The level of awareness of nursing students regarding polycystic ovarian syndrome in King Abdulaziz University

Hala Thabet[1], Fatmah Alsharif[2], Lujain Garoot[3], Madhawi Yousef [4], Lama Almutairi[5] & Rahaf Kutbi[6]

[1.] Assistant Professor Maternal & Child Nursing Department Faculty of Nursing King Abdulaziz University Saudi Arabia

[2.] Assistant Professor Maternal & Child Cursing Department Faculty of Nursing King Abdulaziz University Saudi Arabia

[3.] Registered Nurse Faculty of Nursing King Abdulaziz University Saudi Arabia.

[4.] Registered Nurse Faculty of Nursing King Abdulaziz University Saudi Arabia.

[5.] Registered Nurse Faculty of Nursing King Abdulaziz University Saudi Arabia.

[6.] Registered Nurse Faculty of Nursing King Abdulaziz University Saudi Arabia.

Abstract

Background: Polycystic ovary syndrome is an intricate endocrine disorder that affects 6-10% of females of reproductive age. **Aim:** To assess the level of awareness of nursing student regarding Polycystic ovary syndrome in King Abdulaziz University. **Methods:** In this study, A total of 158 convenience samples out of 408 were collected from female nursing students at KAU through three weeks in March,2020. It used a descriptive quantitative design by it utilized an adaptive questionnaire from (Aqeel Nasim). **Results:** The results inferred that (38.6%) of participants were in the age group range from 19 to less than 21 years. Regarding educational level of their mothers (51.2%) of them have a university degree or more. Most of the participants (82.9%) had an overall moderate knowledge about PCOS. **Conclusion:** According to the findings of this study and the data analysis was concluded that, most of the students were aware about PCOS" but do not have enough knowledge. More than three quarters of them had moderate knowledge on PCOS. **Recommendation:** Conducting an educational program for young girls in different setting to increase levels of awareness concerning polycystic ovarian syndrome educational program.

Keywords: Level of awareness, Nursing role, Nursing students & PCOS.

Introduction

Background: Polycystic ovary syndrome (PCOS) is an endocrine disorder that considers ovarian dysfunction associated with an ovulation and hyperandrogenism (**Tsikouras et al., 2015**). It is affecting the female of reproductive age, with a prevalence of 3.4% worldwide (**Kandel et al., 2019**). In Saudi Arabia, the women from age 18-38 were diagnosed with PCOS approximately 73 % (**Alessa et al., 2017**). The PCOS occurs when the eggs became immature due to changes in hormone levels. Like decrease level of follicle stimulating hormone and increase level of luteinizing hormone can stimulate secretion of estrogen, testosterone, and dehydroepiandrosterone sulfate. These hormone changes lead to cyst evolution and produce symptoms in adult women such as menstrual irregularities, obesity, hirsutism, acne, rapid weight gain, difficulty to get pregnant, and mood change. PCOS diagnosis by when two from the following criteria are present: an ovulation, androgen excess, and polycystic ovaries observed by using ultrasonography according to the European society for human reproduction and embryology and the American Society for Reproductive Medicine (**Al Bassam et al., 2018**).

Many risk factors were associated with PCOS as: environmental factors, genetics factors, body weight, and ethnicity (**Kandel et al., 2019**). So, increasing awareness leads to early detection to prevent the complications of PCOS. One of the most serious complications of PCOS is infertility. The women suffering from is mostly complaining of difficulty getting pregnant and the main reason for infertility is chronic an ovulation. After a long time without treatment, the infertility rate may be increased. Other complications of PCOS can happen like increased cardiovascular risk factors, Obstructive sleep apnea, depression or psychological disorders, endometrial hyperplasia, endometrial carcinoma, and diabetic Mellitus (**Kandel et al., 2019**). Complications of PCOS can be prevented in adult women with early diagnosis and the first line of treatment through lifestyle modification like weighting loss, proper nutrition, physical exercise, and smoking cessation. Women with PCOS need counseling and education, nurses play an important role to provide it, and it has a positive effect on women with PCOS and encourages women to cope with negative self-image secondary to PCOS. However, enough information about PCOS will encourage the women to change their lifestyle and be aware of the risk.

This information is important for a nursing student to provide high level of patient education. There are long-term effects of emotional distress of infertility. However, women with PCOS have an increased rate of having a psychological disorder (**Çoban et al., 2019**). A nurse has a critical role in health care that goes on daily responsibilities. Important parts of nursing practice should be involved in the education of nursing. Therefore, improving the awareness concerning PCOS to nursing students will increase teenagers to change their lifestyles and decrease the risk (**Sunanda & Nayak, 2016**).

