

## Comparison of Psychological Aspects of Infertile & Fertile Males

**Saleh Omar Abdullah, Emad Eldien Kamal Ali & Nadia Abd El-Ghany Abd EL-Hameed**

Demonstrator at Nursing department, Faculty of Medicine –Health Science Hodiedah University, Yemen.  
Assist. Prof. of Andrology, Sexology, and STDs, Faculty of Medicine, Assiut University, Egypt.  
Lecturer of Psychiatric Nursing, Faculty of Nursing, Assiut University, Egypt.

### Abstract

Infertile men could suffer from episodes of depression, anxiety, anger, and isolation, sense of personal failure and lowering of self-esteem. **The study aim:** To assess psychological aspects of infertile & fertile males and determine relationship between demographic & clinical data and psychological aspects of infertile males. **Subjects & method** A Non-experimental (case-control) research design used to conduct this study. A purposive sample was used. The current study included 150 subjects, (100 was studied group & 50 was control group). Tool of study consisted of two tools: The first was demographic and clinical data sheet. The second was Symptoms Check list-90-Revised (SCL-90- R), **Results:** The most of infertile and fertile age groups was ranged from 28 to <38 years old. 65% of infertile males and 58% of fertile males were from rural area. About 63% of infertile males had primary infertility. 56% of them were infertile from 1-3 years. 74% of infertile males were smokers. Infertile males had higher psychological symptoms than fertile males especially depression, anxiety, interpersonal sensitivity, and hostility. **Conclusion** Infertile males had high psychological symptoms as depression, anxiety, and hostility. **Recommendations:** Psycho-education program can be designed and implemented for the infertile males to improve depressive and anxiety symptoms among them.

**Keywords:** *Psychological Aspects & Infertile Males.*

### Introduction

Infertility is a global phenomenon that affects between 60 million and 168 million people worldwide. Infertility is defined as the inability to achieve a successful pregnancy after 12 months of unprotected intercourse or therapeutic donor insemination (**Practice Committee of the American Society for Reproductive Medicine, 2013**).

Worldwide infertility is generally reported as occurring in 8-12% of all couple. An estimated 15 % of the world populations including 6 million couples in the USA are affected by infertility. A male factor is responsible in about 50 % of infertility cases; it is the sole reason in about 20 % of the cases and is a contributory factor in 30–40 % of the cases (**Orisakwe, 2014**). In Egypt, the prevalence of infertility using world health organization, WHO has been estimated 10% to 15% among married couples (**Mokhtar et al., 2012**). The prevalence of infertility differs greatly from one country to another, being 15% globally, > 30% in some developing countries, and 17- 28% in industrialized countries (**Al-asadi & Hussein, 2015**).

Infertility is defined as a condition in which a sexually active couple fails to conceive, after having regular intercourse without using contraceptive techniques after 1 year (**Navaeian et al. 2015**). The medical community typically defines infertility as the inability to conceive after one year of regular,

unprotected intercourse (**Bell, 2013**). World Health Organization (WHO) defined “Infertility as the inability of a sexually active, non-contracepting couple to achieve spontaneous pregnancy in one year. (**Eisenberg, 2016**)

The infertility can be broadly divided into two types; the one type is primary infertility, which is defined as inability to conceive or carry a pregnancy successfully to full term, while other type is secondary infertility, which is defined as difficulty in conceiving after already having previously conceived (either carrying a pregnancy to term or a miscarriage). (**Olpin & Kennedy, 2011**)

Infertility affects approximately 15% of couples of reproductive age, with about half of the cases involving male factor infertility. Male infertility can be caused by a number of factors and therefore even the most comprehensive workup including physical, serological, and hormonal examinations could fail to detect the etiology of reproductive disorders. (**Kim, Choi, & Park, 2012**). According to WHO estimates, one in every ten couples of reproductive age experience involuntary childlessness? In approximately half of the cases, the male partner usually has reduced or no sperm in the semen. Clinically referred to as male infertility, these men are either azoospermic (no sperm in the semen) or oligozoospermic (<15×10<sup>6</sup> spermatozoa/mL of ejaculate). While cryptorchidism, infections, alcohol abuse and radio/chemotherapy are known factors

leading to oligo/azoospermia, a large number of cases remain unexplained and often referred to as idiopathic male infertility. (Sen, et al., 2013).

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. It is connected with a loss of self-appraisal, increased level of stress and decreased mood. It is frequently connected with a loss of the sense of physical attractiveness, trust between partners, if-, hope and the sense of security. The inability to conceive a child is a natural distortion of the psychological balance of a unit and is often compared to mourning after the death of a close person or experiencing serious illnesses (Malina et al., 2016) Infertile couples experience considerable psychological stress, with, isolation, loss of control, sexual inadequacy and depression. (Mamata et al., 2015)

Infertility is a condition that causes psychological distress to the couples. Both men and women may have problems that result in infertility. Almost one-third of infertility problems are due to women, another one-third of cases are caused by men and the other one-third of cases are caused by a combination of both women and men problems or by unknown reasons (Sultana., et al., 2015). Infertility is a source of distress for couples as societal norms and perceived religious dictums may equate infertility with failure on a personal, interpersonal, emotional or social level. Men bear the brunt of these societal perceptions in most of the cases. Psychologically, the infertile men exhibit significantly higher psychopathology in the form of tension, hostility, anxiety and depression (Ali et al., 2011).

Depression is a common reaction to infertility, which often follows the feeling of loss of identity, defectiveness, and incompetence, or a sense of social stigma. In an Eastern country, having a child is very important for cultural, economic, and social reasons. In addition, differences in tests used for assessment of depression may also be considered to result in such variations in the prevalence of depression between different studies (Doyle & Carballedo., 2014).

### Significance of study

Most studies have focused on the experience of women in the understanding that they carry the main burden of the infertility experience. In clinical area, no studies were done to assess psychological aspects among infertile men. There is limited information from developing countries on the experience of men suffering from couple infertility.

