

## Depression, Anxiety and Marital Satisfaction among Infertile Males at Assiut Universal Hospital

Nadia Abd Elghany Abd El Hameed and Reda Abd El Aal Thabet

Assist. Prof of Psychiatric and Mental Health Nursing, Faculty of Nursing, Assiut Universal, Egypt

### Abstract

**Background:** Infertile men could suffer from episodes of depression, anxiety; anger, isolation, sense of personal failure and affect the quality of marital relationships between the couples. **The study aimed** to assess depression, anxiety and marital satisfaction among infertile males and determine relationship between depression, anxiety and marital satisfaction among them. **Subjects & method:** A non-experimental (case-control) research design was used. A purposive sample was used. The current study included 100 subjects (50 were studied group & 50 were control group). The study was conducted at outpatient clinic of andrology and sexual transmitted diseases in Assiut University Hospital, Egypt. Tools of study consisted of four tools: Demographic and clinical data assessment questionnaire, Beck depression inventory (BDI), Beck Anxiety Inventory (BAI), and Marital Satisfaction Scale. **Results:** The most of infertile and fertile age groups was ranged from 28 to <38 years old. 64% of infertile males and 60% of fertile males were from rural area. 56% of infertile males reported that their duration of infertility ranged from 1-3 years. Infertile males have higher level of depression and anxiety ((34% and 32% respectively) than fertile males and there are statistically significant differences between infertile and fertile males regarding total of marital satisfaction. **Conclusion** Infertile males have moderate to severe levels of depression, anxiety and marital un-satisfaction than fertile males. **Recommendations:** Psycho-education program can be designed and implemented for the infertile males to improve depression, anxiety and marital satisfaction among them.

**Key Words:** Depression, Anxiety, Marital Satisfaction, & Infertile males.

### Introduction:

Infertility is a main life event that takes about social and psychological complications (Mikhael et al; 2019) World Health Organization defined "Infertility as the inability of a sexually active, non-contracepting couple to achieve spontaneous pregnancy in one year (WHO 2018 and Eisenberg., 2016).

The risk factors for male infertility include smoking, obesity, psychological problems, Industrial hazards, alcohol drinking, advanced maternal age, and many others (Anderson et al., 2010). There are multiple causes for male infertility include endocrine disorders (hypogonadism), sperm transport disorders (eg vasectomy), primary testicular defects (includes abnormal sperm parameters without any identifiable cause), and idiopathic. These general estimations only as accurate statistics unavailable due to general underreporting, cultural factors, and regional variations (Leslie. etal 2020)

A clinical diagnosis of infertility is made if a couple fails to become pregnant after regular, unprotected sexual intercourse for a minimum of twelve months. The infertility can be divided into primary infertility, which is defined as inability to conceive or carry a pregnancy successfully to full term, secondary type of infertility, defined as difficulty in conceiving after already having previously conceived (Olpin & Kennedy., 2011)

Type and rate of these problems in the setting of socio-cultural of diverse geographical areas. The impact of infertility affected must be considered within a broader circumstance that includes social, economic and cultural characteristics. The impact of infertility on the psychological well-being of couples, health problems, sexual distress, depression symptoms, guilt, anxiety, frustration, emotional distress and marital problems are all associated with infertility. Several researchers have shown that women experience marital and sexual relationships less positively than men after infertility diagnosis as well as during infertility

treatments ( Mikhael et al; 2019; Neto et al 2017; Azghdy et al 2014).

Epidemiological studies show infertility to be a significant problem in Africa, with provincial prevalence rates ranging from 30 to 40% (Van, 2010). In Egypt, the prevalence of infertility using world health organization (WHO) definition has been estimated to be between 10% to 15% among married couples (Naji et al., 2017). Male infertility is caused by various factors, such as disorders of the endocrine system, disturbances in ejaculation, bacterial or viral infection, immunologic factors, varicocele, undescended testis and anabolic steroid use. However, a clear etiology cannot be determined for many cases of male infertility Mamuna & Kamal.2017; Lee et al., 2012) .(

In Chinese society the diagnosis of male factor infertility would be a terrible shock for any Chinese inertial man feel ashamed to face his parents and ancestors. This may lead to a deep sense of guilt and self-blame. Infertile Chinese wives experienced less satisfaction with marriage and sexual life than their partners (Logan. et al; 2019; Lee et al., 2001)

Depression is a common response to infertility, which often shadows the feeling of loss of identity, inadequacy and incompetence, or a sense of social shame. In an Eastern country, having a child is very important for cultural, economic, and social reasons, or for religious beliefs, paralleled to that in a Western country. In addition, changes in tests used for assessment of depression may also be considered to result in such variations in the prevalence of depression between different studies (Roberts; et al, 2020; Doyle & Carballedo., 2014). Depression is a common reaction to this problem. It is the response to the excessive losses and prolonged stress created by the infertility process. Infertile couples may have feelings of failure, loss, disappointment and betrayal. Infertile couples' sadness can transform into sorrow or grief especially for the loss of the child of their dreams or the imagined experiences one could share with a child (Galundia et al., 2015). Anxiety is another common response associated with infertility and interpersonal relationship in marriage may also get impaired because of infertility. Feeling a psychological distance or withdrawal from one's partner is often observed in infertile couples. More than that, infertile couples may also experience a lack of sexual satisfaction such as arousal and orgasm (Taylor Laura. (2019) and Sultan & Tahir., 2011).

