



EFFECT OF POLY-CYSTIC OVARIAN SYNDROME ON SELF-ESTEEM AND BODY-IMAGE AMONG ADOLESCENT GIRLS ATTENDING ADOLESCENT CLINIC IN A TERTIARY CARE CENTRE

Gynaecology

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ABSTRACT

Background: Polycystic ovary syndrome (PCOS) have serious health issues, affecting female health, causing body disfigurement, lowers self-esteem decreases the quality of life and, lifelong health consequences related to metabolic disorders.

Objective: The objective of the study was to evaluate, 'the impact of various clinical features of PCOS namely obesity, hirsutism, acne, menstrual irregularities on psychological well-being in adolescent girls'.

Material And Methods: A cross-sectional study conducted in the adolescent clinic, BHU. Tools used for data collection were a self-structured questionnaire which includes socio-demographic status, menstrual history, and anthropometric assessment. Hirsutism was assessed by the Ferriman-Gallwey scoring system, acne by the Global acne grading system, self-esteem by Rosenberg self-esteem scale, and body image by Body Image Concern Inventory scale. Statistical analysis was done by SPSS version '22'.

Results: Findings of multiple regression analysis suggests that adolescent girls with hirsutism experienced poorer self-esteem ($\beta = -2.621, p=0.01$) and greater body dissatisfaction ($\beta = 0.258, p=0.02$) than adolescents girls without hirsutism. Furthermore, obese adolescents had a lower level of self-esteem ($\beta = -0.056, p=0.01$) and negative body image ($\beta = 0.748, p=0.01$) compared with non-obese PCOS adolescents. Adolescent girls with menstrual irregularities had higher body dissatisfaction ($\beta = 0.143, p=0.05$) than patients with a regular cycle.

Conclusion: PCOS in adolescents having obesity, menstrual irregularities, and features of hyper-androgenism have a profound effect on psychological well being. So, the recognition of the early signs of PCOS during adolescence and early treatment can improve the quality of life.

KEYWORDS

Adolescent girls, Polycystic ovary syndrome, Body image, Self- esteem.

INTRODUCTION:

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age. World Health Organization (WHO) estimates that PCOS has affected 116 million women (3.4%) worldwide in 2012. Globally, prevalence of PCOS are highly variable, ranging from 2.2% to as high as 26%. In India, no proper published statistical data on the prevalence of PCOS is available.¹ It is characterized by a combination of Hyper-androgenism (either clinical or biochemical), chronic anovulation, and polycystic ovaries.

The physical consequences of PCOS are serious and predispose affected adolescents to a lifetime of adverse health conditions that tend to worsen throughout adulthood.² PCOS along with Obesity is associated with other metabolic disorders such as hyperlipidemia, diabetes, and cardiovascular diseases.³

The burden of this condition on the patient's mental state is recognized, with studies revealing the diminished quality of life and increased presence of depressive symptoms, including suicidal ideation among patients with PCOS.⁴ It has been found in prior studies that women with PCOS have greater body dissatisfaction than healthy control women with regular cycles.^{5,6}

Body image is defined as the mental picture of one's own body, an attitude about the physical self- appearance, and state of health, normal functioning, wholeness and sexuality. It is a component of a larger concept of self that for a woman includes feeling feminine and attractive, enjoying one's body as a symbol of social expression, and as a way of being in the world.⁷ The way in which one experiences her body is highly subjective and is a product of her perceptions, and feelings about body size, competence, and function. The negative perception of body image in patients with PCOS includes body dissatisfaction, feeling less sexually attractive, and consciousness about appearance.

Experiencing high self-esteem may serve as a protective factor in coping with many new and chronic illnesses, whereas low self-esteem is associated with anxiety, depression, and increased reports of general psychiatric (including somatic) illness. Some studies among patients

with PCOS have indicated an impact on self-esteem.⁸ For many women, self-esteem is based exclusively on their body image and as a consequence, their social functioning and interpersonal relationship are affected. It becomes even more complicated when the woman suffers physical changes or disfigurement due to a chronic illness such as PCOS.

Changes in the appearance, absent or irregular menstrual periods and, fear of infertility can result in psychological distress and may also influence the feminine identity of the patients with PCOS. Now a days, the importance of prevention of body dissatisfaction as a public health issue is increasingly being recognized. In light of the above considerations, it is likely that self-esteem and body image will reflect psychologically relevant consequences for the burden of PCOS for patients.

The aim of the study was to evaluate, 'the impact of various clinical features of PCOS namely obesity, hirsutism, acne, menstrual irregularities on psychological well-being in adolescent girls'.

