

Original Research Article

Psychological complications of polycystic ovarian syndrome and women's health

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ABSTRACT

Background: Polycystic Ovarian Syndrome (PCOS) affects approximately 5-10% females of reproductive age worldwide. Recent research shows that this syndrome is associated with psychological upset and devastating effects on women's mental health and wellbeing. Lack of clinicians' awareness of adverse psychological effects is a major concern in developing countries to provide standard care and to improve overall health outcomes.

Purpose of study was to determine the frequency of anxiety and depression among women with PCOS in order to promote awareness among clinicians about psychological complications of disease.

Methods: Present study was conducted in the department of Obstetrics and Gynaecology/ University Medical and Dental College, from October 2018 to March 2019. Sixty patients with diagnosis of PCOD and sixty participants without this disease were included in the study. Participants having other endocrine or metabolic disorders were excluded from study. Hospital anxiety and depression scale was used to detect anxiety and depression among both groups. SPSS version 16 was used for data analysis. Chi-square test was applied to compare prevalence of anxiety and depression in both groups, p-value <0.05 was taken as statistically significant.

Results: Women having PCOD exhibited statistically significant prevalence of anxiety (78.3% vs 35%) and depression (60% vs 30%) with P value of 0.0001 and 0.001 respectively.

Conclusions: It is highly recommended that initial evaluation of these patients should include assessment of psychological domain of disease to provide more comprehensive treatment to improve overall health related quality of life.

Keywords: Anxiety, Depression, Polycystic ovary, Psychological complications

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) is a spectrum of heterogeneous disorders with varied presentation. It affects 5-10% females of reproductive age worldwide.¹ It has mild presentation in some cases but may be associated with severe reproductive, endocrine and metabolic dysfunction in others. Affected females may exhibit variety of clinical symptoms such as Heavy Menstrual Bleeding (HMB), sub fertility, heavy menstrual bleeding, an-ovulation, weight gain, excessive

hair growth, acne and alopecia.² These symptoms not only affect a female's life physically and emotionally but may have a profound impact on women's identity, mental health and overall quality of life.³

Polycystic ovarian syndrome has been characteristically described as an endocrine disorder in the past. Recently it has been postulated that this disease is associated with increased risk of psychological upset and devastating effects on women's mental health and wellbeing.⁴ Literature suggests that these females are at an increased

risk of developing anxiety and depressive disorders, bipolar disorders, social and sexual impairment and mood or eating disorders when compared to general population.⁵ Exact etiology of these non-reproductive health related complications is not well known.⁶ Evidence has empirically suggested that high insulin and androgen are associated with change in monoamine levels and results in mood disturbances.⁷ Some researchers have linked symptoms of infertility, loss of femininity, body image concerns and lower self-worth as the likely cause of poor psychological wellbeing in affected females.⁸

Although several cross-sectional and epidemiological studies have evaluated the association of emotional impairment with polycystic ovarian syndrome but results are highly conflicting. Earlier research demonstrates that prevalence of depression varies from 28 to 64%. Anxiety is another common psychological disturbance associated with this syndrome, varying from 34% to 57%.⁹

In a recent meta-analysis, it has been found that prevalence rates of depression range from 14 to 67 % in PCOS.¹⁰

PCOS is assuming the substantial proportion among adolescent girls and women of reproductive age group all over the world. Studies conducted on Pakistani women reported the incidence of 12% with tremendous increase in burden of disease in last few years.¹¹ Despite the enormity of problem, little attention has been paid to mental health implications of disease, and fewer studies have evaluated the prevalence of anxiety and depression in local population. Moreover, studies suggest that socio-cultural and racial differences appear to revamp the physical and emotional responses in the affected females.¹² While managing these patients, the implications of ethnic variations to screen and diagnose co-morbidities, management priorities, and developing local guidelines should be taken into account. So, there is a need to explore different dimensions of this complex disorder in local context.

Mental health is relevant to manage PCOS as it is an integral component of self-efficacy around a healthy lifestyle.¹³ Treatment inadequacies exist in clinical practice due to lack of clinicians' awareness and knowledge about mental health issues and these symptoms are often overlooked and left untreated. Psychological disorders may worsen some clinical symptoms of PCOS with further deterioration of quality of life.¹⁴

Present study was conducted to determine the frequency of anxiety and depression in females having polycystic ovarian syndrome in local population. Purpose of study was to promote awareness among clinicians about psychological aspects of disease and to highlight the need of early screening and diagnosis so that more comprehensive and sensitive management strategies can

be offered to improve the overall quality of life in these females.

