OPEN ACCESS

Kashf Journal of Multidisciplinary Research
Vol: 02 - Issue 07 (2025)
P-ISSN: 3007-1992 E-ISSN: 3007-200X
https://kjmr.com.pk

PREVALANCE OF POLYCYSTIC OVARY SYNDROME (PCOS) AND ITS PHENOTYPES: A CLINICAL ANALYSIS IN SWABI

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Article Info

Abstract

Introduction: Polycystic Ovary Syndrome (PCOS) is a women disorder with irregular menses, hirsutism, androgenic alopecia, acne and elevated androgens. Globally it affects 4% to 20% of women. Rotterdam criteria is used for diagnosis of PCOS. Phenotypically it is classified as PCOS class A, B, C and D.

Objective: The objective of this study was to determine the prevalence of Polycystic Ovary Syndrome (PCOS) and its phenotypes in Swabi based on Rotterdam Criteria.

Material and Methods: A Descriptive Cross-sectional study of 384 participants performed at the Department of Gynecology, DHQ Hospital Swabi. Female participants of age 18-45 years were included in the study. Data was collected through questionnaire after Pelvic ultrasound for the ovarian morphology and observation for the signs of Hyperandrogenism and history of menstrual cycles. Data was analyzed through Statistical Package for Social Sciences (SPSS) version 29.

Results: In this study 26.04% females found to be Polycystic Ovary Syndrome (PCOS) positive. Hyperandrogenism was most common (86%) followed by Polycystic ovaries (77%). Among the PCOS phenotypes, the most prevalent was phenotype A.

Conclusion: Among 384 patients, 100 patients were found with Polycystic Ovary Syndrome (PCOS), with Hyperandrogenism and Phenotype A being the most prevalent. These 26.04% PCOS positive women need proper guidance and counseling about PCOS and phenotypes from which they were affected.

Keywords:
Polycystic Ovary Syndrome, PCOS Phenotypes, Prevalence.

Introduction

Polycystic Ovary Syndrome (PCOS) is women disorder with symptoms of irregular menstrual cycles, hirsutism, androgenic alopecia, acne, high level of androgen and irregular ovulation. In many cases women start seeking treatment because of irregular menses and fertility problems (1-3). For diagnosis of PCOS Rotterdam criteria is commonly applied. This criteria recognize PCOS by three main features; Ovulatory dysfunction, Hyperandrogenism and Polycystic Ovarian Morphology (PCOM) (4, 5). Diagnosis of PCOS is challenging due to wide range of symptoms and numbers of factors that affect these symptoms (6, 7).

PCOS affects 4% to 20% women globally at their reproductive age (8). In UK women prevalence ranges from 20% to 25%. PCOS is estimated to be more prevalent in south Asian women, with 52% Pakistani women. (9).

Phenotypically PCOS can be classified into class A, B, C and D. Class A and B are known as typical PCOS. Women with typical PCOS have abnormal menstrual cycles, high blood insulin, high resistance to insulin and prone to other metabolic disorders. Class C PCOS women has lipid metabolism problems, higher testosterone and hirsutism. Class D women has normal testosterone, elevated endocrine indicators and lessor level of metabolic impairment (10, 11).

This study sought to assess the implications for patients and practitioners in light of the significant modifications made to the diagnostic criteria. The primary objective of this study was to evaluate the potential impact of modifying the minimum antral follicle count criterion on the diagnosis of polycystic ovary syndrome (PCOS). Significantly, the study sought to assess the disparities in metabolic health risks between those who satisfy the revised diagnostic criteria and those who are excluded based on these updated guidelines (12-15).

Material and Methods

This descriptive cross sectional study was performed at Gynecology department of District Headquarter hospital (DHQ) Swabi. Ethical approval was granted by DHQ Swabi. This study was focused on women attending DHQ Swabi. This study included young women of age 18-45 years attending gynecology department at DHQ Swabi. Women with other endocrine abnormalities were excluded from study. Total of 384 patients were studied. First an informed consent was taken from the patient. Then signs like hirsutism, acne, androgenic and alopecia were collected through a questionnaire. Ovulatory dysfunction was assessed through inquiring about history of menstrual cycles. Then patient was taken for pelvic ultrasound to investigate Polycystic Ovaries Morphology (PCOM). On base of this data, patients were categorized positive or negative for PCOS following Rotterdam criteria. All data was analyze through Statistical Package for Social Sciences (SPSS) version 29.

