for the proposed calculation (changing over to Amino Corrosive succession,encryption and decoding process) appear in Table4.The time was estimated in (second.millisecond).

Complexity of Generated Key

The length of generated keys varying from 2^8 to 2^{512} bits and this gives a very large variety of keys compared with the number of keys that is generated by AES algorithm.AES algorithm will generate a number of keys ranged from 2^{128} to 2^{256} key,and this is half number of keys generated by using the proposed algorithm.The brute force attack results for part of the

generated keys are shown below. Encryption algorithm can use number of keys equal to the number of encrypted messages; which is mean there is no needing for generating unused keys. This strategy will be decreased required time for generating keys.

Statistical Properties

A histogram is used to present the distribution of characters in a message or text file. In order to resist

statistical attacks, the histogram of a ciphertext should be sufficiently uniform. Otherwise, attackers may get important information from the plaintext by investigating the histogram of the ciphertext. The histogram of the encrypted text is flat and completely differs from that of the plaintext. The plaintext file includes 3 to 47 characters without redundancy. The results showed that when conversion to mRNA codons and then encrypting these mRNA codons given best results, because it was provided flat histogram.

Table 1. Amino Acid representation of RNA codons

	U	C	A	G
U	UUUPhe	UCUSer	UAUTyr	UGUCys
U	UUCPhe	UCCSer	UACTyr	UGCCys
U	UUALeu	UCASer	UAASto	UGASto
U	UUGLeu	UCGSer	UAGSto	UGGTrp
C	CUULeu	CCUPro	CAUHis	CGUArg
C	CUCLeu	CCCPro	CACHis	CGCArg
C	CUALeu	CCAPro	CAAGin	CGAArg
C	CUGLeu	CCGPro	CAGGin	CGGArg
A	AUUIle	ACUThr	AAUAsn	AGUSer
A	AUCIle	ACCThr	AACAsn	AGCSer
A	AUAlle	ACAThr	AAALys	AGAAArg
A	AUGSta	ACGThR	AAGLys	AGGArg
G	GUUVal	GCUAla	GAUAsp	GGUGly
G	GUCVal	GCCAla	GACAsp	GGCGly
G	GUAVal	GCAAla	GAAGlu	GGAGly
G	GUGVal	GCGAla	GAGGlu	GGGGly

Table 2. RNA Conversion Table

	0	1	2	3	4	5	6	7
00	A	A	C	C	G	G	U	U
01	C	G	A	U	A	U	C	G
10	G	C	U	A	U	A	G	C
11	U	U	G	G	C	C	A	A

Table 3. Amino Acid modified representation of RNA codons (table1 modification)

	U	C	A	G	
U	UUUPhe1	UCUSer1	UAUTyr1	UGUCys1	U
U	UUCPhe2	UCCSer2	UACTyr2	UGCCys2	C
U	UUALeu1	UCASer3	UAASto1	UGASto3	A
U	UUGLeu2	UCGSer4	UAGSto2	UGGTrp1	G
C	CUULeu3	CCUPro1	CAUHis1	CGUArg1	U

Cont... Table 3. AminoAcid modified representation of RNACodons (table1 modification)

C	CUCLeu4	CCCPro2	CACHis2	CGCArg2	C
C	CUALeu5	CCAPro3	CAAGin1	CGAArg3	A
C	CUGLeu6	CCGPro4	CAGGin2	CGGArg4	G
A	AUUIle1	ACUThr1	AAUAsn1	AGUSer5	U
A	AUCIle2	ACCThr2	AACAAsn2	AGCSer6	C
A	AUAlle3	ACAThr3	AAALys1	AGAAArg5	A
A	AUGSta1	ACGThr4	AAGLys2	AGGArg6	G
G	GUUVal1	GCUAla1	GAUAsp1	GGUGly1	U
G	GUCVal2	GCCAAla2	GACAsp2	GGCGly2	C
G	GUAVal3	GCAAAla3	GAAGlu1	GGAGly3	A
G	GUGVal4	GCGAla4	GAGGlu2	GGGGly4	G

Table 4. Speed for Converting to Amino Acid Sequence, Encryption and Decryption Process

FileName	File Size (Bytes)	Encryption for Plain Data	Decryption Process	Converting To AminoAcid Sequence	Retrieving Plain Data	Encryption For Amino Acid Sequence	Decryption And Retrieving Amino Acid sequence	Decryption And Retrieving OriginalData
Aaabbb	89	0.063	0.015	0.167	0.031	0.091	0.46	0.491
Employee	8,192	0.321	0.362	2.199	0.302	1.262	1.352	1.654
Heart disease	16,384	0.970	1.120	8.832	0.414	4.436	5.075	5.489
Spain	20,480	1.161	1.317	9.741	0.419	5.539	6.350	6.769
Germany	106,496	5.221	5.976	57.475	1.8	27.233	32.049	33.849
Shorsh	278,528	12.491	12.367	106.184	4.316	51.325	63.533	67.849

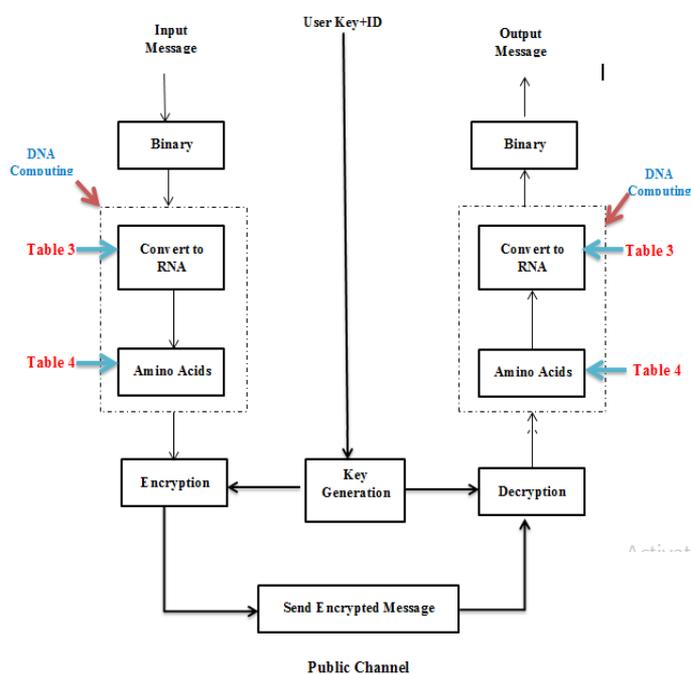


Figure 1. General layout of Encryption and Decryption

CONCLUSION

The proposed algorithm presents an effective, secure system based on Biomolecular technique. A new table of Amino Acid representation of RNA codons and zigzag distribution is used in substitution and permutation operations. The shifting and zigzag distribution process in generating keys gives randomness in the generating keys. Also, key generation method is used to generate a large number of keys of length ranged from 2^8 to 2^{512} bits. The experimental results show that the proposed algorithm is resistant against brute force attacks by trying several tests to get the generated keys. Then the results of these tests were safe and needing for about infinity centillion years which is mean the needing about 10^{303} to 10^{600} years to break the keys. Furthermore, the experimental results showed that the system is resistant against statistical attacks by calculating the histogram for the plain and ciphertexts; the results are flat and different occurrences in encrypted state for the same character in plaintext. Also, we have shown a slight change in the key value yields a high uncorrelated data compared to plain data. The results proved that the encryption by using Biomolecular information would be more strength but take more time.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Computer Techniques Engineering, AL Nisour University College/

Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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Incidence and Antibiotics Susceptibility Pattern of Coagulase Positive and negative Staphylococci amongst (UTI) children in Children Welfare Hospital / Baghdad/IRAQ

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ABSTRACT

The *staphylococcus* species are widely spread human pathogens. It is recognized as a frequent cause for children urinary tract infections (UTI) in, the purpose of this study seeks to detect the incidence of Coagulase positive and negative Staphylococci among IRAQI children with urinary Tract infection (UTI) and their antibiotics susceptibility in a period of one month from the 1st of June to 1st of July 2017. A total of 57 positive samples were included in this study. *Staphylococcus aureus* was one of the most isolated being 10.52% after *E.coli* 36.84% and *Enterobacter* 21.05%. There was not any significant difference in infection with staphylococcus species between age and sex. *Staphylococcus aureus* coagulase positive and negative Staphylococcus (CoNS) showed the highest sensitivity to Nitrofurantaurine, whereas only one *Staphylococcus aureus* was resistant to Co-trimoxazole.

Keywords: urinary tract infection, Coagulase positive and negative Staphylococci, antibiotics susceptibility.

INTRODUCTION

Staphylococcus has more than 20 species, in microscopic examination, it appears singles, paired, clusters or chains¹. Staphylococcus causes staph infection and a frequent culprit in cases of food poisoning². and in early 1970s, this species became recognized as a frequent cause of urinary tract infections (UTIs)^[3]. UTI can also be identified in the uninfected siblings or offspring of index patients,⁴. 0.7% of physician office and 5-14% of emergency department visits by pediatric UTI and children respectively annually⁵. *Staphylococcus aureus* is opportunistic pathogens comparative with other bacteria can develop many types of resistance resistance through numerous mechanisms⁶. Develop of resistance against both of antibiotics and antiseptics is considered a growing cause which has limited all types of the preventive measures⁷. This resistance due to the geographic scale, the variety of environmental factors and the enormous numbers and diversity of microbial

participants⁸. Coagulase positive *Staphylococcus* is pathogenic bacteria and can isolated from many sources like contaminated cosmetics^{9,10} or Iraqi currency coins¹¹., but coagulase-negative *Staphylococci* is first described in the 1980s most of these new species are similar to *Staphylococcus epidermides* in infections that are associated with hospital-acquired infections¹². It is increasingly that emergence of methicillin-resistant coagulase-negative *Staphylococci* and strains, this is really difficult group to treat, especially with multiple antibiotic resistance has made¹³. In developing countries, like Iraq, it is difficult to assess the accurate incidence of UTI besides bacterial resistance due to many reasons like underreporting or lack of surveillance as well limited published data that may be play an important role in bacterial resistance⁴. So we suggested and designed this study to investigate the prevalence of UTI among children, at children Welfare Hospital, Iraq., to identify causative coagulase positive and negative *Staphlococci* and detect their antimicrobial resistance patterns, which may consider an important epidemiologically, this is regarding with the prevalence of Multi-drug resistance bacteria in our country(Iraq).

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MATERIALS AND METHOD

The present study includes 57 positive cases of UTIs from the hospitalized patients in Children Welfare Teaching Hospital in Baghdad from the 1st of June to 1st of July 2017. These included 28, 29 females and males respectively and were in the age group from newborn to 13 years.

Isolation and characterization

From the patients with urinary tract infection UTI, Mid-stream urine samples were collected in sterile screw capped containers, cultured on MacConkey and Blood agar plates by direct streaking methods. Plates were incubated at (37C°) for (18-24) hours and then examined for bacterial growth, re-incubation for further 24 hours before discarded as negative. Colonial morphology and biochemical tests were applied as confirmatory tests ¹⁵.

Sensitivity to antimicrobial agents

All coagulase positive and negative *Staphylococci* isolates were tested against a various antibiotics by using the Kirby-Bauer standardized single disc method ¹⁶.

Statistical analysis

To estimate the presence of coagulase positive and negative *Staphylococci* and UTI infections according to the gender, pathogens and their susceptibility to the antibiotic.

RESULTS AND DISCUSSION

The study was conducted to find out the coagulase positive and negative *Staphylococci* bacteria causing urinary tract infection (UTI) in Iraq children, also study the antibiotic sensitivity pattern among these isolates. This was done at Children Welfare hospital, Baghdad, IRAQ in a period of one month from the 1st of June to 1st of July 2017. A total 57 mid-stream urine samples collected from cases with UTI, there were no significant difference in growth positive rate according to genders M: 29(50.87%) and F:28(49.13%) as shown in Figure(1). Also, The results showed that *Escherichia coli* constituted for 36.84% followed by *Enterobacter*, *Staphylococcus aureus*, *Proteus*, *Pseudomonas aeruginosa*, coagulase negative *Staphylococcus* and *Klebsiella* as shown in Figure(2). Uropathogenic strains of *E coli* as remembered in many resources that its pathogenic was recognized by release many types

of toxins, including cytolethal distending toxin, alpha hemolysin, and the risk factor :cytotoxic necrotizing factor-1, all these toxins are secreted auto transporter that causes cellular lysis in the beginning and then cause cell cycle arrest, this action will promote changes in cellular morphology lead to loss function and thus cell death ¹⁷⁻¹⁹. To promote survival, various uropathogens possess mechanisms of adaptation like siderophore systems that capable of acquiring iron from the medium, an essential bacterial micronutrient heme ²⁰. The high incidence (10.52%) of *S. aureus* recorded in this study expressed by many reasons, may be include accuracy the modification of the larger protein or by change in binding site, or we can say that the reason of this high incidence is the enzymatic destruction that happened in antibacterial agents, active efflux of drugs from the bacterial cell or by acquisition of genetic material of genetic material from other resistant strains, also play a role in this action ²¹. Our results agree with work previously carried out that showed *S. aureus* was represented 33.6% among other organisms isolated and identified from 137 growths of the 200 urine species ²². On other hand coagulase negative *Staphylococci* (*CoNS*) was the higher isolate 8.77% of cases of UTI which was previously considered one of causes the laboratory contaminants and normal flora of skin in human, that agree with another study found that *CoNS* are now a major cause of nosocomial among other pathogens and opportunistic infections ²³. In relation to gender the results indicate there were no significant in infection with coagulase positive *Staphylococci* and coagulase negative *Staphylococci* (*CoNS*) as shown in Figure (3), while Table (1) shows the prevalence of UTI with *Staphylococcus aureus* and *CoNS* in relation to age and sex of patients. Results indicates that children have a higher incidence of UTI during the first years of life,; neonates and infants in their first few months of life are more prone for UTI, so they be under risk. This state is explained with an incompletely developed immune system ²⁴. In children aged 1 to 2 years, the annual incidences of Coagulase positive and negative *Staphylococci* have no significant differences. The first factor pre-disposing to urinary tract infection has been returned to poor personal hygiene and cultural habit imposition. The antibiotic sensitivity pattern of six isolates of *Staphylococcus aureus* and five (*CoNS*) obtained from patients is shown in Table 2 the drug was suggested to treatment of UTI caused by *S. aureus* and *CoNS* are nitrofurantoin and Co-trimoxazole. All isolates were sensitive to nitrofurantoin and one *S. aureus* isolate

showed to be resistant to co-timoxazole. Differences in sensitivity pattern that we get them of *S. aureus* and *CoNS* may be caused by environmental factors for example such as the misuse and abuse of antibiotics among the general population, this may be play a role for emergence the resistance strains just as it could be the case in other organisms in any particular region or community. *S.aureus* and *CoNS* in our research were the commonest etiologic agents of UTI in IRAQI children. Update source found that *S. aureus* and *CoNS* infections can be treated by one of the gratifying experiences in clinical practice. Resistant patterns of microbes generally to drugs in our survey study has shown rising

in incidence of microbial resistance to most antibiotics mentioned previously in our environment, there is a need for a national antibiotic policy and also a surveillance scheme ²⁵. In the end of our search we must ensure to the further study to pathogenic *S. aureus* because as we remember in above it is coming from many sources like currency or coins or even eyes infected patients ²⁶. We must search about natural agent against these pathogens as alternative material and considered natural not chemical like drugs or antibiotics ^{27,28}. This natural material called probiotics or prebiotics that confirmed its efficiency against all pathogens and virulence factors like biofilm formation or lipase production ²⁹⁻³².

Table 1. Age distribution in male and female with *Staphylococcus aureus* and *CoNS* UTIs infection

Age(month)	Male	Female	Total
0-6	1	2	3
7-12	1	1	2
13-18	0	1	1
19-24	1	0	1
>25	3	1	4

Table 2. Antibiotic sensitivity pattern of *Staphylococcus aureus* and *CoNS*

isolate	Cx	COT	CIP	NiT
<i>Staphylococcus aureus</i> (1)	S	S	S	S
<i>Staphylococcus aureus</i> (2)	S	S	S	S
<i>Staphylococcus aureus</i> (3)	R	S	R	S
<i>Staphylococcus aureus</i> (4)	S	S	S	S
<i>Staphylococcus aureus</i> (5)	S	S	S	S
<i>Staphylococcus aureus</i> (6)	S	R	R	S
<i>coagulase negative Staphylococcus</i> (1)	S	S	S	S
<i>coagulase negative Staphylococcus</i> (2)	R	S	R	S
<i>coagulase negative Staphylococcus</i> (3)	S	S	R	S
<i>coagulase negative Staphylococcus</i> (4)	S	S	S	S
<i>coagulase negative Staphylococcus</i> (5)	R	S	S	S

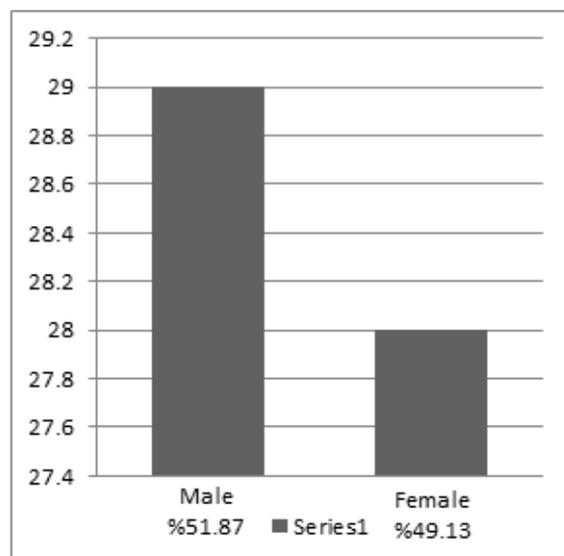


Figure 1. Distribution of children UTI according to gender.

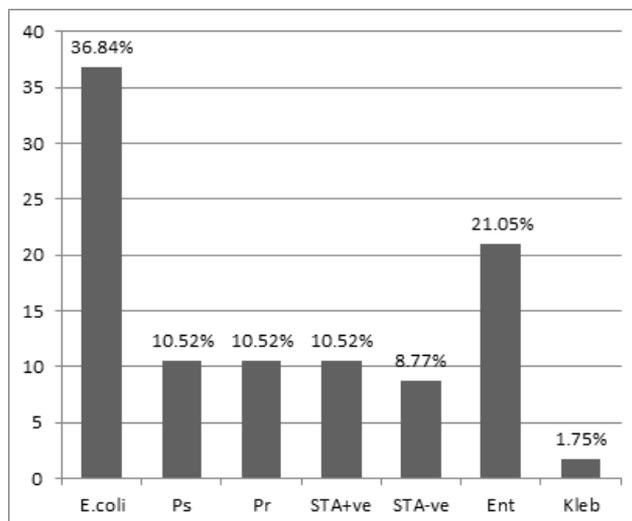


Figure 2. Distribution of different pathogens in urine samples.

