Effectiveness Of Planned Teaching Programme on Knowledge Regarding Polycystic Ovarian Syndrome (PCOS) among Adolescent Girls

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Abstract;

Background: PCOS is one of the primary causes of infertility, and it is a major problem among adolescents. Education is one of the most widely adapted strategies for health promotion. So, it is important to teach about polycystic ovarian syndrome among adolescent girls to identify the early signs of PCOS. **The aim** of the study was to assess the effectiveness of a planned teaching program on knowledge regarding polycystic ovarian syndrome among adolescent girls. **Design:** A one group pretest posttest research design was utilized for the current study. **Sample**: A simple random sampling technique was used carried out among 65 adolescent girls at Um Salama High School in Al-Ahsa. **Tools of Data collection**; Structured Questionnaire was utilized for the research. SPSS version 20 was used for data analysis **Result** The study findings shows that there were 52.31% of them had inadequate knowledge, 24.62% of them had moderately adequate knowledge, and 23.07% had an adequate level of knowledge regarding PCOS in pretest. In the posttest, 1.54% of them had inadequate knowledge, 3.08% had moderately adequate knowledge, and 95.38% had an adequate level of knowledge regarding PCOS. The results show that organized education was successful in educating teenage girls about polycystic ovarian syndrome (paired t'= 9.61, $p<0.05$). **Conclusion;** The study findings concluded that the teaching regarding PCOS was more effective for adolescent girls. **Recommendation:** Through this research, the investigator recommends to raise awareness of PCOS through planned teaching program for the adolescent girls in schools.

Key words: planned teaching programme, polycystic ovarian syndrome (PCOS), Adolescent girls

Introduction:

Polycystic Ovarian Syndrome (PCOS) is a very common endocrine disorder with no known cure till now and is the leading cause of female infertility worldwide. Women with PCOS are also at risk of developing other conditions, such as endometrial cancer, which is the second most frequent gynecological malignancy among women. **(Amiri, M., Bidhendi-Yarandi, R., Fallahzadeh, A., Marzban, Z., & Tehrani, F. R. (2022).** Polycystic ovarian syndrome is a disorder that affects the endocrine system in approximately 5% of all women. The incidence of PCOS is increasing worldwide, as it affects females of all reproductive aging women and causes infertility. PCOS is related to symptoms such as acne, absent or irregular menstrual cycles, hirsutism, male-pattern hair loss, darkened skin patches, and obesity. (**Motlagh Asghari K, 2019**). PCOS escalates the various risks for women with oncologic, dermatologic, reproductive, psychological, and metabolic aberrations. This disorder has the impact of reducing the quality of life among adolescents. The short-term complications of PCOS include menstrual problems, hyperinsulinemia, sleep apnea, and

anovulation. A healthy lifestyle is one of the good aspects of managing PCOS successfully. Worldwide, approximately 105 million women between the ages of 15 and 49 are diagnosed with PCOS. **(Azziz, R., Marin, C., Hoq, L., Badamgarav, E., & Song, P. (2005)**. According to a World Health Organization (WHO) statement, PCOS affects 116 million women (3.4% of the global population). It affects between 5 and 10 percent of women in the U.S. at the age of childbearing. This is due to conditions such as endocrine and reproductive disorders in about 5 million women**. (Teede, H. J., Misso, M. L., Costello, M. F., Dokras, A., Laven, J., Moran, L., ... & Norman, R. J. (2018).** In America, research studies reported that the prevalence of obesity and overweight for women with PCOS is very high, and it is also around 80%.The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19.

A planned teaching program is a scientifically organized education developed to help the general population learn. Through this program, the researcher has to present the course content in a clear and effective manner in accordance with the course objectives. **Sheelamma M.A (2018).**

"Prevention is better than cure". Therefore, as a nurse, the researcher has a pivotal role in creating awareness among adolescents about the modification of lifestyle and prevention of future complications, which can help improve the quality of life by providing education and support. Investigators have done an extensive literature review and realized that infertility-related problems have been very high in recent days. PCOS is one of the primary causes of infertility, and it is a major problem among adolescents. Education is one of the most widely adapted strategies for health promotion. So, it is important to teach about polycystic ovarian syndrome among adolescent girls to identify the early signs of PCOS.

