

Quality of Life in Women Diagnosed with Polycystic Ovary Syndrome (PCOS): A Cross-Sectional Study

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Abstract: Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder affecting women, especially during their reproductive years. It is characterized by irregular menstrual cycles, elevated levels of male hormones (androgens), and polycystic ovaries. PCOS is associated with metabolic disturbances, insulin resistance, hormonal imbalances, and ovulatory dysfunction. It can significantly impact a woman's quality of life (QoL), leading to emotional, physical, and psychological challenges. This cross-sectional study aimed to assess the QoL among women diagnosed with PCOS attending the outpatient department (OPD) of Prakash Hospital, Greater Noida, Uttar Pradesh. The study sample comprised 80 women aged 15–49 years, selected using purposive sampling. A self-structured checklist was used to assess QoL, covering four domains: emotions, sexual dysfunction, body image, and menstrual problems. Data were analyzed using chi-square tests to explore associations between demographic factors and QoL. Of the 80 participants, 45% reported good QoL, 46.25% had average QoL, and 8.75% experienced poor QoL. Significant associations were found between age, educational status, and the nature of menstruation with QoL. However, no significant associations were observed between occupation, marital status, weight, and other demographic variables. The findings indicate that while many women with PCOS maintain a good QoL, a significant portion experiences moderate to poor QoL. Age, education, and menstrual irregularities play a significant role in shaping QoL. Addressing both physical symptoms and psychological support is crucial for improving the QoL of women with PCOS.

Keywords: PCOS, Quality of life.

Abbreviations: QoL-Quality of Life, PCOS-Polycystic Ovary Syndrome.

I. INTRODUCTION

Polycystic ovarian syndrome normally presents in adolescents with a mixture of irregular menstrual cycles and high levels of male hormones. It is linked to issues with making and working insulin, androgens, and the balance of pro- and antioxidant systems; ovulation; and the relative ratios of gonadotropins. Polycystic ovary syndrome is a lifelong condition.

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder among women of reproductive age [1-3], affecting 8%–13% globally [4], with up to 70% undiagnosed [5-8]. Since 1990, its burden has risen significantly. India has seen a 30% increase in recent years, ranking among the top five countries in PCOS-related cases and disability [9]. Prevalence in Indian women is 11.3% in adults and 12.3% in adolescents [10].

PCOS can impact various aspects of a woman's life, including emotions, identity, and quality of life (QoL). The WHO defines QoL as an individual's perception of their position in life within their cultural and value context [11]. Research, reflects the functional impact of a condition and its treatment. PCOS symptoms often lead to low self-esteem, physical and psychosexual issues, and disruption of daily life, contributing to psychological disorders such as depression, anxiety, and eating disorders, which are more prevalent in women with PCOS [12].

II. MATERIAL AND METHODS

The present study employed a quantitative research approach using a cross-sectional research design. The study was conducted in the outpatient department (OPD) of Prakash Hospital, located in Greater Noida, Uttar Pradesh. The target population comprised women aged between 15 and 49 years, as defined by WHO and CDC standards, who were diagnosed

with Polycystic Ovary Syndrome (PCOS) and were visiting the hospital's OPD.

Participants were selected based on specific inclusion and exclusion criteria. The sample size was determined using the formula $Z^2P(1-P)/d^2$, where Z represented a 95% confidence interval, P was the prevalence rate (5.8% or 0.058), and d was the margin of error (5% or 0.0025). Based on this calculation, a total sample size of 80 women was selected.

Inclusion criteria required that participants be diagnosed with PCOS and exhibit at least two or more of the following symptoms: menstrual irregularities, excess hair growth, acne, hair loss, weight gain, darkening of the skin (particularly around the neck, groin, or underarms), infertility, and current use of oral contraceptive pills (OCP). Participants also had to be willing to participate in the study. Exclusion criteria included women experiencing other conditions associated with androgen excess such as drug-induced androgen excess, Cushing's syndrome, thyroid disorders, androgen-secreting tumors, hyperprolactinemia, and adrenal hyperplasia, as well as those taking medications other than OCP for PCOS.

