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IGNITING AWARENESS TRANSFORMING ADOLESCENT KNOWLEDGE OF PCOS THROUGH STRUCTURED EDUCATION

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ABSTRACT

The study pre-test dealt with the perception of polycystic ovarian syndrome among adolescent girls. With the purpose of measuring the effectiveness of a structured training program to raise the level of knowledge about polycystic ovarian syndrome, a post-test was administered among teenage girls along with determination of demographic variables that characterize adolescent girls' perception of polycystic ovarian syndrome. It has been assumed in the research that the understanding of polycystic ovarian syndrome among nursing students significantly differs between the first and the second measurements. There is a crucial relationship between the demographic variables selected by nursing students and their knowledge of polycystic ovarian syndrome, both before and after the evaluation. The research applied a quantitative approach and a quasi-experimental descriptive design for its analysis. One hundred potential nursing students from SRM College of Nursing were selected for the study through an appropriate sampling method. All the studies were conducted in SRM College of Nursing, Kattankulathur. Data was collected over the duration of one week. Structured questionnaires were implemented to accumulate data. The data analysis was conducted using a combination of descriptive and inferential statistics. Among the teenage girls who took the pretest, the majority of the participants had 2(2%) "B+" grade of knowledge, 4(4%) had "B" grade of knowledge, 13(13%) had "c" grade of knowledge and 81(81%) had "D" grade of knowledge. In contrast, in the post test after the intervention 8(8%) had "A+" grade of knowledge, 11(11%) had "A" grade of knowledge,25(25%) had "B+" grade of knowledge, 32(32%) had "B" grade of knowledge, and 23(23%) had "C" grade of knowledge. The results of the study were that dysfunction of female sex hormones is present in patients with polycystic ovarian syndrome. It causes infertile, ovarian cysts, irregular menstruation, and numerous other health conditions. Preventive initiatives, such as awareness campaigns, will enhance adolescent girls' comprehension. The majority of adolescent females in this study had negative attitudes and limited comprehension regarding polycystic ovarian syndrome (PCOS) throughout the pretest. Following the systemic training, the knowledge implementation of the experimental group showed a tremendous increase. The findings were that in-depth training is one of the most effective ways to improve knowledge in the case of polycystic ovarian syndrome. The regulated educational programs are indeed possible, economical, and effortless.

INTRODUCTION

Adolescents aged 12–19 may be perceived as generally healthy, but the impact of modernization and sedentary lifestyles has led to an increase in certain health issues, particularly polycystic ovarian syndrome (PCOS). This hormonal disorder is one of the most common, affecting 6% to 21% of adolescent girls globally and posing serious risks to their reproductive and metabolic health. PCOS is marked by the presence of

multiple ovarian cysts, irregular menstrual cycles, and elevated androgen levels, which can result in symptoms like acne, weight gain, and excessive hair growth. Without proper management, it raises the likelihood of infertility, diabetes, and other long-term metabolic complications **[1].**

The factors contributing to PCOS are well-established, with obesity, insulin resistance, and genetic predisposition playing significant roles. Studies show that 40% to 80% of those diagnosed with PCOS are overweight, and 50% to 70% exhibit insulin resistance, both of which substantially increase the risk of type 2 diabetes. Furthermore, having a family history of PCOS elevates the risk of developing the syndrome by 30% to 50%. These statistics emphasize the critical need for early intervention and proactive health strategies **[2].**

Symptoms of PCOS are often quite noticeable and include irregular or absent menstrual periods, excessive hair growth (hirsutism), persistent acne, and abdominal weight gain. In addition to these physical symptoms, many individuals experience mood swings and depression, complicating their ability to maintain a healthy weight due to hormonal imbalances. If these symptoms are overlooked, they can lead to severe health issues such as cardiovascular disease, hypertension, and even endometrial cancer. It's essential to recognize these warning signs and take action promptly to safeguard long-term health **[3].**

Managing PCOS effectively is achievable through a combination of lifestyle modifications, medical interventions, and education. Research highlights that adopting a low-glycemic diet, engaging in at least 150 minutes of physical activity per week, and undergoing targeted medical treatments like metformin and hormonal therapies can lead to significant symptom relief. Simply making lifestyle changes can reduce PCOS symptoms by 30% to 50%, demonstrating the effectiveness of proactive health management over reliance on medication alone **[4].**

