Female Student's Knowledge and Perception Regarding Polycystic Ovarian Syndrome at Koya Technical Institute

Iman Fadhil Omar; *Department of Midwifery, Erbil Medical Technical Institute, Erbil polytechnic University, Erbil, Kurdistan Region, Iraq.* (Correspondence: **iman.omer@epu.edu.iq**)

Gulala Abubakr Husein; *Department of Nursing, College of Nursing, Raparin University, Erbil, Kurdistan Region, Iraq.*

Zhyan Hussein Khdhir; *Department of Nursing, College of Nursing, Raparin General Directorate of Health, Ministry of Health, Erbil, Kurdistan Region, Iraq.*

ABSTRACT

Background and Objective: Polycystic ovarian syndrome is the most common endocrine disease in women of reproductive age. It is one of the major reproductive health issues, and it is considered a significant health problem. Institutional students represent the future of healthcare, equipped with essential knowledge that can be leveraged to educate their peers and patients, especially on this vital topic. This study aimed to determine female students' knowledge and perception regarding polycystic ovarian syndrome who are studying at Koya Technical Institute, Kurdistan, Iraq.

Method: A quantitative, descriptive, cross-sectional study was conducted. The study was carried out at Koya Technical Institute from October 1st, 2024, to December 25th, 2024, with convenience samples consisting of 393 female institutional students. The data were gathered through both an online link and a paper-based survey questionnaire and analyzed using SPSS software for statistical analysis, version 27. Chi-square and Fisher's exact tests were used to determine the association between variables; a p-value ≤ 0.05 is considered statistically significant.

Result: In the present study, 393 samples participated; the mean age was 20.97 ±2.62, and more than half of the participants were in the 18-21 age group. 51.7% of the participants had fair knowledge. 44.3% had good knowledge, and only 4% had poor knowledge. 75.3% of the study samples had positive perceptions, and only 24.7% had negative perceptions, which revealed there is a significant association between the overall knowledge levels of study samples with socio-demographic characteristics of age (P -value = 0.032) and study year (P - value = 0.04).

Conclusion: The findings of this study show that students had an adequate level of knowledge and positive perceptions regarding PCOS and demonstrate a significant association between knowledge levels and both age and study year. In contrast, there is no significant association found between overall knowledge and marital status, residence, or department of study.

Keyword: Polycystic Ovarian Syndrome; Medical Student; Knowledge and Perception.

INTRODUCTION

Polycystic ovarian syndrome is a significant global health challenge and is classified as a multifaceted, heterogeneous endocrine disorder. It affects approximately 6–20% of women of reproductive age worldwide, representing a critical concern in public health [1]. This condition arises from an imbalance in female sex hormones, resulting in diverse clinical manifestations, including menstrual irregularities, ovarian cyst formation, infertility, and other systemic health complications. PCOS is particularly prevalent among adolescents and young women, with an estimated prevalence of 5–10% among those in their reproductive years [2]. The clinical presentation of PCOS is highly variable, encompassing oligomenorrhea or amenorrhea, infertility, obesity, hirsutism, acne, acanthosis nigricans, and male-pattern alopecia. These features underscore its heterogeneity [3]. Approximately 60% of individuals with PCOS experience obesity and insulin resistance, while up to 40% develop diabetes by the age of 50. Dyslipidemia is also a common comorbidity. Cumulatively, these metabolic and endocrine abnormalities significantly elevate the risk of cardiovascular diseases, particularly among postmenopausal women with a history of PCOS [4]. Infertility is a notable complication, with anovulation attributed to PCOS accounting for up to 73% of infertility cases. Given its complexity, the accurate diagnosis and individualized management of PCOS are imperative to mitigate its long-term health implications [5]. The National Health Service (NHS) highlights that lifestyle interventions, particularly weight reduction, play a pivotal role in managing PCOS. Evidence suggests that even a modest weight loss of 5% can significantly improve symptomatology. Pharmacological treatments, including progesterone-only or combined oral contraceptives, are frequently employed to restore menstrual regularity. Furthermore, fertility challenges are addressed using agents such as clomiphene, letrozole, or metformin, often used off-label [6]. Cultural and societal barriers pose additional challenges to the effective management of PCOS. In conservative societies, particularly in Arab regions, discussions about reproductive health issues such as irregular menstruation, hirsutism, or low libido are often stigmatized. Moreover, some traditional education systems exacerbate this knowledge gap by excluding comprehensive biology and anatomy education [7]. Existing literature on health-related knowledge, beliefs, and self-efficacy among women with PCOS is limited and often contradictory. While some studies suggest that women with PCOS exhibit distinct health perceptions compared to unaffected individuals, they consistently report poorer health outcomes and greater functional impairment [8]. The increasing prevalence of polycystic ovarian syndrome is largely attributed to insufficient awareness and suboptimal lifestyle practices. Addressing these gaps through early diagnosis, timely intervention, and comprehensive public education can significantly reduce the burden of PCOS and its associated complications [9]. Female students in academic institutions represent a critical demographic for targeted polycystic ovarian syndrome education and awareness initiatives. As future mothers, their health literacy has the potential to shape the well-being of subsequent generations. Ironically, many university students remain asymptomatic or unaware of their polycystic ovarian syndrome status until faced with reproductive challenges later in life. This highlights the need for focused research to evaluate their knowledge, attitudes, and perceptions

