

## Original Article

# Prevalence and Association of Psychological Distress in Sub Fertile Women in a Tertiary Care Hospital

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## Abstract

**Objective:** To assess the prevalence of depression, anxiety and stress among sub fertile females and to find its associations.

**Design:**

**Methodology:** A cross-sectional study was done involving sub fertile females in their fertile age with inability to conceive >1 year. The study was conducted at Liaquat National Hospital from January 2018 to September 2018. A sample size of 217 patients was calculated. A structured questionnaire based on DASS 42 (Depression Anxiety and Stress Scale) was administered. It was translated in native Urdu language and females coming to OPD with complaint of subfertility were asked to fill the questionnaire. Data was compiled and analyzed using SPSS 21. P value  $\leq 0.05$  was considered as significant.

**Results:** A total of 217 sub fertile women, 18-43 years of age were interviewed with duration of sub fertility between 7 to 240 months. Depression was found in 97 (44.7%) sub fertile women and majority 47 (21.7%) had mild depression. Anxiety was found in 131 (60.4%) sub fertile females and majority 62 (28.6%) had moderate anxiety. Stress was found in 87 (40.1%) sub fertile females and majority 32 (14.7%) had mild stress. There was a significant relation between anxiety and parity ( $p=0.013$ ).

**Conclusion:** The DASS scale shows that sub fertile women are under psychological distress. Although our study reported lower frequencies of depression and stress but anxiety levels were still high and are more in women who never had a child.

**Keywords:** Subfertility anxiety depression stress

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## Introduction

Subfertility is defined as the inability to conceive after one year of unprotected sexual intercourse.<sup>1</sup> There has been considerable debate between the term 'subfertility' and 'infertility'. Subfertility has been described generally as any form of reduced fertility with prolonged time of unwanted non-conception whereas infertility may be used interchangeably with sterility with only infrequently occurring spontaneous pregnancies.<sup>2</sup>

In this study we will be using the term 'sub fertility' because of the psychological impact that the term has. When females hear the term infertility, they tend to assume that they can never conceive.

Psychological distress can be caused by negative emotional states which include depression, anxiety and stress. Being unable to conceive is very distressing and may lead to any of these states. Studies have shown a positive correlation between these negative emotional states and patients with subfertility.<sup>3,4</sup> Astonishingly, the

levels of depression and anxiety in sub fertile women are similar to those women diagnosed with cancer or those with coronary heart disease.<sup>5</sup> Women are more predisposed to psychological distress as compared to their male counterparts.<sup>6</sup>

Many previous studies have shown that levels of psychological distress particularly depression and anxiety are higher in sub fertile women.<sup>7-9</sup> Research done in over the last two decades have mentioned two theories. One is known as the 'psychological hypothesis'. This hypothesis states that subfertility maybe due to psychological causes. The other theory is that subfertility leads to psychological distress. The latter theory is the more widely adopted one, while the former has been rejected by most authors.<sup>10,11</sup>

Among other things subfertility can lead to low self-esteem, personal distress and subsequent effect on partner relationship.<sup>12</sup> In a developing country like Pakistan there is a high rate of subfertility (21.4%) with (3.5%) being those who have never conceived (primary

subfertility) and (18.4%) being those who can no longer conceive (secondary subfertility).<sup>13</sup> In Pakistan social status of women is defined by their fertility capacity and having children is the only way to improve their social status and respect in home. Having a child is considered to be a very important component for a successful marriage. There are a lot of social and family expectations from women and this adds to their distress.<sup>14</sup>

Studies conducted in Pakistan have shown a high prevalence of anxiety and depression associated with subfertility.<sup>15,16</sup> However besides social pressures the duration of sub fertility can also contribute to increased emotional distress. The duration is prolonged because patients first go to nearby local clinics where failure to conceive leads to disappointment. By the time they come to a tertiary care hospital they have high expectations and they are already very anxious to achieve pregnancy.

