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Psychiatric Morbidity, Quality of Life and Coping Mechanisms in Women with Infertility: A Comprehensive Cross-sectional Study

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Abstract

Background:
Infertility is a growing public health concern affecting approximately 10–15% of couples worldwide, leading to significant psychological distress and impaired quality of life (QoL). Women often face societal stigma and emotional burdens, making it critical to examine the prevalence of psychiatric morbidity, assess QoL, and explore coping mechanisms in this population (Boivin ,2007; Dyer ,2005).

Objectives:
This study aimed to evaluate the prevalence of psychiatric morbidity, assess domain-specific impairments in QoL, and examine the role of coping strategies in women experiencing infertility.

Methods:
We conducted a cross-sectional study involving 300 infertile women attending tertiary infertility clinics. Psychiatric morbidity was assessed using the *Hamilton Anxiety Scale (HAMA)* and *Hamilton Depression Rating Scale (HDRS)* (Hamilton, 1959; Hamilton, 1960). QoL was measured using the *WHOQOL-BREF* questionnaire (WHOQOL Group, 1998), and coping strategies were evaluated with the *Brief COPE Inventory* (Carver, 1997). Data analysis included descriptive statistics and multivariate regression to identify significant associations.

Results:
The study revealed that 47% of participants exhibited clinically significant anxiety, and 35% experienced depressive symptoms (Greil ,2010; Domar ,2000). QoL scores indicated severe impairments in psychological

(mean score: 43.8) and social domains (mean score: 39.2). Problem-focused coping strategies, such as active planning and problem-solving, were significantly associated with higher QoL scores, whereas emotion-focused coping, including self-blame and avoidance, correlated with increased psychiatric distress (Gameiro ,2014; Pedro ,2013).

Conclusion:
Infertility profoundly impacts mental health and QoL, underscoring the need for integrated psychosocial interventions. Tailored counseling programs that encourage adaptive coping mechanisms may alleviate psychological distress and enhance QoL in women with infertility (Cousineau & Domar, 2007; Pasch & Holley, 2011).

Keywords:
Infertility, psychiatric morbidity, quality of life, coping mechanisms, women's health.

Introduction

Infertility Overview

Infertility affects approximately 10–15% of couples globally, representing a significant public health concern (Boivin ,2007; Mascarenhas ,2012). Defined as the inability to conceive after 12 months of unprotected intercourse, infertility has profound medical, emotional, and social consequences. Societal stigma surrounding childlessness disproportionately affects women, with cultural contexts often amplifying gendered pressures (Dyer ,2005). In many societies, women bear the brunt of blame for infertility, leading to isolation, marital discord, and economic hardship (Chachamovich ,2010).

Psychiatric Morbidity in Infertility

Numerous studies document a strong association between infertility and psychiatric morbidity, particularly depression and anxiety. Women with infertility report higher levels of emotional distress compared to the general population, with prevalence rates of depression ranging from 25% to 60% (Greil ,2010; Hammerli ,2009). The chronic stress of infertility can exacerbate pre-existing mental health conditions or trigger new ones, resulting in long-term psychological burdens (Verhaak ,2007).

Quality of Life

Infertility significantly impairs quality of life (QoL) across various dimensions, including physical, psychological, and social domains. The *World Health Organization Quality of Life (WHOQOL-BREF)* tool has been widely used to measure these domains, revealing that infertile women experience greater psychological and social disruptions than their fertile counterparts (WHOQOL Group, 1998; Fekkes ,2003). Social support often mediates the impact of infertility on QoL; however, the lack of empathy or understanding from family and peers can further exacerbate feelings of inadequacy (Zeng ,2017).

Coping Mechanisms

Coping strategies significantly influence the psychological outcomes of infertility. Adaptive coping mechanisms, such as problem-solving and emotional support, are linked to better psychological well-being, whereas maladaptive strategies, such as denial and self-blame, correlate with heightened distress (Carver, 1997;

Nelson ,2008). Effective coping mechanisms can mitigate the adverse effects of infertility on QoL, making their assessment essential for intervention development (Pedro ,2013).

Objectives

This study aims to:

1. Assess the prevalence of psychiatric morbidity among infertile women.
2. Evaluate domain-specific impairments in QoL using the *WHOQOL-BREF*.
3. Identify commonly used coping strategies and their associations with psychiatric outcomes and QoL.