MATERIAL AND METHODS:

Study- Design And Data Collection:

It was a descriptive cross sectional study carried out in the Adolescent Clinic, at a tertiary care centre of Varanasi, BHU from december 2018 to june 2020, including 160 adolescents with a confirmed diagnosis of PCOS having two of the following Rotterdam diagnostic criteria.⁹

- 1) Oligo-ovulation or anovulation.
- 2) Clinical and/or biochemical signs of hyper-androgenism.
- 3) Polycystic ovaries visualized on ultrasound scan [presence of 20 or more follicles in either ovary measuring 2-9 mm in diameter and/or increased ovarian volume (>10ml). A single ovary meeting these criteria is sufficient to affix the Polycystic ovarian morphology.¹⁰

Exclusion Criteria:

- Patients having other androgen excess disorders should be excluded such as androgen-secreting tumors, non-classical congenital adrenal hyperplasia, Cushing's syndrome, hyperprolactinemia, thyroid diseases, drug-induced androgen excess.

- Oligomenorrhea or anovulation due to other cause.
- Prior history of psychiatric disorders or using of psychiatric medications.

After explaining the study objectives, written consent was obtained from each patient and they were requested to complete the self-structured study questionnaires. The Ethical Committee of Institute of Medical Sciences, Banaras Hindu University approved the study.

Tools Used For Data Collection:

Socio-economic status (SES): Socio-economic status was determined by the Modified Kuppuswami scale. The total score of Kuppuswami scale ranges from 3-29 and it classifies families into 5 groups, "upper class, upper-middle class, lower- middle class, upper lower and lower socio-economic class."¹¹

Anthropometric Assessment:

Information on body weight, height, waist and hip circumference, and BMI {wt. (kg)/ht. (mtr²)} were obtained. Weight was measured in kilograms, without footwear using a regularly standardized beam balance. Height was also taken barefooted in centimeter using standard measuring tape fixed vertically. It was recorded to the nearest 1 cm to avoid the possible error. According to BMI study subjects were classified as obese, overweight, normal and, underweight as BMI ≥30, 25-29.9, 18.5-24.9 and, below 18.5 respectively. The Asia-Pacific guidelines for defining the Waist circumference (WC) cut-offs were used.¹²

Body Image:

We used the Body Image Concern Inventory (BICI) scale to examine body image in our study. It contains 19 items related to dissatisfaction and concern about appearance, social concerns, reassurance-seeking, and, avoidance related to appearance. For each item, respondents were asked to rate how often they had the described feeling or performed the described behavior on a Likert scale ranging from 1="never" to 5="always". The total score on this scale ranges from 19-95. The higher scores indicate higher dissatisfaction with the body.¹³

Self-esteem:

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES). The RSES is a 10-item measure related to positive and negative aspects of self-esteem. The responses were scored on a 4-point Likert scale ranging from 0 (strongly agree) to 3 (strongly disagree). The sum of the scores was classified to the level of self-esteem, with 15-25 considered average and scores <15 considered low self-esteem. The instrument has been extensively used in various healthy and non-healthy populations, and its reliability and validity have been supported for measuring self-esteem.⁸

Hirsutism:

Clinical assessment of hirsutism was determined using the Ferriman-Gallwey Scoring System (F/G score). Nine body sites were graded from 0 (no terminal hair) to 4 (severe hirsutism). Scores can range from 0-36. A score of 7 or above was considered positive for hirsutism.¹⁴

Acne:

Acne was determined by the Global Acne Grading System (GAGS). This system divides the face, chest, and upper back into 6 areas: the forehead, right cheek, left cheek, nose, chin, and torso (chest and upper back combined). Each acne lesion is described and scored as a comedo (1 point), papule (2 points), pustule (3 points), or nodule (4 points); the absence of an acne lesion in an area results in a score of 0 points. The local score for each anatomic area is determined by multiplying the score of the most severe lesion by an area factor (1 to 3), and the local scores of the 6 areas are then added together to obtain the total score. Acne severity is graded as none (0 points), mild (1-18 points), moderate (19-30 points), severe (31-38 points), and very severe (>38 points).¹⁵

Menstrual History:

Menstrual disorders are menstrual irregularity, amenorrhea, dysmenorrhea, menorrhagia, oligomenorrhea, polymenorrhea and, other related symptoms. Oligomenorrhea is defined as infrequent, irregularly timed episodes of bleeding occurring at intervals of more than 45 days in adolescents. Polymenorrhoea means frequent episodes of menstruation occurring at intervals of less than 21 days. Menorrhagia is unaltered menstrual cycles where the quantity of menstrual loss exceeding 80 ml. Hypomenorrhea is defined as

regularly timed but the scanty flow of bleeding (<10 ml) which lasts for <2 days.¹⁶

Statistical Analysis:

Data are presented as number and percentage unless otherwise indicated. Independent sample t-test and ANOVA was utilized for the comparison of the means of psychological variables between two or more groups based on PCOS characteristics. To know the association between the PCOS characteristics and psychological variables multiple linear regression analysis method was applied. Statistical analysis was performed using Statistical Package for the Social Sciences (version 22). P<0.05 was considered significant.