Figure 3. Distribution of different pathogens in children UTI according to gender

CONCLUSION

Coagulase positive and negative *Staphylococci* is the high incidence among pathogens that isolated from Children UTI in Children Welfare Teaching Hospital in Baghdad.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Biology Department, College of Science, Mustansiriyah University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Investigating EFL Primary Teachers' Difficulties in Language Classroom

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ABSTRACT

The study aimed at investigating of the difficulties that faced teachers in teaching English language in primary school, as well as the training needs of English language teachers and the background of knowledge of pre-service teachers and the preparations of them in colleges or institutes. The study applied on the in-service teachers of the primary schools in Babylon governorate. The researcher put three questions, to achieve the purposes of the study, regarded identifying the factors behind the weakness in teaching English language, determining who the qualified teacher is, and to find out suggested solutions to overcome this weakness. Three research instruments used in conducting the research, which are: observation, questionnaire and semi-structured interview. The researcher recommended some solutions in order to overcome the research's problems.

Keywords: *Training Needs, Pre-Service Teachers, In-Service Teachers.*

INTRODUCTION

Iraq is one of the Arabic country, the mother language is Arabic so the English language is considered as a foreign language and it is naturally to be difficult to learn, because the Iraqi people don't use it in their conversations or daily life. English language is used in Education field and what is concerned it like schools and universities, in such work like doctor and translator and finally with the recent developments and the appearance of technology and computers, the English language had been necessary to learn. The process of teaching English is an important and difficult task, and the role of teacher is not just for teaching only, according to ¹, the role of teacher as a facilitator entails the sub-roles of a supervisor of student's learning, also he should be as the classroom manager and sometimes as co-communicator with the learners, so that the role of teacher is bigger than the teaching process, he should be the guide, the

master, and the responsible of everything inside the classroom. The teacher is an expert who is capable of imparting knowledge that helps the learners to build, identify and to acquire skills that will be used to face the challenges in life. The teacher also provides the learners knowledge, skills and values that enhance development ². The teacher considered as the basic substrate in the teaching and educational process because after many developments, the view to the teachers is changed and the teacher became the first element in the achievement of the aims of the educational process so that the efforts enhanced on the process of the preparations of building the strong basis for a good teachers by giving them more training courses and such educational courses to prepare them how to deal with the management of the classroom as well as how is controlled on the students and solve the problems so that this study focuses on the teachers and their difficulties in teaching English language in primary school. The training course defined as the planned and systematical rules or program that supported the teachers and gave them more of the experience of cultural and educational and whatever concerns that developed their abilities and increased the performance and their power of production, also defined as the process that provides the teachers to get the educational techniques and

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more experiences, new educational trends and skills to develop their educational level³. The training courses are done twice according to the plan of the ministry of education and these courses are increased according to the need. These courses dealt with different subjects that help the teachers to be a qualified, especially with the continual changes that happened in the curriculum, the teachers were needed more to these courses. The training courses helped teachers to improve their relationship with the supervisors and facilitate the steps of the all the requirements in the classroom.

METHODOLOGY

The research methods included the presentation of the procedures that used to achieve the objectives of the study, starting from selecting the sample, designing the instruments of the study and analyzing the results.

Descriptive Study

The study conducted as a descriptive research to collect data by observation, questionnaire and interview.

Population and Sampling:

The population of the study consisted of Iraqi in-service teachers of English language in primary schools in the center of Hilla city in Babylon, Iraq for the year 2017/2018, consisted of (150) teachers and the selected of sampling was random with four primary schools for observation. It also consisted of the English language supervisors of English of primary schools in Babylon and they were six.

Research Instruments

The researcher was utilized three instruments to collect data. These instruments were an observation, questionnaire and semi-structured interview.

Methods of the research

Observation was conducted in 4 primary schools, 2 for girls and 2 for boys, and the time was spent about a month which was showed that few classes were genuinely communicative. Most of them were teachers with little interaction with the students. In some cases, teachers may try to apply Communicative Language Teaching, but there was an obstacles in teaching process such as the number of student with the small size of class. Questionnaire was constructed for in-service teachers to describe the teaching experience, number

of training courses and the educational background, the questionnaire was consisted of 20 items with five options, in-service teachers were asked to respond by choosing from five points, as following: strongly agree=5, agree=4, disagree=3, strongly disagree=2 and neutral=1. While the interview was conducted to the supervisors of English with 18 items and consisted of open-ended in order to get more information about their roles, their relationship between them and the in-service teachers; the number of their visits to them during the year; the training courses and their suggestions for developing the teaching process.

Validity and Reliability of the Instruments

A group of experts were asked to ensure from the content validity of the questionnaire and interview questions, their comments were considered in the final version. The questionnaire's reliability was determined by means of, a group of 150 teachers from different schools. Kuder-Richardson (21) was used to test the reliability of the scale of items of questionnaire and the correlation coefficient was (0.85) which is explained a reliable and acceptable result.

RESULTS AND DISCUSSION

The observation is conducted at four primary schools, two for girls and two for boys, and the spendable time is about a month which is showed that few classes are genuinely communicative. According to the researchers' observation and depending on the items of questionnaire, the researcher stated some points as following:

First Part: The researcher finds that the theoretical background doesn't have a large amount of importance to practice in the classroom. About 73% of teachers see that it is better to depend on their own ideas rather than what they had get at university or institute.

Second Part: Most of teachers use traditional approaches in teaching English language like the grammatical translation method in spite of using the communicative approach. Unfortunately most of the observed teachers used Arabic language while teaching. Translation into Arabic language made the students search the meaning in their matter tongue each word that is read. There are about 91% of teachers who translated each word or most of them during the lesson, according to their saying it is difficult to students to realize the words especially those words in the foreign language

and that is not true at all.

Third Part: Teaching process should focus on using mp3 audio, real objects, role play, and practicing activities such as sing, count, stand up, sit down, hands up, turn around yourself and so on in terms of applying the communicative approach. About 64% of teachers don't apply the communicative approach in all its elements. Most of teachers have many years in teaching, so they have their way and they couldn't to change it. While 36% of teachers applied the communicative approaches in their classroom, such as using different activities of using mp3, radio and so on.

Fourth Part: Teaching process should be flexible. It should focus on the learners more than teachers but this matter is rejected by some teachers. 45% of teachers thought if the teaching process focuses on the learners, the importance of the personality of the teachers will canceled and that is not true. When the teaching process will focus on the learners, this will encourage them to do the best as well as to build their personality. The researcher divided the items of questionnaire into sections as follows:

Section One: There are some problems related to in-service teachers' according to the textbook "English for Iraq". It consists of two items:

First Item: Results indicated that 44.6% and 36.6% of participants of teachers responded that the textbook (English for Iraq) needs a training courses at the beginning as well as during the academic year and at the end of year. This new curriculum creates some problems to the teachers because of its different activities whereas other teachers of about 4.6%, considered the curriculum as a challenge and they should win on it. While about 8% of teachers showed their disagree because they explained that three training courses are too much and considered that as a kind of wasting time because they have a certain time to finish the materials.

Second Item: Which is concerned the curriculum. Between 55% and 40% of teachers responded that the continual change of curriculum is one of the reasons that confuses the teachers of English language. They considered that is one of the main reasons that behind the weakness of teachers' English because when they started to understand the curriculum and do their best to highlight the level of student, suddenly the curriculum is changed. The teachers stated that how the student

can understand the curriculum if the teacher himself doesn't?. Whereas about 3% and 1.3% answered with disagree because they thought the teaching process is the responsibility of the teacher and the curriculum is less important than presenting the materials in clear, simple, easy and correct way to the students.

Section Two: Concerning the teacher himself, and what is related to the teacher. It consists of six items.

First Item: The results indicated that about 39% and 51% of teachers responded that English teachers don't have enough qualifications to teach English language. Because the English teachers haven't any materials, such as laboratory, technical instruments such as audio-visual or visual aids. While about 5% and 20% responded by disagree because they don't care to add something new to the teaching process.

Second Item: About 36% and 50% of teachers responded that English language teachers realize what they will learn their students (prepared their lesson's plan before). Some of teachers about 11.3% stated that it is not important, because there are some teachers prepared their lesson's plan but they don't follow it or they disable to apply it.

Third Item: Some of teachers about 31% and 43% answered that the teachers should encourage the translation technique by pictures, gestures and context. The teachers need the translation because English is a foreign language but there are so many styles of translation that make us far away from using Arabic language. Unfortunately, there are about 9% and 12% teachers translate the words into Arabic language instead of teaching the students to translate by pictures or gestures and so on.

Fourth Item: Between 35% and 44% of the responses agreed that Pre-service teachers lack the knowledge of teaching and classroom management techniques in spite of their theoretical background. Whereas about 6% to 11% of teachers responded by disagree because some of teachers in spite of their little experience but their personalities force them to manage the classroom well.

Section Three: Which is related to the training courses and lessons, it consists of four items.

First Item: The results indicated that 28% and 60% of teachers agreed that training courses enable

them to get an extent of proficiency and experience by the contacting different teachers from different ages. It is a chance to interchange the experience, knowledge and skills with each other. Whereas about 2.6%, 4.6% disagree because they explained that the teachers can get extent of proficiency by other ways, such as listening to radio or watching TV.

Second Item: The results indicated that about 21% and 43% of participants agreed that training courses help the pre-service teachers to reinforce what they had previously taught theoretically. The pre-service teachers need such courses to know and understand the teaching process well. While about 5% and 27% of teachers disagree because they thought the theoretical background is enough to the pre-service teachers to teach well.

Section four: It is about the practicing course of pre-service teacher. It consists two items.

First Item: About 6%, 27.3% of teachers responded that the time of the practicing course for pre-service teachers is too short to learn the basic of teaching process. While the teachers who disagreed about 29.3%, 35.3% because they considered that the time of practicing course is enough to get such experience and learn some points in teaching process.

Second Item: Some of teachers which about 28.6%, 62.6% answered that the practicing course is important to know the individual differences of students and to obtain an actual experience in educational life. But about 1.3%, 2.6% disagreed that because they stated the pre-service teachers get the actual experience when they get a job. At that time, they will get the actual experience in teaching process.

Section Five: Which is concerned with the classroom's environment and the number of students. It consists of two items.

First Item: Results indicated about 14.6%, 82% of teachers answered that the environment classroom doesn't conform with the new textbook. The new textbook needs a suitable environment to apply its activities. While there is few of teacher about 1.3% disagreed that because they depend on themselves in creating a sense of joyful in learning with small classroom.

Second Item: About 23%, 73% teachers responded that it is difficult to organize the teaching process in the overloaded classrooms. While about 2% of teachers

disagreed that because they used to deal with such number of students.

Section Six: Regarding the theoretical background of knowledge. It consists of three items.

First Item: Results indicated about 18%, 50% of teachers answered that theoretical background encourages the pre-service teachers to use interactive classroom techniques, such as games, puzzles and songs in target language to teach English language effectively. While about 9%, 15% of teachers disagreed that because each teacher has a way in systematizing the relationship between the students and him/her.

Second Item: About 18%, 48% of teachers responded that the large amount of information that the teachers had taught before, gives them the key or the guide to know how should teach. Whereas about 10%, 20% disagreed that because they think the key or the guide of how should teach is related to classroom's events and students' situations.

Third Item: Results indicated about 39.3% and 45.3% of teachers responded that the academic materials that had studied before either in colleges or in institutions are not significant enough to prepare a qualified teacher. While about 8% and 6% disagreed because they stated that the same materials is produced the qualified teachers.

Section Seven: Results indicated that 11% and 41% of teachers responded that supervisors' role is very important and invaluable in explaining the application of the communicative approach. While about 18%, 25% disagreed that the teachers explained the role of supervisors is important but the real responsibility of application of communicative approach is shouldered on the teachers themselves. The results retrieve from the questionnaire are transformed into percentages, as that is explained in the Figure 1.

CONCLUSION

There are many problems in teaching English in the primary schools in Babylon, Iraq, First, there are the problems related to teachers themselves in terms of experiences, the overuse of the native language Arabic in the classrooms, and the concentration on teaching grammar at the expense of other skills. Second, there are the problems related to teaching-learning environment and the availability of resources in the primary schools, large numbers of students in the classrooms, lack of

rich libraries and teaching aids.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon, College of Basic Education, Higher Studies Department, Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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11. Figure 1. The Percentage of the In-service Teachers' Response of All Sections of the Questionnaire

Study of the Effect of Aqueous Water Extracts of *Pistacia lentiscus* Bark on Some Bacteria Causing Oral Infections

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ABSTRACT

This research has included Study of the effect of the cold and hot water extract of the gum plant on some isolated bacteria from the mouth. A number of Gram positive bacteria (*Streptococcus mutans*, *Lactobacillus acidophilus* and *staphylococcus aureus*) were isolated by Swab and Saliva samples and diagnosed by it cultured on selective media for each test bacterium. The results were showed the effect of cold and hot water extract for both bitter and sweet of *Pistacia lentiscus* on bacteria test. These findings were obtained from this study have appeared the concentration 300mg/ml of hot bitter plant extract was recorded inhibition zone with in a diameter of 14 mm inhibition on staphylococcus aureus . Regarding the cold bitter extract was given inhibition zone 14mm on *Streptococcus mutans* with in 300mg/ml .While the same extract has appeared inhibition area of 15 mm and 12 mm for the concentration of 300 and 200 mg / ml respectively on *Lactobacillus acidophilus*. Lastly, the hot and cold sweet extract hasn't any effect on all bacteria under study to all the concentrations of gum plant.

Keyword: oral infection, (MSA, MRS and MSA), *Pistacia lentiscus*, Plant extract.

INTRODUCTION

There are many plants such as (*Pistacia lentiscus* L. var *latifolius* Coss.) have described in Eur. Ph Monograph Mastic (01/2008:1876) was referred in the Botanical Book of the Botanist ¹ as an endemic various of the Greek islands of Crete (Chania, Ierapetra, Sitia, Toplou, Mirambelou) and the island of Karpathos. These plays a substantial role in the island's as well as Greece's economy. The scientific name of *Pistacia lentiscus* var has been also used in the massive majority of the existing publications for this plant. Currently, Prof Kazimierz Browicz has studied of *Plant Systematics* as well as evolution of this kind of plant. The *Pistacia lentiscus* L has many chemical components such as Polyphenols, phytosterols , Monoterpene hydrocarbons, 20% oxygenated monoterpenes and sesquiterpenes

, Triterpenes (tetracyclic euphane- and dammarane skeleton type and of the pentacyclic oleanane and lupane skeleton type such as mastic acid, isomastic acid, oleanolic acid, tirucallol etc as well as this plant has considered as natural polymer². A natural gum mastic was assessed as a microencapsulating and matrix-producing substances for sustained drug release. On 1983 Marshall and Warren have studied the effect of *Pistacia lentiscus* L. by inoculated and tested on bacterium. The first bacteria have used in this test termed *Campylobacter pylori* and later one is *Helicobacter pylori*, that was diagnosed be able colonizing the stomach and as result leads to gastric infection Mastic has recognized for its physicochemical features³. Mastic gum was a historical remedy for mouth odious, and oral cleaning and this knowledge has been evaluated by more current studies. Mastic gum appeared choice antibacterial activity contra mouth bacterium such as *Porphyromonas gingivalis* as well as *Prevotella melaninogenica*⁴. Masticate gum after meals donate to mouth cleaning owing to the mechanical dislodging of diet particles⁵. Haghgoo R was mentioned Xylitol-bearing chewing gums lower salivary ingredients of *Streptococcus mutans* against a

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placebo⁶.

MATERIALS AND METHOD

Preparation Method of *Pistacia lentiscus* extracts

The cold water extract of sweet and bitter of gum was prepared According to method⁷ and the hot water extract was attended by method⁸ Sensitivity test method.

First of all, the organism to be tested was done by seeded in Mitus Salivarius Agar (MSA) for *Streptococcus mutans*, MRS sterile for *Lactobacillus acidophilus* and Mannitol salt agar for *staphylococcus aureus*. Then, incubation period of 24 h at 37°C, a loop of inoculum was transferred into 5 ml of (B.H.I) broth and incubated for 2 h at 37°C which served as fresh suspension inoculum. After that, three pore (5 mm diameter) were made in sterile in Muller Hinton agar plate by utilizing Cork borer of test bacteria were swabbed on solid plates by sterile cotton swab moistened with the bacterial suspension (*Streptococcus mutans*, *Lactobacillus acidophilus* and *staphylococcus aureus*). Finally, 50 µl of plant extract has placed in the wells on the agar media. The test also includes 50 µl of sterilized distilled water as control sample⁹.

RESULTS AND DISCUSSION

Remedy plants are recorded as new drug for producing component that could act as alternatives to antibacterial agents in the medicament antibiotic-resistant bacteria (10). The findings of this work proved that active components in *Cassia senna* L. appeared antibacterial action against the Gram negative bacteria. Results in this study acceptable with¹¹ as well as with¹² have been studied the antibacterial activity of extracts of chose plant against human pathogenic Gram- bacteria.

Table (1): has showed the effect of cold and hot water extract for both bitter and sweet of *Pistacia lentiscus* on bacteria test. Firstly, the concentration 300mg/ml of hot bitter plant extract was recorded inhibition zone with in a diameter of 14 mm inhibition on *staphylococcus aureus*. Regarding the cold bitter extract was given inhibition zone 14mm on *Streptococcus mutans* with in 300mg/ml. While the same extract has appeared inhibition area of 15 mm and 12 mm for the concentration of 300 and 200 mg / ml respectively on *Lactobacillus acidophilus*. Finally, the hot and cold sweet extract hasn't any effect on all bacteria test to all the concentrations of study plant. The effect of of *Pistacia lentiscus* on bacteria which it mentioned above may be due to many reasons such as chemical structure of gum plant whereas this may be attributed to the finding of active components effect on cell wall, cell membrane, proteins and nucleic acid replication. on other hand, an important features of plant extracts and their ingredients is their hydrophobicity, which enables them to destruction the fatty acids of the pathogen cell membrane and mitochondria as well as upsetting the cell membrane structures and making them more permeable. Extensive leakage from bacterial cells or the exit of critical molecules and ions will lead to death¹³⁻¹⁵ The present study has agreed with (16) it was also proved the useful effect of the mastic fundamental oil for chronic periodontitis. More ever, the results of this study was agreed with effect of *T. horzianum* species were produced many important secondary metabolites with high biological activities. Based on the significance of employing bioactive compounds in pharmacy to produce drugs for the treatment of many diseases, the purification of compounds produced by *T. horzianum* species can be useful¹⁷. Finally, another study was found the effect of cold and hot water extracts of *sonchus oleaceus* on positive and negative bacteria and it was identical to the results of the current study¹⁸

Table 1. Antibacterial Activity of *Pistacia lentiscus* L against some human pathogenic bacteria.

