

Depression among Women with Primary Infertility attending an Infertility Clinic in Riyadh, Kingdom of Saudi Arabia: Rate, Severity, and Contributing Factors

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Abstract:

Background: Infertility is a severely distressing experience for many couples. Depression is considered as one of the main psychological disorders associated with infertility and it may significantly affect the life of infertile individuals, their treatment, and follow-up.

Objective: The objective of the study was to determining the prevalence and predisposing factors of depressive disorders among the infertile compared to fertile women.

Methodology: Rate of depression was explored by this cross-sectional study carried out among women attending In-Vitro Fertilization Clinic (91 infertile women) and Well Baby Clinic (94 fertile women) at King Abdulaziz Medical City (KAMC) in Riyadh, KSA.

Self administrated questionnaire including Beck Depression Inventory (BDI) was used. Mean BDI score was measured and its relation with different variables was explored, such as age, educational level, duration of infertility, pressure from family members, miscarriages and support from husband.

Results: This study showed that 49 (53.8%) of the infertile women and 35 (37.2%) of the fertile women had depression. Mean BDI score between infertile and fertile women was significantly different ($p < 0.001$). Infertile women were found to be more severely depressed ($p = 0.014$). Among the infertile women, those who had pressure from family members for not getting pregnant were more depressed than those with no such pressure ($P = 0.001$).

Conclusion: Depression is more common and severe in infertile women than fertile women. Pressure from family to get pregnant is a significant contributor to depression. Caregivers should routinely screen infertile women for depression during and after treatment for infertility and manage concomitantly.

Key Words: Depression, Infertility

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Introduction

Infertility is the failure to achieve pregnancy after a year of frequent, unprotected intercourse. It is prevalent in approximately 10 to 20% of couples⁽¹⁾ It has been reported that 40% of infertilities were related to men, 40% to women and 20% to both sexes⁽²⁾

In recent years, special attention has been paid to the psychological health of infertile couples. Grief reactions are common among infertile couples, however, these normal grief reactions may prolong into pathological grief leading to major depression.⁽³⁾

Depressed patients exhibit low mood, loss of interest or pleasure in daily activities, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration.⁽⁴⁾ Prevalence is 5 to 12% for men and 10 to 25% in women.⁽⁵⁾ Major depression is 2-3 times as common in women as in men.⁽⁶⁾

Depression may affect infertility treatment, follow-up and hope for the future; it may also influence the intensity and longevity of relationship of the affected couple.⁽⁷⁾ Lapane et al (1995),⁽⁸⁾ have reported that depression could also have role in the pathogenesis of infertility.

Domar et al, in 1992,⁽⁹⁾ reported that among infertile women 37% had depressive symptoms on the Beck Depression Inventory (BDI), which was twice as common as in the control group. Results of an Iranian study in 2006 showed that depression is more common among infertile couples than fertile couples ($p < 0.015$).⁽⁷⁾

[Nelson CJ](#) et al, in 2008⁽¹⁰⁾, used Center for Epidemiological Studies Depression Scale (CES-D) for depression and found that 19% of infertile women had moderate and 13% had severe depression.

[Drosdzol](#) et al in 2009⁽¹¹⁾ found that 35.4% infertile women scored above the cut-off for severe symptoms of depression, compared with 19.47% of fertile women. They found female gender, age over 30 years, lower level of education, lack of occupational activity, diagnosed male infertility and duration of 3-6 years of infertility as risk factors leading to depression and anxiety among infertile couples. Other researchers have explored lack of self-confidence, feeling of grievance, sin and disappointment as factors that may be related to infertility.^(12, 13, 14) Infertile women who have social support, positive personal characteristics, and have a satisfactory life with their spouse show fewer signs of depression⁽⁹⁾

Infertility is a social onus for women in Saudi Arabia, who are expected to have children early

in their marital life. Women without children often feel incomplete and this results in pressure from their families and society, thus leading to psychological problems. To the researcher's knowledge, no local study was found to measure the prevalence of depression among infertile Saudi women.

This study aimed to determine the percentage of depression among infertile women compared to fertile women and to explore the factors that may be related to depression among the infertile Saudi women. The results of this study should help identify status of depression among infertile women and enhance development of programs for prevention and treatment.

