



Original Article

Psychological Distress in Women with Primary Infertility: Prevalence of Stress, Anxiety, and Depression at a Tertiary Care Centre in South India

Corresponding Author:

Dr. Balaji A

Assistant Professor, Department of Psychiatry, Kilpauk Medical College and Hospital, Chennai, Tamil Nadu.

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Dr. Balaji A¹, Dr. Sahasranam V², Dr. Alexander Gnanadurai W.J³

¹Assistant Professor, Department of Psychiatry, Kilpauk Medical College and Hospital, Chennai, Tamil Nadu.

²Junior Resident, Department of Psychiatry, Kilpauk Medical College and Hospital, Chennai, Tamil Nadu.

³Professor and HOD, Department of Psychiatry, Kilpauk Medical College and Hospital, Chennai, Tamil Nadu

ABSTRACT

Background and Aims Infertility is associated with significant psychological distress, particularly in sociocultural contexts that place high value on childbearing. This study aimed to evaluate the prevalence and intensity of stress, anxiety, and depression among women with primary infertility seeking treatment at a tertiary care centre in Chennai, and to examine associated sociodemographic characteristics.

Materials and Method A cross-sectional study was conducted over three months at Government Kilpauk Medical College, Chennai. Seventy-eight women aged 18–45 years with primary infertility were enrolled by consecutive sampling after informed consent. Women with secondary infertility or previously diagnosed mental illness were excluded. Sociodemographic data were collected using a structured proforma. Anxiety, depression, and infertility-related stress were assessed with the Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), and Fertility Problem Inventory (FPI), respectively. Data were analysed using descriptive statistics in SPSS version 25.

Results The mean age of participants was approximately 30 years; most were homemakers (69.2%) belonging to the middle socioeconomic class, with infertility duration ≤3 years in 80.8%. Moderate-to-high anxiety was observed in 46.2% of women, clinically relevant depressive symptoms (borderline and above) in 41.0%, and moderate-to-high infertility-related stress in 43.6%. Low anxiety (53.8%) and low stress (56.4%) were the most frequent categories, while mild mood disturbance (59.0%) predominated on the BDI.

Conclusion A substantial proportion of women with primary infertility experience anxiety, depressive symptoms, and infertility-related stress. Routine psychological screening using validated tools and integration of mental health support into infertility care are recommended to improve patient well-being and treatment outcomes

Keywords: Infertility; Anxiety; Depression; Fertility Problem Inventory; Psychological distress; India.

INTRODUCTION

Infertility is defined by the World Health Organization as the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. It represents a substantial global public health challenge, affecting approximately one in six individuals during their lifetime, with a lifetime prevalence estimated at 17.5%. Period prevalence stands at around 12.6%, with comparable rates observed across high-, middle-, and low-income countries. This underscores that infertility is not confined to any particular socioeconomic stratum but constitutes a widespread reproductive health concern requiring comprehensive attention [1].

In India, the burden of infertility is considerable and appears to be rising amid demographic transitions, lifestyle changes, delayed childbearing, and environmental factors. National estimates derived from large-scale surveys and meta-analyses indicate overall infertility prevalence in the range of 8% or higher in certain analyses, with primary infertility often predominating [2]. Southern states, including Tamil Nadu, have reported relatively elevated burdens in community-based data, consistent with lower total fertility rates and increasing demand for assisted reproductive technologies. Chennai, as a major tertiary care and medical hub, hosts a high concentration of fertility clinics and attracts patients from across the region and beyond, reflecting both the magnitude of the problem and the availability of specialized services. [3]

Beyond its biomedical dimensions, infertility frequently precipitates profound psychological distress. Women seeking treatment commonly experience elevated levels of perceived stress, anxiety, and depression. Multiple Indian studies have documented this pattern: comparative assessments show significantly higher median scores for stress and anxiety among infertile women relative to fertile counterparts, while prevalence of depressive symptoms can reach substantial proportions, ranging from moderate to severe in clinic-based samples [4]. Cultural factors amplify these effects in the Indian context. In a predominantly pronatalist society, childbearing is closely linked to social identity, marital stability, and family expectations. Women often bear disproportionate stigma, face pressure from extended families, and encounter questions about their worth or marital role when conception is delayed. These psychosocial stressors interact with the uncertainty, financial strain, and invasive nature of diagnostic and therapeutic procedures, creating a cycle of emotional burden [5].

