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Awareness of Kirkuk Technical Institute Female Students Regarding Polycystic Ovarian Syndrome (PCOS)

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ABSTRACT: One of the prevalent gynecological problems affecting women of reproductive age is polycystic ovarian syndrome, being unaware of this disease is considered one of the leading causes of the polycystic ovarian syndrome. **Aim:** The current study evaluate the awareness of female students who are of reproductive age concerning polycystic ovarian syndrome. **Methods:** a cross-sectional study was utilized through recruited 322 female students from Kirkuk Technical Institute (KTI)/Northern Technical University from November 2nd to December 10th, 2022 . Data was collected through a simple random sampling method and a self-report questionnaire. **Results:** It was noticed that the majority of the female participants had moderate awareness regarding polycystic ovarian syndrome, along with the majority of them depended upon health personnel to receive information, there was also a significant difference among overall awareness and age concerning polycystic ovarian syndrome at (P=0.01). **Conclusion:** The awareness level about polycystic ovarian syndrome is inadequate among female students, as general students utilized health personnel to receive information, as well as the study, concluded older females are more aware than younger females. Thus, it is critically necessary for all educational institutions to implement pertinent health education programs to raise female students' awareness about polycystic ovarian syndrome, not just for disease prevention, early detection, and treatment, but likewise to stop its long-term effects

Keywords: Awareness, Students, Polycystic ovarian syndrome, Reproductive health

INTRODUCTION

Many females of childbearing age worldwide may be infected by "polycystic ovarian syndrome (PCOS)" which is considered as one of the endocrine-gynaecological disorders, it is negatively affected general health status and specifically reproductive health, including infertility [1,2]. Currently, one in ten women worldwide is affected by PCOS, it afflicts women of growing age especially in the early to late childbearing age from (15 to 35 years) [3]. It is a multifaceted condition in distinction to other reasons for anovulation, which entail ovarian inactivity or primary deficit it is a complex disorder characterized by persistent anovulation and excessive ovarian activity [4]. Furthermore, over 90% of adolescent and adult hyperandrogenism is caused by affected PCOS, which is characterized by androgen excess and ovulatory dysfunction and differentiates by specific symptoms, physically: an irregular menstrual cycle, hirsutism, acne, hair loss, baldness and central obesity and psychologically associated with anxiety, stress and depression [5]. All signs and symptoms have a dramatically detrimental effect on the patient's life however, not every instance will exhibit the full range of clinical signs [6] .

PCOS starts in adolescent, develops throughout adulthood gradually, and its consequences last long beyond menopause, with significant effects on women's reproductive, metabolic, and psychological health, it is becoming a major problem for public health worldwide [7]. Although the exact reasons of PCOS development remain unclear. Though, particular earlier studies indicate that PCOS may be motivated through environment, person's lifestyle, and hereditary characteristics; early puberty, early fetal development, PCOS in first-degree relatives', inactivity, stress, anxiety, and overweight are some of them. [8,9].

Furthermore the most harmful aspect of the disease's lifelong manifestation, which raises the chance of type 2 diabetes, cardiovascular disease (CVD), infertility, resistance of insulin, glucose impairment, and a poorer quality of life as a result of depression and anxiety [3,7]. Also, PCOS raises the chance of affected of gynecological malignancies such as (endometrial, ovarian, and breast) cancers [6].

In order to effectively treat PCOS, one must simultaneously normalize the temporary symptoms of hyperandrogenism and ovulation while also minimizing metabolic side effects. Pharmacological intervention or, better, lifestyle change can be used to accomplish this [10].

Women with PCOS are thought to benefit most from lifestyle changes. Weight loss is a crucial part of treatment since it improves almost every aspect of PCOS, including ovulation and pregnancy rates, insulin levels, and testosterone levels, and sex hormone-binding globulin (SHBG) levels [10].

Although the fact, PCOS is associated with multiple manifestations in females but it remains a common disorder and women frequently wait a long time to receive a confirmed diagnosis and treatment, this is due to a shortage of awareness among women [11].

The importance of this study lies in determining the extent of awareness of this segment of society (university students) about PCOS, which contributes to helping those concerned in the process of planning health education for women of childbearing age, by making use of the real database and use of them when developing educational programs by working to improve and treat weaknesses and enhance strengths.

2. Objectives

The objectives of this cross-sectional study are to evaluate the awareness of Kirkuk technical institute female students concerning PCOS, find out methods used to receive information, and find out

relationship between female students' awareness of PCOS and socio-demographic information of studied subjects (age, years of student study, and domain of student study).