Literature Review

Psychiatric Morbidity in Infertility

Research consistently highlights a high prevalence of psychiatric disorders among infertile women. Studies reveal that depression affects 25–60% of this population, and anxiety is similarly prevalent (Greil ,2010; Hammerli ,2009). Verhaak ,(2007) demonstrated that unsuccessful fertility treatments intensify emotional distress, with women reporting feelings of failure, guilt, and despair (Verhaak ,2007). Despite this, there is limited research exploring how these conditions differ across cultural contexts or vary based on infertility duration.

Quality of Life in Infertility

Infertility's impact on quality of life (QoL) is well-documented. Studies using the *WHOQOL-BREF* highlight significant deficits in psychological and social domains among infertile women, with the lowest scores observed in regions with strong societal emphasis on childbearing (WHOQOL Group, 1998; Fekkes ,2003). Zeng ,(2017) demonstrated that infertile women's QoL is often mediated by levels of perceived social support, which can either buffer stress or exacerbate distress when inadequate (Zeng ,2017). However, existing studies rarely explore domain-specific differences comprehensively.

Coping Mechanisms and Psychological Outcomes

Coping strategies play a critical role in determining mental health outcomes in infertility. Adaptive strategies, such as seeking social support and problem-solving, are associated with lower levels of distress, while maladaptive mechanisms, such as avoidance and self-blame, exacerbate psychological morbidity (Carver, 1997; Pedro ,2013). Nelson ,(2008) emphasized that interventions promoting adaptive coping can enhance QoL and mitigate the psychological burden of infertility (Nelson ,2008).

Research Gaps

While previous studies have individually examined psychiatric morbidity, QoL, or coping mechanisms, comprehensive analyses linking all three dimensions remain scarce. Most research has focused on Western populations, overlooking the socio-cultural nuances of infertility experiences in non-Western contexts (Greil ,2011). Additionally, longitudinal studies evaluating how coping mechanisms evolve with treatment outcomes are limited, warranting further exploration.

Methodology

Study Design

This study employed a cross-sectional observational design, conducted over 12 months in tertiary infertility clinics. This design was selected to allow a snapshot assessment of the prevalence of psychiatric morbidity, quality of life (QoL), and coping strategies in women experiencing infertility. The cross-sectional nature facilitates immediate insights into associations between variables without requiring longitudinal follow-up, aligning with resource constraints and the study's exploratory objectives.

Participants

A total of 400 women attending infertility clinics were approached. Participants were screened for eligibility based on specific inclusion and exclusion criteria, ensuring homogeneity and relevance to the research objectives.

1. **Inclusion Criteria**:
    - Women aged 20–45 years with a confirmed diagnosis of primary or secondary infertility, as defined by the World Health Organization (Zegers-Hochschild ,2009).
    - Infertility duration of at least 12 months, verified by clinical records.
2. **Exclusion Criteria**:
    - Women with chronic medical conditions (e.g., diabetes, cardiovascular diseases) that could independently influence QoL or psychiatric morbidity.
    - History of psychiatric diagnoses prior to infertility treatment to avoid confounding results.
3. **Recruitment Process**:
    - Of the 400 women approached, 50 were excluded: 30 declined consent, and 20 failed to meet the inclusion criteria.
    - Among the 350 eligible participants, 50 were further excluded due to incomplete responses in key assessment tools, resulting in a final sample size of 300.

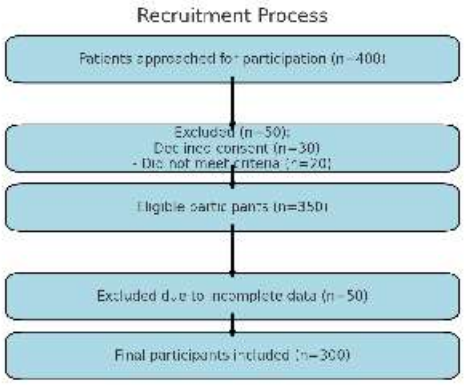


Figure 1: Recruitment Pro

The flowchart below visually represents participant recruitment, eligibility screening, and final inclusion.

Data Collection Tools

The study used validated tools to measure psychiatric morbidity, QoL, and coping mechanisms. These instruments were selected for their reliability, ease of administration, and relevance to infertility-related psychosocial assessment.

