

Original Research

Quality of life & psychological well-being of adolescents girls with polycystic ovary disease

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ABSTRACT:

Aim: This study aimed to assess the quality of life (QoL) and psychological well-being of adolescent girls with polycystic ovary disease (PCOD) and to explore the correlation between various QoL domains and psychological well-being dimensions. **Materials and Methods:** A descriptive study with a quantitative approach was conducted over seven months (February 2024–August 2024) in two schools in Gurugram. A total of 100 adolescent girls aged 13–18 years with diagnosed PCOD were selected using purposive sampling. Data were collected using a structured questionnaire that included demographic details, the WHO QoL-BREF questionnaire with four domains (physical, psychological, social, and environment), and the Ryff Scales of Psychological Well-Being questionnaire covering six domains. The tools were standardized, with reliability established (Cronbach's alpha = 0.94). Data were analyzed using descriptive and inferential statistics. **Results:** The study revealed that 36% of participants were aged 13–14 years, 84% followed a sedentary lifestyle, and 54% were overweight. Menstrual irregularities (51%) and painful periods (89%) were common, while 60% of participants were undergoing treatment for PCOD. QoL scores were compromised across all domains, with the highest mean score in social relationships (14.27±3.06) and the lowest in the physical domain (12.22±3.28). Psychological well-being scores were also compromised, with autonomy scoring relatively higher (12.05±2.88). Correlation analysis showed significant positive associations between physical health and emotional health ($r = .225, p = .024$), and between emotional and psychological health ($r = .425, p < .001$). Emotional management correlated strongly with social acceptance ($r = .535, p < .001$). **Conclusion:** PCOD significantly impacts the QoL and psychological well-being of adolescent girls, particularly in physical and emotional domains. The findings emphasize the need for holistic interventions targeting lifestyle modifications, emotional resilience, and social support to improve overall well-being. Empowering adolescents with autonomy and enhancing their ability to manage PCOD symptoms can lead to better long-term outcomes.

Keywords: PCOD, adolescent health, quality of life, psychological well-being, polycystic ovary disease.

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INTRODUCTION

Two prevalent conditions that impact women of reproductive age are Polycystic Ovary Syndrome (PCOS) and Polycystic Ovarian Disease (PCOD). Despite the fact that they are both ovarian-related and may have comparable symptoms, they are not the same. PCOS is little serious compared to PCOD. The entire endocrine system is impacted by PCOS. Women who have PCOS are more likely to experience diabetes, obesity, cardiovascular disease, and even endometrial cancer and may experience infertility whereas an imbalance in hormones is the cause of PCOD. These kinds of issues are unrelated to

PCOD. Reproductive problems aren't directly caused by PCOD and there are no such complications.^[1] Almost 10% of the women in the world is suffering from PCOD and is therefore the most common disorder in women. PCOD, or polycystic ovarian disease, is a medical condition/ hormonal imbalance in which a woman's ovaries produce an excessive amount of immature or partially mature eggs, that lead to hormonal imbalances and swollen ovaries which eventually develop into ovarian cysts or sacs filled with fluids.^[2] The development of PCOS may be pathologically associated with dysbiosis of the gut microbiota.^[3] The disruption of ovulation affects the

levels of hormones including progesterone, FSH, LH, and testosterone. Low-grade inflammation, excess testosterone, excess insulin, and heredity are some of the factors that are involved.^[4] This results in enlargement of the ovaries and increased secretion of androgens, the male hormone responsible for infertility, irregular menstrual cycles, hair loss, and abnormal weight gain.^[2] The physical and emotional health of women is frequently negatively impacted for some time by the symptoms of PCOD. It is estimated that approximately 34% of women with PCOD also experience anxiety, and nearly 45% experience depression. Numerous women who are diagnosed with PCOD also have poor quality of life due to mood swings, negative social relationships, low self-confidence, and negative self-image. alterations in eating and sleeping schedules, poor drive.^[5] Several criteria exist for diagnosing PCOS, such as the National Institutes of Health (NIH) criteria, Androgen Excess Society (AES) criteria, and Rotterdam criteria. Among these, the Rotterdam criteria are the most widely utilized.^[6-9] To receive a diagnosis of PCOS, a minimum of two of the three Rotterdam criteria must be satisfied: ultrasound evidence of polycystic ovaries (presence of at least 20 Graaf follicles measuring 2–9 mm in diameter and/or ovarian volume >10 mL), infrequent ovulation or absence of ovulation, and clinical and/or biochemical indications of hyperandrogenism.^[10]