Pathogenic bacteria	Hot bitter extract			Hot sweet extract			cold bitter extract			cold sweet extract		
	Concentration mg/ml											
	100	200	300	100	200	300	100	200	300	100	200	300
	Inhibition zone/ mm/ diameter											
<i>Streptococcus mutans</i>	R	R	R	R	R	R	R	R	14	R	R	R
<i>Staphylococcus aureus</i>	R	R	14	R	R	R	R	R	R	R	R	R
<i>Lactobacillus acidophilus</i>	R	R	R	R	R	R	R	12	15	R	R	R

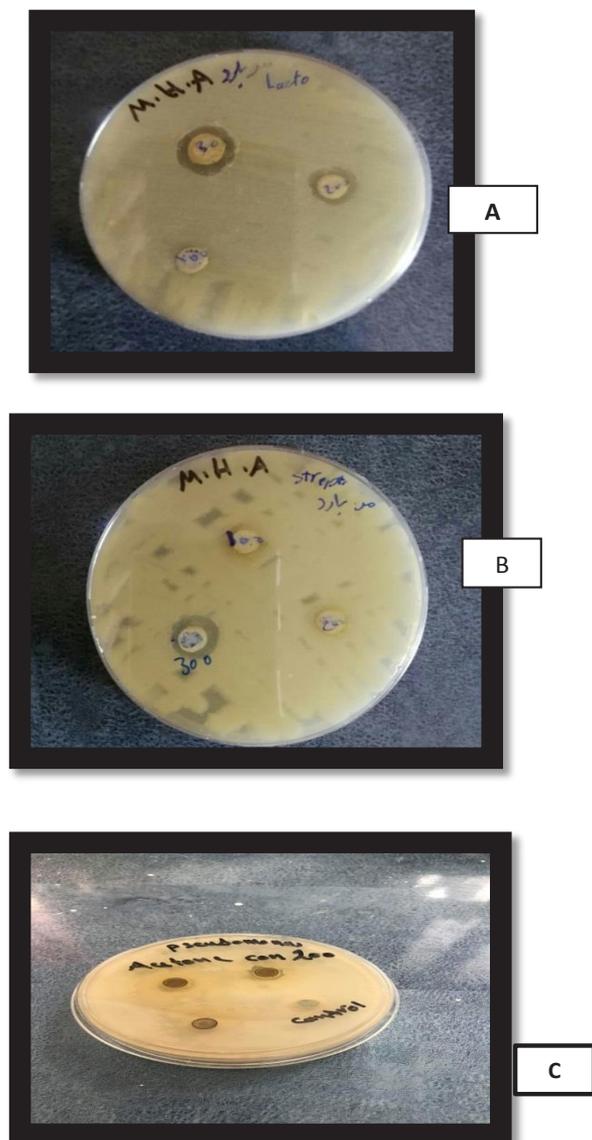


Figure 1. A-shows effect of cold water extracts of Bitter *Pistacia lentiscus* plant on *staphylococcus aureus* bacteria. B-shows effect of cold water extracts of Bitter *Pistacia lentiscus* plant on *Lactobacillus acidophilus* bacteria. C- shows effect of cold water extracts of Bitter *Pistacia lentiscus* plant on *Streptococcus mutans* bacteria with control

CONCLUSION

The *Pistacia lentiscus* has possess Medicinal feature of plant extract as a result it contains existence active compounds such as alkaloid , phenolic Terpenoid and or secondary metabolic compounds . These active materials have appeared antibacterial effect on gram positive bacteria such as (*Streptococcus mutans*, *Lactobacillus acidophilus* and *staphylococcus aureus*). This present study has shown antibacterial impact for cold and hot water extract of *Pistacia lentiscus* on bacteria test.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Biology, College of Science for Women, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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Synthesis and Biological Activity of New Fused Heterocyclic Derived from 4-oxo-2-phenylquinazoline-3(4H)-carboxamide

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ABSTRACT

New 4-oxo-2-phenylquinazoline Derivatives like , pyrazole, pyrimidine and 1,3-thiazoline moieties are reported. compound 1 was synthesized by the reaction of benzoyl chloride with anthranlic acid , compound 2 was converted into triazole , oxotriazino and thiotriazino. Compounds contains thiazole and Oxazole moieties 9, 10 and 11 were synthesized by the reaction of chloro acetyl chloride with compound 3 and then with hydrazine , thiourea and thiosemicarbazide respectively. All structural of compounds have been confirmed by FTIR, ¹H-NMR and tested for invitro antibacterial activity against *Escherichia coli*, *Staphylococcus aureus* and *Proteus mirabilis*.

Keyword: quinazoline, triazole ,oxotriazino , thiotriazino, thiazole Oxazole.

INTRODUCTION

4-Oxo-quinazoline a great important compound for their uses in many biological live , as proton acceptors in enzymes ¹ it is many triazole derivatives have biological activity, such as antipyretic ^{2,3}, antiviral ⁴ anti-inflammatory ^{5,6}, In additional anti-microbial ⁷⁻¹¹ properties, also anticancer ¹²⁻¹⁷, and antifungal ¹⁶ . In addition pyrimidine group have been used for Alzheimer's disease as drug, also as anticoagulants ¹⁶ and antidepressants ¹⁷

MATERIALS AND METHOD

On gallenkamp Malting point was determine in open capillary tube melting point are uncorrected and apparatus. The spectra of FT-IR were recorded by using a perkin –Elmer 1600-series FT-IR spectrometer.

¹H-NMR spectra Were recorded on avariar –Mercury 300 MHz spectrometer with DMSO using as solvent in Jordan university.

Synthesis of (2-phenyl)-1,3-benzoxazin-4(H) ones

(1)

to a stirred mixture of benzoyl chloride (1.4 gm,0.01 mole) in triethyl amine (30ml) anthranlic acid (1.38 gm ,0.01 mole) was added at 5 C for one hour ,then stirred at room temperature for one hour . after that precipitate obtained was washed with Na₂CO₃ (10%) to remove excess of acid .the solid was recrystallized from ethanol.

(1) (Yield 73%), (m.p, 121 - 124 C°), FTIR., (ν, Cm⁻¹), 1747 (C=O) 1633 (C=N), ¹H-NMR (DMSO_d) δ (ppm), 7.66 – 8.51 (m, 9H, ar.).

Synthesis of (2-phenyl)-3 – carboxamide quinazoline -4- (3H)ones(2)

A mixture of Compound (1) (2.21 gm ,0.02 mole) in pyridine 20 ml and urea (0.6 gm,0.02 mole), was refluxed for 12hrs at(180-230 C) ,then ice cold water with conc. .HCl was poured to the reaction mixture solid was washed after filtered then recrystallized from benzene.

(2) (Yield 63%), (m.p, 165 - 168 C°), FTIR., (ν, Cm⁻¹), 3215 (NH for carboxamide quinazoline ring), 3355-3325 (NH₂, Asym. & sym.), 1693 (C=O carboxamide quinazoline ring) 1635(C=O amide), ¹H-NMR (DMSO_d) δ (ppm), 7.61 – 8. 36 (m, 9H, ar.) , 10.35 (s, 2H, NH₂)

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synthesis of 5-phenyl[1,2,4]triazolo[4,3-c]quinazolin-3-amine (3)

To a solution of hydrazine (99%) (0.32g, 0.01 mole) in ethanol 50 ml (0.01mole, 2.61 gm.) of compound (2) was added and refluxed for seven hours. after cooling, crash ice was purred, precipitate was recrystallized from ethanol.

(Yield 63%), (m.p, 221 - 224 C°), FTIR., (v, Cm⁻¹), 3355- 3325 (NH₂, Asym. & sym.), 1641 (C=N triazolo ring) 1601 - 1512(C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 6.94 – 8. 12 (m, 9H, ar.), 11.21 (s, 2H, NH₂)

Synthesis of compounds (4, 5, 6)

To a solution of thiourea, urea or thiosemicarbazide (0.01 mole) in ethanol 50 ml with conc. HCl (0,75 ml) (0.01mole, 2.61 gm.) of compound (2) was added and refluxed for ten hours. after cooling, crash ice was purred, precipitate was recrystallized from dioxane.

4-amino-6-phenyl-2H-[1,3,5]triazino[1,2-c]quinazolin-2-thione (4)

(Yield 63%), (m.p, 221 - 224 C°), FTIR., (v, Cm⁻¹), 3311- 3288 (NH₂, Asym. & sym.), 1652 (C=N triazino ring) 1600 - 1510(C=C ar.), 1150 (C=S), ¹H-NMR (DMSO_d) δ (ppm), 6.63 – 8.03 (m, 9H, ar.), 11.34 (s, 2H, NH₂)

4-amino-6-phenyl-2H-[1,3,5]triazino[1,2-c]quinazolin-2-one (5)

(Yield 58%), (m.p, 236 - 238 C°), FTIR., (v, Cm⁻¹), 3403- 3378 (NH₂, Asym. & sym.), 1694 (C=O), 1632 (C=N triazino ring) 1609 – 1505 (C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 7.14 – 8.11 (m, 9H, ar.), 10.92 (s, 2H, NH₂)

4-hydrazinyl-6-phenyl-2H-[1,3,5]triazino[1,2-c]quinazolin-2-thione (6)

(Yield 77%), (m.p, 276 - 279 C°), FTIR., (v, Cm⁻¹), 3311- 3288 (NH₂, Asym. & sym.), 3166 (NH), 1631 (C=N triazino ring) 1613 - 1514(C=C ar.), 1167 (C=S), ¹H-NMR (DMSO_d) δ (ppm), 6.63 – 8.03 (m, 9H, ar.), 9.21 (s, 2H, NH₂), 12.26 (s, H, NH).

Synthesis of 11-phenyl-6-thioxo-8,9-dihydro-2H,6H pyrimido [1', 6': 3, 4] [1,3,5]triazino [1,2, c] quinazolin-2-thione (7) .

To a solution of compound (6) (0.01 mole , 2.5 gm) in dioxane 30 ml (0.01mole, 2.61 gm.) of chloro acetyl chloride was added and refluxed for ten hours. after cooling, crash ice was purred, precipitate was recrystallized from dioxane.

(Yield 55%), (m.p, 201 - 203 C°), FTIR., (v, Cm⁻¹), 3303 (NH), 2967, 2840 (CH aliph.), 1701 (C=O cycloamide) 1621 (C=N triazino ring) 1603 - 1510(C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 4.60 (s, 2H, CH₂), 6.56 – 8.23 (m, 9H, ar.), 11.34 (s, 1 H, NH),

Synthesis of 2-chloro-N-(5-phenyl[1,2,4]triazolo[4,3-c]quinazolin-3-yl)acetamide (8):

To a solution of compound (3) (0.001 mole, 058 gm) in dioxane 50 ml with triethylamine 5ml, (0.001mole, 012 gm) of chloro acetyl chloride was added as drop wise and then refluxed for seven hours. after cooling, crash ice was purred in to reaction, precipitate was recrystallized from dioxane.

(Yield 85%), (m.p, 146 - 149 C°), FTIR., (v, Cm⁻¹), 3234 (NH), 2955, 2843 (CH aliph.), 1691 (C=O amide) 1632 (C=N triazino ring) 1609 - 1500(C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 4.34 (s, 2H, CH₂), 7.09 – 8.41 (m, 9H, ar.), 12.98 (s, 1 H, NH),

Synthesis of compounds (9, 10 and 11)

To a solution of compound (8) (0.001 mole, 0.65 gm) in ethanol 30 ml with triethylamine 5ml, (0.001mole) of thiourea or urea or thiosemicarbazide was added and then refluxed for 12 hours. after cooling, crash ice was purred in to reaction, precipitate was recrystallized from dioxane.

N⁵-(5-phenyl[1,2,4]triazolo[4,3-c]quinazolin-3-yl)-1,3-thiazole-2,5-diamine (9)

(Yield 62%), (m.p, 225 - 228 C°), FTIR., (v, Cm⁻¹) 3411- 3387 (NH₂, Asym. & sym.), 3213 (NH), 1625 (C=N triazino ring) 1600 - 1501(C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 6.97 – 8.41 (m, 10H, ar.), 9.77 (s, 2H, NH₂), 11.09 (s, H, NH).

N⁵-(5-phenyl[1,2,4]triazolo[4,3-c]quinazolin-3-yl)-1,3-oxazole-2,5-diamine (10)

(Yield 67%), (m.p, 245 - 248 C°), FTIR., (v, Cm⁻¹) 3421- 4400 (NH₂, Asym. & sym.), 3312 (NH), 1633 (C=N triazino ring) 1608 - 1505(C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 6.76 – 8.23 (m, 10H, ar.), 9.11 (s,

2H, NH₂), 10.92 (s, H, NH).

***N*-(2-hydrazinyl-1,3-oxazol-5-yl)-5-phenyl[1,2,4]triazolo[4,3-*c*]quinazolin-3-amine (11)**

(Yield 62%), (m.p, 202 - 205 C°), FTIR., (v, Cm⁻¹) 3402- 3377 (NH₂, Asym. & sym.), 3255, (NH), 1651 (C=N triazino ring) 1613 - 1500, (C=C ar.), ¹H-NMR (DMSO_d) δ (ppm), 6.79 - 8.32 (m, 10H, ar.), 9.67 (s, 2H, NH₂), 10.56 (s, H, NH), 12.17 (s, H, NH - N).

RESULTS AND DISCUSSION

Schemes (1 and 2) represented sequences reaction of the synthesis of the desire new (2-phenyl)-1,3-benzoxazin-4(H) ones derivatives containing various moieties. The structure of (2-phenyl)-1,3-benzoxazin-4(H) ones (1) was confirmed by FTIR and H-NMR spectra, FTIR spectrum shows appearance band at 1747 due to (C=O) and band at 1633 for (C=N) group, ¹H-NMR spectrum shows signal at 7.66 - 8.51 (m, 9H, ar.). Compound (2) (2-phenyl)-3 - carboxamide quinazolin-4- (3H)ones was synthesized by reaction of compound 1 with thiourea in basic medium FTIR spectra give peaks at 3215 (NH for carboxamide quinazolin ring), 3355- 3325 (NH₂, Asym. & sym.), 1693 (C=O carboxamide quinazolin ring) 1635(C=O amide), H-NMR spectra get signals as follow 7.61 - 8.36 (m, 9H, ar.), 10.35 (s, 2H, NH₂). Compound (2) was reacted with hydrazine, urea, thiourea and thiosemicarbazide by cyclization reaction give compounds 3, 4, 5 and 6 respectively, compound (3) shows band at 3355- 3325 for (NH₂, Asym. & sym.), band at 1641 due to (C=N triazole ring) and at 1601 - 1512 for (C=C ar.), ¹H-NMR also shows two signals at 6.94 - 8.12 (m, 9H, ar.) and at 11.21 (s, 2H, NH₂), while compound (4) 4-amino-6-phenyl-2H-[1,3,5]triazino[1,2-*c*]quinazolin-2-thione give following peaks in FTIR., (v, Cm⁻¹), 3311- 3288 due to (NH₂, Asym. & sym.), at 1652 for (C=N triazino ring) also peak at 1600 - 1510 for (C=C ar.) and peak at 1150 due to (C=S), while ¹H-NMR shows signals at 6.63 - 8.03 (m, 9H, ar.) and 11.34 (s, 2H, NH₂) compounds 5 and 6 give following peak and signals as follow FTIR. for compound (5) (v, Cm⁻¹), at 3403- 3378 for (NH₂, Asym. & sym.), 1694 (C=O), at 1632 due to (C=N triazino ring) at 1609 - 1505 due to (C=C ar.), ¹H-NMR δ (ppm), compound (5) at 7.14 - 8.11 for (m, 9H, ar.) and 10.92 (s, 2H, NH₂). Compound (6) FTIR., (v, Cm⁻¹), 3311- 3288 (NH₂, Asym. & sym.), 3166 (NH), 1631 (C=N triazino ring) 1613 - 1514 (C=C ar.), 1167

(C=S), and ¹H-NMR, δ (ppm), 6.63 - 8.03 (m, 9H, ar.), 9.21 (s, 2H, NH₂), 12.26 (s, H, NH). Compound (7) was synthesized by treatment of compound 6 with chloro acetyl chloride FTIR spectrum shows FTIR., (v, Cm⁻¹), band at 3303 for (NH), band at 2967, 2840 due to (CH aliph.), while band at 1701 for (C=O cycloamide), band 1621 (C=N triazino ring) and at 1603 - 1510 due to (C=C ar.), ¹H-NMR, δ (ppm), signal at 4.60 due to (CH₂), signal at 6.56 - 8.23 (multiplet for aromatic ring), and at 11.34 (singlet for NH), Treatment of compound (3) with chloro acetyl chloride give 2-chloro-*N*-(5-phenyl[1,2,4]triazolo[4,3-*c*]quinazolin-3-yl) acetamide (8) this compound was confirmed by FTIR and HNMR as follow FTIR., (v, Cm⁻¹), band at 3234 for (NH), at 2955, 2843 due to (CH aliph.), band at 1691 for (C=O amide), at 1632 (C=N triazino ring) and 1609 - 1500 (C=C ar.), ¹H-NMR, δ (ppm), at 4.34 (singlet, CH₂), at 7.09 - 8.41 for (9H, aromatic ring.) and at 12.98 (singlet, 1 H, for NH. Compound (8) was reacted thiourea, urea and thiosemicarbazide by cyclization reaction give compounds 9, 10 and 6 respectively, compound (9) *N*⁵-(5-phenyl[1,2,4]triazolo[4,3-*c*]quinazolin-3-yl)-1,3-thiazole-2,5-diamine shows band of FTIR., (v, Cm⁻¹) band at 3411- 3387 due to (NH₂, Asym. & sym.), band at 3213 for (NH), at 1625 for (C=N triazino ring) and band at 1600 - 1501 due to (C=C ar.), ¹H-NMR, δ (ppm), signals at 6.97 - 8.41 (m, 10H, aromatic ring), at 9.77 (singlet for NH₂) and at 11.09 (singlet due to NH). Compound 10 shows FTIR., (v, Cm⁻¹) bands as follow at 3421- 4400 (NH₂, Asym. & sym.), at 3312 (NH), at 1633 (C=N triazino ring) and at 1608 - 1505 (C=C ar.), while ¹H-NMR δ (ppm), shows 6.76 - 8.23 (m, 10H, ar.), 9.11 (s, 2H, NH₂), 10.92 (s, H, NH). Compound (11) *N*-(2-hydrazinyl-1,3-oxazol-5-yl)-5-phenyl[1,2,4]triazolo[4,3-*c*]quinazolin-3-amine, FTIR., (v, Cm⁻¹) at 3402- 3377 for (NH₂, Asym. & sym.), at 3255 for (NH) at 1651 due to (C=N triazino ring) and band at 1613 - 1500 for (C=C ar.), ¹H-NMR δ (ppm), signal at 6.79 - 8.32 due to (10H, aromatic ring) at 9.67 (singlet for NH₂), at 10.56 (singlet for NH) and at 12.17 (singlet due to NH - N).