regarding polycystic ovarian syndrome. This study aimed to determine female students' knowledge and perception regarding polycystic ovarian syndrome who are studying at Koya Technical Institute.

METHODS

A quantitative, descriptive cross-sectional study was conducted. The study was carried out at Koya Technical Institute from October 1st, 2024, to December 25th, 2024, with convenience samples consisting of 393 of female students who were study in the departments such as nursing, midwifery, medical laboratory,and community health at Koya Technical Institute. The study included the female institutional students who were willing to participate in the study; male and other departments were excluded from the study. The data were gathered through both an online link and a paper-based survey questionnaire. The survey was designed on an online platform and shared with students via social media such as Viber ,WhatsApp and Messenger. Additionally, hard copies were translated into the Kurdish language and distributed to students during their free time (self-study hours) on campus by some of the researchers. A drop box was placed in the investigator's office for collecting the completed forms. The survey was anonymous, and no personal information was collected. The online version was also shared with students through social media platforms. Students were instructed to respond only once, either online or via the physical survey. The questionnaire consists of four parts. The first part included the socio-demographic characteristics of the study sample, such as age, residency, marital status, departments, and year of the study and the second part was related to reproductive information, such as regular menstrual cycles, intervals between each menstruation. The third part consisted of

15 questions about students' knowledge of PCOS. Responses were evaluated as follows: correct = 1 and incorrect = 0. For items (1,2,3,4,5,6,7,9,14 and 15). For items (8,10,11,12 and 13) (which are vice versa): Incorrect=1, correct=0 Students' responses to questions regarding poly cystic ovarian syndrome knowledge were divided into three categories and scored as follows: Poor knowledge (1 to 5), Fair knowledge (6 to 10), and Good knowledge (11 to 15).The fourth part consisted of nine items evaluating the perceptions of the participants regarding polycystic ovarian syndrome. Responses were ranked as follows: Disagree = 1, Neutral = 2, and Agree =3. For items (1,2,3,4,5, and 10). For items (6,7,8 and 9) (which are vice versa): Disagree =3, Neutral=2 and Agree=1. Perceptions were divided into two categories and scored as follows: positive (20 to 30) and negative (10 to 19). The final part mentions the source of information from which the study samples obtained their information about polycystic ovarian syndrome, such as physicians, medical textbooks, magazines, television, etc. The content validity of the tools was evaluated by four experts from different specialties for instance (community health medicine, biostatistics, pediatrics of nursing and maternity nursing) across various universities in Kurdistan. The experts assessed the tool for clarity of sentences, consistency, and content appropriateness, and no modifications were required. The reliability of the tools was also tested, with a Cronbach's alpha of 0.75 for knowledge and 0.77 for perception. Prior to data collection, formal permission was obtained from the ethical approval of the ethical committee at polytechnic university/Erbil, Erbil Technical Medical Institute on 1st Oct 2024. Oral informed consent was obtained from the students before data collection, after the explanation of the purpose of the study,

benefits, rights to privacy, and rights to withdraw at any time. The researchers have promised to keep the data information for confidentiality and anonymity. The data were analyzed using SPSS software for statistical analysis, version 27, to calculate descriptive statistical analysis (frequency and percentage). Inferential statistical analysis (chi-square and fisher's exact test) was used to determine the association between variables; the p-value ≤ 0.05 is considered statistically significant.