This is why duration of sub fertility is an important factor that can cause significant distress. Our study aims to find the prevalence and severity of depression, anxiety and stress (negative emotional states) in primary and secondary sub fertile women. It also aims to find the association between age, occupation and duration of subfertility with these negative emotional states.

## Methodology

A cross-sectional study was done involving sub fertile female patients in their fertile age with inability to conceive >1 year. The study was conducted at Liaquat National Hospital after approval was sought from the Ethical Review Committee of the hospital. It was conducted from January 2018 to September 2018. Written and informed consent was taken from all participants and confidentiality was maintained throughout the research. Individuals who did not give consent and those who had known history of psychiatric illness were excluded.

The sample size was calculated using WHO calculator. 217 patients were enrolled in the study using a prevalence of 17 %, margin of error of 5% and confidence interval of 95%.<sup>15</sup>

A structured questionnaire was administered. It had two parts. Part A had questions on sociodemographic data, occupation, parity, miscarriages, co-morbid conditions (diabetes, hypertension, hypothyroidism, asthma, hypercholesteremia and hepatitis), duration of subfertility. Part B was based on DASS 42 (Depression

Anxiety and Stress Scale).<sup>16</sup> This questionnaire had 42 items It was translated in native Urdu language and females coming to OPD with complaint of sub fertility were asked to fill the questionnaire.<sup>17</sup> Scores on each item in the DASS questionnaire ranged from 0 (no symptoms) to 3 (very severe symptoms). Total scores for depression, anxiety and stress were calculated separately using its classification.<sup>18</sup>

Data was compiled and analyzed using SPSS 21. P value  $\leq 0.05$  was considered as significant. Quantitative variables were presented as mean  $\pm$  SD which included age and duration of sub fertility. Chi square test was used to analyze qualitative variables that included prevalence of depression, anxiety and stress.

## Results

A total of 217 sub fertile women, 18-43 years of age were interviewed with duration of sub fertility between 7 months to 240 months. Majority of the females were between 20-29 years of age (55.8%), followed by females 30-40 years of age (42.9%). One hundred and twenty two (56.2%) females were residents of Karachi.

Majority females 134 (61.8%) had primary sub fertility and 83 (38.2%) females had secondary sub fertility. 168 (77.4%) women were housewife by profession. Majority 158 (72.8%) women never had a child and 172 (79.3%) women never had any miscarriages. 160 (73.7%) women had regular cycles and majority women (73.7%) had no co-morbid conditions. 156 (71.9%) sub fertile females had duration of sub fertility from 1-5 years which was followed by 47 (21.7% females) having duration from 6-10 years.

**Depression score:** The mean depression score was found to be  $9.95 \pm 7.67$ . Ninety seven (44.7%) sub fertile women had depression with majority 47 (21.7%) having mild depression. Among the 47 females who had mild depression, 28 (59.6%) had primary subfertility and 19 (40.4%) had secondary sub fertility. 30 out of 47 females (63.8%) with mild depression had no children and 8 out of 47 (17.1%) had one or more miscarriage. Depression had a highly significant association with co-morbid conditions ( $p < 0.001$ ). Depression had no significant association with age, type of sub fertility, parity, number of miscarriages, occupation, regularity of cycles or duration of sub fertility ( $p \geq 0.05$ ).

**Anxiety score:** The mean anxiety score was found to be  $10.16 \pm 6.78$ . One hundred and thirty one (60.4%) sub fertile females had anxiety with majority 62 (28.6%) having moderate anxiety. Among the 62 females who

