

## Beyond the Physical: Mental Health and Quality of Life in Women with Polycystic Ovarian Syndrome (PCOS)

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Polycystic ovarian syndrome, the most common endocrine disorder in women of reproductive age, presents diverse physical symptoms that often carry a psychological burden. The mental health effects of PCOS remain insufficiently studied in Indian women. The present study attempted to assess the quality of life (QoL) and mental health status of Indian women with a diagnosis of PCOS. A comparative correlational survey was conducted with 94 women aged 16–45, including 50 having PCOS and 44 healthy controls, recruited through purposive sampling. With Modified PCOSQ, participants' QoL was assessed and a mental health assessment was conducted with the Brief Symptom Inventory (BSI). The results showed that participants living with PCOS had significantly lower QoL ( $t = 17.271$ ,  $p < 0.001$ ) and higher psychiatric symptoms, especially somatization, anxiety, and psychoticism. These findings emphasize the need for integrated PCOS care that includes mental health support, counseling, and early intervention alongside physical treatment.

**Keywords:** Polycystic Ovarian Syndrome, Mental health, Indian Women, Quality of life.

Polycystic ovarian syndrome, the most common endocrine disorder among women of reproductive age (March et al., 2010) was first identified by Stein and Leventhal in 1935. It is also referred to as hyperandrogenic anovulation or Stein-Leventhal syndrome (Stein & Leventhal, 1935; Azziz & Adashi, 2016). The World Health Organisation estimates that 6–26% of women globally are affected by PCOS (Bozdogan et al., 2016).

PCOS manifests with a wide range of symptoms, including amenorrhea, oligomenorrhea (Cunha & Povoas, 2021), hirsutism (Spritzer et al., 2016), acne (Francic et al., 2018), weight gain or obesity (Barber et al., 2019), subfertility or infertility, anovulation, insulin resistance, androgenic alopecia (Prasad et al., 2020), and acanthosis nigricans (O'Brien et al., 2020). Associated health risks include sleep apnea (Kumarendran et al., 2019), type 2 diabetes (Gambineri et al., 2012), hypertension,

dyslipidemia (Persson et al., 2021), increased visceral adiposity (Vilmann et al., 2013), endometrial cancer (Ding et al., 2018), and cardiovascular disease (Wild et al., 2011).

The underlying mechanisms of PCOS are complex, involving hyperandrogenism and hyperinsulinemia, with elevated insulin levels likely contributing to increased testosterone production (Pateguana & Janes, 2019). Diagnosis is based on the Rotterdam criteria, which require any two of the clinical conditions: oligo- or anovulation, hyperandrogenism, and polycystic ovaries (Rotterdam, 2004). These features may persist beyond reproductive years (Norman et al., 2004).

The PCOS has been linked to genetics, insulin resistance, chronic inflammation, and excess androgen production, however, its precise etiology remains blur. A familial history, particularly involving the mother or

sister, increases the risk (Dunaif, 1993). Insulin resistance, a key contributor, impairs the ability of cells to use glucose effectively. In response, the pancreas secretes more insulin, which may elevate androgen levels and disrupt ovulation (Purwar & Nagpure, 2022; Zhao et al., 2023; Azziz, 2018). Visible signs include acanthosis nigricans, weight gain, and intense food cravings.

Chronic low-grade inflammation is another contributor, as it prompts the ovaries to produce more androgens, potentially affecting cardiovascular function (Rudnicka et al., 2021; Kelly et al., 2002). Excess testosterone also prevents regular egg release and leads to acne and hirsutism (Rodriguez-Paris et al., 2019).

Beyond its physical symptoms, PCOS has significant psychological consequences. Infertility, hirsutism, and acne are known to cause distress, impacting sexual well-being and overall mental health (Podfigurna-Stopa et al., 2015). Adolescents with PCOS often report lower health-related quality of life (HRQOL), behavioral issues, and family disruptions (Barnard et al., 2007; Dokras et al., 2012). Symptoms such as dyspnea and palpitations can further heighten anxiety (Barry et al., 2011; Rasgon et al., 2003). Women in later reproductive years' experience diminished self-perceived health and life satisfaction (Karjula et al., 2020).

Cravings linked to insulin resistance can lead to binge eating, guilt, and psychological distress, exacerbating mental health challenges (Runfola et al., 2014; Pirodda et al., 2019). Hormonal imbalances have also been associated with mood disorders such as depression, anxiety, and bipolar disorder (Chaudhari et al., 2018; Brutocao et al., 2018).