Methods

The sample for infertile women was derived from patients of In-Vitro Fertilization Clinic at King Abdulaziz Medical City (KAMC) in Riyadh and for fertile women questionnaires were distributed among visitors of two Well Baby Clinics of KAMC, between Dec 2010 - March 2011. Participants were selected by systematic random sampling from the patient list by nurse receptionist in each clinic and participants who fit in the inclusion criteria of age between 20-35 years, infertility duration of > 1 year and diagnosed with primary infertility.

Patients were excluded from the study if age was > 35 years, diagnosed as having any other psychiatric disorder or having secondary infertility. Equal sample sizes of 80 (adjusted up to 100 for possible data loss) for each group: fertile and infertile, were estimated based on assumed prevalence of depression of 30% among infertile couple and 10% among fertile couples, using power of .8 and setting α at .05.

The Beck Depression Inventory (BDI) Scale, Arabic-version, with some additional variables was used. Test-retest reliability and validity of Beck questionnaire has been proven by several studies and researches.^(1, 15) A full 21-items BDI was administered. Each item describes a specific behavioral, emotional and somatic manifestation of depression. The 21 items cover sadness, pessimism, sense of failure, dissatisfaction, guilt, expectation of punishment, self-dislike, self-accusations, suicidal ideas, crying, irritability, social withdrawal, indecisiveness, body image change, work retardation, insomnia, fatigability, anorexia,

weight loss, somatic preoccupation and loss of libido.⁽¹⁶⁾

Scores on each item range from '0' indicating no depressive symptoms to a maximum of '3' indicating severe symptoms. Total scale scores can thus range from 0 to 63: a score of 0 - 9 indicates no depression, 10 - 15 suggests mild depression, 16 - 29 is for moderate severe depression and 30 or more indicates severe depression.

Information about certain variables including age, duration of marriage, educational level, occupation, primary cause of infertility, duration of infertility, number of miscarriages, pressure from family members to conceive, support from husband was also collected.

Statistical analysis was performed using the (Statistical Package for Social Sciences Software Version 18) (SPSS). Descriptive analysis was carried out, estimating mean, standard deviation (SD), for Beck Depression Inventory scores. Frequencies and percentages were calculated for the categorical variables. Chi-square was performed for comparing the level of depression of the infertile and fertile women. T-test was carried out to explore relationship between variables. A pilot study on 14 patients was conducted before the main study and necessary changes were done for timing and to minimize any possible ambiguities of the items in the questionnaire.

All data were collected in a secure and confidential environment. Data were analyzed as cumulative in a manner that individual privacy was maintained. This study was approved by King Abdullah International Medical Research Center, Riyadh. Verbal consent was taken from respondents, clarifying the main purpose of the study, the importance of the respondent views, thanking in advance and assuring strict confidentiality of the information with consent request and purpose of study stated on the questionnaire.

Results

A hundred infertile women and hundred fertile women (totally 200 persons) were enrolled in this study. Nine questionnaires from infertile group and 6 from the fertile group were disqualified for incomplete filling. Demographic characteristics of subjects in the two groups were similar [\[Table - 1\]](#).

Majority of participants in both groups was between the ages of 20 and 29 years. The fertile and infertile women groups were comparable in education levels. A majority in each group had a bachelor degree.

The BDI mean difference between the two groups was significant ($P = 0.001$) [\[Table - 2\]](#). The BDI score of 84 (45.4%) individuals was more than 10 in both the groups combined, showing that they were suffering from depression. Of the 84 depressed, 49 (26.5%) were from the infertile group and 35 (18.91 %) were from the fertile group. In the infertile group, 32 persons had BDI score over 16, indicating they had a clinical depression; and 16 persons in the fertile group had a score of more than 16 suggesting that severe depression is twice as likely in the infertile women, than the fertile women. ($p = 0.014$) [\[Table - 3\]](#).

The depression means score in infertile group among the women who have pressure from family for not getting pregnant was higher than in the women who have no pressure of the same group, which was statistically significant ($P=0.001$) [\[Table - 4\]](#).

The depression rate among women who were the source of infertility was higher than those whose husbands were the source of infertility, but was not statistically significant.

The depression mean score among women whose duration of infertility was between 4 and 6 years (12.24) was more than the women with 1-3 years (10.67) duration of infertility, but not much difference was seen among those having more than 4 years of infertility. Also, the depression mean among couples with more than 6 years of infertility (13.00) was higher than the Depression means of the couples with 1-3 year of infertility (10.67), but was not statistically significant either. In the infertile group the depression mean of those having emotional support (11.74), but was not statistically significant. Duration of marriage, or number of abortions, had no effect on the depression rate among the two groups, and educational level and occupation had no effect on the depression rate of infertile women either.

