ORIGINAL ARTICLE

How Common are Depressive-Anxiety States, Body Image Concerns and Low Self-Esteem in Patients of PCOS?

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Abstract

Background Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age with increased incidence of emotional disturbances and other psychopathology. We undertook this research to study the prevalence and severity of depression and anxiety as well as understand body image disturbances and self-esteem of the women of PCOS. We studied the relationship of depressive symptoms with self-esteem and body image disturbances.

Method A total of 105 patients diagnosed as PCOS were recruited from gynecology OPD after informed consent and ethics approval. A proforma along with Beck's Depression Inventory, Hamilton Depression Rating Scale, Hamilton Anxiety Rating Scale, Body Image Concern Inventory and Rosenberg' s Self-Esteem Scale were administered to patients for further assessment.

Results In total, 54 (51.43%) patients of PCOS had depression on BDI, 12(11.43%) patients had body image disturbances an d 23 (21.90%) patients had a low self-esteem. A total of 21 patients(20%) had mild and moderate depression while 5% had severe depression. Majority 53 (50.48%) of our patients had mild anxiety whereas severe to extreme anxiety was seen in about 31% of patients. Body image disturbances were seen in only 12(11.43%) patients and low self-esteem was present in 23 patients. No statistically significant correlation of depression was seen with body image or self-esteem.

Conclusions The results of this study indicate that there is a high prevalence of depression and anxiety in patients of PCOS than body image concerns and low self-esteem. Prognosis for patients would improve by liaison between gynecologist and psychiatrist.

Keywords PCOS · Depression · Anxiety · Body Image · Self-Esteem

Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age occurring in about 5 -10% of women [1]. In a recent systemic review and meta analysis Brutacalo et al. [2] reported that PCOS was associated with increased risk of diagnosis of depression, anxiety, bipolar disorder and OCD. Various researchers have reported prevalence of depression to be ranging from 13. 3–53% in their studies [3–6], with anxiety seen in about 41.9% of the patients [7]. Most patients of anxiety had higher levels of generalized and social anxiety symptoms [8]. Among Indian studies, the prevalence for depression was found to be 39% [9, 10] and 25% [11]. Chaudhari et al. [11] found mild, moderate, and severe anxiety on HARS in 62.90%, 29.60%, and 7.40%, of their sample, respectively, whereas Kaur et al. [12] using the GAD7 scale found the prevalence of anxiety to be 56%.

Women with PCOS also have greater body dissatisfaction than healthy control women with regular cycles, even after adjustment for body mass index (BMI) [13]. Experiencing high self-esteem may serve as a protective factor in coping with new and chronic illnesses, whereas low self-esteem is associated with anxiety, depression and increased reports of

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somatic symptoms [14, 15]. We undertook this study as there are very few Indian studies on these various aspects of PCOS. Our aim was to study the prevalence of depression, anxiety, body image disturbances and self-esteem in patients of PCOS. We also wanted to study the relationship of depressive symptoms with self-esteem and body image disturbances.

Material and Method

The study was a cross-sectional, observational study conducted in the outpatient department of gynecology of a general municipal hospital done over a period of one year after institutional ethics committee approval. The sample size was calculated as per the formula $Z2 \cdot p \cdot (100 - p) \div d^2 \cdot p \cdot (100 - p) \div d^2$, where $p = 38\%$, $q = (100 - p) = 62\%$; $Z = 1.96 \sim 2$; $d =$ Absolute error $= 10\%$; non-responder correction -10%. The sample size of our study was 105 patients. All patients enrolled and included in the study were diagnosed by the gynecologists to be having PCOS by Rotterdam diagnostic criteria [16], patients were in the age group 18–50 years (to reduce any potential confounding effects of menopause with average age of onset being 51 years) and did not have previous history of any psychiatric illness. Patients with incomplete diagnosis of PCOS, those already under treatment for any psychiatric illness or women who were pregnant /menopausal or those having hirsutism due to related disorders like congenital adrenal hyperplasia, Cushing´s syndrome and androgen secreting tumors were excluded from the study.

Tools

A semi structured proforma was designed to collect the socio-demographic details , details of PCOS , details of menstrual cycles, anthropometrics including height, weight , medical comorbidity , details of treatment taken and scales pertaining to the aims of the study.

