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Research Article

Clinical Manifestations of Polycystic Ovary Syndrome Among Women Attending a Teaching Hospital in Afghanistan: A Cross-Sectional Study

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Abstract

Polycystic Ovary Syndrome (PCOS) is a complex endocrine disorder affecting women of reproductive age, characterized by hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology. Despite its high prevalence and significant reproductive and metabolic consequences, data on PCOS in Afghanistan are limited. This hospital-based descriptive cross-sectional study was conducted at Nangarhar University Teaching Hospital. A total of 100 women aged 18-45 years with a confirmed diagnosis of PCOS based on the Rotterdam criteria were included. Data were collected using a structured questionnaire, clinical examination, and pelvic ultrasonography. Descriptive statistics were used to analyze demographic, clinical, and metabolic characteristics. Most participants were aged 26-35 years (46%). Menstrual irregularities were reported in 68%, with oligomenorrhea (48%) and amenorrhea (20%) being most common. Infertility was present in 44% of participants. Overweight and obesity were observed in 42% and 30% of women, respectively. Clinical hyperandrogenism was common, with moderate to severe hirsutism identified in 40%, acne in 54%, and alopecia in 18% of participants. Ultrasonography revealed polycystic ovarian morphology in 70% of participants, predominantly bilateral. The findings indicate that PCOS is common among reproductive-age women in eastern Afghanistan. Early recognition, improved diagnostic facilities, and comprehensive management strategies are essential to reduce long-term complications associated with PCOS.

Keywords

Polycystic Ovary Syndrome, Hyperandrogenism, Menstrual Irregularities, Infertility, Afghanistan

1. Introduction

Polycystic Ovary Syndrome (PCOS), also referred to as Stein-Leventhal syndrome, is a complex endocrine disorder that affects women of reproductive age. It is characterized by a combination of hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology. The exact cause of PCOS remains unclear; however, it is widely recognized as a multifactorial condition involving genetic, hormonal, and environmental influences [4, 5].

PCOS affects multiple organ systems, including the ovaries, pancreas, adrenal glands, and the hypothalamic-pituitary axis. Elevated androgen levels interfere with normal follicular development, resulting in anovulation or oligo-ovulation.

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Experimental and clinical research has examined the effects of androgen excess and androgen signalling in PCOS [7, 8].

Two major diagnostic criteria are commonly used. The National Institutes of Health (NIH) criteria (1990) require the presence of hyperandrogenism and chronic anovulation after excluding other causes. In contrast, the Rotterdam criteria (2003) allow diagnosis when any two of the following are present: hyperandrogenism, ovulatory dysfunction, or polycystic ovarian morphology on ultrasound [20, 21].

Insulin resistance is considered a key mechanism in the development of PCOS. Increased insulin levels stimulate androgen production in ovarian theca cells and reduce the production of sex hormone-binding globulin (SHBG), leading to elevated levels of free androgens. This hormonal imbalance contributes to clinical manifestations such as hirsutism, acne, menstrual irregularities, and infertility. Metabolic and immunological factors have also been implicated in infertility associated with PCOS [6].

PCOS represents a significant public health concern due to its reproductive, metabolic, and psychological consequences. Women with PCOS may experience reduced quality of life due to infertility, cosmetic concerns, and long-term health risks such as type 2 diabetes and cardiovascular disease. Infertility is an important reproductive-health concern, and research has described its global burden and management, including infertility attributable to PCOS [1-3, 10-12]. Sexual-health concerns, including sexual pain distress, have also been reported among infertile women with PCOS [9].

In Afghanistan, particularly in Nangarhar Province, awareness and diagnostic capacity for PCOS remain limited. Many women are either undiagnosed or present late with complications. Sociocultural barriers, limited healthcare access, and lack of routine screening further contribute to delayed diagnosis and poor disease management.

Despite extensive global research, there is a lack of locally relevant data on PCOS in Afghanistan. Differences in genetics, lifestyle, nutrition, and cultural practices highlight the need for region-specific studies. Therefore, this study aims to describe the clinical characteristics of women with PCOS attending a tertiary care hospital in eastern Afghanistan.

2. Methods and Materials

2.1. Study Design

This was a facility-based descriptive cross-sectional study conducted at Nangarhar University Teaching Hospital, Afghanistan.

2.2. Study Population

The study included women aged 18-45 years who were diagnosed with PCOS and attended the gynecology outpatient department during the study period.

2.3. Sampling Technique and Sample Size

A total of 100 participants were selected using convenience sampling based on availability during the study period.

