

KNOWLEDGE OF PCOS AMONG MEDICAL AND NURSING STUDENTS OF WAH MEDICAL COLLEGE, WAH CANTT

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ABSTRACT

Objective: To evaluate the level of knowledge regarding polycystic ovarian syndrome (PCOS) among undergraduate medical and nursing students of Wah Medical College (WMC).

Study Design: Cross-sectional study.

Place and duration of Study: Wah Medical College and the Institute of Nursing, Wah Cantt, Pakistan, 03 months (February to May 2022).

Methodology: Approval was taken from the institutional ethical review committee, convenient sampling was done to select 100 female undergraduates: 50 each first and second year MBBS, and first and second year nursing students respectively. A pretested, self-administered questionnaire, developed for the study, was used to collect data. The instrument comprised two sections: sociodemographic/academic information and structured items assessing knowledge of PCOS. Written informed consent was obtained and confidentiality was maintained. Questionnaires were completed by participants without investigator assistance. Questionnaire data were coded and analyzed using SPSS version 23. Frequencies and percentages were calculated and graphical summaries were produced. Knowledge scores were categorized and the association between programmes (medical versus nursing) was evaluated using the chi square test with a significance threshold of ($\alpha=0.05$).

Results: With a 100% response rate, 62% of medical and 68% of nursing students showed good knowledge of PCOS. No meaningful statistical variation was observed across the groups, as the p-value exceeded 0.05.

Conclusion: Both medical and nursing undergraduates exhibited comparable and generally good knowledge of PCOS. Given their roles in the primary care and health education, these students can be leveraged to improve community awareness, correct misconceptions, and support early recognition and management of PCOS.

Keywords: *Medical Students, Nursing Students, Polycystic ovarian syndrome, menstrual cycles, Androgens, Estrogen, Progesterone.*

How to cite this article: *Nadeem S, Nadeem M, Aslam M, Saleem S, Khan KW, Imran SS. Knowledge of PCOs among Medical and Nursing students of Wah Medical College, Wah Cantt. HMDJ. 2025 December; 05(02): 50-53. 02. <https://doi.org/10.69884/hmdj.5.2.3457>*

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INTRODUCTION

PCOS due to modern lifestyle has been declared as a common female endocrine disorder. The World Health Organization

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Received: 13-10-2025

Revision: 22-12-2025

Accepted: 01-01-2026

(WHO) report 116 million women to be a victim of this disease¹. In the absence of any other underlying conditions, PCOS is described as a chronic disorder characterized by anovulation or oligo-ovulation with clinical or biochemical hyperandrogenism. The reported prevalence is higher in Pakistani women, ranging up-to 52% as compared to white women which shows a statistic of 10-20% and the same is depicted by women in the United Kingdom². The disorder arises due to an imbalance of estrogen and progesterone, both female sex hormones required for the normal ovulatory cycle to commence and to sustain regularity by their timely release and attainment of peak levels. The etiology is unknown, but certain risk factors are thought to contribute to this disease including a genetic predisposition,

doi.org/10.69884/hmdj.5.2.3457

sedentary routine, social stress and fast food intake³. Women with PCOS have a greater likelihood of developing type 2 Diabetes Mellitus due to increased release of adipokines, chemokines, and interleukins, as well as abdominal obesity and insulin resistance (due to the body's inflammatory state). In the past few years, PCOS cases have increased by almost 30% in India. Changes in lifestyle, and ignorance are thought to be the main causes of this phenomenon. Women's awareness must rise in order to prevent important factors that could contribute to infertility issues down the road⁴. There is a high risk of infertility that can lead to negative psychological symptoms like depression and a decreased quality of life, in the long run. For diagnosis, currently, the Rotterdam criteria are preferred, having a complete history and physical examination in adjunct, which states that for the diagnosis of PCOS, any two of the mentioned features must be present i.e. a) anovulation/oligo-ovulation, b) hyperandrogenism and c) visualizing cysts in ovaries on ultrasonography⁵. The objective of this research is to examine medical and nursing students' understanding of PCOS, given their contribution to health care services. As the doctor patient ratio is very low in our country, nurses as well should be educated about this syndrome at undergraduate level so that they can help in removing myths and misconceptions about this syndrome among the general public.

Physicians and nurses are pivotal in early detection, patient education, and long-term management of PCOS, especially in settings with low doctor-to-patient ratios. Yet, while prior studies have largely examined general populations or medical students, nursing undergraduates remain underexplored. This gap is critical: inadequate preparation at the undergraduate level may hinder recognition of symptoms, counseling on risk factors, and myth-dispelling, thereby delaying diagnosis and worsening outcomes. Accordingly, this study seeks to assess and compare PCOS knowledge among medical and nursing students, highlight misconceptions and educational deficits, and provide evidence to guide curricular improvements and public health strategies for earlier recognition and better management of PCOS.

