Section: Psychiatry

Original Research Article

DEPRESSION IN POLYCYSTIC OVARIAN SYNDROME PATIENTS AND EFFECT OF BODY IMAGE PERCEPTION AND QUALITY OF LIFE

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Abstract

Background: To study the effect of body image perception on the severity of depression and quality of life in polycystic ovarian syndrome patients diagnosed with depression. **Materials and Methods:** This hospital-based single-centered cross-sectional study enrolled 80 women with PCOD based on eligibility criteria aimed to study the effect of body image perception on the severity of depression and quality of life in polycystic ovarian syndrome patients diagnosed with depression. **Result:** The results of this study show that certain symptoms of PCOS are associated with depression. The symptoms of PCOS may change throughout the course of the illness. **Conclusion:** It is vital that screening for psychiatric morbidity be incorporated as an ongoing process rather than a one-time assessment. The likelihood of negative body image perception (BICI score) and depressive symptomatology was shown higher in PCOD women with depression. However, PCOS subjects also experienced depression due to body image so this may be a sign of psychiatric illness in PCOS, which needs to be treated as a high priority to improve the quality of life of PCOS patients.

INTRODUCTION

The polycystic ovarian disorder is a very common endocrine disorder of childbearing age with an occurrence of around 6–8% in the reproductive years.[1] The total prevalence of polycystic ovarian syndrome (PCOS) exhibits it to be the widely renowned endocrine disorder among women of reproductive age.[2] There is a lot of alteration in the occurrence of PCOS around the world due to diverse diagnostic criteria and racial antithetic groups. And to overcome these major investigative dissimilarities it is essential to consider racial and culturally specific approaches to PCOS.[3] PCOS is characterized by an irregular menstrual cycle, barrenness, androgen superfluous, and insulin resistance.[4] Polycystic ovarian syndrome has long-term risks such as cardiovascular illnesses, type-2 Diabetes Mellitus, dyslipidemia, and endometrial carcinoma.[5]

Body image is the perception of one's appearance, and disappointment with one's bodily outlook. It is the psychosomatic involvement of the look and function of the body that influences PCOS females very badly and may lead to miserable, stressed, and low quality of life.[6] PCOS patients also experience higher rates of depression and disquiet than normal healthy females in the concurrence of other health features of polycystic ovary syndrome (PCOS). Emotional aspects must also be considered in all women with PCOS and they must be evaluated for the psychological disorder.[7] Many studies have shown negative body image perception in women with PCOS compared to women who do not have PCOS even with no difference in body mass index (BMI).[8] It is seen that one's personality perception is the psychological depiction of one's body image appearance, state of well-being, and completeness of life.[9] PCOS is also linked to psychological complications, comprising -chronic stress, dejection, anxiety, and low self- confidence that may affect an individual's personality consciousness.[10] It is shown from past research that women with PCOS are more prone to depression as compared to healthy women.

As the evidence for Body image distress (BID) in women with PCOS is limited, the international

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PCOS guidelines drew upon clinical expertise and consensus and recommended that additional studies are needed to determine if clinically meaningful differences exist. Given the lack of consistent findings and the potential impact, BID can have on depression and anxiety symptoms, as well as lower quality of life in women already predisposed to these issues, we sought to determine the effect of body image perception on the severity of depression and quality of life in patients with PCOD.

MATERIALS AND METHODS

Study design-A cross-sectional study in tertiary care hospital located in central India

Study setting-Patients diagnosed with the polycystic ovarian syndrome in Obstetrics and Gynecology OPD of Chirayu medical college and hospital were taken as samples for the study

Sample Size

The estimated sample size was calculated as 80 taking the prevalence of Depression in Polycystic Ovarian Syndrome as 25% at a 10% level of error and 95% level of significance.

Inclusion Criteria

- Patients in the age group 18 to 45 years referred from Obstetrics and Gynecology OPD diagnosed with polycystic ovarian syndrome.
- Patients have at least primary education.
- Patient willing to give informed consent

Exclusion Criteria

- Patients having any other psychiatric co-morbidities.
- Patients having any substance use disorder (except Nicotine and Caffeine).
- Patients with any previous medical co-morbidities.

