fortune journals open access

Research Article

Frequency and Risk Factors for Depression and Anxiety in Patients with Polycystic Ovary Syndrome Presenting in a Tertiary Care Hospital Karachi, Pakistan

Amera Tariq[1*], Manahil Tariq Malik[2], Humaira Tariq[3], Samina Naseem Khattak[1], Tehreem Yazdani[4], Rameen Tariq Malik[5], Shahzad Rauf[6], Tariq Malik[7]

[1]Consultant Obstetrician and Gynaecologist, PNS Shifa Hospital, Karachi, Pakistan

[2]Medical Student, Aga Khan University, Karachi, Pakistan

[3]Consultant Obstetrician and Gynaecologist, Combined Military Hospital, Rawalpindi, Pakistan

[4]Consultant Obstetrician and Gynaecologist, Military Hospital, Rawalpindi, Pakistan

[5]Medical Student, Bahria University Medical and Dental College, Karachi, Pakistan

[6]Consultant Psychiatrist, PNS Shifa Hospital, Karachi, Pakistan

[7]Consultant Anaesthetist, PNS Shifa Hospital, Karachi, Pakistan

[*]Corresponding Author: Amera Tariq, Consultant Obstetrician and Gynaecologist, PNS Shifa Hospital, Karachi, Pakistan

Received: 18 September 2021; **Accepted:** 28 September 2021; **Published:** 05 October 2021

Citation: Amera Tariq, Manahil Tariq Malik, Humaira Tariq, Samina Naseem Khattak, Tehreem Yazdani, Rameen Tariq Malik, Shahzad Rauf, Tariq Malik. Frequency and Risk Factors for Depression and Anxiety in Patients with Polycystic Ovary Syndrome Presenting in a Tertiary Care Hospital Karachi, Pakistan. Obstetrics and Gynecology Research 4 (2021): 196-202.

Abstract

Objective: To determine the frequency and risk factors for depression and anxiety in patients with Poly cystic ovary syndrome (PCOS).

Study design: Comparative Analytic Study.

Setting and duration: Department of Obstetrics and Gynaecology at a tertiary care hospital in Karachi, Pakistan from July 2020-December 2020.

Materials and methods: All females with diagnosed PCOS aged between 15-45yrs were included in the study .A total of 270 females (n=135) formed the study group. Group A (n=135) constituted females diagnosed to have PCOS and group B (n=135) without PCOS.

Both groups were compared for anxiety and depression according to Hospital anxiety and Depression Scale (HADS).Demographic features were compared as well (age, qualification, BMI and parity).

Results: A total of 270 females were part of this research (n=135).Most 170 (62.9%) of study population was aged between 21-35years.112 (41.5%) were undergraduate .Most 160 (59.2%) of participants had normal BMI <25kg/m .In group A, 38 (28.1%) had depression along with 43(31.9%) having borderline depression versus 12 (8.9%) had borderline depression in group B, p-value 0.000, which is statistically significant .The overall incidence of anxiety in Group A was 116 (85.9%) versus 50 (37%), p value 0.00 which is statistically significant.

Conclusion: Depression and anxiety are common in PCOS. There is strong association of depression with young age (21-35), among graduate women and with no children that is subfertility.

Keywords: Anxiety; Depression; Polycystic Ovary Syndrome; Pakistan

1. Introduction

Poly cystic ovary syndrome is the most common endocrine disorder in females [1]. It occurs in 6-10% of females of reproductive age with a higher occurrence in obese ladies [2]. This is a syndrome of ovarian dysfunction along with the salient features of hyper-androgenism and polycystic ovary morphology [3]. The prevalence of PCOS seen on ultrasound is around 25% of all women but is not always associated with the full syndrome. Obesity, menstrual irregularities, subfertility and signs of androgen excess (hirsutism and acne) are the clinical features of this syndrome. The pathophysiology of the disease appears to be multifactorial and polygenic. For the diagnosis of PCOS, the Rotterdam criteria (2003) are generally followed [4]. It states that at least two of these criteria should be present. The criteria are as follows: 1) Oligomenorhoea/amenorrhoea, anovulation, infertility. 2) Hirsutism/acne. 3)Ultrasound findings–The ovary with 12 or more follicles measuring 2-9mm in diameter and/or increased ovary volume (>10mm^3) [5]. Raised luteinizing hormone (LH), increased insulin resistance and evidence of hyper-androgenism are common features. PCOS may be familial with variable expression of different features. The syndrome can exist without clinical signs which may then be expressed in certain circumstances. Genetic studies link PCOS with disordered insulin metabolism. It is associated with an increased risk of Type 2 diabetes mellitus, cardiovascular events and endometrial carcinoma.