PCOS is a problem with teenage and young women during the reproductive age. It could be hard to diagnose PCOS in adolescents as they often experience infrequent or cession menses and acne. PCOS is a state that leads to health problems and impacts reproductive health if it did not treat well. Raise awareness of adolescents about PCOS could help them to acquire knowledge and early detect and prohibit the PCOS. Awareness and correct diagnosis are the main points in managing PCOS as it enhances the quality of women's life (**Al Bassam et al., 2018**).

(**AlSinan & Shaman, 2017**) revealed that the data of PCOS awareness among women in KSA are inadequate, there is limited research in Saudi Arabia about the awareness of PCOS. Consequently, this study was carried out to assess the level of awareness about PCOS among nursing students in King Abdulaziz University and to identify the relationship between the demographic variable of nursing students with their level of knowledge about PCOS.

Significance of the Study

Polycystic Ovarian Syndrome (PCOS) is a growing problem with teenage girls, and young women during the reproductive age. It can be very difficult to diagnose PCOS in adolescent girls as they often experience irregular or cession menses and acne. PCOS is a state lead to huge health problems and affects the reproductive health if it is not treated well. Raise awareness of adolescents about PCOS can help them to acquire knowledge and early detect and prevent the PCOS. Awareness and accurate diagnosis are the main step in managing PCOS as it improves the quality of life of the women (**Al Bassam et al., 2018**). The aim of study is to assess the level of awareness of nursing student regarding Polycystic ovary syndrome in King Abdulaziz University.

Research Question

What is the level of awareness about polycystic ovarian syndrome among nursing students in King Abdulaziz University?

Methodology:

Research design

A descriptive quantitative design was used.

Setting

This study was conducted in the nursing college at King Abdulaziz University in Jeddah, Saudi Arabia. The nursing college in King Abdulaziz University was estimated in 1977 and it has different departments. The college of nursing contains a bachelor's program and master's program in different nursing specialties. The purpose of choosing a nursing college because it was easy to get the ethical approvals and availability of samples.

Study Sample and Size

Convenience samples of 158 out of 408 were collected from female nursing students at King Abdulaziz University (second, third, and fourth year) according to the following inclusion criteria: all students with or without PCOS, speak English and Arabic and students who are willing to participate.

Tools for data collection

In this study, an adaptive questioner from (Aqeel Nasim) was used (**Haq et al. 2017**). This tool was adopted, and some modification were done to be appropriate for Saudi culturel.

The questioner consists of four parts:

Part (I): Sociodemographic characteristics, this part was developed to assess nursing student's sociodemographic data, including age, mother's education, marital status, locality, academic level, height, weight, and body mass index. It was collected by email or through WhatsApp on online link develop by google forum or survey monkey.

Part (II): Knowledge regarding PCOS, this part assessed female nursing students' knowledge about PCOS. It contained 20 questions, (definition, pathophysiology, causes, complications, diagnostic procedures, treatment), which were designed with three answers including 'Yes', 'No', and 'I do not know' to choose from.

Part (III): Clinical evaluation of PCOS, this part was used to assess the clinical evaluation of PCOS. It contains 12 questions regarding clinical diagnosis, family history clinical assessment of PCOS, which were designed with three answers including 'Yes', 'No', and 'I do not know' to choose from.

Part (IV): Source of information, this part was used to assess the source of information. Contains one question (from where this information).

Scoring

The scoring system of a total of 30 questions regarding knowledge about PCOS by making the triple clicker of weight did scoring and the score is from 1 to 1.66 poor, from 1.66 to 2.33 moderate, and from 2.33 to 3 good. As well, nursing students classified their knowledge score as the following: poor if the total score was < 50 %,
Moderate if the total score was 50%< 70%, and good when the total score was $\geq$ 70 %.

Ethical considerations
Ethical approval was obtained from the research committee of the nursing college at King Abdulaziz University, and permission for the tool was obtained from the author. In addition, the consent of nursing students was taken before data collection and after clarifying the goal of the study. Anonymity was assured as the filled questionnaire sheets were given a code number (not by names). The participants were ensured that the questionnaire form was used only for the purpose of the study. The study maneuvers do not entail any harmful effects on participation.

A Pilot Study
The pilot study was executed on 10% percent of the total sample (16 nursing students) to examine the clarity and applicability of the study tools, as well as estimation of the time, wanted to fill the questionnaire. Nursing students involved in the pilot study were not included in the main study sample.

Validity and Reliability
Validity
The tool of data collection was distributed to a panel of three juries' experts in the field of maternity nursing to test the content validity, modification was executed according to the panel's recommendation on clarity of sentences and the suitability of content.

Reliability
The reliability of adapting questionnaire conducted by **(Haq et al., 2017)** was 0.799. The researcher has modified the tool to be appropriate for Saudi culture and examined it to measure the internal consistency of items. The reliability was done with Cronbach's Alpha coefficient test, which illustrated the current tool validity was 0.748.

