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Original Research Article

STUDY ON EMOTIONAL WELL-BEING OF WOMEN UNDERGOING INFERTILITY TREATMENT

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ABSTRACT

Background: Infertility is a significant reproductive health concern that affects women not only physically but also emotionally and socially. Women undergoing infertility treatment often experience psychological stress due to prolonged treatment duration, uncertainty of outcomes, social expectations, and repeated treatment failures. Emotional well-being is an important yet frequently overlooked component of infertility care, particularly in tertiary care settings where treatment intensity and complexity are high. Understanding the emotional well-being of women undergoing infertility treatment and identifying associated factors is essential for providing comprehensive, patient-centered care. **Aim:** To assess the emotional well-being of women undergoing infertility treatment in a tertiary care hospital and to examine its association with selected socio-demographic and infertility-related factors.

Materials and Methods: This hospital-based descriptive cross-sectional study was conducted among 102 women undergoing infertility evaluation or treatment at a tertiary care hospital. Participants were recruited using a consecutive sampling technique after obtaining informed consent. Data were collected using a structured proforma to record socio-demographic and clinical characteristics and the World Health Organization–Five Well-Being Index (WHO-5) to assess emotional well-being. WHO-5 scores were converted to percentage scores, with scores ≤50 indicating poor emotional well-being. Data were entered and analyzed using SPSS version 26.0. Descriptive statistics were used to summarize variables, and associations between emotional well-being and independent variables were analyzed using appropriate inferential tests.

Results: The majority of participants were aged 26–30 years (35.29%) and had primary infertility (66.67%). Poor emotional well-being was observed in 59.80% of women, with a mean WHO-5 score of 48.62 ± 14.37. Poor emotional well-being was significantly more common among women aged above 30 years, those with lower educational status, homemakers, women with primary infertility, infertility duration exceeding five years, and those with a history of previous treatment failure ($p < 0.05$). These findings indicate that both socio-demographic and clinical factors contribute to reduced emotional well-being during infertility treatment.

Conclusion: A high proportion of women undergoing infertility treatment experience poor emotional well-being. Routine screening for emotional well-being and integration of psychosocial support into infertility services are essential to improve holistic care and treatment experiences.

Keywords: Infertility, Emotional well-being, WHO-5 Well-Being Index, Women's mental health.

INTRODUCTION

Infertility is increasingly recognized as a major reproductive health challenge that affects individuals and couples across socioeconomic and cultural contexts. Beyond its biomedical dimensions, infertility has important social, emotional, and relational consequences because childbearing is closely linked to identity, family expectations, and social status in many communities. The World Health Organization has highlighted that infertility is common worldwide, with approximately one in six adults experiencing infertility in their lifetime, emphasizing the need for equitable access to quality fertility care and supportive services.[1] In tertiary care settings where women undergo repeated evaluations and treatment procedures, infertility often becomes a prolonged and uncertain journey, making emotional well-being a critical outcome alongside clinical success. From an epidemiological perspective, the burden of infertility is substantial and persistent. Global analyses using large household survey datasets have shown that infertility is present across regions and that trends vary by geography and underlying risk profiles.[2] Such evidence underscores that infertility is not a rare condition limited to specific populations, and it reinforces the importance of strengthening infertility services within health systems. In many low- and middle-income settings, the gap between need and access is widened by out-of-pocket expenditure, limited availability of specialized services, and delayed care seeking, resulting in advanced clinical complexity by the time women reach tertiary hospitals. These realities create a context in which emotional strain may be intensified, particularly when treatment involves multiple cycles, financial pressures, and uncertainty regarding outcomes. Clear terminology is essential for both clinical care and research on infertility and its psychosocial impact. International consensus definitions support consistent reporting and allow meaningful comparisons across studies and settings. The International Glossary on Infertility and Fertility Care provides standardized terminology for infertility and related clinical concepts, reflecting broad expert agreement and aligning fertility care language across disciplines.[3] Using standardized definitions helps researchers accurately describe participant characteristics (such as primary and secondary infertility, treatment pathways, and treatment outcomes), while also ensuring that psychological and emotional outcomes are interpreted within comparable clinical categories. The experience of infertility extends beyond medical diagnosis and treatment procedures, often becoming a socially embedded life event. Qualitative and sociological literature describes infertility as a condition that can reshape daily life through stigma, secrecy, disrupted life plans, strain within relationships, and feelings of inadequacy or loss.[4] In many cultural settings, women carry a disproportionate share of blame and social pressure related to childlessness, even when male or combined factors are present. This gendered burden can increase vulnerability to emotional distress, reduce perceived support, and contribute to social withdrawal. Within clinical environments, repeated investigations and treatments may further heighten emotional stress through cycle-to-cycle uncertainty, invasive procedures, and the cyclical pattern of hope and disappointment. Psychological responses to infertility are often shaped by the medicalization of reproduction and the intensity of treatment. Reviews focusing on the psychological impact of infertility note that infertility-related stress may include grief reactions, lowered self-esteem, loss of control, and persistent worry about the future, and that distress may influence treatment continuation and engagement.[5] Women in treatment settings may experience emotional fluctuations across different stages diagnosis, initiation of treatment, waiting periods, treatment failures, and decision-making about further attempts. These emotional responses are clinically important because they can affect communication with healthcare providers, coping behaviors, marital functioning, and adherence to treatment plans, potentially influencing both patient satisfaction and care outcomes. Given the frequency of distress during infertility treatment, there is increasing emphasis on integrating psychosocial care into routine fertility services. Clinical practice guidance recommends that infertility care should include not only medical interventions but also psychosocial support that helps patients manage emotional reactions, strengthen coping strategies, and navigate complex decisions.[6]