About 5–10% of females in the reproductive age group (12–45 years old) have PCOD, also known as polycystic ovarian syndrome (PCOS), one of the most prevalent complex endocrine disorders with an unknown etiology. It affects 2.2–26% of Indian women in their reproductive years.^[11] The incidence of PCOS varies from 5 to 26% in reproductive aged women due to the varying criteria used for diagnosing PCOS.^[12] Roughly 4–6% of women have hyperandrogenic chronic anovulation that occurs in PCOS. One of the studies reported around 5 million young women are affected with PCOS in the United States of America.^[13] Another study done in Pakistan highlighted 17.5% participants were suspected with PCOS, 3.5% were diagnosed with PCOS on the basis of signs and symptoms, and 5.5% were already diagnosed with PCOS.^[14] Only a few researchers have studied the prevalence of PCOS in India and among those, most of the sampling was convenience based, which might not reflect the true status of PCOS prevalence in the community. In India, PCOS has been reported to vary between racial counterparts with an estimated prevalence of 9.13% in adolescents. A pilot cross-sectional study conducted in Tamil Nadu assessed young adolescent females and found a prevalence of 18 per cent for PCOS. They also concluded that the proportion of PCOS was higher in urban women in comparison to the rural women. A similar study conducted in Mumbai, which was an urban community-based study, found that the prevalence of PCOS was 22.5 per cent by the

Rotterdam criteria and 10.7 per cent by the Androgen Excess Society criteria. A survey conducted in suburbs of Mumbai revealed 11.97% of women diagnosed as PCOS.^[15] The first line of treatment for adolescent PCOD is lifestyle modification. For everyone with PCOD, but particularly for overweight and obese girls, diet, exercise, and behavioral strategies are advised. It has been discovered that physical activity helps PCOD by enhancing insulin sensitivity, lowering inflammation, and enhancing general health. Dietary variables, such as the type and amount of food ingested, are important in controlling PCOD symptoms and maximizing fertility. A person's assessment of their own lives within the framework of their cultures, beliefs, and particular objectives and concerns is known as their quality of life. Various studies suggested that QoL is reduced in women with polycystic ovary syndrome (PCOS), but there is limited data in adolescents. Some study indicated that Women's psychological health is negatively impacted by BMI and hirsutism, which lowers their quality of life.^[16,17] Quality of life (QoL) is an important aspect of health and well-being. In most cases, adolescent girls with PCOS have reduced QoL when compared to healthy girls, and PCOS symptoms/excess weight impact on their QoL. Very little information exists about the quality of life and psychological wellbeing among adolescents girls with PCOD in India. Keeping these in minds, the researcher aimed to assess the QoL and psychological wellbeing of adolescent girls with PCOD.

MATERIALS AND METHODS

Descriptive research with quantitative approach was adopted in the study. The study duration was for 7 months (February 2024- August 2024). The study was conducted on 100 adolescent school going girls of two selected school of Gurugram by using purposive sampling technique. The inclusion criteria were population of age between 13-18 and PCOD diagnosed patients. The exclusion criteria were Adolescent girls who were suffering from any known disorder and menarche attained within one year. The investigator obtained permission from the authorities of the schools, prior to the data collection and assured confidentiality to the subject to get their cooperation and explained the purpose of the study. Informed written consent was taken from the study participants. The data was collected by using structured questionnaire. The first part of the questionnaire had questions related to general demographic information like age, education, organization, Body mass index, age at menarche, menstrual cycle and types of menstruation. The second part was WHO QOL-BREF questionnaire on PCOD which consist of 26 questions on a five-point Likert scale. Out of 26 questions, 24 questions were used which was categorized under 4 domains namely physical (7 items), psychological (6 items), social (5 items), and environment (6 items), is a standardized