Significance of the study;

There are numerous factors that affect adolescents with regard to the signs of PCOS, and there is also a higher risk of metabolic, cardiovascular, and mood disorders. Generally, they face problems like body image disturbances due to hormonal issues. So, early identification and treatment are important to develop a positive attitude and should also bring about changes in a healthy lifestyle. **(Sheelamma M.A (2018).** Awareness of PCOS signs and symptoms and its complications is very important for early treatment and also to prevent constant complications. Several studies have emphasized the association between PCOS and gynecological problems**. (Barry, J. A., Qu, F., & Hardiman, P. J. (2020)**. Cancer risk increases in PCOS as a result of hormonal disturbance and the prolonged ovulatory state. Women with PCOS have a three-fold higher risk than other women of developing endometrial cancer. Furthermore, it has been found that PCOS is associated with significant tension because of physical and psychological problems, especially obesity and infertility. PCOS diagnosis might be delayed, which leads to severe anxiety and depression among adolescent girls **(Deeks, A. A., Gibson-Helm, M. E., Paul, E., & Teede, H. J. (2011)**."Prevention is better than cure". Therefore, as a nurse, the researcher has a pivotal role in creating awareness among adolescents about the modification of lifestyle and prevention of future complications, which can help improve the quality of life by providing education and support. Investigators have done an extensive literature review and realized that infertility-related problems have been very high in recent days.

Problem statement;

Effectiveness of planned teaching programme on knowledge regarding polycystic ovarian syndrome (PCOS) among adolescent girls studying in a selected school at Al Ahsa, Eastern Region, Saudi Arabia.

Aim of the study;

The aim of this study is to assess the effectiveness of planned teaching programme on knowledge regarding polycystic ovarian syndrome among

adolescent girls studying in a selected school, Al Ahsa, Eastern Region, Saudi Arabia.

Specific Objectives;

1.To assess the pretest level of knowledge regarding polycystic ovarian syndrome among adolescent girls.

2.To assess the post-test level of knowledge regarding knowledge regarding polycystic ovarian syndrome among adolescent girls.

3.To compare the pretest and posttest level of knowledge regarding polycystic ovarian syndrome among adolescent girls.

Secondary objectives;

To find out the association between the pre-test knowledge score of adolescent girls with their selected demographic variables such as age, age of menarche and family history

Hypothesis;

Planned teaching programme has positive effect on on knowledge regarding Polycystic ovarian syndrome among adolescent girls at Al Ahsa,Eastern region,Saudi Arabia.

Subjects and Methods;

Research design;

O1	X	O2
Pre-test to assess existing knowledge of polycystic ovarian syndrome	Intervention by conducting planned teaching programme on polycystic ovarian syndrome	Posttest to assess effectiveness of planned teaching programme on polycystic ovarian syndrome

One group pretest posttest design research design was adapted for this study.

Setting

The study was conducted in Um salama high school at Al-Ahsa. Eastern region, Saudi Arabia.

Sample

Total of 65 adolescents were selected for this study. Samples were selected in December 2022. The adolescents who fulfills the inclusion criteria are carefully selected by convenient sampling techniques. The study participants were the adolescent girls those who can able to speak Arabic and English and willing participate in this study.

Sample Size Calculation

The total 65 students were participated.Based on the study Asha k varghese (2018) the sample size was calculated with 95 % CI, with the desired margin error at 0.05. The calculated sample size will be N = 65. Convenient sampling method will be used to collect the adolescent girls during the period of study.

The sample size is calculated using the formulae used by Yamane formula sample size

$$n = \frac{N}{(1+Ne^2)}$$

Where:

n= Represents total size

N= Population size

e= the acceptable sampling error

95% confidence level and 5% margin of error

By using the above formula we found the maximum sample size of 65. Yamane (1967)

Tools for Data collection

Variables

Dependent Variables: Knowledge of adolescents regarding polycystic ovarian syndrome.