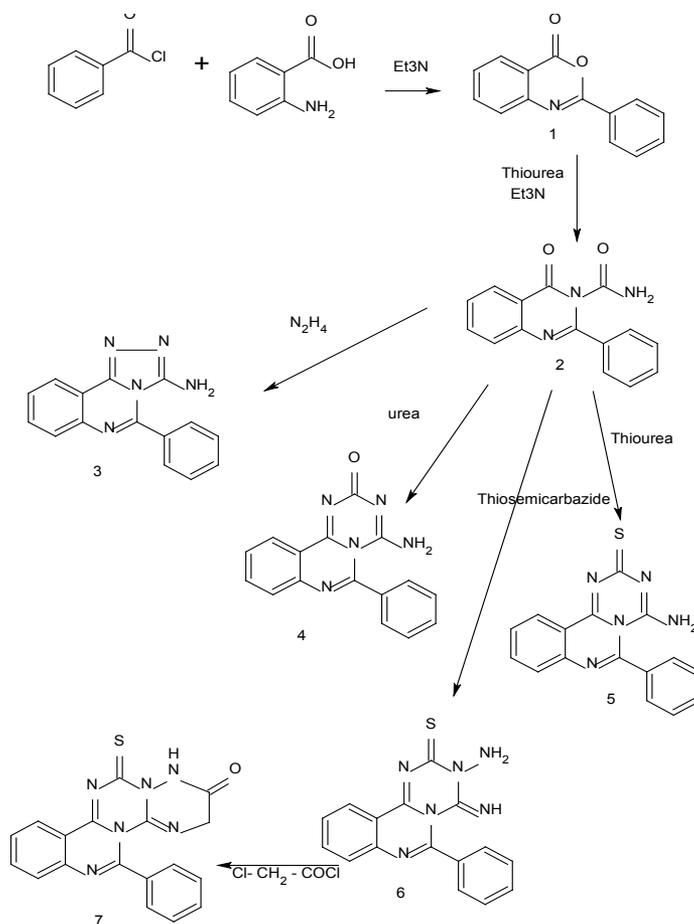
Antibacterial activity

The antibacterial activity of the derivatives that synthesized were tested by using disc-diffusion method with agar against some bacteria like *Staph. aureus*, *E. coli*, and *proteus mirabilis*, compounds concentration were (10⁻³M) and the results are summarized in Table 1. the table shows compounds 3, 4, 5, 6, 9, 10, 11 have

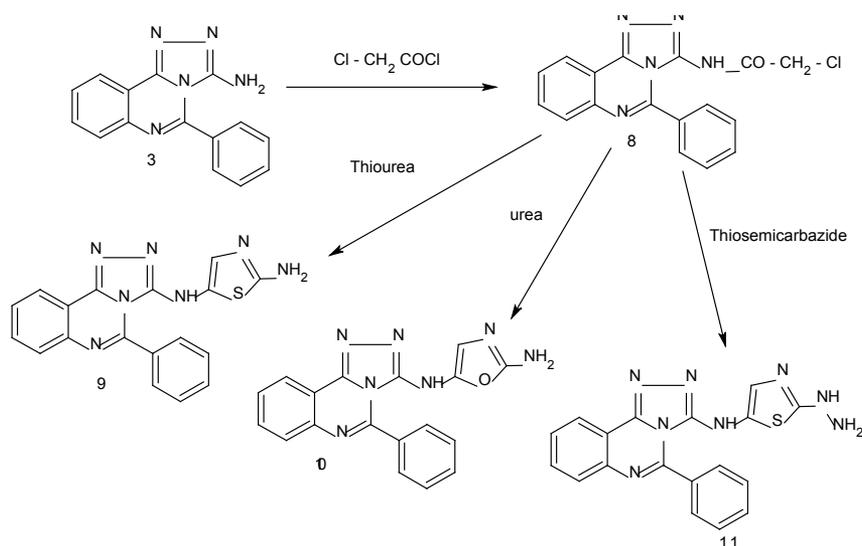
high activity, while another compounds show weak activity. So from above information we can show that compounds have NH₂ group and NH – NH₂ show high activity. The following table shows above results.

Table 1. Antibacterial Activity of synthesized Compounds.

Compound No.	Staph. aureus	E. coli	Proteus mirabilis
DMSO	-	-	-
1	++	++	++
2	+++	++	+++
3	++	+++	+++
4	++	+	-
5	-	++	+
6	++	+++	++
7	+	+	+
8	+	++	++
9	++	-	++
10	+++	++	++
11	+	++	++



Scheme 1. shows synthesized compounds 1- 7



Scheme 2. shows synthesized compounds 8 – 11

CONCLUSION

All structural of compounds have been confirmed by FTIR, ^1H NMR and tested for invitro antibacterial activity against *Escherichia coli*, *Staphylococcus aurous* and *Proteus mirabilis*.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Chemistry, College of Sciences, University of Mustansiriyah, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Developing of Speaking Skill by the Use of Video Supported Learning in English Language of Primary School

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ABSTRACT

This study aims at investigating the impact of video supported learning on speaking development in English language of the primary school pupils. The researcher has chosen her participants, and they are the 5th grade students in primary schools for boys in Karbala Governorate. The number of the participants are (78) students, and they are divided into two groups; the control group (38) students and the experimental one (40) students. The control group was taught by means of the traditional way whereas the experimental group was taught by using video programs. The researcher has chosen the observation card as a tool to measure the development of the learners' speaking skills. The experiment was administered during the second semester of the academic year 2017- 2018, and lasted for nine weeks. After the administration of the tests to the main sample and the statistical treatment of data using the t-test formula for two independent samples, the results have indicated that the mean scores of the experimental group is (37.525) whereas the mean scores of the control group is (32.000). The results of this study have shown a positive effect of using video on the development of English speaking skills among learners.

Keywords: *Impact, Video, Speaking Skill.*

INTRODUCTION

Foreign language development could be achieved through various teaching and learning processes. However, applying multimedia technology has facilitated this process. In view of the expansion of knowledge, information and technology, which approached the viewpoints between individuals, young and old, men and women, it became necessary to deliver information and science as soon as possible and at a minimum cost. This study is about the impact of video-supported learning on speaking development of English language. In fact the children are usually interested with videos, sounds and movements more than papers and pictures because they attract their attention, so we can use this interest to give them all information and knowledge. We can use video in a positive way to develop and improve the students ability of speaking English. Video materials can be an

alternative to learning, because they contain interlocutors for high-quality speakers which are easy to understand. Movies, serials, songs and advertisements can increase student motivation,¹ when students listen to interesting things, they keep their motivation to learn. So the video material has been carefully chosen by consulting professionals. Teaching a foreign language supported by technology has provided many effective strategies for language learning³. In the process of teaching, the language skills must be arranged to be associated with each skill. In order not to confuse the skills in the learning process, it is necessary to know the importance and nature of each skill and its relationship to the other skills to feed. In the process of learning², the language skills are arranged on the basis of: listening, speaking, reading and writing. In order for language to be acquired correctly, skills must be taught in a proper order and integrated into education in a way that takes care of each other, and knowing each other's relationship can make teachers more effective. Listening and speaking skills should always be kept in coordination with another. People will generally remember: (10%) of what they read, (20%) of what they hear, (30%) of what they see and (50%) of what they hear and see⁴.

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METHODOLOGY

The researcher follows these steps in order to reach the aim of the study and prove its hypothesis.

1. Choosing experimental design, depending on the nature of the study.
2. Selecting the population and sample.
3. Equalizing the sample.
4. Controlling external variables.
5. Designing the tests.
6. Administrating the experiment.
7. Analyzing the data statistically.

The population

The population is the 5th grade students in primary schools for boys in Karbala governorate in the academic year 2017- 2018. The sample of the present study comprises (81) students of Al-Warh Primary School in Karbala Governorate. Such a sample is divided into two groups .The first group (A) which is the control group. It consists of (39) students, while the second group (B) is the experimental one, which consists of (42) students. After exclusion, the sample is decreased to (78) students, (38) for the control group and (40) for the experimental one. The experimental group received the treatment based on reciprocal speaking activities taught by the researcher during nine weeks in the second term of 2017-2018. The researcher herself taught the experimental and the control group during that period of time.

The experimental design

It can be define as the only method of research that can truly test hypotheses concerning cause-and-effect relationships. It represents the most valid approach to the solution of educational problems, both practical and theoretical, and to the advancement of education as a science [7]. In this study, the experimental group was taught speaking skill by the use of the video supported learning, while the control group has taught by using the traditional method which the teacher normally teaches her classroom (different strategies and techniques).

Instruction

The experiment began on (11th of February, 2017)

for nine weeks and ended on the (26th of April, 2017). The researcher has used two groups to determine the control of teaching variables. The researcher has used a specific video program to develop speaking skills with the experimental group and the regular teaching methods with no video with the control group, and then administered the pre-test and the post-test on the two groups.

The Control Group

In this group, the researcher has followed the steps, lesson plan and guidelines mentioned in “English for Iraq” / teacher’s book for 5th primary school students.

The Experimental group

The researcher has prepared (28) lessons plan and (17) videos to cover the needs of the curriculum and the speaking skill. These videos contain different subjects as well as additional information as they work to embody the written material into animated images. A video is presented to reflect the situation to be studied. This video is characterized by certain criteria and is presented in certain conditions. The laboratory is equipped with many facilities such as a special display, lighting and loudspeakers. This atmosphere breaks the routine, overcomes the boredom associated with the classroom and creates a pleasant atmosphere. The researcher has adopted Brown’s standards of speaking skill for her study ⁸. Brown standards include: imitative, intensive, responsive, interactive and extensive. Speaking skill is considered as a productive skill that can be directly observed and deliberately assesses the accuracy of listening skills of the listeners and that shows an important relationship between speaking and listening skills. Since speaking skills depend on oral production, it is difficult to maintain the accuracy and reliability of this production.

To apply lessons, the researcher has followed these following steps:

1. Configure the laboratory in terms of screen settings, Loudspeaker and lighting to be ready for display.
2. Educate the learners about the lesson paragraphs and give them an idea of how to use the video.
3. View the video for the lesson topic, by displaying dialogues or situations of native speakers. Learners can

chant words such as blending or imitate them, where learners begin to repeat the words and phrases they listen to and where the emphasis is on pronunciation than other standards such as grammar.

4. Learners begin producing small pieces of oral speech. Some of their skills appear like phrasal, grammatical, lexical, or phonological such as prosodic elements – intonation, stress, rhythm and juncture. A speaker should be familiar with these rules to be able to respond. Examples of intensive assessment tasks include quick responses, talking loudly, completing conversations or talking about pictures and translating some pictures. 57

5. Learners' responses are based on understanding and interaction. They are at the level of simple conversations such as greeting or asking for something. The learners' responses are based on the motivation they take from the video.

Instrument

Every experimental study needs a proper instrument that the researcher collects data. In this study, the researcher tests speaking skill. For the difficulty of measuring proficiency in speaking accurately, the researcher has used the achievement test and it is oral and relies on SOLOM model to collect the results of learners⁹.

Test Validity

Validity is the first thing that comes to mind of those developing measures and that genuine scientific measurement is foremost in the minds of those who seek valid outcomes from assessment¹⁰. It can be seen as the core of any form of assessment that is responsible and precise. Validity is the term to which inferences made from assessment outcomes are appropriate.

Content validity

The test is designed according to the general objectives of the content in the "English for Iraq" student's book regarding the skill of speaking.

Face validity

Face validity is a measure of how representative a research project is at face value, and whether it appears to be a good project¹¹.

Facial validity can be clarified as surface validity, because it is just subjective and superficial assessment for the procedure used in the study to be a valid measure of a given variable or construct, such as anxiety and emotional state, emotional problems, etc. To verify the validity of the test, it is displayed to a jury of (19) teaching staff members with well known and long experience in the field of teaching English language and from different universities in Iraq, their advice has been taken into consideration and the tests have become valid within the required standards at the level of the fifth primary class.

Test Reliability

The reliability of a test is defined as how the measure reflects the true ability level of the individual being assessed; alternatively, reliability may reflect how stable measurements of a test score are over time¹². Reliability is the degree to which a measurement instrument gives the same results each time that it is used, assuming that the underlying thing being measured does not change. This means that if the test is conducted on the same group of students in two different time periods and in two different environments, there is no difference in the results. To verify the reliability of the test in this study, the researcher used the following two methods:

1. Split-Halves Method: To calculate the value of the stability coefficient in this way, the data for the sample of the statistical analysis are based, where the test is divided into two halves. The first half includes the paragraphs of the individual sequence and the second half includes the double-spaced clauses. The value of the Pearson correlation coefficient is calculated between the scores of both halves and its value (0.909).

To correct the value of the calculated correlation coefficient and to obtain the value of the correlation coefficients of the test, the researcher used the Spearman-Brown equation. The correlation coefficient is (0.952), and it is a high value for the stability coefficient

2. Cronbach Alpha: when applying this method, the value of the correlation coefficients (0.956) is also calculated as a high correlation coefficients.

RESULTS AND DISCUSSION

In order to achieve the aim of this study which is looking for the impact of video supported learning on

speaking development in English language for the fifth grade in primary school to enhance the speaking skill of the EFL students and to examine its null hypothesis , Pre-test and post-test data are analyzed statistically. This analysis should be conducted to determine if there is a significant difference between the two groups in the pre-test and the post-test. To investigate the study, the researcher used the T-test for two independent samples to identify the significance of the differences between the average scores of both groups. According to the results that obtained from the post-test of the two groups, the mean scores of the experimental group is (37.525) and of the control one is (32.000). This means that the experimental group scores are higher than that of the control group in speaking skill development .The computed t-value is (3.117) , which is higher than the tabulated t-value (2.000) , at the 0,05 level of significance and (76) degrees of freedom . This proves that the null hypothesis of the study states that there is no statistically significant difference between the mean scores of the students who are taught speaking skill using video supported learning technique and those who are taught speaking skill using the technique prescribed by Teacher’s Guide. This is rejected and the alternative hypothesis is accepted. In the light of the statistical manipulation of the data of the present study, the results show that the technique suggested and adopted by the researcher in her experiment has proved to be effective in improving the student’s speaking skills. The results of the present study are as following: The researcher has introduced a modern technology in education, equipped with a special laboratory with a display, speakers and special

lighting, creating a learning environment enjoyable and far from boredom. The researcher has followed regular steps to provide the lesson, where she begins to warm the students and then offer information about the previous lessons and participation of students by asking them about them or the participation of students among them and the application of the activities of previous lessons on learners and linked to positions of their daily lives. The videos, which contain different situations and topics, are displayed, as the image and sound take hold in the minds of the students. In addition, they create a different and enjoyable atmosphere that is far from boredom and attracts the students’ attention. Video technology plays an important role in the development of the speaking skill, as it works to connect the image to the sound, that they can be remembered later easily.

Table 1. Difficulty and discrimination coefficients for oral test paragraphs

Questions	Total number of responses		Difficulty coefficient	Discrimination coefficient
Q1	210	70	0.368	0.368
Q2	196	61	0.338	0.355
Q3	208	65	0.359	0.376
Q4	180	51	0.303	0.339
Q5	268	67	0.440	0.528
Q6	220	59	0.367	0.423

Table 2. T-test results for two independent samples to identify the significance of the statistical differences between the two groups on the post- test

Groups	N	Mean	SD	t-value		Level of significance	Judgment
				Computed	Tabulated		
EG	40	37.525	8.846	3.117	2.000	0.05	For the experimental group
CG	38	32.000	6.580				

Table 3. The size of the effect of the use of video supported learning on speaking skill on English language

Average scores of the experimental group	Average scores of the control group	Standard deviation of the control group	Size of the impact
37.525	32.000	6.580	0.839

CONCLUSION

Video supported technology has proven to be effective in developing learners' speaking skill of primary school. This has proved hypothesis No. one. Using videos is a funny and effective way to increase student enthusiasm and support their English learning. This point has verified hypothesis number four. The video supported learning technique plays an important role in stimulating the basic senses (listening, speaking) that make learning more effective. It also increases the learners' ability to use language expressions and vocabulary and develop their knowledge in phonetics and phonology. This has proved hypothesis number five. The videos present real situations as they embody attitudes from everyday learners' lives, so they help them to deal with these situations more easily. These topics verified hypothesis number three. The use of video supported learning increases interaction among learners and creates opportunities for self-correction and error detection without embarrassment. The use of video reduces the effort and time required to develop speaking skill compared to other old fashion methods used. This has also proved hypothesis number five. The students in both groups faced difficulties in speaking English, where the mean score of the EG in the pre-test is (31.375) and the mean score of the CG is (30.763) meanwhile the mean score of the EG in the post-test is (37.525) and the mean score of the CG is (32.000), this shows the difference between their collection. This has proved hypothesis number two.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Basic Education, University of Babylon, Hillah, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Effect of Using Index Cards Games Technique on Iraqi EFL Intermediate Students' Performance on Writing Skill

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ABSTRACT

To achieve the aim of the present study, a two-month experiment was conducted using the pre-test, post-test, control and experimental group design. The population of the study comprises the second-year students at the intermediate schools for girls in the city center of Babylon in the academic year (2018-2017). Two sections were randomly selected from Al-Weedad Intermediate School for girls to represent the sample of the study. One of these sections, with (33) students, was randomly assigned to be the experimental group (taught with the use of Index Cards Games Technique) and the other, with (32) students, was assigned to be the control group (taught by the conventional method). Both groups were matched in terms of students' age (measured in months), parents' educational level, and students' scores in English in the first course examination of the same academic year. It is worth mentioning that the researcher himself has taught the two groups the same subject. After administering the tests (pre-test and post-test), the testees' responses were processed statistically using a T-test formula for two independent samples. Other statistical tools such as Pearson Correlation Coefficient, One sample T- test, Chi-square, item facility and item discrimination equation were also used.

