Evaluation of Depression and Mental Health Status in Women with Poly Cystic Ovary Syndrome

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Abstract

Objective: Poly Cystic Ovary Syndrome (PCOS) is a common endocrine condition that affects up to one fifth of the women of reproductive age. The overall prevalence of the depressive disorders has been shown to be about 12% in a large multi-centric study of obstetric-gynecologic patients. This study was designed to evaluate the distribution of depression and mental health status in women with PCOS.

Materials and methods: This cross-sectional study was performed on 100 women with PCOS who were selected among patients attending the gynecologic and obstetric clinics of two referral centers. They completed Beck Depression Inventory (BDI) and General Health Questionnaire (GHQ-28).

Results: The prevalence of depression in women with PCOS was 45% according to BDI. According to GHQ-28, 30% of our patients were considered as possible cases of mental disorder.

Conclusion: We found that the prevalence of depression was significantly high in women with PCOS. We believe that the treatment of PCOS must include psychological treatment to improve mental health status as well.

Keywords: PCOS, depression, mental health

Introduction

Poly Cystic Ovary Syndrome (PCOS) is the most common endocrine abnormality in women of reproductive age; its prevalence has been shown to be 18% based on Rotterdam diagnostic criteria (1- 3).

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It has been repeatedly stressed in many studies that PCOS women are at an increased risk for many medical problems including diabetic mellitus, hypertension, dyslipidemia, CVD and metabolic problems related to insulin resistance and reproductive manifestations including hirsutism, infertility and pregnancy complications (1, 4).

Therefore, many researches have been conducted on the biological and physiological aspects of the syndrome (1). Many aspects of the disorder can very conceivably cause a significant amount of emotional stress .Changes in the appearance, irregular or absent

menstrual periods, difficulties in conceiving, and possible disturbances in the sexual attitude and behavior can result in psychological distress and may also influence the feminine identity of the patients with PCOS. Accumulating evidence on the long-term health risks associated with PCOS (*e.g.* diabetes mellitus) may also have a negative impact on psychosocial well-being.

Indeed, the diagnosis of PCOS has been found to be associated with feelings of frustration and anxiety. In adolescents with PCOS, a negative impact on various aspects of health-related quality of life (HRQL), including limitations in physical functioning, general behavior, and family activities, has been found (5).

Review of medical and psychological literature indicates that PCOS is associated with several mental health problems including depression, anxiety, eating disorders, diminished sexual satisfaction, lowered health–related quality of life and increased risk of suicide (6, 7).

Our objective was to evaluate the distribution of depression and mental health status in women with PCOS and their association, and to study the association of socio-demographic factors with depression in PCOS patients.

Materials and methods

This project was conducted as a medical dissertation. This cross-sectional study was conducted on 100 women (aged 16-43 years) who were selected among patients attending the gynecologic, obstetric and infertility clinics of Mirza Kuchakkhan and Emam Khomeini Hospitals, affiliated to Tehran University of Medical Sciences from 2008 to 2010.

PCOS was diagnosed according to Rotterdam criteria (2):

1. *oligomenorrea/amenorrea*
2. *clinical or biochemical signs of hyperandrogenism*
3. *polycystic ovaries on ultrasound*

and exclusion of other etiologies including thyroid dysfunction, adrenal disorders, androgenic/anabolic drug use or abuse.

Other exclusion criteria in our study were:

- *Receiving treatment for PCOS in the previous two months.*
- *Use of valporate sodium in the previous two months.*
- *Need for admission in a mental institution or other hospitals*

First, the patients completed a questionnaire on socio-demographic data.

Depressive symptoms were assessed with the Beck Depression Inventory (BDI). The scoring of BDI was based on researches conducted in Iran: scores 0-15 indicated no depression, scores 16-30 indicated mild depressive symptoms, scores 31-46 indicated moderate depressive symptoms and scores ≥ 47 indicated severe depressive symptoms (8).

The 28-item General Health Questionnaire (GHQ–28) was used as a screening tool for the detection of mental disorders. The best cut-off point, determined using the conventional scoring method and the minimum overall misclassification rate, was 6; those scoring 6 and above were regarded as possible cases of mental disorder (9).

Then, data was analyzed with SPSS version 16.0. Univariate analysis was done using Student's t test for two independent means and Pearson chi-squared test and Fisher's exact test with continuity correction. P <0.05 was considered significant (two sided).

Ethical considerations

Prior to participation, patients were informed of the aims and the protocol of the study. Only patients who were willing to participate were included. The identity of the participants was confidential and participation was free of charge.

Results

The study population consisted of women with PCOS with an average age of 26.16 years (SD: 4.95 years). Of all participants, 37 had primary school education, 46 had high school diploma and 17 had university education.

Seventy four of them worked at home, 11 were student and 15 had other jobs/professions. Ten patients were single and 90 were married.