Becks Depression Inventory (BDI)

BDI was used to diagnose and rate the severity of depression. It is a 21-item scale with a score of 17 or above indicating presence of depression [17]. The maximum total score is 63. Clinical interpretation of the scale uses following guidelines: 0-13 minimal depression, 14-19 mild depression, 20-28 moderate depression, and 29-63 severe depression.

Hamilton Rating Scale for Depression (HAM-D OR HRSD)

This is a 17-item clinician rated likert scale aimed at assessing depression severity among patients with a score range from 0-54 [18]. Interpretation of scores is 0-6 no depression,

7-17 mild depression, 18-24 moderate depression and scores more than 24 indicate severe depression.

Hamilton Anxiety Rating Scale (HARS)

This is a 14-item clinician rated likert scale aimed at assessing anxiety severity among patients [19]. A score from 18-24 indicates mild to moderate anxiety, and 25-30 indicates moderate to severe anxiety severity.

Body Image Concern Inventory (BICI)

The BICI is a 19-item 5-point rated brief self-report measure of the body image perception like dissatisfaction with appearance, checking and camouflaging of perceived appearance defects, reassurance seeking about physical appearance, social concerns and avoidance related to appearance defects [20]. Scores can range from 19 to 95, with higher scores representing higher levels of body image disturbances. By taking 72 as a clinical cutoff score, it has a sensitivity of 96% and specificity of 67%. The validity of scale is 82%.

Rosenberg's Self-Esteem Scale (RSES)

RSES is a 10-item 4-point likert rated ranging from strongly agree to strongly disagree. The cutoff score for self-esteem is 15. Scores above 15 indicate better self-esteem [21]. The reliability of scale is 77%, and validity is 90% with an alpha coefficient ranging from 0.72 to 0.83.

All the scales which were administered to the patients were translated in Hindi and Marathi and validated before use

Statistics

Descriptive statistics with frequency distribution were used to study socio demographic variables, the prevalence of psychiatric morbidity, body image disturbances and self-esteem. The correlation of self-esteem and body image disturbances with depression was done using Pearson's correlation coefficient. Two tailed P values where P< 0.05 was considered significant for all statistical analysis. Graph pad was used for all statistical analysis.

Results

The mean age of patients was 25.1 +4. 05 years with the ages ranging from 18-37 years. 65 (61.90%) of the patients were unmarried, 39 (37.14%) were married while 1 (00.95%) was divorced. 73 (69.52%) were Hindus, 24 (22.86%) were Muslims, while 8 (07.61%) were from

Table 1 Severity of Depression as per BDI and HAMD

Severity of Depression as per BDI Number of patients $n = 105$ (%)		Severity of Depression as per HAMD Number of patients $n = 105$ (%)	
Normal	30(28.57)	Normal	17 (16.19%)
Mild mood disturbance	21(20%)	Mild depression	38 (36.19%)
Borderline clinical depression	28 (26.67%)	Moderate Depression	27 (25.71%)
Moderate depression	21 (20.00%)	Severe depression	23 (21.90%)
Severe depression	5 (4.76%)		
Extreme depression	0		
Total Mean BDI score Mean + SD	15.59 + 8. 56	Total Mean HAMD score Mean + SD	17.37 + 10

other religions. None of the patients in our study sample were illiterate and 39 (37.14%)women had completed graduation but 70 of them (66.67%) were housewives. 28 (26. 67%), 30 (28.57%) and 8 (07.62%) managed to complete primary school, secondary school and intermediate schooling, respectively. A total of 16 (15.24%) of them were professionals, 9 (8.57%) were semiprofessional, 2 (1.90%) were involved in clerical work. A total of 6 (5.71%) of them were unskilled workers while 2 (1.90%) were unskilled workers. 53 (50.48%) patients belonged to the middle class, 32 (30.48%) were from upper class and 20 (19.05%) belonged to lower class. The mean duration of PCOS was 3.98 + 3.13 years.

