

Depression, anxiety, and stress among male partners of infertile couples: a hospital-based cross-sectional study

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Summary

Infertility affects one in six individuals globally, with male partners facing stigma, emotional distress, and threats to masculinity particularly in cultures like Bangladesh. This study aimed to assess the prevalence, severity, and correlates of depression, anxiety, and stress among male partners of infertile couples. This hospital-based cross-sectional study was conducted at the Outpatient Department of Reproductive Endocrinology and Infertility of a tertiary hospital. A total of 160 male partners of infertile couples were recruited using consecutive sampling. Depression, anxiety, and stress were assessed using the validated Bangla version of the Depression Anxiety and Stress Scale-21 (DASS-21). Descriptive statistics, Chi-square tests, and multivariable logistic regression analyses were performed using SPSS version 28.0. The mean age of participants was 33.5 ± 7.0 years. Clinically significant depression, anxiety, and stress were present in 33.1%, 28.7%, and 27.5% of participants, respectively. No significant differences in depression, anxiety, or stress were observed between men from couples with primary and secondary infertility. In multivariable analysis, men with primary education had significantly lower odds of anxiety compared with those having graduate-level education (aOR = 0.12, $p = 0.002$). Unknown attribution of infertility showed a borderline association with higher odds of stress (aOR = 3.10, $p = 0.052$). Most sociodemographic and reproductive characteristics were not significantly associated with psychological distress. Depression, anxiety, and stress are common among male partners of infertile couples. The limited associations with sociodemographic and reproductive factors suggest that psychological distress related to infertility is multifactorial. Routine psychological screening and counselling should be integrated into infertility care services.

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Introduction

Infertility is a major global health problem affecting millions of individuals of reproductive age. A comprehensive global study covering the period from 1990 to 2010 reported that among 48.5 million infertile couples worldwide, 19.2 million experienced primary infertility and 29.3 million experienced secondary infertility.¹ More recently, the World Health Organization estimated that one in six people worldwide experience infertility at some point in their lifetime.²

The inability to conceive is widely recognized as a highly stressful life event and is associated with significant psychological distress. Studies have shown that 25–80% of infertile couples experience psychological problems such as anxiety, depression, low self-esteem, sexual dysfunction, emotional suffering, guilt, and marital difficulties.³ Parenthood is often considered an important milestone in psychosocial and family life, and the inability to achieve this goal can result in

feelings of frustration, unhappiness, and reduced life satisfaction.⁴ Psychological stress is not only a consequence of infertility but may also contribute to it. In men, psychological stress has been identified as a potential risk factor for impaired fertility. Elevated stress levels can increase cortisol secretion, which may raise sex hormone binding globulin levels and reduce free testosterone concentrations, thereby negatively affecting spermatogenesis.⁵

Although infertility is often perceived as a condition that primarily affects women, its psychological consequences extend to both partners within the couple. Male partners of infertile couples frequently experience emotional distress related to the inability to achieve parenthood, concerns about family expectations, uncertainty regarding treatment outcomes, and social pressure. In many sociocultural settings, fatherhood is closely linked to masculine identity and social status. Consequently, men in infertile relationships may experience stigma, feelings of inadequacy,

reduced self-esteem, and challenges to their sense of masculinity, regardless of whether the infertility is attributed to the male partner, the female partner, both partners, or remains unexplained.^{6,7} Depression among these men may arise from perceived losses in social status, self-confidence, interpersonal relationships, and fulfilment of life goals.⁶ Evidence from Vietnam showed that among husbands of infertile couples, 33.5% experienced anxiety and 10.6% experienced depression.⁸

Despite growing evidence of the psychological burden associated with infertility, research focusing specifically on the mental health of male partners of infertile couples in Bangladesh remains limited. Therefore, this study aimed to determine the proportion and severity of depression, anxiety, and stress among male partners of infertile couples. It also sought to examine the associations between these psychological conditions and selected sociodemographic variables, and to compare the proportion of depression, anxiety, and stress between men experiencing primary infertility and those experiencing secondary infertility.