The World Health Organization (1946) defines quality of life (QoL) as a state of complete physical, mental, and social well-being. It encompasses various life domains,

including independence, relationships, psychological health, and environmental factors (WHOQoL Group, 1995; Kaplan, 1982). Studies show that PCOS significantly lowers QoL (Brady et al., 2009; Coffey & Mason, 2003), yet its psychological impacts are often overlooked (McCook et al., 2005).

Barry et al. (2017) highlighted the need for more nuanced tools to assess QoL in females living with PCOS. Consequently, this study adopted the PCOS-specific QoL measure (PCOSQ) instead of the general WHO-QoL to better capture condition-related challenges.

Women diagnosed with PCOS typically present a combination of symptoms absent in healthy individuals. Mental health is closely linked to physical health, and untreated psychological symptoms can deteriorate overall health. Chronic illnesses like PCOS may lead to neglect of psychological care (Moorthi et al., 2021).

Research consistently reports elevated rates of anxiety and depression among females with PCOS (Mansson et al., 2008). Consequently, both global (Bellver et al., 2018) and Indian (Malik et al., 2014) guidelines advocate for regular screening for these conditions. Two Indian studies reported anxiety prevalence of 28% and 39%, and depression at 11% and 25%, respectively (Hussain et al., 2015; Upadhyaya et al., 2016). Sundararaman & Sridhar., (2008) found that obesity, acne, infertility, and hirsutism were significantly correlated with psychological distress.

The psychological toll of infertility alone can substantially lower QoL in women having PCOS (Volgsten et al., 2008; Barnard et al., 2007). Depression rates in these women (14–67%) run much higher than those in the general population (4–6%) (Legro et al., 1999).

### Need of the study

The psychological burden of PCOS in Indian women remains underexplored, with available literature being fragmented and inconsistent. This gap is concerning given the high prevalence and impact of PCOS on mental health. As far as can be determined from the existing studies, this is among the first to offer a comprehensive exploration of PCOS-related mental health and QoL in the Indian population.

### Objective:

To assess the QoL and mental health of women diagnosed with PCOS.

### Hypotheses:

H1: Women diagnosed with PCOS would report poor QoL compared to their healthy counterparts.

H2: Women diagnosed with PCOS would report poor mental health compared to their healthy counterparts.

### Method

#### Sample:

Total sample comprised 94 women (N=94) of reproductive age (16-45 years) drawn with purposive sampling method from the state of Kerala. The clinical sub-group was of 50 women ( $n_1=50$ ) having polycystic ovarian syndrome while the healthy comparative sub-group comprised of another 44 women ( $n_2=44$ ) not having PCOS. The clinical sub-group was diagnosed with PCOS as per Rotterdam criteria.

Inclusion criteria	Exclusion criteria
Females suffering from PCOS	Patients who have consulted a psychiatrist or are already diagnosed as having mental illness
Oligo-ovulation and or anovulation	Patients having a concurrent significant medical illness
Hyperandrogenism	Non-cooperative and unmotivated individuals
Female patients in reproductive age group (16-45)	
Patients who give informed consent	

### Basic Sociodemographic Information

The study comprised 94 participants, including 50 women diagnosed with PCOS and 44 healthy counterparts, reflecting a nearly equal distribution between the groups. Participants were drawn from both rural areas (63.8%) and semi-urban areas (36.2%). Educational backgrounds were also varied, with 57.9% holding undergraduate degrees, 27.4% educated below the undergraduate level, and 13.7% having completed postgraduate studies. Marital status was similarly balanced, with 45.3% married and 54.7% unmarried. Overall, the sample demonstrated a reasonably even representation across key demographic variables.

### Measures and Tools:

*Modified Polycystic Ovarian Syndrome Questionnaire (MPCOSQ)* (Cronin et.al., 1998): It is a valid instrument for assessing QoL in females with PCOS. Its unmodified version assesses five areas; emotional problems, body hair, weight, infertility problems, and menstrual problems. The modified version further added menstrual predictability and acne problems. The PCOSQ has good internal reliability (Cronbach's  $\alpha \geq 0.70$  and test-retest reliability (Cronbach's  $\alpha \geq 0.89$ ). Jones and colleagues (2008) identified that its validity is enhanced with the addition of questions about acne.