The sampling technique employed was non-probability purposive sampling, where participants were selected based on predefined characteristics to ensure their suitability for the study. A self-structured checklist was used to assess the quality of life (QoL) of the participants.

The QoL assessment tool consisted of 18 statements across four psychological domains: emotions (5 items), sexual dysfunction (3 items), body image (5 items), and menstrual problems (5 items). The scoring system assigned values as follows: "Never" = 0, "Sometimes" = 1, and "Always" = 2. The total possible score ranged from 0 to 36. Based on expert evaluation, QoL was classified as follows: Good QoL (0–12), Average QoL (13–24), and Poor QoL (25–36). The reliability of the tool was

established at 0.88, indicating high internal consistency.

In terms of ethical considerations, approval was obtained from the Institutional Ethical Committee of Sharda University, Greater Noida, Uttar Pradesh. Permission for data collection was also secured from Prakash Hospital, Greater Noida, prior to the commencement of the study.

III. RESULTS

The age-wise distribution of participants showed that the majority, 34 (42.5%), were aged 20–30 years, followed by 33 (41.25%) aged 31–40 years, and 13 (16.25%) aged 41–50 years. In terms of occupation, 29 (36.25%) were homemakers, 29 (36.25%) were private employees, 13 (16.25%) were involved in business, and 6 (7.5%) were government employees. Regarding marital status, 46 (57.5%) participants were married, 26 (32.5%) were unmarried, and 4 (5%) were separated or divorced.

TABLE I: PREVALENCE OF QUALITY OF LIFE OF WOMEN WITH PCOS

Quality of Life	Frequency	Percentage
Good Quality of Life	36	45%
Average Quality of Life	37	46.25%
Poor Quality of Life	7	8.75

Table I presents the prevalence of quality of life among women with PCOS. Out of 80 participants, 36 (45%) reported a good quality of life, while 37 (46.25%) had an average quality of life. A smaller proportion, 7 participants (8.75%), experienced a poor quality of life. This indicates that while nearly half of the women maintained a reasonably good quality of life, a significant portion faced moderate challenges, and a minority experienced considerable impairment.

TABLE II: ASSOCIATION BETWEEN QUALITY OF LIFE WITH SELECTED DEMOGRAPHIC VARIABLES

Sr. No.	Demographic Variables	Mild	Average	Severe	Total	χ^2 - Value	df	P-Value
1	Age					9.78 S	4	P<0.05
	20-30 years	15	17	2	34			
	31-40 years	16	16	1	33			
	41-50 years	5	4	4	13			
2	Educational Status					13.46 S	6	P<0.05
	No formal education	0	2	2	4			
	10 th	10	14	3	27			
	12 th	16	11	2	29			
UG and above	10	10	0	20				
3	Occupation					7.16 NS	6	0.306
	House maker	12	12	5	29			
	Business	4	8	1	13			
	Government Employee	4	4	1	9			
Private Employee	16	13	0	29				