Only few studies have included male participants, the present study aimed to assess psychological aspects of infertile & fertile males. This study helps the

nursing and medical researchers to provide appropriate interventions.

### Aim of study

The current study aimed to assess psychological aspects of infertile & fertile males, and determine relationship between demographic & clinical data and psychological aspects of infertile males.

### Research questions

- Is male infertility affect the psychological aspects than fertile males?
- Is there a relationship between demographic data & psychological aspects of infertile & fertile males?

### Subjects and methods

**Research design:** Non experimental (case-control) design was used to conduct this study.

**Study setting:** The study was conducted at outpatient clinic of andrology and sexual transmitted diseases in Assiut University Hospital.

**Study subject:** A purposive sample was used. Included 150 subjects, 100 of them was studied group & 50 of them was control group.

### (Inclusion criteria)

- All infertile males who attended the out-patient clinics of andrology and sexual transmitted diseases in Assiut University Hospital during six months, from December 2015 till end of May 2016.
- Fifty normal fertile males who attended the clinics to other causes as control group.

### Exclusion criterias

- Patients with systematic disease.
- Patients with psychological problems or mental disorders.

**Study tools:** Two tools were used to collect data:

### Tool I: The Demographic and Clinical data sheet.

This sheet was developed by researcher. It includes:

**Demographic data** as age, address, occupation, level of education.

**Clinical data** as types and duration of infertility, previous operation for infertility, previous intracytoplasmic sperm injection, semen data for azoospermic or non-azoospermic and special habits.

### Tool II The Symptom ChickList-90 –Revised (SCL-90-Revised) (Elbehairy, 2004).

The SCL-90-R is a 90-item self-report symptom inventory developed by clinical psychometric research, It is designed primarily to reflect the psychological symptom pattern of psychiatric and medical patients. A preliminary version of the scale was introduced by Derogatis and his colleagues (Derogatis et al., 1973) and based on early clinical experiences. Psychometric analysis was modified and validated in the revised (R) form (Derogatis et al., 1976). Translated by Elbehairy, (2004) Each item of the "90" is rated on a 5-point scale of distress (0-4),

ranging from non-at-all at one pole to "extremely" at the other pole. The "90" is scored and interpreted in terms of 9 primary symptom dimensions and 3 global indices of distress that are labeled: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia anxiety, paranoid ideation, and psychoticism. The author proposed that the cut-off point equals the sum of one mean + SD, which also equals a T-score of 60 for each dimension.

#### **Reliability of tool**

The author has retested 101 students with a mean age of  $16.91 \pm 2.27$  years after 21 days and found no significant change from the first testing. The scale was reported to have high reliability as evidence by Cronbach's Alpha was  $r = 0.90$ .

#### **B-Validation of the Arabic version of SCL-90-R**

Translation of the original SCL-90-R into Arabic language was carried out very early, but validation and standardization if the Arabic copy has been done recently by professor Abdel-Rakeeb Elbehairy, Faculty of Education, Assiut University (2004). The sample used consisted of 701 normal individuals (349 males and 352 females) aged from 13 to 27 years with a mean of  $17.40 \pm 3.24$ . In addition, it included 158 patients (92 males and 66 females) with different psychiatric diagnoses from the psychiatric units of Assiut, El-menya, and Sohag universities hospitals aged 15 to 70 with mean of  $30.34 \pm 10.90$  years.

**Content validity:** Each dimension has been compared in the view of DSM-IV criteria for the corresponding disorder and has proven to be valid.

**External validity:** The author has compared the dimension of the SCL-90-R with other tests, which have been reliable such as Steady Trait Anxiety Inventory scale and reported that it has been valid.

**Differential validity:** To confirm that different symptom dimensions can differentiate between normal individuals and patients, the author has compared the scores of the SCL-90-R of normal individuals with the scores of patients and found that there is statistically high significant difference.

#### **Pilot study**

A pilot study was conducted on 10 infertile and 5 fertile males. The purpose of the pilot study was to detect any particular problem in the statements clarity, feasibility, and applicability of the tools. Minimal change was done in the assessment sheet, so the infertile and fertile males selected for the pilot study were not included in the main study.

#### **Filed work**

Data of the current study were collected over a period of 6 months, from December 2015 till end May 2016, 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 were 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 will be 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 researcher asked the male by Arabic and record the answers in the tool after explaining the scoring system of Questionnaires, The tools was filled and completed in one session. The average time taken for completing each questionnaire was around 45-60 minutes or more depending on the person response to a question.

#### **Ethical consideration**

The study proposal was approved by the investigator and ethics committee in the Faculty of Nursing, Assiut University. An oral agreement was obtained from each individual 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.

#### **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.

## Results

The main results yielded by this study were.

**Table (1): Demographic data of the infertile (N=100) and fertile males (N=50).**

Variables	Infertile males (Studied group) N=(100)		Fertile males (Control group) N=(50)		P. value
	No.	%	No.	%	
<b>Age, Mean ± SD</b>	35±7.6		33.2±7.3		0.172
<b>Age groups</b>					
18 - < 28 years	24	24.0	11	22.0	0.578
28 - < 38 years	52	52.0	23	46.0	
≥38 years	24	24.0	16	32.0	
<b>Residence</b>					
Urban	35	35.0	21	42.0	0.403
Rural	65	65.0	29	58.0	
<b>Occupation</b>					
Not work	13	13.0	7	14.0	0.545
Student	5	5.0	4	8.0	
Employee	20	20.0	12	24.0	
Manual work	26	26.0	12	24.0	
Professional work	8	8.0	7	14.0	
Farmer	28	28.0	8	16.0	
<b>Level of education</b>					
Illiterate/read & write	23	23.0	7	14.0	0.220
Primary	10	10.0	5	10.0	
Preparatory	12	12.0	4	8.0	
Secondary	31	31.0	13	26.0	
Universal	24	24.0	21	42.0	