Data collection procedure
In the beginning, to carry out the study, the necessary approval, was obtained from the Ethical Committee of the Faculty of Nursing at KAU in Jeddah. A further ethical consideration is the permission to use the study questionnaire. An email was sent to the author Aqeel Nasim to obtain their approval **(Haq et al., 2017)**. The researcher obtained the permission of the tool from the author through email. The researcher carried out through review of local and international related literature. The tool of data collection was distributed to a panel of three juries' experts in the field of maternity nursing to examine the content validity, modification was executed according to the panel's recommendation on clarity of sentences and the suitability of content. In addition, consents of nursing students were taken before data collection and after clarifying the purpose of the study. Anonymity was assured as the filled questionnaire sheets were given a code number (not by names). The participants were ensured that the

questionnaire form was used only for the purpose of the study and discarded at the end of the study. Data was collected from all participants in the study by email or WhatsApp using an online link developed by google forum or survey monkey. The researcher assessed the response rate. In the event, the response rate is low using the online questionnaire link. The researcher distributed questionnaires in paper form.

Data analysis: Descriptive analysis was done after the collection of the data by using the statistical package for Social Science (SPSS software) version 22 in the form of means, percentages, frequencies, and standard deviations.

Results

A total of 158 convenience samples out of 408 were obtained from female nursing students at King Abdulaziz University for three weeks on March,2020.

Data collection
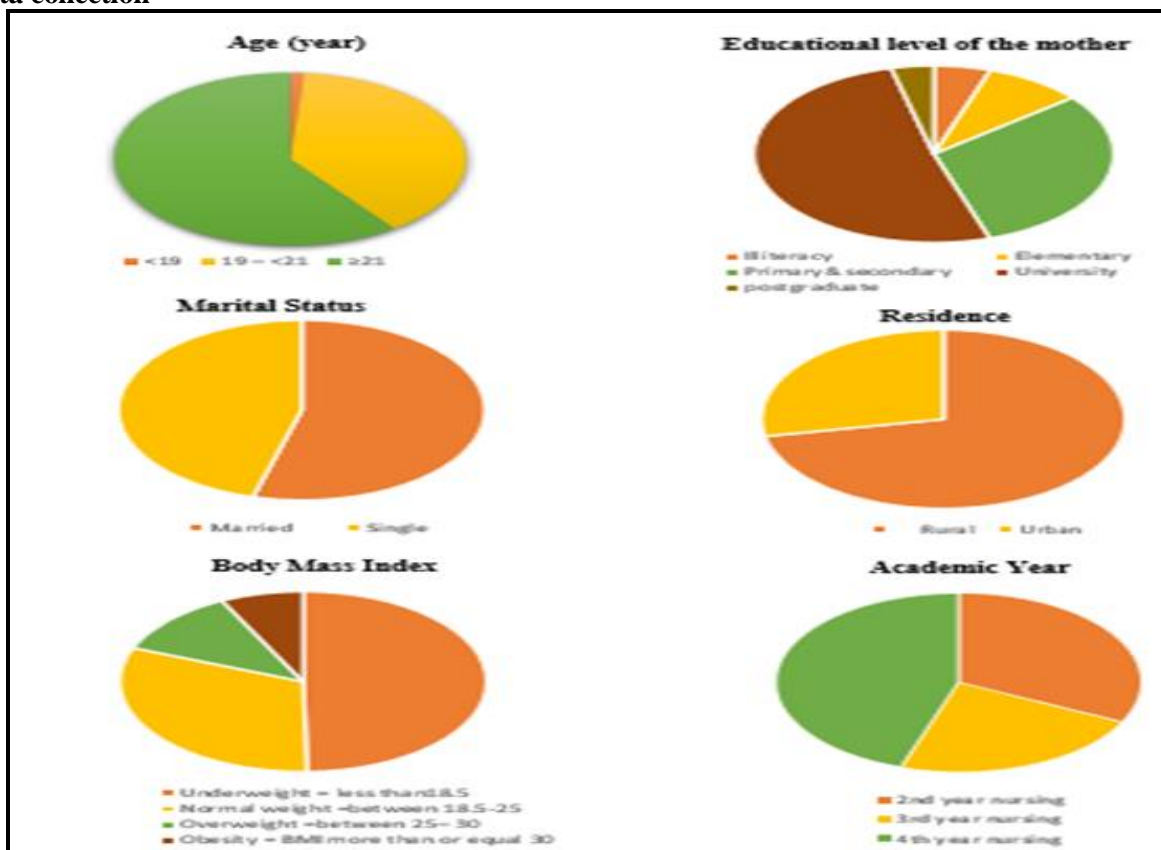
Figure(1): Percentage and frequency allocation of the study sample by their sociodemographic characteristics and body mass index (n=158)

