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Effect of Discharge Planning on Patient with Cardiac Surgeries Regarding Compliance towards Therapeutic Regimen

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ABSTRACT

Aim of the study: To assess the Effect of Discharge Planning on Patient with Cardiac Surgeries Regarding Compliance towards Therapeutic Regimen. **Research design:** A Quasi experimental design. **Setting:** The study was conducted at the Cardiology Unit ,CardioThoracic Surgery Unit, and their Outpatient clinics in Benha University Hospital. **Subjects:** A purposive sample of all available patients with cardiac surgeries who were admitted in the previous mentioned settings within 8 month duration sample size in these interval were 80 patients .two **Tools were used for data collection: I) structured Interview questionnaire** ;it includes **two parts: (1st part)** it is concerns with patients' personal characteristics of patients with cardiac surgery and factors that affecting the compliance of patients with cardiac surgery, **(2nd part)** concerns with patient knowledge about compliance towards therapeutic regimen for cardiac surgery .**II)-patient compliance sheet**, this tool assess patient compliance towards therapeutic regimen. **Results:** Revealed that there was statistically significant relation between intervention group compliance and level of education, and their compliance and social factors. There was highly statistically significant relation between overall studied groups (intervention and control group) compliance level and the subjects demographic characteristics as regard age, occupation, marital status and income. For intervention group, There was improvements of patients' compliance after implementing discharge plan. **Conclusion:** There was statistically significant relation between overall patients' compliance level and demographic characteristics and all patient related factors (except physical factors) and medical team related factors. **Recommendations:** Enhancing patients undergoing cardiac surgeries compliance through health education program and improving the factors that affecting patients' compliance.

Key words: Discharge Planning, Compliance, Therapeutic Regimen

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INTRODUCTION

Compliance in the field of health care is often associated with the individual's ability in maintaining behaviors in association with care plan and includes complete use of drugs, on time presence in the pre-set programs, following up of disease and making necessary changes in health behaviors; otherwise, there will be no compliance. In fact, noncompliance is a

voluntary and conscious decision by which patient does not follow or obey professional instructions of the therapist (Shay, 2008).

Compliance is defined as the extent to which patient's behavior change in term of taking medications, following diets or exercising and other life style changes. It is an essential component in the success of preventive and the therapeutic efforts along

with the efficacy of the suggested course of action. It is an active, internal and responsible process whereby patients assume responsibility aiming to maintain their health in collaboration with health care staff (**White, 2011**).

Many studies suggested that patients who adhere to their regimens have better outcomes; they live longer, enjoy a higher quality of life. Compliance requires the patients to be active and to collaborate with health care professionals when setting goals for their treatment and defining the methods by which these goals can be achieved. Patients should change their lifestyle. The treatment should be part of patients' lives (**Whealthy, 2012**).

Numerous factors affecting noncompliance such as indifference toward noncompliance consequences, lack of knowledge, self-treatment, and mental and emotional problems of patients and families are more related to the patient himself that corresponds with the results of previous researches. Researchers have shown that patients who are confronted with various obstacles, such as lack of social support, less follow their care programs (**Atkinson, 2011**).

These factors could be categorized to patient-centered factors, therapy-related factors, social and economic factors, healthcare system factors, and disease factors. For some of these factors, the impact on compliance was not unequivocal, but for other factors, the impact was inconsistent and contradictory (**Jeng, grant, Vernonn, SHU S.2008**).

Similar to the "soft" factors, the effect of demographic factors (e.g. age, gender, ethnicity, educational level and marital status) on compliance is also rather complicated, because they may not be truly independent factors that influencing

compliance. Actually, demographic factors are related to patient's various cultural, socioeconomic and psychological backgrounds. Thus, future studies on compliance should not focus on demographic factors alone. One of the most frustrating situations confronting a physician is a noncompliant patient. When a patient receives clear instructions, acknowledges those instructions, fails to follow them, and then slips into even worse difficulty than he had before (**Robert. Sade. 2009**).