*T* – Test for mean,

*Chi-square test for numbers*

**Table (2): Clinical data of infertile males (N=100).**

Variables	Infertile males (Studied group) N=(100)	
	No.	%
<b>Type of infertility</b>		
Primary	63	63.0
Secondary	37	37.0
<b>Duration of infertility</b>		
<b>Mean ± SD</b>	3.95±2.80	
1-3 years	56	56.0
4-6 years	26	26.0
≥7 years	18	18.0
<b>Previous operations for infertility</b>		
Yes	25	25.0
No	75	75.0
<b>Previous ICSI</b>		
Yes	23	23.0
No	77	77.0
<b>Semen analysis</b>		
Azoospermic	20	20.0
Non Azoospermic	80	80.0
<b>Special habits</b>		
Not smoking/drugs	22	22.0
Smoking	74	74.0
Hashish	4	4.0

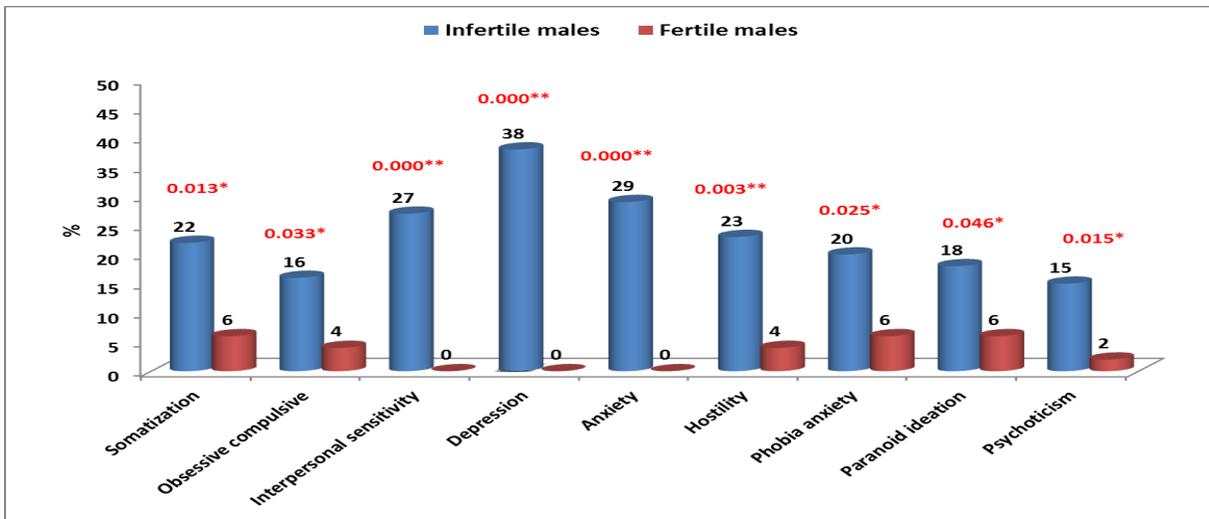


Figure (1): Distribution of Symptom ChickList-90-Revised.among infertile (N=100) and fertile males (N=50)

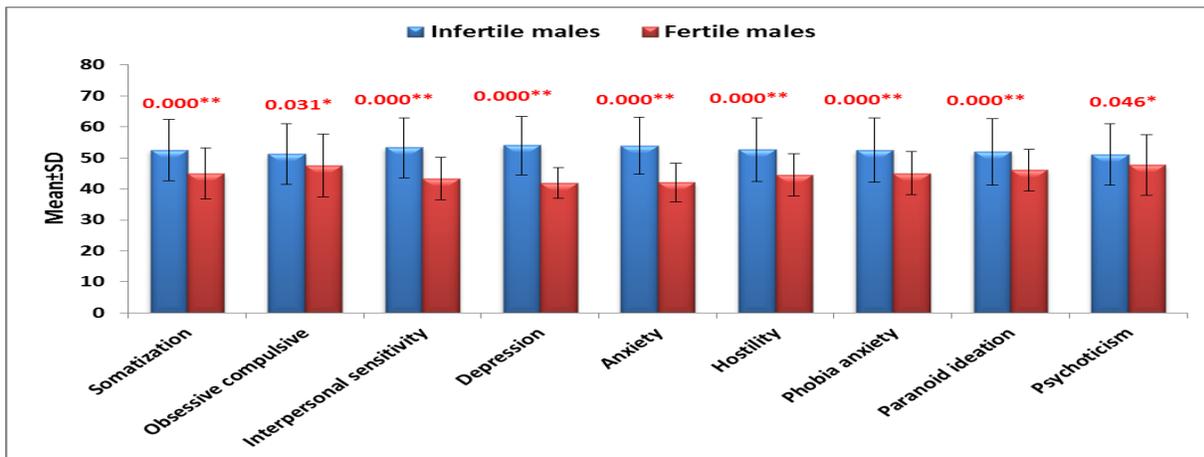


Figure (2): Mean score of infertile (N=100) and fertile males (N=50) on different symptoms dimension of Symptom ChickList-90-Revised.

Table (3): Relationship between demographic data and different dimensions of SCL-90 R of infertile males(N=100)

Variables	Somatization		Obsessive compulsive		Interpersonal sensitivity		Depression		Anxiety		Hostility		Phobia anxiety		Paranoid ideation		Psychoticism	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Total</b>	22	22.0	16	16.0	27	27.0	38	38.0	29	29.0	23	23.0	20	20.0	18	18.0	15	15.0
<b>Age groups</b>																		
18 - < 28 years	5	22.7	6	37.5	6	22.2	5	13.2	3	10.3	4	17.4	2	10.0	4	22.2	4	26.7
28 - < 38 years	12	54.5	9	56.3	13	48.1	21	55.3	21	72.4	12	52.2	13	65.0	11	61.1	6	40.0
≥38 years	5	22.7	1	6.3	8	29.6	12	31.6	5	17.2	7	30.4	5	25.0	3	16.7	5	33.3
<b>P. value</b>	0.964		0.134		0.725		0.101		<b>0.027*</b>		0.589		0.239		0.647		0.554	
<b>Residence</b>																		
Urban	4	18.2	1	6.3	3	11.1	6	15.8	5	17.2	1	4.3	3	15.0	2	11.1	0	0.0
Rural	18	81.8	15	93.8	24	88.9	32	84.2	24	82.8	22	95.7	17	85.0	16	88.9	15	100