METHODS

Present study was a case control study conducted in University Medical and Dental College, Faisalabad, department of Obstetrics and Gynaecology from October 2018 to March 2019. Approval from institutional ethical committee was sought. Sixty patients who fulfilled the criteria of disease were included in the study as cases. Sixty age and BMI matched participants who were not having PCOS or any other endocrine or metabolic disorder were randomly selected as control group from outpatient clinic. Informed consent was obtained from all participants.

Diagnosis of disease was established according to Rotterdam's criteria which includes oligo or an-ovulation, clinical features of hyper androgenism and ultrasound findings suggestive of Polycystic Ovarian Morphology (PCOM). Patients having two out of these three features were diagnosed as having polycystic ovarian syndrome. Females suffering from Cushing's disease, hyper-prolactinemia, thyroid dysfunction, on anti-depressant drug therapy, and previously diagnosed mental health issues were excluded from the study. A questionnaire was designed for the participants so that they can understand and fill the information on self-reported scale.

First part of questionnaire consisted of general information regarding age, marital status, height, weight and clinical symptoms of disease. In second part of questionnaire, Hospital Anxiety and Depression Scale (HADS) was completed by respondents under supervision to measure the anxiety and depression among both groups. Hospital Anxiety and Depression Scale is a measure to detect clinical cases of anxiety and depression. It has been reviewed in several studies that have consistently validated its effectiveness over the years. It is a valid measure of the severity of these mood disorders over the last one week. The scale consists of 14 questions, 7 each for measuring anxiety and depression. Each question has four possible responses, rating on a scale from 3 to 0.

Therefore, total score is 21 for anxiety as well as depression. A score of 0-7 is considered normal, 8-10 is suggestive of mild disease, 11-14 indicates moderate disease and a score of 15 or higher indicates presence of severe disorder of anxiety and depression.

Statistical analysis

Interpretation of recorded data was performed by using SPSS version 16. Descriptive statistics were used to describe observations regarding marital status and clinical symptoms. Group means and standard deviation were calculated for quantitative variables like age and BMI.

Chi-square analysis was used to compare prevalence of anxiety and depression among both groups. Statistical significance was determined as p value <0.05.

RESULTS

Participants of both groups were comparable in terms of age and weight and observed differences were not statistically significant (Table 1).

Most common clinical symptom manifested with polycystic ovarian morphology was sub fertility (45%) followed by heavy menstrual bleeding (43.3%), oligomenorrhoea (36.7%), hirsutism (28.3%) and acne

(23.3%) compared to non-PCOS participants. Overall, all physical symptoms were more prevalent in diseased group as compared to control group (Table 2).

Table 1: Socio-demographic characteristics.

Variables	PCOS n= 60	Controls n=60	p-value
Age (years)	16-42 26.62± 6.22	19-40 27.27± 5.88	0.557
BMI (Kg/m ²)	18-35 23.86± 3.53	18-36 23.13± 3.6	0.263
Married	45 75%	42 70%	0.54

Table 2: Clinical symptoms of groups.

Variables	PCOS n= 60	Controls n=60	Total n= 120	Chi-square value	p-value
HMB	26 43.3%	14 23.3%	40 33.3%	5.4	0.02
Subfertility	27 45%	12 20%	39 32.5%	8.55	0.003
Oligomenorrhoea	22 36.7%	12 20%	34 28.3%	4.104	0.043
Acne	14 23.3%	7 11.7%	21 17.55	2.83	0.093
Hirsutism	17 28.3%	7 11.7%	24 20.0%	5.21	0.02

Mean score of anxiety was 10.28±4.1 and 6.63±3.21 for patients and control groups respectively. Mean score of depression was 8.32±3.4 and 7.15±3.7 for PCO and non-PCO participants (Table 3).

Generalized anxiety was present in 78.3% participants and depression in 60% when compared to patients having no stigmata of disease (35% and 30% respectively). Prevalence of both anxiety and depression was significantly higher in PCOS group than control group, p-value 0.0001 for anxiety and 0.001 for depression (Table 4).

Table 3: Scores of anxiety and depression on HADS scale.

Variables	Group		p-value
	PCOS	Control	
Anxiety score	4- 21 10.28± 4.1	1-21 6.63± 3.21	0.0001
Depression score	3-17 8.32± 3.4	1-19 7.15± 3.7	0.074

Table 4: Prevalence of anxiety and depression.