In Pakistan the prevalence of PCOS is 52% [6]. The affected ladies are prone to develop anxiety and depression due to altered physical appearance, subfertility and biochemical events [7, 8]. The quality of life is affected by findings of PCOS and resulting impact on the mental health of the individual [9]. This research aims at assessing the prevalence of anxiety and depression and its connection with different socio-economic features. It involved an understanding of association of age, parity, obesity, subfertility, educational status in women with PCOS and development of anxiety and depression. This will lead to better awareness of psychological effects of PCOS and concerns of the women which will in turn help to modify treatment plans including counselling, screening and psychiatric assistance.

2. Materials and Methods

This comparative study was carried out in a tertiary care hospital Karachi, Pakistan. After taking clinical approval from the hospital's ethical committee, (ERC/2020/GYNAE 30), a predesigned questionnaire

was filled by women attending the Gynaecology OPD during July 2020-December 2020 in a tertiary care hospital Karachi after informed consent. All females already diagnosed to have PCOS, on the basis of Rotterdam Criteria and aged between 15-45years, were part of this research. A total of 270 females (n=135) constituted the study group. This research compared the mental health of women with and without PCOS (Group A and B). It involved females with PCOS defined by Rotterdam Criteria and a control group without PCOS. The questionnaire was filled after informed consent.

2.1 Exclusion criteria

Chronic illness, age less than 15 and more than 45 years, diagnosed psychiatric disorders, acute illness, medical disorder, pregnancy and those who were taking any psychiatric medications. Sample size was calculated to be n=300 (150 in each group) [10] comparing depression with and without PCOS. A total of 270 females filled the questionnaire's voluntarily (n=135).Group A included 135 females without PCOS. Data was collected using a demographic sheet that included age, parity, education, weight and height estimation. Hospital Anxiety and Depression Scale (HADS) was used to assess the anxiety and depression score.Seven questions were asked each for Depression and Anxiety. All the questions were ranked on four levels each.

2.1.1 Questions included for depression

Q.I still enjoy the things I used to enjoy (0-3)

Q.I can laugh and see the funny side of things. (0-3)

Q.I feel cheerful (3-0)

Q.I feel as if I am slowed down (3-0)

Q.I have lost interest in my appearance (3-0)

Q.I look forward with enjoyment to things. (0-3)

Q.I can enjoy a good book or radio or TV program. (0-3)

2.1.2 Questions for anxiety

Q.I feel tense or wound up (3-0)

Q.I get a sort of frightened feeling as if something awful is about to happen (3-0)

Q. Worrying thoughts go through my mind. (3-0)

Q. I get a sort of frightened feeling like butterflies in the stomach. (0-3)

Q.I can sit at ease and full relaxed (0-3)

Q.I feel restless as I have to be on the move (0-3)

Q. I get sudden feelings of panic (3-0)

HADS scoring involved 0-7, 8-10, 11-21 that is normal, borderline and abnormal case for each depression and anxiety respectively. Statistical Analysis was done using SPSS version 21.Frequencies and p- value were calculated. Chi square test was applied.

