**Quality of Life in Women with Polycystic Ovary Syndrome (PCOS): An Observational Study at a Tertiary Care Hospital in India**

**ABSTRACT:**

**BACKGROUND**- Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder affecting many women globally, presenting symptoms such as menstrual irregularities, hyperandrogenism, infertility, obesity, insulin resistance, and psychological issues like anxiety and depression. These symptoms impact not only physical health but also emotional, social, and psychological well-being, leading to a reduced quality of life (QoL). **METHOD**- This observational study assessed the quality of life (QoL) in women with Polycystic Ovary Syndrome (PCOS) at Continental Hospital in Hyderabad, India, using the Modified Polycystic Ovary Syndrome Quality of Life Questionnaire (MPCOSQ). The study included 140 women aged 16-45 with PCOS, aiming to understand how PCOS symptoms impact various life dimensions such as emotional well-being, physical health, social interactions, and overall life satisfaction.**RESULTS**- The findings revealed that PCOS significantly affects QoL across multiple domains. Women aged 26-35 experienced the greatest QoL reduction, reflecting challenges during their peak reproductive and professional years. Higher body mass index (BMI) was strongly associated with reduced QoL, highlighting obesity as a factor that exacerbates PCOS symptoms. Psychological issues, particularly anxiety and depression, were found to greatly impact QoL, indicating the need for mental health support in managing PCOS. The study also found no significant correlation between family history and PCOS severity, suggesting that environmental and lifestyle factors might be more influential than genetic predisposition. Symptoms like menstrual irregularities, weight gain, mood disorders, and sleep disturbances were key predictors of lower QoL, with severe menstrual irregularities and obesity-related symptoms being particularly burdensome.**CONCLUSION**- These results suggest a need for a multidisciplinary approach to PCOS management, including gynecological, endocrinological, psychological, nutritional, and lifestyle interventions.

**Keywords:** PCOS, quality of life, BMI, psychological symptoms, menstrual irregularities, obesity.

**INTRODUCTION:**

Polycystic Ovary Syndrome (PCOS), first identified in 1935 by Irving F. Stein and Michael L. Leventhal, is a complex disorder characterized by a broad range of clinical manifestations and potential complications. It affects women across various life stages, including adolescence, reproductive years, and postmenopause 1. PCOS presents with diverse clinical features such as physical changes (e.g., obesity, hirsutism, and acne), hormonal imbalances (notably hyperandrogenism), metabolic disturbances (such as insulin resistance), menstrual irregularities (including amenorrhea and oligomenorrhea), infertility, and long-term health risks like an increased likelihood of developing type 2 diabetes 2. In Western countries, PCOS affects approximately 5–10% of women,3 while in India, prevalence rates range between 3.7% and 22.5%, according to the Indian Infertility Society 4. PCOS is associated with multiple health risks, including obesity, insulin resistance, type 2 diabetes, and dyslipidemia 5-6. It may also increase the risk of developing cardiovascular diseases (CVD) and related metabolic complications 7. Beyond its physical effects, PCOS imposes a considerable psychological burden. Women with PCOS have been found to experience significantly higher rates of anxiety and depression compared to the general population 8. Recognizing this, both international and Indian clinical guidelines recommend psychological evaluation for PCOS patients, particularly for anxiety and depressive symptoms 9. In addition to metabolic complications, PCOS negatively affects mental health and quality of life, often due to the psychological impact of infertility and other distressing symptoms 10. While the prevalence of depression in the general population is estimated at 4–6%, it is markedly higher among women with PCOS, ranging from 14% to 67% 6.

Furthermore, PCOS patients show a greater incidence of other psychological conditions such as anxiety, disordered eating, and substance use disorders 7. Two studies conducted on Indian women with PCOS reported anxiety prevalence rates of 28% and 39%, while depression was found in 11% and 25% of participants, respectively 11-12. Polycystic Ovary Syndrome can impact various dimensions of a woman's life, including emotional well-being, self-identity, and overall quality of life (QoL). The World Health Organization (WHO) defines QoL as an individual's perception of their position in life, shaped by cultural and value systems, personal goals, expectations, standards, and concerns 13. Similarly, the International Society for quality of life Research (ISOQOL) defines health-related quality of life (HRQoL) as the functional impact of a medical condition and its treatment on a patient's daily life 14. Many symptoms associated with PCOS are of significant concern to affected women, as they often contribute to low self-esteem, physical discomfort, psychosexual disturbances, and interference with daily functioning. These challenges can lead to psychological and behavioral issues, including mood instability, sadness, emotional distress, frustration, and disordered eating. Studies consistently show that women with PCOS experience higher rates of depression and anxiety compared to women without the condition 15.The aim of this study is to assess the quality of life among patients diagnosed with Polycystic Ovary Syndrome.