3. Materials and methods

The cross-sectional study (descriptive design) was conducted to appreciate the awareness of Kirkuk Technical Institute (KTI) / Northern Technical University female students concerning (PCOS) from different departments of KTI community such as Administrative, Technology, and Medical departments, about 322 students participated in the study. The data had been gathered from November 2nd to December 10th, 2022, for the data collection was used the simple random sampling method and a self-report questionnaire in Arabic language was used for data collection. A questionnaire was designed based on several studies and modified according to the study's objectives [12,13]. The questionnaire consisted of four sections; the first section was concerned with socio-demographic data of students like (age, years of student study, and domain of student study, marital status and, residency). The second section consist of personal history and family history of infected PCOS. The third section was concerned with methods used to receive information from female students. Regarding the four section related to female students awareness about PCOS. It includes four main parts, the first part: is general information about disease and consists of four items, the second part are the PCOS-related signs and symptoms and consists of five items, the third part is the diagnosis and consists of two items, while the fourth and final part is a complication and consist of four items. The respondents had been given a range from 1 to 3 (3 agree, 2 undecided, and 1 disagree) and cut-off-point (1-1.66 = poor, 1.67-2.33 = moderate, 2.34-3.0 = good) this category adopted by study [13]. After that outcomes were examined by utilizing Statistical Package for Social Sciences (version 21), frequencies and percentages were used for Socio-demographic characteristics analysis, also mean, and standard deviation were used to assess the level of awareness and t-test was applied to investigate the relationship among female students' awareness of PCOS and socio-demographic information of studied subjects (age, years of student study, and domain of student study), at the statistical significance level (P-value < 0.05).

4. Results

Table 4.1 illustrates the socio-demographic features of (322) female students from the medical and Non-medical departments of Kirkuk Technical Institute. Two-thirds of the participants were in the age group (18-20) years (69.9%) and the rest were (21-23) years (30.1%). The years of students' study (57.1%) were in the second year, while (42.9%) were in the first year. Around half (50.3%) were from the medical departments and the others (49.7%) were from non-medical departments. Most of the participants (81.4%) of them were single and only (18.6%) of them were married. Moreover, the majority (84.5%) were urban residents while (15.5%) were rural residents.

Tab.4. 1. Socio-demographic characteristics of studied subjects (N= 322)

Characteristics	Frequency	Percentage %
Age of students		
18-20	225	69.9%
21-23	97	30.1%
Years of students study		
First	138	42.9%

Second	184	57.1%
Domain of study		
Non-medical	160	49.7%
Medical	162	50.3%
Marital status of students		
Single	262	81.4%
Married	60	18.6%
Resident		
Urban	272	84.5%
Rural	50	15.5%

Table 4.2 presents the results of the history of infected with PCOS of (322) female students from the medical and non-medical departments of Kirkuk Technical Institute. Out of 322 students, approximately 66 (20.5%) reported having PCOS. While concerning family history, about 108 (33.5%) of the students' families complained of PCOS.

Tab.4.2. History of infected with PCOS of studied subjects (N= 322).

Characteristics	Frequency	Percentage %
Personal history for infected of PCOS		
Infected	66	20.5%
Uninfected	256	79.5%
Family history of infected PCOS.		
Infected	108	33.5%
Uninfected	214	66.5%

Figure 4.1 summarizes methods used by the responses of studied subjects to reach information about PCOS. The majority of them 278 (87%) were depended on health personnel, followed by mass media181(56.2%), family and friends 110 (34%), and 88 (27%) of them were depended on books and scientific journals. While, 22 (7%) of the respondents did not know about PCOS.

