

## Lifestyle and Reproductive Health Knowledge in Female Nursing Students about Polycystic Ovary Syndrome

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### Abstract

**Background:** Lack of knowledge regarding polycystic ovary syndrome (PCOS) and poor lifestyle is considered to be the major factor leading to polycystic ovary syndrome. **Aim of the study:** To evaluate lifestyle and reproductive health in female nursing students about polycystic ovary syndrome. **Subjects and Methods; Research design:** A descriptive design was utilized in the present study. **Setting:** The study was carried at Faqus nursing technical institute from the first of November 2022 to the end of February 2023. **Subjects:** A convenient sample was used in the study (200 females nursing students). **Tools of data collection:** A structured interview tool, lifestyle assessment tool and reproductive health knowledge assessment tool were used for data collection. **Results:** 35.0% of female nursing students had healthy lifestyle and 65% had unhealthy lifestyle. 22.5% of female nursing students had satisfactory level of total reproductive health knowledge and 77.5 had unsatisfactory level of total reproductive health knowledge. There was high significant statistical positive correlation between female nursing students' lifestyle and knowledge. **Conclusions:** There was unhealthy lifestyle and unsatisfactory level of total knowledge regarding PCOS. Polycystic ovary syndrome is a condition which can lead to severe health related problems and affects female's reproductive health if not treated properly. **Recommendations:** Application of educational program for adolescent girls in different setting should be conducted in order to improve their knowledge, enhance lifestyle and allow immediate recognition regarding PCOS through continuous counseling, support, and encouragement.

**Keywords:** Polycystic ovary syndrome, Reproductive Health Knowledge and Lifestyle

### Introduction

Adolescence is a stage of transition from childhood to adulthood. Adolescents are more prone to health risks due to hormonal changes, lifestyle changes and lack of knowledge. So it is important to minimize the complication in later adolescent by maintaining healthy lifestyle and recognition of health problems <sup>(1)</sup>.

Healthy lifestyle is one of the most important aspects of managing polycystic ovarian syndrome successfully. A healthy diet will ensure that the adolescent girls are getting an adequate intake of nutrients, vitamins and minerals. Healthy diet avoiding junk foods and regular exercise reduces the severity of polycystic ovary symptoms <sup>(2)</sup>.

Polycystic ovary syndrome (PCOS) is one of the most common complex female endocrine disorders that offer no cure. It is a condition in which woman has an imbalance of female sex hormones. Some studies estimated that 1 in 15 women worldwide are diagnosed and that numbers are only expected to increase <sup>(3)</sup>.

PCOS has thus been called "the thief of feminine identity" <sup>(3)</sup>. PCOS is a syndrome (or, a group of symptoms) that interferes with ovaries and ovulation. PCOS has 3 features: Irregular/missed periods, high levels of androgen and cysts which are fluid-filled sacs in the ovaries. These sacs are immature follicles that never reach an ovulation. Lack of ovulation disturbs the hormonal harmony in the body. On top of this, raised androgen levels disrupt the monthly cycles <sup>(4)</sup>.

PCOS affects between 5 and 10% of women of reproductive age and 6-18% of adolescent girls. It's prevalence among Egyptian adolescent girls is 6.6% and those who are at high risk were 12.6% <sup>(5)</sup>.

While the pathophysiology of PCOS remains unclear, insulin resistance has been implicated as a major causative factor. Accurate diagnosis of PCOS is of critical importance to public health, given the chronic true of the disorder and its association with multiple health consequences <sup>(6)</sup>.

Positive family history of PCO increases the risk of developing PCO in female relatives. PCOS patients exhibit an imbalance in levels of GnRH, FSH, LH, androgen and prolactin. The progression of PCOS and its severity rise with an increasing level of insulin and testosterone (7).

Obesity, not physically active and quality of diet are interacting with an underlying genetic susceptibility to cause PCOS. Obesity and stress tend to increase the negative effect of PCOS on cycle regularity (8).

Women with PCOS are more likely to develop certain serious health problems, which include type 2 diabetes, high blood pressure, problems with the heart, and blood vessels, and uterine cancer. Women with PCOS often have problems with their ability to get pregnant (fertility) (9).