METHODOLOGY

At Wah Medical College and the Institute of Nursing, Wah Cantt, Pakistan, this cross-sectional study was conducted between February 2022 and May 2022 following approval from the Institutional Ethical Review Committee of WMC (letter no. WMC/ERC/IRB/022 dated 19 January 2022). The study population comprised female undergraduates enrolled in the first and second years of the MBBS and first-year and second-year students of the Institute of Nursing. Using a convenience sampling approach, a total of 100 participants were recruited:

CAPSULE SUMMARY

The level of knowledge regarding polycystic ovarian syndrome (PCOS) among undergraduate medical and nursing students was assessed. Undergraduates of both disciplines had good knowledge of PCOS. They can be effectively used to raise community awareness, dispel myths, and encourage early PCOS detection and management because of their roles in primary care and health education.

50 female MBBS students and 50 female nursing students. Knowledge levels were categorized a priori as follows: good knowledge = $\geq 75\%$ of the maximum score, fair knowledge = 50–74%, and poor knowledge = $< 50\%$. These cut-offs are commonly used in health-knowledge surveys to distinguish high, moderate and low levels of understanding, and to facilitate comparison across groups.

Data was collected using a validated questionnaire developed for the study and reviewed for content validity, completed independently by participants. The instrument consisted of two sections: the first recorded sociodemographic and academic information (including year of study and programme), and the second assessed knowledge of PCOS through structured items. Prior to data collection, written, informed consent was obtained from each participant and confidentiality of responses was assured; questionnaires were completed by the students themselves in a private setting.

Data from all questionnaires were coded and processed in SPSS version 23. Frequencies and percentages were calculated to describe student demographics and individual item responses. Differences in knowledge items were examined using the Chi-square test, with statistical significance defined at $p < 0.05$

RESULTS

The response rate was 100%, in which 50 were female students of WMC and 50 female nursing students. Both group had approximately same good knowledge about PCOS i.e. 62% and 68% respectively. No statistically significant variation in knowledge was observed between medical and nursing students, as presented in Table 1. Medical students had relatively better knowledge about the complications of PCOS as shown in figure 1. Nursing students showed a better knowledge of the hormones responsible for PCOS (Table 2).

Table 1. Comparative Analysis of PCOS Knowledge between Medical and Nursing Students

Students	Knowledge about PCOS in Students			p-value
	Good knowledge n(%)	Average knowledge n(%)	Poor knowledge n(%)	
Medical students	31 (62)	18(36)	1(2)	0.503
Nursing students	34(68)	14(28)	2(4)	

Figure 1. Distribution of Knowledge Regarding the Complications of PCOS among Medical and Nursing Students

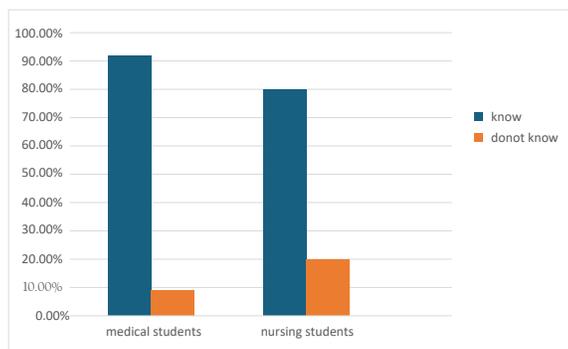


Table 2. Distribution of Knowledge Regarding Hormonal Elevations in PCOS among Medical and Nursing Under-graduates

	Raised Androgen levels	
	Known (%)	Don't known (%)
Medical students	23 (46)	27 (54)
Nursing students	36 (72)	14 (28)

DISCUSSION

For community healthcare, health professionals are required to have a good grasp on the newly emerging as well as the prevailing diseases in the community for which not only the level of knowledge must be assessed but also implementation on improving the pre-existing knowledge must be made for better deliverance of healthcare to the community. In Malaysia, research on PCOS awareness revealed that almost half of the participants (47.3%) demonstrated limited knowledge⁶. A related study from Karachi reported significantly higher knowledge scores among students enrolled in medical colleges compared to those from non-medical institutions ($p < 0.05$)⁷.

