

# A Survey of Relationship between Duration of Infertility and Depression among Infertile Women in Beni Suf Governorate

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**Abstract:** *Background:* Infertility is a very real event for part of millions of people's lives. There is no doubt that infertility is a stressful experience event and has a high impact on couples' psychological status. Infertility creates a major and prolonged crisis. It is a stressful condition by creates heavy psychological trauma for the couples. Depression is one of the psychological disturbances which usually associated with infertility. Duration of infertility increases partner's stress; it is being the most important prognostic factor. All of those going through deserve to be heard and guided to psychological and mental health support on this journey. Therefore, the psychological health aspect of infertility needs to be part of every couple's health plan. *Aim:* Assess relationship between duration of infertility & mood changes and depressive symptoms'. *Method:* For this study, data were collected through in-depth interviews for convenience of 399 infertile female who were admitted in inpatient wards and/or attending to outpatient gynecological and infertility clinics at University Hospital, Health Insurance Hospital and General Hospital in Beni - Suf city. *Results:* The findings of this study indicated that, depressive symptoms were severe in infertile women aged between 25- 40 years; the highest percentage of the sample reported severe depressive symptoms when infertility duration more than three years. *Conclusion:* Based on the findings of the present study, it can be concluded that, there is a statistically significant association between duration of infertility and depressive symptoms.

**Keywords:** Infertility, Duration, Depression.

## 1. Introduction

The National Institute for Clinical Excellence (NICE 2004) defines infertility as failure to conceive after regular unprotected sexual intercourse for two years in absence of known reproductive pathology.<sup>[1]</sup> On the other hand, Infertility is strictly defined by McKinney et al., 2009 as the inability to conceive after one year of unprotected regular sexual intercourse. The definition is commonly expanded to include partners who conceive, but repeatedly lose a pregnancy "pregnancy wastage" before the fetus is old enough to survive. Briefly, a more workable definition doesn't specify a time limit, but recognize that infertility is involved any involuntary inability to conceive at the time desired.<sup>[2]</sup>

Depression is defined as a state that is characterized by much more than an appropriate feeling of sadness (that is often just a normal emotion that anyone would naturally feel when having to cope with and adjust to life's difficulties), despair, loneliness, low self-esteem, & self-reproach. Accompanying signs & symptoms include persistent, debilitating and change how they interact with the world, withdrawal from social contact, and vegetative states such as loss of appetite and insomnia.<sup>[3]</sup>

In some cases of infertility, couples realize they are infertile only after attempting to become pregnant for some time. A healthy couple, husband and wife, must acknowledge that they may be infertile through their marriage life. In spite infertility care is a specialty field, nurse plays an intensive role with infertile couple as generally practice nurse meets individuals who are seeking help for infertility or who have

had infertility treatment in varied setting, such as perioperative & maternity settings. In many cases childbearing after infertility isn't always easy, as the ability to conceive depends not only on normal reproductive function in both partners but also sensitive and emotional interaction between them, so the nurse who works in maternity, obstetric, gynecologic or even psychological settings not only may counsels families needing help with parenting, but also changes in their personal relationship. An increasing number of patients ultimately require assisted reproductive technology (IVF), which is accompanied by economical, physical and financial hardships.<sup>[2],[4]</sup>

Infertility is a serious medical concern that affects woman's quality of life and is a problem for 10% to 15% of reproductive age couples (American Society for Reproductive Medicine [ASRM, 2008]).<sup>[5]</sup> Approximately one to seven couples in the UK has difficulty conceiving. It is further estimated that of 100 couples trying to conceive naturally, 85 will conceive within one year and 95 within two years.<sup>[6]</sup> From 10% to 20% of U.S. couples cannot have a baby when they desire (ASRM, 2007). Harvard Mental Health Letter reported that, in the developed countries, nearly 5% of all couples experience primary infertility "couples who have been no prior conception after at least one year having sex without usage birth control methods" or secondary infertility "couples who have been able to get pregnant at least once, but now are unable to conceive". Although the infertility percentage is high, almost ten percent, its cause is ambiguous in many cases. Experts thought that only about half of all childlessness cases had a physical origin and that the rest were unexplained or the result of psychosomatic problems in women. But research