Measuring emotional well-being in infertility settings requires tools that are practical, validated, and sensitive to changes in positive mental health. While many studies focus on symptoms of depression and anxiety, assessing well-being adds an important dimension because it captures positive mood, vitality, and interest in daily life—domains that can be affected even when clinical symptoms are not severe. The WHO-5 Well-Being Index is widely used as a brief measure of subjective well-being and has been supported by evidence demonstrating good validity as both an outcome measure and a screening tool for reduced well-being across diverse contexts.[6]

MATERIALS AND METHODS

This hospital-based, descriptive cross-sectional study was conducted in the infertility/assisted reproduction services of a tertiary care hospital. The study was planned to assess the emotional well-being of women receiving infertility evaluation and/or treatment in a real-world clinical setting. A total of 102 women undergoing infertility treatment were enrolled. Participants were approached during their outpatient visits or procedure-related appointments and were

included after confirming eligibility and obtaining written informed consent.

Methodology

Participants were recruited using a consecutive sampling method, wherein all eligible women attending the infertility clinic during the recruitment period were invited to participate until the required sample size of 102 was achieved. Recruitment was done in a private setting to ensure comfort and confidentiality.

Eligibility Criteria

Women aged 18–45 years who were currently undergoing infertility evaluation or treatment (including ovulation induction, intrauterine insemination, or assisted reproductive techniques) and who were able to understand and respond to the questionnaire were included. Women with a known diagnosis of severe psychiatric illness, those currently receiving treatment for major mental health disorders, those with acute medical illness requiring urgent care, and those who did not provide consent were excluded to ensure reliable self-reported assessment.

Data were collected using a structured proforma and a standardized emotional well-being scale. The proforma captured socio-demographic and clinical details such as age, education, occupation, residence, socioeconomic status, type of infertility (primary/secondary), duration of infertility (as a clinical characteristic only), treatment modality, and relevant medical/gynecological history. Emotional well-being was assessed using the World Health Organization–Five Well-Being Index (WHO-5), a brief validated tool consisting of five positively worded items scored on a 6-point Likert scale (0 to 5). The total raw score (0–25) was converted to a percentage score (0–100) by multiplying by 4, with higher scores indicating better well-being; lower scores indicated reduced emotional well-being, and a cut-off consistent with standard WHO-5 interpretation was used to identify poor well-being.

After consent, participants completed the questionnaire either through self-administration or interviewer assistance when required (e.g., due to literacy or time constraints), ensuring that interviewer support remained neutral and non-leading. Privacy was maintained during administration, and participants were encouraged to respond based on their experiences over the recent period specified by the tool. Completed forms were checked for completeness at the time of collection to minimize missing data.