Table (1): Percentage and frequency for the study sample by their knowledge about the polycystic ovary syndrome

Knowledge about the PCOS	Nursing students(n = 158)		
	Yes No (%)	No No (%)	Do not know No (%)
Have you heard about the term called? polycystic ovarian syndrome" (PCOS)	122 (77.2%)	26 (16.5%)	10 (6.3%)
Have you heard about androgen male hormone	144 (91.1%)	10 (6.3%)	4 (2.6%)
There is increased level of androgen hormone in polycystic ovary syndrome	68 (43%)	9 (5.7%)	81 (51.3%)
Patient suffering from polycystic ovarian syndrome have small multiple cysts in their ovaries	96 (60.8%)	6 (3.8%)	56 (35.4%)
Obesity may cause polycystic ovarian syndrome	96 (60.8%)	6 (3.8%)	56 (35.4%)
Prediabetes condition due to increase level of insulin may cause polycystic ovarian syndrome	96 (60.8%)	6 (3.8%)	56 (35.4%)

Table (2): Percentage and frequency allocation of the study sample by their knowledge regarding clinical assessment of PCOS (n=158)

Knowledge regarding clinical assessment of PCOS	Nursing students (n = 158)		
	Yes No (%)	No No (%)	Do not know No (%)
Very heavy menstruation (more than 4 pads per day)	50 (31.6 %)	89 (56.3%)	19 (12.1%)
Prolonged menstruation (more than 7 days)	25 (15.8%)	120 (75.9%)	13 (8.3%)
Complete Cessation of menstrual cycle (not at all)	21 (13.3%)	116 (73.4%)	21 (13.3%)
Partial cessation of menstrual cycle (not after 28 days)	44 (27.8%)	87 (55.1%)	27 (17.1%)
Acne problem during menstrual cycle	87 (55.1%)	51 (32.3%)	20 (12.6%)
Unusual amount of hair loss from scalp	44 (27.8%)	97 (61.4 %%)	17 (10.8%)
Uncommon hair growth in different parts of your body (upper lip, chin, abdomen, breast, thighs.)	35 (22.2%)	112 (70.9%)	11 (6.9%)
Discoloration or dark color patches on skin	40 (25.3%)	101 (63.9%)	17 (10.8%)
Continuous abnormal weight gain	30 (19%)	115 (72.8%)	13 (8.2%)
Diabetes	7 (4.4 %)	141 (89.2%)	10 (6.4%)

Table (3): Percentage and frequency for the study sample by their knowledge about the polycystic ovary syndrome (n=158)