indicated that most cases of infertility are attributed to a physiological cause in the man or woman. Around one-third of the time, a physiological problem is identified in the woman, and other one-third in the man, and about only one-tenth of the time in both partners. In another ten to twenty percent of cases; the basis of infertility cannot be determined.<sup>[7]</sup> Conclusion, Various factors are responsible for childlessness, with an incidence in male up to thirty percent and in female up to forty percent “of those approximately thirty-nine percent of all of them involve problems with both partners,” in thirty percent of partners the cause of infertility remains unexplained.<sup>[1]</sup>

Diagnosis and treatment of infertility require considerable physical, emotional, psychological and financial investment over an extended period. Diversity forms of psychological side-effects may be caused by drugs & hormonal therapy which prescribed in infertility treatment. The synthetic estrogen such as Clomid and Serophene, which considerably and repeatedly prescribed to stimulate & improve ovulation, may lead to sleep disturbances, swinging mood and women's irritability. Other drugs and medications which used for infertility treatment may cause mania, depression, and thought disturbances. Clinicians and patients may find it is hard to figure out which reactions are caused by side-effect of medications and which are psychological; yet, identifying causes is serious for determining next steps.<sup>[8]</sup>

Infertility not only affects the primary relationship with a spouse but also those with family members & friends who may inadvertently cause pain by offering well-meaning, but misleading opinions and advices. Couples dealing with infertility may avoid social interaction with friends who are pregnant and families who have children. They may struggle with anxiety related sexual dysfunction and other marital conflicts.<sup>[7]</sup> Burns L. (2007) stated that, however, individuals who know that they are infertile often experience normally; nevertheless distressing emotions are common to those who are grieving any significant loss in their ability to procreate. Other reactions may include anger, frustration, shock, depression, and, as well as loss of self-confidence, self-esteem, and a sense of control over one's destiny.<sup>[9]</sup>

There are forty ways to treat infertility. About 85% to 90% of all of those patients are treated with conventional methods, including advice about suitable days and timing of intercourse, drug therapy to stimulate and promote ovulation or prevent miscarriages, and surgery to repair reproductive organs. Psychotherapy may also be useful as a specific type of therapy may also be useful. For example, studied have illustrated that interpersonal therapy “which focuses on resolving conflicts or improving relationships with others” as well as cognitive behavioral therapy “it identifies and tries to change unhealthy patterns of thought or behavior” can give relief to infertile patients suffering from mild to moderate depression symptoms. Researchers have conducted that psychotherapy can be helpful for depressive symptoms whether delivered individually, to couples, or in a group that is why nurse plays an intensive role with infertile couple; as mentioned before. Only about 3% of infertile couples use of more advanced assisted reproductive technology such as in vitro fertilization (IVF). While medical interventions offer much-needed to hope and help, studies suggest that they may

also add to the depression and grief that patients are already experiencing from infertility itself.<sup>[7],[8]</sup>

Duration of infertility increases stress. Long lasting and fruitless infertility treatment intensifies stress and psychopathologic problems especially depression symptoms. Studies showed those who had two to three years infertility had more depression than those who had this problem for a year or more than six years. Peak of depression could be seen during third year of infertility. After six years there will be a reduction in psychological symptoms in women. During first three years, infertility is accompanied by signs such as anxiety, depression, and loss of self-esteem, impotence and maladjustment of marital status. After three years, optimistic attitude would change to despair and at last there will be some emotional changes to adopt a child or live without one.<sup>[10]</sup>

### 1.2 Significance of the study

Infertile women should seek counseling and consider natural at home options for feelings of sadness, and depression. Not doing anything about it and keeping it to her isn't going to help. Cruel feelings of loss, depression and trauma are so stressful emotionally and psychologically that they can lead to physical manifestations in the body; actually affect physical functions of the body. Once psychological health affects the physical body, the situation gets worse than physical symptoms feed the depression.<sup>[11]</sup>