Variables	Somatization		Obsessive compulsive		Interpersonal sensitivity		Depression		Anxiety		Hostility		Phobia anxiety		Paranoid ideation		Psychoticism		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
<b>P. value</b>	0.061		<b>0.009**</b>		<b>0.002**</b>		<b>0.002**</b>		<b>0.017*</b>		<b>0.000**</b>		<b>0.036*</b>		<b>0.019*</b>		<b>0.002**</b>		
<b>Occupation</b>																			
Not work	5	22.7	4	25.0	6	22.2	7	18.4	7	24.1	5	21.7	3	15.0	2	11.1	4	26.7	
Student	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.3	1	5.0	0	0.0	0	0.0	
Employee	3	13.6	1	6.3	3	11.1	10	26.3	5	17.2	2	8.7	2	10.0	2	11.1	2	13.3	
Manual work	2	9.1	6	37.5	4	14.8	4	10.5	8	27.6	5	21.7	2	10.0	7	38.9	2	13.3	
Professional work	2	9.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	15.0	0	0.0	0	0.0	
Farmer	10	45.5	5	31.3	14	51.9	17	44.7	9	31.0	10	43.5	9	45.0	7	38.9	7	46.7	
<b>P. value</b>	0.069		0.191		<b>0.003**</b>		<b>0.000**</b>		0.089		0.116		0.162		0.295		0.130		
<b>Level of education</b>																			
Illiterate/read & write	11	50.0	5	31.3	13	48.1	12	31.6	10	34.5	9	39.1	9	45.0	9	50.0	7	46.7	
Primary	2	9.1	0	0.0	4	14.8	6	15.8	2	6.9	4	17.4	2	10.0	2	11.1	4	26.7	
Preparatory	2	9.1	5	31.3	4	14.8	6	15.8	4	13.8	2	8.7	1	5.0	2	11.1	2	13.3	
Secondary	3	13.6	5	31.3	5	18.5	10	26.3	10	34.5	7	30.4	3	15.0	5	27.8	2	13.3	
Universal	4	18.2	1	6.3	1	3.7	4	10.5	3	10.3	1	4.3	5	25.0	0	0.0	0	0.0	
<b>P. value</b>	<b>0.015*</b>		<b>0.028*</b>		<b>0.001**</b>		<b>0.044*</b>		0.186		<b>0.039*</b>		0.079		<b>0.015*</b>		<b>0.004**</b>		

SCL-90 R = Symptom Checklist-90-Revised

**Table (4):- Relationship between clinical data and different dimensions of SCL-90 R of infertile males.**

Variables	Somatization		Obsessive compulsive		Interpersonal sensitivity		Depression		Anxiety		Hostility		Phobia anxiety		Paranoid ideation		Psychoticism		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
<b>Type of infertility</b>																			
Primary	12	54.5	13	81.3	20	74.1	24	63.2	25	86.2	13	56.5	12	60.0	12	66.7	9	60.0	
Secondary	10	45.5	3	18.8	7	25.9	14	36.8	4	13.8	10	43.5	8	40.0	6	33.3	6	40.0	
<b>P. value</b>	0.352		0.099		0.163		0.980		<b>0.002**</b>		0.463		0.756		0.722		0.794		
<b>Duration of infertility</b>																			
1-3 years	9	40.9	10	62.5	12	44.4	10	26.3	11	37.9	8	34.8	9	45.0	7	38.9	6	40.0	
4-6 years	3	13.6	5	31.3	8	29.6	11	28.9	11	37.9	6	26.1	2	10.0	6	33.3	2	13.3	
≥7 years	10	45.5	1	6.3	7	25.9	17	44.7	7	24.1	9	39.1	9	45.0	5	27.8	7	46.7	
<b>P. value</b>	<b>0.001**</b>		0.405		0.307		<b>0.000**</b>		0.065		<b>0.007**</b>		<b>0.001**</b>		0.251		<b>0.007**</b>		
<b>Previous operations for infertility</b>																			
Yes	4	18.2	5	31.3	5	18.5	13	34.2	11	37.9	5	21.7	4	20.0	5	27.8	3	20.0	
No	18	81.8	11	68.8	22	81.5	25	65.8	18	62.1	18	78.3	16	80.0	13	72.2	12	80.0	
<b>P. value</b>	0.403		0.529		0.363		0.096		0.056		0.681		0.564		0.764		0.628		
<b>Previous ICSI*</b>																			
Yes	6	27.3	4	25.0	7	25.9	16	42.1	8	27.6	9	39.1	11	55.0	9	50.0	9	60.0	
No	16	72.7	12	75.0	20	74.1	22	57.9	21	72.4	14	60.9	9	45.0	9	50.0	6	40.0	
<b>P. value</b>	0.590		0.836		0.672		<b>0.000**</b>		0.486		<b>0.036*</b>		<b>0.000**</b>		<b>0.003**</b>		<b>0.000**</b>		
<b>Semen analysis</b>																			
Azoospermic	2	9.1	6	37.5	12	44.4	10	26.3	9	31.0	4	17.4	4	20.0	6	33.3	3	20.0	
Non Azoospermic	20	90.9	10	62.5	15	55.6	28	73.7	20	69.0	19	82.6	16	80.0	12	66.7	12	80.0	
<b>P. value</b>	0.148		0.056		<b>0.000**</b>		0.216		0.078		0.722		1.000		0.118		1.000		
<b>Special habits</b>																			
Not smoking/d	3	13.6	1	6.3	3	11.1	6	15.8	3	10.3	6	26.1	6	30.0	4	22.2	4	26.7	
Smoking	16	72.7	12	75.0	22	81.5	29	76.3	22	75.9	14	60.9	12	60.0	12	66.7	9	60.0	
Hashish	3	13.6	3	18.8	2	7.4	3	7.9	4	13.8	3	13.0	2	10.0	2	11.1	2	13.3	
<b>P. value</b>	<b>0.024*</b>		<b>0.002**</b>		0.188		0.179		<b>0.002**</b>		<b>0.030*</b>		0.162		0.230		0.106		