Ultimate goals of treatment include decreasing androgen levels to improve hirsutism, protecting the endometrium, optimizing reproductive function in those desiring fertility, and reducing the long-term sequelae of insulin resistance. The initial therapeutic strategy in the management of PCOS should be directed at management of the patient's presenting symptoms (10).

Management of PCOS includes weight loss through lifestyle change, use of hormonal contraceptive agents for menstrual regulation as well as androgen suppression, antiandrogens as adjuncts for hirsutism treatment, and insulin-sensitizing agents are common components of treatment (11). Lifestyle modifications are the first-line treatment of PCOS. So, several guidelines recommend exercise therapy and a calorie-restricted diet as a significant part of the management of women with PCOS (12).

Nurses are well positioned to develop and implement PCOS care plans that are best presented as multifaceted, lifelong, educational approaches to wellness. A good plan will address nutrition education, meal planning, physical activity, mental and emotional health, and weight and stress reduction strategies to facilitate engagement, nurses can provide counseling with educational support in the form of electronic or written materials (13).

There is an increasing awareness of PCOS among the adolescent population along with an increase in diagnosis and an increased incidence of established comorbidities such as obesity and type 2 diabetes. The Poly Cystic Ovaries Syndrome is considered to be most prevalent of all endocrine disorders which women face (14).

#### **Significance of the Study:**

Awareness of females about PCOS is important for therapy and to avoid extra severe consequences of it by providing health education to the client for better health by creating a positive attitude toward healthy life style, good balanced and high vitamin diet and maintain daily exercise or any health promotion activities (15).

The researcher works clinical instructor at Faquos Nursing Technical institute, the researcher observed that eating fast food became a common phenomenon between students so that the researcher decided to conduct this study.

#### **Aim of the study:**

The aim of this study was to evaluate lifestyle and reproductive health in female nursing students about polycystic ovary syndrome.

#### **Research questions:**

1. What is the lifestyle of female nursing students regarding polycystic ovary syndrome?
2. What is the level of knowledge in female nursing students about polycystic ovary syndrome and reproductive health?

#### **Subjects and Methods:**

##### **Research design:**

A descriptive study design was adopted to carry out this study.

##### **Study Setting:**

The present study was conducted at Faquos Nursing Technical Institute, Sharqia government affiliated to faculty of nursing at Zagazig University.

##### **Study Subjects:**

The study included all available female nursing students from the above mentioned setting which contain two academic years, this in the academic year 2022-2023 (n=245).

Twenty students participated in the pilot study, 25 refused to participate in the study and 200 students who agreed to participate in the study.

- **Inclusion criteria:** Agree to participate in the study and students risk for PCOS.
- **Exclusion criteria:** Students had previous knowledge about PCOS.

**Tools for data collection:**

Data collection was done through the use of the following tools:

**Tool I: Structured Interview Questionnaire:**

It was developed by the researcher after reviewing related literature as **Devi et al.** <sup>(16)</sup>, **Jayshree et al.** <sup>(17)</sup> and **Patel** <sup>(18)</sup> to collect the basic data about the following:

- **Part 1:** Demographic data of female nursing students.
- **Part 2:** medical history of diseases, family history of diseases and family history of PCOS.
- **Part 3:** Menstrual history and presence of signs of ovulation.

**Tool II: Lifestyle Assessment Questionnaire:** It included the following parts:

- **Part 1: Dietary habits:** It was developed by **Al kurdi** <sup>(19)</sup> and modified by the researcher.
- **Part 2: physical activity:** it was developed by **Al kurdi** <sup>(19)</sup> and modified by the researcher.
- **Part 3: Body Mass Index (kg/m<sup>2</sup>):** It was developed by the researcher according to **Zhao et al.** <sup>(20)</sup>. It included data as: weight by kg, height by m and classification of Body Mass Index according to the following formula: BMI= Weight (kg) / {Height (m)}<sup>2</sup>.
- **Part 4: Leisure time:** It was developed by **Al kurdi** <sup>(19)</sup> and it was added some items by the researcher.
- **Part 5: Sleeping pattern:** It was developed by **Al kurdi** <sup>(19)</sup> and modified by the researcher.

- **Part 6: Emotional status:** It is a part of health promoting lifestyle profile (HPLP) which was developed by **Walker et al.** <sup>(21)</sup>. The nursing students' responses were measured on a five- point Likert scales ranging from always (5) to never (1).