**OBJECTIVES:**

* To evaluate the influence of family history on the development of PCOS.
* To examine the association between age and the occurrence of PCOS.
* To investigate the relationship between obesity and PCOS.
* To determine the prevalence of infertility in individuals with PCOS.
* To explore how PCOS–related infertility affects patient’s quality of life.
* To assess the impact of PCOS on mood disorders, sleep disturbances and their subsequent effect on quality of life.
* To evaluate the severity of PCOS symptoms and their impact on patients’ quality of life.

**METHODOLOGY:**

**Study Design:** Prospective observational study.

**Sample Size:** A total of 140 subjects were included in the study.

**Place of Study:** The study was conducted at Continental Hospitals, located in Nanakramguda, Gachibowli, Hyderabad, Telangana, India.

**Duration of the Study:** Data was collected from patient records of individuals admitted over a period of six months.

**Inclusion Criteria**

The study included female patients aged between 16 and 45 years who had been clinically diagnosed with Polycystic Ovary Syndrome (PCOS). Participants were selected based on the presence of irregular menstrual cycles, PCOS-related infertility, and psychological disturbances associated with the condition. Only patients who met these criteria and provided complete clinical records were included in the study.

**Exclusion Criteria:**

Patients with other medical conditions known to affect reproductive or metabolic function were excluded to avoid confounding variables. Specifically, women diagnosed with congenital adrenal hyperplasia, Cushing’s syndrome, or adrenal tumors were not considered for the study, as these conditions could mimic or influence PCOS symptoms and interfere with accurate analysis.

**Data collection:**

Data for the study were collected prospectively from electronic medical records of patients diagnosed with PCOS at a single tertiary care center. A structured data collection form was used to gather relevant demographic details, clinical parameters (such as BMI, blood pressure, blood glucose, and hormonal levels), and ultrasound findings. Additionally, the Modified Polycystic Ovary Syndrome Quality of Life Questionnaire (MPCOSQ) was used to assess the impact of symptoms like menstrual irregularities, dermatological issues, weight concerns, mood and sleep disorders, and infertility on the patients’ quality of life.

**Study parameters:**

The study assessed various clinical and demographic parameters, including age, BMI, hormonal profile (FSH, LH, Prolactin, AMH), ultrasound findings, and blood glucose levels (RBS, FBS, HbA1c, eAG). It examined the influence of age, BMI, and family history on quality of life in PCOS patients. The prevalence of infertility, mood and sleep disorders, and the severity of PCOS symptoms were also evaluated to understand their overall impact on patients' quality of life.

**Statistical Analysis:**

Data obtained from electronic medical records, nursing notes, and clinical case sheets were analyzed using Microsoft Excel.

**RESULTS & DISCUSSION:**

Table 1 indicates that majority of patients were in the 26–35 age group (57.9%), with the highest proportion (57.78%) reporting negatively affected quality of life. The 16–25 age group accounted for 35.7% of patients, with 34.29% reporting QoL impact. Only 6.4% were aged 36–45, with 7.91% affected. This indicates that QoL impairment was most prevalent among women aged 26–35 years. Table 2 indicates that patients (56.4%) had a BMI above 25, with 54.24% experiencing negatively affected quality of life. Those with a normal BMI (18.5–24.9) made up 40.7% of the group, with 42.71% reporting QoL impairment. Only 2.8% were underweight (BMI <18.5), and 3.05% of them were negatively affected. These findings indicate that higher BMI is associated with a greater impact on quality of life in PCOS patients. Table 3 indicates that 140 patients (100%) reported no family history of PCOS, indicating that in this study population, PCOS occurred independently of hereditary factors. Table 4 indicates that 69 patients assessed for infertility, 53 patients (76.8%) reported experiencing infertility, while 16 patients (23.2%) did not. This indicates a high prevalence of infertility among PCOS patients in the study population. It indicates a statistically significant difference between infertility among patients with PCOS

**Table 1: Age based distribution**

|  |  |  |
| --- | --- | --- |
| Age group (in yrs) | Number of patients (% patients) | Negatively affected QoL (%) |
| 16-25 | **50(35.7)** | **34.29%** |
| 26-35 | **81(57.9)** | **57.78%** |
| 36-45 | **9(6.4)** | **7.91%** |
| TOTAL | **140(100%)** | **100%** |

**Table 2: BMI Range based distribution**

|  |  |  |
| --- | --- | --- |
| BMI Range | Number of patients (% patients) | Negatively affected QoL (%) |
| <18.5 | **4(2.8)** | **3.05%** |
| 18.5-24.9 | **57(40.7)** | **42.71%** |
| >25 | **79(56.4)** | **54.24%** |
| TOTAL | **140(100%)** | **100%** |

**Table 3: Family history-based distribution**

|  |  |
| --- | --- |
| Family history | Number of patients (% patients) |
| Yes | **0(0%)** |
| No | **140(100%)** |
| TOTAL | **140(100%)** |