3. Results

A total of 270 females (n=135) were included in our study. Most 170 (62.9%) of study population was aged between 21-35 years. 112 (41.5%) were undergraduate. Most 160 (59.2%) of participants had normal body mass index (<25kg/m^2). The comparison of the demographic profile is given in table number 1. The overall incidence of moderate to severe depression in study group was 38 (14.1%) with an additional 55 (20.4%) suffering from borderline depression. In group A, 38 (28.1%) had depression along with 43 (31.9%) having borderline depression versus 12 (8.9%) had borderline depression in group B, p value 0.000, which is statistically significant. The overall incidence of anxiety in group A was 116 (85.9%) versus 50 (37.0%), p value 0.000; which is statistically significant. The comparison of factors affecting depression is given in table number 2. The overall incidence of anxiety was 101 (37.4%) had moderate to severe anxiety with additional 65 (24.1%) having borderline anxiety in both groups. 101 (74.8%) had anxiety with 15 (11.1%) cases of borderline anxiety in group A versus 50 (37%) borderline anxiety in group B without any case of moderate to severe anxiety,

p=0.000 which is statistically significant. The effect of various factors on anxiety in patient/ control is given in table number 3.

Variable		Group A	Group B	p-value
Age	≤20	8 (5.9%)	61 (45.2%)	0.000
	21-35	109 (80.7%)	61 (45.2%)	
	>35	18 (13.3%)	13 (9.6%)	
Qualification	Undergraduate	40 (29.6%)	72 (53.3)	0.000
	Graduate	49 (36.3%)	37 (27.4%)	
	Postgraduate	36 (26.7%)	26 (19.3%)	
	Others	10 (7.4%)	-	
Parity		0.65 ±1.03	0.64 ± 0.98	0.896
Weight (kg)		93.3 ± 40.3	58.2 ± 6.9	0.000
Height (cm)		162.1 ± 6.7	156.4 ± 3.76	0.000
Obesity	Normal BMI	59 (43.7%)	101 (74.8%)	0.000
	>25kg/m^2	25 (18. %)	25 (18.5%)	
	>30 kg/m^2	51 (37.8%)	9 (6.7%)	

Table 1: demographic profile of study population.

Variable		Group A			Group B			p-value
		No	Borderline	Yes	No	Borderline	Yes	
Age (years)	≤20	2 (2.9%)	6 (8.7%)	-	49 (71%)	12 (17.4%)	-	0.003
	21-35	44 (25.9%)	31 (18.2%)	34 (20.1%)	61 (35.6%)	-	-	
	>35	8 (25.8%)	6 (19.4%)	4 (12.9%)	13 (41.9%)	-	-	
Education	Undergraduate	12 (10.7%)	16 (14.3)	12 (10.7%)	60 (53.6%)	12 (10.7%)	-	0.000
	Graduate	19 (22.1%)	14 (16.3%)	16 (18.6%)	37 (43%)	-	-	
	Postgraduate	17 (27.4%)	11 (17.7%)	8 (12.9%)	26 (41.6%)	-	-	
Parity	Nulliparous	34 (20%)	31 (18.2%)	20 (11.8%)	73 (42.9%)	12 (7.1%)	-	0.000
	1 child	11 (21.2%)	8 (15.4%)	8 (15.4%)	25 (48.1%)	-	-	
	2-4	9 (19.6%)	4 (8.7%)	8 (17.4%)	25 (54.3%)	-	-	
	≥5	-	-	2 (100%)	-	-	-	
Obesity	Normal BMI	25 (15.6%)	17 (10.6%)	17 (10.6%)	101 (63.1%)	-	-	0.000
	>25kg/m^2	9 (118%)	8 (16%)	8 (16%)	13 (26%)	12 (24%)	-	
	>30kg/m^2	20 (33.3%)	18 (30%)	13 (21.7%)	9 (15%)	-	-	

Table 2: Factors affecting Depression in two groups.