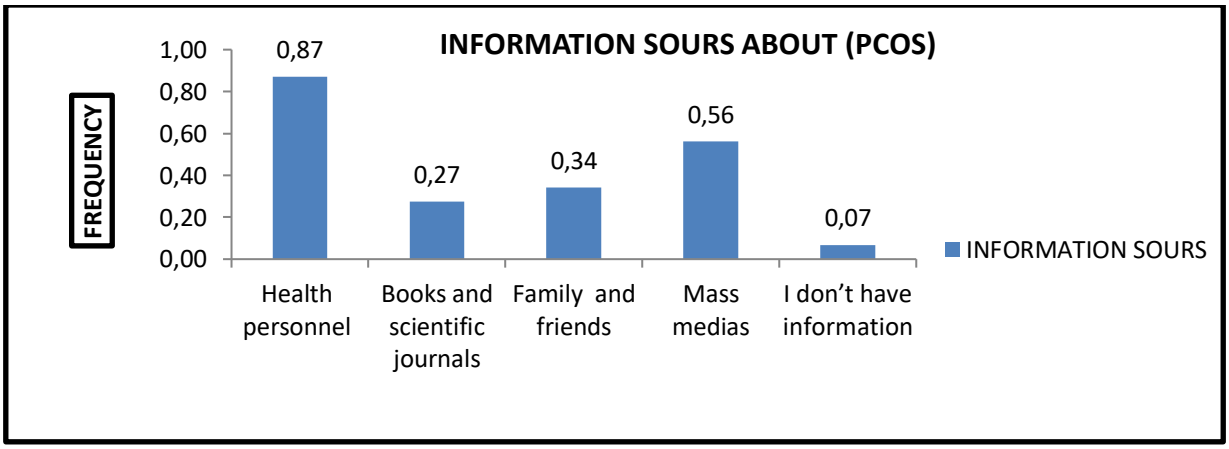

Fig.4.1 Methods used to receive information by studied subjects (N= 322).

Table 4.3 demonstrated the findings of an evaluate the level of awareness about PCOS. The results reveal that the general information of female students about PCOS at all examined items is good (M ≥2.34) except, for item 3 the responses were moderate (M1.67-2.33). Regarding signs and symptoms, most of the responses were moderate (M1.67-2.33) except, for items (5,6) the responses were poor (M≤1.66). Regarding the diagnosis of PCOS, all responses were moderate (M1.67-2.33). While responses about a complication of PCOS were poor at all items (M≤1.66)except, for item 14 the response was moderate (M1.67-2.33).

Tab.4.3.Assessment level of Awareness about PCOS of Studied Subjects (N= 322).

Items	Agree	Undecided	Disagree	M.	SD	Ass. L
General Information of PCOS						
The hormonal disorder known as a polycystic ovarian syndrome is common in women of childbearing age.	280	0	42	2.74	0.68	Good
In the case of polycystic ovarian syndrome , the ovaries produce large amounts of androgen hormone.	229	4	89	2.43	0.90	Good
Physical inactivity is a risk factor for polycystic ovarian syndrome	56	245	21	2.11	0.48	Moderate
Early detection and treatment of Polycystic ovarian syndrome assist women in leading good health and having normal pregnancies	206	93	23	2.57	0.62	Good
signs and symptoms associated with PCOS						
Irregular or missing menses	22	108	192	1.47	0.62	Poor
Abnormal hair growing	59	27	236	1.45	0.79	Poor
Increase weight	192	22	108	2.26	0.93	Moderate
Facial acne	87	169	66	2.07	0.69	Moderate
Pelvic pain	105	148	69	2.11	0.73	Moderate
Diagnosis of PCOS						
Menstrual history	42	227	53	1.97	0.54	Moderate
Blood test and Ultrasound scan	70	209	43	2.08	0.59	Moderate
Complication of PCOS						

Diabetes and cardiovascular disease	42	108	172	1.6	0.71	Poor
Depression, anxiety and eating disorders	60	46	216	1.52	0.79	Poor
Infertility	131	84	107	2.07	0.86	Moderate
Endometrial cancer	22	30	270	1.23	0.56	Poor

M. = mean, S.D. = Stander deviation, Ass. L = assessment level scored as cut-off-point (1-1.66 = Poor, 1.67-2.33 = Moderate, 2.34-3.0 = Good)

Table 4.4 illustrate overall Kirkuk Technical Institute female students' awareness of PCOS, among 322 participants we found that the majority of the participants 234 (72.67%) had a moderate level of awareness, followed by 66 (20.50%) had poor level, and the rest 22 (6.83%) had good levels.

Tab.4.4. Overall awareness about PCOS of studied subjects (N= 322).

Students' awareness about PCOS		
Poor 1-1.66	Moderate 1.67-2.33	Good 2.34-3.0
66 (20.50%)	234 (72.67%)	22(6.83%)

Cut-off-point: 1-1.66 = Poor, 1.67-2.33 = Moderate, 2.34-3.0 = Good

Table 4.5 indicates that there were a no-significant differences between students' awareness about PCOS and two socio-demographic characteristics years of students study and domain of study at P-value (p = 0.96, p = 0.15) respectively, but there was significant difference in awareness with regard female students' age at (P=0.01) in favor age group 21-23 years responses were better than age group18-20 years.

Tab.4.5 the results of the t-test for the differences between the mean of awareness and three socio-demographic characteristics among KTI female student (N= 322).