RESULT

Table 1: In the present study, 393 participants took part, with a mean age of 20.97±2.62 years. More than half of the participants were in the 18-21 age group. The majority of the sample (86.5%) were single, and 41.2% of participants were enrolled in the midwifery department. Over half (62.1%) were in the second stage of their studies. A significant portion (94.1%) of the students reported having no chronic diseases. Table 2: Regarding menstrual cycles, (65.5%) had regular cycles, while (34.5%) experienced irregular cycles. Additionally, 57.0% of participants had menstrual intervals between 25-34 days, and 2.1% had a history of infertility. Table 3 illustrates the students' knowledge of polycystic ovarian syndrome. According to the results, students demonstrated strong knowledge regarding the signs and symptoms, causes or diagnosis, and treatment of PCOS. A majority of the participants (83.0%) were well-informed about PCOS being diagnosed through ultrasound. Additionally, four-fifths of the respondents (81.4%) recognized that an unusual amount of hair growth on different body parts is a symptom of PCOS, and (80.4%) understood that obesity is a main cause of the condition. However, more than three-fourths of participants (76.8%) were

unaware that mood swings are a symptom of polycystic ovarian syndrome. Table 4 presents the participants' perceptions of polycystic ovarian syndrome. The results show that students generally had a positive perception of the condition. More than two -thirds (66.5%) of students thought that polycystic ovarian syndrome can be managed through diet and exercise. Additionally, (58.5%) of participants disagreed with the idea that polycystic ovarian syndrome is a permanent condition that cannot be cured. 55.7 % of the participants believed that polycystic ovarian syndrome patients require social support. Moreover, (53.9%) of the respondents thought women who have polycystic ovarian syndrome can have children.While (36.4%) of students agreed that hirsutism caused by polycystic ovarian syndrome can lead to a decrease in social performance.

Table 1: Socio-Demographical data of the students regarding PCOS N= 393

Varibles	F	%
-Do you have regular menstrual cycle		
Yes	257	(65.5)
No	136	(34.5)
-Interval between menstruation (days)		
<25 d	90	(22.9)
25-34 d	224	(57.0)
35-60 d	52	(13.2)
more than 60 d	27	(6.9)
-Having history of infertility		
Yes	22	(2.1)
No	28	(10.7)
unmarried	343	(87.3)
-If you are married are you using oral contraceptives		
Yes	11	(2.8)
No	39	(9.9)
Unmarried		
	343	(87.3)
	T	
Total	**393**	**(100)**

Table 2: Reproductive information of the students regarding PCOS   N= 393

Variables	subgroups	F	(%)
Age group			
	18-21	267	(67.9)
	22-25	97	(24.7)
	26-29	29	(7.4)
Marital status			
	Married	50	(12.7)
	single	340	(86.5)
	Separated and divorced	3	(0.8)
Department			
	Nursing	144	(36.7)
	Medical laboratory	63	(16.0)
	Midwifery	162	(41.2)
	Community Health	24	(6.1)
study year			
	First stage	149	(37.9)
	Second stage	244	(62.1)
Residence			
	Urban	190	(48.3)
	Sub-urban	148	(37.7)
	Rural	55	(14.0)
Having Chronic disease			
	Yes	23	(5.9)
	-No	370	(94.1)

Table 3: Knowledge of the study samples regarding PCOS   N=393

Variables	Correct F. (%)	Incorrect F. (%)
1-In PCOS there is an increased level of androgen hormone	227(57.8)	166(42.2)
2-Cigarette smoking may cause PCOS	154(64.6)	139(35.4)
3-Obesity may cause PCOS	316(80.4)	77(19.6)
4-Insulin resistance (due to decrease insulin action in the body) may cause PCOS	248(63.1)	145(36.9)
5-PCOS may lead to anxiety and depression	326(83.0)	67(17.0)
6-Unusual amount of hair growth on different body parts is a symptom of PCOS	320(81.4)	73(18.6)
7-Severe acne problems during the menstrual (periods) cycle are a symptom of PCOS	263(66.9)	130(33.1)
8-Mood swings is not a symptom of PCOS(-)	302(76.8)	91(23.2)
9-PCOS diagnosis can be confirmed by ultrasound	326(83.0)	67(17.0)
10-Hair loss from the scalp more than normal is not a symptom of PCOS(-)	238(60.4)	155(39.4)
11-Specific blood tests cannot be used for diagnosis of PCOS (-)	183(46.6)	210(53.4)
12-PCOS is not lead to infertility (inability to have children) (-)	191(48.6)	202(51.4)
13-PCOS is not curable(-)	140(35.6)	253(64.4)
14-Anti-diabetic medications (metformin) may be used to treat PCOS	227(57.8)	166(42.2)
15-Weight loss is among the main treatment options for PCOS	302(76.8)	91(23.2)