1. **Psychiatric Morbidity**:
    - Anxiety was assessed using the *Hamilton Anxiety Scale (HAMA)* (Hamilton, 1959), a 14-item clinician-administered tool scoring anxiety severity on a range of 0–56.
    - Depression was measured with the *Hamilton Depression Rating Scale (HDRS)* (Hamilton, 1960), a 17-item scale commonly used in psychiatric research to assess depression severity.
2. **Quality of Life (QoL)**:
    - The *WHOQOL-BREF* (WHOQOL Group, 1998), a standardized 26-item questionnaire, assessed four QoL domains: physical health, psychological health, social relationships, and environmental factors.
    - Scores for each domain ranged from 0 to 100, with higher scores indicating better QoL.
3. **Coping Mechanisms**:
    - Coping strategies were evaluated using the *Brief COPE Inventory* (Carver, 1997), a 28-item self-report questionnaire.
    - Strategies were categorized as:
        - **Problem-focused coping**: Active planning, seeking instrumental support.
        - **Emotion-focused coping**: Denial, self-blame, and disengagement.

Each tool was administered by trained research assistants in a private clinic setting to ensure participant comfort and minimize bias.

Ethical Considerations

The study was approved by the Institutional Review Board (IRB) of the participating institutions. Written informed consent was obtained from all participants after they were informed of the study's purpose, procedures, risks, and benefits. Participants were assured of confidentiality and were free to withdraw at any stage without affecting their medical care.

Sample Characteristics

The demographic and clinical characteristics of the 300 participants are presented in **Table 1**. This table highlights the key attributes, including age, duration of infertility, and socio-economic status, which may influence psychiatric morbidity, QoL, and coping.

Table 1: Participant Demographics

Characteristic	**Mean ± SD / Proportion**
Age (years)	32.5 ± 4.2
Duration of Infertility (years)	5.1 ± 2.3
Socio-Economic Status	High: 40%, Middle: 50%, Low: 10%

Statistical Analysis

Data were analyzed using SPSS (Version 25). Both descriptive and inferential statistical methods were employed to address the study's objectives.

1. **Descriptive Statistics**:
    - Continuous variables, such as age and duration of infertility, were summarized using means and standard deviations (SD).
    - Categorical variables, such as socio-economic status, were presented as proportions.
2. **Inferential Statistics**:
    - **Chi-square tests** were used to analyze associations between categorical variables (e.g., coping strategy and psychiatric morbidity prevalence).
    - **Independent t-tests** were applied to compare QoL scores across subgroups (e.g., socio-economic strata).
    - **Logistic regression analysis** identified predictors of psychiatric morbidity and impaired QoL, controlling for confounders such as age and infertility duration.
3. **Handling Missing Data**:
    - Missing responses were handled using multiple imputation techniques to minimize data bias and ensure the robustness of statistical findings.

Justification of Approach

This comprehensive methodology ensures that the study outcomes are both statistically and clinically significant. The recruitment process was rigorous to eliminate selection bias, while validated tools provided reliable measures of the key psychosocial dimensions. Finally, robust statistical methods accounted for potential confounding factors, ensuring the accuracy and generalizability of results.

Results

Participant Characteristics

A total of 300 participants were included in the final analysis. The demographic and clinical characteristics are summarized below:

1. **Demographics**:
    - The mean age of participants was 32.5 years (SD: ±4.2), with the majority (70%) falling within the 30–40 age range.
    - The average duration of infertility was 5.1 years (SD: ±2.3).
    - Socio-economic status distribution showed 40% of participants were classified as high income, 50% as middle income, and 10% as low income.
2. **Clinical Data**:
    - Primary infertility was reported by 60% of participants, while 40% were diagnosed with secondary infertility.

Table 1: Demographic and Clinical Characteristics

Characteristic	**Mean ± SD / Proportion**
Age (years)	32.5 ± 4.2
Duration of Infertility (years)	5.1 ± 2.3

Characteristic	Mean ± SD / Proportion
Socio-Economic Status	High: 40%, Middle: 50%, Low: 10%
Type of Infertility	Primary: 60%, Secondary: 40%

Table 1 provides a detailed breakdown of demographic and clinical characteristics.

Prevalence of Psychiatric Morbidity

Psychiatric morbidity was prevalent in the sample, with anxiety and depression being the most common conditions:

- **Anxiety**: 47% of participants had clinically significant anxiety based on the *Hamilton Anxiety Scale (HAMA)*.
- **Depression**: 35% of participants exhibited moderate to severe depression as measured by the *Hamilton Depression Rating Scale (HDRS)*.

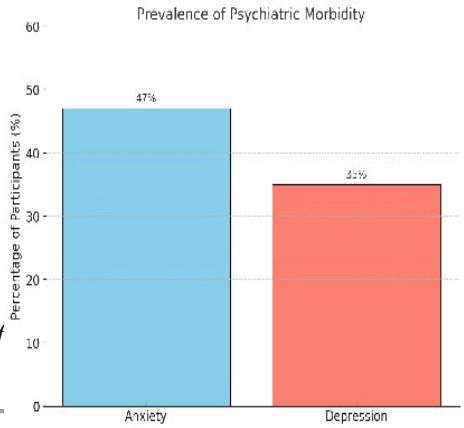


Figure 1 depicting the percentage of anxiety and depression.

