



A study to assess prevalence of anxiety and depression, and their association with coping in females suffering from infertility

Abstract

Background: Infertility is a major psychosocial problem having impact on emotional and marital life. Among infertile couples, females show higher levels of distress than their male partners. **Aim:** To assess the prevalence of anxiety and depression in female patients with infertility and to assess their association with various coping strategies used. **Method:** Total 85 females in reproductive age group, having primary infertility, drug-naïve, and willing to participate in the study were included after obtaining informed consent and institutional ethics committee approval. Those with pre-existing psychiatric or medical illness which can add to psychological distress were excluded from the study. The patients were assessed for anxiety, depression, and stress coping behaviour using culturally valid standardised reliable scales. **Results:** The prevalence of anxiety and depression was observed to be 27.1% and 55.3% respectively. Common coping styles used included 'active coping' (94.1%), 'religion' (91.8%), 'acceptance' (90.5%) and 'planning' (88.3%) whereas, 'substance use' and 'humour' were rarely used. Females with anxiety, significantly used 'self-blame' and among those with depression, significant association was observed with 'positive reframing' and 'behavioural disengagement'. **Conclusions:** Anxiety and depression are common and are influenced by coping strategies used by females with infertility. Structured psychological support is essential to improve their emotional well-being and coping with infertility.

Keywords: Female infertility, psychological factors, coping behaviour

**Abhishek Gupta¹, Shubhangi S. Dere¹,
Rakesh Ghildiyal¹, Pankaj Patil²**

¹Department of Psychiatry, Mahatma Gandhi Missions Medical College and Hospital, Kamothe, Navi Mumbai, Maharashtra, India,
²Department of Obstetrics and Gynaecology, Mahatma Gandhi Missions Medical College and Hospital, Kamothe, Navi Mumbai, Maharashtra, India

Correspondence:

Dr. Shubhangi S. Dere, H:6/27, Parijat Society, Spaghetti Complex, Sector 15, Kharghar, Navi Mumbai-41020, Maharashtra, India.
shubhangi.dere@gmail.com

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INTRODUCTION

Infertility is defined as "failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse" in a reproductive age being between 14 and 49 years.[1] Infertility can lead to severe negative impact on one's physical, emotional, financial, social, and psychological well-being.[2-3] It is observed in existing literature that the patients with infertility experience greater stress and emotional tension than their fertile counterparts.[4] Research on gender differences in infertility and psychological distress highlights that the female partners tend to be more adversely affected than the males.[5] The experience of psychological distress can further cause development of various psychiatric morbidities including anxiety, guilt, somatisation, and depression.[6-8]

Coping towards the physical, psychological, and social stressors associated with infertility can influence development of various psychological problems. Healthy or positive coping can help woman with infertility to accept the problem and seek appropriate support rather than internalising the problem resulting in psychological morbidity. Gourounti *et al.*[9] mention that understanding the mechanism of coping in case of infertility can help to understand vulnerability and risk of

an individual towards development of psychological distress and needing support.

The current study aimed at assessing psychological distress including anxiety and depression, and their association with pattern of coping strategies used by females suffering from infertility.

METHODS

Self- designed semi-structured proforma

It was used for collecting various sociodemographic characteristics.

Hamilton Anxiety Rating Scale (Ham-A)

It is a 14-item clinician-rated instrument designed to assess and quantify severity of anxiety. Each item is scored on a scale of zero (not present) to four (severe), with a total score range of zero to 56, where <17 indicates mild severity, 18-24 mild to moderate severity, and 25-30 moderate to severe. It is a well-researched and widely used instrument for assessing anxiety symptoms, and has showed good internal consistency (Cronbach's alpha=0.893).[10]

Centre for Epidemiological Studies Depression Scale (CES-D)

It is a ten-item Likert scale questionnaire assessing depressive symptoms. The scale includes items on depressed affect, somatic symptoms, and positive affect. Options for each item range from “rarely or none of the time” scored as ‘zero’ to “all of the time” scored as ‘three’. Reversed scoring exists for items which are positive affect statements. Total scores range from zero to 30. A score of ten and above indicates depression. Internal consistency reliability was observed to be good.[11]

Stress Coping Behavior Scale (SCBS)

It is a Hindi version of the Brief-Coping Orientation to Problems Experienced (Brief COPE) inventory,[12] designed to measure the stress coping behaviour of the Indian adult population. The scale consists of 28 items divided into 14 domains like self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion, and self-blame. These domains can be further divided into adaptive (active coping, planning, use of emotional support, positive reframing, use of instrumental support, acceptance, and religion) and maladaptive coping like self-distraction, denial, venting, substance use, behavioural disengagement, and self-blaming. The research on assessing psychometric property of the Stress Coping Behavior Scale (SCBS) observed good reliability and sub-scale internal consistency in adaptive and maladaptive coping.[13]

