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ORIGINAL ARTICLE

# Psychosocial Predictors of Anxiety and Depression in Women with Polycystic Ovary Syndrome: A Cross-Sectional Study

**Suman Kotwal, Vishal R Tandon***

## Abstract

**Background:** Women with polycystic ovary syndrome (PCOS) frequently experience psychological distress, including anxiety and depression. However, few studies in low- and middle-income countries have examined psychosocial predictors, particularly using symptom-specific quality-of-life instruments. **Objective:** To assess the influence of patient activation, body image dissatisfaction, and perceived social support on anxiety and depression in women with PCOS, and to evaluate symptom-specific associations using the Modified PCOS Questionnaire (M-PCOSQ). **Methods:** In this cross-sectional study conducted at a tertiary care hospital in India, 100 women diagnosed with PCOS according to Rotterdam criteria were assessed. Participants completed the Hospital Anxiety and Depression Scale (HADS), the Multidimensional Scale of Perceived Social Support (MSPSS), the Patient Activation Measure (PAM-13), the Modified Body Image Scale, and the M-PCOSQ. Correlation and multiple linear regression analyses were performed. **Results:** Clinical anxiety and depression were observed in 61% and 42% of participants, respectively. Poor social support significantly predicted both anxiety (beta= -0.592, $p < 0.001$) and depression (beta = -0.313, $p = 0.004$). Body image dissatisfaction was associated with depression (beta = 0.286, $p = 0.011$), and low patient activation was linked to anxiety (beta = 0.286, $p = 0.005$). Among M-PCOSQ domains, menstrual irregularities and infertility concerns were most strongly associated with anxiety ($r = 0.730$ and $r = 0.800$, respectively), while emotional disturbances correlated with depression ($r = 0.340$, $p = 0.040$). Regression models explained 36.6% and 39.9% of variance in depression and anxiety, respectively. **Conclusion:** In women with PCOS, low social support, poor patient activation, and body image dissatisfaction significantly contribute to psychological morbidity. Symptom-specific concerns such as menstrual irregularities, infertility, and emotional symptoms are critical in identifying at-risk individuals. Routine mental health screening and psychosocial interventions should be integral to PCOS management.

## Key Words

PCOS, Anxiety, Depression

## Introduction

Polycystic ovary syndrome (PCOS) is a prevalent endocrine disorder affecting up to 11% of reproductive-age women in India and globally [1,2]. Although it is primarily diagnosed through metabolic and reproductive symptoms, PCOS also imposes a substantial psychological burden, with high rates of anxiety and depression [3,4]. Mental health screening remains underutilized in routine PCOS care, particularly in low-resource settings [5]. The psychological impact of PCOS is influenced not only by hormonal and metabolic factors but also by

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sociocultural stressors, including infertility, body image dissatisfaction, and emotional distress [6]. The Modified PCOS Questionnaire (M-PCOSQ) offers a domain-specific approach to understanding quality-of-life impairment in this population [7]. Additionally, psychosocial factors such as perceived social support and patient activation, the capacity to manage one's healthare potential modifiers of emotional outcomes in PCOS but remain under-investigated.

This study aimed to evaluate the impact of these modifiable psychosocial predictors on anxiety and depression in Indian women with PCOS, using standardized tools and domain-specific quality-of-life assessments.

**Methods**

Design and Participants

A cross-sectional study was conducted over 12 months at a tertiary hospital in India. A total of 100 women aged 18-40 years with a diagnosis of PCOS based on Rotterdam criteria were recruited. Women with known psychiatric illness, pregnancy, or lactation were excluded. Ethical approval was obtained from the Institutional Ethics Committee.

Assessments: Validated questionnaires were administered in Hindi or English:

"HADS to assess anxiety and depression [8]

"MSPSS to evaluate perceived support from family, friends, and significant others [9]

"PAM-13 to assess health activation and self-management [10]

"Modified Body Image Scale to measure dissatisfaction related to hirsutism, acne, and weight

"M-PCOSQ, including domains on menstrual abnormalities, emotional disturbances, body hair, weight control, and infertility [11]

**Statistical Analysis**

Pearson correlation assessed bivariate relationships. Multiple linear regression identified predictors of anxiety and depression. Significance was set at $p < 0.05$.

**Results**

The mean age of participants was $24.6 \pm 4.7$ years. Based on HADS, 61% had clinical anxiety and 42% had

