

# Psychological Impact on Mental Health and Well-being in Women with Polycystic Ovary Syndrome (PCOS): A Narrative Review

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## ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder among women of reproductive age, associated with various health impacts. It is characterised by hormonal imbalances, such as hyperandrogenism and insulin resistance, which lead to metabolic and reproductive complications. Beyond the physical symptoms, PCOS has significant psychological consequences, including an increased prevalence of mental health disorders like depression and anxiety. This narrative review focuses on the psychological impact of PCOS, specifically on depression, anxiety, and quality of life (QoL), by analysing studies published between 2000 and 2023 through systematic searches on PubMed, Google Scholar, and Medline. The review finds that women with PCOS are more likely to experience major depressive disorder (MDD) and generalised anxiety disorder (GAD) compared to women without the condition. These mental health challenges are often linked to physical manifestations such as hirsutism, obesity, and infertility, which negatively affect body image and self-esteem. Additionally, hormonal disturbances, particularly hyperandrogenism and insulin resistance, further exacerbate mood disorders. The findings suggest that a comprehensive approach to treatment is essential, integrating psychological support alongside medical care for PCOS. The review highlights the need for future research to adopt standardised diagnostic criteria and larger, diverse samples to better understand the full psychological impact of PCOS on women's health and quality of life.

**Keywords:** Polycystic Ovary Syndrome (PCOS); mental health; depression; anxiety; quality of life; hyperandrogenism; insulin resistance; infertility.

## INTRODUCTION

PCOS is one of the most common endocrinological disorders among women of reproductive age, with global prevalence estimates ranging from 6% to 15% [1,2]. It is characterised by irregular menstrual cycles, clinical or biochemical signs of hyperandrogenism, and polycystic ovarian morphology on ultrasound [3]. In addition to its metabolic and reproductive complications, PCOS has significant psychological consequences, with many women experiencing anxiety, depression, and reduced QoL [4,5].

Several studies have highlighted the higher prevalence of psychological disorders, particularly depression and anxiety, among women with PCOS compared to those without the condition [5,6,7]. Barry et al. conducted a meta-analysis which found that women with PCOS had significantly higher odds of experiencing depression and anxiety compared to women without the condition. The study demonstrated that the prevalence of both depression and anxiety was substantially higher in women with PCOS, highlighting the significant psychological burden associated with the syndrome [4].

Such psychological distress can be attributed to the visible symptoms of PCOS, including obesity, hirsutism, and acne, which often lead to body dissatisfaction and low self-esteem [8].

