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Prevalence of Anxiety and Associated Factor Among Infertile Couples in Eastern India: A Cross-Sectional Study

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ABSTRACT

Objectives: More than 10% of women suffer from infertility. Generalised anxiety disorder (GAD) is one of the most prevalent psychological disorders among infertile patients. This study aimed to determine the prevalence of GAD and its associated factors among infertile patients in West Bengal, India.

Material and Methods: This cross-sectional study included 109 infertile patients in a tertiary care centre in West Bengal, India, between Dec 2023 and June 2024. Demographic, fertility characteristics and GAD data were collected through a questionnaire. SPSS statistical software (IBM SPSS version 29) was used to analyse the obtained data. Descriptive analysis was used to describe basic information and anxiety scores, and binary logistic regression was used to analyse the relationship between anxiety and other variables.

Results: The prevalence of anxiety among infertile patients was 46.8%. Binary logistic regression showed that patients with lower education levels were more likely to have anxiety (p-value 0.002). Patients from lower socio-economic classes were more likely to have anxiety (p-value 0.001). Patients who didn't receive mental health services (MHS) (p-value 0.003) and the age of participants more than 35 years (p-value 0.042) were also associated with anxiety.

Conclusion: The prevalence of GAD among infertile couples is high, particularly in patients aged more than 35 years, with low education levels and lower socio-economic class. Mental health services should be given to infertile couples.

Keywords: Infertility, Anxiety, Mental Health Services, Education, Socio-economic status

INTRODUCTION

Infertility affects millions of people and has an impact on their families and communities. Estimates suggest that approximately one in every six people of reproductive age worldwide experience infertility in their lifetime.[1] In males, infertility is most commonly caused by problems due to the absence or low levels of sperm, abnormal shape (morphology), movement (motility), and the ejaculation of semen. In females, infertility may be caused by a range of abnormalities of the ovaries, uterus, fallopian tubes, and the endocrine system. Infertility is subdivided into primary and secondary. Primary infertility denotes those patients who have never conceived; however, secondary infertility indicates previous pregnancy but failure to conceive subsequently. Out of

Table 1: Socio demographic and fertility variables of the participants ($N = 109$).

Sl. No.	Variable	Category	Response	
1.	Age (years) (Mean ± SD)/*n* (%)	<26 years	36.23 ± 4.64	22 (20.18)
		26–35 years		49 (44.95)
		>35 years		38 (34.87)
2.	Sex *n* (%)	Male		4 (3.67)
		Female		106 (96.33)
3.	Socio economic status *n* (%)	Upper		48 (44.1)
		Lower		61 (55.9)
4.	Education *n* (%)	Primary/secondary		69 (63.30)
		Graduate and above		40 (36.70)
5.	Duration of infertility (years) (Mean ± SD)			5.80 ± 4.62
6.	Type of infertility *n* (%)	Primary		97 (88.99)
		Secondary		12 (11.01)
7.	MHS received *n* (%)	Yes		57 (52.29)
		No		52 (47.71)
8.	Abortion history *n* (%)	Yes		14 (12.84)
		No		95 (87.16)
9.	Type of family *n* (%)	Joint		50 (45.87)
		Nuclear		59 (54.13)
10.	History of OCP usage *n* (%)	Yes		76 (69.72)
		No		33 (30.28)
11.	GAD score	<10		58 (53.2)
		>10		51 (46.8)

MHS: Mental health services, GAD: Generalised anxiety disorder, OCP: Oral contraceptive pills, SD: Standard deviation.

60–80 million couples suffering from infertility globally, 15–20 million (25%) are in India.[2,3] According to a World Health Organisation (WHO) report, more than 10% of women are affected by infertility.[4] Infertility is increasing primarily in urban areas due to late marriages.

Childbirth is considered a valued role in our society.[5] As a result, infertile couples often experience feelings of anxiety, loss of self-esteem, and depression.[6] WHO identifies infertility as a major healthcare and social problem that leads to mental health issues like depression and anxiety, marital conflict, social isolation, and sexual dysfunction.[7] Although both women and men can suffer from infertility, women are often perceived to suffer from infertility, regardless of whether they are infertile or not. Infertility has significant negative social impacts on the lives of infertile couples and, particularly, women who frequently experience domestic violence, divorce, and social stigma.[8] Evaluation and treatment of infertility are not available and accessible in many countries. There are not many government schemes which focus on the reproductive and fertility health of couples.

