Analyzing the Correlation Between Polycystic Ovarian Syndrome and Anxiety, Depression and Quality of Life in Indian Students

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Abstract

Introduction*: PCOS is now recognized as a common, heterogeneous, heritable disorder affecting women throughout their lifetime, characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovaries. Though common symptoms have been studied extensively, not much work has been done on examining the quality of life and also the emotional wellness of women suffering with PCOS, especially in an Indian context. The aim of this study was to assess the quality of life and consequently the prevalence of anxiety and depression in students in India.*

Methods*: This was a prospective cross-sectional study conducted in college students (undergraduate and postgraduate) at local colleges in Mumbai, India in January 2022. Students were screened and selected as per the Rotterdam's criteria after informed consent. Mental health assessment done by using Hamilton depression rating scale for depression, Hamilton anxiety rating scale for anxiety, and using 36-item short form survey for quality of life.*

Results: *The prevalence of anxiety disorders in our study sample was 38%, and the prevalence of depressive disorders was 18%. And a total of 44 patients had neither of the two. 16 out of 38 students had mild anxiety and 10 out of 18 students had mild depression. The quality of life (QoL) measured by the SF-36 shows a significant result of a lower quality of life seen in patients with psychiatric morbidity.*

Conclusion: *Women with PCOS should be considered a vulnerable population that may experience an adverse impact on their mental health and quality of life.*

Introduction

Polycystic Ovarian Syndrome has now become a topic of discussion everywhere – from social media to pop culture even in India. This upsurge in dialogue on PCOS has increased awareness, diagnosis and also led to better management of this disease. PCOS is now recognized as a common, heterogeneous, heritable disorder affecting women throughout their lifetime, characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovaries.(1) However the clinical presentation differs widely – most commonly known and discussed are menstrual disturbances, infertility and clinical manifestations of hyperandrogenism. However, 30% of women with PCOS will have normal menses. (2)

Though these symptoms have been studied extensively, not much work has been done on examining the quality of life and also the emotional wellness of women suffering with PCOS, especially in an Indian context. It is important to consider the effect of racial disparities and differences on mental health, including the emerging evidence that racial experiences in minority populations can affect multiple aspects of mental health care, including distress due to anxiety, access to care, and the use of treatment especially in young women. (3,4,5,6)

Previous studies have reported psychological problems such as anxiety, depression and body image concerns. Consequently, PCOS is likely to have an impact on the quality of life. Studies during early adulthood are likely to improve the understanding of psychological issues and quality of life affecting persons with PCOS (7)

Aim

The aim of this study was to assess the quality of life and consequently the prevalence of anxiety and depression in students in India.

Methods

This was a prospective cross-sectional study conducted in college students (undergraduate and postgraduate) at local colleges in Mumbai, India in January 2022.

Students were invited to participate in the study through announcements in their classes and departments. The institute ethics committee approved the study protocol and written informed consent was obtained from the participants. Each consenting participant was provided with a pre-designed performa to collect socio-demographic, general and gynaecological health information. Students with a history of psychoactive substance use in the preceding 6 months (other than nicotine), major psychiatric and other medical disorders were excluded. The diagnosis of PCOS was based on the Rotterdam 2003 criteria. Of the 104 participants diagnosed with PCOS, 4 of them were excluded as their data forms incomplete. Thus, 100 students diagnosed with PCOS constituted the study population. The students underwent evaluation of depression, anxiety and QoL using the Hamilton depression rating scale (HDRS), Hamilton anxiety rating scale (HARS) and 36-item short form survey (SF-36), respectively.

Hamilton depression rating scale (HDRS)

The HDRS is a multiple item questionnaire used to rate the severity of depressive symptoms. The theoretical score range of the scale is from 0 to 52. A score of 0–7 is generally accepted to be within the normal range (or the patient is in the clinical remission phase), while a score of 20 or higher indicating at least moderate severity of the depression. (8)

Hamilton anxiety rating scale (HARS)

This was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe.(9)

36-item short form survey (SF-36)

It is considered to be a measure of health related QoL (HRQoL) constructed to be suitable for use by anyone, irrespective of demographics or disease, and contains 36 items. It measures physical and mental health based on 8 health concepts: physical and social functioning, role limitations due to physical and emotional problems, mental health, vitality, bodily pain, and general health perception.(10)

Data analysis

Data collected using HDRS, HARS and SF-36 questionnaire were recorded in a statistical package for the social sciences (SPSS) spreadsheet after coding. The categorical data and continuous data were expressed as percentages and mean (±standard deviation), respectively. Test of association between various determinants with risk/presence of PCOS among students was done using t test. P≤0.05 was taken as the cut-off for significant association.

