

# Evaluation of Knowledge and Assessment of Polycystic Ovarian Syndrome (PCOS) Among Healthcare Providers in Medical Institutes of Bahawalpur

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**Abstract:** Polycystic ovarian syndrome (PCOS) is an endocrine disorder (an imbalance of sex hormones) in which water-filled sacs called cysts form in ovaries. Hormone imbalances in PCOS can lead to problems like irregular periods, troubled ovulation, diabetes, and cardiovascular disorders. PCOS is the main reason for ovulation issues and infertility among females. This study aims to check how many female healthcare providers in the medical institutes of Bahawalpur know about PCOS. In Pakistan, around 52% of reproductive-age women deal with PCOS versus 20–25% in the UK. The study surveyed 341 participants to assess their knowledge. Findings showed that nearly all participants had good knowledge about PCOS (94.4%), and over one-fifth showed possible symptoms (23%). Many of them were undergraduates. The research highlights the need for better education and awareness of PCOS for the general population through these healthcare providers and care to enhance affected women's quality of life. Based on signs and symptoms, 78 respondents (22.9%) are suspected to have PCOS but are living unknowingly with a low quality of life. They should take medical action as early diagnosis of PCOS is beneficial for improving their quality of life. Hence, community-based awareness programs are needed to address the risk factors, problems, and clinical manifestations for healthcare providers and the general population.

**Keywords:** Polycystic ovarian syndrome (PCOS); Knowledge; Assessment; Healthcare providers; Bahawalpur

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## 1. Introduction

Hormones play an important role in the health of females and the imbalance of hormones causes pathological problems, including irregular menstruation, PCOS, anovulation, hormonal acne, diabetes, thyroid diseases and obesity. Some hormonal imbalances are temporary, while others are chronic, which negatively affect the quality of life. Hormonal imbalance-related conditions such as PCOS and anovulation cause infertility in women of reproductive age <sup>[1]</sup>.

PCOS is also termed Stein-Leventhal syndrome, polycystic ovaries, hyperandrogenic chronic anovulatory syndrome and functional ovarian hyperandrogenism. The name polycystic ovarian syndrome has been utilized extensively because it describes the heterogeneous nature of this disorder [2].

PCOS is the leading cause of anovulation (as ovulation is blocked it results in amenorrhea), female infertility, hirsutism, hyperandrogenism, cystic acne, menstrual irregularities, hair loss, cardiovascular diseases, diabetes and insulin resistance which leads to obesity [3].

According to the World Health Organization (WHO), the prevalence rate of polycystic ovarian syndrome (PCOS) is estimated as 8–13% of women of reproductive age. Nearly 70% of women remain undiagnosed worldwide [4–5]. The prevalence rate of PCOS in South Asians, especially in Pakistani women, is higher, about 52%, than in white people (20–25%) in the UK [6].

PCOS is mainly caused by environmental factors, stress, family history and genetic makeup. Diabetic patients are at greater risk if their Body Mass Index (BMI) is higher. Women with PCOS have very low health-related quality of life (HRQOL) and they experience serious health problems. Insulin resistance is observed in over 70% of obese women, and more than half of women with PCOS develop type 2 diabetes by the age of 40 [7]. In other words, obesity is the main cause of PCOS [8].

Experimental studies show that PCOS patients are at risk of insulin resistance and psychological problems like anxiety, depression, sexual disorder and social problems with low HQOL due to lack of knowledge [9]. PCOS affects the quality of life not only during reproductive years but also continues to have an impact in post-reproductive years.

Early diagnosis of PCOS is important, which helps in the detection, prevention, and treatment of related disorders such as cardiovascular diseases and diabetes [10]. However, the diagnosis and treatment are often delayed due to a lack of knowledge and awareness of the condition. It starts at reproductive age but remains unnoticed under other conditions [11]. Good knowledge about PCOS through surveys, seminars, and workshops helps in early diagnosis and management, which improves the health-related quality of life. Therefore, the purpose of this study is to measure the women's perceptions and knowledge regarding PCOS.