In this respect Fallahzadeh. et al; 2019; and Wilson et al., 2014 reported that anxiety and major

depressive disorder are the most common of the infertile couples, afflicting 23.2% and 17.0% of the studied population, respectively. One of the most common psychiatric disorders among the infertile men is depression and anxiety. The psychological effects of infertility on marriage life, usually shows of conflicts and struggles between the couples. Some research indicate that the infertility not only produces cognitive - psychological changes in the spouses, but it is also leaving deep impacts on their sexual relations and marriage life. (Fallahzadeh. et al; 2019; Yusefi et al., 2015).

Marital satisfaction refers to how the sexual partners' expectations from each other are met, the reduction of which can render adverse effects on the couple's body and mind (Hosseini. ;2018; & Mirghafourv et al., 2013; Kazemi, et al, 2011. Infertility can have major effects on a couple's life, including marital satisfaction, and has a remarkable role in family life and welfare (Taylor, Laura. 2019; Moura- Ramos et al, 2011).)

#### **Significance of study**

Most studies have focused on the experience of women in the appreciative that they transfer the main load of the infertility experience. There is limited information from developing countries on the experience of men suffering from couple infertility. Accurate data inaccessible may be due to general underreporting, ethnic factors, and regional differences. No studies were done in clinical area, to assess psychological features among infertile men especially depression, anxiety as well as marital satisfaction. Few studies have included male contributors, the present study aim to assess depression, anxiety & marital satisfaction of infertile males. A range of existing studies suggests that infertility and psychological problems are related in a complex way. This study helps the nursing and medical researchers to advance knowledge regarding marital satisfaction, depression & anxiety level experienced by males with infertility.

#### **Aims of study:**

Assess depression, anxiety and marital satisfaction among infertile males.

1. Determine relationship between depression, anxiety and marital satisfaction among them.

#### **Subjects and method:**

##### **Research design:**

A descriptive correlational research design was utilized to carry out this study.

**Research question:**

-what are the levels of depression, anxiety and marital satisfaction among infertile males?

- Is a relationship between depression, anxiety and marital satisfaction among infertile males?

**Study setting:**

The study was conducted at outpatient clinic of andrology and sexual transmitted diseases in Assiut University Hospital, Egypt. This clinic is the main biggest clinic in Assiut receives cases of infertility and an influx of patients from Assiut cities and villages contiguous to Assiut governorate.

**Study Sample:**

- A purposive sample was used. The sample was calculated using Epi Info 2002 program. The sample included 100 subjects. Fifty infertile males who attended the out-patient clinics of andrology and sexual transmitted during six months, from December 2018 till end of May 2019.

- Fifty normal fertile males who attended the clinics to other causes as a control group.

**Inclusion criteria**

- Males who infertile for more than 2 years
- Males with fertile women with normal conception cycle

**Exclusion criteria**

- Patients with systematic disease and /or with other andrological problems.
- Patients with psychological problems or mental disorders.

**Study tools:**

The following tools were used in the currents study.

**Tool I: Demographic and Clinical data assessment questionnaire:**

This tool was developed by researchers included age, address, occupation, level of education and duration of infertility.

**Tool II: Beck depression inventory (BDI):**

This scale has been developed by **Dr. Beck**, first published in 1961 and later revised in 1969 and copyrighted in 1979 (**Polgar & Michael., 2003**) and was translated to Arabic by **Abdel- Khalek, 1998** and back translated into English to check validity and reliability and was updated by **Dr. Basher, 2010**. Internal consistency showed a high value for standardized alpha (Cronbach's) = 0.92. the retest reliability ranged from 0.73 to 0.92 validity showed good sensitivity and specificity for detecting depression The questionnaire contains 21 questions about how the subject has been feeling; each question has asset of at least four possible answer choices, ranging from 0 to 3, indicating the severity of the symptom. The questions of the BDI assess mood, pessimism, and sense of failure, self- dissatisfaction, guilt, punishment, self- dislike, self- accusation, suicidal ideas, crying, irritability, social withdrawal, body image, work difficulties, insomnia, fatigue, appetite, weight loss, bodily preoccupation, and loss of libido. Items 1 to 13 assess symptoms that are psychological in nature, while items 14 to 21 assess more physical symptoms (**Polgar & Michael., 2003**).

The score is ranged from 0-63 and levels of depression are categorized as following:

- 0-13 = minimal depressive symptoms.
- 14- 19 = mild depression.
- 20- 28 = moderate depression.
- 29- 63 = severe depression.

### Tool III: Beck Anxiety Inventory (BAI):

This scale has been developed by **Dr. Beck, 1988** and was translated into Arabic by **Dr. Soluman, 2015** and back translated into English to check validity and reliability. It consists of 21 items, it multiple-choice self-report inventory that measures the severity of an anxiety and covers the major cognitive, affective and physiological symptoms of anxiety. Each question has the same asset of four possible answer choices, which are arranged in columns and are answered by marking the appropriate one with a cross.

- Not at all = 0
- Mildly, it did not bother me much = 1
- Moderately, It was very unpleasant, but I could stand it = 2
- Severely, I could barely stand it = 3

The BAI has a maximum score of 63, and levels of anxiety are categorized as following:

- 0-7: Minimal level of anxiety.
- 8-15: Mild anxiety.
- 16-25: Moderate anxiety.
- 26-63: Severe anxiety.