Despite the importance of psychiatric disorders in infertile couples, there has been little research on anxiety and depression assessment in infertile couples in recent years. The objective of our study was to assess the prevalence of anxiety and its association with fertility and demographic characteristics in infertile couples attending the outpatient department (OPD) in a tertiary care hospital.

MATERIAL AND METHODS

This was a cross-sectional study done on 109 infertility patients attending OPD in a tertiary care hospital in West Bengal from Dec 2023 to June 2024. Informed verbal consent was taken before including the participant in the study. The operational definition of infertility by the WHO states that infertility is a disease of the male or female reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.[9]

Inclusion Criteria

Those who fulfil the operational definition of infertility.

Table 2: Association between GAD and fertility/demographic variables among infertile individuals.

Sl. No.	Variable	Category	Unadjusted OR	*p*-value, 95% CI	Adjusted OR	*p*-value, 95% CI
1.	Sex	Female	1	0.309, 0.342-8.362	-	-
		Male	3.172			
2.	Age	<35 years	1	0.002, 1.204–3.988	1	0.042, 0.986–3.394
		>35 years	2.522		1.963	
3.	Education	Primary/secondary	1	0.004, 0.122–0.679	1	0.002, 0.608–0.534
		Graduate and above	0.288		0.180	
4.	Socio economic status	Upper	1	0.021, 0.885–4.121	1	0.001, 1.283–3.967
		Lower	1.910		2.122	
5.	MHS received	No	1	0.001, 0.119–0.601	1	0.003, 0.092–0.686
		Yes	0.267		0.252	
6.	History of abortion	No	1	0.129, 0.816–4.949	-	-
		Yes	2.010			
7.	Type of family	Nuclear	1	0.828, 0.508–2.329	-	-
		Joint	1.088			
8.	Duration of infertility	<4 years	1	0.05, 0.967–7.500	1	0.117, 0.762–7.572
		>4 years	2.693		2.970	
9.	Type of infertility	Secondary	1	0.092, 0.837–10.559	-	-
		Primary	2.974			
10.	History of OCP usage	No	1	0.004, 0.600–3.107	1	0.545, 0.741–3.146
		Yes	1.366		1.398	

MHS: Mental health services, GAD: Generalised anxiety disorder, OCP: Oral contraceptive pills, CI: Confidence interval.

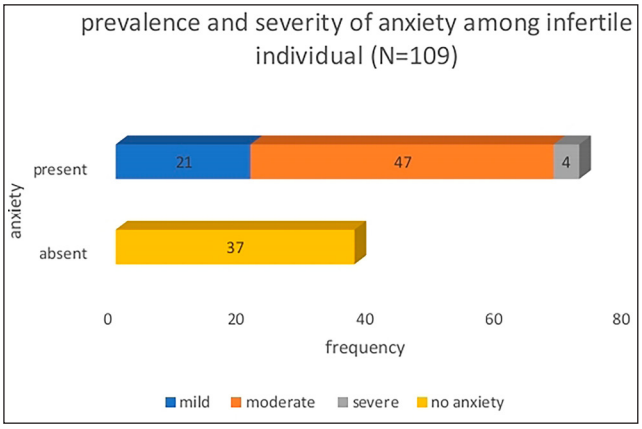

Figure 1: Prevalence and severity of anxiety among infertile individuals ($N = 109$).

Those who can communicate in Hindi, English, or Bengali.

All infertile couples of the age group 18–45 years.

Exclusion Criteria

Unable to communicate in any of the above languages.

History of hypertension, diabetes mellitus, and asthma in participants.

Patients who didn't give consent for participation in the study.

Questionnaire

The generalised anxiety disorder (GAD) score is a 7-item instrument that is used to measure or assess the severity of anxiety among participants. The GAD-7 score is calculated by assigning scores of 0, 1, 2, and 3 to the response categories of 'not at all,' 'several days,' 'more than half the days,' and 'nearly every day,' respectively, and then adding together the scores for the seven questions. The GAD-7 total score for the seven items ranges from 0 to 21. Scores 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively. We tagged the participants as anxious when the score was more than 10, according to GAD SCORE. The questionnaire consists of sociodemographic details, fertility characteristics, and GAD score.[10]

Analysis

Data were collected in Epicollect 5 software version v 7.0.4. All the data were extracted, imported, modified in Microsoft

Word and Microsoft Excel and further analysed in SPSS (v29). Descriptive analysis of data involves the calculation of mean, standard deviation, range, frequencies, and percentages. The association between fertility characteristics and anxiety was evaluated through logistic regression. A value of p less than 0.05 was considered statistically significant.

Ethical approval was taken from the institutional ethical committee (IEC/AIIMS/Kalyani/Meeting/2023/111).

