Hirsutism and Depression in Polycystic Ovarian Syndrome

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ABSTRACT

Objective: To determine the frequency of hirsutism and depression in female patients with Polycystic Ovarian Disease and to investigate the association between depression and hirsutism in such patients.

Study Design: Cross-sectional study.

Place and Duration of Study: Gynecology and Medical Department of Fatima Memorial Hospital, Lahore Pakistan, from Jan to Jun 2022.

Methodology: A total of 118 females who fulfilled the inclusion criteria were enrolled after taking written informed consent. Demographic details, clinical history and physical examination findings were noted on a predesigned proforma. Hirsutism was assessed by the Ferriman-Gallwey Method and depression was assessed according to Beck Depression Inventory. Findings were noted down on the proforma and were subjected to statistical analysis.

Results: The mean age of our patients was 32.9±7.09 years, the mean BMI was 26.9±3.13 kg/m2, the mean Beck Depression Inventory value was 10.7±1.38 and the mean Ferriman Gallwey Score was 7.8±1.53. Hirsutism was seen in 19(16.1%) patients and depression in 22(18.6%) females. In patients who had hirsutism, depression was seen in 18(94.7%) patients and the association between hirsutism and depression was found to be statistically significant with a *p*-value of <0.001.

Conclusion: Hirsutism and depression are frequently present in females with Polycystic Ovarian Syndrome both have significant association with each other.

Keywords: Depression, Hirsutism, Polycystic Ovarian Syndrome

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) affects women in their reproductive years with symptoms of Hyperandrogenism, polycystic ovaries, oligomenorrhea, and/or amenorrhea.[1] PCOS is thought to affect 16.6% of female population.[2] It is a physically and psychologically exhausting disorder for women, and clinical management is typically tough even though, within the reproductive age range, it is the most frequent endocrine disorder.[3] A variety of psychological correlations have been identified in addition to gynecological, endocrine, and metabolic aspects of PCOS.[4] Females with PCOS appear to have a lower quality of life than females diagnosed with other medical conditions such as diabetes, epilepsy, asthma and hypothyroidism.[5] Women suffering from PCOS are at an increased risk of depression, where the prevalence of depression in such women has been estimated to be 8.4%.[6] The reasons for the elevated rate of depression in women with PCOS are likely to be numerous as there is little research on the factors that cause it in patients with PCOS likely due to the fact that the physical symptoms experienced by females suffering from PCOS are potentially the cause of the psychological distress; however, the data is unclear as to whether certain specific causes induce this psychological misery.[7]

Studies conducted previously which focused solely on depression and anxiety in PCOS revealed that in women suffering from PCOS, the rates of prevalence of depression were 11% to 25% and the prevalence rates of anxiety were 28% to 29%. Additionally, hirsutism occurs in 5% to 15% of females of reproductive age.[8] According to qualitative research, hirsutism can lead to despair, anxiety, feeling of humiliation, and social disengagement. Sundararaman *et al.*, in 2008, used the General Health Questionnaire to assess psychological distress in these individuals and discovered that it was strongly linked to obesity, infertility, acne, and hirsutism.[9] In contrast, a study done by Bhattacharya and Jha in 2010 evaluated the effect of four symptoms of depression which were acne, obesity, acanthosis and hirsutism and revealed that these factors had no significant association with depression.[10]

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In Pakistan, literature regarding depression in females with hirsutism due to PCOS is scarce. Therefore, the aim of this present study was to determine the frequency of hirsutism and depression in females with Polycystic Ovarian Disease and to determine the association of depression with hirsutism in such patients. By recognizing this condition, physicians can address and prevent the factors that lead to depression after PCOS diagnosis and can provide early intervention to overcome it. It can help in increasing the quality of liaison between departments and improving the standards of patient care in Pakistan.

METHODOLOGY

The cross-sectional study wass conducted at the Gynecology and Medicine Department of Fatima Memorial Hospital, Lahore, Pakistan, from January to June 2022 after taking approval from the Ethical Review Committee (ERC letter number 984 dated 07/01/2022). The sample size was calculated, keeping expected frequency of depression in Polycystic Ovarian Syndrome as 8.4%[7]. Non-probability consecutive sampling technique was used.