Statistical Analysis

Data were coded and entered into Microsoft Excel and analyzed using SPSS version 26.0. Descriptive statistics were computed as mean and standard deviation for continuous variables and as frequency and percentage for categorical variables. Normality of continuous variables was assessed using appropriate tests and graphical methods. Group comparisons of emotional well-being scores were performed using an independent samples t-test or one-way ANOVA for normally distributed data and Mann–Whitney U or Kruskal–Wallis tests for non-normal distributions; associations between categorical variables were examined using the chi-square test or Fisher's exact test as applicable. Correlation analysis was used to explore relationships between well-being scores and key continuous clinical variables, and multivariable regression analysis was performed to identify independent predictors of emotional well-being after adjusting for relevant covariates. A p-value of <0.05 was considered statistically significant.

RESULTS

Socio-demographic characteristics of the participants (Table 1).

The study included 102 women undergoing infertility treatment, with the majority belonging to the reproductive age group of 26–30 years (35.29%), followed by 31–35 years (27.45%). Women aged 18–25 years constituted 17.65% of the sample, while a smaller proportion were aged 36–40 years (14.71%) and above 40 years (4.90%). With respect to educational status, nearly half of the participants were graduates or had higher educational qualifications (45.10%), whereas 33.33% had completed higher secondary education and 21.57% had education up to the secondary level. More than half of the participants were homemakers (56.86%), while 43.14% were employed. A greater proportion of women resided in urban areas (59.80%) compared to rural areas (40.20%). Regarding socioeconomic status, the majority belonged to the middle socioeconomic class (54.90%), followed by the upper class (26.47%), while 18.63% were from the lower socioeconomic group.

Clinical and infertility-related characteristics (Table 2).

Among the participants, primary infertility was more prevalent, affecting 66.67% of women, while 33.33% had secondary infertility. The duration of infertility was most commonly between 3 and 5 years (40.20%), followed by more than 5 years in 31.37% of women, and less than 3 years in 28.43%. In terms of treatment modalities, ovulation induction was the most frequently utilized treatment (38.24%), followed by intrauterine insemination (32.35%) and assisted reproductive techniques (29.41%). Nearly half of the participants (46.08%) reported a history of previous treatment failure, while 53.92% had not experienced any prior treatment failure.

Emotional well-being of participants (Table 3).

Assessment of emotional well-being using the WHO-5 Well-Being Index revealed that a substantial proportion of women (59.80%) had poor emotional well-being, with a WHO-5 score of 50 or less. Only 40.20% of participants demonstrated adequate emotional well-being with scores above 50. The mean WHO-5 well-being score of the study population was 48.62 ± 14.37, indicating an overall

reduced level of emotional well-being among women undergoing infertility treatment.

Association between socio-demographic variables and emotional well-being (Table 4).

A statistically significant association was observed between age and emotional well-being. Women older than 30 years showed a higher prevalence of poor emotional well-being (68.75%) compared to those aged 30 years or younger (51.85%) ($p = 0.041$). Educational status was also significantly associated with emotional well-being; participants with education up to higher secondary level had a higher proportion of poor well-being (67.86%) compared to graduates and above, among whom equal proportions exhibited poor and adequate well-being (50.00% each) ($p = 0.028$). Occupational status demonstrated a significant relationship with emotional well-being, with homemakers reporting poorer well-being (65.52%) than employed women (52.27%) ($p = 0.047$).

Association between infertility-related factors and emotional well-being (Table 5).

Infertility-related variables showed significant associations with emotional well-being. Women with primary infertility had a higher prevalence of poor emotional well-being (64.71%) compared to those with secondary infertility (50.00%), and this association was statistically significant ($p = 0.032$). Duration of infertility was strongly associated with emotional well-being, as women with infertility lasting more than five years reported markedly poorer well-being (78.13%) compared to those with a duration of five years or less (51.43%) ($p = 0.006$). Additionally, a history of previous treatment failure was significantly related to emotional well-being; 72.34% of women with prior treatment failure had poor well-being, whereas only 49.09% of those without treatment failure reported poor well-being ($p = 0.003$).