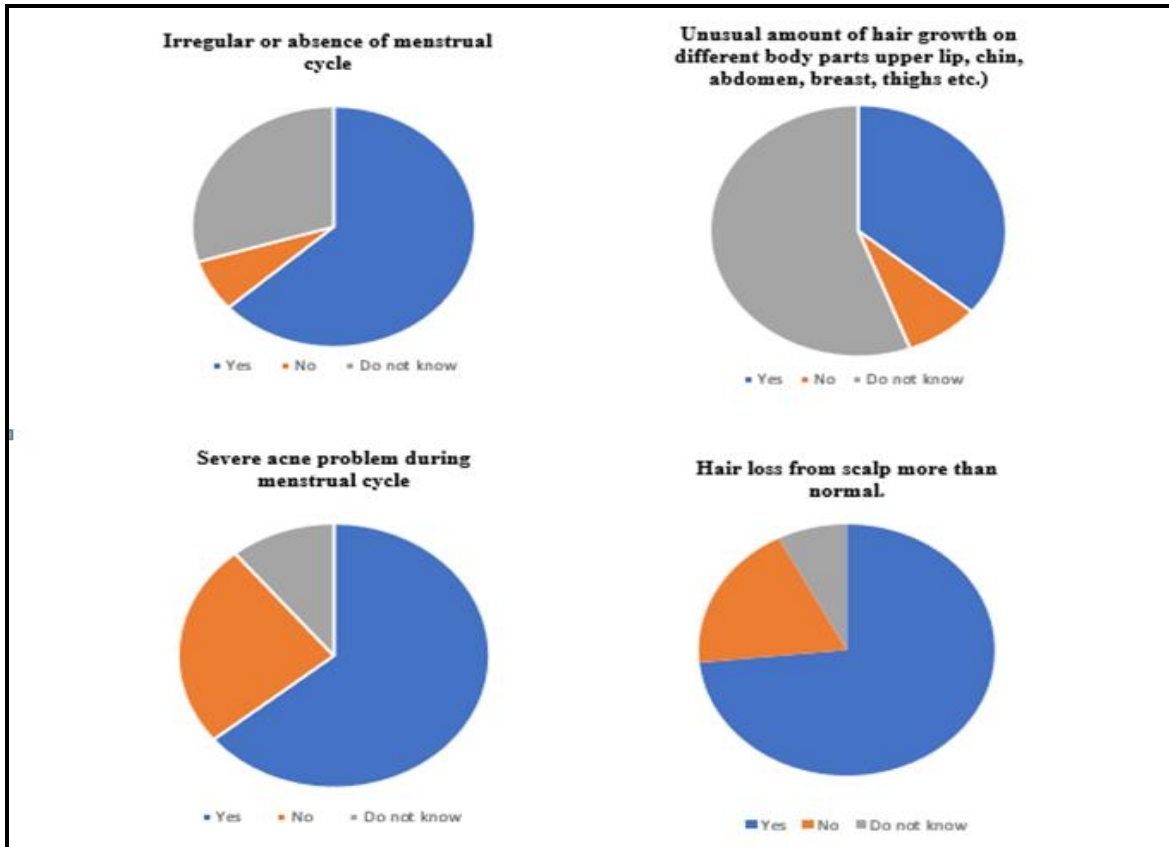| Knowledge about the PCOS	Nursing students (n = 158)		
	Yes No (%)	No No (%)	Do not know No (%)
Have you heard about the term called? polycystic ovarian syndrome" (PCOS)	122 (77.2%)	26 (16.5%)	10 (6.3%)
Have you heard about androgen male hormone	144 (91.1%)	10 (6.3%)	4 (2.6%)
There is increased level of androgen hormone in polycystic ovary syndrome	68 (43%)	9 (5.7%)	81 (51.3%)
Patient suffering from polycystic ovarian syndrome have small multiple cysts in their ovaries	96 (60.8%)	6 (3.8%)	56 (35.4%)
Obesity may cause polycystic ovarian syndrome	96 (60.8%)	6 (3.8%)	56 (35.4%)
Prediabetes condition due to increase level of insulin may cause polycystic ovarian syndrome	96 (60.8%)	6 (3.8%)	56 (35.4%)

Figure (2): Frequency and percentage distribution of the study sample by their knowledge about the symptoms of PCOS (n=158)
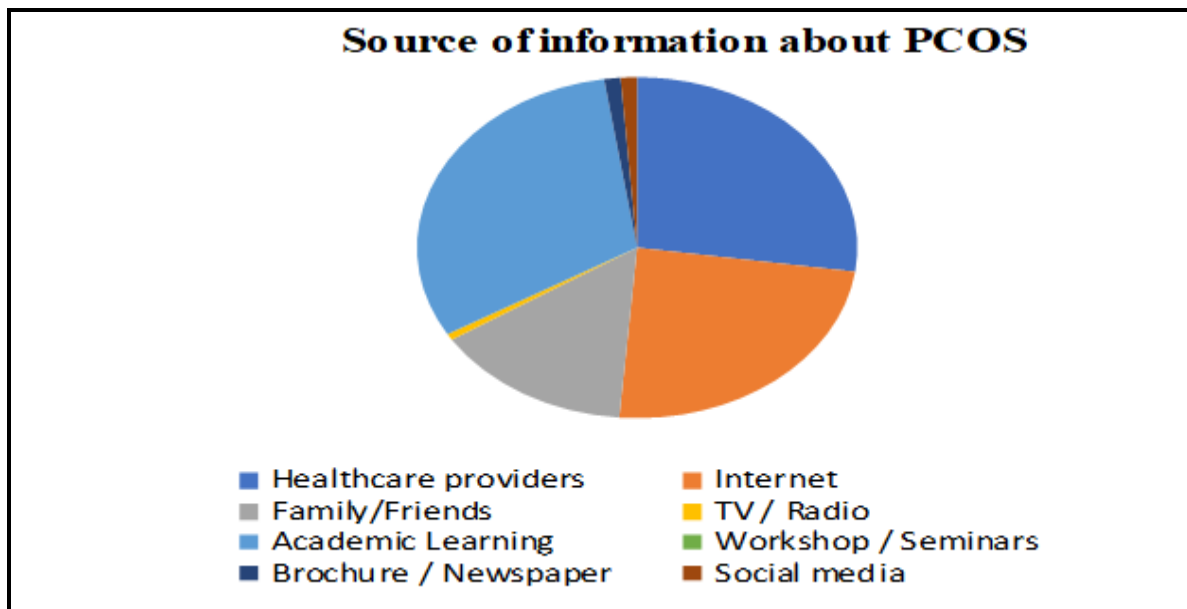
Figure(3): Frequency and percentage distribution of the study sample by them source of information about PCOS (n=158)