RESULTS:

Socio-demographic and clinical characteristics in PCOS patients are presented in *table-1*. The mean age of patients was 17.88 (SD±1.20) years, the mean score of hirsutism was 7.8±2.6 and the mean score of acne was 3.18±4.6. The incidence of obesity in adolescent girls with PCOS was very high. According to BMI categorization, 40% of the study populations were overweight and 12.5% were obese. Around 70% were suffered from central obesity. In regards to menstrual history out of 160 respondents, 77.5% had an irregular menstrual cycle, out of which 70% had oligo-menorrhea and 7.5% had poly-menorrhea.

Table-1: Socio-demographic And Clinical Characteristics Of PCOS Patients:

Variables	Percentage	Frequency
Resident		
Rural	37.5	60
Urban	62.5	100
Socioeconomic status		
Upper	22.5	36
Upper middle	25	40
Lower middle	30	48
Upper lower	17.5	28
Lower	5	8
Body Mass Index		
Normal	47.5	76
Overweight	40	64
Obese	12.5	20
Waist-Hip Ratio		
<0.80	30	48
≥0.80	70	112
Interval between menstruation		
Polymenorrhea	7.5	12
Normal	22.5	36
Oligomenorrhea	70	112
Menstrual flow		
Scanty	7.5	12
Normal	49	78
Heavy	43.5	70

Clinical and mean score of Psychological well being based on PCOD characteristics are presented in *table 2*. In relation to self-esteem, the adolescent girls with hirsutism, irregular menstrual cycle and, obesity had a lower level of self-esteem than subjects without these symptoms. In relation to body image, it was found that patients with features of Hyper-androgenism (Hirsutism and acne), irregular menstrual cycle and, obesity had more negative body image than the subjects not having hirsutism, acne and have normal body weight and normal menstrual cycle.

Variables	Self-esteem (mean ± SD)	Body-image (mean ± SD)
Hirsutism		
F/G < 7	24.45 ± 2.942	44.60± 7.597
F/G ≥7	22.55 ± 1.999	50.29 ± 6.467
P-value*	0.001	0.001
Acne		
Mild	22.50 ± 4.81	38.00± 0.01
Moderate	20.00 ± 0.001	51 ± 1.069
P-value*	0.164	0.001
Menstrual interval		
Regular	24.56 ± 2.709	45.58± 5.992
Irregular	23.19 ± 2.606	48.43 ± 7.787
P-value*	0.007	0.045

Body Mass Index (BMI)		
Normal	24.95 ± 2.818	42.14 ± 6.422
Overweight	22.31 ± 1.876	51.62 ± 5.101
Obese	21.80 ± 1.005	54.20 ± 3.694
P-value**	0.001	0.001
Waist-Hip Ratio		
<0.80	25.33 ± 2.956	40.88 ± 5.310
≥0.80	22.71 ± 2.128	50.75 ± 6.252
P-value*	0.001	0.001

TABLE- 2: Psychological well-being in patients of PCOS, Data presented as mean ± SD, F/G- Ferriman-Gallway score, *Student's t test, **ANOVA test.

Findings of multiple regression analysis suggest that adolescent girls with hirsutism experienced poorer self-esteem ($\beta = -2.621, p=0.01$) and greater body dissatisfaction ($\beta = 0.258, p= 0.02$) than adolescents girls without hirsutism. Furthermore, obese adolescents had a lower level of self-esteem ($\beta = -0.056, p=0.01$) and negative body image ($\beta = 0.748, p=0.01$) compared with non- obese PCOS adolescents. Adolescent girls with menstrual irregularities had higher body dissatisfaction ($\beta = 0.143, p=0.05$) than patients with a regular cycle (table-3).

Table 3: Multiple Linear Regression Analysis Of Psychological Well Being In PCOS Patient

Variables	Coefficient (β)	SE	P-value
Self-esteem			
Hirsutism	-2.621	0.146	0.01
Body Mass Index	-0.506	0.442	0.01
Body- Image			
Hirsutism	0.258	0.442	0.02
Body Mass Index	0.748	1.340	0.01
Menstrual irregularities	0.143	2.049	0.05

DISCUSSION:

The goal of this study was to examine psychological well-being in adolescent girls affected with PCOS. We observed in our study that PCOS patients with obesity, menstrual disorders, and hyperandrogenism features had negative body image and lower levels of self-esteem than the patients not having these symptoms. Similarly, a study conducted by Coffey et al, revealed that Quality-of-life indicators in PCOS patients are lower than those expressed by women who do not have PCOS, even lower than women with other chronic illness such as diabetes, asthma, chronic pain, and coronary artery disease.¹⁷