This was an open-label cross-sectional study conducted at outpatient department of psychiatry at Mahatma Gandhi Missions Medical College and Hospital, a tertiary care teaching hospital in Navi Mumbai, Maharashtra, India after obtaining ethics committee approval. Females in reproductive age group, diagnosed with primary infertility, not having any pre-existing psychiatric or medical illness, and referred for psychological assessment from department of obstetrics and gynaecology, willing to participate in study were enrolled using simple random sampling technique. The sample size was estimated using open Epi software with 95% confidence interval and 11% absolute precision. The reported prevalence of anxiety disorders in patients suffering from infertility is 45.60% as reported by Benbella *et al.*[14] The estimated sample size 85. The study was conducted over a period of six months from January 2019 to June 2019.

Sociodemographic profile of the study population was recorded using pre-designed study proforma. Anxiety symptoms were evaluated using the Hamilton Anxiety Rating Scale (Ham-A) and the Centre for Epidemiological Studies Depression Scale (CES-D) was used for assessment of depressive symptoms. Coping strategies used were evaluated using SCBS. Data thus obtained was tabulated and analysed using Microsoft Excel version 15.30 with descriptive tests, chi-square, and t-test.

RESULTS

Sociodemographic profile

A total of 85 females diagnosed with primary infertility participated in our study. The sociodemographic profile

observed mean age of the females to be 26.28 years (standard deviation [SD]=4.156). More than half (61.2%) had received higher secondary education, were housewives (62.4%), and belonged to nuclear families (61.2%) (Table 1).

Prevalence of anxiety symptoms based on Ham-A

In the current study, anxiety symptoms were reported by 27.1% females. Out of those who were screened positive for anxiety, around one-third females reported to have mild anxiety and moderate to severe anxiety was observed in 60.87% of the females (Figure 1).

Prevalence of depressive symptoms based on CES-D

On CES-D, more than half of the study sample reported to have depressive symptoms (Figure 2).

Coping strategies used by females with infertility

As assessed on SCBS, ‘adaptive’ coping strategies were predominantly used by the current study sample. These

Table 1: Sociodemographic profile

Sociodemographic parameters	Frequency	Percentage
Age in years: mean (standard deviation)	26.28 (4.156)	
Education		
Primary	33	38.8
Higher secondary	52	61.2
Occupation		
Student	8	9.4
Employed	24	28.2
Housewives	53	62.4
Family type		
Nuclear	52	61.2
Extended nuclear	12	14.1
Joint	21	24.7

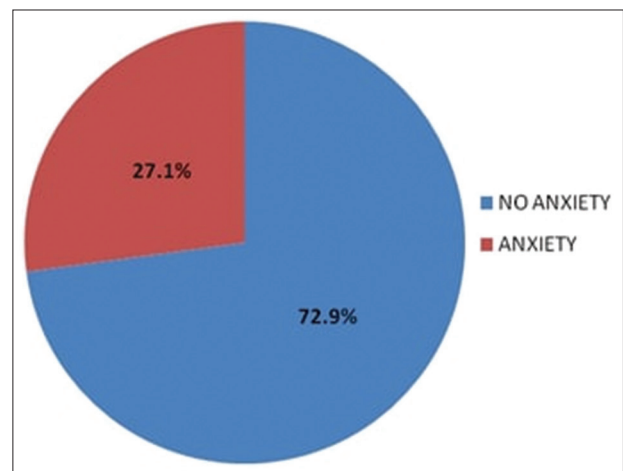


Figure 1: Prevalence of anxiety symptoms based on Ham-A. Ham-A: Hamilton Anxiety Rating Scale

coping styles included 'religion' (91.8%), 'active coping' (94.1%), 'acceptance' (90.5%), and 'planning' (88.3%). The coping strategies which were rarely used included 'substance use' (9.4%) and 'humour' (22.4%) (Table 2).

Association of coping strategies with depression

All the coping styles were used comparably by females who had depressive symptoms and those without them, except for 'positive reframing' (chi-square=10.882, degree of freedom [df]=1, $p=0.001$) and 'behavioural disengagement' (chi-square=8.077, df=1, $p=0.004$) which was significantly used by those with depression as compared to females without depression (Figure 3).

Association of coping strategies with anxiety

When coping strategies were compared to presence of anxiety symptoms on Ham-A, it was observed that 'self-blame' (Fisher's exact test, $p=0.04$) was significantly used by females

who were anxious compared to those without anxiety. Rest of the coping styles were used comparably by both the groups (Figure 4).