When all the patients were assessed on the BDI to find the prevalence of depression we found that 54 (51.43%) patients had depression with a cut off score of 17. The total mean BDI score was 15.59 + 8.56. HAM D revealed a higher percentage (83.8 %, $n = 88$) of depressed patients above the cut off score of 7. The total mean HAM D score was 17.37 + 10. When severity of depression was assessed using BDI we found that 28 (26.67%) patients had borderline clinical depression, 21 (20%) had moderate depression, while 5 patients (4.7%) had severe depression. There were no patients with extreme depression and 21 patients who had mild mood disturbance were not considered to be suffering from depression. HAM D revealed 38 (36. 19 %) patients to have mild depression, 27 (25. 71%) moderate depressions whereas 23 (21.90%) patients had severe depression (Table 1).

In our study, we found that majority 53 (50.48%) of our patients had mild anxiety whereas severe to extreme anxiety was seen in about 31% of patients. The mean total HARS score was 20. 05 + 11. 03 (Table 2).

BICI revealed body image disturbances in only 12(11.43%) of the 105 patients with the mean total BICI score being 50.39 + 15.58 (Table 3).

On assessing for self-esteem 23 (21.90 %) patients had a low score, 80(76.19%) patients a moderate score whereas only 2 (1. 90%) patients had a high self-esteem. The mean total RSES score was 17. 05 + 3.9 (Table 4).

Table 2 Severity of anxiety as per Hamilton anxiety rating scale

Severity of anxiety as per HARS	Number of patients ($n = 105$)(%)
Mild anxiety	53 (50.48%)
Moderate anxiety	19 (18.10%)
Severe anxiety	09 (8.57%)
Extreme anxiety	24 (22.86%)
Total Mean HARS Score Mean + SD	20.05 + 11.03

Table 3 Body image disturbances as per BICI

Body image disturbances as per BICI	Number of patients ($n = 105$) (%)
Present	12 (11.43%)
Absent	93 (88.57%)
Total BICI score	50.39 + 15.58

Table 4 Self-esteem as per RSES

Self-esteem as per RSES	Number of patients ($n = 105$) (%)
Low	23 (21.90%)
Moderate	80 (76.19%)
High	2 (1.90%)
Total RSES Score	17.05 + 3.9

Correlation of depression with body image ($r = 0.0313$, $p = 0.7506$) and self-esteem ($r = -0.0505$, $p = 0.608$) did not reveal any statistically significant correlation between the various variables (Table 5).

Table 5 Correlation of depression with self-esteem and body image using Pearson's correlation coefficient

Total BDI Score ($n = 105$)	Total RSES Score ($n = 105$)		Total BICI Score ($n = 105$)	
	r value	p value	r value	p value
	−0.0505	0.608	0.0313	0.7506

Discussion

In our study, we did not use diagnostic criteria to diagnose clinical depressive disorders. However, BDI has been universally used to diagnose depression and both BDI and HAM D are also used to rate the severity of depressive symptoms in clinical research. We had a prevalence of 51% for depression which is in the range of 13–53% as studied by several researchers [3–6].

Cooney et al. [7] in a recent systemic review and meta analysis of 18 studies found the mean prevalence of depression to be 36. 6%, of which 11 studies reported prevalence of moderate to severe depressive symptoms in PCOS group. Among Indian studies, the prevalence for depression found was 39% [9, 10] and 25% [11] which is lower than our results. This could be due to the fact that these studies had used standardized diagnostic criteria which therefore showed a lower prevalence than the rating scales. The total mean scores of BDI were in higher (30.59 + 11.31) [22] or lower (10.1 + 7.5) [23] range as per other researchers. Numerous possible explanations have been provided for depressive symptoms in PCOS patients, like higher serum levels of androgens [24], hirsutism [25, 26].

Acmaz et al. [22] in their study using BDI found low depressive affect in 24 (27.10%) patients, medium depressive affect in 30 (34.8%) patients while high depressive affect was present in 25 (29.06%) patients. Several researchers have reported more of mild [27] to moderate [23] depressive symptoms as compared to severe depression which is similar to our findings. None of our patients sought any help despite experiencing mild to moderate depressive symptoms which emphasizes the need to create awareness among physicians and general public about depression.