(-) Refers for negative statements

Table 4: Perception of the students regarding PCOS   N=393

Variable	Agree	Neutral	Disagree
	F.(%)	F.(%)	F.(%)
1-PCOS patients require social support.	219(55.7)	117(29.8)	57(14.5)
2- PCOS can be managed through diet and exercise.	261(66.5)	56(14.2)	76(19.3)
3-PCOS patients have control over the disease .	218(55.5)	52(13.2)	123(31.3)
4-PCOS patients need support and help from others.	224(57.0)	91(23.2)	78(19.8)
5-PCOS patients can have children (women's fertility).	212(53.9)	68(17.3)	113(28.8)
6-Hirsutism due to PCOS can decrease social performance(-)	143(36.4)	93(23.7)	157(39.9)
7-PCOS patients have trouble associating with other people(-)	126(32.1)	114(29.0)	153(38.9)
8-PCOS patients are depressed(-)	75(19.1)	69(17.6)	249(63.3)
9-PCOS is a permanent condition(-)	92(23.4)	7(18.1)	230(58.5)
10-PCOS can be controlled.	182(46.3)	38(9.7)	173(44.0)

(-) refers to negative statements

Table 5 presents the relationship between the age group of the study sample and their overall knowledge of poly cystic ovarian syndrome. The results indicate a significant relationship between the participants' age and academic year with their overall knowledge of polycystic ovarian syndrome (P-value = 0.032) and academic year (P-value = 0.04). However, no significant association was found between marital status and overall knowledge of polycystic ovarian syndrome (P > 0.159). Additionally, the findings revealed no significant relationship between medical departments, residence, and overall knowledge of polycystic ovarian syndrome, with P-values greater than 0.259 and 0.807, respectively.

Table 5: The association of the overall knowledge of the study samples with some variables of socio-Demographical data

Variables	Poor Knowledge	Fair Knowledge	Good Knowledge	Total	P-value
Age group	F.(%)	F.(%)	F.(%)	F.(%)	
18-21	14(5.2)	135(50.6)	118 (44.2)	267(67.9)	
22-25	1(1.0)	50(51.5)	46 (47.4)	97(24.7)	0.032
26-29	1(3.4)	18(62.1)	10 (34.5)	29(7.4)	
Marital status					
Married	1(2.0)	26(52.0)	23(46.0)	50(12.7)	0.159
Single	14(4.1)	176(51.8)	150(44.1)	340(86.5)	
Separated and divorced	1(33.3)	1(33.3)	1(33.3)	3(0.8)	
Study year					
First stage	14(5.7)	12(52.9)	10(41.4)	244(62.1)	0.04
Second stage	2(1.3)	74(49.7)	73(49.0)	149(37.9)	
Department					
Nursing	4(2.8)	73(50.7)	67(46.5)	144(36.6)	
Medical Laboratory	3(4.8)	38(60.3)	22(34.9)	63(16.1)	0.259
Midwifery	9(5.6)	76(46.9)	77(47.5)	162(41.2)	
Community Health	0(0.0)	16(66.7)	8(33.3)	24(6.1)	
Residence					
Urban	8(4.2)	92(48.4)	90(47.4)	190(48.3)	
Sub-urban	6(4.1)	80(54.1)	62(41.9)	148(37.7)	0.807
Rural	2(3.6)	31(56.4)	22(40.0)	55(14)	

Figure 1 shows that 51.7% of all students had fair knowledge regarding polycystic ovarian syndrome, while 44.3% had good knowledge, and only 4% had poor knowledge.
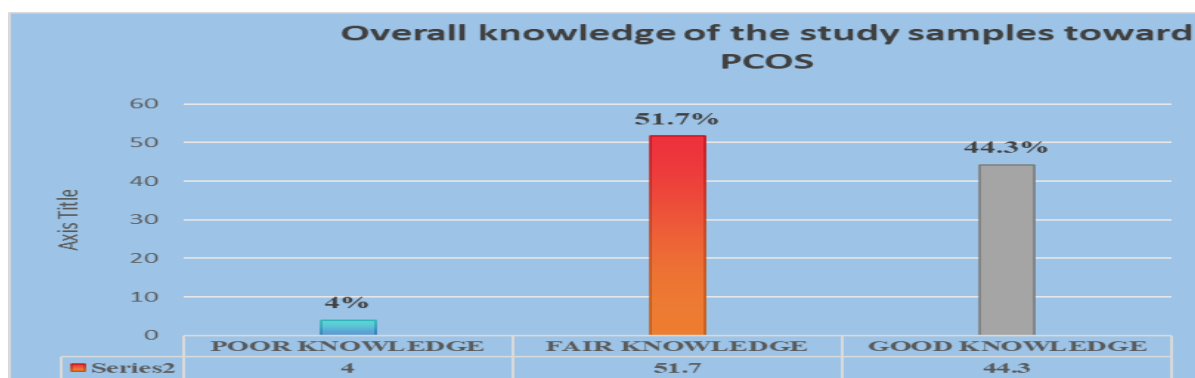

Figure 1: Illustrates overall knowledge of study samples regarding PCOS N=393.