2.4. Inclusion Criteria

1) Women aged 18-45 years
2) Confirmed diagnosis of PCOS based on Rotterdam criteria
3) Willingness to participate with informed consent

2.5. Exclusion Criteria

1) Pregnant women
2) Thyroid disorders
3) Hyperprolactinemia
4) Congenital adrenal hyperplasia
5) Cushing's syndrome
6) Use of hormonal medications

2.6. Study Variables

2.6.1. Independent Variables

1) Age
2) Body Mass Index (BMI)
3) Clinical features of hyperandrogenism (hirsutism, acne, alopecia)

2.6.2. Dependent Variables:

1) Menstrual irregularities
2) Infertility
3) Ultrasonographic findings

2.7. Data Collection and Analysis

Data were collected using a structured questionnaire and clinical examination. Ultrasonography findings were recorded where available. Data were analyzed using SPSS software and presented as frequencies and percentages.

2.8. Ethical Considerations

Ethical approval was obtained, and informed consent was secured from all participants prior to inclusion in the study.

3. Results

Most women with PCOS were aged 26-35 years (46%), followed by 18-25 years (34%).

Table 1. Age characteristics of women with PCOS.

	Category	Number
Age group (years)	18-25	34
	26-35	46
	36-45	20

Menstrual irregularities were present in 68% of women, including oligomenorrhea (48%) and amenorrhea (20%). Infertility was reported by 44%.

Table 2. Clinical and menstrual characteristics of participants.

Variable	Category	Number
Menstrual pattern	Regular	32
	Oligomenorrhea	48
	Amenorrhea	20
Infertility	Present	44
	Absent	56

Regarding anthropometric and metabolic characteristics, 42% of participants were overweight and 30% were obese. Diabetes mellitus and hypertension were present in 16% and 12%, respectively.

Table 3. Anthropometric and metabolic characteristics.

Variable	Category	Number
Body mass index	Normal weight	28
	Overweight	42
	Obese	30
Comorbidities	Diabetes mellitus	16
	Hypertension	12
	Both DM and HTN	6
	None	66

*DM, Diabetes Mellitus; HTN, Hypertension.

Clinical hyperandrogenism was common. Based on Ferriman-Gallwey scoring, 40% of participants had moderate to severe hirsutism (score ≥10). Acne was observed in 54%, and alopecia in 18%.

Table 4. Clinical features among women with PCOS.

Feature	Category	Number
Ferriman-Gallwey score	<8 (No hirsutism)	38
	8-9 (Mild)	22
	10-14 (Moderate)	26
	≥15 (Severe)	14
Other features	Acne	54
	Alopecia	18

Pelvic ultrasonography revealed polycystic ovarian morphology in 70% of participants, with bilateral involvement being more frequent than unilateral involvement.

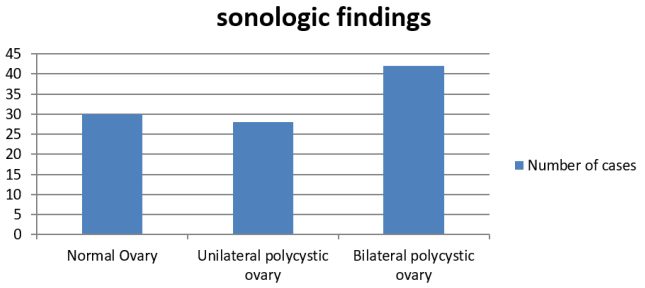

Figure 1. Ultrasonographic findings of ovaries.

4. Discussion

The present hospital-based descriptive study describes the clinical manifestations of PCOS among adult women attending a tertiary care hospital in eastern Afghanistan. The findings indicate that menstrual irregularities, hyperandrogenism, obesity, and polycystic ovarian morphology are the predominant clinical manifestations among women with PCOS. The clinical features of polycystic ovary syndrome (PCOS) in this study show similarities with findings from Indian populations, where hormonal and metabolic abnormalities are also prominent. In a study from Northeast India, clinical hyperandrogenism manifested as acne in 49.05% of participants and hirsutism in 43.39%, while menstrual issues such as oligomenorrhea and amenorrhea were frequent [13]. These results align with our observation of menstrual irregularities and hyperandrogenism as predominant features, emphasizing common reproductive symptomatology across South Asian settings.

