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KNOWLEDGE, AWARENESS AND ATTITUDES TOWARD POLYCYSTIC OVARY SYNDROME (PCOS) AMONG ALLIED HEALTH SCIENCE STUDENTS

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ABSTRACT

Background: *The most common endocrine disorders that affect women with reproductive capacity include polycystic ovarian syndrome (PCOS). Symptoms of the disease include irregular periods, obesity, acne, and insulin resistance. Clinical symptoms include problems with ovulation, hyperandrogenism and ovarian cysts despite miscarriages. PCOS also creates psychological problems such as anxiety, depression, lack of confidence due to body concerns due to increased levels of androgens.*

Objective: *To assess knowledge and attitude gaps that are required for educational interventions for Allied Health Science students.*

Methodology: *A cross-sectional questionnaire-based study carried out among 89 Allied Health Science Students. Data analysis was done using SPSS software and was presented in graphs and tables. This is done to create more awareness and knowledge about the early symptoms and treatment and investigations of the disease. Questions included (Yes / No) multiple choices.*

Results: *Out of the total 89 respondents, 65.2% were females. In terms of their awareness, 89.9% had some information about PCOS, 85.4% were familiar with obesity as one of the factors associated with PCOS, 71.6% were informed about its relation with insulin resistance, and 81.8% knew that it could make the women infertile. There was also a favorable attitude towards PCOS with 89.9% of the respondents agreeing on the importance of early diagnosis in order to have better treatment outcomes, 84.1% believing that lifestyle modifications were an effective approach in managing PCOS, and 89.5% emphasizing on the importance of increasing awareness about PCOS.*

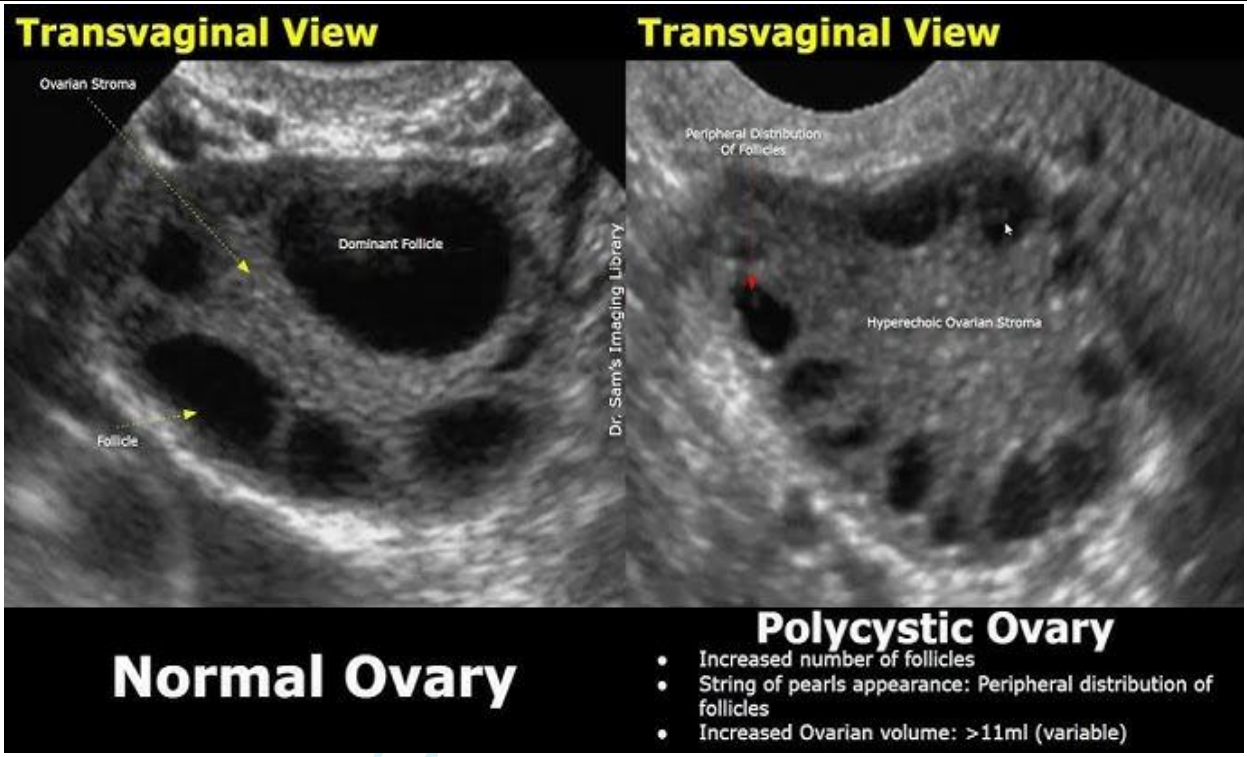
Conclusion: *The study finds that Allied Health Sciences students showed satisfactory knowledge and a positive attitude toward Polycystic Ovary Syndrome (PCOS). Most participants were aware of its risk factors, complications, diagnosis, and lifestyle management. However, there were low understanding of its genetic basis, hormonal mechanisms, pharmacological treatment, and diagnostic imaging. These findings emphasize the need for focused educational efforts and improvements in the curriculum to help*

students better understand PCOS and support early detection and effective management in their future clinical practice.

