

BODY IMAGE AND SELF-ESTEEM IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME: A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background

PCOS has serious health issues, affecting female health, causing body disfigurement, lowering self-esteem, decreasing 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 women suffering from PCOS'.

Material and methods

A cross-sectional study was conducted in the gynecology OPD, Sir Sunderlal Hospital, BHU. Tools used for data collection were a self-structured questionnaire, which included socio-demographic status, menstrual cycle questionnaire, Body Mass Index measurement, waist-hip ratio, and clinical features of PCOS. Hirsutism was assessed by the Ferriman-Gallwey scoring system, the Global acne grading system, self-esteem by the Rosenberg self-esteem scale, and body image by the Body Image Concern Inventory scale. Statistical analysis was done by SPSS version 22.

Results

Findings of multiple regression analysis suggest that women with hirsutism experienced poorer self-esteem ($\beta = -2.621$, $p=0.01$) and greater body dissatisfaction ($\beta = 0.258$, $p=0.02$) than women without hirsutism. Furthermore, obese women 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 women. PCOS women with menstrual irregularities had higher body dissatisfaction ($\beta = 0.143$, $p=0.05$) than patients with regular cycles.

Conclusion

Women suffering from PCOS, having obesity, menstrual irregularities, and features of hyperandrogenism have a profound effect on psychological well-being. So, the recognition of the early signs of PCOS and early treatment can improve the quality of life.

Keywords: Polycystic ovary syndrome, Body image, Self-esteem.

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INTRODUCTION

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age. The World Health Organization (WHO) estimates that PCOS affected 116 million women (3.4%) worldwide in 2012. Globally, the prevalence of PCOS is 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 hyperandrogenism (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-appearing, 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 How 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 relationships 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 patients with PCOS. Nowadays, the importance of the prevention of body dissatisfaction as a public health issue is increasingly being recognized. In light of the above considerations, self-esteem and body image will likely reflect psychologically relevant consequences of the burden of PCOS for patients.

The study aimed to evaluate the impact of various clinical features of PCOS, namely obesity, hirsutism, acne, and menstrual irregularities, on psychological well-being in women suffering from PCOS.

MATERIALS AND METHODS

Study- Design and Data Collection

It was a descriptive cross-sectional study carried out in the Gynecology OPD, at a tertiary care centre of Varanasi, BHU, from December 2018 to June 2020, including 160 patients 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 hyperandrogenism.

3) Polycystic ovaries visualized on ultrasound scan [presence of 12 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 diagnose 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, and drug-induced androgen excess.

Oligomenorrhea or anovulation due to other causes.

Prior history of psychiatric disorders or use 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 questionnaire.

Tools used for data collection

Socio-economic status (SES)

Socio-economic status was determined by the Modified Kuppuswami scale. The total score of the 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 barefoot in centimeters using a standard measuring tape fixed vertically. It was recorded to the nearest 1 cm to avoid the possible error. According to the 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 according 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 determined clinically by the FIGO AUB classification. Menstrual irregularities are divided into amenorrhea, dysmenorrhea, heavy menstrual bleeding, infrequent cycle, frequent cycle, and other related symptoms.¹⁶

Statistical analysis

Data are presented as numbers and percentages unless otherwise indicated. Independent sample t-test and ANOVA were 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 the 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 26.88 (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 women with PCOS was very high. According to BMI categorization, 40% of the study population was overweight, and 12.5% were obese. Around 70% 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.

Variables	Percentage	Frequency
<i>Resident</i>		
Rural	37.5	60
Urban	62.5	100
<i>Socioeconomic status</i>		
Upper	22.5	36
Upper middle	25	40
Lower middle	30	48
Upper lower	17.5	28
Lower	5	8
<i>Body Mass Index</i>		
Normal	47.5	76
Overweight	40	64
Obese	12.5	20
<i>Waist-Hip Ratio</i>		
<0.80	30	48
≥0.80	70	112

<i>Interval between menstruation</i>		
Frequent cycle	7.5	12
Normal	22.5	36
Infrequent cycle	70	112
<i>Menstrual flow</i>		
Scanty	7.5	12
Normal	49	78
Heavy	43.5	70