Sr. No.	Demographic Variables	Mild	Average	Severe	Total	χ^2 - Value	df	P-Value
4	<i>Marital Status</i>							
	Married	20	23	3	46	3.85 NS	6	0.696
	Unmarried	11	12	3	26			
	Separated	3	1	0	4			
Divorced	2	1	1	4				
5	<i>Weight</i>							
	Under weight	2	2	0	4	3.58 NS	6	0.733
	Normal weight	15	11	4	30			
	Over weight	18	21	3	42			
Obese	1	3	0	4				
6	<i>Family Monthly Income</i>							
	<50,000	14	17	3	34	1.79 NS	6	0.937
	5,0001-1 Lakh	14	14	3	31			
	1 Lack-1.5 Lakh	5	5	1	11			
>1.5 Lakh	3	1	0	4				
7	<i>Types of Residence</i>							
	Urban	5	3	1	9	4.31 NS	6	0.634
	Semi urban	9	8	1	18			
	Rural	14	20	5	39			
Semi-rural	8	6	0	14				
8	<i>Age of Menarche</i>							
	≤11 years	5	4	1	10	7.03 NS	4	0.134
	12-14 years	24	32	6	62			
≥15 years	7	1	0	8				
9	<i>Length of Menstrual Cycle</i>							
	Fewer than 21 days	4	4	0	8	7.95 NS	6	0.241
	28-35 days	19	25	6	50			
	35 -60 days	10	8	0	18			
More than 60 days	3	0	1	4				
10	<i>Duration of Menstruation</i>							
	1-3 days	3	5	1	9	3.22 NS	6	0.78
	4-5 days	18	22	5	45			
	6-7 days	13	9	1	23			
Last more than 7 days	2	1	0	3				
11	<i>Nature of Menstruation</i>							
	Scanty	2	1	0	3	11.86 S	4	P<0.05
	Moderate	23	28	1	52			
	Heavy	11	8	6	25			
Extremely heavy	2	1	0	3				
12	<i>Use of Contraceptive Methods</i>							
	Yes	3	6	0	9	2.10 NS	2	0.349
	No	33	31	7	71			

Sr. No.	Demographic Variables	Mild	Average	Severe	Total	χ^2 - Value	df	P-Value
13	<i>Family History of PCOS</i>							
	Yes	3	6	0	9	2.10	2	0.349
	No	33	31	7	71	NS		
14	<i>History of Taking any Treatment for PCOS</i>							
	Yes	9	6	0	15	2.69	2	0.26
	No	27	31	7	65	NS		

Note: S-Significant at 5% level (i.e., $p < 0.05$), NS-Not significant at 5% level (i.e., $p > 0.05$).

The table above illustrates the association between quality of life with selected demographic variables, including age, educational status, occupation, marital status, weight, family monthly income, types of residence, age of menarche, length of menstrual cycle, duration of menstruation, nature of menstruation, use of contraceptive methods, family history of PCOS, and history of taking any treatment for PCOS.

In relation to the age, educational status, and nature of menstruation, the obtained chi-squares were ($\chi^2=9.788$, $df=4$, $p=0.044$), ($\chi^2=13.463$, $df=6$, $p=0.036$), and ($\chi^2=11.857$, $df=4$, $p=0.018$), respectively, which showed statistical significance at the $p < 0.05$ level.

Chi-square tests of occupation ($\chi^2=7.163$, $df=6$, $p=0.306$), marital status ($\chi^2=3.858$, $df=6$, $p=0.696$), weight ($\chi^2=3.582$, $df=6$, $p=0.733$), family monthly income ($\chi^2=1.797$, $df=6$, $p=0.937$), residency ($\chi^2=4.316$, $df=6$, $p=0.634$), age of menarche ($\chi^2=7.031$, $df=4$, $p=0.134$), duration of menstruation ($\chi^2=7.959$, $df=6$, $p=0.241$), duration of menstruation ($\chi^2=3.226$, $df=6$, $p=0.78$), use of contraceptive methods ($\chi^2=2.108$, $df=2$, $p=0.349$), family history of PCOS ($\chi^2=2.108$, $df=2$, $p=0.349$), and history of taking any treatment for PCOS ($\chi^2=2.694$, $df=2$, $p=0.26$) were obtained, respectively, which do not show any association with quality of life.

IV. DISCUSSION

The present study aimed to evaluate the quality of life (QoL) among women diagnosed with Polycystic Ovary Syndrome (PCOS) and explore its association with selected demographic and clinical variables. The findings indicate that although nearly half (45%) of the participants reported good QoL, a significant proportion (46.25%) experienced an average quality of life, and 8.75% had poor QoL. These results underscore the multifaceted impact of PCOS on women's daily functioning, psychological wellbeing, and reproductive health.