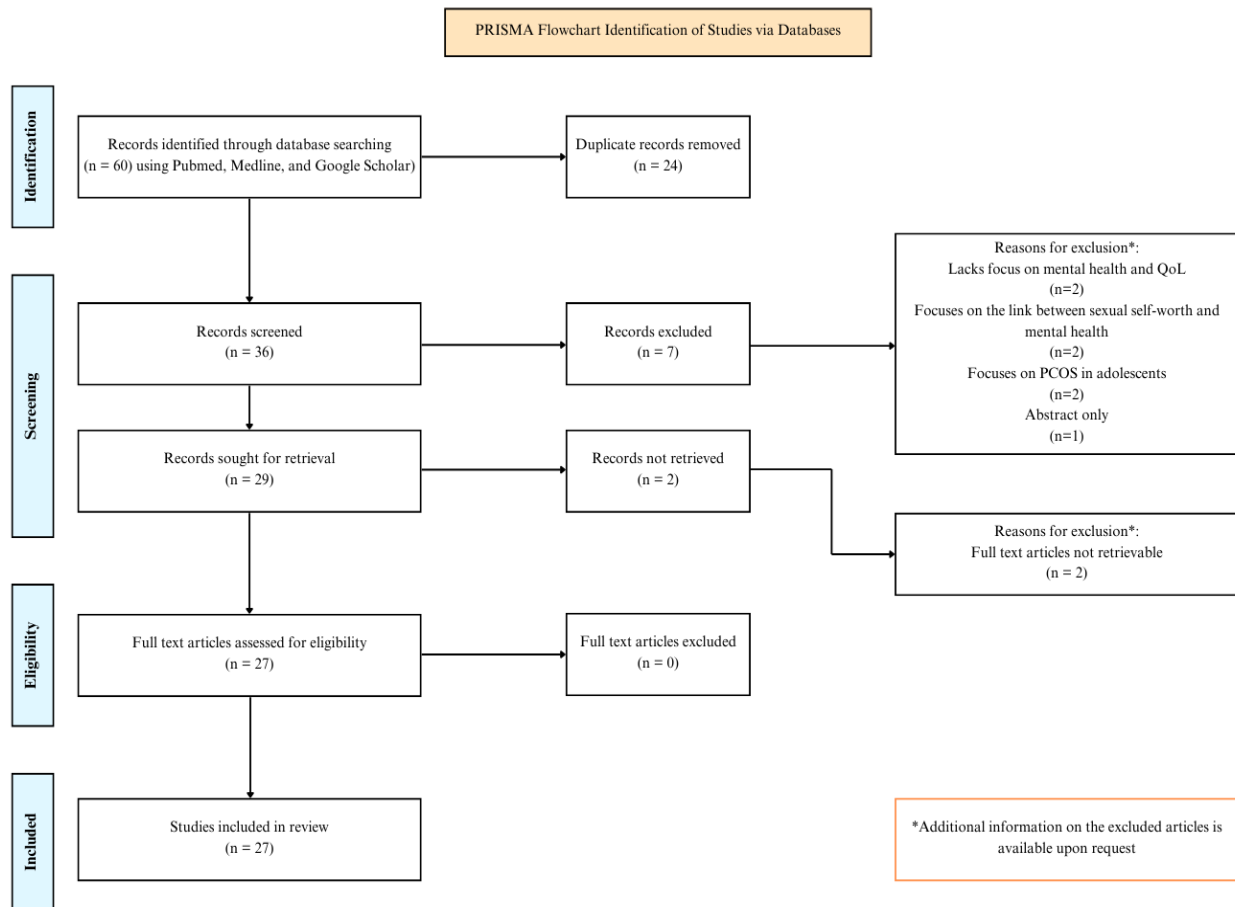
Furthermore, the hormonal and metabolic dysfunctions associated with PCOS, such as hyperandrogenism and insulin resistance, have been linked to mood disturbances. Elevated androgen levels, particularly testosterone, have been shown to contribute to mood disorders, while insulin resistance, a common feature of PCOS, is associated with poorer mental health outcomes [9]. Women with PCOS also face fertility challenges, and infertility is a well-documented source of emotional distress, often leading to increased anxiety and depressive symptoms [10].

Given the substantial psychological burden faced by women with PCOS, it is critical to understand how these mental health issues contribute to a diminished QoL compared to women without the syndrome. This review will explore the psychological impact of PCOS, with a focus on depression, anxiety, and overall life satisfaction, using evidence from several key studies.

## METHODOLOGY

For this narrative review, a systematic search of the literature was conducted using PubMed, Google Scholar, and Medline. The search terms used were "PCOS", "mental health", "quality of life", "depression", "anxiety", and "well-being".

The review focused on studies that directly compared the mental health outcomes and QoL of women with PCOS to those without the condition. Only peer-reviewed articles published in English between 2000 and 2023 were included. A PRISMA flowchart detailing the study selection process is provided below.



**FIGURE 1:** PRISMA Flowchart Identification of Studies via Databases.

## DISCUSSION

The psychological impact of PCOS is multifaceted, arising from an interplay of hormonal, metabolic, and psychosocial factors. Women with PCOS are significantly more likely to experience depression and anxiety than women without the syndrome, which contributes to a diminished QoL [11,12,13,14]. A meta-analysis by Veltman-Verhulst et al. found that women with PCOS have a nearly threefold increased risk for depression and a twofold increase in anxiety, underscoring the substantial mental health burden associated with the condition [15]. Moreover, several studies indicate that women with PCOS are more likely to meet DSM-5 criteria for specific psychiatric disorders, particularly MDD and GAD, compared to women without PCOS [5,6]. These findings emphasise the importance of mental health evaluations within PCOS care, as many affected women may not receive sufficient psychological support to address these complex mental health challenges [16,17,18].

The physical symptoms associated with PCOS, including weight gain, hirsutism, and acne, further aggravate psychological distress, affecting self-esteem and body image, which emphasises the importance of emotion-focused therapies [17].

The physical visibility of symptoms can cause significant social discomfort and self-consciousness, leading to a cycle of avoidance and reduced self-worth. Additionally, hormonal imbalances inherent to PCOS, particularly hyperandrogenism and insulin resistance, are known to exacerbate mood disturbances [19,20]. Cinar et al. and Hahn et al. found that elevated androgen levels correlate with emotional instability and irritability, likely due to their effect on neurotransmitter pathways involved in mood regulation [2,19]. Similarly, insulin resistance, a key metabolic feature of PCOS, impacts neurotransmitter function, which contributes to higher rates of anxiety and depression among women with PCOS [2,21]. Studies by Davitadze et al. and Jones et al. reveal that body image dissatisfaction is highly prevalent among women with PCOS, with symptoms often leading to social withdrawal and a heightened risk for depression and anxiety [16,22]. These findings underscore the necessity of a comprehensive treatment approach that addresses both hormonal and psychological health in PCOS [23].