Figure 2 indicates that (75.3%) of the study samples had positive perceptions regarding PCOS, while (24.7%) had negative attitudes
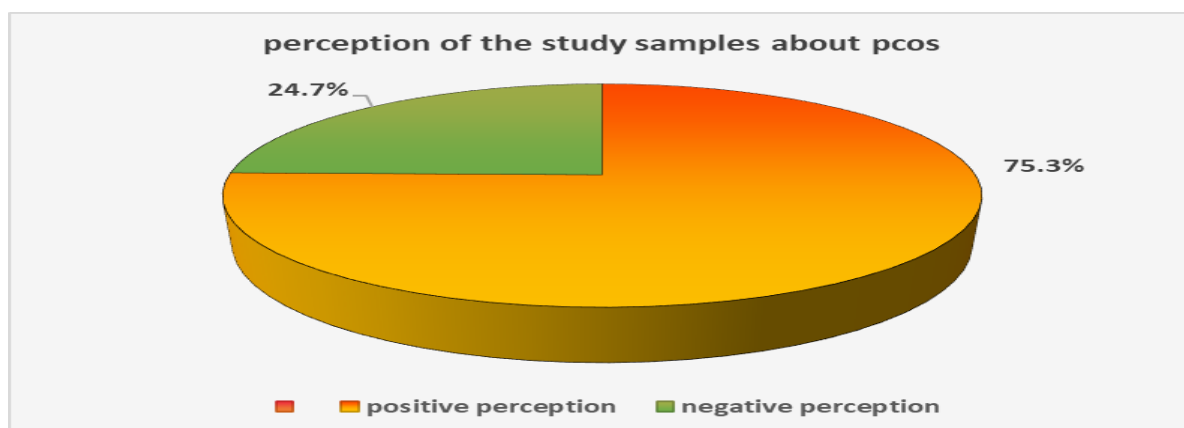

Figure 2: Illustrates overall perception of study samples regarding PCOS N=393.

Figure 3: The figure demonstrates the respondents' sources for gaining and developing their knowledge regarding PCOS. More than half of the study participants (57.8%) obtained information from television, (26.2%) from internet sources, (3.3%) from physicians, and (1.3%) from medical textbooks.
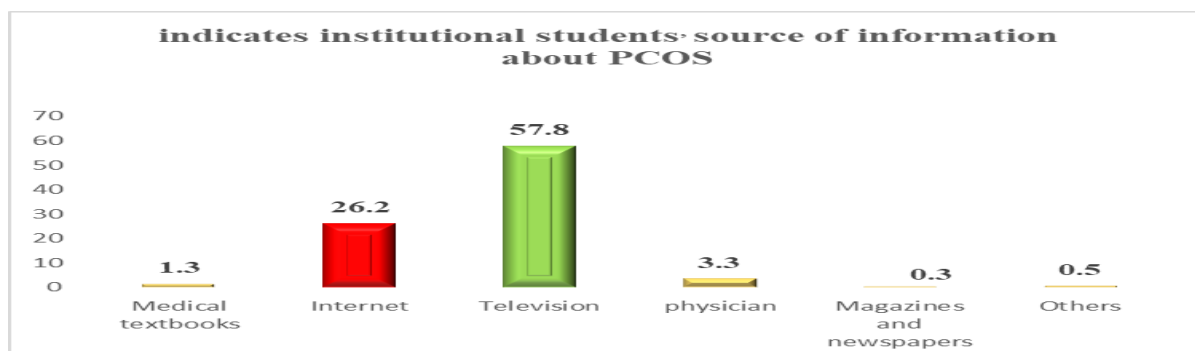

Figure 3: Illustrates Medical students, source of information regarding PCOS.