Infertility is a very real part of millions of people's lives, and all of those going through these deserve to be heard and guided to psychological health support on this cruel journey. In fact, the psychological health aspect of infertility needs to be part of every couple's health plan. Whether a couple decides to continue to pursue parenthood or not, a psychological health plan must be part of the overall picture.<sup>[12]</sup>

Akker (2005) mentioned that, investigations on infertility are voluminous and have shown that involuntary childlessness can be devastating, and it is associated with psychological distress.<sup>[13]</sup> Infertility seem to have comprehensive effects in woman's life, it is not only restricted to sexual or reproductive areas of life but also impact burden on several psychosocial areas of human existence.<sup>[13,14,15,16]</sup> Impairments have been reported regarding distinct aspects, such as relationship abilities, psychopathology, family life, marital life, and economic terms.<sup>[17],[18],[19]</sup>

Beauty of life for children and we do not have a happy life without them. Deprivation from the grace of reproduction is meaningless life and the couple's relationship getting in the deterioration and lacks stability. If infertility period is prolonged, it put a childless woman in severe pressure on herself, may become depressed and concern for her married life, and sometimes because they have lost the most important role of her creation, moreover her marriage became threatens. These increase Psychological disorders and depression symptoms, especially if the husband isn't a concerted.

### 1.3 Aim of the Study

Assess relationship between duration of infertility & mood changes especially depression symptoms

### 1.4 Research Question

What is the relationship between infertility duration and depressive symptoms levels?

## 2. Subjects & Method

### 2.1 Research Design

An explorer design was selected for the current study. The most basic function of the study is exploration; the study can assess a large amount of data to explore the population being studied, as well as assess the relationship between duration of infertility and depressive symptoms among infertile women in Beni Suef governorate.

### 2.2 Research Setting

Infertile women admitted in gynecological inpatient wards and/or attending outpatient gynecological & infertility clinics at (University Hospital, Health Insurance Hospital and General Hospital) in Beni-Suef City.

### 2.3 Subjects

A sample entailed of convenience of 399 infertile female. They were satisfied the following inclusion criteria:

- At fertility age (15-45).
- Duration of marriage is more than one year.
- Has regular sexual intercourse without contraception usage.

### 2.4 Tool of Data Collection

- A specially designed interview schedule, based on the literature review after modified them to simple Arabic language for the suit women's level of understanding, was developed by the researchers.
- Data were collected through using one tool containing three main parts as follows:

**Part I:** Includes socio-demographic characteristics, obstetrical history, levels of education and family income.

**Part II:** A structured infertility interview questionnaire sheet was modified by the researcher, which is, based on Atlantic Assisted Reproductive Therapies Suite 213, 1535 Dresden Row Halifax, NS B3J 3T1 (902) 404-8600, AART FRM Clin066 20100503 Infertility Questionnaire (Female).<sup>[20]</sup>

**Part III:** Questionnaires for depression symptoms associate with infertility. Women's data were collected using the psychological depression scale. This scale is a widely used to measure for intensity of depression symptoms. Each item describes a specific behavioral manifestation of depression. It was developed by Yusuf (2008) and it depended on Beck's theory.<sup>[21]</sup> It consists of 20 questions. Responses were

measured in 3- point Likert Scale, where the highest score indicated the highest level of symptom intensity, ranging from "1 to 3" as: 1 Quite a few, 2 Sometimes, 3 Yeses, often. The range of possible score is from "20" to "60". There are three levels of depression symptoms, from 20-29 without or sadness feeling "normal level"; from 30-38 moderate depression symptoms; from 39-60 severe depression symptoms.

### 2.5 Methods of Data Collection

This study was covered in the following phases:-

#### 2.5.1 Validity of tool

Five experts reviewed the content validity of the tool from maternity and gynecological nursing professors, obstetric and gynecological medical professors and mental health nursing professors.

#### 2.5.2 Reliability:

Confirming the stability of the questionnaire, Cronbach's alpha was used because it gives the minimum reliability coefficient scale, beside it does not require reapplication, and it has been shown that the Cronbach's alpha coefficient equal to 0.84 is an excellent factor in such studies.