Keywords: *Index Cards Games, Writing Skill.*

INTRODUCTION

According to ¹, Index cards games with a word a phrase or a sentence on it has been a proven success in the classroom for many years. Index cards games are variety of enjoyable and useful activities. There are clear and concise directions for how to use the various games ¹. The teacher can create a method suitable to his own teaching situation. What the teacher needs, in addition to a copier, scissors and paste, is supply of 3*5 index cards. The games can be one of the most enjoyable supplementary activities. The students necessarily have to interact with each other to help, support, suggest, encourage, share, and even correct and challenge each other. Index cards are some kinds of media that can be used by the teacher in the classroom. They can increase their span of attention and concentration to study new words in English. Index cards can be used for consolidating

writing, practicing structure and words order by means of a variety of games. ² states that the game activities, which may have an important teaching role, contribute teacher and students in the class. It is claimed that game applications, which are well-organized according to the aim, increase the learning process, strengthen retention and supply effective learning with joy in place of boring lessons by increasing motivation. Index cards games are useful and important in that they make the teacher get rid of the spotlight and allow the students to deal with each other, the cards, and the language in front of them. In addition, they let the players play. As they play, they use the target language in meaningful communication. The games can be one of the most enjoyable supplementary activities. The students necessarily have to interact with each other to help, support, suggest, encourage, share, and even correct and challenge each other. The problem of this study is that Iraqi EFL intermediate school students face difficulties when they manifest their writing performance. According to Cross ⁴, index card game is one of media which can help the teacher teach English easily. Index cards game in teaching writing

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are very simple visual aids and the teacher can make the students more interact during the teaching learning process. Index cards games is a technique used in language teaching which encourages students to interact with what they learn. Index cards games are popular with students because they are small, and not permanent, so they can appear informal and less threatening. Wehmeier¹² also defines an index cards games as a small piece of paper that is index card on one side and that one can write notes on and put temporarily on a wall, in a book, etc. Using index cards games in teaching writing is better than any other methods because it enables teachers to teach writing by absorption and repetition which is the way people³ learn their native language. Vernon¹¹ mentions two reasons to teach writing with games: First, by using games in teaching writing, students not only acquire knowledge but also can apply and use what they learn. So, games are regarded as communicative activities. Second, it is obvious that fun learning games usually contain repetition, which make the language easier and understandable by students.

METHODOLOGY

Design of the Study

The experimental design is a “blue print of the procedure that enables the researcher to test his hypothesis by arriving at valid conclusions about relationships between independent and dependent variables”⁴. It is very hard to arrange a true experimental design, particularly in school classroom experimental research. For this reason, the current study adopts one of the quasi-experimental designs, which is “the pretest-posttest non-equivalent groups”. Discussing the design in question, Best and Kahn mention that “this design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes, which may be similar”. To carry out the experiment of the present study, two classes in an intermediate school were selected by tossing a coin. One group was served to be experimental taught by using Index Cards, Games whereas the other was served to be the control group taught by using the traditional method of teaching. Prior to the introduction of the index cards games technique both groups were submitted to a pre-test⁵. And again at the end of the experiment a post-test was conducted to see whether there is any significant difference between the two groups or not.

Population and Sample of the Study

The study population is the second-year students at the intermediate schools for girls in Babylon province during the academic year (2017-2018). Al- Weedad Intermediate School was chosen to be the sample of this study. The number of students was (100) divided into three sections A, B, and C. Two sections were selected randomly to represent the experimental (section A) and the control (section B) groups. There were (35) students in group A and (33) students in group B. After excluding the repeaters in each group, the number of students has become (33) in group A and (32) in group B.

Equivalence of Subjects

The two groups were equalized by controlling some variables which may affect the experiment outcomes. These variables are: students’ age (measured in months), parents’ educational level, and students’ English scores in the first course examination of the same academic year.

Controlling Extraneous Variables

The researcher attempts to manipulate the influence of these variables. Extraneous variables are independent variables that have not been controlled.

The Instructional Material

The researcher has adopted the material taken from *English for Iraq, Book 8*. Units 4, 5, 6 and 7 of the student’s book and activity book are used in the experiment for both groups EG and CG. She taught them unit 4, 5 and 6, not as a composition writing section, because she has administered the experiment as a teacher not as a researcher

The Control Group

The guidelines and steps in the 2nd Intermediate Teacher’s Book are followed in teaching the control group.

The Experimental Group

In the first lesson, the steps of this technique were explained, then the class was divided into 2 for 3 groups, Giving each group a sentence and put the extra bundled sentences in a central place. The tasks were explained to all members of the group telling each group to use all the cards to form a sentence. When a group is satisfied with

its sentence, they write the number of the sentence on a separate sheet of paper. Then the group returns its sentence to the central pile and choose a new bundle of cards. When the groups have finished, they read the correct sentences and check their answers. Asking the groups to read their answers on sheets of paper to each other. When the students finish reordering the cards, they can write their answers on the board.

Validity of the Tests

One of the most important criteria that must be taken into consideration when selecting or constructing a test is its validity. Validity is the degree to which conclusion drawn from the outcomes of a particular assessment is suitable, expressive, and significant to the assessor's intention Gronlund. In other words, validity pertains to the degree to which an exam assesses what it is intended to assess. This means that you have to test what you teach and how you teach it³. In terms of classification, Brown (2010)² classifies validity as criterion-related, face, consequential, construct and finally content validity. Criterion-related validity consists of concurrent validity and predictive validity. According to⁸ face validity refers to: the degree to which a test looks right, and appears to measure the knowledge or abilities it claims to measure, based on the subjective judgment of the examinees who take it⁶, the administrative personnel who decide on its use, and other psychometrically unsophisticated observers. The test was seen by a jury of twenty specialists in linguistics and TEFL methodology in order to ensure its face validity. Those experts were asked to decide the face validity of the test and state their suggestions about the suitability of the test and its items to the students' level. The jury members agreed that the test is valid in its face and its items are suitable for the students' level except for some modifications which are taken into consideration.

RESULTS AND DISCUSSION

At the end of the experiment and in order to realize the aim of the study "using ICG technique to teach Writing Skill found in the 2nd intermediate student's book, and test its null hypothesis, the data of the pre-test and post-test are statistically analyzed. It should be noted that this analysis is undertaken to decide whether there is any significant difference between the two groups in the pre-test and post-test.

Comparison of the Experimental and Control

Groups, Scores in the Post-test

The results obtained from the post-test on both groups show that the mean scores of the experimental and control groups in the post-test are (38.00) and (22.75), successively, which means that the experimental group achievement in the Writing Skill is better than that of the control group. The T-test formula for two independent samples is used to show whether the difference between the two groups is significant or not. The result of applying this formula shows that the calculated T-value of the post-test is (5.422), whereas the tabulated T-value is (2). This indicates that there is a significant difference between the two groups at (0.05) level of significance and under (63) degrees of freedom (see Table 6 and Figure 3). This also indicates that the null hypothesis of this study which states that "there is no statistically significant difference between the mean scores of the experimental group, which is taught Writing skill according to Index Cards Games technique and those of the control group which is taught conventionally" is rejected.

Comparison of the Pre-test and Post- test Scores of Control group

With regard to the control group, the mean score of the pre-test is (23.125), whereas that of the post-test is (23.593). The one sample T-test formula is used to find out whether there is any significant difference between the pre-test and post-test scores or not. The result shows that the computed T-value is (20.712), whereas the tabulated T-value is (2). This means that there is a slight difference between them, i.e. the post-test is a little bit higher than the pre-test (Table 2).

Comparison of the Pre-test and Post-test Scores of the Experimental Group

Concerning the experimental group, the pre-test and post-test mean scores are found to be (21.515) and (38.000) successively. The one sample T-test formula is exploited again to determine whether or not there is any significance of difference between the pre-test and post-test scores. The calculated T-test is found to be (15.454), whereas the tabulated one is (2). This denotes that the pre-test and post-test are significantly different at (0.05) level of significance and under (64) degrees of freedom. Namely, the post-test of the experimental group is much better than the pre-test (Table 3). According to the results of the study, it has been figured out that there is a significant difference between the experimental and the

control groups. With regard to the post-test, the mean score of the experimental group is (38.00), whereas that of the control group is (22.75). This signifies that the students' achievement of the experimental group is significantly better than that of the control one. It has been concluded that the ICG which is employed to teach the second intermediate students of the experimental group, is considered more effective, useful, and favourable to teach Writing Skill than the conventional method of teaching. The reasons behind the outcomes of the present study can be summarized as follows: The kind of activities used in the present study depends on cooperation and explanation rather than competition and memorization. This builds up the students' confidence,

interest and needs, and encourages real communication. The Index Cards Games technique makes the classroom student-centered, this frees students from the classroom routine procedures, and makes them more imaginative and creative. The students have opportunities for using a variety of instructional techniques such as whole-class brainstorming, discussion, question and answer. Since this study has followed different and recent technique of teaching a foreign language, its findings reveal that it is positively effective. Previous studies show that index cards games technique plays a significant improvement in students' writing performance over the students who taught writing performance through a prescribed method.

Table 1. Mean, Standard Deviation, and T-values of the Students' Post-test for the Experimental and Control Groups

Groups	No.	Mean	Standard Deviation	Degree of Freedom	T-values		Significance Level
					Calculated	Tabulated	
EG	33	38.00	13.75	63	5.422	2	0.05
CG	32	22.75	8.11				

Table 2. Mean, Standard Deviation, and T-values of the Students' Pre-test and Post-test of the Control Group

Test	No.	Mean	Standard Deviation	Degree of Freedom	T-value		Significance Level
					Calculated	Tabulated	
Pre-test	32	23.125	9.061	62	20.712	2	0.05
Post-test	32	23.593	9.122				

Table 3. Mean, Standard Deviation, and T-values of the Students' Pre-test and Post-test of the Experimental Group

Test	No.	Mean	Standard Deviation	Degree of Freedom	T-value		Significance Level
					Calculated	Tabulated	
Pre-test	33	21.515	12.949	64	15.454	2	0.05
Post-test	33	38.000	13.756				

CONCLUSION

Based on the findings of this research, theoretically and practically, the results of the present study lead to the following conclusions: The index cards games method provides students with the opportunity to be actively involved in the learning process. Index Cards Games technique is more effective than the prescribed method in the development of writing skill of the students in the experimental group. Index Cards Games are an effective technique

for teaching writing skill for Iraqi intermediate school students. The prescribed method where teachers are the main source of questions and answers limits the learners' creativity, because learners receive a recurring pattern of questions; this will create a boring atmosphere of teaching void of excitement. Learners working in a social structured group can learn significantly better than learners working individually. To use the index cards games efficiently, the instructors need to invest more time in developing the study of writing skill, in which the instructor delays the correctness of the errors that the students make in punctuation, grammar, spelling, and so on until they take some practice in writing skill. The rewards submitted at the end of each index cards games lecture, motivate all the groups to work hard to be the winner group. The researcher thinks that the teacher plays very essential and various roles in writing classes. From the researcher's experience, the teacher should be a planner, facilitator, feedback provider, organizer, helper, monitor and participant. The researcher believes that EFL learner need more practice in order to focus on these stages and thus develop their writing skill.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Basic Education, University of Babylon, Hillah, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Impact of Teaching Literature and Texts Strategy (PQ4R) in the Written Expression of Students in the Second Grade Average

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ABSTRACT

The present research aims at identifying the effect of teaching literature and texts on the PQ4R strategy in the written expression of second grade students. The study identified a sample of second grade students in Babil governorate and the second semester of the academic year 2017-2018. Between the students in several variables and identify the subjects to be studied during the experiment as the researchers formulated behavioral goals promising the teaching plans, the researchers used the spring standard 1997 in the correction of the answers was chosen subject (Secretariat) and after the end of the experiment, which lasted eight weeks and the application of brother Final analysis and analysis of the results The two researchers reached the superiority of the experimental group on the control group.

Keywords: Strategy (PQ4R), Reading, Text, Expression, Second Grade Average.

INTRODUCTION

In recent decades, great scientific developments have taken place in all spheres of life, and man has become the basis of development to meet the demands of life. This has led him to a wide path towards progress and prosperity, and he is guided by the forces of nature and brought to the stage of advancement and strength¹. Of scientific maturity or social progress, and the development of consciousness and building personality, and most thinkers believe that education in essence is a process of social upbringing, aimed at providing the learner with the expertise that helps him to perform his role in society in the best way, it is concerned with helping the individual to acquire Experiences that achieve mental, physical, psychological and moral development. God has honored man with the grace of the mind and distinguished him from all his creatures and to make language the tool through which man expresses everything he wants to do and what he thinks and interact with others and

exchange ideas and experiences. The language, like the living organism, grows and develops. This growth and development is due to the society in which it exists, and not to the meeting of individuals, their needs for communication, mutual benefit and understanding, and the exchange of ideas and visions¹. Any development in it leads to the growth of educational achievement, so the final outcome in the study of language, and contribute to the arts of the Arabic language in all the development of the ability of students to express sound and clear³. As it is a great position among the branches of the language, as it means in his service, he knows that it is a way to evaluate the pen and tongue of warp and delusion, and dictation is known as a means of health and integrity of writing errors, and reading the various articles and literary texts is inexhaustible extends the expression of verbal wealth and beautiful methods Meanings, attitudes and values⁴. It is no secret that one of the talents in the editorial expression of the appreciation of society and rely on them in many of the life matters required by the affairs of politics and propaganda, guidance and guidance and achieve the aesthetic pleasure of those who taste their writings, The sport of mind and a means of enriching them with ideas and meanings that are often vague and undefined and therefore used to express

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them orally or in writing. This study aims to shed light on the impact of the teaching of literature and texts on the PQ4R strategy in the written expression of second-grade students, The recent trends in education confirm the position of the learner and his positive role in the educational process, and calls to raise his thinking and his ability to research and allow him to prepare the lesson material and search in the sources that prepare for him guidance and guidance of the teacher. The Toms and Robinson Strategy (PQ4R) is a meta-knowledge strategy called the six-step reading system developed by Thomas and Francis Robinson in 1972, a strategy that has been widely disseminated and popularized recently. It helps learners memorize, remember, This strategy aims to develop self-awareness of understanding that helps learners to examine their understanding so that they become aware of what they are learning and to control reading comprehension not only as they study school content, but also when they read out of school and help students save The Matt Astzkarha active prior knowledge of the students, and establish relationships and to explore the links between new knowledge and prior knowledge, they also make students more able to organize awareness of new information, and to facilitate their transition from short-term memory to long-term memory ⁹. The letter P is taken from the word “perviiv”, which means examining the text of the readable text with a preliminary look at it with a view to knowing its main ideas. Q is taken from the question which means asking questions about the topic under study, (R) is taken from the word “Recite” which means “hearing”, and “R” is taken from the word “review”) Which means see ¹⁰. The study was conducted in Indonesia, Islamic State University Mala Naj. The study sample consisted of (88) non-Arabic speakers in six schools. The researcher used the semi-experimental method with quantitative and qualitative inputs. The research tools were observation, interview, test and questionnaire. (T test) in the analysis of the results of this study, and resulted in the study that the use of the strategy of the six steps PQ4R in the teaching of reading skills resulted in a significant development of learners (sample research) in learning the skill of reading Arabic ¹².

METHODOLOGY

The current research aims at identifying the effect of the Thomson and Robinson strategy (pq4r) on the written expression of second-grade students in the reading and text subjects. It requires experimenting with this strategy

and knowing its effectiveness. So the researchers followed the experimental approach to achieve the goal of research as it is the most scientific methods suitable for the current research procedures, because this approach is not only to describe the situation or determine the case under study, but uses independent factors and determine and how it affects the factors adopted,

Experimental Design

The choice of experimental design is the first step that the researcher must implement. The proper experimental design ensures that the researcher has accurate and proper results. The determination of the type of experimental design depends on the nature of the problem and on the conditions of the sample. Educational research has not yet reached an experimental design that is perfect in terms of discipline, because the availability of a sufficient degree of control of variables is very difficult due to the complex nature of human phenomena.

Research Community

The identification of the research community is one of the basic and fundamental steps in educational research. This step requires very careful selection. It depends on conducting the research, designing its tools and the adequacy of its results. The research community includes individuals, objects, persons or all elements related to the problem of the study to which the researchers seek to apply their experience. The current research community consists of secondary and middle school day for girls in the center of Babil province for the academic year (2017-2018).

Research Sample:

The sample is part of the original research community, selected by the researcher in different ways, in a way that represents the original society, and achieves the purposes of the research. The researcher sings the difficulties of studying the original society as a whole. The researchers identified the current research sample as follows:

A- Sample of schools: The researchers chose medium (Ibn Hayyan) in a random way * to conduct their research.

B - The sample of students: After selecting a medium (Ibn Hayyan) to apply their experience visited the school after the issuance of an order from the General

Directorate for the education of Babylon to facilitate their mission and found the school consists of five people for the second grade average A (B, C, D, E) The researcher randomly (4) (e) to be the experimental group studied by strategy (pq4r). Division A represents the control group that is taught in the traditional way.

Adjust the non-experimental variables

One of the most important characteristics of empirical work in its scientific concept is that it is a valid work. The control of the variables is considered one of the important procedures in the empirical research, so that the researcher can attribute most of the variance in the dependent variable to the independent variable in the study and not to other variables. These variables, the result is not reliable, because the failure to adjust the variables affecting the variable dependent may cause differences have a statistical significance, so the researcher tried to adjust non-experimental variables, the most important of these variables are :

Sample Selection:

The two researchers attempted to control the differences in sample selection by random selection and statistical equivalence between the two groups.

Accident Accidents:

The students of the two groups were not exposed to any circumstance, emergency or accident that obstructs the duration of the experiment for the duration of the experiment or affects the dependent variable besides the effect of the independent variable.

experimental extinction:

And means that some of the sample leaves the group during the experiment or break off some stages and the result of this drop or drop in the impact in the results, and did not experience during the duration of the process to leave any student or interruption.

Maturity processes:

It refers to the physical, mental, psychological and maturation processes that occur during the course of the experiment. In order to limit the duration of the experiment to no more than three months, and because the students of the two groups were exposed for the same period, this variable had no effect on the experiment .

Measurement tool:

The two researchers used a single measuring tool (the test of written expression) for both groups to measure the change in the level of students' achievement in the geography field and extracted the honesty and consistency.