Data Collection Tools

After Taking Informed Consent

sociodemographic and clinical data were collected in a pre-designed semi-structured questionnaire.

Scales used to assess depression: Hamilton Depression Rating Scale (HAM-D)-The ranges are-no Depression (0-7); mild Depression (8-16); moderate Depression (17-23); and severe Depression (≥24). Time taken to complete it is 30 minutes.

Scales to assess Quality of life: WHOQOL-BREF-It was developed by the World Health Organization (WHO) and published in 1995. It captures many subjective aspects of quality of life. It is a 26 items scale and covers four domains each with a specific facet-Responses to questions are on a 1-5 Likert scale where 1 represents "disagree" or "not at all" and 5 represents "completely agree"

Body Image Concern Inventory (BICI)

It is used to examine the Body Image concern. It is the internally consistent and valid brief instrument for assessing Body Dysmorphic concern.It contains 19 items related to body dissatisfaction and concern about appearance, reassurance seeking, social concerns, and avoidance related to appearance. It is given by WHO. It is periodically revised and is currently in its 10th revision, released in 1992. It statistically classifies all health disorders and provides diagnostic assistance.

Methodology of Study

- Patients diagnosed to have Polycystic Ovarian Syndrome(PCOS) were taken from the Obstetrics and Gynecology OPD of Chirayu Medical College and Hospital, Bhopal. The patients were provided with the study information sheet and consent form and were explained the relevant details of the study in a language best understood by them.
- Informed written consent was obtained after explaining the purpose, nature, and process of the study and then data collection was started.
- The study subjects were Assessed for Depression according to ICD 10 criteria and those participants who are diagnosed with depression were further assessed for the severity of depression using HAM –D, Body image perception using BICI, the Quality of life will be assessed using WHOQOL -BREF scale.
- Also, those study subjects who were not diagnosed with depression according to ICD-10 were assessed for body image perception and quality of life as extra findings.

RESULTS

Upon carrying out multivariate logistic regression analysis, it was found that there was no significant association between PCOD with and without Depression among the age group. Similarly, in case of marital status, educational qualifications, occupations, residence, family type and socioeconomic status there was no significant association between patients with PCOD with or without Depression.

Table 1: Occurrence of PCOD with or without depression among the study population

		PCOD With Depression		PCOD Without Depression		P-Vale
		Count	Row N %	Count	Row N %	
Age Groups	<20	0	0.0%	2	100.0%	0.051
	20-40	58	75.3%	19	24.7%	
	>40	1	100.0%	0	0.0%	
Marital status	Married	36	80.0%	9	20.0%	0.150
	Unmarried	23	65.7%	12	34.3%	
Educational qualification	Illiterate	7	100.0%	0	0.0%	0.401
	Matric	18	69.2%	8	30.8%	
	Under matric	15	75.0%	5	25.0%	

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	Graduate	19	70.4%	8	29.6%	
Occupation	Unemployed	37	71.2%	15	28.8%	0.683
	Employed	21	77.8%	6	22.2%	
	Professional	1	100.0%	0	0.0%	
Residence	Rural	25	73.5%	9	26.5%	0.969
	Urban	34	73.9%	12	26.1%	
Family type	Joint	21	77.8%	6	22.2%	0.559
	Nuclear	38	71.7%	15	28.3%	
Socioeconomic status	Lower	7	77.8%	2	22.2%	0.114
	Lower Middle	26	78.8%	7	21.2%	
	Upper Lower	10	52.6%	9	47.4%	
	Upper Middle	16	84.2%	3	15.8%	

Table 2: Body Image Concern Inventory (BICI) Involving PCOD With Or Without Depression

Body Image Concern Inventory (BICI)			
Groups	**N**	**Mean**	**Std. Deviation**
PCOD With Depression	59	59.7119	17.13
PCOD Without Depression	21	47.4762	11.48
Total	80	49.1250	15.80
Independent t test; p<0.001			

In this study, it was found that mean BICI in patients with PCOD with Depression was found to be 59.71±17.13 and the mean BICI in patients with PCOD without Depression was found to be 47.47±11.48. Upon carrying Independent t-test; there was significant higher mean BICI values among patients with PCOD with Depression as compared with those who don't had Depression.