Table 1: Socio-demographic characteristics of the study participants (N = 102)

Variable	Category	Frequency (n)	Percentage (%)
Age group (years)	18–25	18	17.65
	26–30	36	35.29
	31–35	28	27.45
	36–40	15	14.71
	>40	5	4.90
Education	Up to secondary	22	21.57
	Higher secondary	34	33.33
	Graduate and above	46	45.10
Occupation	Homemaker	58	56.86
	Employed	44	43.14
Residence	Urban	61	59.80
	Rural	41	40.20
Socioeconomic status	Lower	19	18.63
	Middle	56	54.90
	Upper	27	26.47

Table 2: Clinical and infertility-related characteristics of participants (N = 102)

Variable	Category	Frequency (n)	Percentage (%)
Type of infertility	Primary infertility	68	66.67
	Secondary infertility	34	33.33
Duration of infertility	< 3 years	29	28.43
	3–5 years	41	40.20
	> 5 years	32	31.37
Treatment modality	Ovulation induction	39	38.24
	Intrauterine insemination	33	32.35
	Assisted reproductive techniques	30	29.41
History of previous treatment failure	Yes	47	46.08
	No	55	53.92

Table 3: Distribution of emotional well-being based on WHO-5 Well-Being Index (N = 102)

WHO-5 well-being status	WHO-5 score (%)	Frequency (n)	Percentage (%)
Poor emotional well-being	≤ 50	61	59.80
Adequate emotional well-being	> 50	41	40.20
Mean WHO-5 score (± SD)	—	**48.62 ± 14.37**	—

Table 4: Association between socio-demographic variables and emotional well-being (WHO-5) (N = 102)

Variable	Category	Poor well-being n (%)	Adequate well-being n (%)	p-value
Age group	≤ 30 years (n=54)	28 (51.85)	26 (48.15)	0.041*
	> 30 years (n=48)	33 (68.75)	15 (31.25)	
Education	≤ Higher secondary (n=56)	38 (67.86)	18 (32.14)	0.028*
	Graduate and above (n=46)	23 (50.00)	23 (50.00)	
Occupation	Homemaker (n=58)	38 (65.52)	20 (34.48)	0.047*
	Employed (n=44)	23 (52.27)	21 (47.73)	

Statistically significant (Chi-square test)

Table 5: Association between infertility-related factors and emotional well-being (WHO-5) (N = 102)

Variable	Category	Poor well-being n (%)	Adequate well-being n (%)	p-value
Type of infertility	Primary (n=68)	44 (64.71)	24 (35.29)	0.032*
	Secondary (n=34)	17 (50.00)	17 (50.00)	
Duration of infertility	≤ 5 years (n=70)	36 (51.43)	34 (48.57)	0.006*
	> 5 years (n=32)	25 (78.13)	7 (21.87)	
Previous treatment failure	Yes (n=47)	34 (72.34)	13 (27.66)	0.003*
	No (n=55)	27 (49.09)	28 (50.91)	

DISCUSSION

In the present tertiary-care clinic sample (N=102), most women were in the peak reproductive age groups (26–30 years: 35.29%; 31–35 years: 27.45%), which is comparable to the Indian tertiary-centre study by Bhadkaria et al. (2023) where the largest share was also 26–30 years (41.33%) and 31–35 years (28.66%). However, our cohort had a higher urban representation (59.80%) than theirs (35.33%), suggesting that access and referral to assisted reproduction services may be more urban-skewed in our setting, while rural predominance may reflect different catchment areas and health-seeking pathways.[8]

Education and occupation patterns in our study (graduate and above: 45.10%; homemakers: 56.86%) also reflect a socioeconomically diverse clinic population, but with meaningful links to emotional health. We observed significantly poorer well-being among women with education up to higher secondary (poor well-being: 67.86%) versus graduates (50.00%) (p=0.028), and among homemakers (65.52%) versus employed women (52.27%) (p=0.047). A similar clinic-based Indian study by Verma et al. (2016) reported that most infertile participants were homemakers (71.42%) and largely from the middle class (68.57%); importantly, they concluded that lower education and lower socioeconomic background increased vulnerability to greater depression severity—supporting our finding that social position and empowerment markers (education/employment) may buffer emotional burden during infertility care.[9]