Keywords: *PCOS, Obesity, Type 2 Diabetes, Infertility, Irregular periods, Acne*

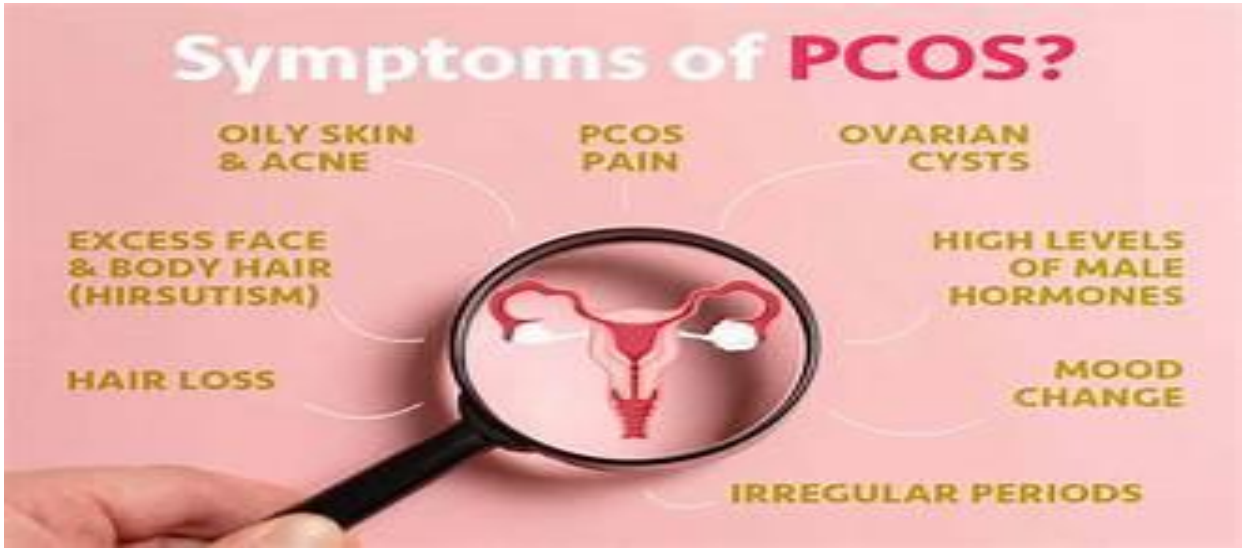
CHAPTER 1
INTRODUCTION

The commonest endocrine disorder that affects women who have their reproductive capability includes polycystic ovarian syndrome (PCOS).[1] The clinical manifestations of the syndrome include hirsutism, menstrual problems, obesity, acne, and alopecia. Polycystic ovarian syndrome (PCOS) is a hormone imbalance disease affecting women during reproductive ages.(2) The manifestations include problems with ovulation, hyperandrogenism, and ovarian cysts. Polycystic ovarian syndrome (PCOS) also causes metabolic problems such as obesity, insulin resistance, and hypercholesterolemia, which can cause serious complications such as type two diabetes, heart problems, and infertility.(3) Infertility in Pakistan accounts for 21.9%, of which 38.5% is due to polycystic ovarian syndrome (PCOS). However, adopting a healthy lifestyle including a balanced diet, physical activities and weight loss has proved helpful in improving the metabolic health of PCOS patients.(4) As per the recommendation of experts, including American Association of Clinical Endocrinologists, American College of Endocrinology, and Androgen Excess and PCOS Society Disease State Clinical Review, the initial step towards treating PCOS should be lifestyle modification.(5) They recommend PCOS patients should try losing 5%-10% of body weight and follow a healthy lifestyle. These measures proved to be beneficial for PCOS-suffering women concerning the prevalence of health and infertility outcomes from 5% to 20%. Furthermore, various contraceptives such as progesterone tablets or combined contraceptive pills can be prescribed to help have regular periods.(6) Moreover, fertility problems can be handled with the help of such drugs as clomiphene. The off-label use of letrozole and metformin can be also prescribed to those women planning conception. In addition, as for the consequences, PCOS is associated with increased probability of miscarriage, birth defects and other problems during pregnancy, such as neonatal complications and pre-term births, as well as the fact that people, although knowing about the disease, try to avoid medical treatment, especially regarding the complications arising due to it.(7) Some reasons for the refusal to get treatment have been stated previously. They are as follows: a) negative perception of the healthcare system because of the possible side effects, doctors, and other factors; b) less need to visit hospitals since people expect themselves to get better over time; and c) traditional barriers related to time and cost of medicine, respectively.(8) However, PCOS impacts not only sexual and reproductive health, but also metabolism and psychological state of women. Considering high prevalence of PCOS, its impact on physical and psychological wellbeing, and expenses incurred by the disease for the healthcare system, it is crucial to ensure awareness about it amongst health care professionals and community at large.(9) Literature available proves that lack of awareness about PCOS can bring negative consequences for women. Generally, hormonal profile and pelvic ultrasound is used for diagnosis of PCOS.(10)



Moreover, prevalence rate for PCOS is also high in Pakistani women. It has been found in a study carried out on women with PCOS attending clinics in three cities of Pakistan that most of them were obese, hirsute, had high level of blood glucose, irregular menstrual periods, and acne.(11) It was also noted in the same study that these women had a low quality of life and depression. Furthermore, a study has revealed that sexual dysfunction is a predictor of depression among women suffering from PCOS.(12)

Students of universities should be educated about PCOS during their first year because of increased chances of becoming overweight and having poor diet. Moreover, OTT students form a significant group regarding health education on PCOS. (13)



As future providers of healthcare, their knowledge and attitudes regarding protective behaviors will be of crucial importance in providing health education, counseling patients, raising awareness, community education, and making lifestyle changes for the prevention of PCOS-related complications.(14) It is vital to examine their knowledge, attitudes, practice, and readiness for preventive actions as this area represents the future professional responsibilities of these people and relates to women's health and fertility. With the increasing incidence of PCOS around the world, it is vital to examine the knowledge and attitudes of health professional technologists regarding the prevention of PCOS.(15) Increased knowledge can not only improve their own personal life but also will be beneficial in their future professional activities. This way, studying the topic is crucial for the development of effective education programs for nursing students.(16)

1.1: RATIONALE

PCOS patients have become knowledgeable about their disease and were able to take measures to prevent it.

Greater awareness of PCOS among women will enable them to gain greater knowledge regarding their condition. Early treatments of the disease, which could have been successful, can become possible through this. This study has never been carried out on the undergraduate population before. Therefore, this is a very good chance to study the knowledge, attitude, and perceptions of undergraduate students regarding PCOS. It will help understand better the various factors contributing to the higher prevalence of this disease. The aim of the study was to assess knowledge, attitude, perceptions, and the determinants of polycystic ovarian syndrome (PCOS).

CHAPTER 2
LITERATURE REVIEW

Worked on the level of knowledge and attitude about PCOS among 15 unmarried women having PCOS in Kerala and Tamil Nadu in India, a study was conducted. Based on purposive sampling and telephonic interviews, it was found that there were six main themes that were studied to understand the participants' perception regarding the condition, its cause, complications, risk factors, treatment, health-promoting behavior, and social support. It was found that though the participants were aware of the fact that a healthy diet and lifestyle are crucial for them to manage PCOS, but they had less knowledge about the disease at the time of diagnosis, especially the younger participants. Though the use of medication worked effectively for the regulation of their menstrual cycles, some side effects were also experienced by them. Eslavath Rajkumar in 2022.(17)

Conducted a Cross-sectional research carried out among 646 female undergraduate students in Pakistan was used to evaluate their level of knowledge, attitude, perception, and determinants of Polycystic Ovary Syndrome (PCOS). It was found that the knowledge level about PCOS is generally low, but there is statistically significant higher knowledge level among medical students compared to non-medical ones. While there was no embarrassment about talking about PCOS in society, none of the respondents ever spoke to any health practitioner about the disease. The main factors that stop women from gaining more knowledge or going for medical advice are ignorance and shyness or reluctance. The study also showed that such factors as obesity, irregular periods, family history, hirsutism, and use of contraceptives have significant association with PCOS. Moreover, the respondents who were studying in medical colleges, who have family history of PCOS, and who experienced periods shorter than five days had significantly high knowledge scores. Atta Abbas Naqvi in 2023.(13)

Worked to explore 1,182 women studying in two universities in northern Jordan was performed to explore the knowledge and attitudes of PCOS in these individuals. It was found that the mean score of awareness in this sample of university women was 11.59 ± 4.95, thus showing that the awareness about this condition can be considered satisfactory. High awareness scores were found to

be correlated with the fifth/sixth year of studying, studying in the health-related majors (veterinary medicine, nursing, pharmacy, dentistry), greater age, examination for PCOS before, diagnosis of PCOS, and the occurrence of the symptoms like hirsutism, acne, and acanthosis nigricans. The most common sources of the PCOS information were healthcare professionals, and the most efficient way of education was lectures although it was not used extensively. The authors came to the conclusion that though there is a satisfactory level of awareness of this syndrome, it should be raised in other populations as well. Eman Alshdaifat in 2021.(18)