RESULTS AND DISCUSSION

After the application of the test the post-written expression on the students of the two groups of research on Tuesday, 24/4/2018, and correct their answers, and in order to verify the validity of the research hypothesis, which states that there is no difference in statistical significance at the level of significance (0.05) The collection of the students of the experimental group who studied reading and texts using the Thomson and Robinson strategy (pq4r) and the average score of students of the control group who studied the same subject in the traditional way. The results of the test were subjected to statistical analysis. The computational mean, variance and standard deviation of the scores of the experimental and control groups were obtained. Using the T-test for two independent samples, the calculated T value was found. There was a statistically significant difference at the significance level (0, And the degree of freedom (68). For the experimental group studied by the independent variable, the Thomson and Robinson strategy (pq4r) reached the calculated T value (7,839), which is greater than the table T value of (2,000). In the light of the findings of the present study, it is possible to say that the Toms and Robinson strategy (pq4r) has achieved a good level by the superiority of the experimental group studied using the Toms and Robinson strategy (pq4r) on the control group, which was studied in the usual way through the scores of the post- The researchers reason to excel in the following : When using the Toms and Robinson Strategy (PQ4R), the student is the focus of the learning process by using the skills of cognitive thinking over the course of the lesson and thus is effective and positive. The Toms and Robinson Strategy (PQ4R) stimulates student motivation and enthusiasm for learning. The Toms and Robinson Strategy (PQ4R) reinforces previous knowledge as a basis for new learning and curiosity to think during the lesson. The Toms and Robinson Strategy (PQ4R) helps the school to play the role of mentor and supervisor rather than teleprompter. The Toms and Robinson Strategy (PQ4R) encourages students to participate

actively in the lesson. The Toms and Robinson Strategy (PQ4R) has helped students develop self-regulation in reading, focusing on helping them organize information in their memory to achieve a better understanding . The

Toms and Robinson Strategy (PQ4R) regulates students' thinking by making them walk in specific organizational logical steps to reach their goals accurately.

Table 1. The computational mean, variance and standard deviation of the scores of the experimental and control groups were obtained.

Groups	Sample size	Arithmetic average	standard deviation	Degree of freedom	Te -TEST		Statistical significance
					Calculated value	Table value	
Experimental	35	38.68	3.34	68	7.839	2.000	A function of 0,05
Control	35	30.42	5.25				

CONCLUSION

Teaching literature and texts using the Toms and Robinson Strategy (PQ4R) increases students' ability to express better than traditional methods. Using the Thomson and Robinson Strategy (PQ4R) in teaching reading and text requires the time and effort of the school more than the time and effort spent in the usual way. The interaction and collaboration of students who studied the Toms and Robinson strategy (PQ4R) was better than that of students who studied in the traditional way. The adoption of this strategy enabled students to be able to link their previous information with the new information they received

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Babylon, Faculty of Engineering, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Role of Color Doppler Ultrasound in Initial Evaluation of Patients with Priapism: A Cross Sectional Study

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ABSTRACT

Aim of the study: To evaluate the role of color Doppler ultrasound in the initial evaluation of patients with priapism. This cross sectional study included a total of 19 men complaining of priapism who were referred by the urology unit in Al-Hilla teaching Hospital, Babylon province, Iraq. The study started on the 1st of February 2018 and extended through October 2018. The device used was the color Doppler ultrasound scan using high-frequency (5.0–12.5 MHz) linear transducer. The main outcome measurements were peak systolic velocity (PSV), end diastolic velocity (EDV) and resistive index (RI). After full workup, the causes were identified: ischemic pathology was seen in 13 patients and non-ischemic pathology was seen in 6 patients. Cause of ischemia were sickle cell disease ($n = 7$), intracavernous drug injection ($n = 4$) and thrombophlebitis ($n = 2$), as shown in table 1. Causes of non-ischemic priapism were penile trauma ($n = 4$) and perineal trauma ($n = 2$). Ultrasound finding in ischemic finding was in the form of absence of cavernous arterial blood flow. The main finding in ischemic cases was the turbulence blood flow around the cavernous arteries indicating some form of rupture of their branches.

Key words: Priapism, color Doppler ultrasound, Iraq

INTRODUCTION

When there is sexual stimulation the usual response in healthy adult male is penile erection; however, when erection of penis happens in the absence of sexual arousal or when it continues for 4 hours or more after sexual arousal it is considered abnormal and the condition is called priapism¹⁻⁵. In those patients there is typical involvement of corpora cavernosa, whereas corpus spongiosum and glans are preserved^{6,7}. The list of conditions associated with priapism includes a number of related and unrelated pathologies. However, from pathophysiological perspective the condition can be classified into ischemic and non-ischemic priapism⁸⁻¹¹. Ischemic conditions are seen in 95% of priapism¹². There is typically continuous penile erection that is not related to sexual stimulation; the underlying pathology being reduced or lack of intracavernous flow of blood with

associated rigidity of the corpora cavernosa. The arterial cavernous blood flow in ischemic subtype is typically minimal or even lacking. The clinical clue to such type is usually the rigid and painfully engorged corpus cavernosa with preservation of the glans and corpus spongiosum¹³. When cavernous blood is subjected to analysis it reveals hypercarbia and metabolic acidosis and the condition may lead to permanent damage to corpora cavernosa if ischemia lasts for more than 4 hours¹⁴. This condition can be viewed as a compartment syndrome in which intense diminishing of blood supply to the cavernous tissue is the direct consequence of the pressure that has been built inside the closed corpora cavernosa. One variant related to ischemic priapism is the intermittent type, in which there are episodes of priapism, usually lasting for up to 3 hours that are separated by periods of partial relaxation¹⁵. This type frequently accompanies sickle cell disease because of relatively viscosity and increased incidence of thrombotic events^{16,17}. On the other hand, the non-ischemic type is not considered a medical emergency since the pathophysiology is different from that of ischemic type. In non ischemic

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there is often a fistula connecting the arterial blood to sinusoids and bypassing the helicine arteries. This causes uncontrolled flow of blood to corpora cavernosa with persistent penile erection that is unrelated to sexual excitement. History of previous trauma usually accompanies this type and typically involves the perenium and sometimes the penis itself. The cavernous blood is usually associated neither with hypoxia nor with acidosis¹⁸. The use of color Doppler ultrasound has been proven to be of great value in differentiating ischemic from non ischemic forms of priapism⁴. Hemodynamic characteristics of the penis, as evaluated by color Doppler ultrasound, serves both initial evaluation and also defining the plan for therapeutic approach¹⁹. The typical finding of color Doppler ultrasound in patients with ischemic type is in the form of cavernous arterial pulse and lack of cavernous blood flow²⁰. Whereas, in case of non-ischemic variety, color Doppler ultrasound will show preservation of arterial pulsation and blood flow; however, some evidence of uncontrolled blood flow such as turbulent flow around the artery indicative of rupture of one branch or sometimes the presence of cystic cavity connected to the artery¹⁰. The rarity of Iraqi literatures dealing with the subject of role of color Doppler ultrasound in evaluation cases of priapism and to identify the prevalence of causes of this condition in our community we designed panned and conducted this study. Moreover, this case control study may highlight aspects in clinical practice of urology that are relevant to the subject of priapism.

MATERIALS AND METHOD

Patients and study design

This cross sectional study included a total of 19 men complaining of priapism who were referred by the urology unit in Al-Hilla teaching Hospital, Babylon

province, Iraq. The study started on the 1st of February 2018 and extended through October 2018.

Color Doppler ultrasound examination

All patients were aware about the procedure as it was explained before starting the examination. The device used was the color Doppler ultrasound scan (Mindray DC 7, 2014 China) using high-frequency (5.0–12.5 MHz) linear transducer. We ensured a comfortable quiet room with privacy to obtain maximum patients cooperation. The study was performed with patients in supine position and penis in normal anatomical position. After application of ultrasound coupling gel to the ventral surface of the penis, longitudinal and transverse penile scans were done on both grey scale and color Doppler studies. The diameter and peak systolic velocity (PSV) of the CAs were also assessed. The waveforms were obtained alternately using an angle of inclination equal or <60° when visualization of CA was optimal. The main outcome measurements were peak systolic velocity (PSV), end diastolic velocity (EDV) and resistive index (RI).

Ethical issues

The study was approved by the committee of ethical approval of College of Medicine / Babylon University. In addition, verbal consent was taken from every patient participating in the current study.

Statistical analysis

Data were analyzed using statistical package for social science (SPSS version 23) and Microsoft Office Excel 2010. Numeric data were expressed as mean and standard deviation while nominal data were expressed as number and percentage. The level of significance was chosen at $P \leq 0.05$.

Table 1. Color ultrasound findings in patients with ischemic priapism

Patient	Age	Cause	Duration (hours)	PSV	EDV	RI
1	15	Sickle cell disease	20	no flow	no flow	---
2	16	Sickle cell disease	18	no flow	no flow	---
3	16	Sickle cell disease	36	no flow	no flow	---
4	15	Sickle cell disease	28	no flow	no flow	---
5	17	Sickle cell disease	22	no flow	no flow	---

Cont... Table 1. Color ultrasound findings in patients with ischemic priapism

6	21	Sickle cell disease	17	no flow	no flow	---
7	19	Sickle cell disease	16	no flow	no flow	---
8	42	Intracavernous injection of medication	4	no flow	no flow	---
9	58	Intracavernous injection of medication	5	no flow	no flow	---
10	35	Intracavernous injection of medication	4	no flow	no flow	---
11	61	Intracavernous injection of medication	7	no flow	no flow	---
12	23	Thrombophlebitis	9	no flow	no flow	---
13	38	Thrombophlebitis	11	no flow	no flow	---

Table 2. Color ultrasound findings in patients with non ischemic priapism

Patient	Age	Cause	Duration (hours)	PSV (cm/s)	EDV (cm/s)	RI
1	34	Penile trauma	5	20.2	6.3	0.69
2	45	Penile trauma	6	21.3	6.5	0.69
3	23	Penile trauma	5	19.1	5.9	0.69
4	38	Penile trauma	7	17.8	4.8	0.73
5	18	Perineal trauma	7	22.1	7.3	0.67
6	29	Perineal trauma	6	18.6	6.2	0.67

RESULTS AND DISCUSSION

Current study included 19 patients whom ages ranged from 15 to 61 years and their mean age was 29.63 ±14.40 years old. After full workup, the causes were identified: ischemic pathology was seen in 13 patients and non ischemic pathology was seen in 6 patients. Cause of ischemia were sickle cell disease ($n = 7$), intracavernous drug injection ($n = 4$) and thrombophlebitis ($n = 2$), as shown in table 1. Causes of non ischemic priapism were penile trauma ($n = 4$) and perineal trauma ($n = 2$). Ultrasound finding in ischemic finding was in the form of absence of cavernous arterial blood flow so that peaked systolic velocity (PSV), end diastolic velocity (EDV) and resistive index (RI) were difficult to be identified. Mean duration of priapism of patients with ischemia was 15.15 ±9.80 hours and it ranged from 4 to 36 hours. On the hand, we were able to measure PSV, EDV and RI in

case of non ischemic priapism and the mean values in all cases were 19.85 ±1.65 cm /s, 6.17 ±0.82 cm / s and 0.69 ± 0.02, respectively and individual values of each case are shown in table 2. Duration of priapism in non-ischemic case were significantly lower than that of ischemic cases ($P < 0.05$), 6.00 ±0.89 hours versus 15.15 ±9.80 hours, respectively. The main finding in ischemic cases was the turbulence blood flow around the cavernous arteries indicating some form of rupture of their branches. Although, the main approach to patients with priapism is clinical, the role of imaging and in particular color Doppler ultrasound, is being recognized and increasingly recommended in recent literatures ¹⁻³. Unfortunately, this role is under-estimated in urological clinical practice in Iraq. For that reason we aimed to disclose the role of color Doppler ultrasound in initial evaluation of patients presented with priapism. We were able to show that the

use of ultrasound can serve both the identification of the type of priapism, ischemic versus non-ischemic, and through measuring PSV, EDV and RI can highlight the severity of non-ischemic conditions. However, in case of ischemic variety, these measurements are usually difficult to estimate because of compromisation of cavernous blood circulation. This distinction between ischemic and non-ischemic types is important since It is often recommended that individuals with ischemic type require emergent intervention, whereas individuals with nonischemic types require elective treatment or just observation^{20,21}. Several studies have evaluated the use of color Doppler ultrasound in priapism. Chiou *et al.*, found that the causes of priapism were as following idiopathic, penile injection for erectile dysfunction), use of trazodone, chronic renal failure, perineal trauma ($n = 1$), leukemia and sickle cell disease⁴. Moreover, Chiou *et al.*, was able to evaluate cases before and after treatment and highlights the causes of therapeutic intervention failure. Post-traumatic priapism was assessed by Bertolotto *et al.*, and they found that “Color Doppler US is highly sensitive for detection of the arterial-sinusoidal fistula that causes extravasation of blood from the lacerated cavernosal artery. After angiography, color Doppler US allows confirmation of both successful embolization by demonstrating disappearance or size reduction of the fistula and unsuccessful treatment by demonstrating patency of collateral feeding vessels or early recanalization of the embolized artery. Limitations of color Doppler US include underestimation of the number of accessory feeding vessels, which may become patent only after embolization of the main vascular supply, and difficulty in recognizing vessels that feed the fistula from the opposite side²².

CONCLUSION

Color Doppler ultrasound is valid tool in establishing the nature of priapism whether due to ischemia or non ischemia and the severity of the condition in both in addition to making treatment plan to be determined more precisely.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of Medicine, Babylon University, Radiology Department, Hilla Teaching

Hospital, Babylon province, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Study of Oral Microbiological Changes in non-Hodgkin Lymphoma Patients Receiving Chemotherapy

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ABSTRACT

Lymphoma is a group of blood cell tumors that developed from lymphocytes. It is of two main types, Hodgkin and non-Hodgkin lymphoma. Non-Hodgkin's lymphoma is a diverse collection of an abnormal growth of lymphoid tissues and prevalence of which increased since three decades. It is varied in the behavior of presentation, response to different modalities treatment and prognosis. It frequently involves not only lymph nodes but also extended to extranodal areas. Aim of study: To study the microbial flora in the oral cavity of non-Hodgkin lymphoma patients undergoing chemotherapy and compare it with that of health looking control subjects. Sixty (60) persons were participated in this study; 30 Patients with non-Hodgkin lymphoma; 30 health looking control subjects. Oral microbial isolates were identified and the number of bacteria and yeast in swabs were also estimated for all study subjects. The predominant isolate was *Streptococcus* spp. in study groups. *Pseudomonas* spp. was significantly higher percentage in non-Hodgkin lymphoma patients compared to health looking control subjects. Mean viable count of oral bacteria and yeast was highly significant in NHL patients (110.05×10^5 and 33.79×10^3 CFU/ml respectively) compared to healthy looking control subjects (43.67×10^5 and 7.80×10^3 CFU/ml respectively).

Key word: Non-Hodgkin Lymphoma, Chemotherapy, Oral Microbiological Changes

INTRODUCTION

Lymphoma is a group of blood cell tumors that developed from lymphocytes. It is of two main types, Hodgkin and non-Hodgkin lymphoma¹. Non-Hodgkin's lymphoma is a diverse collection of an abnormal growth of lymphoid tissues, prevalence of which increased since three decades. It is varied in the behavior of presentation, response to different modalities treatment and prognosis. It frequently affects not only lymph nodes but also extended to extra nodal areas². Non-Hodgkin's lymphoma is one of the sixth frequently detected malignancy in both males and females in the United States, accounting for around 4% of all malignances. In 2015, it is assessed that there will be 71,850 new cases of NHL³. According to one of the Iraqi statistics 2011, NHL had an incidence of 5.57 % of all cancers, about 1129 NHL cases with sixth in order of frequency

among the commonest ten cancers by primary site and gender, the commonest fifth cancers by site in males and the commonest fourth cancers by site in females in 2011⁴. The etiology of lymphomas remains unknown. The heterogeneity of these neoplasms proposes that a variety of causes including genetic abnormalities, immune disturbances, and other events interact in their pathogenesis⁵. Diagnosis usually made by histological examination of biopsy specimen, supplemented by immunophenotyping and molecular analysis for clonal origin⁶. Chemotherapy are frequently utilized in the treatment of lymphoma because most cancerous cells are easily destroyed by it. These agents can be employed single-handedly or used in combination with other treatment modalities. The objective of employed chemotherapeutic agents depends on the exact category of lymphoma; some types of lymphoma can be cured with it while others can be successfully controlled with chemotherapy⁷. The oral cavity is highly vulnerable to direct and indirect toxic influences of cancer chemotherapy^{8,9}. This risk grows from many reasons, including high rates of cellular turnover for

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the lining mucosa, various and complex microflora, and trauma to oral tissues during habitual oral function⁹. Microbiological investigations have been done in particular patients undergoing treatment for cancer. Chemotherapy induced hyposalivation may involve the oral microbiota, differences in quantity, complexity in quality of the oral microbiota also occur during chemotherapy leading to a major imbalance of the ecosystem^{10,11}.

MATERIALS AND METHOD

Study population

Thirty patients (30) with NHL and 30 healthy subjects without any history of systemic diseases and medications intake were enrolled in this study. All patient groups were examined to evaluate the oral microbiology at three times intervals; first before receiving chemotherapy, after taking 3cycles of chemotherapy and at one month after finishing chemotherapy.

Exclusion criteria included

The patients were excluded if they were: Smoker, pregnancy, hepatitis, diabetic patients and patients under radiotherapy.

Isolation and identification

Two sterile cotton swabs were rubbed and rotated vigorously over the mucosa; pressure putted on the swabs in an attempt to pick up deeply seated microorganism. Oral swabs were taken from inner surface of cheeks, inner surface of upper and lower lips and dorsum of tongue. The one designated as swab was rolled directly onto the surface of the (Blood agars, Chocolate agars and MacConkey's agars) and Saboroud's agars base plates for recovery of oral bacteria and yeast. Plates were incubated aerobically 24 h at 37°C for the growth of the bacterial spp. and 48h at 25°C for the growth of the yeast spp. Gram's stain examination was carried out for identification of microbial isolates. (VITEK 2 system) was used to confirm identification of bacteria and biochemical (API Candida) and germ tube fermentation test used to confirm identification of candida isolates. The other cotton swab was placed in (1ml) of sterile saline solution. The sample mixed using a vortex or homogenized for 2 minutes to aid release of organisms into the solution. Ten folds dilutions were prepared () using sterile normal saline solution then

hundred microliters from each dilution was taken and spread on brain heart infusion agar and Saboroud's agar then incubated aerobically 24 h at 37°C for the growth of the bacterial spp. and 48h at 25°C for the growth of the yeast spp.. Dilution was showed by microtechniques designated by Westergren and Krasse¹². Microbial totals viable were calculated by colony counter taking in consideration the dilution factor and expressed as colony forming unit multiplied by the dilution factor per milliliter (CFU/ml).