The relationship between psychological distress and infertility is bidirectional. Chronic stress may disrupt hypothalamic-pituitary-ovarian axis function, alter cortisol dynamics, impair ovulation or implantation, and potentially reduce the effectiveness of assisted reproductive techniques. Evidence from systematic reviews and meta-analyses indicates that higher levels of anxiety and depression are associated with lower probabilities of clinical pregnancy following in vitro fertilization or related interventions [6]. Conversely, the experience of repeated treatment cycles, waiting periods, and potential failures further intensifies emotional distress. In tertiary care settings, where patients often present after prolonged attempts at conception or prior unsuccessful interventions, the intensity of these symptoms may be particularly pronounced. Sociodemographic variables—such as age, duration of infertility, educational level, socioeconomic status, rural versus urban residence, and presence of social support—may modulate the degree of distress, yet local data quantifying these associations remain limited [7].

Despite growing recognition of the mental health consequences of infertility, routine psychological screening and integrated support are not uniformly incorporated into fertility care pathways in many Indian centers. Most existing studies have focused on northern or other regions, leaving a relative paucity of data from South Indian tertiary facilities serving diverse patient populations. Understanding the prevalence, severity, and correlates of stress, anxiety, and depression among women undergoing evaluation and treatment is essential for designing targeted psychosocial interventions, improving patient-centered care, and potentially optimizing reproductive outcomes.

Against this background, the present cross-sectional study was conducted among women seeking infertility treatment at a tertiary care center in Chennai, India. The primary objectives were to evaluate the prevalence and intensity of stress, anxiety, and depression in these women and to identify sociodemographic factors associated with increased psychological distress.

MATERIALS AND METHODS

Study Settings: This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Government Kilpauk Medical College and Hospital, a tertiary care teaching institution located in Chennai, Tamil Nadu, India. The study was carried out over a continuous three-month period, during which consecutive eligible women attending the infertility clinic were approached for participation.

Study Participants: The study population comprised women aged 18–45 years who presented to the gynecology OPD seeking evaluation or treatment for infertility. Inclusion criteria were restricted to women with primary infertility (defined as failure to conceive after at least 12 months of regular unprotected intercourse without prior pregnancy) who were able to comprehend the study information and provide written informed consent. Women with secondary infertility, those with

a previously diagnosed and treated mental illness (including major depressive disorder, anxiety disorders, or psychotic illnesses), and those who declined consent were excluded. These criteria were applied to focus on individuals experiencing infertility-related psychological distress for the first time and to minimize confounding by pre-existing psychiatric conditions. A total of 78 eligible women were enrolled.

Sampling Technique: A consecutive sampling technique was employed. All women meeting the inclusion criteria who attended the infertility clinic during the three-month study window were invited to participate until the predetermined sample size of 78 was achieved. This non-probability approach was chosen for its feasibility within the busy tertiary-care outpatient setting and to capture a representative cross-section of women seeking specialized care during the study period.

Study Tools: Data were collected using a combination of a structured sociodemographic and clinical proforma and three validated psychological assessment instruments. The proforma recorded age, educational attainment, occupation, marital status, socioeconomic status (modified Kuppaswamy scale), duration of infertility, and family history of medical or psychiatric illness.