[Table - 1]: Fertility Status in Relation to Socio Demographic Data

Socio Demographic Data	Categories	Fertility Status		P Value
		Infertile	Fertile	
		No. %	No. %	
Age Group	(20 - 29) years	55 (29.7)	56 (30.2)	.904
	> = 30 years	36 (19.4)	38 (20.5)	
Marriage Duration	(1 - 3) Years	17 (9.18)	29 (15.6)	.008
	(4 – 6) Years	38 (20.5)	20 (10.8)	
	More than 6 Yrs	36 (19.4)	45 (24.3)	
Educational level	Primary	12 (6.48)	3 (1.6)	.067
	Elementary	9 (4.8)	8 (4.3)	
	Secondary	30 (16.2)	41 (22.1)	
	College	40 (21.6)	42 (22.7)	
Occupation Categories	Homemaker	73 (39.4)	67 (36.2)	.156
	Having Job	18 (9.72)	27 (14.5)	
Abortion Times	None	67 (36.2)	61 (32.9)	.515
	Once	12 (6.48)	20 (10.8)	
	Twice	9 (4.8)	10 (5.4)	
	Three or more	3 (1.6)	3 (1.6)	

[Table - 2]: Comparison of mean BDI Rates among the Two Groups

Groups	No	Mean	SD	Mean difference	95 % CI	P-Val
Infertile women	91	12.23	8.795	3.922	(1.6-6.1)	.001
Fertile women	94	8.31	6.496			

[Table - 3]: Comparison of Depression Severity among the Two Groups

Depression Severity Group	Non Depression No. %	Mild Depression No. %	Moderate Depression No. %	Severe Depression No. %	Total No. %	P-Val
Infertile women	42 (22.7)	17 (9.18)	14 (7.56)	18 (9.7)	91 (49.1)	.014
Fertile women	59 (31.8)	19 (10.2)	11 (5.9)	5 (2.7)	94 (50.8)	

[Table - 4]: Depression Mean in Relation to Infertility Variables

	Groups	No	Mean	SD	95 % CI	P-Val
Primary Cause of Infertility	Husband	35	9.89	8.170	(7.08-12.6)	.206
	Wife	39	13.85	8.296	(11.1-16.5)	
Infertility Duration	(1 - 3) Years	18	10.67	9.343	(6.02-15.3)	.660
	(4 - 6) Years	37	12.24	8.098	(9.54-14.9)	
	> 6 Years	36	13.00	9.338	(9.84-16.1)	
Pressure from the Family for not Getting Pregnant	Yes	39	15.64	9.036	(2.46-9.47)	.001
	No	52	9.67	7.753	(2.37-9.55)	
Emotional Support	Yes	80	11.74	8.683	(-9.6-1.5)	.150
	No	11	15.82	9.196	(-10.4-2.2)	

Discussion

The aim of this study was to compare the depression rate in infertile and fertile women. This study can be valuable because it used a self-reported inventory that differs in both cost and time from a psychiatric structured interview.

Based on the findings, the prevalence of depressive symptomatology, as indicated by BDI score 10 or more, among infertile group (49 individuals) was higher than the fertile group (35 individuals). Also, the depression mean among the infertile group was significantly more than among the fertile group. The depression frequency and severity among infertile women compared to fertile women were higher. These findings were similar to those carried out by Ashkani *et al*, Domar *et al* and Najmi *et al*,^(7, 9, 17, 18,19)

The prevalence of psychiatric morbidity, specially depression in infertile patients have been assessed in several countries, for example Jones *et al* (1993)⁽²⁰⁾ found that, there was mild to moderate depression in 28.3% of infertile women, moderate to severe depression in 7.2% and 1.2% had most severe depression based on BDI. Oddens *et al* (1999)⁽²¹⁾ reported that 24.9% of the infertile women had depressive disorders. There was depression disorder in 33% (Hong Kong), in 32 % (Scotland) of infertile women.⁽²²⁾ The overall percentage of depression disorder in infertile women ranges between 24 and 36 %.⁽²¹⁾

Our study showed 53.8% depression in infertile women. Saudi infertile women show higher rates of depression than the other countries. In Islamic countries such as Saudi Arabia, family status especially childbearing is very important and valuable. Having a child stabilizes family and increases marital satisfaction. In our culture and society, negative attitudes to infertility are thriving. Absence of children may cause marital problems such as divorce or even second marriage.