Reliability Statistics	
Cronbach's Alpha	No of Items
0.84	20

#### 2.5.3 Administrative & Ethical Considerations

Researchers took approval from hospitals directors before starting the research in order to allow them to take the survey sample. Written letters, including the aim of the study was issued from the dean of the faculty of nursing, Beni Suef University, to the directorate of University Hospital, Health Insurance Hospital and General Hospital in Beni Suef city to obtain permission to collect the research sample from Hospitals under their directorate. Consent from every woman before the beginning of the interview was taken. Explanation of the study's aim was done for women to gain their permission to participate. Every woman participating in the study was assured clearly about confidentiality of the information gathered, and its use only for this study.

#### 2.5.4 Pilot Study

It is approximately 10% of the study sample. Woman's abilities to participate in filling questionnaire were assessed. The pilot settings, selected in this study were inclusive in the original study subject, but the pilot sample was excluded from the main one in order to avoid contamination of the study sample. The pilot study assessed clarity of language, applicability of items, and time consumed for filling in the tools' items. According to the results of the pilot study, modifications were made on the questionnaires.

#### 2.5.5 Field Work

Data were collected from gynecological wards and/or outpatient gynecological and infertility clinics at university health, health insurance & general hospital in Beni Suef City for three days a week at most Saturday, Sunday & Thursday,

each week according to available time to women and their attendance schedule for clinic as doctor ordered and their needs. Each woman takes time approximately between 45-60 minutes to fill a questionnaire; also researchers of study help illiterate women in filling their questionnaire. The assessment of data took 12 months to be collected. The actual field work was carried out at the beginning of July 2012 up to the end of June 2013 for data collection from above mentioned settings.

**2.5.6 Statistical Design**

The collected data were organized, revised, stored, tabulated and analyzed using the number and percentage distribution, statistical analysis was done by a personal computer (PC). Proper statistical tests were used to determine whether there was a significant difference or not, using the statistical package for social science (SPSS), version 16.0 (SPSS, Chicago, IL, USA). As follows:

- Description of quantitative variables as mean and SD (Mean ± SD)
- Relations between different numerical variables were tested using Pearson correlation.
- Statistical associations between pairs of categorical variables were assessed using  $\chi^2$  tests.
- Factors associated with depression symptoms severity among infertile women have been identified using  $\chi^2$  tests.
- Probability (p-value) was considered as follows:  
 P value > 0.05 insignificant  
 \* P < 0.05 mild significant correlation  
 \*\* P < 0.01 moderate significant correlation  
 \*\*\* P < 0.001 highly significant correlation

**3. Results**

**The distribution for the studied sample as regards prevalence & levels of depression symptoms** is presented in figure (1). It shows that more than half (54.4%) of the studied sample had mild to moderate level of depressive symptoms, 40.9% of them had severe level of symptoms, while only (4.8%) of them were normal and had only sadness feeling.

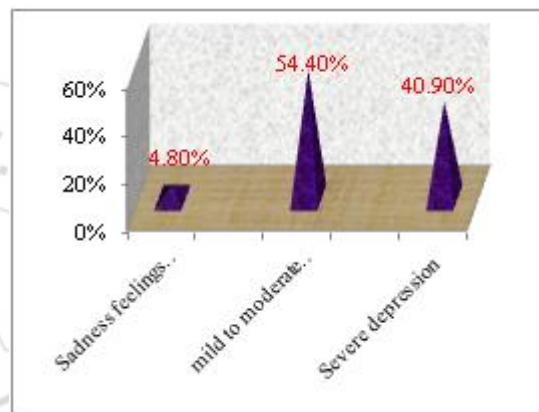
**The distribution of the studied sample as regards depression symptoms frequencies based on sociodemographic characteristics** is presented in table (1). It reveals that depression symptoms were severe in women aged 25-40 years (73.6%), Secondary education level (48.5%). Age and educational level had a significant relation with symptoms of depression scale score. (P = 0.000, 0.004) respectively. It also revealed that there is a significant relation between women's occupation and their depression scores, p = (0.003). Depression symptoms were more observable in outside employees as well as officer employees comparing with other jobs and homemakers. As results of the study a significant difference was observed between job's type and depression score (P = 0.000).