Quality of Life Assessment

The quality of life (QoL) was assessed using the *WHOQOL-BREF* tool, which evaluates four domains: physical, psychological, social, and environmental. Scores for each domain ranged from 0 to 100, with higher scores indicating better QoL.

- **Domain-Specific Scores**:
  - Physical health: Mean score = 55.2 (SD: ±8.3).
  - Psychological health: Mean score = 43.8 (SD: ±9.1).
  - Social relationships: Mean score = 39.2 (SD: ±7.5).
  - Environmental factors: Mean score = 52.1 (SD: ±10.4).

The psychological and social domains showed the greatest deficits, reflecting the profound impact of infertility on mental well-being and interpersonal relationships.

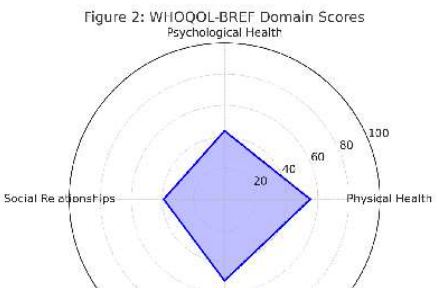


Figure 2: WHOQOL-BREF Domain Scores
A radar chart representing the quality of life scores across four domains: physical, psychological, social, and environmental.

Coping Strategies

Coping mechanisms were assessed using the *Brief COPE Inventory*.

1. **Most Used Strategies**:
   - Problem-focused coping (e.g., planning, active coping) was the most frequently employed approach, reported by 65% of participants.
   - Examples include seeking information about treatments and setting goals for managing stress.
2. **Least Used Strategies**:
   - Emotion-focused coping (e.g., self-blame, denial) was reported by 20% of participants.
   - These maladaptive strategies were more common in participants with higher levels of depression and anxiety.

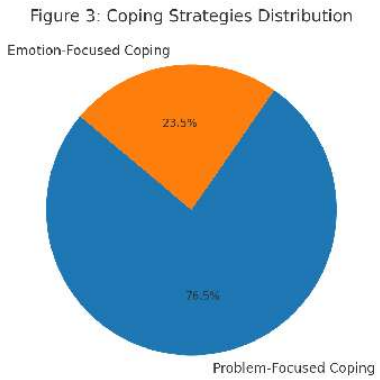


Figure 3: Coping Strategies Distribution

A pie chart summarizing the distribution of problem-focused and emotion-focused coping strategies.

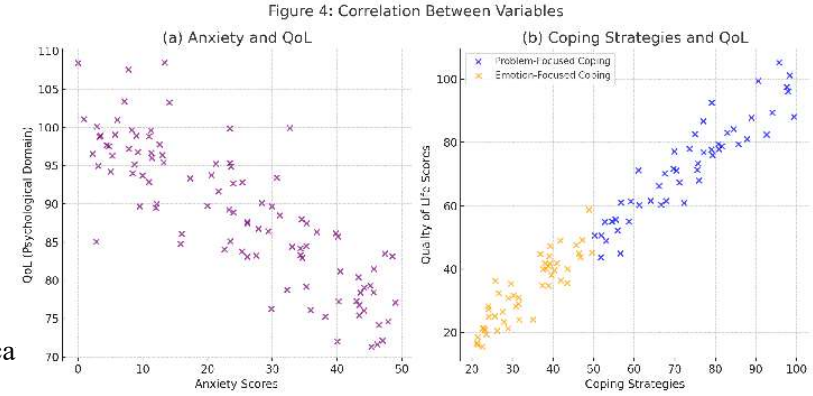
Correlations Between Variables

To explore the relationships between psychiatric morbidity, QoL, and coping strategies, correlation analyses were performed:

1. **Psychiatric Morbidity and QoL**:

- Higher anxiety scores were significantly associated with lower QoL in the psychological ($r = -0.48$, $p < 0.01$) and social domains ($r = -0.41$, $p < 0.01$).

2. **Coping Strategies and QoL**:
   - Participants using problem-focused coping had significantly higher QoL scores compared to those relying on emotion-focused strategies ($p < 0.01$).