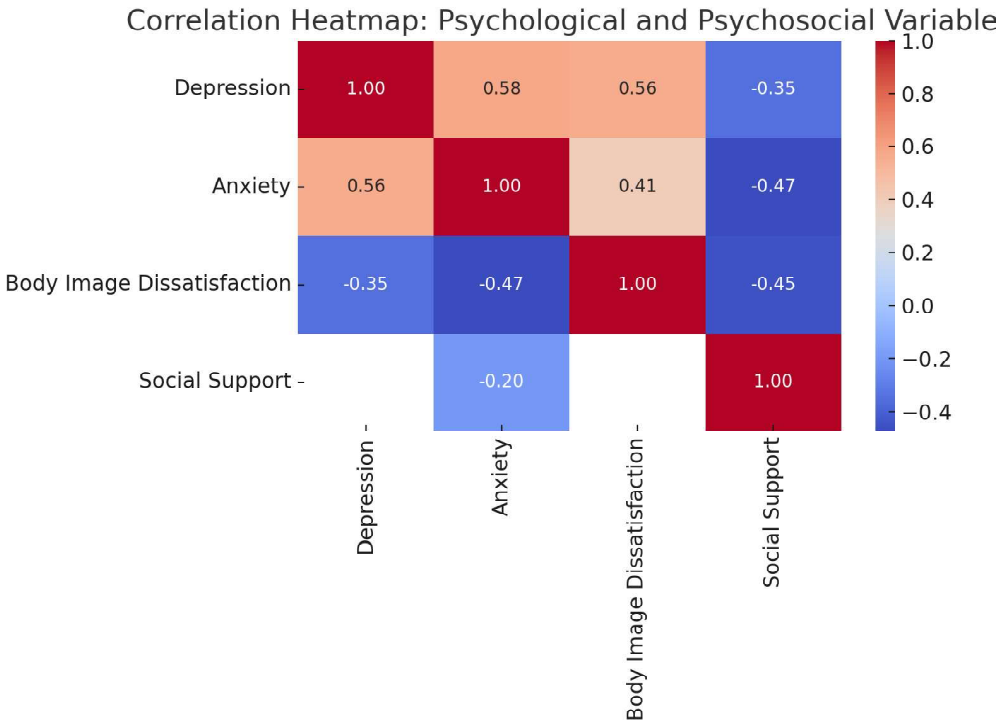
**Table 1. Demographic and Clinical Characteristics of Participants (n = 100)**

| Variable | Value |
|---|---|
| Age (years) | 24.6 ± 4.7 |
| Clinical anxiety (HADS =8) | 61% |
| Clinical depression (HADS =8) | 42% |
| Low patient activation (PAM level 1 or 2) | 60% |
| Body image dissatisfaction | 52% |
| Low perceived social support | 58% |

**Table 2. Predictors of Depression and Anxiety (Multiple Linear Regression)**

| Outcome | Predictor | Beta (β) | p-value |
|---|---|---|---|
| Depression | Body image dissatisfaction | 0.286 | 0.011 |
| Depression | Social support | -0.313 | 0.004 |
| Anxiety | Social support | -0.592 | <0.001 |
| Anxiety | Patient activation | 0.286 | 0.005 |
| Anxiety | Age | 0.295 | 0.001 |

**Figure 1. Correlation Heatmap of Psychological and Psychosocial Variables**




depression. Most participants (60%) had low patient activation scores (PAM levels 1 or 2). Body image dissatisfaction was present in 52%, and low social support in 58%. On correlation analysisDepression was associated with body image dissatisfaction ($r = 0.557$, $p < 0.001$) and low social support ($r = -0.350$, $p < 0.001$). Anxiety correlated with low social support ($r = -0.473$), low patient activation ($r = -0.203$).Among M-PCOSQ domains, menstrual irregularities ($r = 0.730$, $p < 0.001$) and infertility concerns ($r = 0.800$, $p < 0.001$) showed the strong positive association with anxiety, while emotional disturbances correlated with depression ($r = 0.340$, $p = 0.040$).

Regression models identified:Depression predictors: body image dissatisfaction (beta = 0.286, $p = 0.011$) and low social support (beta = -0.313, $p = 0.004$), Adjusted $R^2 = 0.366$. Anxiety predictors: low social support (beta = -0.592, $p < 0.001$), older age (beta = 0.295, $p = 0.001$), and poor patient activation (beta = 0.286, $p = 0.005$), Adjusted $R^2 = 0.374$

**Discussion**

This study highlights the critical role of psychosocial factors in predicting anxiety and depression among women with PCOS. Social support emerged as a strong protective factor against both conditions, consistent with findings that emotionally supported individuals manage chronic illness more effectively [6-12].Numerous studies have established a higher prevalence of anxiety (up to 60%) and depression (up to 50%) in women with PCOS compared to controls [5-7]. Despite this high burden, mental health screening is not routinely incorporated into PCOS management, especially in low- and middle-income countries. The reasons for this oversight may be rooted in the lack of evidence about specific psychological determinants and modifiable risk factors within this population.

Perceived social support was the most robust protective factor against both anxiety and depression. This finding aligns with existing evidence and reinforces the idea that women who feel emotionally supported are better equipped to handle the psychosocial challenges of PCOS [6,8]. Social support not only acts as a buffer against stress but may also facilitate better health-seeking behaviour, treatment adherence, and coping mechanisms.

The role of patient activation deserves special mention. Women with higher activation scores who felt more in

control of their health had lower anxiety scores, independent of age or other variables. This suggests that interventions targeting self-efficacy, health literacy, and behavioural activation may be particularly effective in mitigating anxiety in PCOS.

Body image dissatisfaction predicted depression, likely reflecting the internalized stigma of visible symptoms such as hirsutism and obesity [7]. In contrast, infertility concerns and menstrual irregularities were the dominant anxiety triggers, especially in cultures where fertility is central to female identity [13]. Patient activation, though rarely studied in PCOS, showed a meaningful inverse association with anxiety, suggesting that empowering women to manage their health may reduce psychological distress [14] .

Limitations include the cross-sectional design and single-centre sample. Nonetheless, this is among the few studies to integrate M-PCOSQ domain data with psychosocial metrics in an Indian context.

## Conclusion

In women with PCOS, low perceived social support, body image dissatisfaction, and poor health activation significantly contribute to anxiety and depression. Domain-specific impairments, particularly menstrual irregularities and infertility, further exacerbate psychological burden. Incorporating mental health screening and psychosocial interventions into standard PCOS care is essential, especially in resource-limited settings.

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