**The distribution of the studied sample as regards depression symptoms frequencies based on infertility cause** is presented in table (2). It shows that 22.7% of women who had severe depression symptoms their cause of infertility are ovulatory problems. A highly significant

relation was found between Causes of infertility and depression, p = (0.000).

**The distribution of the studied sample as regards frequencies and depression rate based on duration of infertility** is presented in table (3). It demonstrates highly significant correlation between infertility duration and depression scores (P = 0.000).

**The distribution of the studied sample as regards rate and frequencies of depression symptoms based on family income adequacy** is presented in table (4). It reveals that there is highly significant correlation was found between family income adequacy and depression scores. Depression was more observed in low family income compared with high ones. (P = 0.000).



**Figure 1:** Prevalence & Levels of Depression Symptoms.

**Table 1:** Distribution of the Studied Sample as Regards Depression Symptoms Frequencies Based on Sociodemographic Characteristics

Variables	Sadness feelings	mild to moderate depression	Severe depression	P-Value
<b>Women characteristics</b>				
<b>Age</b>				
below 25 years	5.3%	32.7%	15.4%	0.000
25-40 years	94.7%	65.5%	73.6%	
above 40 years	0.0%	1.8%	11.0%	
<b>level of education</b>				
Illiterate	52.6%	27.6%	25.2%	0.004
Primary education (read and write)	5.3%	14.3%	12.3%	
Secondary education or equal	42.1%	34.1%	48.5%	
University education	0.0%	24.0%	14.0%	
<b>Occupational status</b>				
Working	84.2%	54.4%	68.1%	0.003
Jobless (housewife)	15.8%	45.6%	31.9%	
<b>Occupation type</b>				
No occupation	10.6%	46.5%	32.5%	0.000
Officer (employee)	52.6%	29.0%	29.4%	
Skilled job (Professional)	36.8%	11.5%	21.5%	
Trader or dealer	0.0%	4.2%	16.6%	
Other job	0.0%	8.8%	0.0%	

**Table 2:** Distribution of the Studied Sample as Regards Depression Symptoms Frequencies Based on Infertility Causes

Infertility Causes	Sadness feelings	mild to moderate depression	Severe depression	P-Value
I don't know	47.4%	16.1%	27.0%	0.000
Ovulation problems	47.4%	30.4%	22.7%	
Scanty of sperms	0.0%	17.5%	15.3%	
Polycystic ovary	0.0%	19.8%	11.7%	
Vaginal inflammation	5.2%	8.4%	9.8%	
Hormonal disturbances	0.0%	3.2%	8.6%	
Sperms & vaginal inflammation	0.0%	0.0%	1.8%	
Sperms & ovulation problems	0.0%	1.8%	1.8%	
Sperms, Vaginal & ovulation problems	0.0%	0.0%	1.3%	
Vaginal & ovulation problems	0.0%	2.8%	0.0%	

**Table 3:** Distribution of The Studied Sample as Regards frequencies and Depression Symptoms rate Based on duration of Infertility

Infertility duration	Sadness feelings	mild to moderate depression	Severe depression	P-Value
1 year	0.0%	20.7%	23.9%	0.000
2 years	0.0%	22.6%	14.2%	
3 years	78.9%	31.8%	24.5%	
> 3 years	21.1%	24.9%	37.4%	

**Table 4:** Distribution of the Studied Sample as Regards Frequency and Rate of Depression Symptoms Based on Family Income Adequacy

Family income adequacy	Sadness feelings	mild to moderate depression	Severe depression	P-Value
Not enough	47.4%	54.4%	46.0%	0.000
Enough	36.8%	24.4%	36.8%	
A little more than enough	0.0%	20.7%	14.1%	
Enough and saving possible	15.8%	0.5%	3.1%	