Independent Variables: Planned teaching programme on knowledge regarding polycystic ovarian syndrome.

Description of the tool:

The original questionnaire was taken from the previous study from (Sukila. B (2020) and it was modified by the researcher and the validity of the questionnaire was assessed using content validity from two experts in the nursing profession. The questionnaire survey has been modified according to the recommendations and suggestions of the experts.. The validity and reliability of the questionnaire is assessed by Cronbach's alpha coefficient for internal

consistency. The questionnaire showed

acceptable reliability and stability (α = .78) with

positive correlations

In the present study the tool consists of three sections;

Part-I Demographic Variables CODE ,age, place of residence,source of information,family history of PCOS

Part-II Knowledge questionnaires related to Polycystic ovarian syndrome

Section-B consists of the semi-structured questionnaire will be used to assess the knowledge regarding Polycystic ovarian syndrome.There are 18 questions related to Polycystic ovarian syndrome causes,risk factors,management**.**. The questionnaire has three options Yes, No and don't know. The option YES indicates the score of 2 and NO indicates the score of 1 and don't know indicates score of 0. The scoring interpretation as follows;

The PCOS knowledge was calculated for each student by summing the Number of correct answers then dividing by the total scores of the related questions then multiplied by 100 according to Blooms cut off point.

The cut -off point of point of below 60 (18 below) has considered as the low level of knowledge. The score of 51% - 70 % (19-25) is considered as moderate level of knowledge.The students securing 71%-100%(26-36 scores) are considered as high level knowledge.

Part-3 Planned teaching Programme

Educational intervention programme includes the power point presentation with arabic language regarding polycystic ovarian disease. It consists of introduction,learning objectives,introduction about PCOS,causes,risk factors,management of PCOS. The study intervention totally monitored and controlled by the investigator

Part-4 ; Post test was conducted using the same structured questionnaire .

Scoring Interpretation;

The cut-off points of below 60 (18 below) has been considered a low level of knowledge. The score of 51%–70% (19–25) was considered a moderate level of knowledge. Students securing 71%–100% (26–36 scores) are considered to have high-level knowledge.

Data collection;

Permission was obtained from the higher authorities and also obtain the written consent from the students. The participants were selected by convenient sampling method. A brief introduction wasl given about the purpose of the study and explain to the participants to get their co operation and written consent. After obtaining consent from parents and also obtaining the asset from the student, the research team explained the study to the students and obtained their approval by asking them to sign an informed consent form. All participants-maintained confidentiality and anonymity. Participants are encouraged to fill out demographic data forms, including pretest questionnaires. Pretest was conducted by using closed ended questionnaire to assess the pretest level of knowledge of polycystic ovarian disease about 15-20 minutes. Then the planned teaching program was implemented through the lecture method in Arabic about 45-60 minutes The post-test was conducted by using the same question-naire for 15-20 minutes to reassess the knowledge after one week later of the teaching session

Validity and reliability;

In order to determine the

content validity of the instrument, expert opinion was

obtained from twelve specialists and experts

The content validity of the tool both in arabic and english version is validated by two experts from medical-surgical nursing,maternity nursing and the modifications were performed according to the experts suggestions and opinions. During a pilot study, the tool's parts two and three were examined for reliability using Cronbach's alpha test on five students. The tool's reliability rating was 0.90, indicating that the questionnaire exhibited a good degree of reliability.

Results

The study results show that there were, 34 (52.31%) had inadequate knowledge, 16 (24.62%) had moderate knowledge, and only 15 (23.77%) have adequate knowledge in pretest. While in the posttest, 62 (95.38%) of students had adequate knowledge, 2 (3.08%) had adequate knowledge, and 1(1.54%) had inadequate knowledge. The results show that organized education was successful in educating teenage girls about polycystic ovarian syndrome (paired t'= 9.61, $p<0.05$).