- Anxiety was assessed with the Beck Anxiety Inventory (BAI), a 21-item self-report scale. Total scores were categorized as low (0–21), moderate (22–35), or potentially concerning (≥ 36).
- Depression severity was measured using the Beck Depression Inventory (BDI), a 21-item instrument with established cut-offs: normal (1–10), mild mood disturbance (11–16), borderline clinical depression (17–20), moderate depression (21–30), severe depression (31–40), and extreme depression (>40).
- Infertility-related stress was evaluated with the Fertility Problem Inventory (FPI), a 46-item multidimensional scale covering social concern, sexual concern, relationship concern, rejection of a child-free lifestyle, and need for parenthood. Global FPI scores were classified as low (6–92), moderate (93–184), or high (185–230) stress.

Study Methodology: Participants completed the sociodemographic proforma followed by the BAI, BDI, and FPI in a private area of the clinic to ensure privacy and minimize response bias. Assistance was provided for literacy-related difficulties while maintaining standardization.

Ethical Issues: The study protocol received prior approval from the Institutional Ethics Committee of Government KMC, Chennai. Written informed consent was obtained from every participant after full disclosure of the study objectives, procedures, potential risks (minimal psychological discomfort), and benefits.

Statistical Analysis: Data were analysed using IBM SPSS Statistics version 25. Descriptive statistics (means, standard deviations, frequencies, and percentages) summarized sociodemographic and clinical characteristics as well as the distribution of BAI, BDI, and FPI scores. Associations between categorical sociodemographic variables and categories of psychological distress were examined using the chi-square test or Fisher's exact test, as appropriate. Differences in mean BAI and BDI scores across demographic subgroups were assessed with independent-samples t-tests or one-way analysis of variance (ANOVA). A two-tailed p-value <0.05 was considered statistically significant.

RESULTS

The sociodemographic and clinical profile of the 78 participants showed that the majority (64.1%) were aged 31–45 years, while 35.9% were in the 18–30-year age group. With respect to educational attainment, 34.6% had primary education, 37.2% had secondary education, and 28.2% had completed higher education. Most women (69.2%) were homemakers, and only 30.8% were employed. Socioeconomic status was predominantly middle class (75.6%), with smaller proportions belonging to the low (11.5%) and high (12.8%) categories. The duration of infertility was ≤ 3 years in the large majority of participants (80.8%), whereas 19.2% reported infertility lasting more than three years.

Table 1: Demographic and Clinical Characteristics of Participants (n=78)

Characteristic	Frequency (N)	Percentage (%)
Age (years)		
18-30	28	35.9
31-45	50	64.1
Education Level		
Primary	27	34.6
Secondary	29	37.2
Higher Education	22	28.2

Occupation		
Homemaker	54	69.2
Employed	24	30.8
Socioeconomic Status		
Low	9	11.5
Middle	59	75.6
High	10	12.8
Duration of Infertility		
≤3 years	63	80.8
>3 years	15	19.2

Assessment of psychological morbidity revealed that more than half of the women (53.8%) had low anxiety scores on the Beck Anxiety Inventory, while 35.8% experienced moderate anxiety and 10.2% had high anxiety. On the Beck Depression Inventory, the most frequent finding was mild mood disturbance (58.9%). Borderline clinical depression was present in 28.2% of participants, moderate depression in 7.6%, and severe depression in 5.1%. Overall, clinically relevant depressive symptoms (borderline and above) affected 41.0% of the sample.

Figure 1. Prevalence of Anxiety and Depression Among Participants (n=78)