Table I: Frequency of depression and its various correlations						
Characteristics	Depression					P-value
	Normal	Mild	Moderate	Severe	Very severe	
<b>Total</b>	120(55.3%)	47(21.7%)	28(12.9%)	13(6%)	9(4.1%)	
<b>Subfertility</b>						
Primary	72(60)	28(59.6)	19(67.9)	8(61.5)	7(77.8)	0.836*
Secondary	48(40)	19(40.4)	9(32.1)	5(38.5)	2(22.2)	
<b>Parity</b>						
0	90(75)	30(63.8)	22(78.6)	9(69.2)	7(77.8)	0.136*
1	20(16.7)	9(19.1)	3(10.7)	2(15.4)	2(22.2)	
2	10(8.3)	5(10.6)	3(10.7)	0(0)	0(0)	
3	0(0)	3(10.7)	0(0)	1(7.7)	0(0)	
4	0(0)	0(0)	0(0)	1(7.7)	0(0)	
<b>Miscarriages</b>						
0	94(78.3)	39(83)	21(75)	10(76.9)	8(88.9)	0.951*
1	18(15)	6(12.8)	4(14.3)	3(23.1)	1(11.1)	
2	7(5.8)	2(4.3)	2(7.1)	0(0)	0(0)	
3	1(0.8)	0(0)	1(3.6)	0(0)	0(0)	
<b>Occupation</b>						
Housewife	86(71.7)	44(93.6)	19(67.9)	11(84.6)	8(88.9)	0.158*
Teacher	9(7.5)	3(6.4)	3(10.7)	1(7.7)	0(0)	
Private shop	0(0)	0(0)	1(3.6)	0(0)	0(0)	
Pharmacist	1(0.8)	0(0)	0(0)	0(0)	0(0)	
Manager	1(0.8)	0(0)	0(0)	0(0)	0(0)	
Homemaker	3(2.5)	0(0)	0(0)	0(0)	0(0)	
<b>Cycles</b>						
Regular	83(69.2)	37(78.7)	22(78.6)	11(84.6)	7(77.8)	0.629*
Irregular	15(12.5)	8(17)	4(14.3)	1(7.7)	1(11.1)	
Painful	1(0.8)	0(0)	0(0)	0(0)	0(0)	

Table II: Frequency of anxiety and its various co-relations						
Characteristics	Anxiety					P-value
	Normal	Mild	Moderate	Severe	Very severe	
<b>Total</b>	86(39.6%)	26(12%)	62(28.6%)	25(11.5%)	18(8.3%)	
<b>Subfertility</b>						
Primary	55(64)	13(50)	38(61.3)	19(76)	9(50)	0.297*
Secondary	31(36)	13(50)	24(38.7)	6(24)	9(50)	
<b>Parity</b>						
0	66(76.7)	17(65.4)	44(71)	21(84)	10(55.6)	0.013**
1	17(19.8)	5(19.2)	6(9.7)	3(12)	5(27.8)	
2	3(3.5)	4(15.4)	9(14.5)	1(4)	1(5.6)	
3	0(0)	0(0)	3(4.8)	0(0)	1(5.6)	
4	0(0)	0(0)	0(0)	0(0)	1(5.6)	
<b>Miscarriages</b>						
0	72(83.7)	20(76.9)	47(75.8)	21(84)	12(66.7)	0.484*
1	8(9.3)	5(19.2)	12(19.4)	2(8)	5(27.8)	
2	5(5.8)	1(3.8)	3(4.8)	1(4)	1(5.6)	
3	1(1.2)	0(0)	0(0)	1(4)	0(0)	
<b>Occupation</b>						
Housewife	62(72.1)	20(76.9)	50(80.6)	21(84)	15(83.3)	0.154*
Teacher	4(4.7)	5(19.2)	5(8.1)	1(4)	1(5.6)	
Private shop	0(0)	0(0)	0(0)	1(4)	0(0)	
Pharmacist	1(1.2)	0(0)	0(0)	0(0)	0(0)	
Manager	1(1.2)	0(0)	0(0)	0(0)	0(0)	
Homemaker	2(2.3)	1(3.8)	0(0)	0(0)	0(0)	
<b>Cycles</b>						
Regular	61(70)	22(84.6)	45(72.6)	19(76)	13(72.2)	0.199*
Irregular	9(10.5)	4(15.4)	9(14.5)	4(16)	3(16.7)	
Painful	0(0)	0(0)	0(0)	1(4)	0(0)	