Table 3: Features of the Patients Having PCOD with or Without Depression

	PCOD With Depression			**PCOD Without Depression**			**p-value**
	N	**Mean**	**SD**	**N**	**Mean**	**SD**	
Physical health	59	57.78	9.23	21	45.43	10.51	<0.001
Psychological	59	55.78	11.82	21	47.00	10.89	<0.001
Social	59	48.83	14.03	21	45.52	10.74	0.329
Environment	59	54.25	17.12	21	47.86	11.88	0.118
QOL in general	59	2.63	0.74	21	3.05	0.67	0.025
Health in general	59	2.63	0.55	21	2.90	0.54	0.051

Upon carrying out the independent t-test, it was found that there was significantly higher mean value of physical (57.78 v/s 45.43; p<0.001) and psychological score (55.78 v/s 47.00; p<0.001) among PCOD patients with depression. Rest other parameters of QOL ie. Social (48.83 v/s 45.52; p<0.001) and environmental (54.25 v/s 47.86; p<0.001) had no significant difference as compared between both the groups.

The mean value QOL in general score was significantly higher among PCOD patients with depression (2.63 v/s 3.05; p=0.025). And, the mean score of health in general) had no significant difference as compared between both the groups. (2.63 v/s 2.90; p=0.051).

Table 4: Correlation between BICI score and QOL scores of the population in patients with PCOD with and without Depression (overall, n=80)

Correlations

		BICI	QOL in general	Health in general	Physical health	Psychological health	Social relationship	Environment
BICI	Pearson Correlation	1	-.113	-.329**	.158	.234*	.121	.065
	Sig. (2-tailed)		.320	.003	.161	.036	.284	.566
QOL in general	Pearson Correlation	-.113	1	.417**	-.055	.019	-.109	-.044
	Sig. (2-tailed)	.320		.000	.631	.864	.335	.695
Health in general	Pearson Correlation	-.329**	.417**	1	-.142	-.121	-.070	-.042
	Sig. (2-tailed)	.003	.000		.209	.286	.539	.709
Physical health	Pearson Correlation	.158	-.055	-.142	1	.484**	.327**	.331**
	Sig. (2-tailed)	.161	.631	.209		.000	.003	.003
Psychological health	Pearson Correlation	.234*	.019	-.121	.484**	1	.564**	.420**
	Sig. (2-tailed)	.036	.864	.286	.000		.000	.000
Social relationship	Pearson Correlation	.121	-.109	-.070	.327**	.564**	1	.384**
	Sig. (2-tailed)	.284	.335	.539	.003	.000		.000
Environment	Pearson Correlation	.065	-.044	-.042	.331**	.420**	.384**	1
	Sig. (2-tailed)	.566	.695	.709	.003	.000	.000	

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

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Table 5: different clinical features of patients with PCOD who are diagnosed with depression

	Mild (13)		Moderate (26)		Severe (20)		p-value
	Mean	SD	Mean	SD	Mean	SD	
BICI	36	8.84	48.58	15.16	60.1	17.33	<0.001
QOL in general	2.69	0.63	2.65	0.85	2.55	0.69	0.843
Health in general	2.85	0.55	2.65	0.56	2.45	0.51	0.126
Physical	47.62	8.12	46.58	9.85	49.45	9.25	0.585
Psychological	50	11.54	41.54	13.4	48.55	7.82	0.044
Social	53.77	14.53	48.15	13.62	46.5	14.15	0.335
Environmental	55.15	19.65	55.46	13.87	52.1	19.76	0.792
One-way Anova							