Anxiety symptoms were rated on HARS and we did not use any diagnostic criteria. A recent meta analysis revealed the prevalence of anxiety symptoms around 41.9 % in nine included studies [7], which is in keeping with our findings. Moran et al. [27] in their study found 19% patients with mild anxiety 37% with moderate anxiety while 7% patients had severe anxiety which is different from our findings. Chaudhari et al. [11] found mild, moderate, and severe anxiety on HARS in 62.90%, 29.60%, and 7.40%, of their sample respectively. Kaur et al. [12] using the GAD7 scale found the prevalence of anxiety to be 56%.It has been observed that women with PCOS show enhanced HPA axis and heart rate reactivity to stress and thus are more prone to anxiety. The factors that play a role in the development of anxiety in women with PCOS remain undetermined though researchers have found alopecia and infertility to be associated with an increased likelihood of anxiety [11], or the enhanced HPA axis and heart rate reactivity to stress [28].

The BICI items evaluate dissatisfaction with appearance, checking and camouflaging of perceived appearance defects, reassurance seeking about physical appearance, social concerns and avoidance related to appearance defects which were not seen to a greater degree in our sample. Only 12 patients expressed body image concerns. However, some researchers found lower scores on appearance evaluation as the women were depressed [6] Body image concerns in PCOS woman can be because of physical symptoms like hirsutism, obesity and acne which make these women focus on their appearance implying a need to do something about their appearance. In the Indian culture due to changing trends women want to look and feel attractive. Many Indian women are comfortable with their obesity as many cultures are more focused on eating and food habits which results in weight gain. Also, the trend for physical fitness is seen in younger women as compared to those above 40 years but, is currently changing. As a result of this our findings of body image disturbances in PCOS are lower than the western literature. It also could be due to the socio cultural norms where women were more focused on other matters than self.

Low self-esteem was seen in only 23 patients while others were having better self-esteem. Our findings are different from Acmaz et al. [22] who found 14 (63.6%) patients to have high self-esteem, 7 (31.8%) patients to have moderate self-esteem with only 1 (4.5%) patient having low self-esteem. Deeks et al. [6] in their study found lower perceived self-worth in PCOS women. Poor self-worth was seen in patients of PCOS who were having infertility [29], as in some cultures motherhood is considered the only way for women to enhance status in their family and community. In our culture too motherhood is given a high status and though we had patients of PCOS who had symptoms of infertility and were undergoing treatment; this could be one of the reasons for their poor self-worth.

The correlation of depression with self-esteem and body image in our study was different than other researchers who found significant correlation [6]. The reason for this finding could be that the scores on the various scales were less than the cutoff scores for the presence of disorders; hence, we did not get any association with depression. Pastore et al. [30] found that the depression symptom severity positively correlated with body dissatisfaction, physical appearance and physical condition.Deeks et al. [6] found women with PCOS had lower scores on appearance evaluation than controls, and women with lower scores on appearance evaluation were

more likely to be depressed. They reported that the physical symptoms of PCOS, such as hirsutism and acne, could have made these women more focused on their appearance, implying a need to do something about their appearance as it could further enhance risk for depression and anxiety.

Our study had a few limitations. There was a selection bias as only patients seeking medical help at a tertiary care centre were included. We did not use standard diagnostic criteria for diagnosing the prevalence of depression and anxiety. Using structured clinical interview would be more helpful in giving the extent of the psychopathology in PCOS patients. A longitudinal follow-up would throw more light on the various nuances of the psychopathology and behaviors.

Conclusions

The results of this study imply that there is a high prevalence of depression and anxiety than body image concerns and low self-esteem in patients of PCOS. An early assessment of the depressive and anxiety states with referral to the psychiatrist would ensure better coping with the illness and improve the prognosis.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical statement The study was initiated after institutional ethics committee approval of Seth GSMC & KEM Hospital with reference number: IEC/14/7 /15 dated 19th Nov 2015.

Informed consent Informed consent was obtained from all individual participants included in the study. Patient consent statement was taken from each patient as per institutional ethics committee approval along with consent taken for participation in the study and publication of the scientific results/clinical information /image without revealing their identity, name or initials. The patient is aware that though confidentiality would be maintained anonymity cannot be guaranteed.

Consent for Publication Taken from all authors.

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