In medical student populations from the UAE and Oman, the prevalence and presentation of PCOS varied notably by region, supporting the influence of lifestyle and ethnic factors on clinical expression. The study reported irregular periods and acne as the most common clinical symptoms, with a higher prevalence of hirsutism in Emirati students compared to their Omani counterparts, and obesity was a strong predictor of PCOS symptoms across both groups [14]. These findings reinforce the role of lifestyle and environmental factors seen in this study, where overweight or obesity was observed in 72% of participants (42% were overweight and 30% were

obese).

Research from Pakistan further substantiates the overlap in clinical presentations of PCOS across South Asia. In a tertiary hospital setting in Karachi, menstrual irregularity was the most common presentation, followed by hirsutism in over half of the women, and metabolic syndrome components such as high obesity and dyslipidemia were frequent. These patterns mirror the high prevalence of overweight/obesity and hyperandrogenic features in our study, highlighting shared clinical profiles in neighboring populations [15]. Studies from Kuwait demonstrate that PCOS prevalence in Middle Eastern populations is linked with key reproductive symptoms. Among female university students, menstrual irregularities and hirsutism were significantly associated with PCOS status, with additional risk factors such as family history influencing prevalence [16]. This prevalence of core symptoms such as irregular menstruation and androgen excess is consistent with this study.

Meta-analytic evidence from the Gulf Cooperation Council (GCC) countries highlights that PCOS is a significant contributor to infertility and is often associated with higher BMI. The systematic review reported that nearly 30% of infertile women in four out of six GCC countries were diagnosed with PCOS, and older age and obesity were linked with higher prevalence [17]. These results lend support to our observation of infertility among 44% of participants and underscore the importance of metabolic health in PCOS clinical outcomes.

Population-based research in Iran provides further insight into the prevalence and symptom distribution of PCOS. A meta-analysis reported that the prevalence of PCOS varied according to diagnostic criteria, with hirsutism present in 13%, acne in 26%, and menstrual disorders in 28% of Iranian women; overweight and obesity were also reported among the clinical characteristics [18]. Although the prevalence figures differ from our findings, the symptom patterns are consistent with the clinical findings of menstrual irregularities and hyperandrogenism.

Further Iranian research on PCOS phenotypes shows that classical Rotterdam phenotypes, which include ovulatory dysfunction and hyperandrogenism, are prevalent in women diagnosed with the syndrome. The study identified phenotype A as the most common and linked it to increased infertility and irregular cycles, emphasizing the reproductive impact of this phenotype [19]. These associations support our findings on infertility and underscore the significance of Rotterdam criteria in capturing clinical heterogeneity.

Several limitations should be considered when interpreting these findings. This was a hospital-based study with a relatively small sample size and convenience sampling, which may limit generalizability to the wider population. Biochemical hormonal assessments and lipid profiles were not included, restricting evaluation of biochemical hyperandrogenism and metabolic syndrome. In addition, the cross-sectional design does not allow assessment of causal relationships or long-term outcomes. Despite these limitations, the study provides valuable baseline data in a setting where local evidence on PCOS is scarce. Future studies should adopt larger, population-based designs to improve generalizability and better estimate the burden of PCOS in Afghanistan. Incorporation of biochemical investigations, including hormonal and metabolic profiles, is essential to comprehensively characterize the syndrome. Longitudinal studies are needed to assess long-term reproductive and metabolic outcomes among women with PCOS, while socioeconomic factors should also be considered in relation to disease recognition and management.

5. Conclusion

This study describes the clinical profile of polycystic ovary syndrome among adult women attending Nangarhar University Teaching Hospital. Most affected women were of reproductive age. Menstrual irregularities and clinical hyperandrogenism, particularly hirsutism and acne, were the most common presentations. Overweight, obesity, and associated metabolic comorbidities such as diabetes mellitus and hypertension were frequently observed. Polycystic ovarian morphology was commonly detected on ultrasonography, highlighting the importance of early diagnosis and comprehensive management of PCOS.

6. Recommendations

1. Early screening programs for PCOS should be strengthened in Afghanistan, particularly among women of reproductive age.
2. Public awareness campaigns and healthcare worker training are recommended to improve early diagnosis and management.
3. Future studies with larger sample sizes and biochemical investigations are needed to better understand the burden and clinical spectrum of PCOS in Afghanistan.