Worked to explore a descriptive cross-sectional study done on 1,532 individuals residing in the central part of Jordan to examine the awareness and knowledge about Polycystic Ovary Syndrome (PCOS), it was revealed that there is a fairly good level of knowledge about the risk factors, causes, signs and symptoms, and the possible outcomes of PCOS among the participants. Nevertheless, the awareness about the comorbid conditions related to PCOS and the role of genetics in PCOS was relatively poor. The females showed significantly higher levels of knowledge compared to males. In addition, knowledge about PCOS increased with increasing age, employed status, and high-income individuals. It was found that although the awareness about PCOS is relatively good in Jordan, significant knowledge gaps still exist. Thus, it is recommended to conduct awareness programs among the general community and healthcare providers for improving their knowledge about PCOS. Nadia Muhaidat in 2023.(19)

Worked to study on 138 females suffering from Polycystic Ovary Syndrome (PCOS), who attended a government medical college at Saharanpur, Uttar Pradesh, was performed to find out whether the structured educational intervention would prove to be useful in improving the knowledge, attitude and practice of the participants regarding the syndrome. A valid questionnaire was used to collect baseline data about participants, which was followed by the implementation of a health education program. After the intervention was done, there were notable changes in the KAP of the participants, but the most marked change was seen in the knowledge level of the participants. Through the use of paired t-test, it could be concluded that these changes were significant ($p < 0.05$). The conclusion drawn by the authors of the paper was that the structured health education could be considered to be a very effective way of increasing awareness and correcting misconceptions of females suffering from PCOS. Harmanjeet Kaur in 2025(20)

Worked on descriptive cross-sectional study involving 399 nursing students from four nursing institutions in Egypt was done to investigate the knowledge and attitudes of the nursing students towards PCOS prevention. Data collection involved a structured questionnaire that comprised socio-demographic features, knowledge of PCOS and attitudes towards PCOS prevention. It was found out that the students had good or fair knowledge of PCOS although some knowledge gaps existed such as clinical features, diagnostic criteria and complications of PCOS. Lecture was the main source of information followed by social media. Most of the students exhibited positive attitudes towards PCOS prevention particularly through lifestyle changes, early screening and education programmes. In addition, a weak positive relationship was noted between the knowledge and attitudes. The authors concluded that even though the students had adequate knowledge of PCOS, it is essential for the improvement of nursing curriculum to enhance the knowledge of the future nurses in order to promote reproductive health and disease prevention. Mirfat Mohamed Labib Elkashif in 2026.(21)

Worked to conduct a study in South India to evaluate the knowledge and awareness of Polycystic Ovarian Syndrome (PCOS) among the nursing students of a tertiary care center. The study involved 88 nursing students in total. The results showed that most of the participants (89.8%) identified PCOS as the most common endocrinological disorder in women of reproductive age. In terms of knowledge of risk factors, 83 students mentioned obesity as a major

risk factor associated with PCOS. But knowledge about the long-term complications was rather poor. About 70.45% of the students were aware that PCOS leads to metabolic syndrome, 68.18% were aware of increased risk of endometrial cancer, 57.95% were aware of hypertension as a complication and 56.81% were aware that women with PCOS are at increased risk of developing diabetes mellitus. The study concluded that although the nursing students had satisfactory knowledge about the risk factors of PCOS, their awareness regarding its long-term complications was inadequate. The authors recommended that targeted educational interventions for nursing students and nurses be implemented to enhance understanding of PCOS and improve the ability to provide effective health education and early preventive care. R Sasikala in 2021.(22)

Study was conducted to evaluate the effect of an awareness program and lifestyle intervention on knowledge and attitude of adolescent schoolgirls regarding Polycystic Ovary Syndrome (PCOS). The pretest result showed that most of the participants had moderate knowledge on PCOS which is 80% in the experimental group and 75% in the control group. Following the educational intervention 75% of the participants in the experimental group gained adequate knowledge as opposed to 45% in the control group. The mean pretest knowledge score in the experimental group was 11.30 (SD = 4.91) and there was a statistically significant improvement after the intervention ($t = 5.27$, $p = 0.000$). Likewise, the mean pretest score of the control group was 11.25 (SD = 4.44), with a less pronounced but statistically significant increase ($t = 2.85$, $p = 0.01$). The study concluded that educational and lifestyle intervention programs were effective in improving the knowledge and attitudes of adolescent school girls about PCOS. The findings suggest that structured education modules added to school health programs can help in early diagnosis, increase awareness and help in the prevention of PCOS among adolescents Valarmathi Selvaraj in 2020.(23)

Conducted a cross-sectional study in Saudi Arabia from May to August 2023 to evaluate the knowledge, attitudes, and practices of lifestyle modification among women with Polycystic Ovary Syndrome (PCOS). The study showed that most of the participants were in the age group 18–29 years, 55.6% were married and 72% had a bachelor's degree. Almost half of the participants (46.9%) had a medical diagnosis of PCOS and 70.2% had no family history of the condition. Doctors were the primary source of information on PCOS for 40.7% of the participants. Overall, the respondents had a good knowledge about PCOS, including its characteristics, complications, and treatment options. They also had a positive attitude towards lifestyle modification. 91% agreed that weight reduction can improve PCOS symptoms. Furthermore, knowledge, attitudes and lifestyle practices were significantly correlated with demographic variables such as age, level of education, place of residence, marital status, working in the healthcare sector and diagnosis of PCOS. The study concluded that women have good knowledge and positive attitudes towards management of PCOS through lifestyle modifications in general. The study highlighted the importance of health education in promoting healthy behaviors and improving disease management. Amal Aljuaid in 2023.(24)

Conducted to examine the KAP of obesity and Polycystic Ovary Syndrome (PCOS) in overweight and obese reproductive women. The sample population for this study comprised 740 respondents recruited from November 2022 to April 2023. The results of the study revealed that 51.08% of the total respondents were between 18 and 30 years old. The mean scores of knowledge, attitude, and practices were 13.55 ± 5.06, 27.27 ± 2.19, and 50.14 ± 6.49, respectively. The scores indicated that participants lacked sufficient knowledge about obesity and PCOS, held neutral attitudes towards obesity and PCOS, and exhibited moderate health practices with regard to obesity and PCOS. There were statistically significant correlations between knowledge and attitude ($r = 0.313$, $*P* < 0.001$), knowledge and practice ($r = 0.454$, $*P* < 0.001$), and attitude and practice ($r = 0.415$, $*P* < 0.001$). Knowledge positively affected the attitudes of the participants