Variable		Group A			Group B			p-value
		No	Borderline	Yes	No	Borderline	Yes	
Age (years)	≤20	2 (25%)	2 (25%)	4 (50%)	24 (39.3%)	37 (60.7%)	-	0.000
	21-35	11 (10.1%)	13 (11.9%)	85 (78%)	50 (82%)	11 (18%)	-	
	>35	6 (33.3%)	-	12 (66.7%)	11 (84.6%)	2 (6.5%)	-	
Education	Undergraduate	6 (15%)	4 (10%)	30 (37.1%)	24 (33.3%)	48 (66.7%)	-	0.000
	Graduate	2 (4.1%)	5 (10.2%)	42 (85.7%)	37 (100%)	-	-	
	Postgraduate	9 (25%)	4 (11.1%)	23 (63.9%)	24 (92.3%)	2 (7.7%)	-	
Parity	Nulliparous	11 (12.6%)	11 (12.6%)	63 (37.1%)	36 (42.4%)	49 (57.6%)	-	0.000
	1 child	6 (22.2%)	1 (3.7%)	20 (74.1%)	25 (100%)	-	-	
	2-4	2 (9.5%)	3 (14.3%)	16 (76.2%)	24 (96%)	1 (4%)	-	
	≥5	-	-	2 (100%)	-	-	2 (100 %)	
Obesity	Normal BMI	7 (11.9%)	8 (13.9%)	44 (74.6%)	65 (64.4%)	36 (35.6%)	-	0.000
	>25kg/m^2	6 (24%)	44 (27.5%)	44 (27.5%)	12 (48%)	13 (52%)	-	
	>30kg/m^2	6 (11.8%)	5 (9.8%)	40 (78.4%)	8 (88.9%)	1 (11.1%)	-	

Table 3: Factors effecting Anxiety in two groups.

4. Discussion

The research aimed at finding association of PCOS with Anxiety and depression and its correlation with age, parity, obesity and BMI. Depression and anxiety is common in young age (21-35), among graduate ladies and among women who had no children. The overall incidence of moderate to severe depression in our study turned out to be 38 (14.1%) and 55 (20.4%) had borderline depression. The ladies with PCOS (group A) showed a rate of 38(28.1%) depression along with 43(31.9%) having borderline depression. Similarly a study conducted in Pakistan –showed a higher depression score that is 61.8% [11]. Another study conducted in Pakistan represented increased depression and anxiety score among patients with PCOS [12]. The impact of subfertility, individuals' outlook, and biochemical events in correlation with PCOS cannot be ignored in the life of these women. The resulting depression and anxiety is profound [13].

Young females with PCOS experience more anxiety and depression as shown in our study: 65- 48.1 % (21-35yrs) vs 10-7.4% (>35yrs), probably due to the pressure of being single, obesity, body image and subfertility. This is in contrast to a western study that showed no impact of menstrual cycle irregularity nor subfertility on the mental health of the study group perhaps. This could be due to the fact that mean age was higher than our study [14]. 30 (22.2%) of women with PCOS, who were graduates, expressed depression. Awareness of disease, its social impact, fear of being single and unemployment perhaps could be the precursor of this depression [15]. Incidence of depression in Group A -81 (60%) vs 12 (8.8%) Group B of the participants. This is comparable to another study which showed prevalence of 40 % and 68.3% respectively [16, 17]. 51 (37.7%) of participants in PCOS group with depression, experienced fertility issues vs 12 (8.8%) non PCOS group. This has also

been shown in other studies [18]. Subfertility could trigger depressive symptoms. Religious beliefs can affect infertile females [19]. Anxiety symptoms were seen in PCOS -116 (85.9%) vs non PCOS -50 (37.03%). This is comparable to results of a meta-analysis. This meta-analysis found a significant association between PCOS and the symptoms of anxiety and depression [20, 21].

4.1 Limitations of this study

1. We didn't monitor PCOS symptoms deterioration during study period.
2. We couldn't infer any prior symptoms of anxiety and depression before the diagnosis of PCOS in these patients.

4.2 Strength

Ample size of the research population and it concluded that PCOS has been associated with anxiety and depression symptoms.

5. Conclusion

Anxiety and depression symptoms are a frequent occurrence in patients with PCOS. Clinician should attempt to seek high risk patients for developing these disorders and plan to give psychological help and therapy to such patients.

Conflict of Interest

We pronounce no conflict of interest.