The high prevalence of average and poor QoL aligns with existing literature, which suggests that PCOS adversely affects emotional, physical, and sexual health due to its chronic nature and the stigma associated with its visible symptoms such as acne, hirsutism, and weight gain. This often leads to psychological distress, lower self-esteem, and social withdrawal, factors that contribute to reduced quality of life.

Age was found to be significantly associated with QoL ($\chi^2=9.78$, $p < 0.05$), with women in the 41–50 age group reporting more severe impact. This may be attributed to the compounding burden of long-term symptoms and possible fertility concerns as women approach menopause. Similarly, educational status showed a significant association ($\chi^2=13.46$, $p < 0.05$). Participants with no formal education or only primary-level schooling were more likely to report poor QoL. This could be linked to limited access to health information, inadequate awareness about PCOS management, and lower health-seeking behavior.

Another key variable that demonstrated a significant association was the nature of menstruation ($\chi^2=11.86$, $p < 0.05$). Women experiencing heavy or extremely heavy menstrual bleeding had a greater likelihood of poor QoL. Menstrual irregularities are among the most distressing symptoms of PCOS, often leading to physical discomfort, anxiety, and disruptions in social or occupational life.

On the other hand, variables such as occupation, marital status, weight, income, residential area, age at menarche, duration and length of menstruation, use of contraceptives, family history of PCOS, and treatment history did not show statistically significant associations with QoL ($p > 0.05$). This indicates that while these factors may influence lifestyle or healthcare access, they may not independently predict quality of life among women with PCOS, or the sample size may not have been sufficient to detect such associations.

The lack of significant association between BMI (weight categories) and QoL contradicts some prior studies, where obesity was seen as a critical factor affecting QoL in PCOS patients. However, in this study, overweight women comprised the majority, suggesting a uniform distribution that may have diluted the strength of the association. Additionally, use of contraceptive methods and treatment history, which are often linked to symptom management, did not show a statistically significant impact, perhaps due to variability in adherence, effectiveness, or duration of treatment.

Overall, the findings highlight that while a fair proportion of women manage to maintain a good quality of life, a significant number continue to struggle with physical, emotional, and reproductive challenges linked to PCOS. The statistically

significant associations with age, education, and menstrual characteristics suggest the need for targeted interventions focusing on health education, symptom management, and psychological support.

V. CONCLUSION

This study explored the quality of life (QoL) among women diagnosed with Polycystic Ovary Syndrome (PCOS) and examined the relationship between QoL and various demographic and clinical factors. The results revealed that nearly half of the participants experienced an average or poor quality of life, indicating the significant impact of PCOS on women's physical, emotional, and reproductive wellbeing. Statistically significant associations were found between QoL and age, educational status, and the nature of menstruation. These findings highlight that while many women with PCOS can maintain a relatively good QoL, a considerable number face challenges that affect their daily functioning and mental health.

The study underscores the need for comprehensive approaches to managing PCOS, which address not only the physical symptoms but also the psychological and social factors that contribute to diminished quality of life. There is also a clear need for health education and resources to improve awareness and empower women in managing the condition effectively.

VI. RECOMMENDATIONS

A. Enhanced Health Education and Awareness

It is essential to provide targeted health education programs, particularly for women with low educational levels, to raise awareness about PCOS, its symptoms, and its impact on quality of life. Health education should also focus on the importance of early diagnosis and timely treatment to prevent the long-term complications associated with PCOS.

B. Psychological Support and Counselling

Given the psychological burden associated with PCOS, including anxiety, depression, and body image concerns, healthcare providers should offer psychological support and counselling services to help women manage the emotional and social challenges of living with PCOS.

C. Comprehensive Medical Management

Healthcare professionals should adopt a holistic approach to managing PCOS, which includes addressing both the physical symptoms (such as menstrual irregularities and hirsutism) and the psychological aspects (such as emotional distress and self-esteem issues). Treatment plans should be individualized, taking into account the patient's specific symptoms and lifestyle factors.