**Scoring system of total lifestyle:**

- The nursing student's score was considered healthy lifestyle if it is (≥60).
- The nursing student's score was considered unhealthy lifestyle if it is (<60).

**Tool III: Reproductive Health Knowledge Assessment Questionnaire:** To collect data about the following:

- **Part 1: Anatomy and physiology of female reproductive system:** It was developed by the researcher after reviewing literature as **Pramodh** <sup>(22)</sup> and **John** <sup>(23)</sup>. It included open and closed end questions about organs of internal female reproductive system and anatomy and physiology of these organs.
- **Part 2: Menstruation:** It was developed by the researcher after reviewing literature as **Kirthika et al.** <sup>(24)</sup>. It included open question about the meaning of menstruation and closed end questions about menarche and physiology of menstruation.
- **Part 3: Infertility:** It was developed by the researcher after reviewing literature as **Pramodh** <sup>(22)</sup>. It included open questions about the meaning of infertility, types, causes of it and relationship between infertility and PCOS.
- **Part 4: Polycystic ovary syndrome PCOS:** It was developed by the researcher after reviewing literature as **Abu-Taha et al.** <sup>(25)</sup> and **Mohamed et al.** <sup>(26)</sup> to collect data as: Previous information about polycystic ovary syndrome and source of it and it included open question about the meaning of polycystic ovary syndrome and closed end questions about risk factors, clinical picture, diagnosis, complications and management of PCOS.

**Scoring system of knowledge:**

In open questions, the nursing students' responses were measured on a two points: complete correct (was given 1 scores), and incorrect (was given 0 score).

In closed end questions, the nursing students' responses were measured on three-points: Yes (was given 1 scores), no (was given 0 score) and do not know (was given 0 score).

- Scores ( $\geq 60\%$ ) indicates satisfactory knowledge.
- Scores ( $< 60\%$ ) indicates unsatisfactory knowledge.

#### **Content Validity and Reliability:**

##### **Validity:**

The questionnaire was reviewed by a panel of three experts from the faculty of nursing, Zagazig University. Experts were requested to express their opinions and comments on the tool and provide any suggestions for any additions or omissions of items. According to their opinions, recommended modifications were performed by the researcher.

##### **Reliability:**

The reliability of the data collections tools was measured through Alpha Cronbach reliability analysis. It was 0.817 for lifestyle assessment tool, 0.795 and for Knowledge assessment tool

##### **Field work:**

At the beginning of the interview, the researcher greeted each student and informed them about the study's purpose, duration, instructions to complete the questionnaire, and activities. This phase involved interviewing the study's participants for the first time to gather baseline data.

This was done in the educational lecture hall at the during the participants' free time. They have been informed that their participation is entirely voluntary and that they have the opportunity to end it whenever they choose. All students gave their approval orally and they have been told that their participation and their right to discontinue at any time are optional. Each student was given a self-administered questionnaire. Average time for the completion of each studied student self-administered questionnaire was around (30 minutes).

The researcher collected demographic characteristics and measured anthropometric measurement by measuring of weight (kilograms) and height (centimeters) which were converted into Body Mass Index ( $\text{kg}/\text{m}^2$ ). Also, family history of PCOS, menstrual history, presence of signs of ovulation, reproductive health knowledge, lifestyle and knowledge regarding polycystic ovary syndrome were taken.

##### **Pilot study:**

A pilot study was carried out on 10% of study subjects (20 female nursing students) to test applicability, feasibility, practicability of the tool. In addition, to estimate the time required for filling in the questionnaire sheets. Female nursing students were selected randomly and excluded from the main study sample and the necessary modifications were done according to the results of the pilot study.

##### **Administration and Ethical consideration:**

To carry out this study in the selected setting, Official permission was obtained from the director of Technical Institute of Nursing. The researcher obtained lists of female students' number of each grade in the Institute, after an explanation of study objectives, as well as an individual oral consent was obtained from each participant in the study.

##### **Ethical consideration:**

The study was approved by the ethics committee and dean of Faculty of Nursing, Zagazig University and director of Technical Institute of Nursing. Likewise, an individual Oral consent was received from each student after explaining the purpose of the study.