Many studies report that non-compliance can have an effect on morbidity and mortality associated with cardiovascular disease regardless of when it occurs in the treatment continuum. Compliance is part of helping relationship between health care providers and patient(**Walsh, 2009**). The nurse is an important advocate in helping the patient and family understanding the complexities of treatment decisions and manages the side effects, toxicities of drugs and complications of cardiac surgery. A patient empowered by knowledge of the disease and treatment can have more positive influence on the compliance with the treatment (**Penny, 2012**).

Significance of the Study:

Most patients with cardiac surgeries are always readmitted to hospital with different complications. This could be attributed to that most patients who didn't comply with therapeutic regimen. In Egypt, coronary artery bypass graft (CABG) is the most common type of cardiac surgery with more than 330.000 procedures performed per year, making it one of the most commonly performed major operations (**Benjamin, 2012**).

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Aim of the study:

The present study was aimed to assess the effect of discharge plan on compliance of patient with cardiac surgeries regarding to therapeutic regimen.

Research hypothesis:

- 1- Patient knowledge of the study group will be improved regarding post discharge plan.
- 2- Patient compliance will be improved after post discharge planning implementation.
- 3- There is a relation between compliance and knowledge.
- 4- There are relations between compliance and personal characteristics and other patient's factors.

Methodology

Research design:

Aquasi experimental design was utilized to assess Effect of Discharge Planning on Compliance of Patient with Cardiac Surgeries Regarding to Therapeutic Regimen.

Setting:

The study was conducted at the Cardiothorathic Surgery (in which these unite affiliated to the immediate and intermediate care of patients with cardiothorathic surgeries, it consist of four rooms with sex bed; the unit was equipped with cardiac monitor, suction machine, and other equipment needed also Cardiology Unit, in which some patients may referred to this unite during presence of complication, and Outpatient clinics of cardiothoracic surgery and Cardiology unit in Benha University Hospital this unit affiliated to flow up care of this patient these unit equipped

with electrocardiogram, scale. these unit were selected for carrying out this study based on similarity of the cases admitted and essential equipment available to care of patient

Sample:

A purposive sample of all available patients with cardiac surgery (80 patients) who admitted in the previously mentioned settings within 8 month duration. They were divided to equal groups, the intervention group who received a discharge plane and a control group received a routine hospital discharge.

Power of analysis for sample size can be estimated using the following

$$N = \frac{Z_{\alpha/2}^2 * P * (1-p) * D}{E^2}$$

formula Where P is the prevalence or proportion of event of interest for the study, E is the Precision (or margin of error) with which a researcher want to measure something. Generally, E will be 10% of P and $Z_{\alpha/2}$ is normal deviate for two-tailed alternative hypothesis at a level of significance; for example,

They were selected according to Sample size for paired t- test calculated by assuming α level to equal 0.05 and β level equal 0.01, when the assumed progress in patient compliance would be 30% with mean difference of 15 and standard deviation ± 24 according to reviewing of literatures. The minimum required sample size would be 80 patients and by considering drop outs by adding 10% (Kirkwood, Sterne, 2003). In relation to the number of patients undergoing urinary diversion within (2012-2013) in study setting according to the statistical department which affiliated to setting.

Tools of data collection:

1-) Interview questionnaire:

It was adopted from **Fathy, Mahdy, foaud (2012)** and modified by the researcher, based on review of literature. It included **two parts**: *1st part*; it is concerned with personal characteristics of the patients with cardiac surgeries as: age, sex, occupation, marital status, level of education and income. *And factors* affecting compliance of patients with cardiac surgery toward therapeutic regimen which included patients related factors (i.e., physical factors, social & financial factors, psychological factors, and medical team related factors).

2nd part : It concerned with patients' knowledge regarding therapeutic regimen (26 questions) as : knowledge about (drug regimen ,diet, precaution for wound, practicing suitable exercise ,follow up and precaution to avoid complication .