Table-1 reveals that 50.8% of students were speaking Arabic. Only 3% of students speak English, and 46.2% of students are able to speak both languages. In terms of age, 15.4% were between the ages of 14 and 16, and 84.6% of them were between the ages of 16 and 18. In regard to the residence, all the students were residing in urban areas. 69.2% of students attained menarche at the age of 10–13 years, and 30.8% of students attained it at the age of 14–16 years. Only 10.8% of students have a family history of PCOs. With regard to the menstrual cycle, 69.2% of them had a regular menstrual cycle, and 29.2% had an irregular menstrual cycle. Most of the students did not study about polycystic ovarian syndrome. Through the internet, they gained information regarding polycystic ovarian syndrome.

Table 2 shows that 65 nursing students were selected to assess their knowledge regarding polycystic ovarian disease; among them in the pretest, 34 students had inadequate knowledge, 16 students had moderate knowledge, and only 15 of them have adequate knowledge. While in the posttest, 62 students had adequate knowledge, 2 students had adequate knowledge, and 1 student have inadequate knowledge.

Table-3 reveals that the comparison of mean and standard deviation of pretest and posttest knowledge regarding PCOS. In pretest mean score was 17.5772 and in the median score was 16.0000 and in the interquartile range was 10.00 and also in posttest mean score was 34.5142 and in the median score was 34.0000 and in the interquartile range was 4.00. So, the results stated that there was a change in pretest and post test score at p value of .000. If the p-value is lower the significance level (usually 0.05) then we can say that we have statistically significant evidences to accept the research hypothesis.

Table-4 Shows the association between the pre-test knowledge score of adolescent girls with their selected demographic variables. The categorical data was not in the normal distribution curve; hence, the investigator used the Wilcoxon Signed Ranks Test (Z) for this comparison of the pretest and post-test. The above table describes the comparison of the mean, median, interquartile range (IQR), and standard deviation (SD) of values for two variables with a sample size of 65. The mean, median, interquartile range (IQR), and standard deviation (SD) were changed in the pretest and posttest. In the pretest, the mean value was 17.5772, SD 7.04798, IQR 10.00, and the median range was 16.0000. In the posttest, the mean value was 34.5142, SD 5.11747, IQR 4.00, and the median range was 34.0000. Hence, there was a change in the mean difference in the pretest and posttest knowledge scores, which was a true difference and not a chance. The Z (Wilcoxon Signed Ranks Test) indicates -7.012b, and the p value was.000. This p (.000) value indicates that there was a statistically significant difference in posttest values $P<0.05$). So, the investigator concludes that the planned teaching program was very effective.

Table-1; Distribution of samples according to socio demographic variables N=65

Demographic Variables	Frequency	Percentage (%)
Spoken language		
Arabic	33	50.8
English	2	3.00
Both	30	46.2
Age in years		
14-15	10	15.4
16-18	55	84.6
Residence		
Rural	-	-
Urban	65	100
Age of menarche		
10-13	45	69.2
14-16	20	30.8
Family history of Polycystic Ovarian syndrome		
Yes	7	10.8
No	58	89.2
Menstrual cycle		
Regular	45	69.2
Irregular	19	29.2
Information of Polycystic Ovarian syndrome you have studied		
Yes	26	40.0
No	39	60.0