According to BDI, 55% of the women had no depression while 35% were mildly depressed and 10% were moderately depressed but no one was severely depressed (The maximum score of our patients was 45; therefore, in our study, we had no patient with severe depression).

According to GHQ-28, 30% of the patients were considered as possible cases of mental disorder.

The important part of our analysis was the correlation between BDI and GHQ which showed that among the patients who were considered as possible cases of mental disorder, only 16.7% (5/30) had no

Table 1: Comparison of socio-demographic parameters of the depressed women with non-depressed women

		Non depressed PCOS* n=55	mildly depressed PCOS * n=35	moderately depressed PCOS* n=10	*P* value
Employment (%)	House worker	78.2	65.7	80.0	0.296***
	Student	12.7	8.6	10.0	
	Other	9.1	25.7	10.0	
Education (%)	Primary school education	36.4	37.1	40.0	0.835***
	High school diploma	43.6	51.4	40.0	
	University education	20.0	11.5	20.0	
Age (mean)		25.78	26.31	27.7	0.522ᵃ
Family Number (%)	<=2	57.8	79.3	66.7	0.161***
	>3	42.2	20.7	33.3	
Marital Status (%)	Single	10.9	11.4	0	0.785**
	Married	89.1	88.6	100	

*according to BDI, scores 0-15 indicated no depression, 16-30 indicated mild depressive symptoms and scores 31-46 indicated moderate depressive symptoms
**Pearson chi-square
***Fisher's exact test
ᵃ t-test

depression and 83.3% (25/30) were depressed (17/25 were mildly depressed and 8/25 were moderately depressed).

Then, we compared socio-demographic parameters of the depressed and non-depressed women and socio-demographic parameters of the patients with a normal mental health status with those of the possible cases of mental disorder. The results of this comparison are shown in Tables 1 and 2.

Discussion

The common physical manifestations in women with PCOS, including hirsutism, acne, obesity, and male-pattern balding, are associated with reduced psychosocial well-being which manifests as having

feelings of frustration and anxiety. Depression is the symptom dimension most frequently investigated by behavioral scientists studying PCOS (10).

Several studies have established that women with PCOS are more likely to experience depressive symptoms than women without PCOS (6, 11).

In our study, 30% of the patients were considered as possible cases of mental disorder and the prevalence of depression in PCOS women was 45% In a study by Elsenbruch, the prevalence of depression was found to be 49.6% which was almost similar to our finding (12). Anuja Dokras found an overall prevalence of 40% (24/60) and the percentage of the pasrticipants with mood disorders was 56.6% (13). Sundhindra et al reported a

Table 2: Comparison of socio-demographic parameters of the patients with a normal mental health status with those of the possible cases of mental disorder.

		PCOS with Normal Mental health s (n=70)	PCOS who Suspicious of mental disorder*(n=30)	*P* value
Employment (%)	House worker	78.6	63.3	0.117***
	Student	11.4	10.0	
	Other	10.0	26.7	
Education (%)	Primary school	38.6	33.3	0.824**
	Highschool diploma	45.7	46.7	
Age(mean)		25.94	26.67	0.506ᵃ
Family Number (%)	<=2	68.4	61.5	0.538**
	>3	31.6	38.5	
Martial Status (%)	Single	8.6	13.3	0.482**
	Married	91.4	86.7	

*according to GHQ-28, those scoring 6 and above were regarded as possible cases of mental disorder.
**Pearson chi-square
***Fisher's exact test
ᵃ t-test

prevalence of 64.1 % (4) which was higher than our findings.

Some studies have reported lower percentages as compared to ours (14- 18); for example, Hollinrake found an overall prevalence of 21% and Amanda found a prevalence of 29%.

In a study by Rassi, 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%) (19).

Therefore, the prevalence of abnormal depression and mental disorder varies between studies and may reflect the differences in methods and tools for screening and diagnosis, population differences, different classification systems, influence of covariates such as BMI, infertility and use of medication.

We noted that the severity of depression differed in depressed patients; most of them had mild depression while no patient was severely depressed. However, Elsenbruch found that 25.2% of the patients were severely depressed (12). This difference is probably because we modified the scoring system according to researches conducted in Iran.

Amanda found that 4% of the patients were severely depressed (16), maybe due to differences in methods and tools for screening.

According to the results, we found that the results of BDI correlated with GHQ-28 in our study (p: 0.0001 and r=0.593).

Comparison between depressed and non-depressed women suffering from PCOS showed no significant difference in socio-demographic parameters; therefore, age, marital status, education, employment, and number of the immediate family members had no influence on the prevalence of depression in women with poly cystic ovary syndrome or their mental health status; Sundhindra noted the same finding.

Possible selection bias, use of a screening tool alone without further diagnostic evaluation of depression, the small samples size and lack of direct comparison with an age-matched healthy control group should be considered in interpretation of these results. Further studies are needed to determine the prevalence of other mood disorders and factors that affect depression and mental health status in women with PCOS.

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

Acknowledgement

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