Results

To find out the prevalence of PCOS and its phenotypes, 384 patients of age 18-45 years with mean age of 26 years were examined who visited the Gynecology department of DHQ Hospital Swabi. Among them 100 (26.04%) were identified with PCOS. Among the PCOS positive patients the most common phenotype was phenotype A with 42% prevalence followed by phenotype B with 23%. The prevalence of phenotype C and D was found to be 22% and 13% respectively. During the analysis, Hyperandrogenism was found to be present in 86% of the PCOS positive patients followed by polycystic ovaries with 77% and 76% of the patients with Ovulatory dysfunction.

The statistics of Hyperandrogenism, polycystic ovaries and irregular menstruation (Ovulatory dysfunction) and age are given in tables and figures 1, 2, 3 and 4 respectively.

Table 1: Frequency of Hyperandrogenism signs among patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Yes**	86	86.0	86.0	86.0
	No	14	14.0	14.0	100.0
	Total	100	100.0	100.0	

Table 2: Frequency of Polycystic Ovaries among studied patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Yes**	77	77.0	77.0	77.0
	No	23	23.0	23.0	100.0
	Total	100	100.0	100.0	

Table 3: Prevalence of Ovulatory dysfunction among studied patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Yes**	76	76.0	76.0	76.0
	No	24	24.0	24.0	100.0
	Total	100	100.0	100.0	

Figure 1 Bar chart depicts frequency of Hyperandrogenism signs among participants

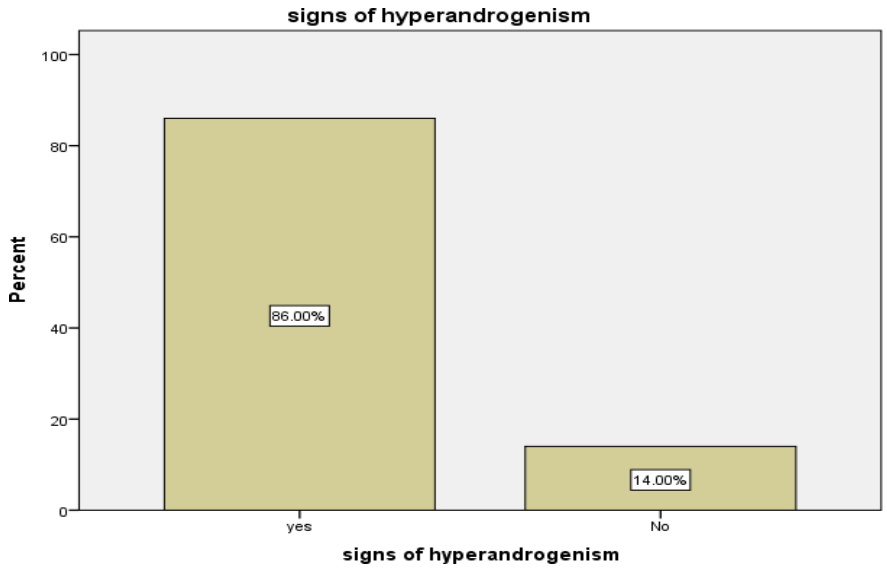


Figure 2 Bar chart depicts the prevalence of Ovulatory dysfunction among participants