Results

104 participants took part in this study, out of which 4 were excluded as their forms were incomplete. Thus, a total of 100 females in the age group of 18–30 years were studied. The mean age of the sample was 23.47 years (Table 1). 27% of the students with PCOS were classified as overweight and 6% were obese as per their body mass index (BMI).

Variables	N (%)
Age (years)	
18-20	19
21-25	77
>26	4
BMI	
Underweight	18
Normal	49
Overweight	27
Obese	6

Table 1: Distribution of age and body mass index (BMI) of students (N=100)

Prevalence of anxiety and depression

Of the 100 students studied, 38 were found to be suffering from anxiety disorders, while 18 were found to be suffering from depressive disorders. Thus, the prevalence of anxiety disorders in our study sample was 38%, and the prevalence of depressive disorders was 18%. And a total of 44 patients had neither of the two.

The Hamilton rating scales for anxiety and depression were used to rate the severity of the respective conditions among those, in whom they were present (Table 2).

16 out of 38 students had mild anxiety and 10 out of 18 students had mild depression.

The quality of life (QoL) measured by the SF-36 shows a significant result of a lower quality of life seen in patients with psychiatric morbidity. As the p value is <0.01, the result is significant at p<0.05. But irrespective of the above comparison QoL of women suffering from PCOS is affected with and without psychiatric morbidities.

Anxiety and Depression symptoms	Percentage
Anxiety	
Mild	42
Moderate	34
Severe	24
Depression	
Mild	**57**
Moderate	**31**
Severe	**12**

Table 2: Distribution of anxiety and depression symptoms in students

Quality of life	PCOS with psychological morbidity (N=56)	PCOS without psychological morbidity (N=44)	P
Mean (±SD)	55.48±1.86	44.52±2.43	0.01

Table 3: Correlation between quality of life and psychological morbidity (anxiety and depressive symptoms) in students

Discussion

The overall prevalence of psychological morbidity in this study was 56%. It is difficult to make comparisons across studies due to differences in methodology.

A large study conducted reported that women with PCOS on average tend to experience mildly elevated anxiety and depression, significantly more than women without PCOS (12) and this is consistent through our study as well.

However, the reasons for this higher prevalence of psychological morbidity is complex and at this point largely unknown. A meta analysis study points to emotional distress due to symptoms and psycho-social

consequences of their diagnosis being a contributory factor to psychological distress in young women. (13)

Another study using structured clinical interviews with clinical participants found a very similar prevalence of overall psychiatric morbidity at 52.7% (14)

A recent study analysed racial differences in psychiatric morbidity and PCOS patients found a higher prevalence in white women compared to black (75.9% vs. 61.3%) with prevalence of depression remaining similar. (15)

In our study psychiatric morbidity was significantly associated with lower quality of life. This is similar to several studies that have reported the same. (16,17,18) Some studies 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).

More studies are required to evaluate the complex relationship between PCOS and psychiatric sequelae. More research into the cause and management of this are also urged to be looked from this preliminary study. Sensitization of gynecologists and psychiatrists to this psychological impact of PCOS should also be done to further diagnose and help support women with PCOS.

Limitations

This study was limited by a small sample size and due to the format of the data collection possible self-report bias limits the generalization of the study findings. The relationship between the SF-36 sub-scales and psychological morbidity was also not evaluated. Other confounding factors like personal factors, stressors, adolescence, relationship and college problems and other problems that may cause these psychiatric illnesses.

However even with recognising its limitations, the study still confirms that anxiety and depression is associated with lower quality of life in women with PCOS. Hence routine screening for psychological morbidity in women with PCOS assumes utmost clinical significance.

Conclusion

The overall prevalence of psychological morbidity in this study was 56%. The prevalence of anxiety disorders in our study sample was 38%, and the prevalence of depressive disorders was 18%

There is a strong relationship between women with PCOS and a reduced quality of life.

This concludes our study to state that the psychological sequelae of PCOS are also to be kept in mind during management of a patient with PCOS.

Whilst further research is required, women with PCOS should be considered a vulnerable population that may experience an adverse impact on their mental health and quality of life.

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