(β = 0.13, *P* < 0.001) and practices (β = 0.46, *P* < 0.001), while attitudes positively affected the health practices (β = 0.90, *P* < 0.001). Moreover, knowledge indirectly affected the practices because of the positive effect of knowledge on attitudes (β = 0.12, *P* < 0.001). This study revealed that there was insufficient knowledge and just moderate practice concerning PCOS among the women who were overweight and obese. Therefore, the study recommended the need for interventions which will educate the women in order to develop their knowledge, attitude, and practices towards PCOS. Yibing Mu in 2026.(25)

Polycystic Ovary Syndrome (PCOS) is an endocrine and metabolic condition which is prevalent in women of reproductive age, and it is known to be associated with irregular menstrual cycle, hyperandrogenism, infertility, obesity, and insulin resistance. Timely detection and proper management are key aspects to prevent PCOS from causing severe reproductive and metabolic problems.In a study on 410 women from Klang Valley, Malaysia, it was revealed that 10.49% of the participants had medical diagnosis of PCOS, whereas 32.93% of them were suspected of being diagnosed with this condition. Nearly half of the respondents exhibited poor knowledge (47.3%) and unhealthy behaviors (47.6%) with regard to PCOS. It was seen that women who have educational background in healthcare field, as well as women who had been diagnosed with PCOS before showed significant improvement in their knowledge (p < 0.01). Despite the importance of healthy lifestyle for preventing and treating PCOS, only 80% of the participants had difficulties in adopting healthy eating habits on weekends. Jia Ean Goh in 2022.[26]

Worked on the effectiveness of a video-assisted teaching program on awareness and attitudes about the early detection and management of Polycystic Ovary Syndrome (PCOS) was determined by using a quasi-experimental pre-test and post-test control group design with 60 female adolescents. The results indicated a significant increase in awareness and attitude in the experimental group after the intervention (*p* < 0.001) but did not show any significant changes in the control group. This study proved that video-assisted teaching is a viable method of education to improve awareness and develop positive attitudes towards the early detection and management of PCOS. Poornima Mallipeddi in 2024.(27)

CHAPTER 3

3.1: OBJECTIVES:

- To determine the knowledge and awareness of health professional technologists on Polycystic Ovary Syndrome (PCOS).
- The study aimed to assess the attitude of health professional technologists towards management of PCOS.
- To determine the gaps in knowledge and awareness of PCOS among Allied Health Science students.

3.2: HYPOTHESIS

Null hypothesis H0: There is no significant association between knowledge, awareness, and attitude towards Polycystic Ovary Syndrome amongst health professional technologists.

Alternative Hypothesis H1: There is a significant association between knowledge, awareness, and attitude towards Polycystic Ovary Syndrome amongst health professional technologists.

3.3: OPERATIONAL DEFINITION:

Knowledge:

Knowledge is a measure of the amount of information that health professionals possess in regard to Polycystic Ovary Syndrome (PCOS) concerning causes, risk factors, symptoms, diagnosis, complications, treatments, and preventive management of the condition. For this study, knowledge will be quantified using a questionnaire and scores from the participants classified as poor, moderate, or good based on the scoring system.(28)

Awareness:

Awareness is a measure of the level of understanding that the health professionals have concerning PCOS as a health condition and its PCOS information.(29)

Attitude:
The attitude of the health professionals towards early detection, diagnosis, management, educating patients, and preventive measures of PCOS. (30)

Polycystic Ovary Syndrome (PCOS):
Polycystic Ovary Syndrome (PCOS) is a widespread hormone disorder that is associated with women of reproductive age and cause infertility. It has characteristics of anovulation, hyperandrogenism, and polycystic ovaries. In this study, Polycystic Ovary Syndrome (PCOS) is the health condition whose knowledge, awareness, and attitude are going to study.(31)

Health Professional Technologists:
Health professional technologists are individuals who qualify as health professionals practicing operation theatre technology, anesthesia technology, and other related disciplines. In this study, health professional technologists are the participants.(32)

CHAPTER 4
MATERIAL AND METHODS

4.1: Design of the Study:
Design of the study is Cross sectional.

4.2: Setting:
Data is collected from University Of Lahore, Lahore.

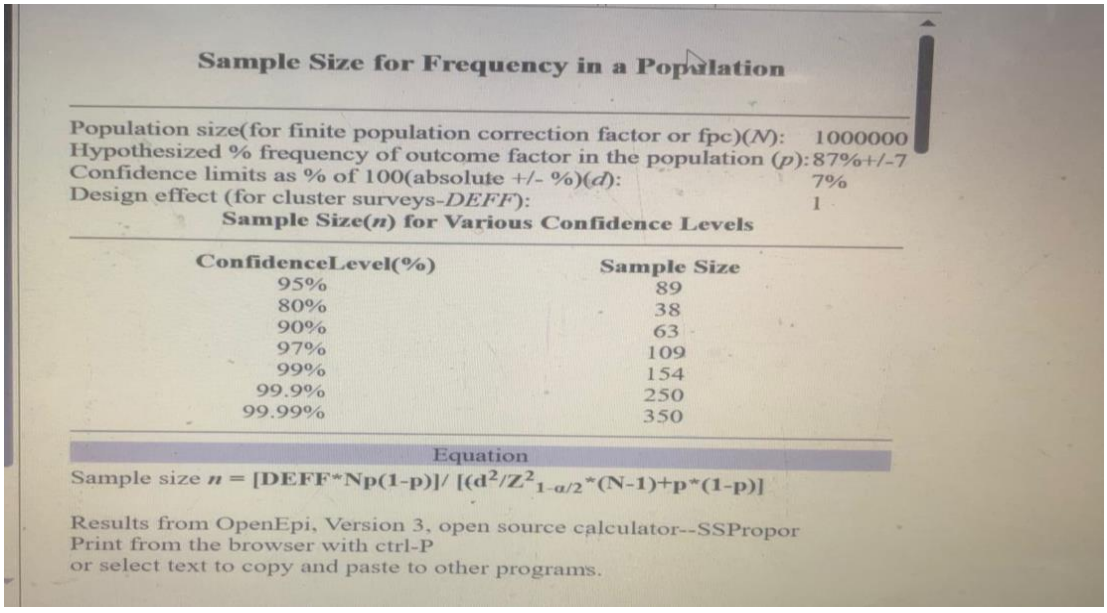
4.3: Study Period:
Study is completed in 4 months.

4.4: Sample Size:
Sample size is 89 collected by taking mean of related article.(4)

Equation:
$n=[DEFF\times N\times p(1-p)][(d2/Z21-\alpha/2\times(N-1))+p(1-p)]$

Variable	Estimated Value
Population size (N)	1,000,000
Expected frequency (p)	87%
Margin of error (d)	7%
Confidence level	95%
Z-value	1.96
Design effect (DEFF)	

n= 89 participants



Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*): 1000000
Hypothesized % frequency of outcome factor in the population (*p*): 87%+/-7
Confidence limits as % of 100(absolute +/- %)(*d*): 7%
Design effect (for cluster surveys-*DEFF*): 1

Sample Size(*n*) for Various Confidence Levels

ConfidenceLevel(%)	Sample Size
95%	89
80%	38
90%	63
97%	109
99%	154
99.9%	250
99.99%	350

Equation
Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Results from OpenEpi, Version 3, open source calculator--SSPropor
Print from the browser with ctrl-P
or select text to copy and paste to other programs.

