



KNOWLEDGE AND PREVALENCE OF POLYCYSTIC OVARIAN SYNDROME AMONG UNDERGRADUATE FEMALE STUDENTS IN KARACHI

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Abstract

Objective: To determine the knowledge and assess the frequency of polycystic ovarian syndrome among undergraduate students

Methods: A cross-sectional study was conducted among female undergraduate students in Pakistan using a survey. A structured questionnaire was administered in English language by a review of literature and expert consensus. The sampling approach was convenient, and survey was available as a hardcopy. Polycystic ovarian syndrome was diagnosed by following the Rotterdam criteria. An interview was scheduled with the students diagnosed with polycystic ovarian syndrome to assess the risk factors associated with this condition. Study received ethical clearance from ethical review board.

Results: A total of two hundred and eight six students participated in the study with a mean age of 21.4 ± 1.7 years. The frequency of polycystic ovarian syndrome in female medical students was 21% as 60 female out of 286 were diagnosed according to the Rotterdam criteria for polycystic ovarian syndrome diagnosis. Mean age of the students diagnosed with polycystic ovarian syndrome was 21.8 ± 2.1 years. 15% of the PCOS patients had BMI >30. Family history of diabetes mellitus was positive in 67.1% of the participants. The PCOS disease knowledge score was higher for participants studying in medical college as compared to non-medical educational background ($p < 0.05$).

Conclusion: The study conclusion revealed that prevalence of signs and symptoms of PCOS are increasing but the level of knowledge about PCOS was found to be inadequate among the participants. In addition, medical students had better level of understanding about the disease as compared to students with non-medical majors this level of awareness should spread-out to other segments of the society. The disease education can be promoted by conducting awareness campaigns within academic institutions, arranging talks and distributing educational material this would raise the awareness of the disease and lowers the stigma and hesitancy associated with it.

Keywords: PCOS, Prevalence, Knowledge, Awareness

Introduction

Polycystic ovary syndrome (PCOS) is a multifaceted endocrinal disorder affecting women of reproductive age and that leads to the excess production of androgens mainly from the ovaries. The

syndrome is linked with insulin resistance and is diagnosed by specific clinical, biochemical, and ultrasonography criteria (Mohammad and Seghinsara 2017).

Although the exact cause of PCOS is yet unknown, its pathophysiology is thought to be influenced by certain genetic factors where those individuals who are genetically predisposed to developing PCOS are more prone to exhibit its symptoms in response to specific environmental factors (Leon, Anastasopoulou, and Mayrin 2022).

PCOS may contribute to a wide range of clinical presentations such as hirsutism, acne, weight gain, male pattern alopecia, symptoms related to anovulation including irregular menstruation, oligomenorrhea, amenorrhea and subfertility, in addition to symptoms associated with insulin resistance such as darkening of skin folds and dyslipidemia (Ramanand et al. 2013).

Diagnosis is confirmed when a patient exhibits any two of three main features, or their associated phenotypes, that include hyperandrogenism, polycystic ovaries and anovulation (Ashraf, Nabi, Rashid, and Amin 2019).

The long term effects of this disorder can be decreased by early diagnosis and proper management. Overweight or obesity affects 40–80% of PCOS patients, which raises the risk of metabolic syndrome, endometrial hyperplasia, and endometrial cancer (Sam 2007; Barber, Hanson, Weickert, and Franks 2019; Ding, Chen, Wang, and Lin 2018).

Polycystic ovary syndrome remains an underdiagnosed disorder (Barthelmess and Naz 2014). Although it is the most common endocrine disorder affecting women of reproductive age (Leon, Anastasopoulou, and Mayrin 2022).

Studies have shown that there was a gap in the knowledge of students about PCOS and its symptoms and signs, and that certain lifestyle choices may predispose to PCOS (Pramodh 2020). PCOS-related metabolic and reproductive problems may result from a delay in diagnosis. (Ding, Chen, Wang, and Lin 2018). Studies indicate that among female students the prevalence of PCOS is increasing but without a change in the level of awareness, even though many of them had suffered from the syndrome. In addition, most of the students do not visit their doctors when suffering from PCOS symptoms and signs (Haq et al. 2017). This study aimed at assessing the knowledge and attitude of undergraduate students towards PCOS in Karachi.

METHODOLOGY

Design, duration, and study venues

A cross-sectional study was conducted among female undergraduate students in Pakistan using a survey. A structured questionnaire was administered in English language by a review of literature and expert consensus. The sampling approach was convenient, and survey was available as a hardcopy. Polycystic ovarian syndrome was diagnosed by following the Rotterdam criteria. An interview was scheduled with the students diagnosed with polycystic ovarian syndrome to assess the risk factors associated with this condition. Study received ethical clearance from ethics committees.

Participants' eligibility criteria

Female undergraduate students aged 18 -25 years were invited to participate in the study. Female students who were married or had any clinical complications of reproductive system were not included considering the nature of the study. Incomplete survey forms were not included.