#### 4. Discussion

Clinically, couple is considered an infertile after at least one year without contraception usage and without pregnancy. There was scant knowledge about the involuntary childlessness, prevalence of infertility, and there are only few longitudinal studies about the psychosocial consequences of infertility and its treatment.<sup>[22]</sup>

In addition, it's important to know that depression is one of the most commonly misdiagnosed illnesses. Even though a common definition of depression exists, symptoms and how they are described vary significantly due to how differently people describe their condition. Some health care professionals fail to recognize it and mistakenly overlook it

for some other health problems. It can be a good idea to make a list of the symptoms and inform the doctor about all these. This can be a useful tool that can help the doctor make an accurate diagnosis of one's health condition.<sup>[23]</sup>

There is no doubt that infertility like other physiological phenomenon has social and psychological aspects and it is classified in the realm of behavioral sciences.<sup>[24]</sup> This study is performed to determine the epidemiological aspects of infertility; and the conceptualization and measurement of important psychosocial aspects of infertility. The current study findings showed that 95.3% of these women had different levels of depression symptoms, more than one third of the study sample reported severe depression symptoms. This result had serious indicator for the infertile woman psychological health problem, this indicated that she needs to review psychological team besides obstetric & gynecological ones to get effective treatment for her case. These results, however higher than the results of Ramezanzadeh et al. (2004) and Guerra et al. (1998) who showed that 40.8% depression in infertile Iranian women and 67.0% depression among infertile Chinese women; respectively.<sup>[10],[25]</sup> Consistent with the results of the study, Egyptian infertile women show higher rates of depression symptoms than other countries. It is worth mentioning that; In Islamic nations such as Iran as well as eastern countries, family status especially childbearing is an essential and valuable aspect.

The overall percentage of psychological problem in infertile women ranges between 25 and 60%. One study has demonstrated that 74.6% infertile women reported changes in their mood.<sup>[26]</sup> Researchers showed that there was depression disorder in 33% and 32 % in Hong Kong, and Scotland's infertile women respectively.<sup>[27], [28]</sup> In brief, the overall percentage of depression disorder in infertile women ranges between 24 and 36%.<sup>[29]</sup>

Similarly, Khademi, et al. (2005) revealed that the symptomatology prevalence in infertile women, as assessed by Beck Depression Inventory in their first visit (BDI 1), score  $\geq 16$  was 39%, while the prevalence of moderate to severe depression (BDI  $\geq 32$ ).<sup>[30]</sup> Additionally, in an interesting study, its questionnaire was sent through The World Wide Web "internet" to assess degree of some psychological characteristics such as depression. Based on the results of that study, authors found out that more than one quarter of sample could be considered moderately or severely depressed.<sup>[31]</sup>

Infertile women are susceptible to experiences intense feelings such as fear, pain, anger, etc., as a result of taking responsibility for the emotional impact of the infertility, which leads her to change her way of dealing with things in the form of dysfunctional or "crazy" way, causes her to feel an anxious depression. As feelings spill out, she feels out of control & doesn't really know how to ask for her needs, especially from the husband. She is struggling so hard to protect. At one moment she may yearn for an emotional interaction and connection and in the next moment she withdraws emotionally from her husband when she fears that she has disappointed him.<sup>[32]</sup>

Infertility is a stressful event in life of human being. In an important comparison between women with psychological symptoms associated with infertility and other medical conditions, it was found that psychological symptoms associated with infertility are similar to those related to cancer, hypertension, and cardiac rehabilitation.<sup>[33],[34]</sup> Infertile women, in comparison with control group, showed higher scores of depression.<sup>[35], [14]</sup>

In several opinions, having a child attains and maintains family stabilization as well as increases couple's marital satisfaction. In our eastern culture and society, there is a negative attitude toward infertility. Childbearing and reproduction is psychologically & effectively vital factor for every woman, moreover the childlessness may cause marital conflicts and problems such as divorce or even second or multiple marriages especially in Arabic and Islamic societies as their religion permit for men to marry more than one woman. Interference from partner's relatives and the husband's family, especially mother-in-law, negative attitude and behavior of surroundings neighbors, family, friends, etc. causes psychological conflicts for infertile woman. In general, most of the infertile women experience negative social consequences including marital instability, stigmatization and abuse. Infertility can have a serious effect on both psychological well-being and social status of women in our eastern countries.