Cronbach's alpha showed a strong reliability with a standardized alpha of 0.92 to 0.94 among the 21 items.

### Tool IV: Marital Satisfaction Scale (MSS):

Marital Satisfaction Scale designed by **Snyder, (1979)**. This questionnaire modified and translated to Arabic by **Samkari, (2009)**. MSS is important tool for marriage and family therapists and other mental health professionals who assist couples experiencing relationship distress and primary use of this scale to identifying the nature and extent of relationship distress with couples.

This scale consists of 70 items and responded using a 5-option Likert scale between 1 and 5 is allocated to each item. The scale is scored and interpreted in terms of 9 dimensions that are labeled: Intimacy, general marital satisfaction, affective communication, problem solving communication, time together, finances satisfaction, sexual satisfaction, role

orientation and satisfaction about nurturing of children. The scale was reported to have high reliability as evidence by Cronbach's Alpha was  $r = 0.95$  for the total scale.

### Validity and reliability of tools:

The internal consistencies of the questionnaires were calculated using Cronbach's alpha coefficients. Cronbach's alpha coefficient of 0.00 indicates no reliability and a coefficient of 1.00 indicates perfect reliability. The Cronbach's alpha of the questionnaires was 0.73 to 0.92 for BDI.

(Tool no 2). and the Cronbach's alpha showed a strong reliability with a standardized alpha of 0.92 to 0.94. for BAI (tool no 3). However, it was internal consistency was 0.70 to .95 Cronbach's alpha levels for MSS. The results indicate that the scale had significant positive test-retest reliability ( $r = 0.852$ ). Convergent validity of Marital Satisfaction was good reliability.

### Ethical consideration:

The study proposal was approved by the investigator and ethics committee in the Faculty of Nursing, Assuit University. An oral agreement was obtained from everyone who participated in the study after explaining the aim of the study. Participants in the study were informed about their rights to refuse or consent participation in the study. The investigator also reassured the participants in the study that their privacy would be protected, and any obtained information would be strictly confidential before starting data collection.

### Pilot study

A pilot study was conducted on first 5 infertile and 5 fertile males of the sample. The purpose of the pilot study was to detect any problem in the statement's clarity, feasibility, and applicability of the tools. No change was done in the assessment tools, so the infertile and fertile males selected for the pilot study were included in the main study.

### Filed work.

Data of the current study were collected over period of 6 months, from December 2018 till end May 2019, 3 days per week \ 4 hours from 9 am to 1 pm. The interviewer selected males who fulfilled the criteria from the previously mentioned setting. The purpose and nature of the study was explained to each participant, who agree to participate in the study, oral informed

consent was obtained from them, and they were assured about confidentiality and privacy. The information was used only for the purpose of research. Each participant was individually interviewed in the waiting area of the outpatient clinics of previously mentioned setting in order to collect the data. Then the data collectors asked the male by Arabic and record the answers in the tool after explaining the scoring system of questionnaires, The tools were filled and completed in one session. The average time taken for completing the interview took about 45-60 minutes with every patient to collect all data of the study tools, depending on the person response to a question.

#### . IV- Statistical design:

The data were tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by **number and percent** (N, %), where continuous variables described by mean and standard deviation (**Mean, SD**). **Chi-square test** and fisher exact test used to compare between categorical variables where compare between continuous variables by **t-test**. Pearson correlation coefficient used to assess the association between continuous variables. A **two-tailed p < 0.05** was considered statistically significant. All analyses were performed with the **IBM SPSS 20.0** software.

### Result:

**Table (1):** shows that demographic and clinical data among infertile and fertile males. Regarding age most of the infertile and fertile males in age groups 28 to <38 years old. About two thirds of infertile males and more than half of fertile males living in rural area. According to Level of education 34% and 38% of infertile and fertile males have secondary level of education, respectively. While 30% and 26% of them level of education was illiterate/read & write level. 32% from infertile males are farmer, while 28% of fertile are employee. The Less than half of infertile males reported that their duration of infertility ranged from 2-<4 years.

**Figure (1):** Illustrated distribution of depression levels among infertile and infertile males. The majority of infertile male have mild & moderate level of depression (34%, 26%) respectively. While two third (64%) of fertile males have normal level of depression. There is statistical statistically significant difference between infertile and fertile males regarding B.D.S.

**Figure (2):** Revealed distribution of anxiety levels among infertile and infertile males. It was found that 44% of infertile males have moderate level of anxiety and 32%

of them have severe level of anxiety. While 56% of fertile males have mild level of anxiety and 34% of them have moderate level of anxiety There is statistically significant difference between infertile and fertile males regarding level of anxiety.

**Table (2):** This table shows frequency of infertile and fertile males at different dimensions of marital satisfaction. There are statistically significant differences between infertile and fertile males regarding all dimensions of marital satisfaction except satisfaction about nurturing of children (P- values= 0.275).

**Figure (3):** This figure showed that frequency of infertile and fertile males according to total marital satisfaction score. It was noticed that, about more than one quarter (26%) of infertile males are unsatisfied. While (10%) of fertile males are unsatisfied. There is statistically significant difference between infertile and fertile males regarding total score of marital satisfaction.