Sample size calculation

Using the Rao soft sample size calculator, the size of samples was determined from the entire student population. The estimated sample size was determined at 95% confidence level, a 5% margin of error, and a 50% response distribution. The size of samples needed was rounded off to 350 after adding a 20% for dropout

Development of questionnaire

The study used a specially designed and validated questionnaire. The questionnaire related to PCOS was designed in English and prepared by a review of literature and through an expert consensus.

The questionnaire consisted of several section. The first section covers the demographic information about the study participants, which includes age, marital status, educational qualification, height, weight, family history of diabetes or PCOS, age of puberty, duration of menstrual periods and, source of information regarding PCOS. Educational qualification was taken to distinguish between medical and non-medical background students.

The second section contains 20 questions relevant to symptoms, diagnosis, treatment, complications, and risk factors of PCOS adopted from the study by Colwell et al (Colwell et al. 2010). The third part of the questionnaire consists of clinical evaluation regarding the prevalence of PCOS. Questions based on knowledge were scored using a three-point Likert scale. All the information of the questionnaire was adapted from a thorough review of literature. A higher score represented more correct answers. While lower score showed that the respondents answered incorrectly. A higher score indicated better knowledge.

Data collection process

The data were collected using a paper-based survey questionnaire and the students filled the questionnaire within 15 -20 minutes. The survey was anonymous and no personal information was recorded.

Study outcomes

The study outcome identified was the prevalence of PCOS and the disease knowledge.

Data management and presentation

The data were analyzed using IBM SPSS version 26. The categorical data was presented using sample counts (N) and frequencies (%). The continuous data were reported using descriptive statistics such as mean and standard deviation. For all tests, the level of significance was set at 0.05 and p values below 0.05 were regarded as significant.

Participant consent and ethical clearance

The participants were briefed about the study and were asked to provide their consent. The nature of consent was implied, that is, without personal identifiers. Those who consented to participate were provided with the questionnaire. Participants were told that their decision to participate would not affect the education and related services that they were entitled to. They were also informed that their response has been recorded without any personal identifiers and therefore, it would not be possible to withdraw their response once it was submitted. The study was approved by the Ethical Review Board of Hamdard University Pakistan (HU-ERB-2023-23).

Results

Response rate

Total number of questionnaire forms distributed were 450 and the number of questionnaire forms retrieved were 421, response rate was 93.5% and the number of valid and complete questionnaire forms were 286.

Demographic characteristics of participants

Demographic characteristics are shown in table: 1. Majority of participants 145 (50.7%) were having age ranges between 22-25 years. Majority of respondents, 199 (69.6 %) were medical students. Most of the students, 192 (67.1%) had a family history of diabetes and 98 (34.3%) had a family member suffering from PCOS.

Menstrual health and PCOS Prevalence

The mean age of menarche was 13 ± 1.2 years and majority of respondents 235 (88.5%) had a regular menstrual cycle. The most frequent menstrual irregularity among the participants was oligomenorrhea 17 (5.9%). The prevalence of PCOS among the participants was 60 (21%).

Knowledge Regarding PCOS

Knowledge regarding PCOS is shown in table: 2. Most respondents answered all knowledge questions positively. However, 250 (87.4%) did not know that PCOS is managed symptomatically. Very few participants knew that PCOS is a lifelong disorder and responsible for complications such as breast and uterine cancer.

Chi square test was performed to evaluate the knowledge score association between medical and non-medical educational background participants Result showed that medical educational background students had more correct responses $p < 0.05$ as shown in table:2.

Table1:-Background characteristics of participants

Characteristics	Frequency	Percent
Age (Years)		
18-21	141	49.3
22-25	145	50.7
Educational background		
Medical	199	69.6
Non-Medical	87	30.4
Family history of diabetes		
Yes	192	67.1
No	94	32.9
Family history of PCOS if known		
Yes	98	34.3
No	188	65.7
Menstrual cycle pattern		
Regular	235	88.5
Oligomenorrhea	17	5.9
Polymenorrhea	3	1
Amenorrhea	13	4.5
Amenorrhea		
Yes	10	3.5%
No	276	96.5%
Prevalence of PCOS among the participants		
PCOS	60	21
Non-PCOS	226	79

Table:-2 Knowledge score association between medical and non-medical educational background participants

Qn. No	Knowledge items	Correct Response	Incorrect Response	P value
1.	Have you heard about the term called “polycystic ovary syndrome” (PCOS)?	280 (97.9)	4 (1.4)	<.001*
2.	Do you know about the problems of PCOS?	271 (94.8)	15(5.2)	<.001*
3.	Irregular or absence of menstrual (period) cycle is a symptom of PCOS	53 (18.5)	233 (81.5)	0.6
4.	Do you know facial acne is a symptom of PCOS?	225(78.7)	61 (21.3)	<.001*
5.	Do you know sudden weight gain is a symptom of PCOS?	206 (72)	80 (28)	<.001*
6.	Do you know hair thinning and hair loss are also the symptoms of PCOS?	187 (65.4)	99 (34.6)	<.001*
7.	Have you ever experienced Pelvic pain? lower Abdomen pain	222 (64)	77.6 (22.4)	0.3
8.	Do you know that patients with PCOS report psychological disturbance?	98 (34.3)	188 (65.7)	<.001*
9.	Do you know how PCOS is diagnosed?	22 (7.7)	264 (92.3)	<.001*