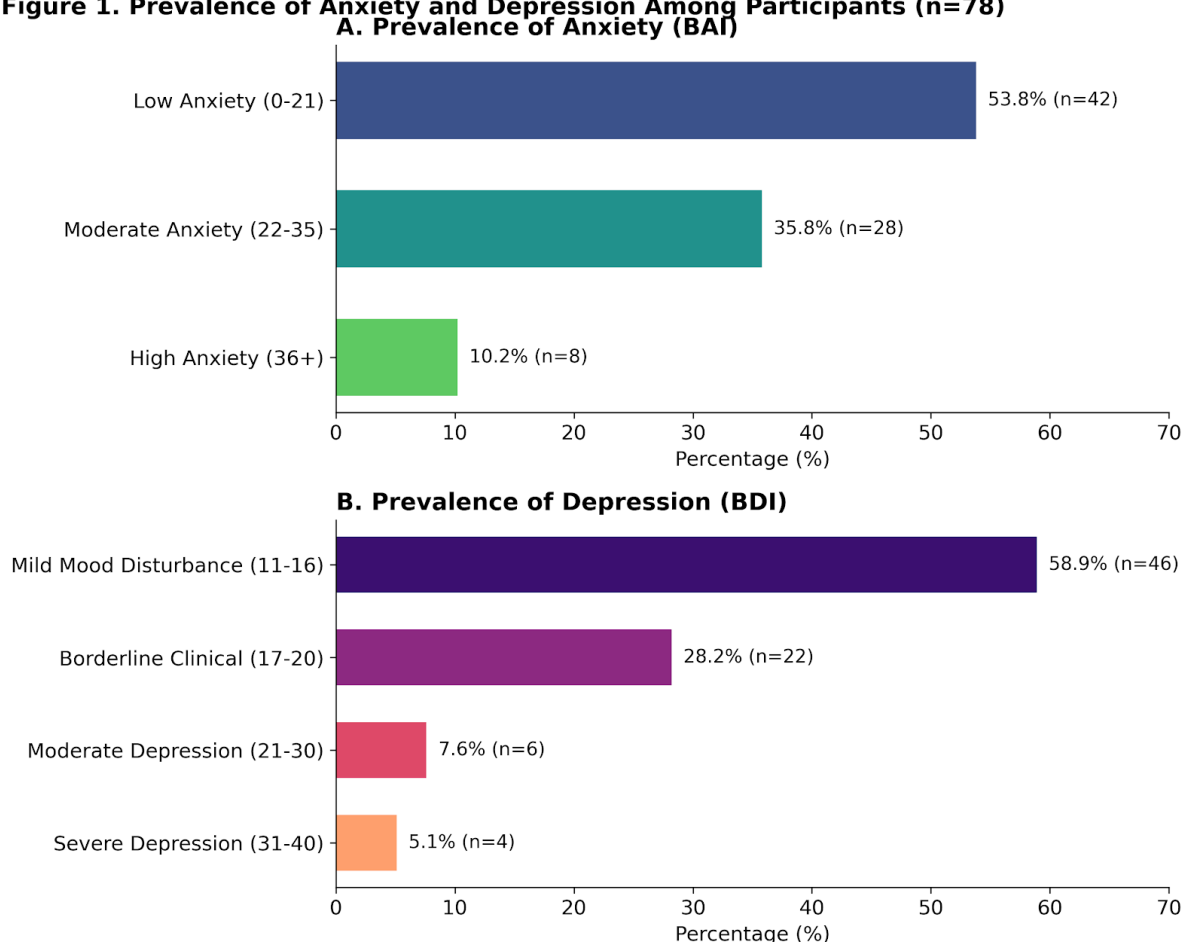
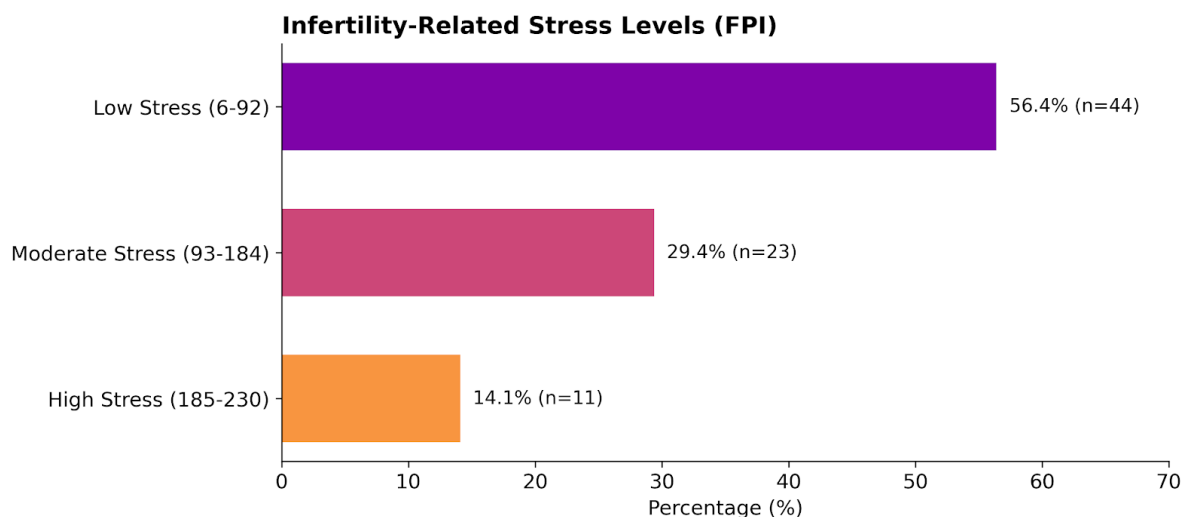