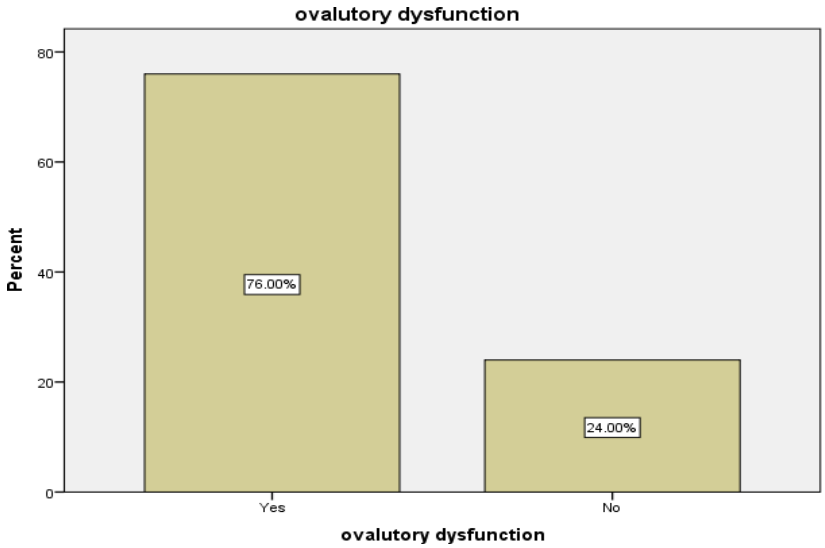
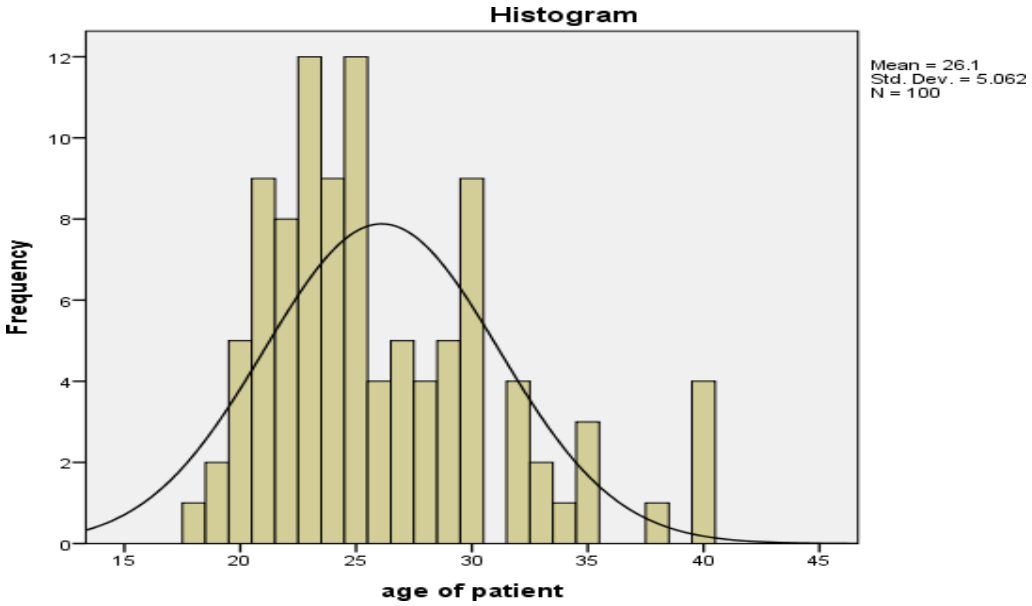


Table 4: Ages of the Participants

Ages		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	1	1.0	1.0	1.0
	19	2	2.0	2.0	3.0
	20	5	5.0	5.0	8.0
	21	9	9.0	9.0	17.0
	22	8	8.0	8.0	25.0
	23	12	12.0	12.0	37.0
	24	9	9.0	9.0	46.0
	25	12	12.0	12.0	58.0
	26	4	4.0	4.0	62.0
	27	5	5.0	5.0	67.0
	28	4	4.0	4.0	71.0
	29	5	5.0	5.0	76.0
	30	9	9.0	9.0	85.0
	32	4	4.0	4.0	89.0
	33	2	2.0	2.0	91.0
	34	1	1.0	1.0	92.0
	35	3	3.0	3.0	95.0
	38	1	1.0	1.0	96.0
	40	4	4.0	4.0	100.0
Total		100	100.0	100.0	

Figure 4 shows ages of participants through a Histogram



Discussion:

In this study, where 384 patients was analyzed for PCOS, it was found that 26.04% of the patients were positive for PCOS. Throughout the world, prevalence of PCOS is considered to be from 4% to 20% that falls nearer to our findings, however there is much ethnic variation in expression of PCOS.

In our study the Hyperandrogenism was the most common character present in 86% of PCOS patients that falls in close proximity to the study carried out at Reproductive Medical center Beijing china, where Hyperandrogenism were found to be present in 70% patients (16). Another study published in 2022 also suggest that about half of patients were found possessing characters of PCOS (17).

In our study, phenotype A was the most common among PCOS Phenotypes with 42% prevalence that are supported by a study published in 2022 in Karachi, Pakistan found that the phenotype A was the most common (18).

It is evident from the above discussion that the expression of the overall prevalence of PCOS, its phenotypes and characteristics varies among different ethnicities. This could possibly be due to the fact that PCOS is multifaceted syndrome that depend on a wide variety of factors including diet, body weight, lifestyle, family history, genetics and psychological pattern that varies from country to country and ethnic groups. Moreover, the differences could may be attributed to the fact that different diagnostics criteria are used for the assessment of PCOS that may lead to different outcomes.