\*ICSI = Intracytoplasmic Sperm Injection

SCL-90 R = Symptom Checklist-90-Revised

**Table (1)** Showed that demographic data of the infertile and fertile males. The mean age of infertile males was  $35 \pm 7.6$  compared with the  $33.2 \pm 7.3$  mean age of fertile males. The most of fertile and infertile age groups were from ranged 28 to <38 years old. 65% of infertile males and 58% of fertile males were from rural area. More than one quarter (28%) of infertile males were farmers while 24% of fertile males were employee and 24% manual workers. 31% of infertile males were graduated from secondary schools while 42% of fertile males were graduated from university. There were no statistically significant difference between infertile and a fertile males regarding all demographic data.

**Table (2)** Illustrated that clinical data of infertile males. Which indicated that 63% of infertile males had primary infertility. Mean $\pm$ SD according to duration of infertility was  $3.95 \pm 2.8$  years. Regarding duration of infertility, more than half (56%) of them were 1-3 years. The 25% of infertile males were having previous operations for infertility. While 23% of them were having previous intracytoplasmic sperm injection. Regarding of semen analysis, about 20% of infertile males were azoospermic semen analysis. According to special habits, 74% of infertile males were smokers.

**Figure (1)** Showed that distribution of Symptom ChickList-90-Revised among infertile and fertile males, where the majority of infertile males were suffering from depression (38%) while 29% of them have anxiety symptoms. Regarding fertile males, the most psychiatric symptoms were somatization, phobia anxiety and paranoid ideation (6%) for each symptom. There were statistically significant differences between infertile and fertile males regarding all dimensions of Symptom ChickList-90-Revised.

**Figure (2)** Showed that mean score of infertile and fertile males of different symptoms dimension of Symptom ChickList-90-Revised there were statistically significant differences between infertile and fertile males according to mean scores of all dimensions of Symptom ChickList-90-Revised

**Table (3):** Illustrated that relationship between demographic data and different dimensions of SCL-90 R of infertile males, according to age groups there was no statistically significant difference between age groups and different dimension of SCL-90 R except anxiety ( $p=0.027$ ). There were a statistically significant differences between residence and all dimensions of SCL-90 R except somatization. There were statistical significant differences between occupation and SCL-90 R related to interpersonal sensitivity and depression ( $p=0.003$  and  $0.000$ ) respectively. There were statistical significant differences between level of education and all

dimensions of SCL-90 R except anxiety and phobia anxiety.

**Table (4):** Illustrated that relationship between clinical data and different dimensions of SCL-90 R in infertile males. There was statistical significant difference between type infertility and anxiety ( $p=0.002$ ). On the other hand, duration of infertility was statistically and significantly different with all dimensions of SCL-90 R except obsessive-compulsive, interpersonal sensitivity, anxiety and paranoid ideation. Regarding previous operations of infertility there was no statistical significant differences with all dimensions of SCL-90 R. According to previous ICSI there was a statistical significant difference with depression, hostility, phobia, paranoid ideation, and psychoticism ( $p=0.000$ ,  $0.036$ ,  $0.000$ ,  $0.003$  and  $0.000$ ) respectively. Moreover, it was found that semen analysis was highly statistically and significantly different with interpersonal sensitivity ( $p=0.000$ ). Finally, it was noticed that special habits were have statistical significant differences with somatization, obsessive-compulsive, anxiety, and hostility ( $p=0.024$ ,  $0.002$ ,  $0.002$  and  $0.030$ ) respectively.

## 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*). The current study was aimed to assess psychological aspects of infertile & fertile males and determine relationship between demographic & clinical data and psychological aspects of infertile males.

The current study revealed that about two-thirds of infertile males had primary infertility. These findings are similar with previous studies reported by **Wischmann et al., (2001)** who found that about two-thirds of infertile males had primary infertility. In this respect, **Omu, et al., 2010, Ahmadi et al, 2011, Gao et al., 2013** found that about more than two-thirds of infertile males had primary infertility. However, **(Broeck, et al., 2010 & Ketabchi & Ketabchi, 2011)** found that about the most of infertile males had primary infertility.

The current study showed that Mean of duration of infertility was  $3.95 \pm 2.8$  years. Whereas, about more than half of them had ranged from 1-3 years of duration of infertility. This could be explained by the most of people who seek medical services for treatment of infertility are in this range of age and married couples do not wait for more than two years to do investigations to know the cause of infertility.

These findings are similar with previous study reported by **Galhardo et al., (2013)** found that Mean duration of infertility was  $3.35 \pm 2.53$  years. While, about more than half of them had ranged from 1-3 years duration of infertility. While, **Gadalla et al., (2011)** found that Mean duration of infertility was  $4.4 \pm 3.6$  years. Also, (**Mazeed et al., 2015 & Bolsoy, et al., 2010**) found that about half of them were 1-5 years of duration infertility.

The present study reported that about one quarter of infertile males was having previous operations for infertility. These findings are similar with previous study reported by **Ketabchi & Ketabchi, (2011)** found that about one-quarter of infertile males had previous operations for infertility. However, **Bolsoy, et al., (2010)** found that about more than half of infertile males had previous operations for infertility. Less than one-quarter of infertile males were having previous ICSI. May be related to infertility treatment comes at considerable financial cost and many of infertile males are not able to access these treatments. These findings are similar with previous studies reported by (**Chachamovich et al., 2010, Volgsten et al., 2008 & Holter et al., 2007**) found that less than one-quarter of infertile males were having previous ICSI.