**Table (3):** shows score relationship between levels of depression and anxiety among infertile and fertile males. There are highly statistically significant relations between depression and anxiety of both infertile and fertile males (P- value =0.002&<0.001) respectively.

**Table (4):** illustrates relationship between marital satisfaction and levels of depression among infertile and fertile males. There are no statistically significant differences relationship between levels of depression and all dimensions of marital satisfaction except for intimacy, general marital satisfaction, time together and finances satisfaction related to infertile males (p=0.010, 0.039, 0.012 and 0.004) respectively. While there are statistically significant relations between levels of depression and all dimensions of marital satisfaction except for role orientation among fertile males (P-value =0.851).

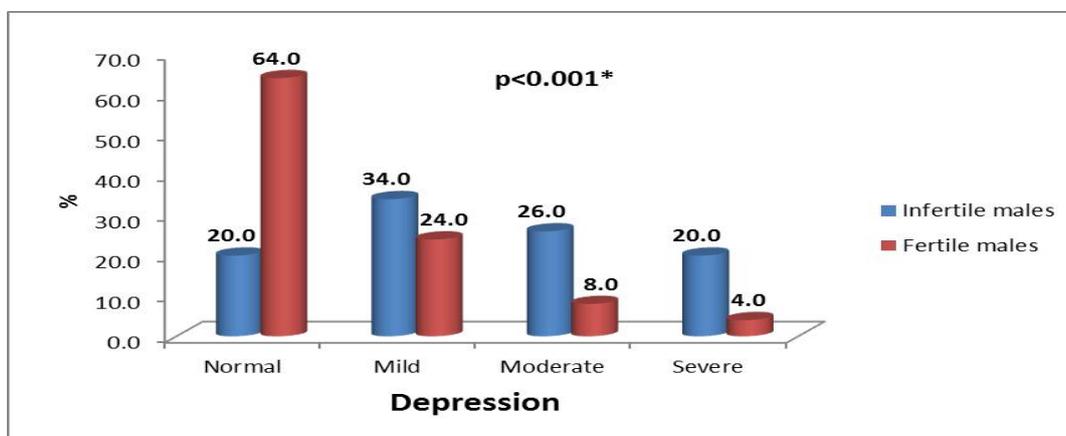
**Table (5):** Illustrates relationship between marital satisfaction and levels of anxiety among infertile and fertile males. There are no statistically significant differences relations between levels of anxiety and all dimensions of marital satisfaction except for intimacy, general marital satisfaction and time together (p=0.001, 0.033, and 0.044) respectively related to infertile males. While there are statistically significant relations between levels of anxiety and all dimensions of marital satisfaction except for satisfaction about nurturing of children among fertile males (P-value =0.115).

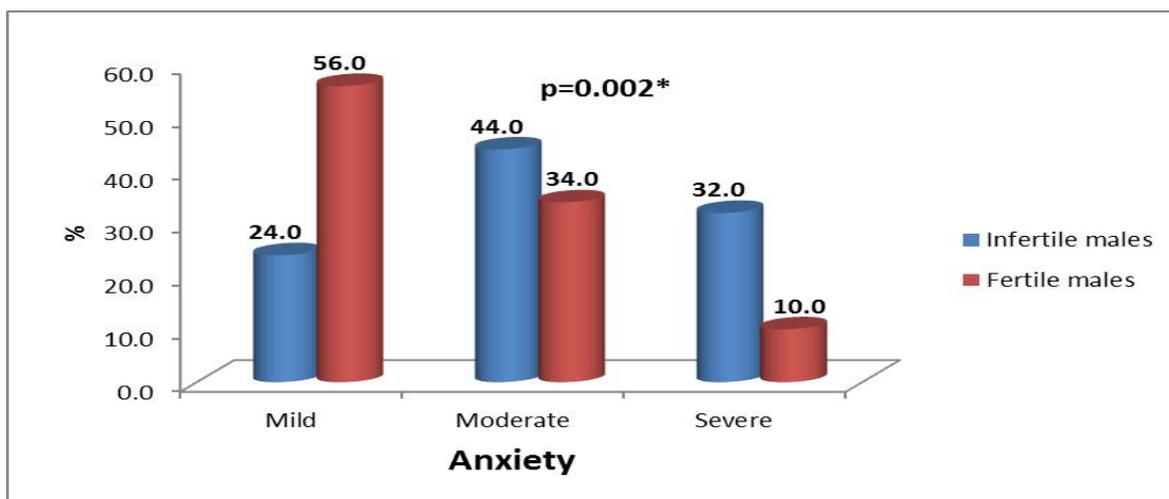
**Table (6):** This table shows that there is a significant mild to moderate negative correlations between depression, anxiety and most of marital satisfaction domains (r from -0.2 to <-0.4 =mild, r from -0.4 to <-0.6 =moderate) among infertile & fertile males.