The scoring system for patient knowledge:

The grading for answer was.(0) for poor knowledge, (1) for good answer

The answer was (yes) or (no). It was evaluated as follow: $\geq 80\%$ concenter satisfactory, $\leq 80\%$ concenter unsatisfactory

II): patient compliance sheet, It concerned with **assessment of patient compliance towards therapeutic regimen**: It includes different items of complaints (26 items) as: Drug regimen, diet, precautions of wound care, practicing suitable physical exercises, follow up regimen and precautions to avoid complications. This through patient interview and reviewing patient flow up card and hospital sheet

Scoring system for patient compliance

It was evaluated as follow: $\geq 50\%$ concenter compliance, $\leq 50\%$ concenter incompliance.

Ethical Consideration:

Informed consent was obtained from participant after explaining the purposes of the study, no harmful methodology used with participant, each participant had right to withdrawal from the study at any time, human rights were used. data would be confidential.

Procedure:

Pilot study:

A pilot study was conducted on 10% of the study subjects for testing clarity, relevance, and feasibility and applicability of the tool to estimate the time required for filling the tool. Based on the results of the pilot study, the necessary modifications and clarifications of some questions were done to have more applicable tools for data collection. The patients who included in the pilot study were excluded from the main study group.

Field work:

Official letter was issued from dean of Faculty of Nursing to the hospital Director to carry out the study; the necessary approval was obtained from the hospital Director of Benha University Hospital. After, explaining the aim and significance of the study to chairmen and nursing staff of the previously mentioned units to gain their approval and cooperation. An oral consent was taken from the patients who agreed to participate in the research process.

All available patients (80) with Cardiac surgeries who agreed to participate in the study in the period from December

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2012 till October 2013 were included in the study they were divided In to two equal groups. The aim of the study and component of the tools were explained to them at the beginning of data collection.

The researcher visited the outpatient clinics of Cardiothoracic Surgery unit and Cardiology Unit in the morning shift from 10.00 a.m. to 2 p.m. for three days weekly. The morning shift was suitable for the researcher because it was easy to find the patients in the Outpatient Clinic of Cardiothoracic Surgery for follow up. Each patient was interviewed individually by the researcher at an isolated room in the previously mentioned units. The interview questionnaire sheet was filled in for both groups by the researcher, within time of 10-15 minutes as well as regarding patients' compliance tool.

Implementing discharge plan:

A. Discharge planning was developed by the researchers based on the opinions of experts, the result of study, related literature and available structure guidelines. Teaching materials was prepared as audiovisual materials, video tape and handouts. After that, the discharge planning were discussed through a group discussion sessions, four sessions were used for each group. Implementing discharge plan was conducted by the researcher through lectures and group discussion using audiovisual materials, video tape and handouts booklet about compliance regarding to therapeutic regimen for cardiac surgeries and; these media was distributed to all patients. It took 24 weeks to be implemented to the intervention group and 8weeks for conduct pretest in

order to establish basic knowledge for the control group. Teaching was started from 10.00 a.m. to 2.00 p.m.at previous mentioned unit in separate room at outpatient clinic and cardiothorathic surgery; the session was modified according to patient follow up. The sessions including 3-5 patients; discharge planning started for patient after able to communicate, the total numbers of sessions were four sessions for each group. It divided as following: A total 4 sessions for theoretical part (1 hours including discussion) and 2 sessions for the compliance regarding to therapeutic regimen part (1 hours). The total number of group was (8 groups) and total time for achieving the teaching guide line was (24) hours for each group under the study. Each session lasted for not less than one hour.

Evaluation of the discharge plan was done by comparing changes in the patients' level of compliance between the intervention group and control groups by using the same tools.

IV. Statistical Design:

The collected data were organized and tabulated. The statistical analysis was done by using Statistical Program Social Science (SPSS), version 14. The statistical analysis was included number (n), percentage (%), and Chi square(X^2).