Adolescent girls with PCOS are at higher risk of obesity and insulin resistance.¹⁸ As compared to the rate of children in the overall population aged 6-17 years that are overweight (18%), 40%-63% of women with PCOS considered to be obese, with central obesity as a predominant characteristic.¹⁹ The present study also revealed that 52.5% of the adolescent girls with PCOS are either overweight or obese and 70% were suffered from central obesity. Overweight adolescents often resort to extreme dieting or exercise, leading to unhealthy behaviors, nutritional deficits and sometimes eating disorders.²⁰ The association of amenorrhea with bilateral polycystic ovaries and obesity was first described in 1935 by Stein and Leventhal.²¹

Obesity not only acts as a risk factor for other health problems; it has also been shown in previous studies that obesity and weight gain are likely to lead to loss of self-esteem and poor body-image, results in decreased quality of life.²² Our study also showed that obesity has a significant association with self-esteem and body image. Obesity unfavorably affects self-esteem and body image in PCOS patients. Negative body image in PCOS patients may be compounded by cultural influences as it has been shown that an android fat pattern is considered unattractive in many cultures. Similar findings were also reported by studies conducted by Simon et al,²³ McCook,²⁴ and Stunkard et al.²⁵ However, Annagur et al didn't find any difference between PCOS and control groups in terms of body image and self-esteem. These differing results might be explained by the fact that we used different questionnaires to measure body satisfaction and RSES is a general self-esteem questionnaire, which not always is sensitive enough to measure fluctuation in self-esteem related to physical appearance.²⁶

Because a large proportion of these adolescents are overweight/ obese or are at risk for gaining excessive weight, healthy lifestyle

interventions must be incorporated in the management plan of all adolescents with PCOS. Lifestyle interventions consist of multiple components, including physical activity; healthy diets decreased sedentary behaviors and, behavioral strategies.

This study also indicates that adolescents with hirsutism and acne had greater body dissatisfaction and lower self-esteem. Similar findings were shown in adolescents by Trent et al confirmed that the common symptoms in PCOS (menstrual irregularities, hirsutism, acne, and obesity) contribute to poor body image and self-esteem.²⁷ Similar to our result, Hahn et al also found that hirsutism was negatively associated with self-esteem.⁴ Lipton et al also reported that facial hair greatly affects self-confidence and making them worry about their appearance.²⁸ A prior study showed that recurrent clinical symptoms such as hair loss, hirsutism, acne, and tension made them have concerns about their beauty and attractiveness and feel pressure about their appearance. Increased criticisms by those around them can also reduce adolescents' self-esteem and increase their level of anxiety and depression and lead to disrupted social relationships.²⁹

Hormonal imbalance is a hallmark symptom of PCOS which is often manifested by irregular menstrual cycle in 75% of those with the condition.² As shown in table-1, 70% of adolescent girls in our study were suffered from oligomenorrhea and 7.5% had polymenorrhea. Our results also indicate that adolescents with menstrual irregularities have greater body dissatisfaction and lower level of self-esteem. Dramusic et al found that 83% of teens with PCOS reported distress over their irregular periods.³⁰ De Niet et al also indicated that adolescents having PCOS with amenorrhea have a greater fear of negative appearance.³¹ This might be explained by the fact that the absence of vaginal bleeding for a long period makes them feel insecure about their future fertility as well as their femininity. Menstruation is a sign of female identity and is considered as an integral part of femininity.³² According to the American College of Obstetricians and Gynecologists and the American Academy of Pediatrics, the menstrual cycle is a vital sign of adolescence. As such, menstruation is associated with positive feelings, and any disruption in it could negatively affect the adolescent's health.³³

The major limitation of the present study includes its smaller sample size. We also appreciate that we cannot make a comparison with PCOS patients with non PCOS controls. Also the study of patients with PCOS attending the adolescent clinic, BHU may limit generalization of the findings to the entire PCOS population.

CONCLUSION:

Adolescents with PCOS experience significantly more emotional distress compared to adolescents without PCOS. This emotional distress may be related, at least in part, to certain clinical features of PCOS including obesity and hirsutism, acne, and menstrual irregularities. So, PCOS in adolescents should be assessed not only for the gynecological and metabolic aspects but also for the emotional aspects of the disease.

The recognition of the early signs of PCOS during adolescence and early treatment can improve the quality of life. The importance of poor body image in women with PCOS also suggests that education and counseling about the condition and healthy lifestyle interventions must be incorporated in the management plan of all adolescents with PCOS.

Author Contributions

The study was designed, directed and co-ordinated by SA and MJ. SA performed the study and data collection and TBS helps in analyzing the data. The manuscript was written by SA and reviewed, edited and revised by all other authors.

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committee

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