Nursing students were given an opportunity to refuse or to participate and they were assured that the information would be used confidentially and used for the research purpose only. Confidentiality was confirmed by maintaining anonymity of subject's data.

##### **Statistical Analysis:**

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the arithmetic mean ( $\bar{X}$ ) and standard deviation (SD) for quantitative data.

Qualitative variables were compared using chi square test (X<sup>2</sup>) between the group during the two visits and during the three visits were assessed by Friedman test. In addition, R- test were used to identify the correlation between the study variables.

#### Results:

**Table (1):** Showed the demographic characteristics of female nursing students. It clarified that, 49.0% of the female nursing students their age was 19 years, the mean  $\pm$  SD of student's age was  $18.57 \pm 0.572$  years. Also, 75.5% of them were residing in rural areas. As regard to marital status, 96.5% of them were single. Moreover, 42.0% of female nursing students, whose father have university education, and 55.5% of them were government employee. Furthermore, 48.5% of female nursing students, whose mother have secondary education, and 52.5% of them were housewife.

**Figure (1):** Percentage distribution of female nursing students according to educational grade (n=200). It showed that, 53.0% of female nursing students were at second year. While, 47.0% of them were at first year.

**Table (2):** Showed the distribution of female nursing students according to their menstruation history. It was observed that, 76.5% of female nursing students, their age at menarche was 12 - 16 years, with a mean SD of  $13.01 \pm 1.74$  years. Also, 76.5% of them have menstruation every 21-35 days. Moreover, 71.0% of them change 2-3 pads daily. And, 75.5% of them menstruate 3 - 7days. Moreover, 72.0% of them have regular menstruation. While, 43.5% of them don't observe the exact time of their ovulation. As well as, 74.0% and 43.5% of them have excessive, thin, clear, stretched mid-cycle vaginal discharge and mild change in body temperature during mid-cycle period, respectively. Moreover, 80.0% of them have signs of premenstrual syndrome as breast tenderness, muscle pain, mood swings and sleep disturbance

**Table (3):** Showed the distribution of female nursing students according to total lifestyle. It was revealed that, 35.0% of female nursing students have healthy lifestyle.

**Table (4):** Concerned with distribution of female nursing students according to knowledge regarding polycystic ovary syndrome. It was presented that, (4.5%, 43.5%, 9.0%, 5.0%, 3.0% and 7.5%, respectively) of female nursing students have correct answer regarding the meaning, risk factors, clinical picture, diagnosis, complications and management of polycystic ovary syndrome.

**Table (5):** Showed the distribution of female nursing students according to total knowledge. It was revealed that, 77.5% of female nursing students had unsatisfactory level of total knowledge.

**Table (6):** Revealed that there was highly statistically significant relation between total students' lifestyle and their demographic characteristics as level of father's and mothers' education at ( $P < 0.001$ ). Also, there was statistically significant relation with their educational grade and family income at ( $P = < 0.05$ ). While, there was no statistically significant relation with their age, location of residence, marital status and occupation of fathers and mothers at ( $P = > 0.05$ ).

**Table (7):** Explained that, there was high a significant statistical positive correlation between female nursing students' lifestyle and knowledge.

#### Discussion:

Polycystic ovary syndrome (PCOS) is a common polygenic disorder and cardio-metabolic dysfunction, as evidenced by insulin resistance, dyslipidemia, and obesity, is often a significant comorbidity with long-term effects on cardio metabolic health as well increased risk of future type 2 diabetes (**Hachey et al. (27)**). Therefore, the present study aimed to evaluate lifestyle and reproductive health in female nursing students about polycystic ovary syndrome.

Concerning residence, the present study results showed that about three quarter of the studied female nursing students were residing in rural areas.

This result is in accordance with a study conducted in India by **Thapar and Naveena**<sup>(28)</sup> to evaluate “Effectiveness of Self Instructional Module (SIM) on Knowledge Regarding Polycystic Ovarian Syndrome (PCOS) among Late Adolescent Girls (17 to 19 years) in Selected Colleges at Gurugram, Haryana” indicated that 67.5% of participants were belonging to rural areas.