The significance of observed difference was considered as follow:

$p>0.05$	Not significant (NS)
$p<0.05$	Significant(S)
$p<0.001$	Highly Significant (HS)

Results:

Table (1): Represents number and percentage distribution of the studied group regarding sociodemographic characteristics (n=80)it show that statistically significant deference were found between bothgroups (intervention and control group)in all items of sociodemographic characteristics ($p < 0,05$)as for age ,the same table reveals that the highest percentages of both groups ranged between 40-50 years and 50+years(40% & 17.5%),40% & 25% respectively

Table (2):Comparison between intervention group and control group patients' knowledge regarding therapeutic regimen compliance(n=80).result showed thatthere is highly statistical significant difference between two groups in Drug regimenand statistical significant difference in Diet, Precautions of wound care, Practicing suitable physical exercise, Follow up regimen, Precautions to avoid complication)

Table (3): Distribution of studied subjects according to their compliance to

therapeutic regimen. It reveals that statistical significant in all itemsexcept indiet regimen there is highly statistical significant

Table (4): Relation between overall studied group compliance level and different factors there are no statistically significant difference in all items except related to medical team co operation for control group. But in relation between overall studied group compliance level and different factors there are statistically significant difference in all items except related to psychological problem (n=80).

Table 5: comparison between two group in their compliance the result showed that statistical significant between two group in their compliance

Fig 1:illustrates comparison between compliance and non compliance (n=80) showed that there are highly statistical significant in patient compliance after implementing program.

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Table (1): Number and percentage distribution of the studied groups regarding demographic characteristics

Sociodemographic characteristics	Intervention group n=40		Control group n=40		χ^2	p-value
	No	%	No	%		
Age group						
20-	7	17.5	3	7.5	3.64	>0.05
30-	10	25.0	11	27.5		
40-	16	40.0	16	40.0		
≥50	7	17.5	10	25.0		
Mean±SD	40.38±10.14		41.45±8.77			
Gender						
Female	15	37.5	20	50.0	1.27	>0.05
Male	25	62.5	20	50.0		
Education						
Illiterate	6	15.0	5	12.5	3.01	>0.05
-Primary	6	15.0	12	30.0		
-Secondary	17	42.5	16	40.0		
-University	11	27.5	7	17.5		
Occupation						
Work	23	57.5	20	50.0	0.543	>0.05
Do not work	17	42.5	20	50.0		
Residence						
Rural	25	62.5	25	62.5	0.00	>0.05
Urban	15	37.5	15	37.5		

Table (2): Comparison between intervention group and control group patients' knowledge regarding therapeutic regimen compliance

Items	Intervention group n=40				Control group n=40				Test of significance	
	Satisfactory		Unsatisfactory		Satisfactory		unsatisfactory		χ^2	p- value
	No	%	No	%	No	%	No	%		
1-Drug regimen	30	75.0	10	25.0	17	42.5	23	57.5	7.42	<0.001**
2-Diet	37	92.5	3	0.75	17	42.5	23	57.5	20.57	<0.05*
3-Precautions of wound care	29	72.5	11	25.75	19	47.5	21	52.5	4.21	<0.05*
4-Practicing suitable physical exercise	30	75.0	10	25.0	18	45.0	22	55.0	6.30	<0.05*
5-Follow up regimen	28	70.0	12	30.0	18	45.0	22	55.0	4.14	<0.05*
6-Precautions to avoid complication	30	75.0	10	25.0	19	47.5	21	52.5	5.26	<0.05*

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Table (3): Distribution of studied subjects according to compliance to therapeutic regimen (n=80)

Items	Intervention group n=40				Control group n=40				Test of significance	
	Compliant		Non compliant		Compliant		Non compliant		χ^2	P
	No	%	No	%	No	%	No	%		
1-Drug regimen	35	87.5	5	12.5	26	65.0	14	35.0	4.41	<0.05*
2-Diet	32	80.0	8	20.0	18	45.0	22	55.0	9.01	<0.001**
3-Precautions of wound care	31	77.5	9	22.5	19	47.5	21	52.5	6.45	<0.05*
4-Practicing physical exercise	30	75.0	10	25.0	18	45.0	22	55.0	6.30	<0.05*
5-Follow up regimen	28	70.0	12	30.0	17	42.5	23	57.5	5.07	<0.05*
6-Precautions to avoid complications	30	75.0	10	25.0	20	50.0	20	50.0	4.32	<0.05*
Total compliance score	28	70.0	12	30.0	18	45.0	22	55.0	4.14	<0.05*