Abbreviations

BMI	Body Mass Index
DM	Diabetes Mellitus
HTN	Hypertension
NIH	National Institutes of Health
PCOS	Polycystic Ovary Syndrome
SHBG	Sex Hormone-Binding Globulin

Author Contributions

Rohullah Asady: Conceptualization, Methodology, Supervision, Writing – original draft

Noorina Momand: Formal Analysis, Investigation, Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Nik Hazlina N, Norhayati MN, Shaiful Bahari I, Nik Muhammad Arif NA. Worldwide prevalence, risk factors, and psychological impact of infertility among women: a systematic review and meta-analysis. BMJ Open. 2022; 12. https://doi.org/10.1136/bmjopen-2021-057132

[2] Bellver J, Donnez J. Introduction: infertility etiology and offspring health. Fertil Steril. 2019; 111: 1033-1035. https://doi.org/10.1016/j.fertnstert.2019.04.043

[3] Balen AH, et al. Management of anovulatory infertility in women with PCOS: WHO guidance analysis. Hum Reprod Update. 2016; 22: 687-708. https://doi.org/10.1093/humupd/dmw025

[4] Patel S. PCOS, an inflammatory, systemic, lifestyle endocrinopathy. J Steroid Biochem Mol Biol. 2018; 182: 27-36. https://doi.org/10.1016/j.jsbmb.2018.04.008

[5] Zhang J, et al. Global burden and epidemiological prediction of PCOS. PLoS One. 2024; 19. https://doi.org/10.1371/journal.pone.0306991

[6] Kicińska AM, et al. Immunological and metabolic causes of infertility in PCOS. Biomedicines. 2023; 11: 1567. https://doi.org/10.3390/biomedicines11061567

[7] Liao B, et al. Effects of androgen excess on granulosa cell function. Front Endocrinol (Lausanne). 2022; 13: 815968. https://doi.org/10.3389/fendo.2022.815968

[8] Ye W, et al. Role of androgen and its signals in PCOS. J Cell Mol Med. 2021; 25: 1825-1837. https://doi.org/10.1111/jcmm.16205

[9] Tahmasbi B, et al. PCOS elevates sexual pain distress in infertile Iranian women. BMC Womens Health. 2024; 24: 364. https://doi.org/10.1186/s12905-024-03163-4

[10] Zheng L, et al. Global burden of PCOS-related infertility. Front Endocrinol (Lausanne). 2025; 16: 1559246. https://doi.org/10.3389/fendo.2025.1559246

[11] Huo M, et al. Changing trends in the global burden of polycystic ovarian syndrome-related infertility over the past 30 years: retrospective data analysis of the Global Burden of Disease Study 2019. BMC Womens Health. 2025; 25: 35. https://doi.org/10.1186/s12905-024-03537-7

[12] Liu X, et al. Global, regional, and national burden of infertility attributable to PCOS, 1990-2019. Hum Reprod. 2024; 39(1): 108-118.https://doi.org/10.1093/humrep/dead241

[13] Yasmin A, et al. Prevalence of PCOS and risk factors in Northeast India. Ther Adv Reprod Health. 2025; 19: 26334941251384195. https://doi.org/10.1177/26334941251384195

[14] Begum GS, et al. Prevalence and risk factors of PCOS in UAE and Oman medical students. Int J Environ Res Public Health. 2024; 21(9): 1165. https://doi.org/10.3390/ijerph21091165

[15] Anjum S, et al. Clinical presentation of PCOS and metabolic syndrome in Pakistan. Cureus. 2020; 12. https://doi.org/10.7759/cureus.11860

[16] Alkhezi F, et al. Prevalence of PCOS among female university students in Middle East. Women's Health Rep. 2024; 5(1): 579-587. https://doi.org/10.1089/whr.2024.0045

[17] Alam Z, et al. PCOS prevalence among infertile women in GCC countries. Heliyon. 2024; 10. https://doi.org/10.1016/j.heliyon.2024.e40603

[18] Jalilian A, et al. Prevalence of PCOS in Iranian women: meta-analysis. Int J Reprod Biomed. 2015; 13(10): 591-604.

[19] Kheirollahi A, Hamidi H, Vatannejad A. Distribution of polycystic ovary syndrome (PCOS) phenotypes in Iranian women: a cross-sectional study. BMC Res Notes. 2025; 18(1): 215. https://doi.org/10.1186/s13104-025-07202-6

[20] Teede HJ, Tay CT, Laven J, et al. Recommendations from the 2023 International Evidence-based Guideline for the Assessment and Management of Polycystic Ovary Syndrome. Hum Reprod. 2023; 38(9): 1655-1679. https://doi.org/10.1093/humrep/dead156

[21] Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. Hum Reprod. 2004; 19(1): 41-47. https://doi.org/10.1093/humrep/deh098