tool. The Cronbach’s alpha was used to find the reliability. The tools were found reliable (0.94) and internal consistency was measured by using Cronbach’s alpha (0.94). The third part was Ryff Scales of Psychological Well-Being questionnaire which consists of 18 questions on a seven-point Likert scale. were used which was categorized under domains namely autonomy subscale (3 items), Environmental Mastery subscale (3 items), Personal Growth subscale (3 items), Positive Relations with Others subscale (3 items), Purpose in Life Subscale (3 items) and Self-Acceptance subscale (3 items), is a standardized tool. The results were analyzed through descriptive and inferential statistics.

RESULT

Table 1 provides the demographic information of hundred participants who were included. This table

showed that majority of the adolescent girls (36%) were in the age group of 13-14 years. In term of education, 36% were studying in 9th class and more than half (65%) were enrolled in private educational institute. Assessing socio economic condition, half (50%) rated them as good. Approx 84% of the adolescent girls belongs to sedentary lifestyle category. More than half (54%) of them were overweight based on BMI (25-29.9). More than half (61%) of adolescent girls attained menarche at the age between 10- 12 years. The manifestation of PCOD primarily presented as irregular menstrual cycle (51%). Majority (89%) of the adolescent girls have painful period and 60% were undergoing treatment for PCOD symptoms. More than half (65%) of adolescent girls Did not have a family history of PCOD.

Table 1: Socio-demographic characteristics of adolescent girls with PCOD

Questions	Frequency	Percentage
Age		
a) 13-14 years	36	36%
b) 15-16 years	32	32%
c) 17-18 years	32	32%
Education		
a) 9 th class	36	36%
b) 10 th class	30	30%
c) 11 th class	34	34%
Organization		
a) Government	35	35%
b) Private	65	65%
Socio-economic conditions		
a) Good	50	50%
b) Very good	30	30%
c) Sufficient	15	15%
d) Poor	5	5%
Lifestyle		
a) Sedentary	44	44%
b) Moderate	46	46%
c) Heavy	10	10%
Body Mass index		
a) Below 18.5	14	14%
b) 18.5- 24.9	18	18%
c) 25-29.9	54	54%
d) 30.0 and above	14	14%
Age at menarche		
a) Below 9 years	10	10%
b) 10-12 years	61	61%
c) 13-15 years	23	23%
d) Above 15 years	6	6%
Menstrual Cycle		
a) Regular	49	49%
b) Irregular	51	51%
Type of menstruation		
a) Painful periods	89	89%
b) Painless periods	11	11%
Treatment undertaken for PCOD treatment		
a) Yes	60	60%
b) No	40	40%

Family history of PCOD		
a) Yes	35	35%
b) No	65	65%

Table 2 explains the value of descriptive statistics (Mean and SD) on Quality of Life of adolescent girls with PCOD. This table revealed that the mean quality of life score was compromised in all domain. The

highest in the social relationship (14.27±3.06) domain followed by environmental (13.71±4.00), psychological health (13.67±3.06) and lowest in the physical (12.22±3.28) domain of quality of life.

Table 2: - Score the domain wise QOL of Life of adolescent girls with PCOD

Quality of Life domain	Max Score	Mean	SD
1. Physical health	100	12.22	3.28
2. Environment	100	13.71	4.00
3. Social Relationship	100	14.27	3.82
4. Psychological health	100	13.67	3.06

Table 3 explains the value of descriptive statistics (Mean and SD) on psychological wellbeing of adolescent girls with PCOD. This table revealed that the mean psychological wellbeing score was compromised in all domain. The mean score for autonomy domain is relatively high (12.05±2.88) compared with other dimensions indicating that adolescent girls with PCOD generally feel a moderate

level of control over their lives and are capable of making independent decisions. This pattern suggests that while adolescent girls with PCOD may feel moderately autonomous and have some opportunities for personal growth, they face significant challenges in forming positive relationships, finding purpose, and accepting themselves.