The present study results showed that most of the studied sample, who has sadness feelings and severe depression symptoms, was at the mid twenty to forty years. Nearly one-half of the study samples had secondary education level. Age & educational level had a significant relation with infertility. This result was close to those of other studies, as that of Bloch et al. (2000) who reported that, there is an association between education and level of depression (Spears man correlation = -0.15 P < .05).<sup>[36]</sup> Galliano and pellicer (2015) stated that infertility and the female age being the most important prognostic factors.<sup>[37]</sup> Khademi, et al. (2005) showed that age is an essential factor affecting Beck Depression Inventory (BDI) score.<sup>[30]</sup> The data about age and the risk of depression is not conclusive. Some studies have supported associations' correlation between them while other ones could not report any relationships between these two.<sup>[26], [28], [38]</sup>

Additionally, Khademi et al. (2005) reported that BDI1 score decreases as the woman's educational level increases. In a stepwise regression, they failed to report any other factors to have relationship with BDI1 score. There have been studies in which correlation between BDI score & sociodemographic characteristics were evaluated; the inverse correlation between educational level and BDI1 score was considerable in that study ( $r = -0.26$ ).<sup>[30]</sup> Other research results regarding the correlation between depression with age and educational level were not similar. When examining the relationship between age and educational have with depression, it did not show any significant correlation, while another study reported that there was positive correlation between them.<sup>[26]</sup> The correlation can be clarified by cultural views. It seems that highly educated ones have other objectives to focus on than fertility and reproduction. In such closed societies as some parts in our country, the education may be the only

gate leading women to joyful aspects of their life other than maternity. This is why education plays an important role in decreasing level of depression symptoms.

The current study findings showed that nearly two-thirds of the study sample is working women, with statistically significant associations between woman's occupational status and severity level of depression symptoms. This result may be because the woman helps her husband and proved money and food to her family. In this case, the woman has a lot of psychological distress and depressed mood related to the burden of her job added to infertility condition. These results were contradicted to those of other studies, as that of Ramezanzadeh et al. (2004) and Domar A et al. (1992) who illustrated that depression was observed more in housewives more than in outside employees.<sup>[24], [39]</sup> In addition, Ogawa, Takamatsu, and Horiguchi (2011) results indicated that unemployed women are more vulnerable to experiencing depression than employed ones, according to the Hospital Anxiety and Depression Scale (HADS) test.<sup>[40]</sup> In Japan, as well as in our eastern countries, married couples are always asked by their neighbors and families why they do not have children. Specifically nonworking women are most vulnerable to such pressure. It has been documented that role satisfaction is associated with lower distress for working women and those in relationships compared to childless women.<sup>[41]</sup>

When we compared the prevalence of depression symptoms according to infertility causes, the results of the study showed that women who don't know infertility causes had severe depression symptoms than the other ones. Causes of infertility showed a significant relation with level of depression symptoms. This result is contradicted with Domar et al. (1992) who found that women with an identified causative factor for their infertility had significantly higher depression scores than women with unexplained or undiagnosed infertility.<sup>[39]</sup>

The findings of the present survey showed that more than one half of the study sample hasn't adequate family income, with statistically significant associations between family income and severity of depression symptoms. That as the economic situation & the lack income has direct and indirect effect on the psychological, social, and health of family members, especially women. When there is a health problem that requires treatment and follow-up for a long time this increases depression and psychological pressure on all members of the family. Many studies have been considered to determine risk factors of depression in infertility. In some studies, risk factors include female gender, repeated treatment cycles, unsuccessful treatments, low socioeconomic state, and lacks husband's support for female, life events and style for women, previous depression, and two to three years history of infertility.<sup>[29]</sup>