In the contrast of this result, a study conducted in Tanta University, Egypt by **El-Adham and Shehata**<sup>(29)</sup> who reported that in relation to female students' residence, more than half of them (54.6%) were urban. Possible explanation for this difference may be due to variation in place of this study and the current study.

The finding of current study regarding family history of PCOS revealed that the majority of female nursing students didn't have family history of PCOS. This finding goes in line with **Deans**<sup>(30)</sup> in a study entitled “Polycystic Ovary Syndrome in Adolescence” founded that majority 68.3% have no family history of PCOS.

In the opposite of these findings, a study carried out by **Atiqulla et al.**<sup>(31)</sup> entitled “An Interventional Study on Effectiveness of Structured Education Program in Improving the Knowledge of Polycystic Ovarian Syndrome among Female Students” indicated that as regards to the studied nursing students' family history of polycystic ovary syndrome, this study found that more than one half of their mothers had PCOS and they had enough monthly income.

In this regard **Hassan and Farag**<sup>(32)</sup> in Bani Suif demonstrated that more than one-third (38.0%) of subjects had a negative family history of PCO syndrome. While more than one-half of women (62.0%) had a positive family history of PCO syndrome. Also **María et al.**<sup>(33)</sup> reported that more than half (61%) of the students has family history of PCOS. The possible explanation for this difference may be related to hereditary factors.

The current study showed that, third of female nursing students had healthy lifestyle. In agreement with this result, a study was carried out by **Hoeger**<sup>(34)</sup> in a study entitled “Role of life style modification in the management of polycystic ovary syndrome” indicated that as regard to quality of life, the majority of studied nursing students (33.7%) had high quality of life.

As regard source of information about PCOS, the present study indicated that less than half of female nursing students have information about polycystic ovary syndrome from friends. In the contrast, a study was carried out by **Almukhtar**<sup>(35)</sup> to evaluate “Effect of An Educational Program about Polycystic Ovarian Syndrome on Knowledge of Adolescent Female Students” who indicated that 19% got information from friend.

Also **Karkar et al.**<sup>(36)</sup> in their study entitled “A study to assess the knowledge regarding polycystic ovarian syndrome among undergraduate students in selected colleges of Pune city” showed that the main source of information was from teacher, followed by friends, doctors, respectively, and only 5% from internet. Possible explanation for these differences may be due to individual preference for getting information.

The current study results found that more than third of female nursing students have excessive acne. This finding nearly matched with a study by **Khashchenko et al.**<sup>(37)</sup> reported that 40.6% reported oily skin with acne. In the contrast of this result, a study was carried by **Kirthika et al.**<sup>(24)</sup> reported that 20% of participants had acne and 60% of them had menstrual irregularity. This difference may be explained by, this study was carried on women but the current study was done on adolescent.

Similarly, **Selvara**<sup>(38)</sup> in a study entitled “Implementation of an awareness program and lifestyle intervention on polycystic ovarian syndrome among adolescent school girls in India” showed that only 2% of girls had average knowledge related to PCOS.

This result in agreement with **Shrivastava and Jagdev** <sup>(39)</sup> who indicated in their study about “Effect of Self Instructional Module on awareness of Polycystic Ovarian Syndrome among Adolescent Students” majority of respondents (82.9%) were not aware of PCOS.

**Conclusion:**

- There was unhealthy lifestyle and unsatisfactory level of total knowledge regarding PCOS and reproductive health.

- PCOS is a condition which can lead to severe health related problems and affects female’s reproductive health if not treated properly.

**Recommendation:**

- Application of educational program for adolescent girls in different setting should be conducted in order to improve their knowledge, enhance lifestyle and allow immediate recognition regarding PCOS through continuous counseling, support, and encouragement.
- Nursing curriculum should be updated to include comprehensive information about PCOS to improve the awareness of other females once in practice.