Table 2: Prevalence of Anxiety and Depression Among Participants (n=78)

Psychological Measure	Score Category	Frequency (N)	Percentage (%)
Anxiety (BAI Score)	Low Anxiety (0-21)	42	53.8
	Moderate Anxiety (22-35)	28	35.8

	High Anxiety (36+)	8	10.2
Depression (BDI Score)	Mild Mood Disturbance (11-16)	46	58.9
	Borderline Clinical Depression (17-20)	22	28.2
	Moderate Depression (21-30)	6	7.6
	Severe Depression (31-40)	4	5.1

Figure 2. Infertility-Related Stress Levels Among Participants (n=78)



Infertility-related stress measured by the Fertility Problem Inventory showed that the majority of participants (56.4%) experienced low levels of stress. Moderate infertility-related stress was reported by 29.4% of women, while high stress was observed in 14.1% of the study population.

Table 3: Infertility-Related Stress Levels and Key Stress Subscales (FPI Scores) (n=78)

Stress Measure	Score Category	Frequency (N)	Percentage (%)
Infertility-Related Stress (FPI Total Score)	Low Stress (6-92)	44	56.4
	Moderate Stress (93-184)	23	29.4
	High Stress (185-230)	11	14.1

DISCUSSION

The present cross-sectional study evaluated the prevalence and intensity of stress, anxiety, and depression among 78 women with primary infertility attending a tertiary care centre in Chennai, and explored associated sociodemographic patterns. The findings reveal a substantial burden of psychological morbidity. Nearly half of the participants (46.2%) experienced moderate-to-high anxiety on the Beck Anxiety Inventory, while 41.0% showed borderline or higher levels of depressive symptoms on the Beck Depression Inventory. Infertility-related stress, assessed by the Fertility Problem Inventory, was moderate or high in 43.6% of women. These results underscore that emotional distress is common even among women who present relatively early in the infertility trajectory, as the majority (80.8%) had a duration of infertility of three years or less.

The observed prevalence of anxiety and depression aligns with, yet is somewhat lower than, several Indian studies conducted in different geographic and clinical settings. In a North Indian tertiary-care sample, clinically relevant depression was reported in over half of infertile women, and anxiety scores were significantly elevated compared with fertile controls.

[8] Another Delhi-based investigation found depressive symptoms in approximately 77% of women seeking infertility treatment. [9] A study from Eastern Uttar Pradesh using the DASS-21 similarly documented moderate-to-severe anxiety and depression in a sizeable proportion of infertile women. [10] International meta-analyses have estimated the global pooled prevalence of depression among infertile women at around 31–32% and generalized anxiety at approximately 13%, with higher rates reported from Asian regions. [11] The relatively lower rates of severe depression and high anxiety in the present cohort may reflect differences in sampling (primary infertility only, exclusion of known psychiatric illness), the use of BAI and BDI rather than other instruments, or regional variations in social support and help-seeking behaviour in South India.