Infertility is also a prominent contributor to the psychological burden of PCOS, as many women with the condition experience anovulation and irregular

ovulation, which complicates their ability to conceive. The emotional toll of infertility is particularly pronounced in societies where motherhood is highly valued, leading to increased distress, self-blame, and feelings of inadequacy in women with PCOS [13,14]. Li et al. reported that infertility-associated psychological distress in women with PCOS often manifests as depression and a sense of hopelessness [18]. This distress is compounded by societal and familial pressures surrounding motherhood, which can exacerbate feelings of failure and social isolation among women who experience infertility [12,18]. Additionally, Bazarganipour et al. found that women from cultures with high expectations around fertility face intensified psychological stress due to PCOS-related infertility, which often leads to strained personal relationships and a diminished QoL [13].

Addressing these emotional challenges through integrated mental health support is essential to improve the QoL of women with PCOS. Research by Sax and Lawson, advocates for incorporating mental health counselling within fertility treatments, as studies show that women with PCOS who receive such support report lower levels of anxiety and depressive symptoms during the fertility process [24]. This integrative approach aligns with findings by Simon et al., who suggest that addressing the mental health implications of infertility within the standard care framework can enhance overall patient satisfaction and improve psychological well-being [25].

Compared to women without PCOS, those with the syndrome consistently report poorer QoL scores across several life domains [12]. Damone et al. and Wang et al. found that women with PCOS experience higher levels of stress, anxiety, and depression and lower life satisfaction across emotional, social, and physical domains [6,14]. These findings suggest that the diminished QoL in PCOS is not simply a consequence of physical symptoms but is shaped by a combination of metabolic, psychological, and social factors unique to the syndrome. Bazarganipour et al. further emphasise that comprehensive care approaches integrating both psychological and physical health support are crucial for improving QoL in women with PCOS [13]. A study by Jeremić found that women with PCOS who received integrated physical and mental health care, reported a 40% increase in life satisfaction compared to those receiving standard care alone, demonstrating the positive impact of a multidisciplinary approach, which is further highlighted by Lau et al. through the need for holistic care [26,27].

Overall, these findings underscore the necessity of addressing both physical and psychological aspects of PCOS in clinical care to improve the well-being of affected women.

### ***Prevalence of Psychological Disorders in Women with PCOS***

Studies consistently show that women with PCOS have a higher prevalence of psychological disorders,

particularly depression and anxiety, compared to women without the condition [3,5,8]. Barry et al., in a systematic review and meta-analysis, reported that women with PCOS were significantly more likely to experience MDD and GAD, even after controlling for body mass index (BMI), indicating that the psychological burden of PCOS extends beyond weight-related factors [4]. This is further supported by Dokras et al. and Veltman-Verhulst et al., who identified that approximately 40% of women with PCOS experience moderate to severe depressive symptoms and 34% suffer from anxiety, demonstrating the substantial mental health burden this population faces [5,15].

Similarly, Damone et al. found that in a community-based sample, women with PCOS reported significantly higher levels of stress, depression, and anxiety than non-PCOS women, suggesting that the psychological toll of PCOS is compounded by both physical and social factors [6]. The physical symptoms of PCOS, such as hirsutism, obesity, and acne, are often visible, affecting self-esteem and leading to social isolation and negative self-perception, contributing to anxiety and depressive symptoms [7,8,16]. Månsson et al. also identified social anxiety as a common issue in PCOS, with many affected women exhibiting intense fear and avoidance of social situations due to concerns about their appearance, particularly in cases involving excessive body hair or weight gain [7]. This indicates a critical need for targeted mental health interventions within PCOS treatment protocols to address the condition's multifactorial psychological impact.

### ***Hormonal and Metabolic Factors***

The hormonal imbalances intrinsic to PCOS, such as elevated androgens and insulin resistance, have been implicated in the development of mood disturbances. Cinar et al. and Cooney & Dokras found that higher levels of testosterone and other androgens correlate with increased anxiety and depressive symptoms in PCOS [2,9]. This is further supported by Hahn et al., who found that increased levels of testosterone are associated with heightened emotional instability and irritability [19]. Hyperandrogenism is believed to influence neurotransmitter systems involved in emotional regulation, particularly affecting serotonin and dopamine pathways, which play a critical role in mood stability [11].