**Table (1):** Demographic and Clinical data of the infertile (No=50) and fertile males (No=50).

Demographic and Clinical data	Infertile males (study group n=50)		Fertile males (control group n=50)		P. value
	No.	%	No.	%	
<b>Age groups</b>					
18 - < 28 years	13	26.0	10	20.0	0.584
28 - <38 years	27	54.0	26	52.0	
≥38 years	10	20.0	14	28.0	
<b>Address</b>					
Urban	18	36.0	20	40.0	0.680
Rural	32	64.0	30	60.0	
<b>Level of education</b>					
Illiterate/read & write	15	30.0	13	26.0	0.638
Primary	3	6.0	1	2.0	
Preparatory	4	8.0	2	4.0	
Secondary	17	34.0	19	38.0	
Universal	11	22.0	15	30.0	
<b>Occupation</b>					
Not work	6	12.0	6	12.0	0.317
Student	3	6.0	3	6.0	
Employee	13	26.0	14	28.0	
Manual work	9	18.0	13	26.0	
Professional work	3	6.0	7	14.0	
Farmer/worker	16	32.0	7	14.0	
<b>Duration of infertility</b>					
2 - <4 years	24	48.0	-	-	-
4- 6 years	15	30.0	-	-	
7 - 9 years	7	14.0	-	-	
10 and more years	4	8.0	-	-	

Chi-square test

\*\* Highly statistically significant difference ( $p < 0.01$ ) Chi-square test**Figure (1):** Distribution of levels depression among infertile (No=50) and fertile males (No=50).



\*\* Highly statistically significant difference (p<0.01)

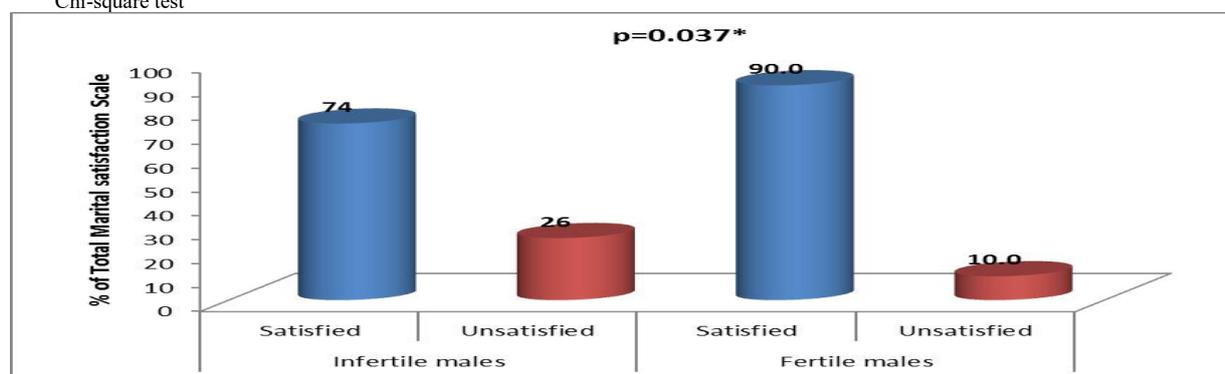
Chi-square test

Figure (2): Distribution of anxiety levels among infertile (No=50) and fertile males (No=50).

Table (2): Frequency of infertile and fertile male at different dimensions of marital satisfaction.

Marital Satisfaction	Infertile males (Study group n=50)				Fertile males (Control group n=50)				P. value
	Satisfied		Unsatisfied		Satisfied		Unsatisfied		
	No.	%	No.	%	No.	%	No.	%	
Intimacy	34	68.0	16	32.0	45	90.0	5	10.0	0.007**
General marital satisfaction	32	64.0	18	36.0	43	86.0	7	14.0	0.011*
Affective communication	36	72.0	14	28.0	45	90.0	5	10.0	0.022*
Problem solving communication	34	68.0	16	32.0	43	86.0	7	14.0	0.032*
Time together	28	56.0	22	44.0	39	78.0	11	22.0	0.019*
Finances satisfaction	25	50.0	25	50.0	41	82.0	9	18.0	0.001**
Sexual satisfaction	38	76.0	12	24.0	46	92.0	4	8.0	0.029*
Role orientation	27	54.0	23	46.0	17	34.0	33	66.0	0.044*
Satisfaction about of nurturing children	40	80.0	10	20.0	44	88.0	6	12.0	0.275

Chi-square test



\* Statistically significant difference (p<0.05) Chi-square test

Figure (3): Frequency of infertile (No=50) and fertile males (No=50) for total Marital satisfaction.

Table (3): Relationship depression and anxiety among infertile and fertile males(No=50).

Depression	Infertile males (Study group n=50)						P. value	Fertile males (Control group n=50)						P. value
	Anxiety		Anxiety		Anxiety			Anxiety		Anxiety		Anxiety		
	Mild	Moderate	Severe	Mild	Moderate	Severe		Mild	Moderate	Severe	Mild	Moderate	Severe	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Normal	6	12.0	3	6.0	1	2.0	0.002**	23	46.0	8	16.0	1	2.0	<0.001**
Mild	4	8.0	8	16.0	5	10.0		5	10.0	6	12.0	1	2.0	
Moderate	0	0.0	10	20.0	3	6.0		0	0.0	3	6.0	1	2.0	
Severe	2	4.0	1	2.0	7	14.0		0	0.0	0	0.0	2	4.0	

Chi-square test

**Table (4):** Relationship between marital satisfaction and levels of depression among infertile (No=50) and fertile males (No=50).