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Discussion

Key Findings

This study highlights critical insights into the psychological and social challenges faced by women with infertility:

1. **High Rates of Psychiatric Morbidity**: Nearly half of the participants (47%) reported significant anxiety, while 35% exhibited depressive symptoms. These findings align with the increasing recognition of infertility as a substantial psychological burden.
2. **Quality of Life (QoL) Impairments**: QoL was most severely impacted in the psychological (mean score: 43.8) and social domains (mean score: 39.2), reflecting the emotional strain and interpersonal challenges associated with infertility.
3. **Adaptive Coping Strategies Improve Outcomes**: Participants employing problem-focused coping strategies, such as planning and active coping, reported better psychological outcomes and higher QoL scores compared to those relying on maladaptive strategies like denial and self-blame.

Comparison with Literature

This study corroborates findings from prior research while contributing unique insights:

1. **Consistency with Existing Studies**:
    - The high prevalence of psychiatric morbidity is consistent with reports from studies conducted in similar cultural and healthcare settings (Greil ,2010; Dyer ,2005).
    - The psychological and social domain impairments align with findings from WHOQOL-BREF applications in infertile populations (Zeng ,2017).
2. **Unique Contributions**:
    - This study adds a nuanced understanding of coping strategies, emphasizing the superiority of adaptive (problem-focused) over maladaptive approaches.
    - It identifies domain-specific QoL deficits, particularly in social relationships, which remain underexplored in prior research.

Implications

The findings of this study have significant clinical, policy, and research implications:

1. **Clinical Implications**:
    - Integrating mental health support into infertility care is imperative. Routine screening for anxiety and depression in infertility clinics can facilitate early intervention.
    - Psychosocial interventions, such as counseling and support groups, should emphasize teaching adaptive coping strategies to mitigate distress and improve QoL.
2. **Policy Implications**:
    - Awareness campaigns are necessary to reduce stigma surrounding infertility and its psychological impacts.
    - Policymakers should advocate for accessible mental health services tailored for women undergoing infertility treatment.
3. **Research Implications**:
    - There is a need for longitudinal studies to explore the causal relationships between psychiatric morbidity, QoL impairments, and coping strategies.
    - Evaluating the effectiveness of targeted interventions, such as cognitive-behavioral therapy, in improving outcomes for infertile women should be prioritized.

Strengths and Limitations

1. **Strengths**:
    - This study is among the few to comprehensively evaluate psychiatric morbidity, QoL, and coping mechanisms simultaneously in infertile women.
    - The use of validated tools (HAMA, HDRS, WHOQOL-BREF, Brief COPE) ensures the reliability and comparability of findings.
2. **Limitations**:
    - The single-center design limits the generalizability of results to other cultural or clinical settings.
    - Selection bias may have occurred, as participants attending tertiary clinics may differ from those in other care settings or not seeking care at all.

Future Directions

To build on these findings, future studies should:

1. Conduct interventional trials to evaluate the effectiveness of coping-skills training and psychosocial support interventions.
2. Explore cultural and gender-specific factors influencing the psychological impact of infertility.
3. Implement multicenter, longitudinal designs to assess changes in psychiatric morbidity and QoL over time and with treatment outcomes.

Table: Comparison with Prior Studies

Study	**Sample**	**Psychiatric Morbidity**	**QoL Domains Impacted**	**Key Findings on Coping**
Greil ,(2010)	200 infertile women	40% depression, 45% anxiety	Psychological, Social	No focus on coping mechanisms
Zeng ,(2017)	150 infertile couples	High distress in low-support groups	Psychological, Physical	Highlighted the role of resilience
Current Study	300 infertile women	47% anxiety, 35% depression	Psychological, Social	Problem-focused coping improves outcomes

Conclusion

This study underscores the significant psychological and social challenges faced by women experiencing infertility. Nearly half of the participants reported clinically significant anxiety, and over one-third exhibited depressive symptoms. Quality of life (QoL) was notably impaired, particularly in the psychological and social domains, reflecting the profound emotional burden and interpersonal difficulties associated with infertility. Moreover, the findings highlight the critical role of coping strategies, with problem-focused approaches being associated with better psychological outcomes and higher QoL.

From a clinical perspective, these results emphasize the need to integrate routine mental health evaluations into infertility care. Screening for psychiatric morbidity, alongside targeted interventions such as counseling and coping skills training, can significantly enhance patient well-being. Policy implications include increasing awareness about the psychological impact of infertility and advocating for accessible mental health resources in fertility treatment centers.

Given the complexity of infertility's psychosocial impact, future research should focus on longitudinal studies to explore causal relationships and interventional trials to evaluate the effectiveness of psychosocial support programs. Addressing the mental health needs of infertile women is crucial for fostering resilience, improving outcomes, and ultimately enhancing their overall quality of life.

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