Variables	Groups		Total n=120	p-value	Chi-square value
	PCOS n= 60	Control n=60			
Anxiety	47 78.3%	21 35.0%	68 56.7%	0.0001	22.94
Depression	36 60.0%	18 30.0%	54 45.0%	0.001	10.91

DISCUSSION

Researchers suggest that little attention has been paid to the negative effects of anxiety and depression on clinical

outcomes of polycystic ovary disease. International guidelines also suggest that psychological disturbances should be considered in all women with PCOS and an

initial evaluation should include the assessment of mental health disorders in affected females.

Several studies have evaluated the relationship between polycystic ovaries and psychiatric disorders and have shown that individuals with PCOS are more likely to have anxiety and depressive disorders when compared to general population.¹⁵

Results of present study are also consistent with these findings. Prevalence of anxiety was 78.3% and of depression 60% among PCOS women. These findings are consistent with a study in which depression was demonstrated in 93.7% subjects out of which 26% had severe depression and 42.2% had moderate degree of depression.¹⁶ Mild anxiety was seen in 98.4% participants while rest had moderate anxiety.

Similar pattern of anxiety and depression was determined in a study conducted on Omani women. Anxiety was the most prevalent psychological impairment noted in this research with prevalence rates of 63.4%.¹⁷ Oman has geographic and cultural proximity to South Asia. Omani women may exhibit similar phenotypic expression of disease as in South Asian women due to shared genetic and socio-cultural factors and explains concordance of results.

This results were also reinforced by a study in which clinically significant depression was detected in 40% adolescents and young girls.¹⁸ Increased level of psychological stress was mainly attributed to obesity, excessive hair growth and dissatisfaction with physical appearance leading to social withdrawal and low self-esteem in young girls.¹⁹ Other studies suggested 55.1% and 45% prevalence rates of depression in females of reproductive age group.²⁰

Another study found anxiety in 38.65% and depression in 25.7% women having polycystic ovarian disease.²¹ It has been suggested that fertility issues, menstrual problems and sexual dissatisfaction are associated with reduced psychological wellbeing in these young patients.²²

Annagür and coworkers have also confirmed the association of adverse psychological consequences of disease and recorded 50% depressive disorders in their study.²³ Furthermore, major depression was associated with 33%, anxiety disorders with 13.6% and binge eating disorders with 6.8% cases of disease.

Although earlier research concludes that women with this syndrome tend to experience more anxiety and depression than general population, but the prevalence rates are highly variable in literature. Although participants of present study showed increased prevalence, but it is somewhat higher than previous studies. Jing Tan found anxiety in only 13.3% participants and depression in 27.5%.²⁴ In another study, anxiety was noted in 35.7% and depression in 18.9%

patients of PCOS. Similar results were suggested by Suneet Kumar showing 28% anxiety and 11% depressive disorders in their study group.²⁵

The reason for this wide variation between prevalence of psychological morbidity could be due to several factors and cautious interpretation of results is warranted. The causes responsible for emotional stress are complex and vary according to geographic, social and individual basis. Socio-cultural attitudes have an important influence on presenting symptoms of disease and impairment of quality of life.²⁶ South Asian women demonstrate higher prevalence of acne, hirsutism and menstrual irregularities compared to Caucasian women having polycystic ovarian morphology.²⁷ Studies have shown that symptoms of infertility and menstrual irregularities are more distressing for Asian Muslim women while Caucasian women are more concerned for symptoms like acne, obesity, body image and hirsutism.²⁸ Sub fertility may be associated with enormous emotional burden on females with fear of divorce, low social status and poor self-worth in many South East Asian societies.²⁹ Predominance of symptoms of sub fertility and menstrual problems in participants of present study may be a possible explanation for higher rates of anxiety and depression.

In present study, 45% women had sub fertility and 43.3% had menstrual disturbances. Menstrual problems are also associated with many adverse social consequences in some cultures. Significantly high level of anxiety in present study may be explained by the fact that there is persistent stress of loss of sexuality or fertility and fear of childlessness in future in Pakistani population.

Use of different study designs and assessment methods to evaluate the psychological symptoms has also led to the wide variation of prevalence rates. Different questionnaires and rating scales are used in clinical practice for diagnosis of anxiety and depression. HADS anxiety and depression scale was used and psychological parameters were evaluated on self-rating scale in present study. However, clinical interviews are considered more precise for assessment of psychological morbidities. These may be the limitations of present study interfering with final conclusion.