4.5: Sampling Technique:
Purposive sampling technique.

4.6: Sample Selection:
4.6.1 Inclusion Criteria
- Participants of age groups from 18 to 30.
- Students enrolled in the Operation Theatre Technology (OTT), Anesthesia Technology (AT), Surgical Technology (ST), and Emergency and Intensive Care Technology (EICT) programs.
- Students from all semesters.
- Both male and female

4.6.2 Exclusion Criteria
- Students who are not willing or decline to complete the questionnaire.

4.7: Equipment:
Data will be collected with the help of Questionnaire .The questionnaire used a mix of multiple choice and binary ("Yes"/"No") questions.

4.8: ETHICAL CONSIDERATION:
The research will conform to all ethical guidelines and principles defined by The University of Lahore, and the integrity and dignity of all participants will be maintained during the research process.
- Permission to undertake this research from the relevant The University of Lahore authorities before conducting this study.
- The research is entirely voluntary, and all participants are free to withdraw themselves from this study without facing any consequences.
- No health risk will be posed to participants by filling out this questionnaire.
- All information collected will be kept strictly confidential and will be used for research purposes only.
- The objectives of the research were explained to the participants before filling up the questionnaires.
- No personal details were recorded from the participants.
- Any data generated through the process of conducting the study will be presented in aggregate form in order to avoid the identification of any individual.
- Every attempt will be made to keep the identity of the participants' secret during the conduct and publication of the results of the study.
- All ethical considerations of respect for persons, beneficence, confidentiality, and justice were upheld during the study.

4.9: DATA COLLECTION PROCEDURE
1. Identification of Variables in Study
This study will investigate the knowledge, awareness, and attitude towards PCOS among Health Professional Technology students.

Independent variables
Age of participants
Gender
Department /program (OTT, AT, EICT, ST)
Year of study

Dependent variables
Knowledge level about PCOS
Awareness level about symptoms, risk factors, and complications of PCOS
Attitude towards PCOS and its management

2. Methodology for Data Collection
Data collection will be carried out after obtaining ethical approval from the department involved. Subjects that meet the required inclusion criteria will be identified in their respective classes where the aim of the study will be explained to them and informed consent will be sought. A self-administrated questionnaire is issued to the students.

3. Data Collection Instruments
The data collection instrument shall be a well-structured questionnaire which includes:
Age
Gender
Department
Year of study
PCOS Knowledge
PCOS Causes, Symptoms and Risk factors
PCOS Diagnosis and Treatment

PCOS Awareness
PCOS Complications
PCOS Prevention and Lifestyle Changes
Attitude Toward PCOS
Questions will be in multiple choice and Yes/No format.

List of Variables

Independent Variables

Age
Gender
Department/program
Year of study

Dependent Variables

Knowledge of PCOS
Awareness of PCOS
Attitude towards PCOS

4.10: DATA ANALYSIS PROCEDURE

All gathered information will be entered, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS). All the data will be checked and made accurate through verification of any error in entering of information.

The statistical analysis of the demographic profile of the participants and their knowledge, awareness, and attitude about Polycystic Ovary Syndrome (PCOS) will be conducted using descriptive statistics. All categorical variables including gender, courses and participants' responses to the items on the questionnaire will be described in terms of frequencies and percentages. Scores for knowledge, awareness, and attitude will be computed based on the scoring system of the questionnaire. Inferences based on statistical techniques would be employed where necessary to assess any relationship between the demographic features of the participants and their knowledge scores, awareness scores, and attitudes scores.

4.11: GANTT CHART

Activity	1 Month	2 Month	3 Month	4 Month
Data collection				
Data analysis and interpretation				
Thesis write up				
Thesis submission				

CHAPTER 5
RESULTS

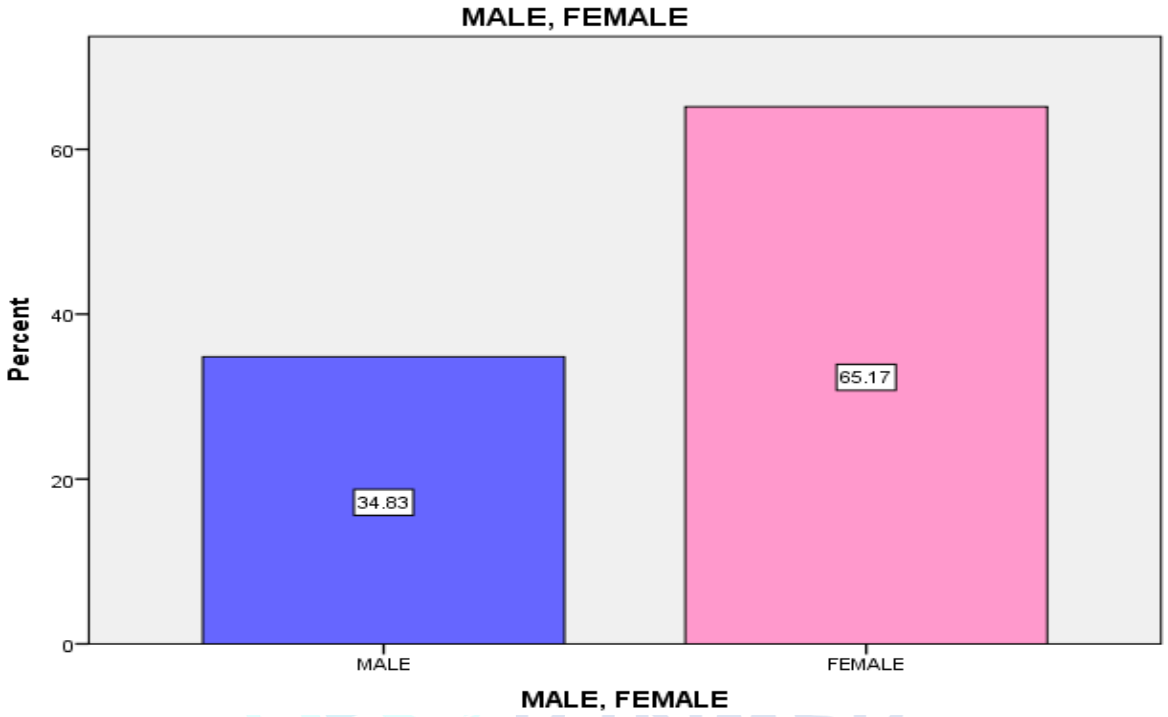


Table 1: The demographic characteristics of the study participants by gender. The study included 89 undergraduate students of allied health sciences. Of them, 58 (65.2%) were females and 31 (34.8%) were males. This indicates that the study population was dominated by females.