**Table 4: Infertility-based distribution**

|  |  |  |
| --- | --- | --- |
| Infertility | Number of patients | % of patients |
| Yes | **53** | **76.8%** |
| No | **16** | **23.2%** |

**Table 5.a: Severity of symptoms (Category-I) of PCOD patients**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Severity | Number of patients (% patients) | | | | |
| **Irregular menstrual cycle** | **Menstrual flow abnormalities** | **Menstrual cramps** | **Hirsutism** | **Headache** |
| Absence (0) | **23** | **7** | **35** | **66** | **80** |
| Mild (1) | **50** | **61** | **51** | **35** | **29** |
| Moderate (2) | **39** | **64** | **37** | **27** | **23** |
| Severe (3) | **28** | **8** | **17** | **12** | **8** |
| Total | **140 (83.5%)** | **140 (95%)** | **140 (75%)** | **140 (52.8%)** | **140 (42.80%)** |

Table 5.a shows that among 140 PCOS patients, the most commonly reported symptom was menstrual flow abnormalities (95%), followed by irregular menstrual cycles (83.5%) and menstrual cramps (75%). Hirsutism and headache were reported by 52.8% and 42.8% of patients, respectively. Mild to moderate severity was most prevalent across all symptoms, with a smaller proportion experiencing severe forms. Notably, severe cases were highest for irregular cycles (28 patients) and cramps (17 patients), while headaches showed the highest number of patients with absence of symptoms (80 patients). Table 5.b shows that among the 140 PCOS patients, acne (54.2%), hair loss (63.5%), bloating (62.8%), and back pain (62.8%) were commonly reported, while acanthosis nigricans was less prevalent (28.5%). Most patients experienced mild to moderate symptoms, particularly for bloating and back pain. Severe symptoms were most notable in hair loss (20 patients) and back pain (14 patients), while acanthosis nigricans was absent in a large majority (100 patients), indicating it was the least common dermatological finding in this population.

**Table 5.b: Severity of symptoms (Category-II) of PCOD patients (**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Severity | Number of patients (% patients) | | | | |
| **Acne** | **Hair loss** | **Acanthosis nigricans** | **Bloating** | **Backpain** |
| Absence (0) | 64 | **51** | **100** | **52** | **52** |
| Mild (1) | 45 | **31** | **24** | **55** | **33** |
| Moderate (2) | 27 | **38** | **14** | **25** | **41** |
| Severe (3) | 4 | **20** | **2** | **8** | **14** |
| Total | 140 (54.20%) | **140 (63.50%)** | **140 (28.50%)** | **140 (62.80%)** | **140 (62.80%)** |

**Table 5.c: Severity of symptoms (Category-III) of PCOD patients**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Severity | Number of patients (% patients) | | | | |
| **Increased hunger** | **Difficulty in staying at ideal weight** | **Tiredness** | **Low self-esteem** | **Depression** |
| Absence (0) | **68** | **30** | **35** | **74** | **39** |
| Mild (1) | **39** | **56** | **51** | **45** | **74** |
| Moderate (2) | **28** | **42** | **39** | **15** | **26** |
| Severe (3) | **5** | **12** | **15** | **6** | **1** |
| Total | **140 (51.50%)** | **140 (78.50%)** | **140 (75.0%)** | **140 (47.10%)** | **140 (72.10%)** |

Table 5.c shows that difficulty in maintaining ideal weight (78.5%), tiredness (75%), and depression (72.1%) were the most commonly reported symptoms among PCOS patients, followed by increased hunger (51.5%) and low self-esteem (47.1%). Most patients experienced these symptoms at mild to moderate severity, with severe cases being relatively low across all categories. Notably, depression was present in a high number of patients but only 1 patient reported it as severe, suggesting greater psychological burden but lower intensity. Similarly, low self-esteem was absent in over half of the patients (74), despite a significant portion experiencing PCOS-related psychological stress. Table 5.d shows that among the 140 PCOS patients, anxiety was the most prevalent symptom, reported by 85.7% of participants, followed by insomnia (52.8%), infertility (47.8%), and excessive sleep (45.5%). Most symptoms were experienced at mild to moderate severity, with severe cases being relatively low. Anxiety had the highest number of affected patients (120), though only 10 reported it as severe. Infertility was absent in 73 patients, while only 2 experienced it as severe. Sleep disturbances—both insomnia and excess sleep—were common but generally mild to moderate in intensity.