- It was found that the mean value of the BICI score was significantly higher in PCOD women with depression as compared to PCOD women without depression (p<0.001).
- The mean value of the BICI score was found significantly higher in PCOD women with severe depression (p<0.0001).
- Quality of life was assessed by using the WHO-QOL BREF scale and it was found that physical (p<0.001); psychological(p<0.001) and QOL in general (p=0.025) was significantly poor among PCOD women with depression.
- The score of psychological domains was significantly lower in patients with severe depression as compared to mild and moderate depression(p=0.044).Our study showed a significant weak negative correlation between psychological score an

Statistical analysis

Data were entered in Microsoft excel v.2010 and analyzed by SPSS 25.0. Data were represented in appropriate tables and charts. Continuous data were represented in Mean and SD. Categorical data were represented in frequency and percentage (%). Pearson's chi-square test was used to assess the association between two categorical variables. An Independent t-test was used to compare the mean value of a continuous variable of two groups. The Pearson correlation coefficient was calculated to find the correlation between body image perception and quality of life. On applying one way ANOVA; it was found that the mean BICI score (p<0.001) and psychological score (p=0.044) were significantly higher in PCOD patients with severe depression.

DISCUSSION

This section discusses the findings of the study derived from the statistical analysis and its pertinence to the objectives set for the study and related literature of the study. The present study was a cross-sectional study done at the tertiary care hospital. This study aimed to examine the effect of Body image perception on the severity of Depression and Quality of life in Polycystic ovarian syndrome patients diagnosed with Depression.

This study was conducted on patients diagnosed with PCOS with the objective of diagnosing Depression and the severity of Depression in these patients. the Body image concern and Quality of life in those PCOS patients diagnosed with depression. The Physical aspect of PCOS has been the subject of numerous research in the past. However, there is a dearth of literature discussing the psychological aspects of PCOS, which is a very important aspect and is a cause of mental stress and depression due to the appearance of embarrassing symptoms such as hirsutism, obesity, and acne.

After the exclusion, 80 patients who consented to the study were taken for the final analysis. Out of them after applying the ICD 10 criteria, only 59 women suffering from PCOS were found to have depression, who were then taken for the final analysis. This study was mainly conducted on PCOS women with depression since it is frequently analysed by behavioral scientists studying PCOS. In addition, there is a high rate of depressive disorders in the general population as well as in patients suffering from PCOS. This was more evident during the time of covid-19 pandemic in which the prevalence of depression in the Indian population was found to be 40.7%.[11]

Tools/Instruments Use-A Semi-structured Performa was specifically devised in consultation with the Supervisor and Co-supervisor and was validated. It is used for collecting the sociodemographic details of patients meeting the requirements of the objectives of the study. A brief and focused history and mental state examination of the patient was also done.

1. ICD-10 (International classification of diseases) -was used for the diagnosis of Depressive Episodes as these criteria are operational and known to be reliable. Patients with co-morbid psychiatric, medical, or any substance use disorder except nicotine and caffeine were excluded.[12]
2. Hamilton Depression Rating Scale (HAM-D) - The questionnaire, rates the severity of symptoms observed in depression such as low mood, insomnia, agitation, anxiety, and weight loss. It is presently one of the most used scales for rating depression in medical research.[13]
3. Body Image Concern Inventory (BICI)- It is used to examine the Body Image concern. It contains 19 items related to body dissatisfaction and concern about appearance, reassurance seeking, social concerns, and avoidance related to appearance. This scale has been previously used in studies related to PCOS.[13,14]

Socio-demographic characteristics of the sample-

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In the present study, we found the majority of study participants were between the age group of 20 -40 years [Table 1], This finding was in agreement with earlier studies such as the one by Sassi et al. which reported that the majority of patients belong to the age group 18 to 35 year. This is an important finding because it shows how PCOS affects the most reproductive age group in society. In the current study, it was found that the majority of women were married [Table 2], and educated beyond high school [Table 3]. It may be due to the Indian culture and a strong marital system. Bazarganipour et al in their study found that most of the PCOS women had education beyond high school. Sana et al in a study reported a similar finding. Along with this, the majority of study participants were from an urban residence [Table 4], the majority of them belong to a nuclear family [Table 5] and economically were from the lower middle class [Table 6]. Moynul et al and Zinab et al in there study reported a similar finding. It can be because the majority of patients attending the hospital belong to urban areas.[15,16]