		Frequency(f)	Percentage (%)
Valid	BS ST	13	14.6
	BS AT	12	13.5
	BS OTT	54	60.7
	BS EICT	10	11.2
	Total	89	100.0

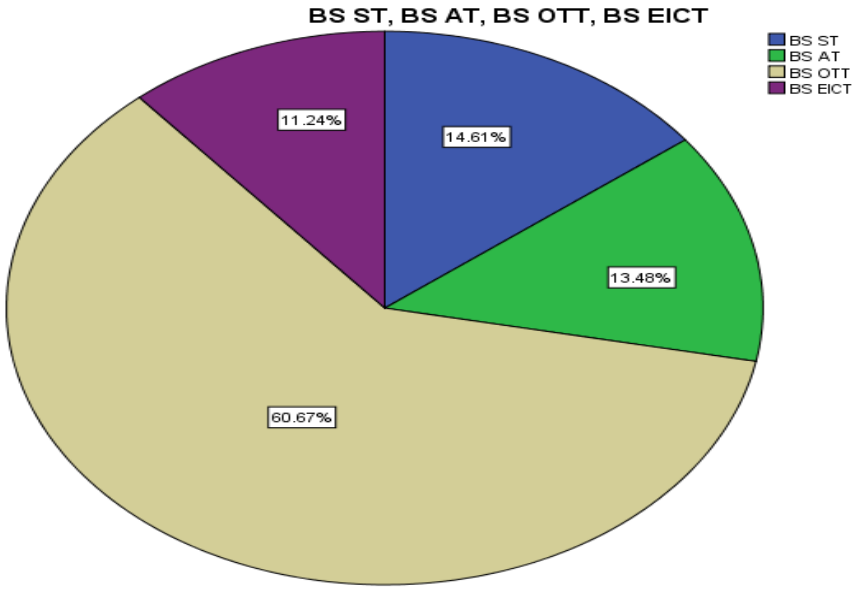


Figure 2: shows the distribution of participants according to the academic program. The majority of the respondents were BS Operation Theatre Technology (BS OTT) with 54 (60.7%) students. This was succeeded by BS Surgical Technology (BS ST) with 13 (14.6%) students, BS Anesthesia Technology (BS AT) with 12 (13.5%) students and BS Emergency and Intensive Care Technology (BS EICT) with 10 (11.2%) students.

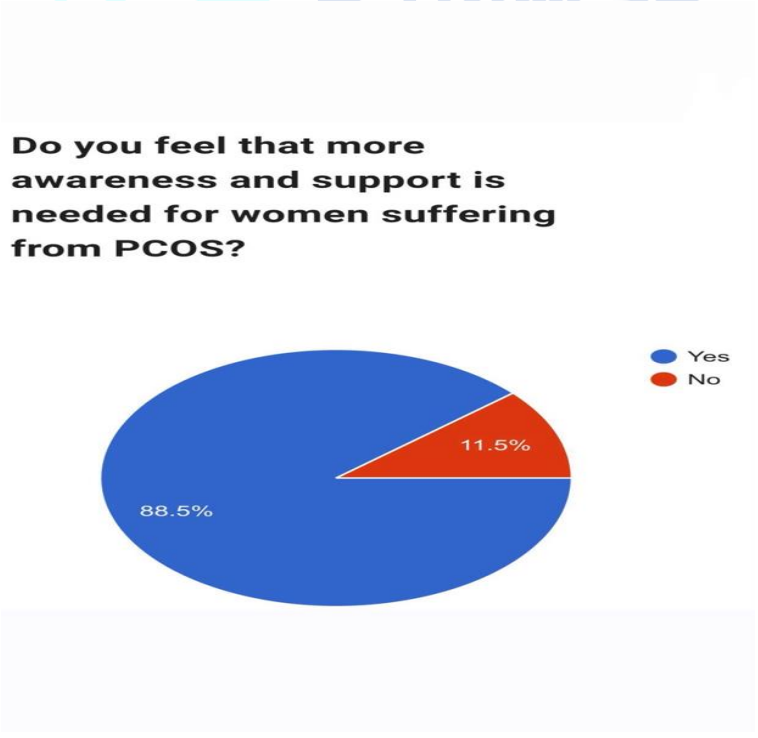


Figure 3: The views of the participants regarding the need to raise awareness and support women with Polycystic Ovary Syndrome (PCOS). The majority of participants (88.5%) agreed that more awareness and support are needed, while 11.5% disagreed. The results show a strong consensus among the participants on the importance of strengthening awareness and support for women with PCOS.

Frequency Table 4: Mean percentage of knowledge-based questions score responses obtained from volunteers

Q1: Have you heard about the term called polycystic ovary syndrome (PCOS)?

Response	Frequency	Percent
Yes	80	89.9
No	9	10.1
Total	89	100.0

Q2: Have you ever come across any article on PCOS?

Response	Frequency	Percent
Yes	51	56.8
No	38	43.2
Total	89	100.0

Q3: Do you know anyone who has been previously diagnosed with PCOS?

Response	Frequency	Percent
Yes	63	70.8
No	26	29.2
Total	89	100.0

Q4: Do you know PCOS has a genetic inheritance pattern?

Response	Frequency	Percent
Yes	50	55.7
No	39	44.3
Total	89	100.0

Q5: Have you heard about the androgen (male) hormone & its role in PCOS development?

Response	Frequency	Percent
Yes	51	57.3
No	38	42.7
Total	89	100.0

Q6: Can obesity cause PCOS?

Response	Frequency	Percent
Yes	76	85.4
No	13	14.6
Total	89	100.0

Q7: Can environmental pollutants like heavy metal lead to pathogenesis of PCOS?

Response	Frequency	Percent
Yes	57	64.0
No	32	36.0
Total	89	100.0

Q8: Do you know there is a link between Prediabetes, insulin resistance & PCOS?

Response	Frequency	Percent
Yes	64	71.6
No	25	28.4
Total	89	100.0

Q9: Do you know PCOS can be diagnosed with testing levels of various hormones like testosterone, TSH, LH, Anti-mullerian hormone amongst many other?

Response	Frequency	Percent
Yes	67	74.7
No	22	25.3
Total	89	100.0

Q10: Do you know PCOS diagnosis can be confirmed by transvaginal ultrasound?

Response	Frequency	Percent
Yes	56	62.5
No	33	37.5
Total	89	100.0

Q11: Do you know PCOS may lead to infertility (inability to have children) or reduced fertility (reduced chance to get pregnant)?

Response	Frequency	Percent
Yes	73	81.8
No	16	18.2
Total	89	100.0

Q12: Do you know PCOS if left untreated may lead to cancer (endometrial)?

Response	Frequency	Percent
Yes	59	66.3
No	30	33.7
Total	89	100.0

Q13: Do you know hormonal therapy (oral contraceptives, intrauterine device etc) may be used treat PCOS?

Response	Frequency	Percent
Yes	51	57.3
No	38	42.7
Total	89	100.0

Q14: Do you know anti-diabetic medications (metformin) may be used to treat PCOS?

Response	Frequency	Percent
Yes	53	59.1
No	36	40.9
Total	89	100.0

Q15: Do you know surgery may be done to remove ovarian cysts?

Response	Frequency	Percent
Yes	65	73.0
No	24	27.0
Total	89	100.0

Frequency Table 5: Mean percentage of attitude-based questions score responses obtained from volunteers

Q1: Do you know sedentary life style & lack of exercise are one of the risk factors which may lead to PCOS?