Overall Knowledge Score

- Poor Knowledge
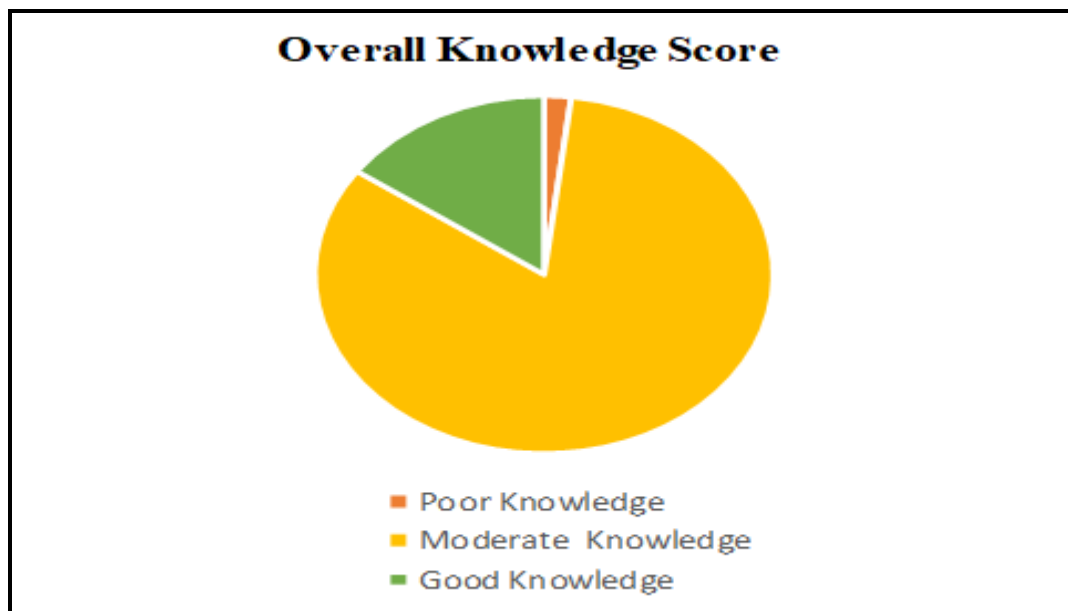- Moderate Knowledge
- Good Knowledge

Figure (4): Frequency and percentage distribution of the study sample by their Overall knowledge Score about PCOS (n=158)

Table (4): Correlations between overall Knowledge score of the study sample and sociodemographic characteristic and body mass

Sociodemographic characteristics	Overall Knowledge score			Chi-square	Sig.
	Poor Knowledge	Moderate Knowledge	Good Knowledge		
Age (Years)					
<19	0	2	0	1.522	0.823
19– <21	2	49	10		
≥21	1	80	14		
Educational Level of the mother					
Illiteracy	1	7	0		
Elementary	0	13	1		
Primary& secondary	1	37	9	13.242	0.352
University	1	70	10		
Postgraduate	0	4	2		
Marital Status				.128	0.938
Married	3	126	23		
Single	0	5	1		
Residence					
Rural	2	102	17	.727	0.695
Urban	1	29	7		
Academic Year					
2nd year nursing	1	48	2	12.969	0.011
3rd year nursing	2	29	5		
4th year nursing	0	54	17		
Body Mass Index					
Underweight = less the 18.5	2	31	3		
Normal weight =between 18.5-25	1	69	15	6.054	0.417
Overweight =between 25– 30	0	26	4		
Obesity = BMI more than or equal 30	0	5	2		

- *Statistically significant differences: p: p value for relationship between different categories: statistically significant at p ≤ 0.011 index (n=158)*

Table (1): Presented that knowledge regarding the PCOS (77.2%, 91.1%) of the participants heard about the term called PCOS" and (male) hormone (testosterone, respectively). (43%) of them of the participants were answering response PCOS is increased level of androgen hormone. While (60.8%) of them was answered the women suffering from PCOS have small multiple cysts in their ovaries. (60.8%, 60.8%) were answered an obesity prediabetes condition due to increased levels of insulin may cause PCOS and, respectively).

Table (2): Resented that knowledge regarding clinical assessment of PCOS, (31.6%) of the participants were answering response have very heavy menstruation. While 15.8% were answered prolonged menstruation, more than 7 days, and 13.3% of them were answer complete cessation of the menstrual cycle. (27.8%) were answered a partial cessation of the menstrual cycle. The correct answer of the participants about acne problem during menstrual cycle, unusual amount of hair loss from the scalp, uncommon hair growth in different parts of your body, discoloration or dark color patches on skin, continuous abnormal weight gain and diagnosed with diabetes, (55.1%, 27.8%, 22.2%, 25.3%, 19%, 4.4%) respectively.