**Table 5.d: Severity of symptoms (Category-IV) of PCOD patients**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Severity | Number of patients (% patients) | | | |
| **Anxiety** | **Infertility** | **Insomnia** | **Excess sleep** |
| Absence (0) | **20** | **73** | **66** | **76** |
| Mild (1) | **73** | **39** | **39** | **32** |
| Moderate (2) | **37** | **26** | **24** | **24** |
| Severe (3) | **10** | **2** | **11** | **8** |
| Total | **140 (85.70%)** | **140 (47.80%)** | **140 (52.80%)** | **140 (45.50%)** |

Table 6 shows that the associated conditions, anxiety had the most significant impact on quality of life, affecting 42.14% of patients and contributing to 82.7% QoL impairment with a mean QoL score of 1.264. Depression, though reported by only 30.71%, also showed a high QoL impact (72.1%) with a mean score of 0.921. Insomnia and excess sleep were more prevalent (52.8% and 45.7%, respectively) but had a comparatively lower impact on QoL. Headache, though common (53%), showed the least impact on quality of life, with a mean score of 0.707 and QoL impairment of 23.57%. These findings suggest that psychological symptoms, particularly anxiety and depression, are the most detrimental to QoL in PCOS patients. Headaches, sleep disturbance, depression and anxiety in PCOS patients have a significant negative impact on their quality of life.

**Table 6: Prevalence and Impact of headache, sleep disturbance and anxiety on QOL in PCOS Patients**

|  |  |  |  |
| --- | --- | --- | --- |
| Disease | % of patients | % QOL | Mean QOL |
| Headache | 53% | 23.57% | 0.707 |
| Insomnia | 52.80% | 28.57% | 0.857 |
| Excess sleep | 45.70% | 24.76% | 0.741 |
| Depression | 30.71% | 72.10% | 0.921 |
| Anxiety | 42.14% | 82.70% | 1.264 |

**Table 7: Prevalence and Impact of PCOS symptoms on QOL in PCOS Patients**

|  |  |  |
| --- | --- | --- |
| SYMPTOMS | QUALITY OF LIFE% | % OF PATIENTS |
| Irregular menstrual cycles | 50.47% | 83.50% |
| Varying menstrual flow | 50.71% | 95% |
| Menstrual cramps | 41.90% | 75% |
| Hirutism | 29.76% | 53% |
| Headache | 23.57% | 42.80% |
| Acne | 26.42% | 54.20% |
| Hairloss | 39.76% | 63.50% |
| Acanthosis nigricans | 13.80% | 28.50% |
| Abdominal bloating | 30.71% | 62.80% |
| Back pain | 37.38% | 62.80% |
| Increased hunger | 26.19% | 51.50% |
| Depression | 30.71% | 72.10% |
| Anxiety | 42.14% | 85.70% |
| Difficulty in staying at ideal weight | 41.90% | 78.50% |
| Infertility | 23.09% | 47.80% |
| Tiredness | 41.42% | 75% |
| Low self esteem | 22.14% | 47.10% |
| Insomnia | 28.57% | 52.80% |
| Excess sleep | 24.76% | 45.70% |

Table 7 shows that Among the symptoms reported by PCOS patients, varying menstrual flow (95%) and irregular cycles (83.5%) were the most prevalent, both showing a QoL impact of around 50%. Anxiety (85.7%) and depression (72.1%) also showed a high impact on quality of life, particularly anxiety with a 42.14% QoL impairment. Other commonly reported symptoms included hair loss (63.5%), bloating (62.8%), back pain (62.8%), and difficulty maintaining ideal weight (78.5%), all of which had moderate QoL impact (around 30–42%). Tiredness (75%) also significantly affected QoL (41.42%). On the lower end, acanthosis nigricans (28.5%), low self-esteem (47.1%), and infertility (47.8%) were less commonly reported and showed relatively lower impact on quality of life. Table 8 shows that 32.92% of patients experienced an affected quality of life, while 67.08% reported an unaffected quality of life, indicating that nearly one-third of PCOS patients faced a noticeable decline in their well-being.

**Table 8: Average QOL% in PCOS Patients**

|  |  |
| --- | --- |
| QOL CATEGORY | AVERAGE QOL % |
| Affected QOL | 32.92% |
| Unaffected QOL | 67.08% |

**CONCLUSION:**

This study concluded that PCOS significantly impairs quality of life, particularly among women aged 26–35 years. Obesity, psychological distress, and menstrual irregularities emerged as key contributors to reduced well-being. The absence of family history in most cases suggests a stronger influence of lifestyle and environmental factors. These findings emphasize the need for a multidisciplinary approach that includes medical, nutritional, and psychological care. Raising awareness and promoting early intervention are essential to improving outcomes. Future research should focus on long-term QoL changes and treatment effectiveness in diverse patient populations.

**LIMITATION:**

The study is limited by its small sample size, single-center design, and reliance on self-reported data, which may affect the generalizability and accuracy of the findings. The absence of a control group and lack of consideration for factors like socioeconomic status and lifestyle further limit the depth of analysis.

**Consent**

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

**Disclaimer (Artificial intelligence)**

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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