RESULTS AND DISCUSSION

Oral bacteriological analysis of NHL patients showed that all specimens gave positive bacterial growth. The frequency of total microorganism among patient with NHL was highest after received 3 cycles chemotherapy and lowest in NHL patients before received chemotherapy. Gram positive Cocci was the predominant microorganism isolate in apparently healthy control compared to NHL patients (before chemotherapy, after received 3 cycles treatment and at one month post chemotherapy) 51.6% vs.(42.1%, 35.1% and 38.4% respectively), while Gram negative bacilli was the predominant microorganism isolate in NHL patients after received 3 cycles chemotherapy compared to (apparently healthy control, patients before received chemotherapy, at one month post chemotherapy) 39.8% vs. (16.6%, 25% and, 36.2% respectively), table (1) and figure (1). *Streptococcus spp.* was highly predominant microorganism isolate in this study. *Pseudomonas spp.* was higher significant bacterial isolate in NHL patients compared to apparently healthy controls, and was also significantly higher percentage among patients after received 3 cycles chemotherapy compared to patients at time of diagnosis and at one month post chemotherapy treatment using Chi-square test. This study showed also increased in the incidence of the microorganism like *Candida albicans*, *Klebsiella pneumonia*, and *Serratia spp.*, *Acintobacter Iwoffii*, *Brevundimonas spp.*, and the least isolated microorganism was *Rhizobium radiobacteria* after 3 cycles of chemotherapy in comparison with NHL patients before received chemotherapy and at one month post chemotherapy, table (2). The mean viable count (CFU/ml) of oral bacteria and yeast was significantly higher in NHL patients (110.05 and 33.79 respectively) compared to healthy looking control subjects (43.67 and 7.80 respectively), table (3). The mean viable count of oral bacteria and yeast was highest in NHL patients after

3 cycles of chemotherapy and lowest in NHL patients at one month post-chemotherapy, however it didn't touch statistically significance using ANOVA test, table (3). The present study showed that Gram positive Cocci was higher percentage microorganism isolate in healthy looking control compared to NHL patient groups, while Gram negative bacilli was the predominant microorganism isolate in patients after received 3 cycles chemotherapy compared to healthy looking control, and in comparison with patient before received chemotherapy and at one month post chemotherapy. In a study carried out by Donnelly et al., to estimate of oral microbiology in patients with cancer which showed that the subtle balance may be disturbed by cancer, the most current anticancer therapies, or via the supportive care that altogether may be contributed to change in the microflora of the oral cavity from mainly Gram positive to Gram negative bacteria¹³. In a study carried out by Leung et al., to evaluate colonization of the oral cavity by an aerobic and facultative anaerobic Gram positive rods and cocci in patients undergoing cancer therapies, which revealed that cancer treatments-prompted hyposalivation seems to favor frequent, repeated, transient intraoral colonization of aerobic and facultative anaerobic Gram positive rods and cocci¹⁴. *Streptococcus* spp. was highly predominant microorganism isolate in this study. *Pseudomonas* spp. was higher significant bacterial isolate in NHL patients compared to apparently healthy controls, and was also significantly higher percentage among patients after received 3 cycles chemotherapy compared to patients at time of diagnosis and at one month post chemotherapy treatment. It showed also increased in the incidence of microorganism like *C.albicans*, *Klebseilla pneumonia*, and *Serratia* spp., *Acintobacter Iwoffii*, *Brevundimonas* spp., and the least isolated microorganism was *Rhizobium radiobacteria* after received 3 cycles of chemotherapy in comparison with patients before received chemotherapy and at one month post chemotherapy. In a study done by Hamza and Fawaz, in Iraq for evaluation of oral manifestations, microbiology and salivary IgA in lymphoma patients receiving chemotherapy, which showed that several different types of bacteria, were isolated and the most bacteria isolated were *Streptococcus* spp.; and *Staphylococcus* spp.; *Pseudomonas* spp.; *Actinomyces* spp.; *Lactobacillus* spp.; *Klebsiella*; and *C. albicans* were also identified¹⁵. Another study done by Al-Saraf, in Iraq to evaluate the effects of cytotoxic chemotherapy on oral flora of patients with different types of cancers that

showed oral flora was influenced greatly with cytotoxic drugs especially in case of combination therapy, with increased appearance of pathogenic microorganism, and also there was increased in fungal infection¹⁶. A study done by Napeñas, et al., which revealed that highly Gram negative bacteria detached during cytotoxic chemotherapy, the most common Gram negative species isolated were *Enterobacteriaceae* spp and *Pseudomonas* spp., while the most common Gram positive species isolated were *Streptococcus* and *Staphylococcus* spp.¹⁷. A retrospective study done by Dahlén et al., to evaluate the oral microbiology in patients with oral complaints and oral mucosal lesions that showed an aerobic enteric rods, *pseudomonas* species, and enterococci are frequent outcomes, often in combinations and these non-oral microorganisms are also common recoveries from oral mucosae after administration of cytotoxic chemotherapy in cancer patients¹⁸. A study done by Lucas et al., for assessment of the changes in the oral *streptococcal* flora of children receiving cancer treatments that showed the *Streptococcus* species, which has been reported to increase following chemotherapy¹⁹. Regarding the viable count (CFU/ml) of oral bacteria and yeast, the present study revealed that the viable count of oral bacteria was higher significantly in NHL patients compared to healthy looking control groups. A study achieved by Guobis et al., to estimate micro flora of the oral cavity in patients with xerostomia, which showed that hyposalivation increased count of oral bacteria²⁰. In a study carried out by Nadig et al., for assessment of relationship between *candida* counts and salivary flow rates in persons with hyposalivation, and this study showed a negative correlation between *candida* counts and hypofunction of salivary glands, with *C. albicans* were the most repeated types²¹. The present study revealed that the mean viable count bacteria and yeast was highest in NHL patients after obtained 3 cycles of chemotherapy and lowest in NHL patients at one month after chemotherapy. The results of a meta-analysis performed by Rajesh et al., for oral candidiasis in people with immunosuppression following cancer treatment that showed the occurrence of oral colonization with yeast organisms was 48.2% prior to therapy, 72.2% in the course of therapy, and 70.1% after therapy²². In conclusion, Non-Hodgkin's lymphoma and cancer treatment may have adverse effects in oral cavity that may be increased the growth of oral opportunistic pathogenic bacteria and yeast that may be caused opportunistic infections, treatment delays, dose decreases, and nutritional deficiencies.

Table 1. Frequency and percentage of Gram positive Cocci and negative (bacilli & Coccobacilli) bacteria and yeast in oral samples of non-Hodgkin lymphoma patients and healthy control of the study

Subject		G+ve Cocci N (%)	G-ve Bacilli N (%)	G-ve Cocco- bacilli N (%)	Yeast N (%)	Total microbial No (%)	P value
NHL	Before chemotherapy	32(42.1)	19(25)	10 (13.1)	15(19.7)	76	0.0003
	After 3 cycles chemotherapy	38(35.1)	43(39.8)	9 (8.3)	18(16.6)	108	0.000
	1 month post- chemotherapy	35(38.4)	33(36.2)	6 (6.5)	17(18.6)	91	0.0002
Control		31(51.6)	10(16.6)	8 (13.3)	11(18.3)	60	0.000

Table 2. Number and percentage of non-Hodgkin lymphoma patients and control with different microorganisms in oral cavity

Microbial isolates In NHL	Before chemotherapy No (%)	After 3 cycles chemotherapy No (%)	1 month post- chemotherapy No (%)	Control subjects No (%)	P value *	P value **
<i>Streptococcus spp</i>	24 (80)	27(90)	26 (86.6)	25 (83.3)	0.5	0.7
<i>Aeromonas spp</i>	8 (26.6)	10 (33.3)	12 (40)	5(16.6)	0.5	0.3
<i>Oligellia ureolytica</i>	10 (33.3)	9 (30)	6 (20)	8 (26.6)	0.4	0.5
<i>Pseudomonas spp.</i>	5 (16.6)	12 (40)	5 (16.6)	0 (0)	0.05	0.01
<i>Sphingomonas paucimobilis</i>	4 (13.3)	9 (30)	12 (40)	4 (13.3)	0.06	1
<i>Myroides spp.</i>	2 (6.6)	0 (0)	0 (0)	0 (0)	0.1	0.1
<i>Acintobacter Iwoffii</i>	0 (0)	2 (6.6)	0 (0)	0 (0)	0.1	-
<i>Staphylococcus spp.</i>	8 (26.6)	11 (36.6)	9 (30)	6(20)	0.6	0.5
<i>Kellibisila pneumonia</i>	0 (0)	5 (16.6)	2 (6.6)	1 (3.3)	0.052	0.2
<i>Brevundimonas spp.</i>	0 (0)	2 (6.6)	0 (0)	0 (0)	0.1	-
<i>Serratia spp.</i>	0 (0)	2 (6.6)	2 (6.6)	0 (0)	0.3	-
<i>Rhizobium radiobacteria</i>	0 (0)	1 (3.3)	0 (0)	0 (0)	0.3	-
<i>Candida spp.</i>	15 (50)	18 (60)	17 (56.6)	11(36.6)	0.7	0.2
Unidentified G+ve	2 (6.6)	0 (0)	0 (0)	0 (0)	0.1	0.1
Unidentified G-ve	2 (6.6)	2 (6.6)	0 (0)	0 (0)	0.3	0.1

Table 3. Total Colony Forming Units (CFU/ml) of oral bacteria (Mean ±SD ×10⁵) and yeast (Mean ±SD ×10³) in non-Hodgkin lymphoma and healthy control subjects

	Subjects	N	Mean ±SD	SE	Range	P value
Bacteria (CFU/ml)	NHL	30	110.05± 73.74	13.46	31.2- 216	0.001 S
	Control	30	43.67± 6.11	1.11	30.2- 56.8	
Yeast (CFU/ml)	NHL	30	33.79± 11.75	2.14	19.0- 63.4	0.001 S
	Control	30	7.80± 2.40	0.43	3.11- 15.65	

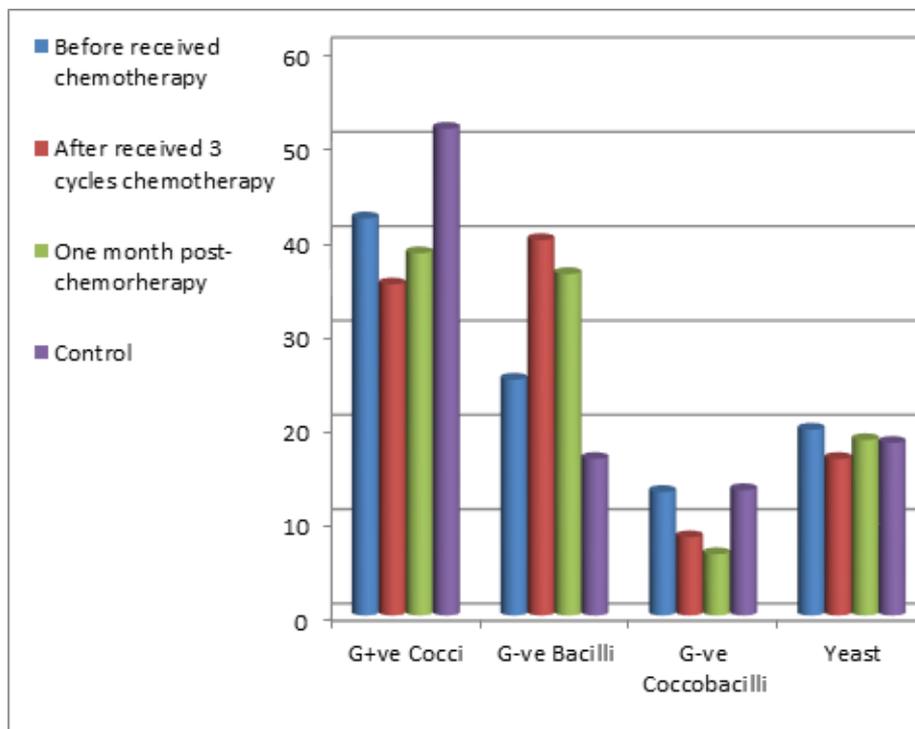


Figure 1. Frequency of Gram positive Cocci and negative (bacilli & Coccobacilli) bacteria in oral samples of non-Hodgkin lymphoma patients of the study.

CONCLUSION

The predominant isolate was *Streptococcus* spp. in study groups. *Pseudomonas* spp. was significantly higher percentage in non-Hodgkin lymphoma patients compared to health looking control subjects. Mean viable count of oral bacteria and yeast was highly significant in NHL patients (110.05×10⁵ and 33.79×10³ CFU/ml respectively) compared to healthy looking control subjects (43.67×10⁵ and 7.80×10³ CFU/ml respectively).

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the College of dentistry, University of Baghdad, Iraq and all experiments were carried out in accordance with approved guidelines.

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The Wisdom-Based Performance of the Postgraduate Students

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ABSTRACT

The problem of this research is that the behavior of some of postgraduate students is not wise. Some of them use their cognitive skills in selfish interests without thinking about the interests of others. Its importance stems from the importance of the “wisdom-based performance”, which needed by the individual and society, theoretical framework and its findings, which may fill a gap in this field of knowledge. The aims of the research was to identify the wisdom based performance of doctoral students and the differences among them, according to the field study (scientific - human) and gender (male - female). To achieve the aims, a scale was constructed to measure the wisdom based performance level and verified its validity and stability and apply it to the research sample, and their responses accounted and analyzed by (SPSS) package. The findings were that the level of Wisdom-Based Performance was high and statistically significant at (0.05), and there were no statistical differences between the sample subjects according to gender and academic study fields. On the bases of those findings, a number of conclusions, recommendations and suggestions were presented.

Keywords: *Wisdom, Wisdom – Based performance, Graduate Students.*

INTRODUCTION

Sternberg¹ stated that the main concern of many societies today is to develop the cognitive abilities of the students, and this is a wrong equation; as the cognitive skills alone are not enough in life but must be combined with another equation which is the skills of wisdom, the individual when applying the successful intelligence and creativity may seek beneficial results for himself and harmful consequences for others at the same time, but the wise man seeks to achieve self-benefits but also seeks to benefit others, and if the motives of a human to make the interests of some people reach to the maximum while the interests of others reach to the minimum, the wisdom is absent here, so in wisdom one seeks to achieve the best general goodness recognizing that this goodness may be better for some compared to others, thus a criminal may be a very clever academic

or practical but cannot be wise². The psychological literatures indicate that the performance and quantity of knowledge and skills based on wisdom as a system of extensive experience in basic life affairs that include an insight into the intrinsic aspects that distinguish of human existence with its biological boundaries and cultural environment, and includes harmonious balance among knowledge, motivations and emotions. The importance of the research comes from the importance of performance based on wisdom as it represents an aspiration for every individual and society. So we find the growing interest in it throughout the different stages of history and in all civilizations such as China, India and Mesopotamia². Abu Hatab points out that if we can find a true representation of all human capabilities by a well-designed factor analysis, then we reach the highest man potentials which is the wisdom and so the wisdom is the capacity of human capabilities³. Sternberg stressed this importance in his speech when he assumed the functions of President of the American Psychology Association (APA) in 2003, in which he said: “If there is something the world needs, it would be the wisdom, without which I am not exaggerating when I say that the world will fade away”. The importance of the research also comes from

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the importance of the research community, its sample, tool and theoretical framework, and the lack of studies that dealt with its variable in the PhD students at Iraqi universities, and because of the importance of wisdom and the performance depended on it, the word “wisdom” was mentioned in the Holy Quran (20) times, and Allah Almighty described Himself as a wise (91) times ⁴. And the Quran described it as lot goodness in the saying of Allah Almighty: (He gives wisdom to whom He wills, and whoever has been given wisdom has certainly been given much good. And none will remember except those of understanding). The study was conducted in Germany and was appointed by the university professors in various disciplines, and the study aimed at examining the “Berlin model of Wisdom”. The sample of the study was made up of (60) examined person, and after the analysis of the study results, statistically significant differences emerged between the classes of study according to the variable of wisdom for the Younger age group ⁵. The study was conducted in the German city of Berlin. The aim was to identify differences in performance on the measure of wisdom among individuals in adolescence (14-20 years) and early adulthood (21-37) years. The sample was from (58) examined persons. The results showed that the average score of those examined persons on the study scale for both samples continued to increase until the age of 24 years old, and then was relatively stable, while the indicator of progress for those in the age group (14-20 years) was discontinued and stopped. The results of the study show that the average degrees of the adolescent sample on all the experimental tasks and the tests were lower than the average degrees of the adult sample, as well as the average degrees of adolescent females were higher ⁶. The study aimed at revealing the relationship between wisdom and the positive social values of a sample of university students. The sample was made up of (61) male & female students, randomly selected from the University of Vancouver, Canada. The results indicated that there was a direct proportional correlation between wisdom and their achieved identity. The results also showed a correlation between wisdom and some negative values such as narcissism and self-love.

MATERIALS AND METHOD

The two researchers used the descriptive approach to achieve the objectives of the research as it is the appropriate approach to this research.

The Research Population

The current research community consisted of all PhD. students in postgraduate studies at the universities of the middle Euphrates region, from the scientific and humanities disciplines and from males and females continuing to study in the academic year (2017 – 2018). The total research community was of (884) male and female students at the doctoral stage of (204) in the scientific specialization, (110) of them are males, (94) are females, and (680) in the humanity specialization, (480) of them males, and (200) females distributed in (22) colleges, (16) in the human specialization, and (6) Faculties in Scientific Specialization. Appendix (2).

The Sample Research

The research sample was selected from the research community in the stratified random sampling method with proportional distribution (Equal stratified Random sample), the sample was made up of (300) students, including 200 males and 100 females, and 231 for Humanity specialization (163) males, and (68) females, The number of persons in the scientific Specialization of (69) are (37) males and 32 females, and the sample accounted for (34%) of the original community. Appendix (3) clarifies this.

Stability in the Re-testing method

The stability of the scale was calculated in the manner of reapplying the scale to the stability sample consisting of (40) male & female students. The scale was applied again 20 days after the first application, after which the correlation relationship between the degrees of first and second applications was calculated using the Pearson correlation coefficient. The stability of the scale was reached in this way (0.84). This value is considered good and indicates a high stability coefficient of the wisdom based performance scale.

Stability in the method of variance analysis using the equation of Cronbach’s alpha: Finding stability by using the alpha- Cronbach equation gives us a good indication of the internal consistency of the scale items. The two researchers therefore used the answers of the statistical analysis sample of (300) male & female students and the stability coefficient in this way (0.89). This factor indicates the compatibility of the items with each other.

Statistical indicators of the scale:

The statistical indicators of the scale are calculated using the statistical pouch (SPSS), to see how near or far the degrees of members of the research sample from the moderate distribution. Table (1) illustrates those indicators.