Materials and methods

This hospital-based cross-sectional study was conducted at the Outpatient Department (OPD) of the Department of Reproductive Endocrinology and Infertility, Bangladesh Medical University (BMU), Dhaka, Bangladesh. Following approval from the Institutional Review Board (IRB), a total of 160 male partners of infertile couples were recruited using consecutive convenience sampling. The study included married male partners of couples diagnosed with infertility. Participants with a previous diagnosis of depressive disorders, anxiety disorders, or stress-related psychiatric disorders were excluded. The diagnosis of infertility (i.e., failure to achieve pregnancy after 12 months of regular unprotected intercourse) was confirmed by consultant physicians of the Department of Reproductive Endocrinology and Infertility. Data were collected through face-to-face interviews conducted by the principal investigator. Information on socio-demographic characteristics and other relevant variables was obtained using a pre-designed structured questionnaire. Depression, anxiety, and stress were assessed using the Bangla version of the Depression, Anxiety and Stress Scale-21 (DASS-21-BV). The original DASS was developed by Lovibond and Lovibond (1995) and consists of three subscales measuring depression, anxiety, and stress.⁹ The short-form version (DASS-21) contains 21 items, with seven items allocated to each subscale, and has demonstrated psychometric properties comparable to those of the original 42-item version. The Bangla version of the DASS-21 was validated by Alim et al. (2017) and showed excellent internal consistency, with Cronbach's alpha coefficients of 0.987 for depression, 0.957 for anxiety, and 0.964 for stress.¹⁰ Participants rated each item on a four-point Likert scale ranging from 0 ("Did not apply to me at all") to 3 ("Applied to me very much or most of the time"). Subscale scores were calculated according to standard DASS-21 scoring

procedures. Data were analysed using appropriate statistical software. Descriptive statistics were used to summarize participants' socio-demographic characteristics and to determine the prevalence and severity of depression, anxiety and stress. Categorical variables were presented as frequencies and percentages. Bivariate analyses were performed using Chi-square (χ^2) tests to examine associations between socio-demographic variables and the presence of depression, anxiety and stress. A range of sociodemographic and reproductive variables were considered for bivariate analysis, including age, residence, family type, educational level, family income, age at marriage, duration of marriage, duration of infertility, type of infertility (primary/secondary), duration of treatment, and infertility factor (wife/husband/both/unknown). Variables with $p < 0.10$ were entered into multivariable logistic regression models. Accordingly, age, duration of marriage, and duration of treatment were included in the depression model; education, income, and age at marriage were included in the anxiety model; and infertility factor was included in the stress model. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were calculated. Statistical significance was set at $p < 0.05$.

Results

A total of 160 male partners of infertile couples were included. The mean age of participants was 33.5 years ($SD = 7.0$; range 21–58 years). The majority were aged 31–40 years (43.8%), resided in rural areas (54.4%), and had primary or secondary education (59.4%). The mean age at marriage was 26.7 years ($SD = 6.1$), with 52.5% marrying after age 25 years. Mean duration of marriage was 6.8 years ($SD = 5.1$), and mean durations of infertility and treatment were 5.3 years ($SD = 4.5$) and 3.4 years ($SD = 3.4$), respectively. Primary infertility was present in 79.4% of couples. The infertility factor was attributed to the wife in 39.4%, to the husband in 20.0%, to both in 13.1%, and was unknown in 27.5% of cases. Table 1 shows the complete sociodemographic and reproductive characteristics of the study sample.

The prevalence of clinically important psychological morbidity (moderate to extremely severe symptoms) among male partners was 33.1% for depression, 28.7% for anxiety, and 27.5% for stress (Table 2). When comparing primary versus secondary infertility, there were no significant differences in the proportions of depression (39.4% vs. 42.4%, $\chi^2 = 0.10$, $p = 0.750$), anxiety (48.8% vs. 39.4%, $\chi^2 = 0.93$, $p = 0.334$), or stress (43.3% vs. 54.5%, $\chi^2 = 1.33$, $p = 0.248$).