## 2. Methodology

An extensive search of the literature was made up to January 2024 using the search engine PubMed using searching terms “PCOS” [12], “PCOS” AND “pathogenesis” [13], “PCOS” AND “Diagnosis” [14], “PCOS” AND “Insulin” [15], “PCOS” AND “Insulin” AND “Therapy” [16]. After carefully reading the abstract of the listed articles at the time of the search, only 170 were considered appropriate for this review article. The remaining articles were excluded because of a lack of appropriate information regarding PCOS and those without full manuscripts. Furthermore, this study also consulted other search engines, including Google Scholar and Elsevier, for data relevant to PCOS.

### 2.1. Sampling method and sampling size

This study is a descriptive cross-sectional conducted among the medical institutes of Bahawalpur. The easy sampling technique is used to recruit the participants in this study. Using the online RaoSoft software, a sample size calculator with a 50% response distribution, 95% confidence level and 5% error rate, it was determined that a minimum of 341 volunteers is needed for this study [17]. Thus, a total of 341 participants responded to the survey.

### 2.2. Study tools

A structured questionnaire was used for data collection. The initial part contains the demographic data of the participants. The subsequent part included a total of 24 questions about PCOS Knowledge. The final part

featured 16 assessment questions related to PCOS.

### 2.3. Scoring criteria

The scoring criteria for assessment were adjusted from a previous study that was conducted in Pakistan. There were 24 knowledge points in total, with a mean cut-off score of 12. Respondents scoring 0–12 on the knowledge scale were categorized as having poor knowledge, while those scoring 12–24 were classified as having good knowledge. In the scientific assessment section, 16 questions were asked about the signs and symptoms of PCOS. Respondents who reported three or fewer symptoms were not diagnosed with the disorder, whereas those who reported seven or more symptoms were suspected of having PCOS<sup>[18]</sup>.

### 2.4. Data analysis

Data has been analyzed using descriptive analysis. Descriptive analysis included percentages and frequencies for demographic characteristics and the knowledge section. Respondents who scored 0–12 on the knowledge scale were defined as having poor knowledge, and those who scored 12–24 were classified as having good knowledge. Every knowledge inquiry has two possible answers: yes and no.

### 2.5. Criteria

Knowledge criteria are as follows:

- (1) Poor knowledge: 0–12
- (2) Good knowledge: 12–24

Assessment criteria are as follows:

- (1) No symptoms of PCOS: 3 or less than 3
- (2) PCOS: 7 or greater than 7

## 3. Results

A total of 341 respondents participated in this study. The demographic characteristics of the participants in this study are presented in **Table 1**. 163 respondents (48%) were between the age of 18–20 years old, 175 respondents (51.3%) were between the age of 21–29 years old, and 3 respondents (1%) were between the age of 29–39 years old. The majority of participants were between the age of 21–29 years old. 310 respondents (90.9%) were undergraduate, 291 respondents (85.3%) were students and 320 respondents (94%) were unmarried as shown in **Table 1**.

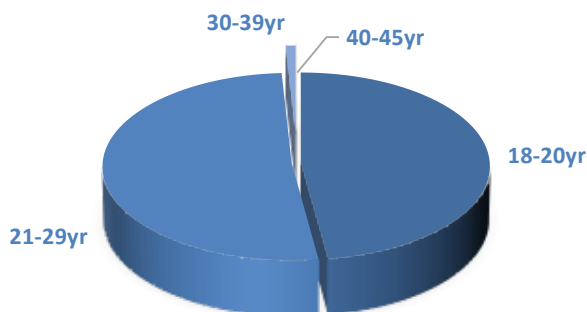
**Table 1** Demographic characteristics of respondents