The scale in its final formula

The final wisdom based performance scale has been made up of (50) items unevenly distributed over (5) fields, and in front of each item (5) alternatives. The statistical analysis of the responses of the final application sample members (300) students showed that the arithmetic mean (158.957) with a standard deviation (18.118) and a hypothetical average of (150), and to find out the difference between the two averages, the researchers used the T-test for a single sample. The calculated T-value (8.562) was found to be greater than the tubular T value of (1.96) at indicative level of (0.05) and freedom degree (299), as shown in table (2). Table (2) shows that the level of wisdom based performance of doctoral students was high and statistically significant of level (0.05). This result is predictable and can be explained by many reasons, the most important of which is the age range of the sample members. They ranged from (27-60) years old, and their cognitive and professional experiences have been gained from the stages of pre-doctoral studies, most of them were outstanding students in their previous stages of study and had a high ambition. This result is consistent with the results of previous studies and the theoretical framework, in particular what Ericsson pointed out in his theory and the Maslow in his pyramid. Despite the high level of wisdom based performance of the sample members, the likelihood that a few of them will behave unwise is possible, which requires more than one research using other research tools. To achieve the second objective of the research, the binary variance analysis (two way ANOVA) was performed. The statistical analysis showed the results recorded in Table 3. There are no statistically significant differences in the wisdom based performance of postgraduate students depending on the type variables (male-female). Because the calculated

F value is (0.006), it is smaller than the tabular value (3.841) at the indication level (0.05) and two degrees of freedom (1 – 296). The result can be explained that performance based on wisdom is influenced by the life, cognitive and professional experiences of the individual, regardless of his or her social type. Since doctoral students, both male and female, are in the young age and have completed a master's degree and a number of them are faculty members in universities and employees of the state services, and they are a homogeneous sample of age and life experiences and the tool used in research relies on self-determination, so the result came Consistent with what is stated in the theoretical framework and the results of previous studies. There are no statistically significant differences in the wisdom based performance of postgraduate students depending on the specialization variable (scientific-humanistic). Because the calculated F value is (0.011), it is smaller than the tabular value (3.841) and at the indication level (0.05) and two degrees of freedom (1-296). The two researchers explain the absence of differences between scientific and human disciplines in the wisdom based performance of doctoral students, that it is due to the fact that the performance based on wisdom depends on the factors mentioned in the interpretation of the result (1) and that it is not much affected by the scientific or human specialization, as long as everyone has passed similar experiences and challenges during their previous life, career and study stages. Imprudent (or reckless) performance can be behaved both from the natural science specialist and from the humanities specialist. There are no statistically significant differences in performance based on wisdom resulting from the interaction of type (male – female) with specialization (scientific-humanistic). Because the calculated F value amounted to (0.704) and is less than the F tabular value (3.841) at the indication level (0.05) and two degrees of freedom (1-296). This result can be attributed to the fact that the interaction of the gender variable and academic specialization does not affect the type of performance of the PhD. This result is consistent with the findings of the Al-Yasiri ⁸ Study despite the very different sample of this research (PhD students) and Al-Yasiri sample in terms of age and study.

Table 1. Statistical indicators for scale.

Statistical property	calculated values for sample research wisdom based performance
Arithmetic mean	158.957
Standard error for the average	1.046
Mediator	202
Rate	201
Standard deviation	18.118
Variation	328.276
Twisting (skewness)	-.500
Standard error for twisting (skewness)	.141
¶Kurtosis	-.069
Standard error of ¶Kurtosis	.281
The lowest score	108
Highest score	196
Number of final items	50
Theoretical Medium	150

Table 2. Arithmetic and hypothesis averages and standard deviation of the degrees of the research sample members on the wisdom based performance scale and T values.

Variable	sample	Arithmetic average	standard deviation	Hypothesis averages	T value		Significance Level at (0,05)
					calculated	tubular	
wisdom based performance	300	158,957	18,118	150	8,562	1,96	Significant

Table 3. Results of binary variance analysis to determine the significance of statistical differences in wisdom based performance according to gender variables (male-female) and academic specialization (scientific-humanities).

S.V source	Total Squares	Freedom degrees	Average Squares	F value		significance
				calculated	tubular	
Type	2.028	1	2.028	.006	3.84	Not significant
specialization	3.760	1	3.760	.011		Not significant
Type X specialization	232.817	1	232.817	.704		Not significant
Error	97889.134	296	330.707			
Total correlation	98127.739	299				

CONCLUSION

Doctoral students are characterized by a high level of performance based on wisdom. Wisdom-based performance is not affected by the variables of gender

and academic specialization.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Department of Educational and psychological Sciences, College of Education For Human Sciences, Babylon of University, Iraq and all experiments were carried out in accordance with approved guidelines.

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Treating of Wastewater Contaminated with Dyes Using Photo-Fenton Processes

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ABSTRACT

This study investigated Advanced oxidation process (AOP) utilizing photo-Fenton system (UV/H₂O₂/Fe⁺²) in treatment of wastewater contaminated with dyes. The experiments were carried out by batch systems. Acid Blue -9 dye (AB-9) was used as a model for dyes in wastewater. The experiments were conducted using Pyrex glass cylinder two liter volume reactor. The influence of different variables in batch experiments: H₂O₂ (10-800mg/L), Fe⁺²(5-100mg/L), pH (2-5) and initial concentration of AC-9 (25-150 mg/L) and their relationship with the oxidation efficiency were studied. In batch photo-Fenton system, the experimental results showed that the reagents required for complete removal (AC-9) (50mg/l) were: H₂O₂=800mg/L, Fe⁺²=50mg/L under acidic condition (pH=2), temperature =20°C and irradiation time of 150 min. The result shows that the oxidation reagent H₂O₂ plays a very important role in dyes removal, and they final removal efficiency reached 99%.

Keywords: Dye removal, Advanced oxidation processes, H₂O₂.

INTRODUCTION

Color and its causal compounds existence in water is undesirable used for either domestic or industrial uses. Many coloring agents such as inorganic pigments, dyes, lignin, tannins, etc. usually impart color. Dye wastes are the most predominant coloring agent among complex industrial wastewater ^{1,2}. Presence of dyes in wastewater is environmental problem because they impart an unwanted color to the water and sometimes they are harmful and become originate dangerous as by-products of hydrolysis, oxidation, or other chemical reactions occur in the waste phase ³. Developing effective techniques of water treatment has become a vital need for industries of textile. In order to remove the undesired color from dye-contaminated wastes, methods of treatment consist of numerous routes including chemical decolorization methods, physical biological ⁴. Characteristics of wastewater decide the Treatment

methods have to be used. However, the most effective and economical methods are desirable as compared other methods. Biological, Chemical, and physical methods are the common wastewater treatment being used. Researchers have proved by advance studies that chemical methods are the most economical and efficient as compared to the l and physical methods. Recently, advanced treatment technologies which are more powerful, very promising, and innovative are known as Advanced Oxidation Processes (AOPs) which have been advanced and used to treat contaminated wastewater effluents by dye⁵. Typically, advanced Oxidation Processes use HO• radicals as a strong oxidizing agent which produced in situ and causes a series of reactions afterward to break down the macromolecules into smaller and less hazardous matters. In general cases the macromolecule is totally mineralized into carbon dioxide and water. The AOP technique has attracted a significant attention from many scientific researchers as it produces meaningfully less residuals in contrast to the classical methods and it is very easy to handle. The most techniques are employed in the AOP approach are the Fenton process, photo-Fenton process, UV photolytic technique, the radiation induced degradation of dyes, zonation process, sonolysis, and photo catalytic

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approach ⁶. The mechanism of dye demolition in AOPs is built on the formation of strong oxidizing agent particularly hydroxyl radicals HO[•] that oxidizes a wide range of organic contaminates ⁷.

MATERIALS AND METHOD

Dyes

C.I. Acid Blue 9 (AB-9) was used in this research. It refers to acidic dyes group is soluble in methanol and cold water. It can be found in thousands of textile (as a dye for silk and wool), pharmaceutical wastewaters, and foodstuff. In addition, C.I. Acid Blue 9 is one of the components a quelled which is used as an aquatic algacide/herbicide, in manmade ponds or natural, fountains, lakes, fish hatcheries, and fish farms and may be applied by both professional homeowners and applicators. It is dangerous in case of skin contact (irritant), eye contact (irritant), ingestion, and inhalation ⁸. Simulated stock solutions of 1000mg/L had been prepared by dissolving 1 gm of each dye in one liter distilled water then diluted to the desired solutions concentration of single dye.

Chemical

Table 2 displays all the chemicals were used in the experimental work. Particular amount of the chemicals was dissolving in distilled water to prepare all the samples. Drops H₂SO₄ or NaOH solution was used to adjust the solution pH.

Equipments

Batch laboratory-scale reactor was used to carry out all the experiments. The reactor consists of a cylinder of Pyrex glass with a two liter volume which is fixed at magnetic stirrer with heater (LMS-1003, DAIHAN LAB TECH, Korea). UV radiation of 254 nm wavelength was produced from UV lamps (UVM 9311 G 6watt 4P-SE, SO SAFE, USA), which mounted vertically at the top of the reactor. The Pyrex cylindrical reactor is used to totally immerse the UV lamp. A quartz sleeve with 23 mm external diameter, 20 mm internal diameter, and 266.7 mm length was used to sheath the UV lamp for protection. 5 cm distance between the reactor wall and the lamp to guarantee maximum light irradiation as mentioned by ⁹.

Experimental procedure

The Experimental procedure was achieved as follows:

The suitable dye concentration was prepared and a dilute solution of 0.1M H₂SO₄ or 0.1M NaOH was added to the reactor to adjust the pH before the addition of the reagents. The Fenton reagents were presented to the dye solution by adding ferric sulfate and after that the hydrogen peroxide was added. A magnetic stirrer was used to stir the suspension for 150 at 200 rpm. The heater was set properly with the temperature required. Thin layer of aluminum was used to cover the whole reactor to avoid the emission of UV. The readings were taken with time and the experiment was stopped at 100% efficiency.

Analytical methods

The measuring of dyes concentrations in the water specimens and all the experiments were done at the sanitary Laboratory at Department of Environment in Mustansiriyah University / College of Engineering by using a spectrophotometer of UV-VIS (10 UV thermogenesys, USA.).

RESULTS AND DISCUSSION

Impact of pH

The influence of the pH value has a vital role in the treatment process of photo-Fenton. Varies values of pH were studied in this research (2, 2.5, 3, 3.5, 4, 4.5 and 5) while other parameters and dosage were kept constant which are (H₂O₂=400mg/L, dye concentration=50, mg/L, temperature=20°C and Fe⁺²= 10mg/L). Fig. (1) Shows that the maximum elimination efficiency (99%) was gained at pH=2. Above PH=2, decreasing of the removal efficiency was observed gradually excepting at pH=5. Noticeable reduction of removal efficiency to (69%) was detected. The pH value of 2 has found to be the best value in many researches ⁹. At pH value of less than 2.5, [Fe(OH)(H₂O)5]⁺ complex does not form and the formation of [Fe(H₂O)₆]²⁺ complex takes place, which creates small amount of reactive hydroxyl radicals groups due to the slowly reaction of the complex formed with hydrogen peroxide and lead to reduce the degradation efficiency as mentioned by ¹¹. Moreover, the hydroxyl radicals scavenging effect by hydrogen ions becomes significant at a very low value of pH ¹⁰. Additionally, the reaction of hydrogen peroxide with

Fe³⁺ is reserved ¹².

Initial H₂O₂ concentration impact

Initial concentration of H₂O₂ influence at (10, 50, 100, 200, 300,400,500,600,700, 800 mg/L) on photo-Fenton process was measured to adjust the quantity of H₂O₂ required to dyes. 10 mg/L of initial amount of Fe⁺² was fixed and kept during the experiments. Initial value of pH =2 was used and the temperature was kept at 20°C during all the experiments. Initial dyes concentration which used in the experiments was 50 ppm. The results were plotted in Fig. (2).The relation between the irradiation time for various initial concentration of H₂O₂ and the removal efficiency was shown in Figure (2). This figure shows that the increasing of the concentration of H₂O₂ from 100 mg/L to 800 mg/L leads to increase of removal of dyes and reaches to a maximum efficiency of removal of 99% at 800 mg/L after 150 minutes of irradiation time. Dye removal did not more improved, but it decreased or still constant because of scavenging effect of H₂O₂ on OH radicals as mentioned above ¹³.

Impact of initial iron salt (Fe⁺²) concentration

Initial Fe⁺² concentrations influence on photo Fenton method was measured by accomplishing the experiments with different Fe⁺² concentrations (0, 5, 10, 15, 20,25,50,75 and 100) mg/L. in these experiments, the optimal concentration of H₂O₂ (800 mg/L) which obtained from prior section was tested. The concentration of dyes =50 mg/L, the temperature was kept at 20°C, and the pH=2 during all the experiments. Figure (3) represents the plotted results of experiments. It observed from the figure that increasing quantities of iron salt leads to increasing of the degradation rate of dyes distinctly and it achieved to its optimum value (99% removal) after 150 min of irradiation time at 50 mg/L. this increasing can be described by redox reactions because OH radicals may be scavenged by the reaction with the another Fe₂⁺ molecule as below or with hydrogen peroxide present ¹³.

Initial Dyes concentration effect

Different dyes concentrations (25, 50, 75,100 and 150) mg/L were applied at H₂O₂ = 800 mg/L, temperature=20°C, Fe⁺² = 50 mg/L, and pH= 2. Figure (4) represents the plotted results of experiments results. From this plot, it can be observed that the efficiency of removal decreases linearly from 99% to 91% when the dyes concentration increases from 25 to 75 mg/L, respectively. ¹⁴

Table 1. Main characteristics of Acid blu-9 Dye (AB).

Trade name	Wave length (nm)	Chemical Class	pH	Solubility g/L at 25 oC
Patent Blue V	690	Triphenylmethane (listing Triarylmethane)	2-4	3-30

Table 2. List of chemicals used

Compound	Formula	Vender
Sulfuric acid	H ₂ SO ₄	Riedel-deHaen (99 % purity)
Hydrogen peroxide	H ₂ O ₂	Scharlau (30 % wt/wt)
Sodium hydroxide	NaOH	Scharlau
Ferrous Sulfate Heptahydrate	FeSO ₄ .7H ₂ O	Hopkin and Williams (England)

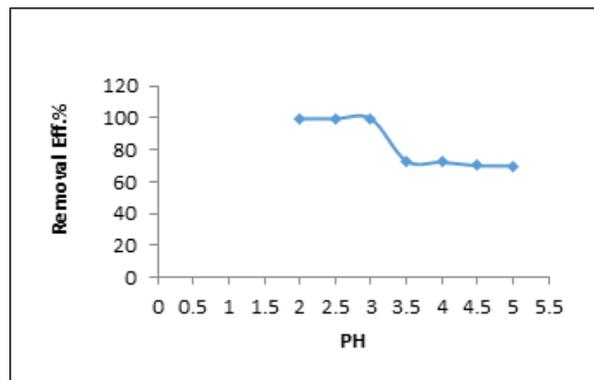


Figure 1: Removal of AB-9 at different pH at Fe⁺² = 10, H₂O₂=400 mg/L, mg/L, irradiation time 150 min., and Temp. =20°C.

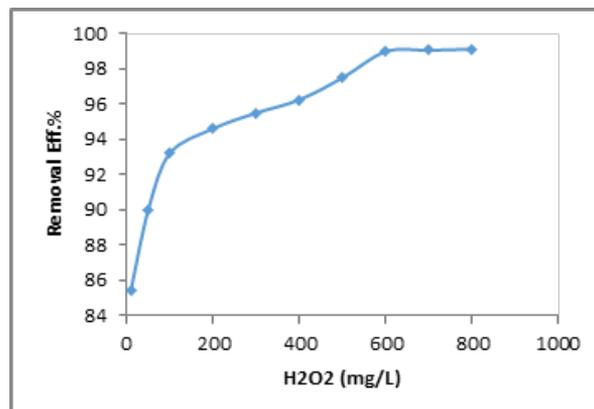


Figure 2: Removal of AB-9 at different initial concentration of H₂O₂ at pH= 2, Fe⁺²=10 mg/L, dyes conc.=50 mg/L, irradiation time 150 min, and Temp. =20°C.

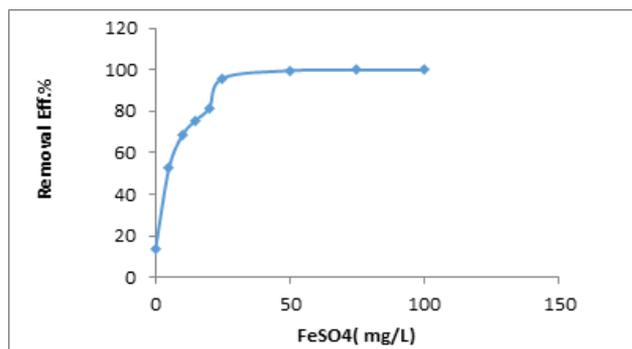


Figure 3: Removal of AB-9 at different Fe⁺² initial concentration at H₂O₂=800 mg/L, pH=2, dyes conc=50 mg/L, irradiation time 150 min, and Temp=20°C.

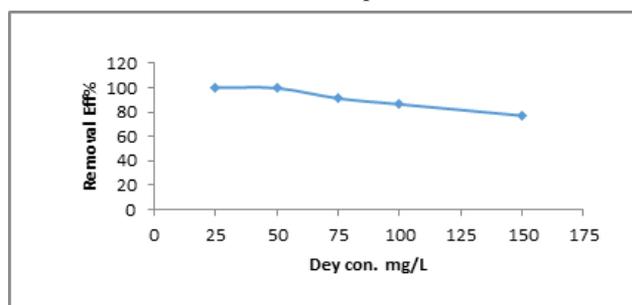


Figure 4: Removal of AB-9 at different concentrations by photo-Fenton system at H₂O₂=800 mg/L, Fe⁺²=50 mg/L, pH=2, Temp.=20°C and irradiation time 150 min.

CONCLUSION

The most important conclusions that obtained from the experimental work of this research are as follow: The removal efficiency for the degradation of AB-9 in simulated wastewater using UV/H₂O₂ were 99%. The removal efficiency for the degradation of AB-9 in simulated wastewater using UV/Fe⁺² was 99% also. The dosage of the reactant, H₂O₂= 800 mg/L, Fe⁺²= 50 mg/L was found to be the optimum. The efficient operating temperature was found to be 20°C for both systems. The optimum pH for homogeneous system was found to be equal to 2.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Environmental Department, College of Engineering, Mustansiriyah University, Iraq and all experiments were carried out in accordance with approved guidelines.

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