Discussion of results

Depression in women with PCOD

In our study, the proportion of PCOS women with depression was 73.8%, which was significantly higher. In previous studies, it has been reported that about 14–67% of women with PCOS suffer from depression. In our study prevalence was high as compared to another study like the one by Anuja Dokras who found an overall prevalence of 40% (24/60) and the percentage of the participants with mood disorders was 56.6%. This can be due to the difference in sample size which was more than our study and the tool used for diagnosis was different than the one which was used in our study. Sundhindra et al reported a prevalence of 64.1%. This difference can be due to the sample size which was more than our study and the diagnostic tool was also different. In a study by Rassi et al 57% of the patient had at least one psychiatric disorder. Among them, the prevalence of mood disorders was 78% and the most prevalent disorder was major depression (26.4%). This can be due to the differences in methods and tools for screening and diagnosis, population differences, different classification systems, the influence of covariates such as BMI, infertility, and use of medication, along with the time of COVID-19 Pandemic during which the prevalence of depression was high and most of the study was conducted at that time, which acted as a major factor in the results.[17]

A systematic review and meta-analysis on anxiety and depression in PCOS concluded that women with PCOS tend to experience mildly elevated anxiety and depression, which concurs with the findings of the present study. Comparisons across studies are difficult due to vast differences in methodology.

Also; the occurrence of depression was not significantly associated with sociodemographic characteristics like age, marital status, education, occupation, residence, family type, and socioeconomic status of patients. This could be due to the small sample size to find the risk factor association., also previous studies have noted the same finding. Along with this in our study the severity of depression among the women with PCOS was significantly high, this finding is in agreement with the Meta-analysis by Laura G et al the prevalence of moderate or severe depressive symptoms showed 4.18-increased odds in women with PCOS.[18]

The reasons for the higher prevalence of depression in PCOS are complex due to various reasons such as high BMI and demoralization faced by patients with PCOS in society, which when severe may lead to social withdrawal.

In addition, studies carried out by Hollinrake et al determined some more reasons for the increased risk of depression among patients with PCOS than in the control group. Patients with a family history of infertility and depression along with high BMI factor and sleep disturbances and exhaustion followed by decreased interest in daily chores and appetite changes were the most common factors of depression among patients with PCOS.

The high prevalence rate of depression in this population suggests that the initial evaluation of all women with PCOS should also include an assessment of mental health disorders. Along with this, treatment of PCOS must include psychological intervention to improve mental health status.

Body image perception among PCOD women with depression-

Our study suggested that the mean value of the BICI score was significantly higher in PCOS women with depression suggesting that women who have PCOS with depression have high body image concerns. Our finding is like the previous studies, Himelein et al in her study reported that Women with PCOS reported higher depression scores and greater body dissatisfaction. One of the studies done by Snigdha et al reported similar results to the current study. Similarly, one of the research reported that there was a difference in body image perception between women with PCOS and women not suffering from PCOS. PCOS women had a lower score of body image as compared to healthy females (Another study found excess body weight to be the primary cause of low self-esteem, unhealthy mental state, and depression among PCOS women. Also in our study, most of the sample study belongs to 20-40 yrs, and at this age and in, this phase of life women can feel an especially high pressure regarding their physical appearance. Depression adversely affects body image, by negatively distorting one's self-assessment. Similarly, an unknown third variable, psychological or physical, could underlie both depression and body image. The vice versa is also true that among women with PCOS, appearance-related consequences of the syndrome fuel the self-perceptions of attractiveness, which in turn increase the likelihood of depression.[19,20]