Furthermore, studies have shown that insulin resistance further exacerbates psychological symptoms. Kolhe et al. explain that hyperinsulinemia may impair cognitive and emotional function, contributing to depression [10,11]. A study by AlHussain et al. found that insulin-sensitising treatments, such as metformin, have been associated with improvements not only in metabolic health but also in mental health outcomes [20]. This aligns with Cooney and Dokras, who suggested that addressing metabolic dysfunction could alleviate mood disturbances in PCOS patients [9,10]. Overall, these studies show that insulin resistance exacerbates hormonal imbalances, creating a feedback loop that worsens psychological health and calls for a

comprehensive treatment approach targeting metabolic, hormonal, and psychological aspects [9,11,12,20]. Additionally, new findings indicate that anti-androgen treatments may have dual benefits, addressing both physical symptoms and psychological well-being by regulating hormonal imbalances that contribute to mood disturbances [10].

### **Body Image Dissatisfaction and Self-Esteem**

Body image dissatisfaction is a prominent issue among women with PCOS and a major contributor to psychological distress. Weiner et al. found that symptoms such as acne, hirsutism, and obesity lead to low self-esteem and negative body image, a finding consistent with Joshi et al. and Chaudhari et al. [8,12,21]. Visible symptoms are socially stigmatising, leading to reduced self-esteem, which further drives social withdrawal and depression. Barry et al. emphasises that body image concerns are a significant predictor of mental health outcomes in PCOS, with self-esteem identified as a mediating factor in the relationship between physical symptoms and psychological distress [4]. A recent study by Davitadze et al. found that 68% of women with PCOS experienced clinically significant body image distress [22].

Recent studies suggest that cognitive-behavioral interventions (CBT) targeting body image can improve self-acceptance and mitigate symptoms of depression and anxiety. Amirshahi et al. demonstrated that a tailored CBT approach focusing on body positivity led to notable improvements in self-esteem and QoL for women with PCOS [17]. This finding aligns with evidence from Chaudhari et al., who found that addressing body image dissatisfaction was instrumental in reducing anxiety and enhancing overall mental well-being, suggesting that mental health interventions in PCOS should prioritise body image concerns to effectively improve psychological outcomes [12]. Additionally, Tang et al. reported that structured interventions aimed at body image concerns led to a 30% improvement in QoL scores for PCOS patients, underscoring the need to include body image interventions within psychological support programs for this population [23].

### **Infertility and Emotional Distress**

Infertility is another significant source of psychological burden for women with PCOS, who often face difficulties with ovulation and conception. Li et al. report that women with PCOS, who struggle with fertility, experience higher levels of depression and anxiety compared to those without fertility issues [18]. Bazarganipour et al. found that cultural expectations and societal pressures surrounding motherhood further exacerbate emotional distress, with many women reporting feelings of inadequacy and self-blame [13]. Dokras et al. added that infertility-related stress can have long-term impacts on mental health, underscoring the need for psychological support for patients undergoing fertility treatments [5].

Additionally, Joshi et al. noted that fertility counselling integrated with emotional support can improve mental health outcomes for women facing infertility [8]. Similarly, Sax and Lawson advocate for the integration of counselling services within fertility treatment programs, demonstrating that women who received concurrent psychological support showed a 25% reduction in depressive symptoms compared to those who did not [24]. Thus, psychological care in fertility treatment is shown to reduce emotional distress and increase treatment satisfaction among PCOS patients struggling with infertility, highlighting the importance of addressing psychological needs alongside reproductive concerns. This is further supported by Simon et al., indicating that addressing infertility-related mental health concerns within clinical care improves both psychological well-being and fertility outcomes in women with PCOS [25].

### **Quality of Life Comparisons**

Research consistently shows that the impact of PCOS on QoL is substantial, with lower scores reported across domains such as emotional well-being, social functioning, and self-perception. Damone et al. and Lau et al. found that PCOS negatively impacts QoL in nearly all dimensions, with significantly poorer scores in emotional well-being and social relationships compared to controls [6,26]. This aligns with Wang et al., who reported that women with PCOS experience greater life dissatisfaction and stress. It was also reported that these outcomes are only partially explained by BMI, suggesting that hormonal, psychological, and infertility-related factors also contribute to lower QoL [14].