TABLE 1: Socio-demographic and clinical characteristics of PCOS patients

Clinical and mean scores of Psychological well-being based on PCOD characteristics are presented in *Table 2*. About self-esteem, women with hirsutism, irregular menstrual cycle, and obesity had a lower level of self-esteem than subjects without these symptoms. About

body image, it was found that patients with features of hyperandrogenism (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 \pm SD)	Body image (mean \pm SD)
<i>Hirsutism</i>		
F/G < 7	24.45 \pm 2.942	44.60 \pm 7.597
F/G \geq 7	22.55 \pm 1.999	50.29 \pm 6.467
P-value*	0.001	0.001
<i>Acne</i>		
Mild	22.50 \pm 4.81	38.00 \pm 0.01
Moderate	20.00 \pm 0.001	51 \pm 1.069
P-value*	0.164	0.001
<i>Menstrual interval</i>		
Regular	24.56 \pm 2.709	45.58 \pm 5.992
Irregular	23.19 \pm 2.606	48.43 \pm 7.787
P-value*	0.007	0.045
<i>Body Mass Index (BMI)</i>		
Normal	24.95 \pm 2.818	42.14 \pm 6.422
Overweight	22.31 \pm 1.876	51.62 \pm 5.101
Obese	21.80 \pm 1.005	54.20 \pm 3.694
P-value**	0.001	0.001
<i>Waist-Hip Ratio</i>		
<0.80	25.33 \pm 2.956	40.88 \pm 5.310
\geq 0.80	22.71 \pm 2.128	50.75 \pm 6.252
P-value*	0.001	0.001

TABLE 2: Psychological well-being in patients of PCOS

Data presented as mean \pm SD, F/G- Ferriman-Gallway score, *student's t test, **ANOVA test.

Findings of multiple regression analysis suggest that PCOS patients with hirsutism experienced poorer self-esteem ($\beta = -2.621$, $p = 0.01$) and greater body dissatisfaction ($\beta = 0.258$, $p = 0.02$) than patients without hirsutism. Furthermore, obese women 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 patients. Patients with menstrual irregularities had higher body dissatisfaction ($\beta = 0.143$, $p = 0.05$) than patients with a regular cycle (Table 3).

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

Table 3: Multiple linear regression analysis of psychological well-being in PCOS patients

DISCUSSION

The goal of this study was to examine psychological well-being in women suffering from 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 patients without 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 illnesses such as diabetes, asthma, chronic pain, and coronary artery disease.¹⁷

Women with PCOS are at higher risk of obesity and insulin resistance.¹⁸ As compared to the women in the overall population aged 18-45 years that are overweight (28%), 40%-63% of women with PCOS are considered to be obese, with central obesity as a predominant characteristic.¹⁹ The present study also revealed that 52.5% of the women with PCOS are either overweight or obese, and 70% suffered from central obesity. Overweight women 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, resulting 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 is not always sensitive enough to measure fluctuation in self-esteem related to physical appearance.²⁶

Because a large proportion of these patients 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 women with hirsutism and acne had greater body dissatisfaction and lower self-esteem. Similar findings were shown in PCOS patients 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. Lipton et al also reported that facial hair greatly affects self-confidence and makes 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 women's 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 cycles in around 77% of those with the condition. As shown in Table 1, 70% of PCOS patients in our study suffered from infrequent cycles, and 7.5% had frequent cycles. Our results also indicate that women with menstrual irregularities have greater body dissatisfaction and a 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 women with PCOS and 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 an integral part of femininity.³²

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 gynecology OPD, BHU may limit generalization of the findings to the entire PCOS population.

CONCLUSION

Women with PCOS experience significantly more emotional distress compared to women 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 patients 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 women with PCOS.

AUTHOR CONTRIBUTIONS

The study was designed, directed, and coordinated by SA and SJ. SA performed the study and data collection. DS and AM help in analyzing the data. The manuscript was written by SA and reviewed, edited and revised by all other authors.

CONFLICTING INTEREST

The authors declare no conflict of interest.

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