Age	Total	Percentage
18–20 years old	163	48%
21–29 years old	175	51.3%
29–39 years old	3	1%
40–45 years old	0	0%
Educational status		
Undergraduate	310	90.9%
Graduate	15	4.3%
Master	13	4%
PhD	3	0.9%

**Table 1 (Continued)**

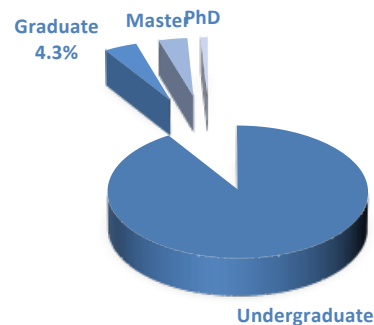
Employment status		
Unemployed	40	12%
Employed	10	3%
Student	291	85.3%
Marital status		
Unmarried	320	94%
Married	21	6.1%
Divorced	0	0%

### AGE GROUP OF RESPONDENTS



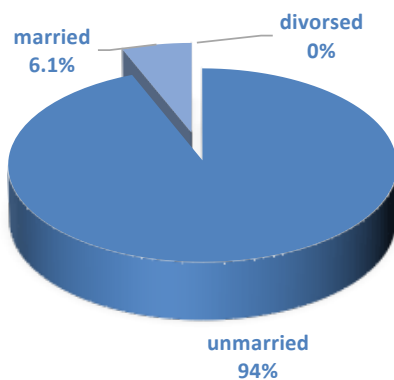
**Figure 1.** Age group of respondents.

### EDUCATIONAL STATUS OF RESPONDENTS



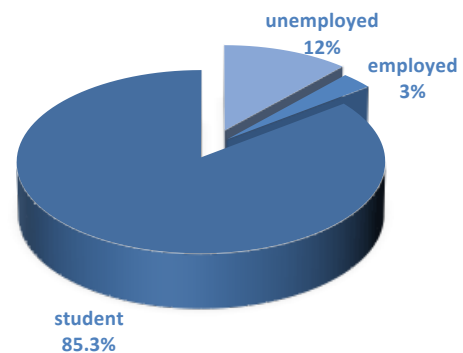
**Figure 2.** Educational status of respondents.

### MARITAL STATUS OF RESPONDENTS



**Figure 3.** Marital status of respondents.

### EMPLOYMENT STATUS OF RESPONDENTS



**Figure 4.** Employment status of respondents.

Participants scoring between 0 and 12 on the knowledge scale were categorized as having poor knowledge, while those scoring between 12 and 24 were deemed to have good knowledge. According to **Figure 5**, 322 respondents (94.4%) exhibited good knowledge, whereas 19 respondents (5.6%) demonstrated poor knowledge. This distribution is illustrated in **Table 2**, which details the findings of the study conducted in medical institutes of Bahawalpur.

**Table 3** indicates that 78 respondents (22.9%) are suspected of having PCOS but have not undergone any diagnosis or treatment, whereas 263 respondents (77.1%) do not exhibit signs and symptoms of PCOS.