The present study revealed that about less than one-quarter of infertile males had azoospermic semen analysis. In the respect, previous study reported by **Abolfotouh et al., (2013)** found that 7% of infertile males had azoospermic semen analysis. While, **Gadalla et al., (2011)** found that about one-quarter of infertile males had azoospermic semen analysis. The present study showed that about more than two-thirds of infertile males were smokers. This may be related to the smoking adversely influences on semen quality specially among heaving smokers. These findings are similar with previous studies reported by (**Gao et al., 2013 & Ahmadi et al., 2011**) who found that about more than two-thirds of infertile males were smokers. Also, these findings are in disagreement with other study reported by **Zorn et al., (2008)** who found that about one-thirds of infertile males were smoked.

Regarding distribution of SCL- 90-R among infertile and fertile males more than one-third of infertile males were suffering from depression, nearly one-third suffering from anxiety and then interpersonal sensitivity symptoms. While, fertile males, were suffering from paranoid ideation, somatization and phobia anxiety (6%) respectively and there were statistically significant differences between infertile and fertile males regarding all dimensions of SCL-90-R. ( $p < 0.001$ ). It may be related to Egyptian culture, where people have negative attitude toward infertility are so throbbing. Having child is vital

factor for males, and absence of children may cause marital, social and psychological problems especially in Middle East societies. Negative attitude and behavior of surrounding (family, friends, wife family, neighbors..... etc) can cause psychological problems. These result is congruent with **Ahmed et al., (2013)**, who found the highest level of infertile males were suffering from depression, followed by anxiety and then interpersonal sensitivity symptoms. Also, **Gadalla, et al., (2011)**, showed that psychological symptoms frequency among infertile couples assessed by SCL-90 were depression, somatization, anxiety, interpersonal sensitivity and obsessive-compulsive disorder. **Zhou et al.,(2012)** found that there were highly statistically significant differences ( $p < 0.01$ ) between infertile and fertile males regarding all dimensions of SCL- 90-R. In the same context, **Sydsjo et al., (2015)** displayed infertile males have higher prevalence as regard depression, obsessive-compulsive, anxiety, interpersonal sensitivity, and hostility. In contrast, **Elsahrawy et al., (2015)** reported that high percentage of patients had generalized anxiety disorder, followed by major depression and social phobia.

The current study revealed that there was statistical significant relation between type of infertility and anxiety. During data collection, the researcher observed that patients were less hopeful and more anxious when their infertility was primary than was secondary. This may related to negative attitude & behavior of surrounding especially wife family, friends & neighbors. This is not supported by **Gadalla et al., (2011)** who showed that, there are no statistically significant differences between type of infertility and all dimensions of SCL-90- R. Also the current finding is not supported by **Gana & Jakubowska, (2016)** who found no statistically significant differences between type of infertility and anxiety. In the present study, it was revealed that there is statistical significant relation between duration of infertility and all dimensions of SCL-90 R except obsessive compulsive, interpersonal sensitivity and paranoid ideation. This may be explained by the men consider conception (his wife's pregnancy) as central part of their masculinity, therefore prolonged infertility accompanied with common psychological negative consequences as depression, anxiety, and psychoticism. Many studies done by **Elsahrawy et al., (2015), Etebary et al., (2013) & Drosdzol & Skrzypulec., (2009)** showed that there was statistical significant relation between duration of infertility with depression and anxiety. In contrast, **Maroufizadeh et al., (2015)** demonstrated that there was no statistical significant relation between duration of infertility with depression and anxiety. However, **Gadalla et al.,**

(2011) who showed that no statistically significant differences between duration of infertility and all dimensions of SCI-90- R except on anxiety and interpersonal sensitivity.

The current study showed that there was a statistical significant relation between previous Intracytoplasmic Sperm Injection and depression, hostility, phobia, paranoid ideation, and psychoticism. This may be related to long lasting infertility and unsuccessful treatment cycle intensify psychopathological problem especially depression, phobia and psychoticism and due to fear of failure of ICSI. This finding slightly supported by **Volgsten., (2009)** who found that statistical significant relation between previous ICSI and depression and **Elsehrawy et al., (2015)** , who found that statistical significant relation between previous ICSI and phobia anxiety. Also, there was statistical significant relation between semen analysis and interpersonal sensitivity. During phase of data collection, the researcher observed that infertile males with Azoospermic (absence of sperm) were more anger, more shameful and had feeling of inferiority to others. The majority of infertile males were living in rural area has habits and traditions that looks for people without children less masculinity.

The current study revealed that smoking was statistically and significantly associated with somatization, obsessive compulsive, anxiety, and hostility among infertile males. because that smoker tend to be more anxious, tense, impulsivity, compulsivity and somatic symptoms and cigarette smokers have higher level of circulating estradiol which potentially impact spermatogenesis and causes erectile dysfunction **Practice Committee of the American Society for Reproductive Medicine (2012)**. These results are partially consistent with the finding of **Zhang et al., (2016)** that revealed that statistical significant relation between smoking and anxiety. In contrast, **Yusuf et al., (2012) & Zorn et al., (2008)** demonstrated that there was no statistical significant relation between smoking and anxiety.

### Conclusion

Based on the result of present study it can be concluded that infertile males were having high psychological symptoms, than fertile males especially depression, anxiety, interpersonal sensitivity, and hostility. The majority of infertile males were smokers and living in rural area.

### 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 depressive and anxiety symptoms among them.
- Liaison psychiatric nurse should be available at the outpatient clinics of infertile males to help them cope successfully and diminish psychological problems among them.