- Marital Satisfaction	Infertile males (Study group n=50)						P. value	Fertile males (Control group n=50)						P. value
	Total	Minimal	Mild	Moderate	Severe	Total		Minimal	Mild	Moderate	Severe			
	%	%	%	%	%	%	%	%	%	%	%			
<b>Intimacy</b>														
Satisfied	34	29.4	35.3	26.5	8.8	0.010*	45	71.1	22.2	6.7	0.0	0.000*		
Unsatisfied	16	0.0	31.3	25.0	43.8	*	5	0.0	40.0	20.0	40.0	*		
<b>General marital satisfaction</b>														
Satisfied	32	31.3	31.3	25.0	12.5	0.039*	43	72.1	18.6	9.3	0.0	0.000*		
Unsatisfied	18	0.0	38.9	27.8	33.3	*	7	14.3	57.1	0.0	28.6	*		
<b>Affective communication</b>														
Satisfied	36	27.8	33.3	19.4	19.4	0.109	45	71.1	24.4	4.4	0.0	0.000*		
Unsatisfied	14	0.0	35.7	42.9	21.4	*	5	0.0	20.0	40.0	40.0	*		
<b>Problem solving communication</b>														
Satisfied	34	29.4	32.4	23.5	14.7	0.089	43	74.4	20.9	2.3	2.3	0.000*		
Unsatisfied	16	0.0	37.5	31.3	31.3	*	7	0.0	42.9	42.9	14.3	*		
<b>Time together</b>														
Satisfied	28	35.7	21.4	25.0	17.9	0.012*	39	74.4	17.9	5.1	2.6	0.038*		
Unsatisfied	22	0.0	50.0	27.3	22.7	*	11	27.3	45.5	18.2	9.1	*		
<b>Finances satisfaction</b>														
Satisfied	25	36.0	16.0	20.0	28.0	0.004*	41	73.2	22.0	4.9	0.0	0.002*		
Unsatisfied	25	4.0	52.0	32.0	12.0	*	9	22.2	33.3	22.2	22.2	*		
<b>Sexual satisfaction</b>														
Satisfied	38	21.1	31.6	28.9	18.4	0.780	46	67.4	26.1	6.5	0.0	0.000*		
Unsatisfied	12	16.7	41.7	16.7	25.0	*	4	25.0	0.0	25.0	50.0	*		
<b>Role orientation</b>														
Satisfied	27	25.9	25.9	29.6	18.5	0.472	17	58.8	29.4	5.9	5.9	0.851		
Unsatisfied	23	13.0	43.5	21.7	21.7	*	33	66.7	21.2	9.1	3.0	*		
<b>Satisfaction about nurturing of children</b>														
Satisfied	40	22.5	35.0	20.0	22.5	0.253	44	70.5	18.2	6.8	4.5	0.037*		
Unsatisfied	10	10.0	30.0	50.0	10.0	*	6	16.7	66.7	16.7	0.0	*		
<b>Total marital satisfaction</b>														
Satisfied	37	27.0	29.7	24.3	18.9	0.211	45	71.1	24.4	4.4	0.0	0.000*		
Unsatisfied	13	0.0	46.2	30.8	23.1	*	5	0.0	20.0	40.0	40.0	*		

\* Statistically significant difference (p&lt;0.05)

\*\*Highly statistically significant difference (p&lt;0.01)

Chi-square test

**Table (5):** Relationship between marital satisfaction and levels of anxiety among infertile (No=50) and fertile males (No=50).

- Marital Satisfaction	Infertile males (Study group n=50)					Fertile males (Control group n=50)				
	Total	Anxiety			P. value	Total	Anxiety			P. value
	Mild %	Moderate %	Severe %	Total		Mild %	Moderate %	Severe %		
<b>Intimacy</b>										
Satisfied	34	29.4	55.9	14.7	<b>0.001**</b>	45	60.0	35.6	4.4	<b>0.000**</b>
Unsatisfied	16	12.5	18.8	68.8		5	20.0	20.0	60.0	
<b>General marital satisfaction</b>										
Satisfied	32	34.4	43.8	21.9	<b>0.033*</b>	43	60.5	34.9	4.7	<b>0.007**</b>
Unsatisfied	18	5.6	44.4	50.0		7	28.6	28.6	42.9	
<b>Affective communication</b>										
Satisfied	36	27.8	44.4	27.8	0.476	45	60.0	35.6	4.4	<b>0.000**</b>
Unsatisfied	14	14.3	42.9	42.9		5	20.0	20.0	60.0	
<b>Problem solving communication</b>										
Satisfied	34	29.4	47.1	23.5	0.142	43	62.8	30.2	7.0	<b>0.037*</b>
Unsatisfied	16	12.5	37.5	50.0		7	14.3	57.1	28.6	
<b>Time together</b>										
Satisfied	28	32.1	50.0	17.9	<b>0.044*</b>	39	64.1	30.8	5.1	<b>0.033*</b>
Unsatisfied	22	13.6	36.4	50.0		11	27.3	45.5	27.3	
<b>Finance's satisfaction</b>										
Satisfied	25	32.0	40.0	28.0	0.414	41	63.4	34.1	2.4	<b>0.000**</b>
Unsatisfied	25	16.0	48.0	36.0		9	22.2	33.3	44.4	
<b>Sexual satisfaction</b>										
Satisfied	38	18.4	47.4	34.2	0.259	46	58.7	34.8	6.5	<b>0.020*</b>
Unsatisfied	12	41.7	33.3	25.0		4	25.0	25.0	50.0	
<b>Role orientation</b>										
Satisfied	27	14.8	40.7	44.4	0.080	17	29.4	47.1	23.5	<b>0.010**</b>
Unsatisfied	23	34.8	47.8	17.4		33	69.7	27.3	3.0	
<b>Satisfaction about nurturing of children</b>										
Satisfied	40	25.0	45.0	30.0	0.827	44	61.4	29.5	9.1	0.115
Unsatisfied	10	20.0	40.0	40.0		6	16.7	66.7	16.7	
<b>Total marital satisfaction</b>										
Satisfied	37	27.0	48.6	24.3	0.145	45	60.0	35.6	4.4	<b>0.000**</b>
Unsatisfied	13	15.4	30.8	53.8		5	20.0	20.0	60.0	