*Brief Symptom Inventory* (Derogatis, 1993): The Brief symptom inventory (BSI) consists of 53 items covering 9 symptom dimensions of: somatization, interpersonal sensitivity, obsession-compulsion, depression, anxiety, hostility, paranoid ideation, phobic anxiety, and psychoticism; and prominent global indices of distress: global severity index, positive symptom distress index, and positive symptom total. The global indices measure the current or past level of symptomatology, intensity of symptoms, and number of reported symptoms, respectively. Good internal consistency/reliability for the 9 dimensions is reported high, ranging from .71 on psychoticism to .85 on depression.

**Procedure:**

Data collection for the current study was conducted in two phases. In the first phase,

women of reproductive age and diagnosed with PCOS were selected based on predefined inclusion and exclusion criteria. After obtaining informed consent, the selected psychological tools were administered to the participants. In the second phase, a comparative group of healthy women was identified, and data were collected from them using a standardized procedure. The ethical guidelines outlined by the American Psychological Association (APA, 2016) and the Declaration of Helsinki (Ashcroft, 2008) were strictly adhered to throughout the research involving human participants. Data handling and statistical analysis were conducted using the Statistical Package for the Social Sciences, version 22 (SPSS-22).

**Results**

Table 2: Descriptive statistics (Mean & SD) and inferential statistics (t-ratio) comparing PCOS women with their healthy counterparts on QoL and mental health (psychiatric symptomology)

variables	Health condition	N	Mean	Std. deviation	t-ratio	significance
PCOS-QOL	Healthy	44	190.48	15.78	17.27	0.01
	PCOS	50	110.24	28.21		
BSI- Somatization	Healthy	44	53.67	3.52	3.87	0.01
	PCOS	50	59.13	9.22		
BSI- Obsession compulsion	Healthy	44	56.96	7.10	6.82	0.08
	PCOS	50	68.19	8.83		
BSI- Interpersonal sensitivity	Healthy	44	57.72	6.96	5.70	0.05
	PCOS	50	71.30	15.08		
BSI- Depression	Healthy	44	55.40	6.73	5.76	0.11
	PCOS	50	64.10	7.89		
BSI- Anxiety	Healthy	44	54.51	4.74	7.76	0.01
	PCOS	50	64.46	7.51		
BSI - Hostility	Healthy	44	56.63	6.23	8.79	0.05
	PCOS	50	70.20	8.64		
BSI- Phobic anxiety	Healthy	44	52.8	3.81	4.83	0.05
	PCOS	50	58.36	6.92		
BSI- Paranoid ideation	Healthy	44	53.90	4.91	3.42	0.01
	PCOS	50	59.52	10.32		
BSI- Psychoticism	Healthy	44	53.90	4.66	3.43	0.01
	PCOS	50	59.08	9.42		

Note: PCOSQOL: Polycystic Ovarian Syndrome Quality of Life Questionnaire, BSI: Brief Symptom Inventory.

An independent sample t-test was conducted to compare the QoL and psychiatric symptomatology for women having PCOS and their healthy counterparts. Results revealed a significant difference in quality of life ( $t = 17.27, p < 0.01$ ), with higher scores in healthy women ( $M = 190.48, SD = 15.79$ ) compared to women diagnosed with PCOS ( $M = 110.24, SD = 28$ ), supporting H1. Women having PCOS also exhibited significantly higher psychiatric symptoms. Somatization ( $t = 3.87, p < 0.01$ ), anxiety ( $t = 7.76, p < 0.01$ ), hostility ( $t = 8.79, p < 0.01$ ), phobic anxiety ( $t = 4.83, p < 0.05$ ), paranoid ideation ( $t = 3.42, p < 0.01$ ), and psychoticism ( $t = 3.43, p < 0.01$ ) were all elevated in the PCOS group. Mean scores across these domains consistently showed higher symptom severity in participants living with PCOS. These findings support H2 and highlight the significant psychological burden and poorer quality of life experienced by participants living with PCOS compared to their healthy peers.

### Discussion

A varied range of symptoms is linked with the clinical condition of PCOS, which also has psychological manifestations. While the physical problems of PCOS are well documented, its impact on mental health is still a matter of debate. Thus, the current study attempted to assess the mental health and quality of life of women of reproductive age having a diagnosis of PCOS.

The findings of the present study indicate poor mental health and reduced quality of life (QoL) in participants living with PCOS. Participants with PCOS reported significantly higher psychiatric symptomatology—including somatization, interpersonal sensitivity, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism—

compared to healthy women. They also showed reduced QoL across all seven dimensions of the PCOSQ: emotional disturbances, weight concerns, infertility, acne, menstrual symptoms, irregular cycles, and hirsutism.