Discussion

The socio-demographic characteristics of students regarding polycystic ovarian syndrome Polycystic ovarian syndrome (PCOS) is a complex and chronic endocrine disorder commonly diagnosed in women of reproductive age. It is associated with an increased risk of a range of complications, including hematologic, oncologic, metabolic, reproductive, and psychological issues. In 1935, Stein and his colleagues were the first to identify a cluster of symptoms related to anovulation. They studied seven patients who experienced amenorrhea, excessive hair growth (hirsutism), and enlarged polycystic ovaries. Their findings revealed that all seven patients resumed menstruation, and two were able to conceive after undergoing bilateral wedge resection of the ovaries [10]. This study aimed to gain a better understanding of students' knowledge and perceptions regarding polycystic ovarian syndrome. Given that many women in our community are currently affected by polycystic ovarian syndrome, it is essential to assess how knowledgeable our students are about the condition, as they could play a key role in guiding the community and helping women manage it. Our study revealed that more than half of the participants were between the ages of 18 and 21, the mean age of those studied being (±20.97). This aligns with a cross-sectional study conducted in the department of Obstetrics and Gynecology at a tertiary care center in southern India. The study involved 88 students aged between 18 and 22 years, with an average age of (21.4) years [11]. In our study, it was revealed that more than three-fourths of the participants were single (86.5%), which aligns with the findings of a similar study [11]. In the present study, more than half of the respondents reported having regular menstrual cycles, with intervals ranging between (25 to 34) days. This finding is consistent with a study conducted in Jordan, where more than one-third of the participants also had menstrual intervals within the (25 to 34) day range. [18].Assessing the knowledge of students regarding polycystic ovarian syndrome Adequate knowledge about polycystic ovarian syndrome is essential for students to develop a deeper understanding of polycystic ovarian syndrome and its complications. A recent study revealed that more than three-fourths (83.0%) of participants were aware that polycystic ovarian syndrome can be diagnosed via ultrasound. Additionally, (83%) of students believed that polycystic ovarian syndrome could lead to anxiety and depression. A similar finding was reported by Abu-Taha M in a related study [19]. In a recent study, (81.4%) of participants were aware that one of the symptoms of polycystic ovarian syndrome is an unusual amount of hair growth on different body parts. A similar study reported the same finding. [18].In the current study, 80.4% of respondents recognized obesity as one of the main causes of PCOS. This finding is comparable to a study conducted by Noman Ul Haq in Pakistan, where the majority of female students (87.1%) also identified obesity as a primary cause of polycystic ovarian syndrome. Additionally, our results show that more than half of the participants (57.8%) obtained information about PCOS through television, followed by internet sources (26.2%). In contrast, a cross-sectional study conducted at Nepal Medical College among final-year medical students found that most students had good knowledge of polycystic ovarian syndrome, with (76.5%) acquiring information from friends, (26%) from mass media, and only (9.5%) from healthcare professionals. This study emphasized that knowledge-sharing among medical students plays a crucial role in

raising awareness [14].Our study demonstrated that medical students had a fair overall knowledge of polycystic ovarian syndrome, with (57.7%) falling into this category. Additionally, (44.3%) had good knowledge, while only (4%) of respondents exhibited poor knowledge. This may be attributed to the majority of participants showing an interest in receiving information about PCOS. These findings are consistent with a study conducted in Malaysia by Hussin, S., & Abd Kadir, N. (2020), which found that most younger students had adequate knowledge, along with a positive perception and attitude toward polycystic ovarian syndrome [12]. On the other hand, another study conducted among adolescent girls used descriptive and inferential statistics to analyse the collected data. The results of the study revealed that before the intervention, only 22 adolescent girls (23.9%) had good knowledge of polycystic ovarian syndrome, 46 (50%) had average knowledge, and 24 (26.1%) had poor knowledge [21].Assessment of perception of the participants regarding PCOSOur study revealed that more than half of the participants (55.7%) believed that patients with polycystic ovarian syndrome (PCOS) require social support. Additionally, two-thirds (66.5%) of the participants assumed that PCOS could be managed through diet and exercise. These findings align with those of a similar study [20].The current study showed (75.3%) of the study samples have a positive perception toward polycystic ovarian syndrome and only (24.7%) had a negative perception. This perception might be related to medical students living with that situation and a lot of women suffering with polycystic ovarian syndrome. On the contrary, this finding does not align with the research conducted by Chauhan et al. (2021), who assessed the effectiveness of a structured teaching program on knowledge of polycystic ovarian syndrome

and related infertility among female students at Isabella Thoburn College in Lucknow. Their study reported that nearly half of the female students held a negative attitude toward polycystic ovarian syndrome [21].Association between overall knowledge and some demographic characteristics: The knowledge scores among participants varied widely, and we identified a significant inverse association between age and overall knowledge among medical students (p-value = 0.032). This finding is consistent with a study conducted in Pakistan by Mehwish Rizvi et al., which examined 646 undergraduate students and also reported a significant association between overall knowledge and age group. In our study, no significant association was found between marital status and overall knowledge. However, this contrasts with a descriptive study conducted at obstetric and gynaecological outpatient clinics in a health insurance hospital in Minya Governorate, which included 100 female participants. That study reported a significant association between overall knowledge and marital status (p-value = 0.02) [16].Additionally, our study found a significant association between students' overall knowledge of polycystic ovarian syndrome and their year of study (p-value = 0.04). This finding aligns with a study conducted at South Valley University, Egypt, involving 260 female students, which reported similar studies [15].On other other hand another study conducted in Egypt by RedaM et al., Knowledge and Attitude of Late Adolescent girls, regarding to Polycystic Ovarian Syndrome, among 239 adolescent girls the result of the study indicated there was a significant association between overall knowledge and academic year the value of (p=0.008)[22].Our recent study found no significant association between overall knowledge and residence or academic departments of medical students