In the adjusted analysis (Table 3), no variable was significantly associated with depression. For anxiety, male partners with primary education had significantly lower odds of anxiety compared to those with graduation level education (aOR = 0.12, $p = 0.002$). For stress, compared to wife as the infertility factor, unknown attribution showed a borderline association with higher odds of stress (aOR = 3.10, $p = 0.052$), while husband and both categories were not significant.

Table 1: Sociodemographic and reproductive characteristics of participants (n = 160)

Characteristics	Category	Frequency (n)	Percentage (%)
Infertility attributed to	Wife	63	39.4
	Husband	32	20.0
	Both	21	13.1
	Unknown	44	27.5
Age	d" 30 years	65	40.6
	31-40 years	70	43.8
	> 40 years	25	15.6
Residence	Urban	73	45.6
	Rural	87	54.4
Family type	Nuclear	80	50.0
	Joint	80	50.0
Educational level	Primary	40	25.0
	Secondary	55	34.4
	Higher secondary	25	15.6
	Graduation and above	40	25.0
Family income	< 20000 BDT	75	46.9
	21000-40000 BDT	48	30.0
	> 40000 BDT	37	23.1
Age at marriage	d" 25 years	76	47.5
	After 25 years	84	52.5
Duration of marriage	1-5 years	82	51.2
	6-10 years	48	30.0
	> 10 years	30	18.8
Duration of infertility	1-5 years	105	65.6
	6-10 years	40	25.0
	> 10 years	15	9.4
Type of infertility	Primary	127	79.4
	Secondary	33	20.6
Duration of treatment	d"5 years	130	81.25
	> 5 years	30	18.75

Table 2: Severity levels of depression, anxiety, and stress among male partner (n=160)

Severity	Frequency	Percentage
Depression		
Normal	85	53.1
Mild	22	13.8
Moderate	40	25.0
Severe	10	6.3
Extremely severe	3	1.9
Anxiety		
Normal	96	60.0
Mild	18	11.3
Moderate	29	18.1
Severe	10	6.3
Extremely severe	7	4.4
Stress		
Normal	87	154.4
Mild	29	18.1
Moderate	27	16.9
Severe	16	10.0
Extremely severe	1	0.6

Table 3: Multivariable logistic regression analysis of factors associated with depression, anxiety, and stress among male partners of infertile couples

Outcome	Variable	Comparison	aOR	95% CI	p-value
Depression	Age (years)	Per 1-year increase	1.04	0.98 – 1.09	0.184
	Duration of marriage (years)	Per 1-year increase	1.06	0.97 – 1.15	0.228
	Duration of treatment (years)	Per 1-year increase	1.03	0.91 – 1.17	0.675
Anxiety	Education	No formal vs graduation	0.48	0.13 – 1.81	0.278
		Primary vs graduation	0.12	0.03 – 0.45	0.002
		Secondary vs graduation	0.45	0.19 – 1.06	0.067
		Higher secondary vs graduation	0.39	0.14 – 1.13	0.082
	Income	Per unit increase	1.00	1.00 – 1.00	0.741
	Age during marriage (years)	Per 1-year increase	1.02	0.96 – 1.08	0.502
Stress	Infertility subject	Husband vs wife	1.30	0.47 – 3.57	0.611
		Unknown vs wife	3.10	0.99 – 9.70	0.052
		Both vs wife	0.92	0.31 – 2.71	0.892

Discussion

This study examined the rates and correlates of depression, anxiety, and stress among male partners of infertile couples attending a tertiary hospital in Bangladesh. Approximately one-third of participants experienced clinically important depression (33.1%), while 28.7% experienced anxiety and 27.5% experienced stress. These findings indicate a substantial psychological burden among men in infertile relationships and highlight the need for greater attention to their mental health during infertility evaluation and treatment. The rates of depression (33.1%), anxiety (28.7%), and stress (27.5%) observed in this study were broadly consistent with findings from both regional and international studies, although some variation exists. A study from Turkey reported depression and anxiety among 35.6% and 33.3% of men attending a reproductive treatment facility, respectively.¹¹ A recent case-control study from Iran found severe to very severe depression, anxiety, and stress in 65%, 60%, and 43.4% of infertile men, respectively.¹² Similarly, a study from South India reported depressive symptoms, anxiety, and stress among 46%, 51%, and 59.5% of infertile men, respectively.¹³ Differences across studies may be explained by variations in study design, sampling strategies, sociocultural context, infertility characteristics, and the assessment tools used to measure psychological distress.