Response	Frequency	Percent
Yes	76	85.4
No	13	14.6
Total	89	100.0

Q2: Can junk food habits lead to PCOS?

Response	Frequency	Percent
Yes	80	89.9
No	9	10.2
Total	89	100.0

Q3: Do you know PCOS may lead to psychological symptoms anxiety and depression?

Response	Frequency	Percent
Yes	79	88.8
No	10	11.2
Total	89	100.0

Q4: Do you know life style modification & eating healthy diet is a game changer in treatment of PCOS?

Response	Frequency	Percent
Yes	75	84.1
No	14	15.9
Total	89	100.0

Q5: Do you think PCOS can significantly affect a woman's quality of life?

Response	Frequency	Percent
Yes	79	88.8
No	10	11.2
Total	89	100.0

Q6: Do you think women with PCOS are often misunderstood or not taken seriously by others?

Response	Frequency	Percent
Yes	74	83.0
No	15	17.0
Total	89	100.0

Q7: Do you think females with PCOS have to face social stigma?

Response	Frequency	Percent
Yes	76	85.4
No	13	14.6
Total	89	100.0

Q8: Would you feel comfortable discussing PCOS with a healthcare provider?

Response	Frequency	Percent
Yes	72	80.9
No	17	19.1
Total	89	100.0

Q9: Do you think early diagnosis of PCOS can improve outcomes?

Response	Frequency	Percent
Yes	80	89.9
No	9	10.1
Total	89	100.0

Q10: Do you feel that more awareness and support is needed for women suffering from PCOS?

Response	Frequency	Percent
Yes	80	89.5
No	9	10.5
Total	89	100.0

CHAPTER 6
DISCUSSION

The present study was conducted to assess the knowledge and attitude of Allied Health Sciences students of University of Lahore regarding Polycystic Ovary Syndrome (PCOS). As future healthcare professionals, adequate knowledge of PCOS is essential to promote early diagnosis, patient education, preventive strategies and appropriate management among Allied Health Sciences students. The demographic data showed that the majority of the participants in the study were female students and a smaller number of students were males. Participants were enrolled in various Allied Health Sciences programs with the Operation Theatre Technology program having the highest number of participants. This distribution was representative of the composition of the sampled population and provided an opportunity to assess the awareness of PCOS among students of different healthcare disciplines. Regarding the knowledge about PCOS, the present study showed, that most of the students had heard about PCOS and were aware about the condition before participating in the survey. This finding suggests that the awareness level of PCOS among the students of Allied Health Sciences is encouraging and may be attributed to the increased public awareness through social media, education resources, and health campaigns. Rizvi et al. (2023) also reported similar findings and revealed that the level of awareness about PCOS among Pakistani undergraduate students was satisfactory but significant gaps in knowledge were present. Similarly, Alshdaifat et al. (2021) found that university students had moderate to good awareness about PCOS, but they recommended more educational efforts to improve knowledge about the disorder.

The present study also revealed that most of the participants recognized obesity as an important risk factor for PCOS and were aware of the relationship between insulin resistance and the disorder. These results are in line with current scientific evidence showing that obesity and insulin resistance play important roles in the

pathogenesis and progression of PCOS. As noted by Joham et al. (2022) and Xu and Qiao (2022), insulin resistance and metabolic disturbances are important contributors to the pathophysiology of PCOS and increase the risk of long-term complications such as type 2 diabetes mellitus and cardiovascular disease.

Purwar and Nagpure (2022) also identified insulin resistance as one of the major metabolic abnormalities associated with PCOS. The relatively high levels of awareness noted among the participants may reflect an increased emphasis on metabolic disorders in the Allied Health Sciences curriculum.

The knowledge of complications of PCOS was also satisfactory. Most participants recognized that untreated PCOS may result in infertility and they were aware that delay in treatment may increase the risk of serious complications. Hoeger et al. (2021) further support these findings and describe infertility as one of the most important reproductive consequences of PCOS and emphasize the necessity of early diagnosis and timely intervention.

Similarly, the International Evidence-Based Guideline developed by Teede et al. (2018) recommends early recognition and comprehensive management to reduce reproductive, metabolic, and psychological complications associated with PCOS.

Participants also had good knowledge about the diagnostic methods such as hormonal investigations and ultrasonography. These findings are in line with the recommendations of Goodman et al. (2015) and Teede et al. (2018) who listed hormonal assessment and pelvic ultrasonography as important components in the diagnosis of PCOS. Adequate awareness of diagnostic approaches among healthcare students is encouraging as it can help to identify symptoms earlier and refer patients on time in future clinical practice.

Even while the general level of knowledge was adequate, a number of significant knowledge gaps were found. The hereditary inheritance of PCOS, the function of androgen hormones in the development of the condition, and particular treatment options like metformin and hormonal therapy were all rather little known by students. These results imply that although students have a rudimentary concept of PCOS, their comprehension of its underlying pathophysiology and pharmaceutical therapy is still lacking. Previous studies have shown similar shortcomings. Jawlikar et al. (2025) discovered that while healthcare students were aware of PCOS in general, their comprehension of its causes and treatment needed to be improved. Similarly, Dokras et al. (2017) found substantial gaps in healthcare professionals' understanding of PCOS diagnosis and treatment, suggesting that educational inadequacies may occur among practicing physicians as well as students. The current results are similarly consistent with those of Sasikala et al. (2021), who found that while nursing students had a reasonable awareness of PCOS, they lacked thorough understanding of some clinical features of the condition. In a similar vein, Rajkumar et al. (2022) noted that while participants were aware that PCOS existed, misconceptions about its causes, available treatments, and long-term effects persisted. These parallels imply that PCOS knowledge gaps persist in several nations and healthcare education systems.

The lack of attention on PCOS in undergraduate curriculam, especially in Allied Health Sciences degrees where reproductive endocrinology may not be well covered, could be one reason for these knowledge gaps. Additionally, a lot of students rely on social media and unofficial sources of information, which could give them false or insufficient information. Students' comprehension of the illness could be significantly increased by incorporating more organized educational sessions, seminars, workshops, and evidence-based instruction into undergraduate courses.

The study show that students studying Allied Health Sciences have a sufficient understanding of PCOS, especially with regard to its risk factors, consequences, diagnosis, and lifestyle treatment. Nonetheless, shortcomings in the pathophysiology and treatment of diseases point to the necessity of

improving undergraduate education. Future medical professionals will be more equipped to educate patients, support early diagnosis, advocate healthy lifestyle changes, and help improve reproductive health outcomes if students' understanding is increased.