\* Statistically significant difference (p&lt;0.05)

\*\* Highly statistically significant difference (p&lt;0.01)

Chi-square test

**Table (6):** Correlations between the marital satisfaction, depression and anxiety among infertile (No=50) and fertile males (No=50).

Marital Satisfaction	Infertile males (Study group n=50)				Fertile males (Control group n=50)			
	Depression		Anxiety		Depression		Anxiety	
	r	P. value	r	P. value	R	P. value	r	P. value
Intimacy	-0.558	<b>0.000**</b>	-0.380	<b>0.006**</b>	-0.673	<b>0.000**</b>	-0.395	<b>0.005**</b>
General marital satisfaction	-0.479	<b>0.000**</b>	-0.353	<b>0.012*</b>	-0.587	<b>0.000**</b>	-0.341	<b>0.015*</b>
Affective communication	-0.406	<b>0.003**</b>	-0.194	0.176	-0.588	<b>0.000**</b>	-0.359	<b>0.010**</b>
Problem solving communication	-0.465	<b>0.001**</b>	-0.233	0.104	-0.494	<b>0.000**</b>	-0.291	<b>0.040*</b>
Time together	-0.336	<b>0.017*</b>	-0.264	0.064	-0.529	<b>0.000**</b>	-0.423	<b>0.002**</b>
Finance's satisfaction	-0.114	0.430	-0.072	0.618	-0.442	<b>0.001**</b>	-0.288	<b>0.042*</b>
Sexual satisfaction	-0.103	0.475	0.056	0.701	-0.557	<b>0.000**</b>	-0.474	<b>0.001**</b>
Role orientation	-0.153	0.289	0.311	<b>0.028*</b>	0.044	0.761	0.463	<b>0.001**</b>
Satisfaction about nurturing of children	-0.273	0.055	-0.213	0.138	-0.419	<b>0.002**</b>	-0.348	<b>0.013*</b>
Total marital satisfaction	-0.478	<b>0.000**</b>	-0.261	0.067	-0.628	<b>0.000**</b>	-0.392	<b>0.005**</b>

\* Statistically significant correlation ( $p < 0.05$ )  
 $r < 0$  (minus sign) means negative correlation.

\*\* Statistically significant correlation ( $p < 0.01$ )  
 Pearson correlation

## Discussion

Male infertility is a common and severe health problem. Infertility not only affects one's ability to have children, but also has emotional, psychological, family and societal effects. Despite the prevalence and significance of this health problem, resources and attention have not been sufficiently focused on this important issue (Neto et al., 2016). Infertility affects various aspects of life including mental, social, and physical aspects. Also, can lead to anxiety, depression, shame, stigma, and low feelings of self-esteem and guilt (Alimohamadi et al.; 2020)

The current study aimed to assess depression, anxiety and marital satisfaction among infertile males and determine relationship between depression, anxiety and marital satisfaction among them.

According to the age, the current study findings showed that most of infertile and fertile age groups was from 28 to <38 years old. That may be because this age group consider the reproductive age and the desire to have a child and probability and expectation for therapy is high for infertile males.

In the respect, **Abolfotouh et al., (2013)** found that the high percent of infertile and fertile age groups were between 25 and 39 years old. While **Gao et al., (2013)** found that the most of infertile and fertile age groups were between 20 and 29 years old. **Sultan & Tahir, (2011)** found that most infertile and fertile age groups were between 20 and 40 years old.

The current study revealed that about two thirds of infertile males and more than half of fertile males were from rural area. This may be correlated with distribution of rural & urban people in general population in Assuit governorate where the rural persons constitute around 70% of the population while urban is only 30%. These findings are similar to previous study reported by **Sethi, et al., (2016)** who found that majority of fertile and infertile males were from rural area. Also, **Ali, et al. 2016 & Mazeed et al., 2015** found that most infertile males were from rural areas. Whereas these findings are contrary with other studies reported by **Abolfotouh et al., 2013 & Gulec et al, 2011** who found that majority of fertile and infertile males were from urban area. In addition, **Sahraian et al., 2016 & Gadalla et al., 2011** found that majority of infertile males were from urban area.

As regards to the educational level, the current study showed that about more than one third of infertile and fertile males have secondary level of education. That may be related to the most infertile and fertile males were living in rural area. These findings are like previous study reported by **Gao et al., (2013)** who reported that about more than one third of infertile and fertile males have secondary level of education. Also, **Mazeed et al., 2015 & Ali, et al., 2016** found that about one third of infertile males have secondary level of education. Other studies reported by **Hjelmstedt et al., 1999, Holter et al, 2007, Zorn et al., 2008, Ahmadi et al, 2011 & Audu et al., 2013)** revealed that, most infertile males have secondary level of education.