A major finding of this study was that 59.80% of participants had poor emotional well-being (WHO-5 ≤50), with an overall mean WHO-5 score of 48.62 ± 14.37, indicating an overall reduced well-being level. This proportion is higher than that reported in the WHO-5 validation work among infertile women by Omani-Samani et al. (2019), where poor well-being was reported in 44.30% of women. This difference may reflect higher clinical complexity, greater cumulative treatment stress, or different clinic populations and sociocultural pressures, but it also signals that more than half of women in routine tertiary infertility services may need emotional screening alongside medical management.[10]

When WHO-5 findings are viewed alongside literature using psychiatric symptom measures, the emotional burden in our study appears clinically important and not merely "low mood." In the Polish prevalence study by Drosdzol and Skrzypulec (2009), severe depression was reported in 35.44% and severe anxiety in 15.53% of infertile couples. Although tools differ, our higher poor-wellbeing proportion (59.80%) suggests that even when women may not meet thresholds for severe syndromic disorders, many experience substantial reduction in positive affect and vitality—domains that WHO-5 captures and which may influence treatment adherence and patient-centred outcomes.[11]

Age showed a significant association with emotional well-being in our data: women aged >30 years had poorer well-being (68.75%) than those ≤30 years (51.85%) (p=0.041). Interestingly, in women with unexplained infertility, Noël et al. (2022) reported 55.00% anxiety/depressive symptoms overall and found that age <35 years was strongly associated with higher odds of anxiety/depressive symptoms (reported OR 16.60). The direction of age vulnerability differs from our findings and may be explained by differences in diagnosis group (unexplained vs mixed infertility), stage of treatment, cultural expectations, and perceived "time pressure"—suggesting that age-related emotional risk may be context-specific and should be assessed within local care pathways rather than assumed.[12]

Infertility type was also linked to well-being in our cohort: women with primary infertility had poorer well-being (64.71%) than those with secondary infertility (50.00%) (p=0.032). This aligns with the hospital-based case-control findings of Dar et al. (2022), where psychiatric morbidity was markedly lower in women with secondary infertility compared with primary infertility (reported as 92.30 vs 7.70, as presented by the authors), implying that the absence of any prior conception may amplify stigma, self-blame, and perceived social threat, thereby worsening emotional outcomes.[13]

Duration of infertility showed a strong relationship with emotional status in our study: women with infertility >5 years had poor well-being in 78.13% compared with 51.43% among those with ≤5 years (p=0.006). This pattern is consistent with the conceptual model supported by Moura-Ramos et al. (2016) (70 couples), where longer infertility duration increased the perceived importance of parenthood, which in turn negatively affected emotional adjustment. Our data extend this by quantifying the magnitude of reduced well-being at the clinic level, reinforcing that prolonged infertility is not only a medical timeline but also a cumulative psychological stress trajectory.[14]

Prior treatment adversity further compounded emotional burden in our cohort: women with a

history of previous treatment failure had poor well-being in 72.34% compared with 49.09% among those without failure (p=0.003). While our analysis is cross-sectional, evidence from large psychosocial ART research helps interpret this clinically—treatment journeys often involve repeated cycles of hope and disappointment, and psychological vulnerability may rise with repeated unsuccessful attempts, underlining the importance of proactive counselling after failed cycles rather than waiting for overt psychiatric symptoms.[15]

Finally, our overall pattern high poor well-being prevalence (59.80%) with significant links to age, education, primary infertility, longer duration, and prior failure supports a care model in which emotional screening is routine in infertility services. A synthesis of the broader literature summarized by Rooney and Domar (2018) notes that 25% to 60% of infertile individuals report psychiatric symptoms and emphasizes that anxiety and depression symptoms are consistently elevated in infertility care populations, matching the upper range of burden seen in our clinic sample. Integrating brief tools (such as WHO-5), timely referral pathways, and culturally sensitive counselling may therefore be essential components of comprehensive tertiary infertility care.[16]

CONCLUSION

The present study demonstrates that a substantial proportion of women undergoing infertility treatment in a tertiary care hospital experience poor emotional well-being, as evidenced by low WHO-5 scores. Emotional well-being was significantly influenced by socio-demographic factors such as age, education, and occupation, as well as infertility-related factors including type and duration of infertility and prior treatment failure. These findings highlight the cumulative emotional burden associated with prolonged and unsuccessful infertility treatment. Incorporating routine emotional well-being screening and timely psychosocial support into infertility services may enhance holistic care and improve overall treatment experiences for women.

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