Table 3: - Score the domain wise psychological wellbeing of adolescent girls with PCOD

Psychological wellbeing domain	Max Score	Mean	SD
1. Autonomy	100	12.05	2.88
2. Environmental Mastery	100	11.88	2.90
3. Personal Growth	100	11.94	2.77
4. Positive Relations with Others	100	11.85	2.56
5. Purpose in Life	100	11.85	2.88
6. Self-Acceptance	100	11.85	2.82

Table 4: Correlation between quality of life and psychological well-being among adolescent girls with PCOD

		PH	EH	SH	PSYH	AUTONOMY	EM	PG	PR	PIL	SA
PH	Pearson Correlation	1	.225(*)	.026	.300(**)	.101	-.053	-.144	-.092	-.011	-.025
	Sig. (2-tailed)		.024	.796	.002	.317	.598	.154	.362	.910	.807
EH	Pearson Correlation	.225(*)	1	.113	.425(**)	-.045	.046	-.127	.032	.030	.104
	Sig. (2-tailed)	.024		.265	.000	.657	.647	.209	.751	.765	.303
SH	Pearson Correlation	.026	.113	1	-.044	.129	.022	.124	.139	-.013	-.036
	Sig. (2-tailed)	.796	.265		.663	.202	.829	.218	.168	.902	.721
PSYH	Pearson Correlation	.300(**)	.425(**)	-.044	1	.034	-.053	.109	-.045	.039	.037
	Sig. (2-tailed)	.002	.000	.663		.733	.603	.278	.654	.704	.711
AUTONOMY	Pearson Correlation	.101	-.045	.129	.034	1	.013	.148	.067	.013	.088
	Sig. (2-tailed)	.317	.657	.202	.733		.900	.142	.511	.898	.386

EM	Pearson Correlation	-.053	.046	.022	-.053	.013	1	.013	-.107	-.126	.535(**)
	Sig. (2-tailed)	.598	.647	.829	.603	.900		.899	.290	.211	.000
PG	Pearson Correlation	-.144	-.127	.124	.109	.148	.013	1	.097	.103	.173
	Sig. (2-tailed)	.154	.209	.218	.278	.142	.899		.339	.306	.086
PR	Pearson Correlation	-.092	.032	.139	-.045	.067	-.107	.097	1	.147	-.175
	Sig. (2-tailed)	.362	.751	.168	.654	.511	.290	.339		.144	.082
PIL	Pearson Correlation	-.011	.030	-.013	.039	.013	-.126	.103	.147	1	.047
	Sig. (2-tailed)	.910	.765	.902	.704	.898	.211	.306	.144		.644
SA	Pearson Correlation	-.025	.104	-.036	.037	.088	.535(**)	.173	-.175	.047	1
	Sig. (2-tailed)	.807	.303	.721	.711	.386	.000	.086	.082	.644	

*Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis in Table 4 explores the relationship between various dimensions of quality of life (QoL) and psychological well-being among adolescent girls with PCOD. A significant positive correlation was found between physical health (PH) and emotional health (EH) ($r = .225, p = .024$), as well as between PH and psychological health (PSYH) ($r = .300, p = .002$), indicating that better physical health is associated with improved emotional and psychological well-being. EH showed a strong positive correlation with PSYH ($r = .425, p < .001$), reflecting the interdependence of emotional and psychological dimensions in QoL. Autonomy showed weak and non-significant associations across most dimensions (e.g., $r = .101$ with PH, $p = .317$), suggesting limited relevance in this context. Emotional management (EM) was positively correlated with social acceptance (SA) ($r = .535, p < .001$), indicating that better emotional regulation enhances social well-being. Interestingly, some domains showed weak or negligible associations; for instance, PH and perceived relationships (PR) ($r = -.092, p = .362$) or personal independence and life satisfaction (PIL) ($r = -.011, p = .910$), highlighting the complexity of these interactions. These findings suggest that interventions targeting physical and emotional health may have the greatest impact on overall QoL and psychological well-being in adolescents with PCOD.