### References

1. **Abolfotouh, M., Alabdrabalnabi, A., Albacker, R., Al-Jughaiman, U., & Hassan, S., (2013):** Knowledge, attitude, and practices of infertility among Saudi couples. *International Journal of General Medicine*, 6, 563–573. <https://doi.org/10.2147/IJGM.S46884>.
2. **Ahmadi, H., Montaser-Kouhsari, L., Nowroozi, M., & Bazargan-Hejazi, S., (2011):** Male infertility and depression: a neglected problem in the Middle East. *J Sex Med*, 8(3), 824-830. doi:10.1111/j.1743-6109.2010.02155.x.
3. **Ahmed, S., Metawea, B., GadAlla, A., & Sadek, M., (2013):** Comparative s tudy of psychosexual aspects between male factor and female factor infertility (Master's thesis) Cairo University:
4. **Al-asadi, J., & Hussein, Z., (2015):** Depression among infertile women in Basrah, Iraq : Prevalence and risk factors. *Journal of the Chinese Medical Association*, 78(11), 673–677. <http://doi.org/10.1016/j.jcma.2015.07.009>Faculty of medicine.
5. **Ali, S., Sophie, R., Imam, A., Khan, F., Ali, S., Shaikh, A., & Farid-Ul-Hasnain, S., (2011):** Knowledge, perceptions, and myths regarding infertility among selected adult population in Pakistan: A cross-sectional study. *BMC Public Health*, 11(1), 1-7. doi:10.1186/1471-2458-11-760
6. **Bell, K., (2013):** Constructions of —infertilityl and some lived experiences of involuntary childlessness. *Affilia: Journal of Women & Social Work* 28(3), 284-295. doi:10.1177/0886109913495726.
7. **Bolsoy, N., Taspinar, A., Kavlak, O., & Sirin, A., (2010):** Differences in Quality of Life Between Infertile Women and Men in Turkey. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 39(2), 191-198.
8. **Broeck, U., D'hooghe, T., Enzlin, P., & Demyttenaere, K., (2010):** Predictors of psychological distress in patients starting IVF treatment: Infertility-specific versus general

- psychological characteristics. *Human Reproduction*, 25(6), 1471-1480. doi:10.1093/humrep/deq030.
9. **Chachamovich, J., Chachamovich, E., Ezer, H., Cordova, F., Fleck, M., Knauth, D., & Passos, E., (2010):** Psychological distress as predictor of quality of life in men experiencing infertility: A cross-sectional survey. *Reproductive Health Repr Health*, 7(1).
  10. **Derogatis, L., Lipman, R., & Covi, L., (1973):** The SCL-90, an outpatient psychiatric rating scale Preliminary report. *Psychopharmacology Bulletin Journal*; vol 9(1):13-28
  11. **Derogatis, L., Rickels, K., & Rock, A., (1976):** The SCL-90 and the MMPI, A step in the validation of a new self-report scale, *British Journal of Psychiatry*; vol 128(5):280-289.
  12. **Doyle, M., & Carballo, A., (2014):** Infertility and mental health. *Advances in psychiatric treatment*, 20(5), 297-303.
  13. **Drosdzol A., & Skrzypulec V., (2009):** Depression and anxiety among Polish infertile couples—An evaluative prevalence study. *J Psychosom Obstet Gynaecol*;30:11-20. <https://doi.org/10.1080/01674820902830276>.
  14. **Eisenberg, M... (2016):** Improving the Precision of the Male Fertility Evaluation. *European Urology*, 70(6), 924-925. **d Elbehairy, A., (2004):** Arabic version of Symptoms Check List scale (SCL-90-R), El-Nahdah, in press
  15. **Elbehairy, A., (2004):** Arabic version of Symptoms Check List scale (SCL-90-R), El-Nahdah, in press
  16. **Elsehrawy, T., Eldawla, A., Abd Elsamei, A., & Mahmoud, N., (2015):** Psychiatric Morbidity and Quality of Life in A Sample of Egyptian Infertile Males (Master's thesis) Ain Shams University: Faculty of medicine. doi:10.1016/j.eururo.2016.06.045
  17. **Etebary S., Golestan Jahromi M., Mosalanejad L\*2, Yari N., Golestan Jahromi F3, J., (2013):** Psychological approach in infertility treatments : the relationship of duration of infertility to psychological distress. *Journal of Jahrom University of Medical Sciences*, 11, 18-20.
  18. **Gadalla, A., Nasreldin, M., Mostafa, T., Ahmed, A., & Eid, A., (2011):** Psychosexual satisfaction of infertile couples due to male factor infertility, 51-56.
  19. **Galhardo, A., Cunha, M., & Pinto-Gouveia, J., (2013):** Mindfulness-Based Program for Infertility: Efficacy study. *Fertility and Sterility*, 100(4), 1059-1067.
  20. **Gana, K., & Jakubowska, S., (2016):** Relationship between infertility-related stress and emotional distress and marital satisfaction. *J Health Psychol*, 21(6), 1043-1054.
  21. **Gao, J., Zhang, X., Su, P., Liu, J., Shi, K., Hao, Z., Liang, C., (2013):** Relationship between sexual dysfunction and psychological burden in men with infertility: a large observational study in China. *J Sex Med*, 10(8), 1935-1942.
  22. **Holter, H., Anderheim, L., Bergh, C., & Moller, A., (2007):** The psychological influence of gender infertility diagnoses among men about to start IVF or ICSI treatment using their own sperm. *Hum Reprod*, 22(9),
  23. **Ketabchi, A., & Ketabchi, M., (2011):** Psychological effects of infertility in clinical varicocele patients. *Health*, 3(8), 504-506. <https://doi.org/10.4236/health.2011.380832559-2565>. doi:10.1093/humrep/dem189.
  24. **Kim, M., Choi, H., & Park, S., (2012):** Molecular and cytogenetic studies of 101 infertile men with microdeletions of Y chromosome in 1, 306 infertile Korean men, 539-546. <http://doi.org/10.1007/s10815-012-9748-4>
  25. **Malina, A., Błaszkiwicz, A., & Owczarz, U., (2016):** Psychosocial aspects of infertility and its treatment. *Ginekologia Polska*, 87(7), 527-531.
  26. **Mamata, D., Ray, S., Pratap, K., Firuza, P., Birla, A., & Manish, B., (2015):** Impact of different controlled ovarian stimulation protocols on the physical and psychological burdens in women undergoing in vitro fertilization/intra cytoplasmic sperm injection. *Journal of Human Reproductive Sciences*, 8(2), 86-92. <http://doi.org/10.4103/0974-1208.158615>.
  27. **Maroufizadeh, S., Karimi, E., Vesali, S., & Omani Samani, R., (2015):** Anxiety and depression after failure of assisted reproductive treatment among patients experiencing infertility. *Int J Gynaecol Obstet*, 130(3), 253-256. doi:10.1016/j.ijgo.2015.03.044
  28. **Mazeed, S., Mohamed, E., Alam, H., & Ali, A., (2015):** Assessment of knowledge and attitude of infertile couples toward Assisted reproductive technologies (master's thesis). Faculty of Nursing - Assuit University.
  29. **Mokhtar, S., Hassan, H., & Mahdy, N., (2012):** Risk Factors For Primary and Secondary Female Infertility in Alexandria : A Hospital Based Case-Control study. *J Med Res Inst*, 27(4), 245-252.
  30. **Navaeian-kalat, E., Jalali, M., & Fathi, Z., (2015):** Treating Infertility in IVF Clinics: Therapeutic Potential of Stem Cells. *Journal of Genes and Cells*, 1(1), pp. 22. <http://doi.org/10.15562/gnc.1>
  31. **Neto, F. T. L., Bach, P. V., Najari, B. B., Li, P. S., & Goldstein, M. (2016).** Genetics of Male Infertility. *Current urology reports*, 17(10), 70.