DISCUSSION

Infertility and its management are usually associated with psychological distress and can commonly result in either anxiety or depression.[15] In the current study, prevalence of anxiety and depression was observed to be 27.1% and 55.3% respectively. The reported prevalence of anxiety in infertility ranges from 14.8% to 62%.[16-18] Available literature observes a wide prevalence of depression in infertility ranging from 17.9% to 79%.[19-24] One Indian study observed the prevalence of stress in infertility to be as high as 80% in females.[25] This wide range of prevalence of anxiety and depression in infertility can be explained due to use of variety of rating scales to screen anxiety and depression, sociocultural influences, perceived social support, and stigma by female partners diagnosed with infertility.

Table 2: Coping strategies used by females with infertility

Coping strategy	Never used (%)	Used (%)
Self-distraction	21.2	78.8
Active coping	5.9	94.1
Denial	41.2	58.8
Substance use	90.6	9.4
Emotional support	15.3	84.7
Instrumental	14.1	85.9
Behavioural disengagement	43.5	56.5
Venting	25.9	74.1
Positive reframing	27.1	72.9
Planning	11.8	88.2
Humour	77.6	22.4
Acceptance	9.4	90.6
Religion	8.2	91.8
Self-blame	29.4	70.6

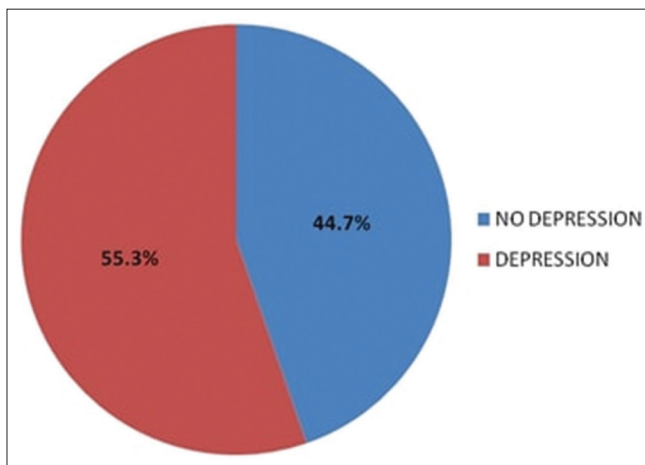


Figure 2: Prevalence of depressive symptoms based on CES-D. CES-D: Centre for Epidemiological Studies Depression Scale

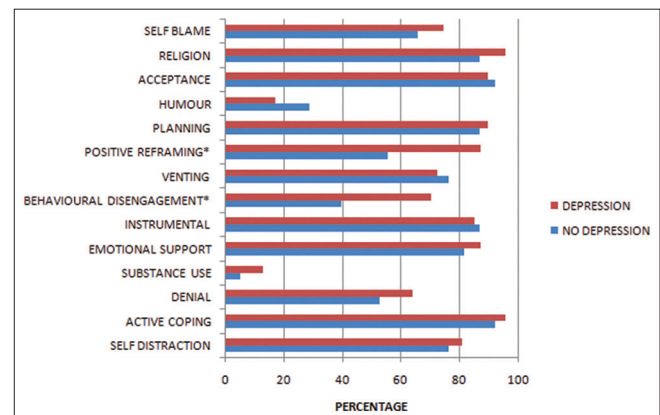


Figure 3: Association of coping strategies with depression. The figure represents percentage of coping strategies used among depressed and non-depressed, and the percentage of coping strategies 'never used' is not shown for simplicity of the figure. *Implies statistical significance at p value <0.05 for the statistical tests of significance applied: chi-square test and Fisher's exact test.

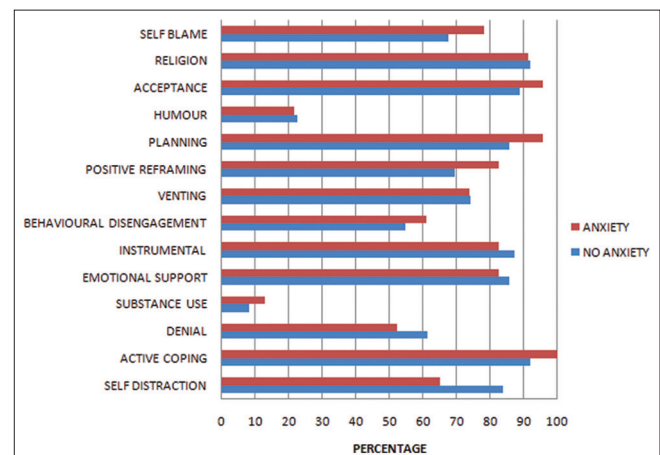


Figure 4: Association of coping strategies with anxiety. The figure represents percentage of coping strategies used among those with anxiety and without anxiety, and the percentage of coping strategies 'never used' is not shown for simplicity of the figure. *Implies statistical significance at p value <0.05 for the statistical tests of significance applied: chi-square test and Fisher's exact test.