had moderate anxiety, 38 (61.3 %) had primary subfertility and 24 (38.7%) had secondary sub fertility. 44 out of 62 (71%) females had no children and 15 out of 62 (24.2%) had one or more miscarriage. There was

a significant relation between anxiety and parity. The lesser the parity, the more the anxiety ( $p=0.013$ ). There was also a significant relation with co morbid conditions ( $p=0.008$ ). Anxiety had no significant association with age, type of sub fertility, number of miscarriages,

Table III: Frequency of stress and its various co-relations						
Characteristics	Stress					P-value
	Normal	Mild	Moderate	Severe	Very severe	
Total	130(59.9%)	32(14.7%)	25(11.5%)	24(11.1%)	6(2.8%)	
Subfertility						
Primary	81(62.3)	22(68.8)	13(52)	13(54.2)	5(83.3)	0.512*
Secondary	49(37.7)	10(31.3)	12(48)	11(45.8)	1(16.7)	
Parity						
0	91(70)	26(81.3)	19(76)	17(70.8)	5(83.3)	0.837*
1	24(18.5)	4(12.5)	3(12)	4(16.7)	1(16.7)	
2	12(9.2)	2(6.3)	3(12)	1(4.2)	0(0)	
3	3(2.3)	0(0)	0(0)	1(4.2)	0(0)	
4	0(0)	0(0)	0(0)	1(4.2)	0(0)	
Miscarriages						
0	107(82.3)	26(81.3)	16(64)	17(70.8)	6(100)	0.42*
1	17(13.1)	4(12.5)	5(20)	6(25)	0(0)	
2	5(3.8)	2(6.3)	3(12)	1(4.2)	0(0)	
3	1(0.8)	0(0)	1(4)	0(0)	0(0)	
Occupation						
Housewife	105(80.8)	22(68.8)	19(76)	17(70.8)	5(83.3)	0.492*
Teacher	9(6.9)	1(3.1)	3(12)	3(12.5)	0(0)	
Private shop	1(0.8)	0(0)	0(0)	0(0)	0(0)	
Pharmacist	1(0.8)	0(0)	0(0)	0(0)	0(0)	
Manager	0(0)	0(0)	1(4)	0(0)	0(0)	
Homemaker	2(1.5)	0(0)	0(0)	1(4.2)	0(0)	
Cycles						
Regular	101(77.7)	23(71.9)	16(64.0)	15(62.5)	5(83.3)	0.189*
Irregular	17(13.1)	2(6.3)	5(20)	5(20.8)	0(0)	
Painful	0(0)	0(0)	0(0)	1(4.2)	0(0)	
*p value insignificant						
**p value significant						

occupation, regularity of cycles or duration of sub fertility ( $p \geq 0.05$ ).

**Stress score:** The mean stress score was found to be  $14.40 \pm 8.39$ . 87 (40.1%) sub fertile females had stress with majority 32 (14.7%) having mild stress. Among the 32 females who had mild stress, 22 (68.8%) had primary subfertility and 10 (31.3) had secondary sub fertility. 26 out of 32 (81.3%) females had no children and 6 (18.8 %) had one or more miscarriage. Stress had no significant association with age, type of sub fertility, parity, and number of miscarriages, occupation, and regularity of cycles, duration of sub fertility or co morbid conditions ( $p \geq 0.05$ ).

Although there was no association found between duration of sub fertility and psychological distress however, association of duration of sub fertility was found to be less insignificant with moderate anxiety ( $p=0.549$ ) as compared to moderate depression ( $p=0.63$ ) and moderate stress ( $p=0.731$ ).