**Table (1): Distribution of female nursing students according to demographic characteristics (n=200)**

Items	No.	%
<b>Age (Years)</b>		
18	94	47.0
19	98	49.0
20	8	4.0
<b>Mean ± SD</b>	<b>18.57± 0.572</b>	
<b>Location of residence</b>		
Rural	151	75.5
Urban	49	24.5
<b>Marital status</b>		
Single	193	96.5
Married	7	3.5
<b>Level of father’s education</b>		
Illiterate, read and write	48	24.0
Primary	10	5.0
Secondary	49	24.5
University	84	42.0
Postgraduate	9	4.5
<b>Level of mother’s education</b>		
Illiterate	12	6.0
Read and write	25	12.5
Primary	9	4.5
Secondary	97	48.5
University	52	26.0
Postgraduate	5	11.5
<b>Occupation of student’s father</b>		
Government employee	111	55.5
Self-employee	65	32.5
Not working	24	12.0
<b>Occupation of student’s mother</b>		
Government employee	71	35.5
Self-employee	24	12.0
Housewife	105	52.5

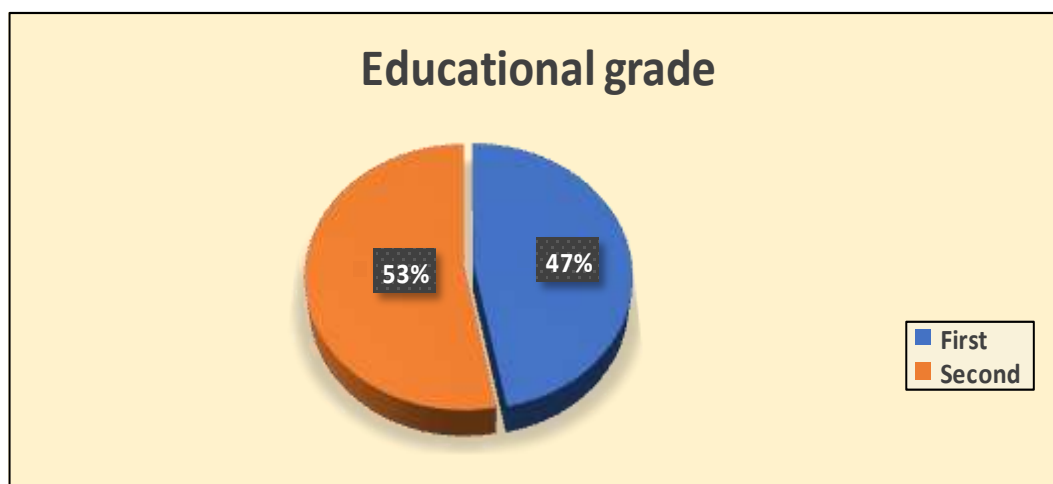


Figure (1): Percentage distribution of female nursing students according to educational grade (n=200).

Table (2): Distribution of female nursing students according to their menstrual history and characteristics (n=200)

Items	No.	%
<b>Age of menarche (years)</b>		
< 12	36	18.0
12 - 16	153	76.5
> 16	11	5.5
<b>Mean ± SD</b>	<b>13.01 ± 1.74</b>	
<b>Frequency of menstruation</b>		
Less than 21 days	42	21.0
21-35 days	153	76.5
More than 35 days	5	2.5
<b>Number of saturated pad are changed/ day</b>		
1pad	16	8.0
2-3pads	142	71.0
More than 3pads	42	21.0
<b>Duration of menstruation</b>		
Less than 3 days	24	12.0
3days - 7days	151	75.5
More than 7 days	25	12.5
<b>Regularity of menstruation</b>		
Regular	144	72.0
Irregular	56	28.0
<b>Know the exact time of ovulation</b>		
Yes	49	24.5
No	64	32.0
Not observed	87	43.5
<b>Have excessive, thin, clear and Stretched mid-cycle vaginal discharge</b>		
Yes	148	74.0
No	29	14.5
Not observed	23	11.5
<b>Have mild change in body temperature during Mid-cycle period</b>		
Yes	87	43.5
No	28	14.0
Not observed	85	42.5
<b>Have signs of premenstrual syndrome as breast tenderness, muscle pain, mood swings and sleep disturbance</b>		
Yes	160	80.0
No	22	11.0
Not observed	18	9.0



Table (3): Distribution of female nursing students according to their total lifestyle

Items	Healthy lifestyle		Unhealthy lifestyle	
	No.	%	No.	%
▪ Dietary habits	68	34.0	132	66.0
▪ Physical activity	56	28.0	144	72.0
▪ Leisure time	72	36.0	128	64.0
▪ Sleeping pattern	75	37.5	125	62.5
▪ Emotional status	82	41.0	118	59.0
<b>Total lifestyle</b>	<b>70</b>	<b>35.0</b>	<b>130</b>	<b>65.0</b>