Mental health is especially important in PCOS management as it is vital to self-efficacy and improved quality of life. Most of the women are treated only for their physical symptoms without evaluation of psychological co-morbidities due to lack of clinician's knowledge and skills to screen for these complications. Psychological disabilities are associated with low mood and less motivation with adverse clinical outcomes.⁶ So far, there is no definitive cure for this disease and the mainstay of treatment for metabolic dysfunction is motivation, increased activity and weight reduction.³⁰ Many studies suggest that weight reduction is associated with improvement of quality of life and depressive disorders in general population.³¹ Therefore weight

reduction and optimization of physical activity has been recently proposed as effective interventions in various studies. These modifications can improve metabolic profile of women with subsequent reduction in physical and psychological consequences of disease. While more research is necessary, women suffering from PCOS and psychiatric co morbidities are encouraged to improve their lifestyle with exercise and diet as both have been found to improve the clinical outcomes.

CONCLUSION

Results of present study are consistent with existing literature that prevalence of anxiety and depression is higher in women having PCOS compared to general population. Results emphasize that early screening and appropriate management of psychiatric co-morbidities should be the part of routine initial evaluation of these women. Furthermore, there is a need to explore different dimensions of this complex disorder to meet the challenges faced by affected females in local context. Present study will provide an insight into mental health domain of disease for local population and will facilitate researchers to develop local guidelines for screening and management in future.

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REFERENCES

- Sharma S, Majumdar A. Prevalence of metabolic syndrome in relation to body mass index and polycystic ovarian syndrome in Indian women. *J Hum Reprod Sci.* 2015;8(4):202-8.
- Blay SL, Aguiar JV, Passos IC. Polycystic ovary syndrome and mental disorders: a systematic review and exploratory meta-analysis. *Neuropsychiatric Dis Treatment.* 2016;12:2895-903.
- Shafti V, Shahbazi S. Comparing sexual function and quality of life in polycystic ovary syndrome and healthy women. *J Family Reprod Health.* 2016 June; 10(2): 92-8.
- Rodger R, Avery J, Moore V, Davies M, Azziz R, Stener- Victorin E, et al. Complex diseases and co-morbidities: polycystic ovary syndrome and type2 diabetes mellitus. *Endocr Connect.* 2019March; 8(3):R71-5.
- El Hayek S, Bitar L, Hamdar LH, Mirza FG, Daoud G. Poly cystic ovarian syndrome: an updated overview. *Frontiers Physiol.* 2016 Apr 5;7:124.
- Moghadam ZB, Fereidooni B, Saffari M, Montazeri A. Measures of health-related quality of life in PCOS women: A systematic review. *Inter J Women's Health.* 2018;10:397-408.
- Greenwood EA, Pasch LA, Cedars MI, Legro RS, Eisenberg E, Huddleston HG, et al. Insulin resistance is associated with risk of depression in polycystic ovary syndrome. *Fertil Steril.* 2018 Jul;110(1):27-34.
- Bazarganipour F, Ziaei S, Montazeri A, Foroozianfar F, Faghihzadeh S. Iranian version of modified polycystic ovary syndrome health-related quality of Life questionnaire: Discriminant and convergent validity. *Iran J Reprod Med.* 2013 Sep;11(9):753-60.
- Podfigurna-Stopa A, Luisi S, Regini C, Katulski K, Centini G, Meczekalski B, et al. Mood disorders and quality of life in polycystic ovary syndrome. *Gynecol Endocrinol.* 2015 Jun 3;31(6):431-4.
- Palomba S, Santagni S, Falbo A, La Sala GB. Complications and challenges associated with polycystic ovary syndrome: current perspectives. *Int J Women's Health.* 2015;7:745-6.
- Gul S, Zahid SA, Ansari A. PCOS: symptoms and awareness in urban Pakistani women. *Int J Pharma Res Health Sci.* 2014 Oct;2(5):356-60.
- Dokras A, Witchel SF. Are young adult women with polycystic ovary syndrome slipping through the healthcare cracks?. *J Clin Endocrinol Metab.* 2014 May 1;99(5):1583-5.
- Kataoka J, Tassone EC, Misso M, Joham AE, Stener-Victorin E, Teede H, et al. Weight management interventions in women with and without PCOS: a systematic review. *Nutrients.* 2017 Sep;9(9):996.
- Ding T, Hardiman JP, Petersen I, Wang FF, Qu F, Baio G. The prevalence of polycystic ovary syndrome in reproductive- aged women of different ethnicity: a systemic review and meta- analysis. *Oncotarget.* 2017 Nov 10;8(56):96351- 58.
- Dokras A, Stener-Victorin E, Yildiz BO, Li R, Ottey S, Shah D, et al. Androgen Excess-Polycystic Ovary Syndrome Society: position statement on depression, anxiety, quality of life, and eating disorders in polycystic ovary syndrome. *Fertil Steril.* 2018 May 1;109(5):888-99.
- Prathap A, Subhalakshmi TP, Varghese PJ. A cross-sectional study on the proportion of anxiety and depression and determinants of quality of life in polycystic ovarian disease. *Ind J Psychol Med.* 2018 May;40(3):257-62.
- Sulaiman MA, Al- Faris YM, Al- Khaduri MM, Waly MI, Saleh J, Al-Adawi S. Psychological burden among women of polycystic ovarian syndrome in Oman: A case control study. *Int J Women Health.* 2017; 9: 897-904.
- Sadeeqa S, Muatafa T, Latif S. Polycystic ovarian syndrome - related depression in adolescent girls: a review. *J Pharm Bioallied Sci.* 2018 Apr-Jun;10(2): 55-9.