## Discussion

This study was conducted in a tertiary care hospital to assess the magnitude of psychiatric problems in sub fertile females. These include depression, anxiety and stress and their relation with duration of sub fertility and socio-demographic characteristics. Sub fertility for a

Pakistani couple is considered to be a stigma due to cultural issues and family pressures. Usually, females are blamed and men are pressurized to opt for second marriages. This creates more stress in females and causes poor matrimonial relationships.

Majority of the females in our study were between 20-29 years of age (55.8%) with median age being  $28 \pm 4.1$  years. One hundred and sixty eight (77.4%) sub fertile women were primarily housewife by profession. Similar socio-demographics were presented in another study conducted in Pakistan.<sup>18</sup>

Majority women in our study presented with primary sub fertility (61.8%). This was different as compared to a study done in Ghana,<sup>3</sup> where majority females presented with secondary sub fertility (62%). However, this was similar to a study conducted in Pakistan where (78%) women that were enrolled had primary sub fertility.<sup>15</sup>

In our study we found the highest prevalence of anxiety (60.4%), followed by depression (44.7%) and stress (40.1%).

Our depression frequency was consistent with the findings of Ramezanzadeh et al.<sup>19</sup> that showed a prevalence of 40.8% in Iran. Another study conducted in Pakistan,<sup>15</sup> also showed depression frequency of 31%. However, there have been studies which have shown a



higher frequency of depression for example Abass Alhasan et al in his study found depression frequency to be 62%. Although, the frequency was higher but similar to our study majority of those who had depression were those with mild depression (40%).<sup>3</sup> A previous study conducted in Pakistan has shown an even higher frequency at 79%.<sup>18</sup> A metaanalysis conducted by Kiani Z et al mentioned that the range of prevalence of depression in sub fertile females was from 6.4% (Norway) to 85% (Iran).<sup>21</sup>

Anxiety frequency in our study was similar to Joelsson LS et al<sup>4</sup> and Cui C et al. with anxiety being prevalent in (57.6%) and (42.2%) in sub fertile females<sup>20</sup>. Studies conducted in Pakistan have shown a slightly higher frequency with Yusuf L reporting a frequency of 70%.<sup>18</sup> Sughra Abbasi et al reported a frequency of (75%).<sup>15</sup> Even though our study reported a lower anxiety frequency but majority of patients in our study suffered from moderate anxiety (28.6 %) while in the study conducted by Shugra Abbasi et al<sup>15</sup> majority had mild anxiety (46%).

Few studies were found that looked at relation of stress with sub fertility. However, the study conducted by Shugra Abbasi et al,<sup>15</sup> showed a higher frequency at (69%) compared to our study. Even though the stress frequency was higher in this study, it was noticed that stress was lowest in frequency when compared to anxiety and depression which was also similar to our study. This was consistent with a study done in Korea that reported that stress was easier to overcome as compared to anxiety and depression in sub fertile females.<sup>5</sup>

When we looked at the co-relations, our study found that there was no relation of anxiety, depression and stress with age or duration of sub fertility, age  $28.82 \pm 4.41$ , duration (in months)  $54.25 \pm 38.83$ . This was consistent with studies conducted in Japan<sup>9</sup> and Turkey.<sup>12</sup> Ramezanzadeh et al,<sup>19</sup> reported no relation of depression with sub fertility duration but there was relation of anxiety with sub fertility duration. Abass Alhasan et al. however, in his study reported a positive co-relation with depression and sub fertility duration.<sup>3</sup>

Our study, however, did find a positive co-relation of anxiety with parity. Women who had no children reported a higher anxiety level.

## Conclusion

The DASS scale shows that sub fertile women are under psychological distress. Although our study reported

lower frequencies of depression and stress but anxiety levels were still high and are more in women who have never had a child. The role of psychologists in sub fertility clinics is very important and therapeutic counselling is likely to be beneficial.

## Study limitations:

One of the limitations of our study was using a standard test which used questionnaire scales filled by patients that may have subjectivity and have limitations in the setting of sub fertility, ideal tests have yet to be designed.

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