The prevalence of depression and anxiety observed in our study appears considerably higher than rates commonly reported from Western countries. Research from Australia, the United Kingdom, and the United States has generally reported lower levels of psychological distress among men experiencing infertility, with rates of anxiety and depression often below 10%.¹⁴ This discrepancy may reflect important sociocultural differences. In Bangladesh, as in many collectivist and pronatalist societies, fatherhood is often viewed as an important marker of masculinity,

social acceptance, and family continuity. Men may therefore face substantial pressure from family members and the wider community, while concerns about social stigma and perceived inadequacy may further contribute to psychological distress. Such factors may explain the relatively high burden of depression, anxiety, and stress among male partners in the present study.

When compared with women experiencing infertility, the prevalence of psychological distress among men appears lower. A recent Bangladeshi study reported prevalence rates of depression, anxiety, and stress among infertile women of 59.7%, 55.0%, and 48.7%, respectively.¹⁵ Similarly, a comparative study from Iran found significantly higher levels of depression, anxiety, and stress among women than among men.¹⁶ These findings suggest that although infertility affects both partners, women may bear a greater psychological burden, possibly because they are more frequently subjected to blame, social scrutiny, and treatment-related challenges.

An important finding of this study was the absence of significant differences in depression, anxiety, and stress between men experiencing primary and secondary infertility. This suggests that the psychological impact of infertility may be substantial regardless of whether a couple has never conceived or has conceived previously but is currently unable to achieve pregnancy. Similar findings have been reported in other studies, including that of ^aahin et al. (2025), which found no significant differences in anxiety levels between men with primary and secondary infertility.¹¹ Together, these findings indicate that the uncertainty, social pressure, and emotional challenges associated with infertility may persist irrespective of previous reproductive success. Another notable finding was the association between educational attainment and anxiety. Men with primary education had significantly lower odds of anxiety

than those with graduate-level education. Although higher education is generally associated with better coping skills, health literacy, and access to resources,¹⁷ it may also increase awareness of infertility-related complications, treatment limitations, and future reproductive uncertainties. In a recent guideline on male Infertility proposed by International Consultation on Sexual medicine (ICSM-5), it emphasized on the complexity of reproductive health issue that extends beyond biological dysfunction, profoundly impacting the psychological, sexual, and relational well-being of couples.¹⁸ So while addressing male infertility, emphasis should be given on addressing mental health issues like depression anxiety and stress.

Most sociodemographic and reproductive variables showed no significant association with depression, anxiety or stress. This pattern suggests that infertility may function as a powerful and universal stressor that affects men across different social, educational, and economic backgrounds. The emotional impact of potential childlessness, societal expectations, and concerns about marital relationships may be sufficiently strong to override many conventional social determinants of mental health. Similar findings have been reported in Iran, where most sociodemographic characteristics were not significantly associated with psychological distress among infertile men.¹² Although not reaching conventional statistical significance, men in whom the cause of infertility remained unknown showed approximately threefold higher odds of stress compared with those in whom infertility was attributed to the wife. This finding may reflect the psychological burden of uncertainty. When the cause of infertility is unidentified, couples may experience ongoing ambiguity regarding prognosis, responsibility, and treatment options, which can increase stress levels.

Conclusion

The findings highlight that depression, anxiety, and stress are common among male partners of infertile couples in Bangladesh. Psychological assessment and support should therefore be considered an integral component of infertility care, addressing the emotional needs of both partners rather than focusing exclusively on women.

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