Table (4): Distribution of female nursing students according to their knowledge regarding polycystic ovary syndrome

Knowledge items	Correct answer		Incorrect answer / didn't know	
	No.	%	No.	%
▪ Meaning of polycystic ovary syndrome.	9	4.5	191	95.5
▪ Risk factors of PCOS are: Genes, Hormonal imbalance such as: Increased androgens and Insulin resistance.	87	43.5	113	56.5
▪ Bad lifestyle: as obesity, lack of physical activity, fast food, soft drinks and bad emotional status are not risk factors of PCOS.	24	12.0	176	88.0
▪ Symptoms of polycystic ovary syndrome The symptoms of PCOS include: disturbances in the menstrual cycle, increase in hair growth on face, brittle hair of the head, acne and patches of dark skin.	18	9.0	182	91.0
▪ Exclusion of other causes behind the symptoms of hormonal imbalance, such as: thyroid disorders, adrenal gland disorders is not necessary for diagnosis of PCOS.	12	6.0	188	94.0
▪ Diagnosis of PCOS depends on at least two of the following criteria: irregular menstruation, increased androgen and polycystic ovaries.	10	5.0	190	95.0
▪ PCOS lead to respiratory diseases, Type 1 diabetes and Breast cancer.	6	3.0	194	97.0
▪ PCOS treatment focuses on managing the symptoms and usually starts with adopting a healthy lifestyle.	15	7.5	185	92.5

Table (5): Distribution of female nursing students according to their total knowledge

Items	Satisfactory		Unsatisfactory	
	No.	%	No.	%
▪ Anatomy and physiology of female reproductive system	52	26.0	148	74.0
▪ Physiology of menstruation	55	27.5	145	72.5
▪ Infertility	43	21.5	157	78.5
▪ Polycystic ovary syndrome	38	19.0	162	81.0
<b>Total knowledge</b>	<b>45</b>	<b>22.5</b>	<b>155</b>	<b>77.5</b>

Table (6): Relationship between demographic characteristics of female nursing students and their lifestyle (n=200)

Items	Healthy lifestyle (n=70)		Unhealthy lifestyle (n=130)		χ <sup>2</sup>	P-Value
	No.	%	No.	%		
<b>Age</b>	18 years	16	22.8	78	60.0	4.055 > 0.05 (NS)
	19 years	48	68.6	50	38.5	
	20 years	6	5.6	2	1.5	
<b>Location of residence</b>	Rural	51	72.9	100	76.9	1.821 > 0.05 (NS)
	Urban	19	27.1	30	23.1	
<b>Educational grade</b>	First	14	20.0	80	61.5	8.057 < 0.05* (S)
	Second	56	80.0	50	38.5	
<b>Marital status</b>	Single	65	92.9	128	98.5	4.100 > 0.05 (NS)
	Married	5	7.1	2	1.5	
<b>Level of father's education</b>	Illiterate	0	0.0	12	9.2	13.96 < .001** (HS)
	Read and write	0	0.0	36	27.7	
	Primary	0	0.0	10	7.7	
	Secondary	2	2.9	47	36.2	
	University	61	87.1	23	17.7	
<b>Level of mother's education</b>	Illiterate	0	0.0	12	9.2	14.02 < .001** (HS)
<b>Occupation of student's father</b>	Government employee	51	72.9	60	46.1	2.515 > 0.05 (NS)
	Self-employee	15	21.4	50	38.5	
	Not working	4	5.7	20	15.4	
<b>Occupation of student's mother</b>	Government employee	51	72.9	20	15.4	1.558 > 0.05 (NS)
	Self-employee	16	22.9	8	6.1	
	Housewife	3	4.2	102	78.5	
<b>Family income</b>	Sufficient	68	97.1	10	7.7	11.57 < 0.05* (S)
	Not sufficient	2	2.8	120	92.3	

Table (7): Correlation between total female nursing students' lifestyle and knowledge

Variables	Total students' lifestyle	
Total students' knowledge	R	0.514
	p	0.000**

R= coefficient correlation test      p= p-value      \*\*highly significant at p < 0.001.

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