Barry et al. highlighted that even after adjusting for BMI, psychological outcomes were poorer in PCOS patients, indicating that weight alone does not fully account for reduced QoL. Rather, it is the compounded effects of hormonal imbalances, body image dissatisfaction, and infertility that collectively diminish QoL [4]. Bazarganipour et al. suggest that comprehensive treatment approaches integrating both medical and psychological care can significantly enhance QoL, while Damone et al. emphasise the benefits of multidisciplinary interventions, which address both physical and emotional needs to improve overall well-being [6,13]. This is supported by a study, which reported that women who received integrated physical and mental health care reported a 40% increase in life satisfaction, indicating that multidisciplinary interventions can improve well-being for women with PCOS [27].

The following tables summarise key findings from studies on psychological disorders and quality of life outcomes in women with PCOS, providing an overview of the prevalence of mental health challenges contributing to reduced QoL.

**TABLE 1:** Summary of Studies on Psychological Conditions and DSM Criteria in Women With PCOS.

Study	Sample Size	Psychological Condition	Prevalence of Conditions	DSM Criteria	Conclusions
Dokras et al. [5]	Not specified	MDD	40% Prevalence of moderate to severe depression in PCOS women.	DSM-5 Criteria for MDD	MDD is significantly higher in PCOS women than in controls.
Damone et al. [6]	478 women with PCOS	GAD	34% Prevalence of GAD in PCOS women.	DSM-5 Criteria for GAD	GAD is more prevalent in PCOS women, particularly those with weight gain.
Mansson et al. [7]	49 women with PCOS	SAD	Higher rates of social anxiety in PCOS women, especially those with hirsutism.	DSM-5 Criteria for SAD	Social anxiety is linked to appearance-related distress in PCOS.
Cooney et al. [9]	Not specified	Depression, Anxiety	High prevalence of moderate to severe symptoms of depression and anxiety in PCOS women.	DSM-5 Criteria for Depression, Anxiety	Depression and anxiety significantly affect QoL in PCOS.

**TABLE 2:** Summary of Studies on Quality of Life Outcomes in Women With PCOS.

Study	Sample Size	QoL Aspects Examined	Findings (QoL Scores)	Conclusions
Dokras et al. [3]	Not specified	Emotional well-being, mental health, and physical health	Women with PCOS reported significantly lower scores across QoL domains compared to controls, particularly in emotional well-being.	Emotional and mental health issues significantly impact QoL in PCOS women.
Chaudhari et al. [12]	70 women with PCOS	Body image, self-esteem	Poor body image and low self-esteem are associated with lower QoL in PCOS women.	Addressing body image and self-esteem issues can lead to improved QoL.
Bazarganipour et al. [13]	300 women with PCOS	Physical, emotional, and social QoL domains	Women with PCOS experienced lower QoL across all domains, particularly in emotional and physical health.	Emotional well-being and social function are significantly impaired in PCOS women.
Jones et al. [16]	18 studies included (sample sizes vary)	Physical health, emotional well-being, social functioning, and mental health	Women with PCOS consistently reported lower QoL scores in physical and emotional health and reduced mental well-being.	QoL in women with PCOS is substantially lower across various domains, the study recommends routine assessment of QoL.
Hahn et al. [19]	120 women with PCOS	Physical health, psychological functioning, self-esteem, and social aspects	PCOS symptoms, such as hirsutism and obesity, were strongly linked to poorer QoL scores	PCOS symptoms negatively impact multiple aspects of QoL, particularly mental health and self-esteem.

**LIMITATION**

The limitation that should be considered when interpreting the findings of this study is the relatively limited number of studies and sample sizes available for analysis, which may affect the generalisability of the results to the broader population of women with PCOS.

**CONCLUSION**

Women with PCOS experience a significantly higher prevalence of depression, anxiety, and psychological distress compared to women without the syndrome. The hormonal imbalances, including hyperandrogenism and insulin resistance, coupled with body image concerns related to symptoms like hirsutism and obesity, as well as the emotional toll of infertility, all contribute to poor mental health outcomes and a diminished QoL. These psychological challenges are not isolated from the physical symptoms of PCOS but are deeply intertwined, highlighting the need for comprehensive treatment approaches. Addressing mental health should become a standard part of PCOS care, integrating mental health screening, counseling, and support services into routine clinical management. Future research should prioritise standardised diagnostic criteria, larger sample sizes, and long-term studies to fully understand the multifaceted psychological impact of PCOS. Collaborative, interdisciplinary care approaches, combining endocrinology, psychology, and reproductive health services, can provide a more effective support system for women with PCOS.

**CONTRIBUTION**

All authors were responsible for the conceptualization and design of the study, as well as the comprehensive collection, analysis, and interpretation of data from the literature. We take full responsibility for the accuracy and integrity of all aspects of the work presented here.

**CONFLICTS OF INTEREST**

We declare no conflicts of interest with respect to this study.

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