Conclusion:

From this study we conclude that the 26.04% of women were positive for PCOS. Among which Phenotype A was the most common phenotype with 42% prevalence and Hyperandrogenism was the most prevalent character followed by Polycystic Ovarian Morphology (PCOM). The prevalence of Phenotype B and C were present in close proximity to each other with 23% and 22% prevalence respectively while phenotype D was comparatively low with 13% prevalence.

Recommendations:

For a women healthy life, the correct identification of PCOS and its phenotypes is necessary. The implementation of awareness sessions regarding PCOS and early detection techniques are important. Further investigations and the identifications of specific factors that contribute to the PCOS prevalence along with cultural and lifestyle factors are recommended.

References:

1. Rababa'h AM, Matani BR, Yehya A. An update of polycystic ovary syndrome: causes and therapeutics options. Heliyon. 2022;8(10).

2. Giampaolino P, Foreste V, Di Filippo C, Gallo A, Mercorio A, Serafino P, et al. Microbiome and PCOS: state-of-art and future aspects. International journal of molecular sciences. 2021;22(4):2048.

3. Azziz R, Carmina E, Chen Z, Dunaif A, Laven JS, Legro RS, et al. Polycystic ovary syndrome. Nature reviews Disease primers. 2016;2(1):1-18.

4. Wang R, Mol BWJ. The Rotterdam criteria for polycystic ovary syndrome: evidence-based criteria? Human Reproduction. 2017;32(2):261-4.

5. Carmina E. Need to introduce the finding of obesity or normal body weight in the current diagnostic criteria and in the classification of PCOS. Diagnostics. 2022;12(10):2555.

6. Livadas S, Diamanti-Kandarakis E. Polycystic ovary syndrome: definitions, phenotypes and diagnostic approach. Front Horm Res. 2013;40:1-21.

7. Peña AS, Codner E, Witchel S. Criteria for diagnosis of polycystic ovary syndrome during adolescence: literature review. Diagnostics. 2022;12(8):1931.

8. Deswal R, Narwal V, Dang A, Pundir CS. The prevalence of polycystic ovary syndrome: a brief systematic review. Journal of human reproductive sciences. 2020;13(4):261-71.

9. Azhar A, Abid F, Rehman R. Polycystic ovary syndrome, subfertility and vitamin D deficiency. Journal of the College of Physicians and Surgeons--Pakistan: JCPSP. 2020;30(5):545.

10. Khan MJ, Ullah A, Basit S. Genetic basis of polycystic ovary syndrome (PCOS): current perspectives. The application of clinical genetics. 2019:249-60.

11. Guastella E, Longo RA, Carmina E. Clinical and endocrine characteristics of the main polycystic ovary syndrome phenotypes. Fertility and sterility. 2010;94(6):2197-201.

12. Kostroun KE, Goldrick K, Mondshine JN, Robinson RD, Mankus E, Reddy S, et al. Impact of updated international diagnostic criteria for the diagnosis of polycystic ovary syndrome. F&S Reports. 2023;4(2):173-8.

13. Singh N, Hooja N, Yadav A, Bairwa P, Jaiswal A. Comparison of the various diagnostic criteria used in polycystic ovary syndrome. Int J Reprod Contracept Obstet Gynecol. 2022;11:2180-3.

14. Skiba MA, Bell RJ, Herbert D, Garcia AM, Islam RM, Davis SR. Use of community-based reference ranges to estimate the prevalence of polycystic ovary syndrome by the recognised diagnostic criteria, a cross-sectional study. Human Reproduction. 2021;36(6):1611-20.

15. Zhang Y, Ho K, Keaton JM, Hartzel DN, Day F, Justice AE, et al. A genome-wide association study of polycystic ovary syndrome identified from electronic health records. American journal of obstetrics and gynecology. 2020;223(4):559. e1-. e21.

16. Zhao Y, Qiao J. Ethnic differences in the phenotypic expression of polycystic ovary syndrome. Steroids. 2013;78(8):755-60.

17. Zulfiqar S, Tahir S, Gulraiz S, Razzaq MA, Abid A, Shahid T, et al. Investigation of prevalence and awareness of polycystic ovary syndrome among Pakistani females: polycystic ovary syndrome in Pakistani women. Proceedings of the Pakistan Academy of Sciences: B Life and Environmental Sciences. 2022;59(1):77-83.

18. Goswami P, Perveen F, Habib A, Jabbar S, Detho S, Kazi S. Frequency of Polycystic Ovary Syndrome PCOS and Various Phenotypes of PCOS in a Tertiary Care Hospital. Pakistan Journal of Medical & Health Sciences. 2022;16(04):576-.