In our study level of knowledge is categorized into good, average and poor, out of 100 only 31 (62%) medical students and 34(68%) of nursing students had good knowledge. However, these results were contrary to the study conducted in India in which about 60.5% of women had inadequate awareness of PCOS, followed by 14.7% of respondents with basic awareness and 24.9% with comprehensive awareness⁸. A survey conducted in Malaysia found that nearly half of respondents (47.3%) had poor knowledge of PCOS⁹. Similarly, a study among Pakistani women at universities in Karachi reported that only 20 out of 177 participants (11.3%) had any knowledge. Of the 20 participants, 11 (10%) possessed medical science qualifications¹⁰. Furthermore, inadequate knowledge regarding PCOS was found in another study carried out at Islam Medical and Dental College, Sialkot, Pakistan, and Dow University of Health Sciences, Karachi, Pakistan. The mean score for PCOS knowledge across all students was 11.58 ± 4.99 , for medical

students it was 12.02 ± 4.73 , and for non-medical students it was 9.36 ± 5.65 , with $\alpha = 0.861$ ¹¹. In India, one study found a mean knowledge score of 22, which improved to 31 after health education ($p = 0.0012$)¹². Another study with 200 female medical students revealed that 6% had PCOS; of these, 72% were aware of the condition, mainly through teachers, while 28% had low or no awareness¹³. Despite their educational background, many university students show inadequate knowledge of this prevalent disorder. Research indicates that female medical students were knowledgeable about PCOS causes and risk factors but had limited understanding of its complications¹⁴. In another study conducted in King Abdulaziz Specialists Hospital, Taif, Saudi Arabia, the majority (89%) had heard of ovarian cysts previously; 39% knew about them from friends, 34% learned about them through health education, and 27%, from the media¹⁵. PCOS causes a significant socioeconomic burden to the health care system all over the world so in order to address this problem, few of nationally representative surveys were carried out in India between 2010 and 2014, revealing a range in prevalence rates from 6% to 46.8%¹⁶, which is similar to the study conducted on Emirati students that revealed a prevalence rate of 13%¹⁷.

PCOS cause many complications, and in our study, the majority (91.7%) knew the common complications of PCOS while 8.3% did not know. Of the nursing students, (80.0%) knew what the complication of PCOS were, and (20.0%) of them did not know. Since mothers' awareness of PCOS has a substantial impact on their daughters' awareness, which promotes quicker diagnosis and prevention of complications. A study conducted in 2017–2018 surveyed 1,580 school girls from 19 randomly selected districts in Tehran and 480 of their mothers. The study showed that just 3.2% ($n=48$) of the girls and 27% ($n=148$) of the mothers were aware of PCOS. Of these, 10.41% ($n=5$) of the mothers and 22.91% ($n=11$) of the girls were diagnosed with this condition. According to the findings of this study, Female school students together with mothers demonstrated awareness of PCOS in 3.2% ($n = 48$) and 27% ($n = 148$), respectively. Of these, 10.41% ($n=5$) of the mothers and 22.91% ($n=11$) of girls had PCOS diagnoses¹⁸. A cross-sectional study was carried out with female undergraduates from two northern Jordan universities, in which 1133 (95.9%) of the total participants identified the word PCOS, and their scores were substantially higher than those of the non-recognition group ($p < 0.001$, $M = 11.85$, $SD = 4.79$ versus $M = 5.61$, $SD = 4.91$)¹⁹.

In our study, out of the total medical students, only 23 (46%) knew that androgens are raised in PCOS while 27 (54%) did not know, and among the nursing students, 36(72%) knew and the remaining 14 (28%) did not know. In general, women with favorable attitudes towards managing PCOS through lifestyle adjustments had high levels of knowledge about the condition. A study was conducted in Saudi Arabia in 2023 that included the majority ($n=314$, 82.8%) had heard of PCOS, understood the role of androgens ($n=290$, 76.5%), and thought that androgens were elevated in PCOS ($n=284$, 74.9%)²⁰.

CONCLUSION

The nursing and medical students had good knowledge about PCOS. They can play a vital role in transmitting information to the community. They can be utilized not only for knowledge transfer but also for removing the myths and misconceptions related to the disease in the general public.

ETHICAL APPROVAL: letter no. WMC/ERC/IRB/022 dated 19 January 2022.

CONSENT FOR PUBLICATION: Written, informed consent was obtained from the study participants.

AVAILABILITY OF DATA: Data is available from the corresponding author on a justified request.

FINANCIAL DISCLOSURE/ FUNDING: None

ARTIFICIAL INTELLIGENCE TOOLS DISCLOSURE: None

CONFLICT OF INTEREST: None

ACKNOWLEDGEMENT: None

AUTHORS' CONTRIBUTION

- **Sadia Nadeem:** Conception and design, Drafting the article
- **Mahmoor Nadeem:** Collection of data, Drafting the article
- **Maria Aslam:** Collection of data, Analysis and interpretation of data
- **Sarah Saleem:** Analysis and interpretation of data
- **Khola Waheed Khan:** Analysis and interpretation of data
- **Shehzadi Sabah Imran:** Critical revision

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