(p-value = 0.807 and 0.259). These findings are consistent with a study conducted among 192 medical students at a medical college. That study used a convenient sampling method and a pretested semi-structured questionnaire to assess knowledge and awareness of polycystic ovarian syndrome [17]. In contrast, a study was carried out at the Technical Institute of Nursing at Benha University to evaluate the knowledge and attitudes of late adolescent girls towards polycystic ovarian syndrome. A purposive sample of 239 adolescent girls was used. The results indicated a highly significant correlation between overall knowledge and the area of residence (p-value = 0.001) [23].

CONCLUSION

The findings of this study indicate that students possess a satisfactory level of knowledge and hold positive perceptions about PCOS. Television and the internet were identified as their primary sources of information, highlighting the necessity for greater involvement from healthcare professionals in educating young individuals.

Additionally, the study revealed a significant correlation between knowledge levels and both age and year of study. However, no notable association was found between overall knowledge and factors such as marital status, place of residence, or academic department. These findings underscore the importance of early detection and management of polycystic ovarian syndrome, emphasizing the need for targeted educational programs, particularly within academic institutions. Future research should explore the effectiveness of structured awareness programs in enhancing students' knowledge retention and preventive behaviours. Bridging knowledge gaps, especially among healthcare professionals, could foster awareness and contribute to improved long-term health outcomes for women at risk of polycystic ovarian syndrome. In addition, a multidisciplinary approach that combines physiotherapy and psychological support is essential for enhancing health outcomes in women with PCOS.

CONFLICT OF INTEREST

None of the writers have any conflicts of interest or sources of financial support.

REFERENCES

[1] Mohamed RA, Taref NN, Osman NE, Keshta NHA, Alboghdady MA, Marzouk MM, et al. Effect of web-based health education on nursing students' knowledge, adaptive healthy measures and attitudes regarding polycystic ovary syndrome: a randomized controlled trial. *Jornal of BioMed Cental Nursing.* 2024 Jul 15;23(1):479. https://doi.org/10.1186/s12912-024-02015-7

[2] B. S, Nayak S. A Study to Assess the Knowledge Regarding PCOS (Polycystic Ovarian Syndrome) among Nursing Students at NUINS. *Journal of Health and Allied Sciences NU.* 2016 Sep;06(03):24–6. DOI: 10.1055/s-0040-1708657

[3] Haq N, Khan Z, Riaz S, Nasim A, Shahwani R, Tahir M. Prevalence and knowledge of polycystic ovary syndrome (PCOS) among female science students of different public Universities of Quetta, Pakistan. *Imperial Journal of Interdisciplinary Research.* 2017;35(6):385–92. ISSN: 2454-1362, http://www.onlinejournal.in

[4] McGowan MP. Polycystic Ovary Syndrome: A Common Endocrine Disorder and Risk Factor for Vascular Disease. Curr Treat Options Cardio Med. 2011 Aug 1;13(4):289–301. *Curr Treat Options Cardio Med* 13, 289–301 (2011). https://doi.org/10.1007/s11936-011-0130-0

[5] Stańczak NA, Grywalska E, Dudzińska E. The latest reports and treatment methods on polycystic ovary syndrome. *Annals of Medicine.* 2024 Dec 31;56(1):2357737. https://doi.org/10.1080/07853890.2024.2357737

[6] Rizvi M, Islam MdA, Aftab MT, Naqvi AA, Jahangir A, Ishaqui AA, et al. Knowledge, attitude, and perceptions about polycystic ovarian syndrome, and its determinants among Pakistani undergraduate students. *Journal PLoS One.* 2023 May 25;18 (5):e0285284. https://doi.org/10.1371/journal.pone.0318390.

[7] Pramodh S. Exploration of Lifestyle Choices, Reproductive Health Knowledge, and Polycystic Ovary Syndrome (PCOS) Awareness Among Female Emirati University Students. *International journal of women's health*. 2020 Oct 28:927-38 DOI https://doi.org/10.2147/IJWH.S272867.