Figure (1): Relation between overall studied group's compliance level

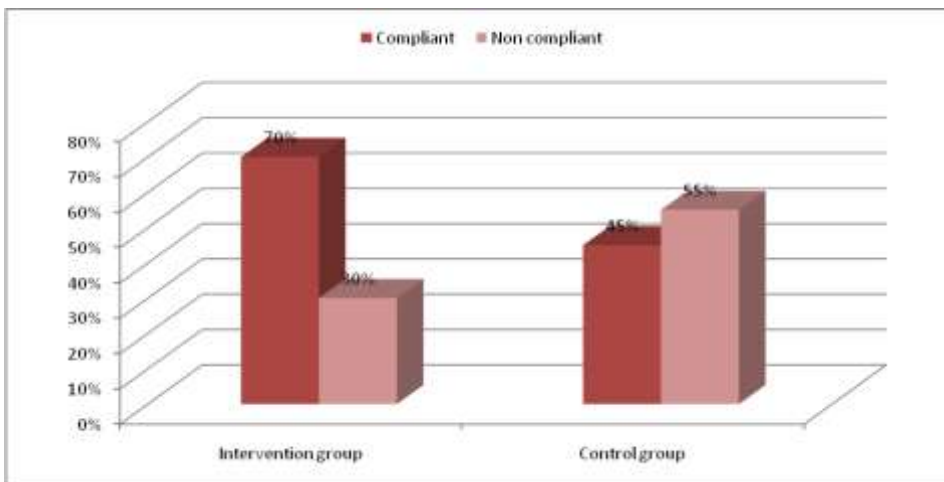


Table (4): Relations between overall studied group's compliance level and different factors (n=40)

Items		Intervention group n=40				Test of significance		Control group n=40				Test of significance	
		Compliant n=28		Non-compliant n=12		x ²	p	Compliant n=18		Non-compliant n=22		x ²	p
		No	%	No	%			No	%	No	%		
Physical problems	Yes	7	25.0	8	66.7	6.22	<0.05 *	9	50.0	14	63.6	0.75 3	>0.05
	No	21	75.0	4	33.3			9	50.0	8	36.4		
Social problems	Yes	9	32.1	9	75.0	6.23	<0.05 *	7	38.9	10	45.5	0.17 5	>0.05
	No	19	67.9	3	25.0			11	61.1	12	54.5		
Psychological problems	Yes	11	39.3	8	66.7	2.52	>0.05	9	50.0	12	54.5	0.08 2	>0.05
	No	17	60.7	4	33.3			9	50.0	10	45.5		
Medical team cooperation	Yes	28	100.0	2	16.7	31.1	<0.05 *	0	0.0	20	90.9	32.7 2	<0.05 *
	No	0	0.0	10	83.3			18	100.0	2	9.1		

Table 5 : comparison between two group in their compliance

Total complain score	Intervention group n=(40)		control group n=(40)		X ²	P-value
	No	%				
Non complain	12	30.0	22	55.0	5.11	<0.05*
Complain	28	70.0	18	45.0		
Total	40	100.0	40	100.0		

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Discussion:

The nurse should start compliance education for patients undergoing cardiac surgeries from the day of their admission. It's an important duty of the nurse to determine factors affecting compliance to therapeutic regimen among patients undergoing cardiac surgeries to enhance the patient outcome. Therefore, the present study has been designed aiming to assess the effect of discharge plan on patient with cardiac surgeries regarding to compliance toward therapeutic regimen

Part I: Concerned with patients sociodemographic characteristics with cardiac surgeries:

Regards sociodemographic characteristics, there are no statistical significant differences between both groups (intervention and control) in their relation to age, sex, occupation, educational level and residence. This may be due to increase of life loading on all social groups and increase of different cause of cardiac disease. This finding is supported by **Fathy, mahdy ,foaud (2012)** who revealed that, the age of the patients in his study ranged from 40 to above 50 years. As well as this finding was supported by reports of **American Heart Society (2005) & Cardiology Channel (2006)** who stated that, the coronary artery bypass graft (CABD) is more common in persons whose age range from 40 to 55 years.