This is a concerning trend, likely driven by the complex interplay of physical and psychological symptoms associated with PCOS. Chronic stress and emotional regulation difficulties may contribute to reduced QoL in women diagnosed with PCOS (Sanchez-Ferrer et al., 2020; Brady et al., 2009; Dey, 2018; Naumova et al., 2020). Habib et al. (2021) also reported that women diagnosed with PCOS have greater vulnerability for mental health issues, with around 20% experiencing significant depression and 25% suffering from major anxiety. Additionally, Cooney and Dokras. (2017), in their systematic review and meta-analysis, found that females with PCOS have a significantly higher risk of developing depression than their non-PCOS counterparts, underscoring the urgency for integrated psychological care.

Socio-cultural factors play an important role in shaping the experiences of females affected by PCOS. Due to physical symptoms like hirsutism, acne, and weight gain, many women face stigma and discrimination, which negatively affect various aspects of life—including family dynamics, relationships, work, social participation, and overall QoL (Hariprasath et al., 2023; Sayyah-Melli et al., 2015). A major concern is the widespread lack of awareness and understanding of PCOS in society, which contributes to this marginalization.

Recent studies have shown that health-related QoL (HRQoL) in participants with PCOS worsens in the presence of comorbidities, particularly poor psychological health and obesity (Joshi et al., 2023). Psychological distress remains a core issue,

with studies consistently reporting reduced QoL across all domains—emotional, physical, and social (Chaudhari et al., 2018; Ramya et al., 2019). Depression affects over 70% of women on anti-androgen medications and 67% of those not on them (Barnard et al., 2007; Coffey et al., 2006).

Further, psychiatric comorbidities such as anxiety, major depression, bipolar disorder, OCD, ADHD, and eating disorders are significantly more prevalent among individuals diagnosed with PCOS (Hussain et al., 2015; Brutocao et al., 2018; Rodrigues-Paris et al., 2019; Karjula et al., 2020; McCook et al., 2005). These mental health conditions further compromise their QoL and may impact PCOS outcomes.

Future investigations should consider these critical factors when studying females living with PCOS. Specifically, investigations aimed at understanding the underlying causes of their psychological and physical distress would benefit from mixed-methods designs, qualitative approaches, and longitudinal studies. Employing advanced statistical analyses, such as regression models, could further enhance understanding of potential cause-and-effect relationships within this population.

Policymakers and service providers are encouraged to design targeted intervention strategies that address the pressing mental health needs of women navigating the medical condition of PCOS. Early screening and identification of psychological issues in this group are both essential and justified, as indicated by the high prevalence of mental health concerns.

The present study findings significantly contribute to clinical assessments and comparative analyses. Furthermore, more culturally sensitive research is needed to examine psychiatric symptomatology and quality of life among women navigating PCOS. Such studies would help bridge the

current research gap by exploring the role of cultural determinants in shaping the psychological well-being of this vulnerable demographic.

Those impacted by PCOS reported significantly higher levels of psychiatric symptomatology during mental health assessments, alongside notably poorer health-related quality of life (HRQoL), compared to their healthy counterparts. These findings underscore the pressing need for comprehensive, targeted interventions that address not only the physical but also the psychological dimensions of PCOS.

At present, treatment for PCOS remains predominantly medical, often failing to adequately acknowledge or manage the psychological burden experienced by affected women. This gap in care may delay recovery, reduce treatment adherence, and worsen overall outcomes. It is therefore essential to integrate mental health support—through counselling, psychoeducation, and routine psychological screening—into standard PCOS management. Greater public and professional awareness of the emotional and psychological challenges linked to PCOS is also crucial.

### **Implications**

The findings highlight the urgent need for integrated care in managing PCOS, combining both medical and psychological support. Routine mental health screening and early interventions should be incorporated into treatment protocols to alleviate and reduce the prevalence of depression, anxiety, and QoL. Policymakers and healthcare providers must develop culturally sensitive, multidisciplinary interventions and raise public awareness to reduce stigma. Additionally, future research should explore causal relationships and long-term outcomes through longitudinal and mixed-method approaches towards holistic and effective

treatment strategies for women navigating PCOS.

### Conclusion

The findings establish that PCOS is associated with both poor mental health, reflected in elevated psychiatric symptomatology, and reduced quality of life. To ensure more effective and sustainable outcomes, future healthcare strategies must adopt a multidisciplinary approach that combines medical treatment with psychological support. Early identification of mental health concerns, culturally sensitive interventions, and increased awareness at both community and clinical levels are imperative for improving the overall well-being and life satisfaction of women diagnosed with PCOS.

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