Intervention of relatives especially husband's family, negative attitude and behavior of surroundings (family, friends, neighbors, etc.) causes psychological problems for infertile women. This study shows significant difference in mean depression score between infertile women who got pressure from family for not getting pregnant than those who have no pressure.

Results of different studies about relationship of age and education with depression were not similar. According to Beutel *et al* study,⁽²³⁾ age and education level have no

significant relationship with depression. Another study showed that there was positive correlation between them.⁽⁹⁾ In this study there was no significant relationship of age and education with rate of depression.

Facchinetti F *et al*⁽²⁴⁾ found that having a job may reduce stress from In Vitro fertilization (IVF). In our study, depression was found more in homemakers than women who are having a job but the difference was not significant. It seems that being outside home at work decreases psychological stress.

The risk of depressive symptomatology is lower when a woman thinks that the problem is a male factor. This type of cultural view has been observed in countries with family-based societies.⁽²⁵⁾ Based on previous researches.^(14, 26) infertile women showed higher rates of psychiatric symptoms than their partners, especially in when the infertility factors are related to the female or for unexplained factors. Women are necessarily more deeply involved in treatment procedures and it is expected for them to be more affected. One of the characteristics of infertile couples is that women are habitually more affected by the situation of infertility than men.⁽²⁷⁾ Based on our study, depression is more common when the wife is the primary cause of infertility but the difference was not significant.

Depression increases with duration of infertility.⁽²⁸⁾ and there was a trend of increasing psychological stress with lengthening of infertility time. Based on depression scales, infertile patients who had infertility for an intermediate to a long time showed less symptoms than those who are in their first stage of their problem⁽²⁹⁾ but other studies showed that psychological distress in infertile women increase with time.⁽³⁰⁾ and depression peaks between the second and third year of infertility and does not return to normal range until after 6 years of infertility.⁽⁹⁾ In this study, the depression mean among the infertile women was simultaneously increased with increased in infertility duration, but not statistically significant. In a study, women with 2-3 years of duration of infertility suffered from more depression compared with those who experienced less than 1 year of infertility.⁽⁹⁾ In a study by Khademi *et al*,⁽¹⁵⁾ there was a positive relationship between infertility duration and depression scores. It seems that at an early stage of infertility, if the women hopefulness about the results of medical intervention and receiving support from the physicians and relatives for a higher pregnancy rate in the future

and also if social and family stresses be absent and a deep understanding of infertility be present, mental stress and depression during the first year of infertility would be much lower. A long time period of infertility and repeated referring to the physicians, the infertility would gradually change to a chronic problem: thus confronting this problem, the infertile women would experience monthly cycles of hope and hopelessness,⁽³¹⁾ their stress and depression severity would decrease but would never disappear. It was shown that the first three years (1–3) depression is in its lowest limit and after 4 years it becomes worse, It seems that our results are different compared to other countries, It may show that having a child is very important for our people, especially our women, therefore women show higher and longer emotional reactions and psychiatric symptoms lasts longer in comparison to other countries.

The study was done in a limited area and therefore may not necessarily reflect the characteristics of the general population. In this research, depression prevalence was high in the fertile group (18.91%) so, it should be considered in other researches.

These findings indicate the necessary referral and intervention for psychological health for the infertile couples: Counseling methods, especially supportive psychotherapy, should be considered for infertile women.

The media should educate people about infertility so that there is less pressure on infertile couples. The media should make family members of infertile women aware of the help and support they can give in order to decrease mental stress.

Conclusion

Depression is more common and severe in infertile women than fertile women. Pressure from family to get pregnant is a significant contributor to depression, while IVF Clinic and infertility treatment centers pay less attention to such matters. Therefore, it may be desirable to establish psychological and psychiatric services in IVF clinics and infertility treatment centers, which undoubtedly would facilitate the treatment and follow-up procedures in order to reduce the psychological problems of infertile women and their families.

Acknowledgment

Special thanks to Drs. Saeed ur Rahman, Mohammed Al- Ateeq, Research Coordinator; Ms. Hind Al-Mutairi. Additional thanks to the staff

of IVF and Well Baby Clinics.Thanks to the participants for their patience and kindness.

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