[8] Lin AW, Dollahite JS, Sobal J, Lujan ME. Health-related knowledge, beliefs and self-efficacy in women with polycystic ovary syndrome. *Journal Human Reproduction*. 2018 Jan 1;33(1):91–100. https://doi.org/10.1093/humrep/dex351

[9] Sasikala R, Shanmugham D, Varghese J, Saravanan D. A study of knowledge and awareness on polycystic ovarian syndrome among nursing students in a tertiary centre in South India. The New *Indian Journal of OBGYN*. 2021;8(1):121–5. DOI - 10.21276/obgyn.2021.8.1.23

[10] Thabet H, Alsharif F, Garoot L, Yousef M, Almutairi L, Kutbi R. The level of awareness of nursing students regarding polycystic ovarian syndrome in King Abdulaziz University. *Assiut Scientific Nursing Journal* . 2021;9(26):172-181.DOI:10.21608/asnj.2022.99698.1242

[11] Sasikala R, Shanmugham D, Varghese J, Saravanan D. A study of knowledge and awareness on polycystic ovarian syndrome among nursing students in a tertiary centre in South India. The New *Indian Journal of OBGYN*. 2021;8(1): 121–5. DOI - 10.21276/obgyn.2021.8.1.23.

[12] Hussin SN, Abd Kadir NH. A study on knowledge, attitude and perception of polycystic ovary syndrome (pcos) among young students in higher educational institutions, perak. *Journal of Social Science Advanced Research.* 2020 Dec 29;1(2):160-81.

[13] Rizvi M, Islam MA, Aftab MT, Naqvi AA, Jahangir A, Ishaqui AA, Iqbal MZ, Iqbal MS. Knowledge, attitude, and perceptions about polycystic ovarian syndrome, and its determinants among Pakistani undergraduate students. *Journal Plos one*. 2023 May 25;18 (5):e0285284.

[14] Adhikari P, Bhattarai J. Knowledge, Attitude and Practice regarding Polycystic Ovarian Syndrome (PCOS) among final year medical students and interns in a Medical College in Kathmandu Nepal. *Journal of Diabetes and Endocrinology Association of Nepal*. 2023 Aug 10;7(1):4-12.

[15] Maghraby EA, Ahmed NT, Ahmed AA, Hassan MM. Assessment of female nursing student's knowledge regarding polycystic ovarian syndrome at South Valley University. *Assiut Scientific Nursing Journal*. 2022 Nov 1;10 (33):170-7.

[16] Ali EL. Awareness of Females regarding Polycystic Ovarian Syndrome at Outpatient Clinics in Minya Health Insurance Hospital. Helwan International *Journal for Nursing Research and Practice*. 2024 Sep 1;3(7):162-75.

[17] Aripin A, Jaber RM, Allias N, Omar S, Kamal NR, Dwekat O. Knowledge and attitudes towards polycystic ovary syndrome. *African Journal of Reproductive Health*. 2022 Apr 24;26(1):92-102.

[18] Abu-Taha M, Daghash A, Daghash R, Abu Farha R. Evaluation of women knowledge and perception about polycystic ovary syndrome and its management in Jordan: A survey-based study. *International Journal of Clinical Practice*. 2020 Oct;74(10):e1355.

[19] Chemerinski A, Cooney L, Shah D, Butts S, Gibson-Helm M, Dokras A. Knowledge of PCOS in physicians-in-training: identifying gaps and educational opportunities. *Journal Gynecological Endocrinology*. 2020 Oct 2;36 (10):854-9.

[20] Upadhye JJ, Shembekar CA. Awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls*. International journal Reprod Contracept Obstet Gynecol*. 2017 Jun 1;6(6):2297-301.

[21] [21] Srujana C, Vasundhara R, Miryani J. A study to assess the knowledge of nursing college students regarding polycystic ovarian syndrome in selected college At Guntur District, Andhra Pradesh. *International Journal of Advances in Nursing Management.* 2018;6 (3):210-4.

[22] Papi G, Haobijam J, Devi LK. A study to assess the effectiveness of Information booklet on knowledge regarding polycystic ovarian syndrome (PCOS) among adolescent girls in selected higher secondary schools of East Khasi Hills, Meghalaya. *International Journal of Obstetrics and Gynaecological Nursing*

2024; 6(2): 123-129DOI: https://doi.org/10.33545/26642298.2024.v6.i2b.170

[23] Mohamed Reda A, Ahmed Hassan A, Abdalla El Sayed H, Mohammed Salama A. Knowledge and Attitude of Late Adolescent Girls regarding Polycystic Ovarian Syndrome. Journal of Nursing Science Benha University. 2022 Jan 1;3(1):889-906.DOI: 10.21608/jnsbu.2022.215660.