10.	Do you know that an ultrasound scan of the ovaries will be taken to diagnose PCOS	128 (44.8)	158 (55.2)	<.001*
11.	Do you know the methods of treatment?	73 (25.5)	213 (74.5)	<.001*
12.	Are you aware that PCOS can be managed with diet and exercise?	87 (30.4)	199 (69.6)	<.001*
13.	Do you know PCOS is a lifetime disorder and has only symptomatic treatment?	36 (12.6)	250 (87.4)	<.001*
14.	Do you know PCOS patients have an increased risk of cardiac diseases	49 (17.1)	237 (82.9)	<.001*
15.	Do you know PCOS patients have an increased risk of breast cancer	10 (3.5)	276 (96.5)	<0.02*
16.	Do you know PCOS patients have increased risk of Diabetes	8 (2.8)	278 (97.2)	<0.05*
17.	Do you know PCOS patients have an increased risk of Uterine cancer	2 (0.7)	284 (99.3)	0.4
18.	Do you know PCOS patients have an increased risk of infertility	278 (97.2)	8 (2.8)	0.4
19.	Do you know Sedentary lifestyle is a risk factor for PCOS?	103 (36)	183 (64)	<.001*
20.	Surgery may be used to remove the ovarian cysts	2 (0.7)	284 (99.3)	0.4
Average Percentage Knowledge Score based on Response		43%	63%	

Chi square test was performed

p value <0.05 was considered significant

Discussion

The purpose of this study was to evaluate the prevalence, risk, and knowledge of PCOS among female undergraduate students. The problem of delayed diagnosis resulting from a lack of knowledge persists although the sign and symptoms of PCOS can be commonly recognized (Pramodh 2020). In our study 63% of the female participants had inaccurate knowledge about the sign, symptoms and complications associated with PCOS similar to earlier studies (Gaferi, Al-Harbi, Yakout, and Soliman 2018). Which could be due to a lack of discussions regarding reproductive health in schools and families. This finding showed that the knowledge about the disease was inadequate among participants. Besides, participants who studied in the medical college had a slightly better score similar to an earlier study (Tahir, Hassan, Khan, and Hafeez 2020). This study included participants from medical and non-medical backgrounds. These aspects could be regarded as strength of our study. Pakistan have one of the highest prevalence of PCOS in the world (Sidra, Tariq, Farrukh, and Mohsin 2019). The most common menstrual irregularity in this study was oligomenorrhea in 6% of the patients similar to a previous study in Pakistan (Anjum, Askari, Riaz, and Basit 2020). The prevalence of PCOS among participants was 21% while the occurrence of PCOS in the family was almost 34%. Which is reported to be a risk factor for developing PCOS. Studies highlight that the risk for developing PCOS is increased by 35% - 40% if mother or sibling suffers from PCOS (Azziz and Kashar-Miller 2000). This emphasizes the importance of conducting larger scale studies to evaluate the family history as a risk factor for developing PCOS in Pakistani women.

Participants studying in medical related majors had better knowledge as compared to non-medical college students similarly this pattern was observed in earlier studies (Rizvi et al. 2023). Knowing someone who is diagnosed with PCOS was associated with higher awareness scores and the level of knowledge of PCOS was significantly proportional to higher educational level. This finding is in line with an earlier study (Abu-Taha, Daghash, Daghash, and Abu Farha 2020). One more possible contributing factor could be the students increased exposures to awareness campaigns and off-campus lectures due to more years spent at university.

CONCLUSION AND RECOMMENDATIONS

The study's findings showed that although PCOS signs and symptoms are becoming more common, participants' awareness of the condition is still lacking. In addition, medical students have a better level of understanding about the disease. Furthermore, females with a positive family history of PCOS were observed to have a higher likelihood of PCOS in our study.

Therefore, it is advised to see gynecologists for clinical consultations to rule out PCOS as soon as possible. However, there is a hesitancy to visit gynecologists, and the majority of females visit gynecologist only in severe cases which was observed in this study. Universities in Pakistan should spread awareness regarding PCOS by conducting awareness campaigns, distributing educational materials, arranging talks and seminars for their students with well-known experts who have made significant contributions to the subject.

Limitations

This study was conducted only in one city of Pakistan and included educated females only due to lack of sources and hence, the results cannot be generalized to the whole country. So, there is need of further research in other areas and on females from different educational levels.

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