Infertility-related stress, as measured by the FPI, was predominantly low to moderate in this sample. Earlier Indian clinic-based studies using the same instrument have reported higher mean global stress scores, particularly elevated need-for-parenthood and social-concern subscales. [12,13] The comparatively lower proportion of high-stress scores in the current study may be related to the relatively short median duration of infertility and the urban tertiary-care setting, where access to medical information and treatment options may partially mitigate uncertainty. Nevertheless, the finding that more than two-fifths of women still experienced moderate or high infertility-specific stress highlights the persistent emotional impact of the inability to conceive.

Several sociocultural factors unique to the Indian context help explain the elevated psychological burden. In a strongly pronatalist society, motherhood remains central to female identity and social legitimacy. Women who do not conceive often face questions, subtle or overt blame, reduced social participation, and pressure from extended family. [14,15] The predominance of homemakers (69.2%) and middle socioeconomic status in the sample may further intensify vulnerability, as these women may have fewer external sources of self-worth and limited financial autonomy to pursue prolonged treatment. Although the study design did not formally test associations, the demographic profile suggests that social role expectations and family dynamics are likely important contributors to distress.

The bidirectional relationship between psychological distress and reproductive outcomes warrants attention. Chronic anxiety and depression can dysregulate the hypothalamic–pituitary–adrenal axis, elevate cortisol, and potentially impair ovulatory function, endometrial receptivity, and response to assisted reproductive techniques. [16] Conversely, the diagnostic work-up, repeated investigations, financial strain, and uncertainty of treatment success amplify emotional symptoms. Early identification of distress is therefore not only a matter of patient well-being but may also influence treatment adherence and, possibly, success rates.

The study has several strengths. It focused exclusively on primary infertility, used validated instruments (BAI, BDI, and FPI), and was conducted in a high-volume public tertiary centre serving a socioeconomically diverse population. The consecutive sampling approach and short three-month window reduced temporal confounding. Limitations must also be acknowledged. The cross-sectional design precludes causal inference. The modest sample size of 78 limits subgroup analyses and generalizability. Exclusion of secondary infertility and women with pre-existing mental illness, while methodologically deliberate, means the findings may underestimate the overall psychiatric burden in the broader infertile population. Self-report measures are subject to social-desirability bias, particularly in a culture where mental health stigma remains prevalent. Finally, male partners were not assessed, although male-factor and couple-level dynamics are known to influence female psychological outcomes.

Clinically, the results support the integration of routine psychological screening into infertility services. Simple administration of brief, validated tools such as the BAI, BDI, or FPI at the first visit can identify women who would benefit from counselling or psychiatric referral. Multidisciplinary care models that combine medical treatment with psycho-education, cognitive-behavioural strategies, and couple counselling have shown promise in reducing distress and improving quality of life. [17] In resource-constrained public-sector settings such as the study hospital, even brief supportive counselling by trained nursing staff or social workers, coupled with clear referral pathways, could yield meaningful benefits.

CONCLUSION:

This study found a considerable burden of psychological distress among 78 women with primary infertility seeking treatment at a tertiary care centre in Chennai. Moderate-to-high anxiety was present in 46.2% of participants, clinically relevant depressive symptoms (borderline and above) in 41.0%, and moderate-to-high infertility-related stress in 43.6%. The majority of women were aged 31–45 years, homemakers, and belonged to the middle socioeconomic stratum, with most having an infertility duration of ≤ 3 years. These findings highlight the need for routine mental health screening using validated tools such as the Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), and Fertility Problem Inventory (FPI) in infertility clinics.

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