Inclusion Criteria: Female patients aged 18-45 years, with a diagnosis of Polycystic Ovarian Syndrome, if any two of the three criteria were met i.e. amenorrhea (menstrual cycles lasting more than 35 days) or oligomenorrhea (cycles lasting less than 35 days) (fewer than three cycles in the past 6 months), excessive hair on the body or ovaries with polycystic cysts (as assessed by gynecological ultrasound), were included.

Exclusion Criteria: Female patients taking oral contraceptive pills, having any other gynecological illness such as pelvic inflammatory disease or tubal blockade and with previously known psychiatric illness, were excluded.

One hundred eighteen (n=118) females who fulfilled the selection criteria were enrolled by taking written informed consent from all participants. In this study, hirsutism was assessed by the Ferriman-Gallwey method (FM), scored between 0 to 36, where a score of 8 or above was labeled as hirsutism. Mild hirsutism was labeled if the score was 8-16, moderate if score was 17-25, severe if score was >25.[11] Depression was assessed by using validated Urdu translated version of Beck Depression Inventory (BDI), scored from 1 to 63, and a cut off score of ≥17 labeled as having depression. Patients were labeled to have borderline depression if the scores were 17 to 20 on BDI, moderate depression if they scored 21 to 30, severe depression if they scored 31 to 40 and extreme depression if they scored more than 40.[12] Demographic details, clinical history and physical examinations of all patients were carried out and findings were noted down on a predesigned proforma. Patients were examined for the presence of hirsutism by the Ferriman-Gallwey method and the scores were noted down. The frequency and severity of depression was assessed in each patient according to BDI. All findings were recorded down on a predesigned proforma and were subjected to statistical analysis.

Statistical Package for Social Sciences (SPSS) version 25.0 was used for data analysis. The quantitative variables were presented as mean and standard deviation. Frequency and percentages were used for presenting qualitative data. Association between hirsutism and depression was assessed by Chi-square test and the p-value of ≤ 0.05 was considered as significant.

RESULTS

A total of 118 females were included in our final data analysis. The mean age of the patients was 32.9±7.09 years, the mean BMI was 26.9±3.13 kg/m2, the mean BDI value was 10.7±1.38 and the mean Ferriman-Gallwey score was 7.8±1.53 (Table-I). Among the participants, 40(33.9%) were of young age and 78(66.1%) were of middle age, 42(35.6%) had normal BMI, 66(55.9%) were overweight and 10 (8.5%) were obese, 86(72.9%) were married and 32(27.1%) were single, hirsutism was observed in 19(16.1%) patients out of which 7(5.9%) had mild hirsutism, 7(5.9%) had moderate hirsutism and 5(4.2%) had severe hirsutism (Table-II). Depression was diagnosed in 22(18.6%) females, out of which 3(2.5%) had borderline depression, 9(7.6%) were moderately depressed, 4(3.4%) were severely depressed and 6(5.1%) were extremely depressed (Table-II). In patients who had hirsutism, depression was seen in 18 out of 19(94.7%) patients and the association between hirsutism and depression was found to be statistically significant as indicated by a p-value of <0.001 (Table-III).

Table-I: Descriptive Statistics of Quantitative Variables (n=118)

Variables	Mean±Standard Deviation
Age (in years)	32.9±7.09
BMI (Kg/m2)	26.9±3.13
Beck Depression Inventory Score	10.7±1.38
Ferriman Gallwey Score	7.8±1.53

Table-II: Frequency Distribution of Qualitative Variables (n=118)

Variables	n(%)
Age groups	
Young age (18-30 years)	40(33.9%)
Middle age (31-45 years)	78(66.1%)
BMI	
Normal (20-25 kg/m2)	42(35.6%)
Overweight (25.1-30 kg/m2)	66(55.9%)
Obese (>30 kg/m2)	10(8.5%)
Marital status	
Married	86(72.9%)
Single	32(27.1%)
Hirsutism	
Yes	19(16.1%)
No	99(83.9%)
Severity of hirsutism	
None	99(83.9%)
Mild	7(5.9%)
Moderate	7(5.9%)
Severe	5(4.2%)
Depression	
Yes	22(18.6%)
No	96(81.4%)
Severity of depression	
None	96(81.4%)
Borderline	3(2.5%)
Moderate	9(7.6%)
Severe	4(3.4%)
Extreme	6(5.1%)