D. Promoting Weight Management and Lifestyle Modifications

Obesity and overweight status were prevalent among the participants, and weight management plays a critical role in managing PCOS. Healthcare providers should encourage women to engage in healthy lifestyle practices, including balanced diets and regular physical activity, which can help alleviate some of the symptoms of PCOS and improve QoL.

E. Increased Access to Treatment and Resources

Policies should be implemented to increase access to healthcare and resources for women with PCOS, particularly in underserved areas. Access to affordable treatment options, such as oral contraceptive pills, anti-androgens, and fertility treatments, should be made more widely available.

F. Further Research

Future studies should explore additional factors that may influence the quality of life in women with PCOS, such as socioeconomic status, cultural beliefs, and the impact of different treatment regimens. Longitudinal studies may also provide a deeper understanding of how QoL changes over time in women with PCOS.

REFERENCES

- [1] M. P. McGowan "Polycystic ovary syndrome: A common endocrine disorder and risk factor for vascular disease," *Curr Treat Options Cardiovasc Med.*, vol. 13, no. 4, pp. 289–301, 2011.
- [2] V. De Leo, M. C. Musacchio, V. Cappelli, M. G. Massaro, G. Morgante, and F. Petraglia, "Genetic, hormonal and metabolic aspects of PCOS: An update," *Reprod. Biol Endocrinol.*, vol. 14, no. 1, p. 38, Jul. 16, 2016, doi: <https://doi.org/10.1186/s12958-016-0173-4>.
- [3] C. Riestenberg, A. Jagasia, D. Markovic, R. P. Buyalos, and R. Azziz, "Health care-related economic burden of polycystic ovary syndrome in the United States: Pregnancy-related and long-term health consequences," *J Clin Endocrinol Metab.*, vol. 107, no. 2, pp. 575–585, 2022.
- [4] Y. Gao, H. Liu, L. Qiao *et al.*, "Study of burden in polycystic ovary syndrome at global, regional, and national levels from 1990 to 2019," *Healthcare (Basel)*, vol. 11, no. 4, p. 562, Feb. 14, 2023.
- [5] R. Yang, Q. Li, Z. Zhou *et al.*, "Changes in the prevalence of polycystic ovary syndrome in China over the past decade," *Lancet Reg Health West Pac.*, vol. 25, p. 100494, May 31, 2022.

- [6] R. Deswal, V. Narwal, A. Dang, and C. S. Pundir, "The prevalence of polycystic ovary syndrome: A brief systematic review," *J Hum Reprod Sci.*, vol. 13, no. 4, pp. 261–271, 2020.
- [7] A. Choudhary, S. Jain, and P. Chaudhari, "Prevalence and symptomatology of polycystic ovarian syndrome in Indian women: Is there a rising incidence?," *Int J Reprod Contracept Obstet Gynecol.*, vol. 6, no. 11, pp. 4971–4975, Sep. 2017.
- [8] World Health Organization, "Polycystic ovary syndrome," *Geneva: World Health Organization*, Jun. 28, 2023. Accessed: Aug. 9, 2023.
- [9] C. Chadha, J. Kataria, P. Chugh, and A. Choudhary, "Quality of life in young adult females with PCOS," *Indian J Physiother. Occup Ther.*, vol. 13, no. 1, p. 40, 2019.
- [10] A. Krishnan, and S. Muthusami, "Hormonal alterations in PCOS and its influence on bone metabolism," *J Endocrinol.*, vol. 232, no. 2, pp. R99–R113, 2017.
- [11] R. Azziz, D. A. Dumesic, and M. O. Goodarzi, "Polycystic ovary syndrome: An ancient disorder?," *Fertil Steril.*, vol. 95, no. 5, pp. 1544–1548, 2011.
- [12] S. Hahn, O. E. Janssen, and S. Tan *et al.*, "Clinical and psychological correlates of quality-of-life in polycystic ovary syndrome," *Eur J Endocrinol.*, vo. 153, no. 6, pp. 853–860, 2005.