19. Kaczmarek C, Haller DM, Yaron M. Health-related quality of life in adolescents and young adults with polycystic ovary syndrome: a systematic review. *J Pediatr Adol Gynecol.* 2016 Dec 1;29(6):551-7.
20. Scaruffi E, Gambineri A, Cattaneo S, Turra J, Vettor R, Mioni R. Personality and psychiatric disorders in women affected by polycystic ovary syndrome. *Front Endocrinol.* 2014 Nov 12;5:185.
21. Chaudhari AP, Mazumdar K, Mehta PD. Anxiety, depression and quality of life in women with polycystic ovarian syndrome. *Indian J Psychol Med.* 2018 May-June;40(3):239-46.
22. Conte F, Benting L, Teede JH, Stepto KN. Mental health and physical activity in women with polycystic ovary syndrome: A brief review. *Sports Med.* 2015 April;45(4):497-504.
23. Annagür BB, Kerimoglu ÖS, Tazegül A, Gündüz Ş, Gençoglu BB. Psychiatric comorbidity in women with polycystic ovary syndrome. *J Obstet Gynaecol Res.* 2015 Aug;41(8):1229-33.
24. Tan J, Wang QY, Feng GM, Li XY, Huang W. Increased risk of psychiatric disorders in women with polycystic ovary syndrome in Southwest China. *Chinese Med J.* 2017 Feb 5;130(3):262-6.
25. Upadhyaya SK, Sharma A, Agrawal A. Prevalence of anxiety and depression in polycystic ovarian syndrome. *Int J Med Sci Pub health.* 2016;5(4):681-3.
26. Kar S, Sanchita S. Clomiphene citrate, metformin or a combination of both as the first line ovulation induction drug for Asian Indian women with polycystic ovarian syndrome: A randomized controlled trial. *J Hum Reproduce Sci.* 2015 Oct;8(4):197-201.
27. Sulaiman HA M, Al- Faris MY, Al- Khaduri MM, Saleh J, Waley IM. Polycystic ovary syndrome is linked to increased oxidative stress to Omani women. *Int J Womens Health.* 2018;10:763-71.
28. Bazarganipour F, Taghavi AS, Montazeri A, Ahmadi F, Chaman R, Khosravi A. The impact of polycystic ovary syndrome on the health-related quality of life: A systemic review and meta-analysis. *Iran J Reprod Med.* 2015 Feb;13(2):61-70.
29. Qadri S, Hussain A, Bhat HM, Baba AA. Polycystic ovarian syndrome in bipolar affective disorder: A hospital-based study. *Ind J Psychol Med.* 2018Mar-Apr;40(2):121-8.
30. Mobini ZF, Kazemi A, Farajzadegan Z. A comprehensive mental health care program for women with polycystic ovary syndrome: protocol for a mixed methods study. *Reprod Health.* 2018;15:46.
31. Dokras A, Sarwar BD, Allison CK, Milman L, Kris-Etherton MP, Kunselman RA, et al. Weight loss and lowering androgens predict improvements in health-related quality of life in women with PCOS. *J Clin Endocrinol Metab.* 2016 Aug;101(8):2966-74.

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