References

1. Sirmans SM, Pate KA. Epidemiology, diagnosis, and management of polycystic ovary syndrome. Clin Epidemiol 6 (2013): 1-13.
2. Bozdag G, Mumusoglu S, Zengin D, et al. The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod 31 (2016): 2841-2855.
3. Balen AH, Conway GS, Kaltsas G, et al. Andrology: Polycystic ovary syndrome: the spectrum of the disorder in 1741 patients. Hum Reprod 10 (1995): 2107-2111.
4. The Rotterdam ESHRE/ASRM-sponsored PCOS consensus workshop group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome (PCOS). Hum Reprod 19 (2004): 41-47.
5. Balen AH, Laven JSE, Tan S, et al. Ultrasound assessment of the polycystic ovary: international consensus definitions. Hum Reprod Update 9 (2003): 505-514.
6. Akram M, Roohi N. Endocrine correlates of polycystic ovary syndrome in Pakistani women. J Coll Physicians Surg Pak 25 (2015): 22-26.
7. Tan J, Wang Q-Y, Feng G-M, et al. Increased Risk of Psychiatric Disorders in Women with Polycystic Ovary Syndrome in Southwest China. Chin Med J (Engl) 130 (2017): 262-266.
8. Almis H, Orhon FŞ, Bolu S, et al. Self-Concept, Depression, and Anxiety Levels of Adolescents with Polycystic Ovary Syndrome. J Pediatr Adolesc Gynecol 34 (2021): 311-316.
9. Borghi L, Leone D, Vegni E, et al. Psychological distress, anger and quality of life in polycystic ovary syndrome: associations with biochemical, phenotypical andsocio-demographic factors. J Psychosom Obstet Gynecol 39 (2018): 128-137.
10. Sayyah-Melli M, Alizadeh M, Pourafkary N, et al. Psychosocial Factors Associated with Polycystic Ovary Syndrome: a Case Control Study. J caring Sci 4 (2015): 225-231.
11. Sidra S, Tariq MH, Farrukh MJ, et al. Evaluation of clinical manifestations, health risks, and quality of life among women with

polycystic ovary syndrome. PLoS One 14 (2019): e0223329.

12. Zehra S, Arif A, Anjum N, et al. Depression and Anxiety in Women with Polycystic Ovary Syndrome from Pakistan. Life Sci J 12 (2015): 1-4.
13. Azizi M, Elyasi F. Psychosomatic Aspects of Polycystic Ovarian Syndrome: A Review. Iran J Psychiatry Behav Sci 11 (2017): e6595.
14. Hahn S, Janssen OE, Tan S, et al. Clinical and psychological correlates of quality-of-life in polycystic ovary syndrome. Eur J Endocrinol eur j endocrinol 153 (2005): 853-860.
15. Stankunas M, Kalediene R, Starkuviene S, et al. Duration of unemployment and depression: a cross-sectional survey in Lithuania. BMC Public Health 6 (2006): 174.
16. Kerchner A, Lester W, Stuart SP, et al. Risk of depression and other mental health disorders in women with polycystic ovary syndrome: a longitudinal study. Fertil Steril 91 (2009): 207-212.
17. Rahiminejad ME, Moaddab A, Rabiee S, et al The relationship between clinicobiochemical markers and depression in women with polycystic ovary syndrome. Iran J Reprod Med 12 (2014): 811-816.
18. Fassino S, Pierò A, Boggio S, et al. Anxiety, depression and anger suppression in infertile couples: a controlled study. Hum Reprod 17 (2002): 2986-2994.
19. Schmid J, Kirchengast S, Vytiska-Binstorfer E, et al. Infertility caused by PCOS—health-related quality of life among Austrian and Moslem immigrant women in Austria. Hum Reprod 19 (2004): 2251-2257.
20. Cooney LG, Lee I, Sammel MD, et al. High prevalence of moderate and severe depressive and anxiety symptoms in polycystic ovary syndrome: a systematic review and meta-analysis. Hum Reprod 32 (2017): 1075-1091.
21. Açmaz G, Albayrak E, Acmaz B, et al. Level of Anxiety, Depression, Self-Esteem, Social Anxiety, and Quality of Life among the Women with Polycystic Ovary Syndrome. Vollenhoven B, Schlembach D, Bartha JL, editors. Sci World J 2013 (2013): 851815.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution (CC-BY) license 4.0]