Various gender-specific biological, psychological, and social factors can be attributed to occurrence of anxiety and depression in infertility. Females are usually the ones who have to face extensive investigations and treatment regimen, including hormonal treatment and interventions for infertility. Females may internalise stress of infertility to feel 'inadequate', 'incomplete', 'guilty', 'lack of self-confidence', 'unfortunate', and 'worthless as a spouse' for not being able to enjoy motherhood. Also, there could be relationship difficulties, fear of abandonment, and sexual problems arising due to stress of infertility. In a country like India, females usually face the social pressure to conceive and blame for the infertility.[26-28] Moreover, the stress in females can lead to further difficulty to conceive, resulting in a vicious cycle.[29]

There has been wide amount of literature on coping strategies in infertility, majorly studying healthy versus unhealthy, adaptive versus maladaptive, or problem-based versus emotion-based coping strategies. The scales used are variable and the observations are influenced by sociocultural factors. There is, however, scarce Indian literature on the same. The current study reflects that the participating females with infertility used 'adaptive' coping strategies more frequently as compared to the 'maladaptive' coping styles.

In India, religious beliefs and practices play an important role in handling any stressful life events which even applies to infertility.[30] Another study by Singh[31] mentions that the most prevalent coping pattern was 'active coping' followed by 'religion' and 'self-distraction'. An African study observed that the females with infertility undertook instrumental support (seeking professional help), trying to being economically independent, talking to their husbands, and religious beliefs as their predominant coping.[32]

Pattern of coping style and stress can correlate. A Turkish study highlights that about 22% of the infertility stress variance can be attributed to coping strategies and personality trait.[33] The authors concluded the importance of social and psychological factors on experiencing the infertility stress in females.[33] An Iranian study reports that personal coping methods are important factors influencing the infertility stress and needs attention.[34]

'Self-blame' as a coping was significantly frequently used by female participant sharing anxiety. Females can take the blame of infertility on themselves even if they are not the cause of infertility. Also, the social criticism faced by females is way more than their male partners. The 'motherhood' is appealed by most of the infertility treatment advertisements than 'fatherhood'. Hence, the self-blame of being the reason of infertility can lead to guilt, health-seeking behaviour, uncertainty of waiting for outcomes of infertility treatment, and financial burden which can further pose female at high-risk to develop anxiety disorder. Similar findings were reflected in research by Erica.[35]

In the current study, the females who had depression, used 'behavioural disengagement' significantly more frequently, as compared to non-depressed female participants. 'Behavioural engagement' means getting engaged in activities to distract and reduce sense of isolations, and hence, stress of infertility. In accordance with our findings, Hess *et al.*[36] observed

that the ones who practiced 'behavioural disengagement' or isolation, experienced sadness, loneliness, and social deprivation.

In our study, it was observed that females having depression used 'positive reframing' more frequently than those without depression. 'Positive reframing' is a type of adaptive coping strategy which helps a person to redefine the stressful situation in a positive light and thus, reducing the stress arising from it. In our study, it may be hypothesised that the use of 'positive reframing' by female participants with infertility was influenced by duration of infertility or perceived social support, both of which was not assessed as it was not part of the study. It has been discussed that the effectiveness of a coping strategy is related to the duration and nature of the stressful situation.[37] Peterson *et al.*[38] concluded that the use of more passive and less active coping strategies has been found to be related to psychological distress in patients with chronic illnesses.

Limitations

This was hospital-based study with small sample size. A community-based study with larger sample size can help generate results which can be generalised. A comparison group for studying the psychological distress and coping strategies in male partner can throw light on gender-based difference in the parameters. Also, other factors influencing psychological health and coping in infertility like duration of infertility, cause of infertility, perceived social-support were not part of the current study.

Conclusion

The prevalence of anxiety and depression among the females with infertility was high and was associated with use of maladaptive coping strategies. Understanding coping styles can hint towards a female's psychological health and they could be assisted to build on effective coping strategies through psychological interventions.

AUTHOR CONTRIBUTIONS

AG: Concepts, clinical studies, manuscript preparation, guarantor; **SSD:** Design, data acquisition, manuscript review, guarantor; **RG:** Definition of intellectual content, data analysis, manuscript editing, guarantor; **PP:** Definition of intellectual content, statistical analysis, manuscript review, guarantor.

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