Table (3): Presented that knowledge regarding the PCOS (77.2%, 91.1%) of the participants heard about the term called PCOS and (male) hormone (testosterone, respectively). (43%) of them of the participants were answering response PCOS is increased level of androgen hormone. While (60.8%) of them was answered the women suffering from PCOS have small multiple cysts in their ovaries. (60.8%, 60.8%) were answered an obesity prediabetes condition due to increased levels of insulin may cause PCOS and, respectively.

Figure (2): Showed that knowledge of participants regarding symptoms of PCOS (63.3%, 36.1%, 81.1%, 36.7%) of them were said correct answering related to irregular or absence of menstrual cycle, unusual amount of hair growth on different body parts upper lip, chin, abdomen, breast, thighs, Severe acne problem during menstrual cycle and hair loss from scalp more than normal, respectively.

At Figure (3): Presented that (27.2%) of the participants acquire their information about PCOS from health care providers. 31% of them had mentioned academic learning. About (24%) of them get their information from internet followed by 14.6% get information from family/friends. The rest of them (1.2%, 1.2%, 0.6%) get information from brochure / newspaper, social media, and TV / radio respectively. Most of the participants (82.9%) had an overall moderate knowledge about PCOS. While 15.2% of them had good knowledge. Moreover, the rest of

them 1.9% had poor knowledge as shown at **figure (4)**.

Table (4) which displayed the correlations of overall knowledge score, sociodemographic characteristic, and body math index among participants. The results illustrate that, there was a considerable variation between nursing students as regard to academic year (P <0.001). While it was no significant difference regarding age, mother's educational level, marital status, residence and body moth index, the p-value of the chi-square test more than 0.05.

Discussion

PCOS is a disorder led to health problems and affects the reproductive health if it does not treat well. Raise awareness of adolescents about PCOS can aids them to improvement knowledge, early detect and prevent the PCOS. Awareness and perfect diagnosis are the initial step in treatment PCOS as it improves quality of life of the women (**Upadhye & Shembekar, 2017**). The purpose of the present study is to assess the level of awareness about polycystic ovary syndrome among nursing students in King Abdulaziz University. In addition, the researcher opinion was exemplified based on her experience in the field.

This study shows that more than one third of participants were in the age group range from 19- >21 years. Only (10.8%) of the participants were diagnosed with PCOS. According to (**Ibrahim et al., 2017**) 6.6% of participants have been diagnosed with PCOS, there were differences between the two studies in the number of the sample size. In addition, the current study reported that (53.8%) of participants their BMI lies between 18.5 to 25, this considers normal weight. This finding was not supported by (**Akshaya & Bhattacharya, 2017**) indicating that (56%) Out of 50 women were diagnosed to have PCOS with BMI >23 and mean BMI of 29.52±2.43. While there were (44%) who were thin with BMI. This discrepancy in findings may be due to the obesity belonged to the old age group. The participants in the present study were aware of signs and symptoms of PCOS, such as irregular menstruation, acne, hirsutism, weight gain, and diabetes, some complications of PCOS as infertility, anxiety, and depression. This result was supported (**Alessa et al., 2017**) shows the same result, this may be due to PCOS is a syndrome of adolescence. In the conducted study, there is (31%) of participants had mentioned academic learning as a source of information about PCOS. However, another study done by (**Al Bassam et al., 2018**) showed the first source of information was other people as their mother. This may be due to the difference in participants, and our participants were only nursing students but other participants from paramedical

university students. In this study the knowledge of nursing students about treatments of PCOS. (76.6%, 57%, 49.4%, 73.4%) of them were told that the correct answer related to treatment may be used to treat this condition such as hormonal therapy, anti-diabetic medications (metformin), symptomatic treatment, and Surgery may be used to remove the ovarian cysts, respectively. This finding is supported by **(AlSinan & Shaman, 2017)** reported that the knowledge of participants regarding hormonal therapy was 52.5% and Metformin 71.4%. This finding may be due to the variances of participant's age and sample size. In addition, in Saudi culture, pharmacological management is the first choice.

Regarding the overall knowledge of nursing students about PCOS, most of the participants had an overall moderate knowledge about PCOS. While some of them had good knowledge. Moreover, the rest had poor knowledge. These results are in contrast with other studies conducted by **(Sunanda & Nayak, 2016)** revealed that the participants (76%), had average knowledge, 13.3% has poor knowledge and the rest of them had good knowledge 10.7% regarding polycystic ovarian syndrome. Another study done by **Padma, (2015)**, found that there is no significant relationship between the socio-demographic variable such as age, mother's educational level, marital status, residence and body moth index, and level of knowledge. While in the current study consequence illustrates that, there was a considerable variation between nursing students as regards an academic year. While it was no significant difference regarding age, mother's educational level, marital status, residence, and body moth index. This could be attributed to the fact that the participants of two studies were nursing students and have previous knowledge from maternity courses and clinical experience. Nurses' awareness, as well as their knowledge about PCOS, is moderate, there is the need to increase awareness and intensify sources of knowledge about the condition by providing educational programs.