Part 2: Concerned with patients, knowledge:

As regards patient knowledge in both groups, there are statistically significant differences between intervention and control group regarding all items of their knowledge after implementation of the

discharge plan. This is may be due to absence patient education about cardiac diseases and surgeries. This is supported by **Zerafa, Adamy And Jusife, (2011)** who stated that, education will help CABG surgery patients to make well informed decisions how to change and adhere to a healthy life style. **Cebeci, (2008)** illustrated that adequate discharge planning based on in-depth awareness of the post-discharge experience can aid to guarantee optimal recovery.

Part II: Concerned with compliance of patients with CABG toward therapeutic regimen:

The result of this study concluded that the intervention group patients' compliance regarding to therapeutic regimen increased post discharge plan and there was statistically significant difference between intervention and control groups of patients after implementing discharge plan may be due to improvement in their knowledge and a statistically significant difference was found between both groups. This finding was on line with **Fathy, et al (2012)**; the result which revealed that, the majority of patients in the study recognized the importance of therapeutic regimen; so they had total compliance. This result is also consistent with **Penny, (2007)** who found that the patients' compliance increased when they have a belief about the importance of therapeutic regimen.

The present study result revealed that, there were statistically significant differences between the intervention and the control groups of patients as regard complying with medication regimen. This is congruent with what was found by **Lamy & Powell, Hassan (2006)**, who reported that there are significant improvements of compliance of the study subjects with treatment time and dose. The

current study revealed that, highly statistically significant difference was found between two groups of the patients under study regarding compliance to healthy diet. This is could be attributed to lack of patients' knowledge regarding the healthy diet regimen and the consequences of unhealthy habits. This result is also in accordance with **Mohamed, (2010)**, who found that, the patients were not compliant with healthy diet.

Regarding to practicing suitable physical exercise results of this study it showed that, there was a statistically significant difference was detected between two groups of patients under study. This result might be due inability of the patients with cardiac surgery to perform suitable physical exercise as a result of physical problems, fatigue, and worry about physical condition which limits their social activities. This finding is congruent with what was stated by **Ameen, (2008) and Ahmed, (2010)**, who found that, easily fatigue and physical problems limit the patients to practice their social activity.

The present study result revealed that, there is a statistically significant difference between the two groups of patients as regards their follow-up regimen plan. This finding may be due to the over crowdedness of the clinic and difficult transportation; whereas less than two thirds of patients were from rural areas. This finding was consistent with **Williams, (2007) & Mohamed, (2010)** who found that, more than two thirds of patients didn't adhere to follow up regimen.

The study concluded that:

- There are statistically significant differences between intervention group and the control group in most of items regarding knowledge about compliance

toward therapeutic regimen after implementing discharge plan.

- There are statistically significant differences between intervention group and the control group in most of items regarding compliance toward therapeutic regimen after implementing discharge plan.
- There are relations between factors which hinder the intervention group to be compliant as patient related factors as physical, social, psychological factors and patient' belief and medical team related factors as cooperation .
- There was statistically significant relation between overall patients' compliance level and demographic characteristics and all patient related factors.

The study recommended that:

- Health education of patients undergoing cardiac surgeries should be started from the first day of their hospital admission and continued after discharge using a simplified and comprehensive booklet including therapeutic regimen, which is clearly illustrated by photos should be introduced to the patients undergoing cardiac surgeries after admission.
- Further study is recommended to assess the effect of educational program for patients with cardiac surgeries regarding
- to their compliance toward therapeutic regimen and its reflection on quality of life.

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