Table-III: Association Between Hirsutism And Depression (n=118)

Hirsutism	Depression		p-value
	Yes	**No**	
With hirsutism	18(94.7%)	1(5.3%)	<0.001
Without hirsutism	4(4%)	95(96%)	

DISCUSSION

The current study results revealed that both hirsutism and depression had high prevalence in PCOS and the association between these two entities was found to be of statistical significance (*p*-value of <0.001). Majority of the females were of middle age, were married and had a BMI in the range of being overweight. Most of the females had hirsutism of mild to moderate severity and the majority were borderline depressed.

In females with PCOS, emotional dysregulation could be caused by psychological and/or biological factors.[11] Many women regard visible traits such as acne and hirsutism, as well as potential repercussions such as obesity and infertility, as stigmatizing and distressing.[12] Another study revealed that in females who had PCOS, hirsutism was present in 37% patients out of which 22% had mild hirsutism, 11% had moderate and 4% had severe hirsutism and depression was present in 21.3% patients.[13] Our findings reported slightly lesser rates of hirsutism in females with PCOS i.e. 16.1% out of which mild and moderate severity was seen in 5.9% patients which is lesser compared to that study, however, the rates of severe hirsutism were similar in our study i.e. 4.2%. In terms of depression, the current study reported similarly high rates of 18.6% patients. The difference in the rates of hirsutism may be because of geographical differences as well as age of the patients as our study population was mainly middle-aged females with a mean age of 32.9 years whereas the females in the study by Benson *et al*.[13] were mainly adolescents i.e. mean age of 15.6 years. Lin *et al*. revealed that in females with PCOS, depression was seen in 52% patients and it was found to be significantly associated with hyperandrogenism related factors such as hirsutism.[14] These rates of depression reported by Lin *et al*. are different from the current study findings probably because Lin *et al*. reported a pooled estimate of three studies and the sample size was large, hence resulting in such difference in the rates of depression. Cooney *et al*.[15] similarly revealed that in PCOS females, depression was present in 22.4% of the patients which supports our findings. While the psychological outcomes are being explored in PCOS sufferers, hyperandrogenism should be taken into consideration. Previous studies revealed that hirsutism i.e. clinical hyperandrogenism was seen in 6.1% to 10% of females who had PCOS.[16] High scores on Ferriman-Gallwey (FG) scale correlates with increased rate of hair growth.[17] In a study it was revealed that high FG scores were associated with higher scores on a depression scale i.e. r=0.209, *p*<0.0518. In another study it was found that hirsutism was significantly associated with a risk of developing depression.[19] Hyperandrogenism is a commonly encountered pathology in females with PCOS and previous studies revealed that it is associated with significant psychological distress.[20] These findings were supported by current study findings as well. Future trials must be conducted on larger sample sizes and must be multicentered in order to validate the current study findings.

LIMITATIONS OF STUDY

As the design of the study was cross sectional, the results hold less significance in comparison to randomized controlled trials and systematic reviews. Lastly, the study was based on a targeted population hence there could be risk of bias in the results.

CONCLUSION

The current study concluded that hirsutism and depression were frequently present in patients with Polycystic Ovarian Syndrome. Females with hirsutism showed higher rates of depression compared to those who were non-depressed and there was a significant association between the two features. PCOS is strongly related to psychological dysfunction, which has serious consequences that warrants early diagnosis and treatment. Because of the high frequency of depression in this group, all women with PCOS should have their mental health status evaluated at the beginning. This is not to say that medical therapy for PCOS is not necessary; nonetheless, a close collaboration between medical treatment and psychological assistance might help PCOS-affected women.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

NSA & TW: Data acquisition, data analysis, critical review, approval of the final version to be published.

MI & AF: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

SMO & WF: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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