Limitation of this study was conducted in Saudi Arabia at king Abdulaziz University in nursing college due to shortage of time, so we cannot generalize our result to the whole country. Another limitation that the number of participants who is diagnosed with PCOS was fewer than the main number. In addition, we need to do more investigation throughout the country to be more accurate to publish.

According to our study, it is recommended to conducting an educational program for young girls in different setting to increase levels of awareness concerning PCOS educational program, which includes counseling for women about disorder and

modifications of lifestyle. Further studies should be executed on many samples to generalize the study findings.

Conclusion

Based on the findings of this study and the data analysis, the current study was concluded that, most of the students were aware about PCOS but do not have enough knowledge. More than three quarters of them had moderate knowledge on PCOS. The study finding shows that there is a significance relationship between the sociodemographic variables such as academic year and level of knowledge(P<0.001). There is no significance relationship between the socio demographic variable such age, mother's educational level, marital status, residence and body mass index and level of knowledge, the p-value of the chi-square test more than 0.05.

Recommendations:

Based on the findings of the present study, the following recommendations are suggested:
- Conducting an educational program for young girls in different setting to increase levels of awareness concerning polycystic ovarian syndrome educational program, which includes counseling for women about disorder and modifications of lifestyle.
- Further studies should be carried out on a large number of samples to generalize the study findings.

References

- **Akshaya, S., & Bhattacharya, R. (2017):** Comparative study of clinical profile of lean and obese polycystic ovary syndrome women. Int J Reprod Contracept Obstet Gynecol, 5(8), 2530–2533.
- **Al Bassam, N., Ali, S., & Rahman, S. (2018):** Polycystic ovarian syndrome (PCOS), awareness among female students, qassim university, Qassim Region, Saudi Arabia. International Journal of Research-GRANTHAALAYAH, 6(9), 395–406.
- **Alessa, A., Aleid, D., Almutairi, S., AlGhamdi, R., Huaidi, N., Almansour, E., & Youns, S. (2017):** Awareness of polycystic ovarian syndrome among Saudi females. International Journal of Medical Science and Public Health, 6(6), 1013–1020.
- **AlSinan, A., & Shaman, A. (2017):** A study to measure the health awareness of polycystic ovarian syndrome in Saudi Arabia. Global Journal of Health Science, 9(80), 210–219.
- **Çoban, Ö., Tulacı, Ö., Adanır, A., & Önder, A. (2019):** Psychiatric disorders, self-esteem, and quality of life in adolescents with polycystic ovary

syndrome. Journal of Pediatric and Adolescent Gynecology, 32(6), 600–604.

▪ **Haq, N., Khan, Z., Riaz, S., Nasim, A., Shahwani, R., & Tahir, M. (2017):** Prevalence and knowledge of polycystic ovary syndrome (PCOS) among female science students of different public Universities of Quetta, Pakistan. Imperial Journal of Interdisciplinary Research, 35(6), 385–392.

▪ I**brahim, S., Elsayed, Y., & Azzam, H. (2017):** Screening of polycystic ovarian syndrome among adolescent girls at Cairo University. The Malaysian Journal of Nursing (MJN), 9(1), 16–20.

▪ **Kandel, P., Sunny, S., Prakash, P., Andrews, A., Charley, J.K., Milton, B., & Mascarenhas, M.J.A. (2019):** A study on assessment of risk factor responsible for developing polycystic ovarian syndrome, creating awareness, and limiting the risk factor by advanced patient Counselling. Indo American Journal of Pharmaceutical Research, 9(01), 1-17.

▪ **Padma K. (2015):** A study to assess the knowledge regarding PCOD among nursing students in NNI, Nellore. International Journal of Applied Research 2015; 5(1): 10-12

▪ **Sunanda, B., & Nayak, S. (2016):** A Study to Assess the knowledge regarding PCOS (polycystic ovarian syndrome) among nursing students at NUINS. Journal of Health and Allied Sciences NU, 6(03), 24–26.

▪ **Tsikouras, P., Spyros, L., Manav, B., Zervoudis, S., Poiana, C., Nikolaos, T., Petros, P., Dimitraki, M., Koukouli, C., & Galazios, G. (2015):** Features of polycystic ovary syndrome in adolescence. Journal of Medicine and Life, 8(3), 291.

▪ **Upadhye, J. & Shembekar, C. (2017):** Awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 6(6), 2297–2301.