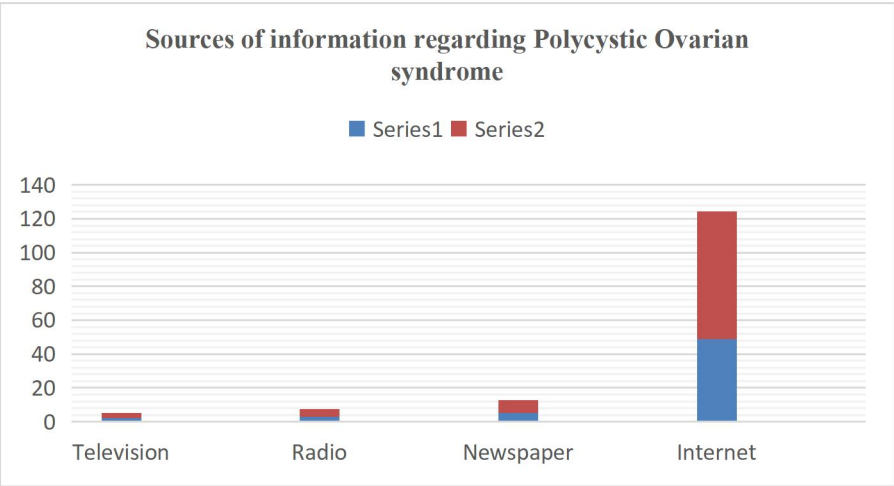

Figure-1; Sources of information regarding polycystic ovarian syndrome

Table-2; Pretest and posttest level of knowledge among nursing student's polycystic ovarian syndrome
N=65

S.No		Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
1	Inadequate knowledge	34	52.31%	1	1.54%
2	Moderate Knowledge	16	24.62%	2	3.08%
3	Adequate knowledge	15	23.07%	62	95.38%
	Total	65	100%	65	100%

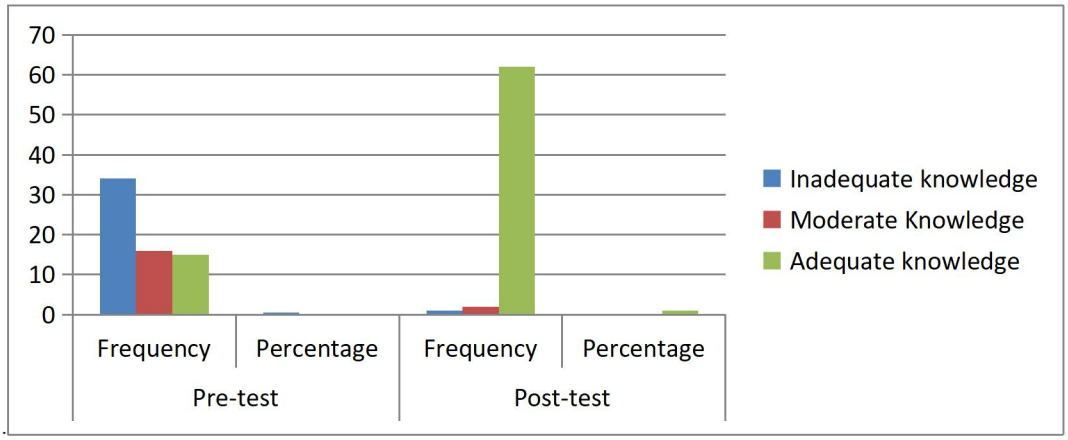

Figure-2; Frequency and percentage distribution of pretest and posttest level knowledge regarding PCOS among adolescents

Table-3; Comparison of Mean and standard deviation of pretest and posttest knowledge score regarding PCOS **N=65**

Level of Knowledge	Mean	Median	IQR	SD	z	P value
Pre-test	17.5772	16.0000	10.00	7.04798		
Post-test	34.5142	34.0000	4.00	5.11747	-7.012[b]	.000

Z (Wilcoxon Signed Ranks Test) IQR (Interquartile Range) P<0.05*

Table-4; Association between the pre-test knowledge score of adolescent girls with their selected demographic variables

Pretest and demographic variables	Chi-square test		
Demographic variables	X^2	df	P value
Spoken language	51.961[a]	69	.937
Age in years	28.511[a]	23	.197
Age of menarche	21.744a	23	.536
Family history of Polycystic Ovarian syndrome	23.721[a]	23	.419
Marital status	27.483[a]	23	.236

X^2 Chi-square test P<0.05*

Discussion;

The study objectives of the research were to assess the pre-test level of knowledge regarding polycystic ovarian syndrome among adolescent girls. In the pre-test, 34 (52.31%) had inadequate knowledge, 16 (24.62%) of them had moderate knowledge, and only 15 (23.77%) had adequate knowledge.