Variable		Students' awareness			
		NO.	Mean ± S.D.	t-test	P- value
age	18-20	225	1.94∓ .218	2.514	0.01
	21-23	97	2.04∓.360		
Years of students study	First	138	1.97∓.277	0.045	0.96
	Second	184	1.98∓.269		
Domain of study	Non-medical	160	1.95∓.222	1.44	0.15

	Medical	162	1.99∓.313		

No.= number, S.D.= Stander deviation of total Scores , Non-Significant at $P \geq 0.05$, S : Significant at $P < 0.05$, HS : Highly Significant at $P < 0.01$

5. Discussion

One of the most prevalent hormonal and genetic problems in women is Polycystic ovarian syndrome (PCOS), impacting health status across the lifespan[1,2]. furthermore, PCOS is associated with many complications such as type 2 diabetes, cardiovascular disease, infertility depression, anxiety, and metabolic syndrome [2]. Early detection and treatment can assist several women of reproductive age to lead good health and have normal pregnancies [7]. But late diagnosis due to a lack of awareness stays a problem of public health spite there being firm evidence of the harmful health effects of PCOS[7].

We aimed in this study to evaluate female students' level of awareness of PCOS and its general information, signs and symptoms, diagnosis, and complications, the study discovered that most female students had a moderate level of knowledge. This result is considered unsatisfactory, this shortage of awareness about PCOS may be due to female students did not obtain the necessary knowledge about this disease, taking into consideration that 66 (20.6%) of the respondents had been infected with PCOS. With respect to the scores on the distribution of facts on the disease, results revealed the majority of respondents were uncertain about the statements provided.

The finding of this study was supported by the study done by Abu-Tahaet al in Jordan discovered the participants had insufficient awareness of PCOS [15]. In another study conducted in Emirati university students, discovered most of the students had insufficient awareness towards PCOS [7]. Also in a study from Coimbatore conducted by Begum and Sheeba, the results of a survey revealed among 60 female students the majority of them had insufficient awareness of PCOS [16], this outcome was equivalent to our study.

In contrast, a study conducted at the Science and Technology University in Jordan revealed a good level of PSOS awareness among students [17]. This difference in the results may be due to the fact that the university has medicine and nursing specialities majors that are acquainted with PCOS within the academic curricula.

Concerning the information sources, our study revealed that the main source for obtaining information about PCOS was health personnel, followed by mass media then family and friends finally books and scientific journals.

A study conducted by Abu-Taha et al to evaluate women's knowledge regarding PCOS in Jordan demonstrated that the principal source of common information was physicians[15], this is consistent with the outcome of our study.. In contrast, another study conducted in Gurgaon among female college students indicated that participants had learned about PCOS through the internet, followed by friends, doctors, family, and women's health and hygiene sessions in college respectively [18].

Furthermore, study results showed a significant difference in awareness regarding female students' ages at (P=0.01) in favor age group 21-23 years responses were better than the age group 18-20 years. This may be due to the effect of time on the awareness and knowledge of females as a result of their contact with life and the situations that would increase their awareness and knowledge day after day, which made the older females more aware than the younger female. Otherwise, there were no significant differences between the years of study and domain of study with awareness scores (p=0.96, p= 0.15) respectively. Our findings agree with the results study conducted by Idris et al in Malaysia that there

were found a significant relationship between age with awareness (p= 0.01) [13]. In contrast, outcomes that were stated by Zaitoun et al in the Emirates showed no significant relationship between age with a level of awareness [19].

5. Conclusion and Recommendation

The awareness level about "polycystic ovarian syndrome" is inadequate among female students in all academic departments and the preferred method of receiving information was health personnel followed by mass media, as well as the study concluded older females are more aware of PCOS than younger females. The study specified gaps in the awareness of female students of childbearing age about PCOS that require to be managed through the upgrade of health awareness. Thus, it is critically necessary for all educational institutions to implement pertinent health education programs in order to raise female students' awareness of how to rise a comprehensive understanding with consideration of adopting a healthy lifestyle (exercise, controlling weight, healthy food) and enabled early diagnosis, treatment, and prevent its complication. As the age range (18 to 23) the result, the data collected may not be adequately representative of further age groups. To generalize the findings, the researchers suggest that a similar study be conducted in the future that includes all Iraqi women. also, the researchers suggested conducting studies about the effectiveness of an educational intervention on the knowledge of female students about PSOS. Furthermore, it is critically necessary for all educational institutions to implement pertinent health education programs to raise female students' awareness about polycystic ovarian syndrome, not just for disease prevention, early detection, and treatment, but likewise to stop its long-term effects.

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