The study showed that students studying allied health sciences generally had a favorable opinion of polycystic ovarian syndrome (PCOS). The majority of participants recognized the significance of early diagnosis, psychological well-being, good lifestyle choices, and raising awareness about PCOS. This optimistic outlook is heartening since, in their future professional careers, healthcare students will be crucial in educating women, advocating for preventive measures, and assisting with the early identification and treatment of PCOS. According to the current study, most individuals identified bad eating habits, sedentary lifestyles, and physical inactivity as significant risk factors for PCOS. They also concurred that healthy eating habits and lifestyle changes are crucial to the disorder's management and prevention. These results align with the International Evidence-Based Guideline released by Teede et al. (2018), which suggests that the primary line of treatment for women with PCOS should be lifestyle change. In a similar vein, Goodman et al. (2015) stressed that dietary changes, frequent exercise, and weight loss are essential elements of managing PCOS. According to Hoeger et al. (2021), women with PCOS benefit from healthy lifestyle interventions in terms of their overall quality of life, menstrual regularity, metabolic abnormalities, and fertility outcomes.

Participants' awareness of the psychological effects of PCOS was another significant finding of this study. The majority of students agreed that anxiety, despair, and a lower quality of life can be experienced by women with PCOS. Teede et al. (2010) defined PCOS as a complex illness having reproductive, metabolic, and psychosocial aspects throughout a woman's lifespan, and our results are consistent with their findings. Similarly, Shakil et al. (2020) found that because of hormonal imbalances and reproductive issues, women with PCOS often have depressive symptoms and lower life satisfaction. These results emphasize how crucial it is to treat psychological health as a crucial part of all-encompassing PCOS treatment.

Additionally, the current study showed that individuals were aware of the social difficulties related to PCOS. According to the majority of responses, women with PCOS may face social stigma and are frequently misinterpreted. These results are similar to those of Rajkumar et al. (2022), who discovered that the medical symptoms of PCOS often caused emotional anguish, social misconceptions, and low self-esteem in single women. In a similar vein, Muhaidat et al. (2023) came to the conclusion that raising public awareness is crucial to lowering stigma and strengthening community support for women who have PCOS.

The majority of participants in the current study highlighted the need for increased awareness and support for women with PCOS and expressed optimism that early diagnosis could enhance treatment outcomes. Rizvi et al. (2023) showed similar results and came to the conclusion that raising awareness among Pakistani undergraduate students could increase optimal healthcare-seeking behavior and early diagnosis. Similarly, Alshdaifat et al. (2021) noted that college students acknowledged the significance of raising PCOS awareness and suggested educational initiatives to enhance understanding and preventive behaviors. According to Elkashif et al. (2026), nursing students also showed favorable attitudes on PCOS and stressed the significance of health education and early detection of the condition.

The participants' backgrounds in healthcare, growing public health awareness, and the ubiquitous accessibility of health information through digital platforms may all contribute to the positive attitude seen in this study. However, the current study found gaps in students' knowledge of some scientific features of PCOS, such as its genetic basis, hormonal mechanisms, and particular treatment methods, despite these positive sentiments. These results imply that in order to guarantee evidence-based therapeutic practice, good attitudes alone are insufficient and

should be supplemented by thorough scientific understanding.

Kaur et al. (2025), who showed that educational programs greatly improved women's knowledge, attitudes, and practices regarding PCOS, provide additional support for the current findings. In a similar vein, Mallipeddi and Devi (2024) found that structured educational programs successfully improved teenagers' awareness and attitudes toward early PCOS identification and management. These findings show that specific educational approaches can effectively fill up current knowledge gaps while fostering positive attitudes.

Additionally, Mu et al. (2026) discovered that women who knew more about PCOS were more likely to implement preventative measures and healthy lifestyle choices. The tight connection between knowledge, attitude, and health-promoting behaviors was also highlighted by Aljuaid et al. (2023), who found that women with sufficient information showed improved adherence to lifestyle adjustments. In a similar vein, Goh et al. (2022) found that raising public knowledge of PCOS encourages healthier behaviors and early access to medical care. Overall, the results of this study show that students studying Allied Health Sciences have a good attitude and adequate understanding about PCOS. Their knowledge of psychological health, early diagnosis, patient support, and healthy lifestyle choices demonstrates their readiness to make a meaningful contribution to women's reproductive healthcare.The need for improved curriculum content, evidence-based instruction, seminars, workshops, and awareness campaigns is highlighted by the noted knowledge gaps about the genetic basis, hormonal pathophysiology, and pharmaceutical therapy of PCOS.

Improving undergraduate education will give aspiring medical professionals the skills and self-assurance they need to accurately educate patients, promote preventative behaviors, enable early diagnosis, and assist in the successful management of women with PCOS.

In summary, the results of this study are in line with earlier national and international research that has shown that healthcare students generally have positive attitudes and a satisfactory awareness of PCOS, but they still lack certain scientific and clinical knowledge about the condition. In order to increase students' proficiency and eventually improve the reproductive health outcomes for women with PCOS, ongoing educational initiatives and curriculum enhancement are advised.

CHAPTER 7

7.1: CONCLUSION:

This study is concluded that the students of Allied Health Sciences have satisfactory knowledge and positive attitude towards Polycystic Ovary Syndrome (PCOS). Most of the participants were aware of the disease, risk factors, complications, diagnostic methods and the importance of lifestyle modification in its prevention and management. However, knowledge gaps were noted in relation to genetic basis, hormonal mechanisms and some modalities of treatment of PCOS which calls for further educational reinforcement. The findings indicate that while the students have an adequate level of knowledge, there is a need for additional curriculum-based teaching, awareness programs, and continuing educational activities to enhance their understanding and prepare them to deliver effective health education and facilitate early detection and management of PCOS in their future professional practice. Besides, the participants of the survey also have rather positive attitude towards PCOS since they understood that it is important to lead a healthy life style, diagnose the problem timely, be psychologically sound, and that there is a need to raise awareness about PCOS. Therefore, it becomes clear that there should be further efforts aimed at increasing knowledge and changing attitudes about PCOS.

7.2: RECOMMENDATION:

1. University administrators need to plan educational seminars, workshops, and awareness campaigns about polycystic ovarian syndrome to educate their students on how they can prevent and treat it by gaining knowledge of its causes, risk factors, symptoms, complications, and treatment.

2. Reproductive health education programs for university students that include polycystic ovarian syndrome should be implemented to create awareness and informed decisions related to their health.
3. It is important that healthcare providers give evidence-based counseling and educational material to raise awareness among people about early detection and treatment of PCOS.
4. Healthy lifestyles such as physical exercise, proper nutrition, body weight management, and reduction of stress can help prevent polycystic ovarian syndrome and should be promoted through health promotion activities.
5. Misconceptions and psychological effects associated with polycystic ovarian syndrome can be minimized through awareness campaigns.
6. Screening and counseling programs should be accessible within the education settings to aid in the early detection of the individuals who are prone to developing PCOS and their referral for medical assessment and treatment.
7. Research is needed using different populations from various educational settings and geographical locations to enhance the generalizability of the results and the effect of awareness and educational programs on knowledge and attitudes toward PCOS.

7.3: LIMITATION:

- It was conducted in one organization.
- The sample size was small as it involved 89 respondents only.
- The study did not evaluate the practice towards PCOS but only the knowledge and attitude towards it.
- The study focused on knowledge and attitudes regarding PCOS and did not assess the effectiveness of educational interventions or training programs.

CHAPTER 8
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