Based on duration of infertility, the current study highlights statistically significant associations between infertility duration and level of depression symptoms. It was noticed that more than one year infertility had higher depression scores. This result is in line with Domar (1992) who found that women with two to three years history of infertility had significantly higher depression score compared with ones

with infertility duration of less than one year or more than six years.<sup>[39]</sup> Galliano & pellicer (2015) stated that duration of infertility being the most important prognostic factors.<sup>[37]</sup> Similar observations were found in different infertile populations.<sup>[25, 39, 42]</sup> In this respect, Khademi et al., (2005) showed that. However, the strength of association between infertility duration for women who were asked completed the second BDI (BDI 2) was low ( $r = 0.15$ ), authors reported positive associated with infertility duration.<sup>[30]</sup> It seems that such a low influence cannot play a significant role in practice. The assumption on whether the association between duration of infertility and post treatment BDI score is a straight association or depends on intermediate variables such as the number of treatment failure experiences need more studies.<sup>[43]</sup>

Similarly, Ramezanzadeh et al. (2004) revealed that Iranian infertile women who participated in their research were from different geographical sectors in Iran. The results of their study provide information about frequency and severity of depression in order to duration of infertility in childless women.<sup>[24]</sup> Psychological difficulties of infertile patients are complex and influenced by a number of factors as gender differences, reasons and period's length of infertility.<sup>[26]</sup>

In the worth, several reports are available on factors associated with the depression of infertile woman. Domar A. et al. (2002) showed that depression peaked during the third year of infertility.<sup>[44]</sup> Hum Reprod (2008) determined that a negative pregnancy test after undergoing in vitro fertilization (IVF) is an independent risk factor for mood disorder in infertile women.<sup>[45]</sup> Positively association, between severity of depression symptoms following a failed treatment with the duration of infertility, was revealed by results of Lok et al. (2002). However, the post treatment BDI scores were not correlated with type of infertility treatment received, causes of infertility and number of previous treatments received.<sup>[28]</sup>

On the other hand, Kee, Jung & Lee (2000) showed that some of these factors such as husband cooperation and short period of infertility have not been confirmed in other studies.<sup>[29]</sup> Some studies as mentioned by Ramezanzadeh et al. (2004), Khademi et al., (2005) and Matsubayashi et al., (2001) revealed that there is no relation between duration of infertility and depression or psychological factors.<sup>[24, 30, 38]</sup> During the early stages of being diagnosed with infertility, the hopefulness of the woman for a successful outcome of medical intervention is higher. Moreover, as the intervention progresses without a success combined with the stress of moving from one hospital to the other, they may become psychologically stress up with fading hopes of conception.

Mental and Psychological stress, particularly depression, resulting from infertility may be due to various factors including uncertainty of the causes of infertility, uncertain treatment duration, financial stress, and pressure from others as couple's neighbors, friends and families. On the other hand, studies have identified no psychological pathologies associated with the psychological health of infertile patients.<sup>[46]</sup> Thus, improving psychological health outcomes for these cases such patients has no direct bearing on improving their odds of achieving pregnancy. However, some studies have showed that when the psychological

health of infertile patients and pregnant women is compared, the rates of depression symptoms of the former are significantly higher.<sup>[47]</sup>

Additionally, Ogawa et al. (2011) reported that infertile patients who had previously undergone infertility treatment had a greater tendency towards depression. These women may be affected by despondency or a sense of urgency over the failure of prior treatment.<sup>[40]</sup>

## 5. Conclusion

Based on the findings of the present study, it can be concluded that there is a statistically significant association between infertility duration and level of depression symptoms.

## 6. Recommendation

According to the research results, the following recommendations are deduced:

1. Activating the role of the nurse in clinics and departments of obstetrics and gynecology to improve their ability to understand the nature of mood of the infertile woman and handled well.
2. The nurse has an important and effective role in working to reduce the depression symptoms associated with delayed pregnancy and infertility in women
3. Doing in-service training courses for nurses and rehabilitation in outpatient clinics & departments of obstetrics & gynecology, infertility and family planning centers to raise the level to deal with infertile women and other clients at clinics to reduce depression associated with the nature of her condition.

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**Volume 4 Issue 10, October 2015**

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