RESULTS

The mean age of the respondents was 36.23 ± 4.64 years. Most patients in the study had primary infertility (88.99%). Most of the respondents were female (96.33%). Around 1/3 of patients had attained education up to graduation and above (36.70%). More than half of the couples (57.29%) received mental health services. Only 12.84% of patients had a prior abortion history. Duration of infertility was 5.80 ± 4.62 years. The prevalence of anxiety among infertility patients was 56.88% [Table 1].

A cutoff value of 10 or more was used to categorise it into anxious and non-anxious. After doing logistic regression, according to adjusted analysis, women aged more than 35 years were 2.52 times more likely to develop anxiety compared to women below 35 years of age (OR 2.522, *p*-value 0.042). Women with primary education compared with secondary education were 3.47 times more likely to develop GAD (OR 0.288, *p*-value 0.002). Participants from lower socio-economic classes were 1.91 times more likely to have anxiety compared to infertile patients from higher socio-economic classes (OR 1.910, *p*-value 0.001). Participants who didn't receive MHS during their treatment had 3.74 times higher chances of developing anxiety (OR 0.267, *p*-value −0.003) [Table 2].

Among anxious infertile patients, 29.16% fall into the mild category, 65.28% into the moderate category, and the rest 5.56% into the severe category [Figure 1].

DISCUSSION

The present study shows that the majority (44.95%) of the infertile patients were in the age group of 26–35 years, which was similar to the findings of a study conducted by Verma P et al., which found that most of the infertile women were in the age group of 26–35 years.[11] The majority of the patients (88.99%) who participated in our study were having primary infertility, while 11.01% were suffering from secondary infertility, which is consistent with the findings done by Abdelhafid Benksim et al.[12] and Kalpana Singh et al.,[13] which can be explained by the fact that having a single child prevents them from being tagged as a childless couple. The majority of the participants were female, which can be due to the patriarchal nature of society and the false belief that men can't be the reason for infertility.

Our study reported that nearly 46.8% of infertile couples were anxious, as measured by the GAD scale. The findings are consistent with several studies done in India and abroad.[14–16] This can be explained by the fact that infertility predisposes social exclusion, deprivation, broken marriages, loss of self-esteem, feelings of shame, self-blame, and hence anxiety in infertile couples. This study also proposes that older women aged more than 35 years are more anxious, which could be understood by the fact that infertility treatment has poor outcomes with increasing age. Older age women are also more prone to delivering babies with congenital anomalies, thereby increasing anxiety among couples. Our study also found that the likelihood of anxiety increases with lower education levels, as has been reported by several studies.[17,18] Higher education enlightens people about the biological basis for infertility and, hence, believes in the treatment. They are open-minded to issues of childbirth and have a better mindset to accept the consequences of being infertile in comparison to low-educated people who have traditional thinking and beliefs that childbirth is the primary task of marriage. This study found that GAD is more prevalent in lower socio-economic status couples and has been reported the same by Dijkstra-Kersten et al.[19] It can be due to the higher cost of treatment of infertility, including ART.

We want to propose that mental health services can significantly reduce the prevalence of anxiety among infertile couples. Counsellors or doctors sitting in the hospital should educate patients about the pathology of the disease, possible treatment alternatives, and possible prognosis in a positive way. It reduces the negative psychological impact of infertility.

Our study didn't find any association between OCP usage and anxiety among infertile couples. However, a study done by Poroma ISM et al.[20] reported an association between OCP use and anxiety. Usually, increasing duration of marriage increases anxiety among couples; however, our study didn't find any association. Maroufizadeh et al.[21] and Ogawa et al.[22] also reported no relationship between anxiety and duration of infertility. This might be due to delays in family planning in urban areas these days. The type of family, whether joint or nuclear, doesn't affect the prevalence of anxiety in infertile couples.

CONCLUSION

The prevalence of GAD among infertile couples is high, particularly in patients aged more than 35 years and with low education levels and lower socioeconomic class. The study suggests that appropriate GAD screening should be done for

all infertile individuals, and mental health services should be provided to all couples taking treatment for infertility.

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Author contribution

VKR: Concept, design, definition of intellectual content, literature search, clinical studies, data analysis, statistical analysis, manuscript preparation, manuscript editing and review; SR: Definition of intellectual content, literature search, clinical studies, data acquisition, manuscript preparation, manuscript editing and review.

Ethical approval

The research/study was approved by the Institutional Review Board at All India Institute of Medical Sciences, number 2023 / 111, dated 03-12-2023.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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