32. **Olpin J. & Kennedy A. (2011).** Secondary infertility in women: radiologic evaluation. *Reports in Medical Imaging*, 4: pp.1-4.
33. **Omu, F. E., & Omu, A. E. (2010).** Emotional reaction to diagnosis of infertility in Kuwait and successful clients' perception of nurses' role during treatment. *BMC Nurs BMC Nursing*, 9(1). doi:10.1186/1472-6955-9-5.
34. **Orisakwe, O. E. (2014).** Management of Male Infertility in Nigeria: Thinking outside the box. *J.of dvancement in Medical and Life Sciences*: 37(2), 5–6
35. **Practice Committee of the American Society for Reproductive Medicine. (2012).** Smoking and infertility: a committee opinion. *Fertility and Sterility*, 98(6), 1400-1406.
36. **Practice Committee of the American Society for Reproductive Medicine. (2013).** Definitions of infertility and recurrent pregnancy loss: a committee opinion. *Fertility and sterility*, 99(1), 63.
37. **Sen, S., Pasi, an R., Dada, R., Shamsi, M. B., & Modi, D. (2013).** Y chromosome microdeletions in infertile men: prevalence, phenotypes and creening markers for the Indian population. *Journal of Assisted Reproduction and Genetics*, 30(3), 413–22. <http://doi.org/10.1007/s10815-013-9933-0>.
38. **Sultan, S., & Tahir, A. (2011).** Psychological consequences of infertility. *Hellenic Journal of Psychology*, 8(2), 229–247.
39. **Sultana, A., Tanira, S., Adhikary, S., Keya, K. A., & Akhter, S. (2015).** Explained infertility among the couple attending the infertility unit of Bangabandhu Sheikh Mujib Medical University (BSMMU), Bangladesh. *Journal of Dhaka Medical College*, 23(1), 114-120.
40. **Sydsjo, G., Vikstrom, J., Bladh, M., Jablonowska, B., & Skoog Svanberg, A. (2015).** Men report good mental health 20 to 23 years after in vitro fertilisation treatment. *BMC Public Health*, 15, 1175. doi:10.1186/s12889-015-2398-6.
41. **Volgsten, H. (2009).** Mood Disorders, Personality, and Grief in Women and Men undergoing in vitro Fertilization Treatment. (Doctoral thesis). Faculty of Medicine - Uppsala University. Sweden
42. **Volgsten, H., Skoog Svanberg, A., Ekselius, L., Lundkvist, O., & Sundstrom Poromaa, I. (2008).** Prevalence of psychiatric disorders in infertile women and men undergoing in vitro fertilization treatment. *Hum Reprod*, 23(9), 2056-2063. doi:10.1093/humrep/den154.
43. **Wischmann, T., Stammer, H., Scherg, H., Gerhard, I., & Verres, R. (2001).** Psychosocial characteristics of infertile couples: a study by the "Heidelberg Fertility Consultation Service". *Human Reproduction (Oxford, England)*, 16(8), 1753–1761. <https://doi.org/10.1093/humrep/16.8.1753>.
44. **Yusuf, a. J., Maitama, H. Y., Amedu, M. a., Ahmed, M., & Mbibu, H. N. (2012).** Socio-demographic correlates of psychological distress among male patients with infertility in Zaria, Nigeria. *African Journal of Urology*, 18(4), 170–174. <https://doi.org/10.1016/j.afju.2012.08.009>.
45. **Zhang, M., Zhang, Q. S., Zheng, H. S., Wang, X. Y., Feng, S. Q., Tian, W. J., & Fan, H. T. (2016).** Clinical, demographic and psychological characteristics of infertile male smokers in Northeast China. *J Int Med Res*, 44(1), 75-80. doi:10.1177/0300060515606285.
46. **Zhou, L., Shi, X., Wang, X., & Liu, D. (2012).** Analysis of correlative factors of sterility in males undergoing routine sperm inspection by masturbation]. *Zhong Nan Da Xue Xue Bao Yi Xue Ban*, 37(7), 725-729. doi:10.3969/j.issn.1672-7347.2012.07.014.
47. **Zorn, B., Auger, J., Velikonja, V., Kolbezen, M., & Meden-Vrtovec, H. (2008).** Psychological factors in male partners of infertile couples: relationship with semen quality and early miscarriage.