According to the occupation, the current study showed that about one third of infertile males were farmers. That may be related to natural of the environment in Upper Egypt society which encourages the males to be work. While more than one quarter of fertile males were employee. **Ali, et al., 2016** found that around one third of the infertile males were farmers. Also, **Mazeed et al., 2015 & Abolfotouh et al., 2013** found that majority of infertile and fertile males were employee. As well as **Gao et al., (2013)** who found that the most of infertile and fertile males were farmers. In the same context, **Holter et al, 2007** found that the most of infertile males were workers.

The current study showed that about more than half of the infertile males had ranged from 2-<4 years. This could be explained by the most people who seek medical services for treatment of infertility are in this range of age group of wish to have children and build up a family and this provide an evidence that currently married couples do not wait for more than two years to do investigations to know the cause of infertility.

These findings are congruent with previous study reported by **Galhardo et al., (2013)** who found that more than half of infertile male had duration of infertility ranged from 2-3 years. While **Mazeed, et al, 2015 & Bolsoy, et al., 2010** reported that more than half of infertile male had duration of infertility ranged from were 2-5 years.

Regarding distribution of depression and anxiety among infertile and fertile males it was found that most of infertile males were suffering from moderate to severe levels of depression and anxiety. While the most of fertile males were suffering from mild levels of depression and anxiety. It may be related to Egyptian culture, where the people have negative attitude toward infertility are so throbbing. Having child is vital factor for males, and absence of children may be causes marital, social and psychological problems especially in Middle East societies. Negative attitude and behavior of surrounding (family, friends, wife family, neighbors.... etc) can causes psychological problems. Generally, infertile males experience negative social consequences including marital instability, stigmatization and abuse. **Alimohamadi etal (2020)** found that the prevalence of mild, moderate and severe depression among Iranian infertile couples was 31.2% ,15.4% and 13.7% respectively. The overall mean of depression score among Iranian couples was 7.74%.

The current study revealed, highly statistically significant relations between depression and anxiety related to infertile and fertile males. This result congruence with **Ahmed et al. 2013**, reported that the highest level of infertile males was suffering from

depression and anxiety. Also, **Gadalla, et al., (2011)**, showed that psychological symptom frequency among infertile couples was depression and anxiety. While **Tüzer et al., 2010**, illustrated that there were statistically significant differences between infertile and fertile males regarding depression and anxiety ( $p<0.01$ ).

In the same aspect, it was reported by **Elsehrawy et al., 2015** high percentage of generalized anxiety disorder was the most prevalent, followed by major depression and social phobia. All mentioned psychiatric diagnoses had statistically significant difference of infertile males when compared to the fertile males.

In the current study it was reported that there were statistically significant differences between infertile and fertile males regarding all dimensions of marital satisfaction except satisfaction about nurturing of children. In the respect previous study reported by **Ferreira et al. (2015)**, revealed that there were statistically significant differences between infertile and fertile males regarding all dimensions of marital satisfaction except intimacy and sexual satisfaction. Also, **Vizheh, et al., 2015**, showed that there were no statistically significant differences between infertile males regarding all dimensions of marital satisfaction except sexual satisfaction and satisfaction about nurturing of children.

Regarding frequency of infertile and fertile males for total marital satisfaction it was notes that, about more than one quarter of infertile males were unsatisfied. While the minority of fertile males were unsatisfied. There was obvious that statistically significant differences between infertile and fertile males regarding total marital satisfaction.

The result of present study is congruent with **Hussein., (2014)** who found that more than one quarter of infertile males were unsatisfied regarding marital satisfaction. Also, **Gadalla al., (2011)** revealed that one quarter of infertile males were unsatisfied. In the same context, previous study reported by **Soleimani et al., (2015)** clarified that there were statistically significant differences between infertile and fertile males regarding total marital satisfaction.

The present study revealed that there were no statistically significant differences between depression, anxiety and total marital satisfaction among infertile males. While there were statistically significant differences between depression, anxiety and total marital satisfaction among fertile males. These findings are consistent with **Lee et al., (2001)** who found no statistically significant differences between depression, anxiety and total marital satisfaction among infertile males. While result of present

study is incongruent with **Gadalla al., (2011)** who found statistically significant differences between depression, anxiety and total marital satisfaction among infertile males.

The present study reported that, there were statistical a significant mild to moderate negative correlations between depression and most of dimensions of marital satisfaction among infertile males. This result agrees with **Gana & Jakubowska., (2016)** who found that negative significant correlation between depression and marital satisfaction among infertile males.

### Conclusion:

Based on the result of present study it can be concluded that, infertile males had moderate to severe levels of depression, anxiety and had marital dissatisfaction than fertile males.

### Recommendations

**Based on the current study findings, the following recommendations are suggested**

- Psycho-education program can be designed and implemented for the infertile males to improve depression and anxiety and marital satisfaction among them.
- Establish highly specialized infertility clinic to provide psychological support or counseling to infertile males.
- Emphasize the importance of psychological and sexual counseling during infertility treatment.
- Liaison psychiatric nurse should be available at the outpatient clinics of infertile males to help them cope successfully and diminish psychological problems among them.

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