**Table 2** Knowledge about PCOS

Knowledge	Total	Percentage
Good knowledge	322	94.4%
Poor knowledge	19	5.6%

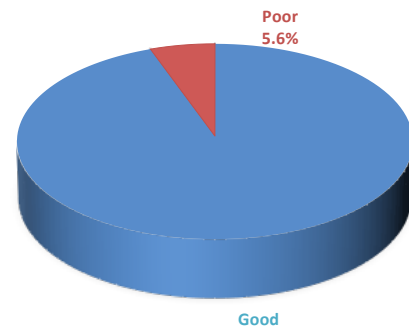
**Table 3** Assessment of PCOS

Assessment	Total	Percentage
No PCOS	263	77.1%
PCOS	78	22.9%

**Table 4** Association of knowledge and assessment of PCOS

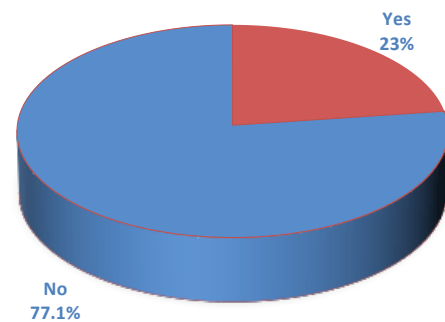
Knowledge	Assessment	Total	Percentage
Good	No	257	75%
Good	Yes	65	19%
Poor	No	6	2%
Poor	Yes	13	4%

**KNOWLEDGE ABOUT PCOS**



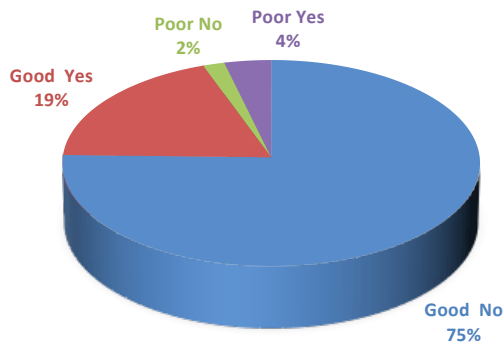
**Figure 5.** Knowledge about PCOS.

**ASSESSMENT OF PCOS**



**Figure 6.** Assessment of PCOS.

**KNOWLEDGE PLUS ASSESSMENT ABOUT PCOS**



**Figure 7.** Association of knowledge and assessment of PCOS.

## 4. Discussion

This study assessed the knowledge, awareness, and risk factors of PCOS, as well as the perceptions of medical students and healthcare providers in the medical institutes of Bahawalpur. The demographic characteristics accurately depict the enrollment status of female undergraduate students. Most of the students are single and in the same age group of 21–29. As stated, a higher number of participants at risk of having PCOS are in the 15–25 age range [19].

The results indicate that medical students have better scores in knowledge about PCOS, with 94.4% demonstrating awareness, compared to non-medical students. A research article stated that the disease was known to nearly 75% of participants in medical colleges [20]. This study used a standardized knowledge-based questionnaire to evaluate the knowledge and assessment of PCOS in medical students.

Based on the findings, it was determined that medical students have more knowledge about PCOS than others, and their knowledge increases if they have a family history of PCOS or have been diagnosed with PCOS in the past. Compared to others, they knew more about PCOS. Medical professionals and healthcare providers

are the primary source of knowledge because that is part of their curriculum <sup>[21]</sup>.

Furthermore, in this study, participants were assessed for PCOS based on signs and symptoms. It included 78 respondents (22.9%) who were suspected to have PCOS but had not received any medical attention or diagnosis. The study reported the relationship between having PCOS and low health-related quality of life (HRQOL), isolation, and physical problems <sup>[22]</sup>.

Compared to their friends and family, the adolescent females reported experiencing negative outcomes <sup>[23]</sup>. It is commonly known that prenatal exposures, environmental factors, and rising obesity rates as a result of unhealthy eating habits and poor lifestyle choices all contribute to or worsen PCOS <sup>[24]</sup>. Even though this study was limited to a single region, the diversity of female participants from various countries with a range of different life experiences can strengthen the study and allow for generalization among adolescent females.

## 5. Conclusion

Most of the participants have good knowledge about PCOS because this study was conducted in the medical institutes of Bahawalpur. Based on signs and symptoms, 78 respondents (22.9%) were suspected to have PCOS but are unknowingly living with a low quality of life. They should seek medical attention, as early diagnosis and management of PCOS are beneficial for improving quality of life. Therefore, there is a need to develop community-based awareness programs to address the risk factors, problems, and clinical manifestations of PCOS for healthcare providers and the general population. This will help prevent the increasing rates of menstrual problems, ovarian cyst formation, and infertility.

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