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Body dissatisfaction and depression, clearly both are serious problems that could and should be addressed. Research has established the effectiveness of treatments for body dissatisfaction interventions that could be easily adapted for women with PCOS. The findings of poor body image in women with PCOS also suggest the role of treating physicians who must be cautious in their counsel of PCOS patients. Overweight women with PCOS who are warned of the consequences of obesity and urged to lose weight should be given assistance in doing so. Also, psychologists and physicians who wish to encourage weight loss in PCOS women must be sensitive to the multiple, complex relationships between body dissatisfaction, and dieting. There is a rise in the trend of addressing the prevention of body dissatisfaction as a public health issue Also the Research into body image and self-esteem has recently extended beyond women in western culture and related information from Indian patients is very sparse.[18-20]

Quality of life among PCOD women with depression-

The quality of life was assessed using the WHO-QOL BREF scale and it was found that physical ($p<0.001$); psychological($p<0.001$) and QOL in general ($p=0.025$) were significantly poor among PCOS women with depression. The score of psychological domains was significantly lower in patients with severe depression as compared to mild and moderate depression($p=0.044$).

There is very robust evidence for the association of hirsutism in PCOD with a poorer QOL. Research shows that not only is hirsutism associated with low self-esteem and poor body image but also the time and energy spent in concealing it aggravates the distress further. The perception of physical appearance when compared to society's "ideal" might result in a negative impact on Women's emotional attitude and quality of life.[21,22]

None of the other symptoms was associated with anxiety or depression or a poorer QOL in the present study. Obesity, which has shown a consistent association with these parameters in Western literature, has not been replicated in studies in Eastern populations. Researchers believe that while obesity is perceived as unattractive in Western countries, it may not be viewed so negatively in Asian countries. It may be regarded as a sign of prosperity! However, some other studies did not replicate these results.

While other studies have used disease-specific QOL measures, we had chosen the WHOQOL-BREF keeping in mind that PCOS is a disorder that has multiple symptoms which can impact both physical and psychological health and have social ramifications as well. The scale has been validated in two PCOS studies from Asia. Several international studies have reported that women with PCOS who suffer from anxiety and depression have a lower QOL. Some authors suggest that psychological morbidity can impact physical (e.g., eating and sleeping patterns), psychological (e.g., motivation and feelings of worthlessness), and social factors (e.g., relationships with others). Effective symptom management of PCOS is likely to be improved if existing anxiety and depression are effectively treated.[23,24]

Along with this, it is recommended that healthcare providers screen the quality of life in all women with PCOS and that interventions are provided to them if necessary. If symptoms are identified and treated at the right time a woman's PCOS outcome might be improved.

CONCLUSION

The results of this study show that certain symptoms of PCOS are associated with depression. The symptoms of PCOS may change throughout the course of the illness. Hence, it is vital that screening for psychiatric morbidity be incorporated as an ongoing process rather than a one-time assessment.

The fact that psychiatric morbidity is associated with certain symptoms of PCOS and not with others makes it possible that there could be a biological link between the two. The likelihood of negative body image perception (BICI score) and depressive symptomatology was shown higher in PCOD women with depression. However, PCOS subjects also experienced depression due to body image so this may be a sign of psychiatric illness in PCOS, which needs to be treated as a high priority to improve the quality of life of PCOS patients.[24]

Further research on this subject could throw more light on these connections. Finally, the symptoms of PCOS is associated with depression which, in turn, are associated with poorer QOL. The symptoms themselves did not appear to contribute to the poorer QOL. This could mean that perhaps the psychiatric morbidity is the mediator for poorer QOLin patients with PCOS. There is, thus, a clear indication to treat these disorders whenever they are present.

Limitations of our study

This study has certain limitations. It is a cross-sectional study carried out by hospital visited patients, hence their characteristics may not be shared by the general population. There was no control group for comparison with the study population. Our study showed a significant weak negative correlation between psychological score and BICI score. This could be due to the small sample size. Hence, future research is suggested to conduct studies on a large sample and make use of longitudinal research design so that possible confounding of variables could be controlled.

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