DISCUSSION

This study provides valuable insights into the demographic, clinical, and psychological characteristics of adolescent girls with PCOD, focusing on their quality of life (QoL) and psychological well-being.

The majority of participants were aged 13–14 years, with 54% classified as overweight and 84% leading

sedentary lifestyles. These findings align with a study by Balaji et al. (2020), which reported a similar prevalence of overweight adolescents with PCOD, emphasizing the critical role of lifestyle factors in disease progression. Irregular menstrual cycles were the most common symptom (51%), consistent with observations by Khan et al. (2023), who identified menstrual irregularities as the earliest presenting symptom in adolescents with PCOD.^[12] The absence of a family history in 65% of participants is noteworthy, mirroring findings from Ferrer et al. (2020), who highlighted that environmental factors might play a more significant role in PCOD among adolescents than genetic predisposition.^[13]

Our results revealed compromised QoL scores across all domains, with the highest mean score in the social relationship domain (14.27 ± 3.06). This suggests that adolescents may rely on peer support to manage the stress associated with PCOD. Similar findings were reported by Kalra et al. (2022), who emphasized the role of social relationships in mitigating psychological distress among Indian adolescents with PCOD.^[16] However, the lowest mean score in the physical domain (12.22 ± 3.28) underscores the physical burden of the disease, particularly in relation to obesity and dysmenorrhea. This is consistent with a study by D'Souza et al. (2022), which highlighted the negative impact of physical symptoms on overall QoL.^[17] The mean score for autonomy (12.05 ± 2.88) was relatively higher compared to other dimensions, indicating a moderate sense of control and independence among participants. This aligns with findings by Abassum et al. (2021), who suggested that adolescent girls with PCOD may develop resilience and adaptive coping mechanisms despite their challenges. However, scores in personal growth and positive relationships were lower, indicating significant psychological struggles.^[18] Hahn et al. (2023) attributed these challenges to

the stigma and body image issues commonly associated with PCOD, particularly among adolescents.^[15]

Our correlation analysis highlighted significant positive associations between physical health (PH), emotional health (EH), and psychological health (PSYH). Improving physical symptoms can thus positively impact emotional and psychological well-being. These findings are supported by Kalra et al. (2022), who emphasized the interconnectedness of physical and mental health in adolescents with PCOD.^[16] Emotional management (EM) showed a strong positive correlation with social acceptance (SA) ($r = .535$, $p < .001$), consistent with findings by Ferrer et al. (2020), who noted that better emotional regulation skills enhance social interactions and improve QoL.^[13]

While our findings align with much of the existing literature, there are notable distinctions. For instance, our study found weak correlations between autonomy and other QoL domains (e.g., $r = .101$ with PH), unlike Balaji et al. (2020), who reported stronger associations, suggesting cultural or contextual differences in how autonomy influences QoL.^[11] Additionally, while 60% of participants in our study were undergoing treatment, adherence and perceived efficacy remain underexplored, as highlighted by Hahn et al. (2023), who emphasized the need for individualized treatment plans.^[15]

CONCLUSION

This study highlights the significant impact of PCOD on the quality of life (QoL) and psychological well-being of adolescent girls, particularly in domains related to physical health and emotional regulation. The findings underscore the importance of addressing lifestyle factors such as obesity and sedentary behavior, which were prevalent in this cohort. Positive correlations between physical, emotional, and psychological health emphasize the interconnectedness of these dimensions, suggesting that holistic interventions targeting physical symptoms and emotional resilience can lead to substantial improvements. Empowering adolescents with autonomy and social support may further enhance their ability to manage the challenges associated with PCOD, fostering better long-term outcomes.

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