The finding of the present study results agrees with **Anjali Shukla (2018).** They conducted the study among nursing students' knowledge regarding polycystic ovarian syndrome. The study findings show that 13

(21.7%) of them had inadequate knowledge, 41 (683.3%) had moderately adequate knowledge, and only 6 (10%) had adequate knowledge. In contrast, post-test knowledge scores following the implementation of structured teaching programs show that 31 (51.7%) students have an adequate level of knowledge, 383.3%) have moderate knowledge, and 6 (10%) have inadequate knowledge regarding polycystic ovarian syndrome. Comparing the post-test mean knowledge score with the pre-test mean knowledge score, which was 13.9 and S.D. of 4.32, revealed a higher mean (19.35), S.D. of 6. 3. At the 0.0001 level, the calculated "t" value of 8.38 was significant. They proved that the structured education approach greatly increased the nursing students' understanding of polycystic ovarian syndrome.

The study objectives of the research were to assess the pre-test level of knowledge regarding polycystic ovarian syndrome among adolescent girls. In the pre-test, 34 (52.31%) had inadequate knowledge, 16 (24.62%) of them had moderate knowledge, and only 15 (23.77%) had adequate knowledge.

The second objective is regarding assessment of post-test level of knowledge regarding knowledge regarding polycystic ovarian syndrome among adolescent girls. The study results show that 62 (95.38%) of students have adequate knowledge, 2 (3.08%) have adequate knowledge, and 1 (1.54%) have inadequate knowledge.

The current study findings are also supported by the research studies done by **Chinani E. (2019),** who studied the effectiveness of a structured program on PCOS. In their study, they proven that after the teaching program of PCOS, the post-level of knowledge was increased. In the posttest, results show that 62 (95.38%) of students have adequate knowledge, 2 (3.08%) have adequate knowledge, and 1 (1.54%) have inadequate knowledge.

Varughese AK and Tauro VG (2018), who evaluated teenage girls' awareness of polycystic ovarian syndrome and its treatment with educational intervention outcomes were similar to the present study.

Similar results were also found by **Thakre PP Wasnik A (2022)**, who found that the mean percentage of adolescent females' posttest knowledge score (62%), seemed to be greater than the overall mean percentage of their pre-test knowledge score (392.1%). Furthermore, at the 0.1% level, it was significant. Adolescent females were effectively educated on polycystic ovarian syndrome by organized instruction, as evidenced by paired t'= 9.61, $p<0.05$.

In order to evaluate the effectiveness of planned teaching program on knowledge regarding PCOS among adolescent girls the following research hypothesis was formulated.

H1: A planned teaching program has a positive effect on knowledge regarding polycystic ovarian syndrome among adolescent girls. **Table 2** showed that the paired t test was carried out and it was found to be invariably significant at the $p<0.05$ level of significance, hence the research hypothesis was accepted. Its evidence that the structured teaching program on knowledge is significantly effective on improving the knowledge regarding PCOs among adolescent girls. This evidence was similar to the study findings of **John, S. (2021).** They conducted research regarding d to assess the effectiveness of a structured teaching program on knowledge regarding polycystic ovarian syndrome among adolescent girls, Bangalore.

The findings of the current study were contradictory with the study done by **Sunanda, B., & Nayak, S. (2016).** regarding PCOS. Among 150 students, most of the students (114; 76%) had average knowledge, 20 (13.3%) had poor knowledge, and 16 (10.6%) had good knowledge. Another similar study by **Haseena Begum, Sheeba. (2019)** in Coimbatore among 60 adolescent girls revealed that 46 (77%) had inadequate knowledge on PCOS, 14 (23%) had moderately adequate knowledge, and none had adequate knowledge on PCOS. 11 This result was similar to this study on PCOS.

Conclusion

The researcher concluded that the administration of planned teaching programs was significantly effective in increasing the knowledge of PCOS among adolescents. So, we have to accept the research hypothesis that there was a significant relationship between knowledge and the planned teaching program.

Limitations;

Sample size limited to 65.

Adolescents were selected in particular schools.

Recommendation;

- Similar studies can be replicated on larger samples for wider generalization
- A similar study can be conducted by using pretest with an instruction module.
- The study strongly recommends that the need for conducting education program to increase the knowledge regarding polycystic ovarian syndrome among nursing students.

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Conflict of interest; No conflict of interest

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