Given the rising incidence of PCOS among adolescents, it is crucial to prioritize awareness and education. Schools, healthcare providers, and families all play a pivotal role in encouraging healthy lifestyle choices and disseminating accurate information about prevention and treatment. By empowering young women with the necessary knowledge and resources, we can prevent unnecessary suffering and mitigate the long-term effects of PCOS **[5].**

The campaign against PCOS begins with education, awareness, and actionable steps. Adolescents should be encouraged to take charge of their health, implement sustainable lifestyle changes, and seek medical advice when necessary. With appropriate strategies in place, we can address the increasing prevalence of PCOS and foster a healthier future for upcoming generations **[6].**

OBJECTIVES

1. To assess the impact of an educational intervention on teenage girls' knowledge about polycystic ovarian syndrome (PCOS) by comparing their pre- and post-test scores.
2. To assess the effectiveness of a systematic education program in enhancing adolescent girls knowledge of polycystic ovarian syndrome.

3. To analyze the association between teenage girls' awareness of polycystic ovarian syndrome and their selected demographic characteristics, identifying potential patterns and influencing factors.

RESEARCH HYPOTHESIS

H1: There is a significant improve in teenage girls' knowledge about PCOS, as evidenced by higher post-test scores compared to pre-test scores.

H2: There is a significant association between teenage girls' awareness of PCOS and their demographic characteristics, indicating potential influencing factors.

MATERIALS AND METHODS

Pre- and post-test assessments were implemented as part of a robust quantitative research study that employed a quasi-experimental design. The dependent variable was the knowledge of polycystic ovarian syndrome (PCOS) among adolescent females, while the independent variable was a structured educational program focused on PCOS. The study confidently involved 100 participants—all female students aged 18 to 19, enrolled in the B.Sc. Nursing or DGNM programs at SRM College of Nursing in Potheri, Chengalpet. To ensure accurate results, participants were required to be present during the data collection period. A comprehensive questionnaire was meticulously designed to evaluate the participants' understanding of PCOS.

TOOL DESCRIPTION

The tool was created by incorporating a variety of sources, including books, journals, periodicals, and the internet.

PART 1: Demographic information encompasses the following: the age of the resident, the year of study, the familial history of polycystic ovary syndrome, the food habits of the resident, and any prior knowledge of polycystic ovarian syndrome.

PART 2: A survey that is organized to assess the comprehension of PCOS. It comprises thirty inquiries.

SCORING:

GRADE SCORE	GRADE SCORE	Interpretation
A+ (Excellent) 91-100%	A+ (Excellent) 91-100%	Demonstrates comprehensive and in-depth knowledge of PCOS.
A (Very Good) 81-90%	A (Very Good) 81-90%	Shows strong understanding of PCOS with minor gaps in knowledge.
B+ (Good) 71-80%	B+ (Good) 71-80%	Possesses a solid grasp of PCOS concepts, but some areas require further clarification.
B (fair) 61-70%	B (fair) 61-70%	Exhibits basic understanding of PCOS, but significant knowledge gaps exist.

C (poor) 51-60%	C (poor) 51-60%	Displays limited understanding of PCOS and its related aspects.
D (very poor) Less then 50 %	D (very poor) Less then 50 %	Lacks fundamental knowledge about PCOS.

ETHICAL CONSIDERATION

The research was approved by the SRM College of Nursing's Institutional Ethics Committee. Prior to collecting any data, we made sure to get the students' consent. No nursing student who took part in the study suffered any negative effects. The nursing students were informed of the study's findings.

DATA COLLECTION PROCEDURE:

The Dean of the SRM College of Nursing granted formal authorization. 100 nursing students were chosen for the study using convenient non-probabilistic sampling approaches. The study ran from March 3, 2023, to March 9 ,2023. The participants gave their consent. There was a guarantee of answer confidentiality. A organized training program about polycystic ovarian syndrome was provided, a structured questionnaire was used for the pretest, and the same was used for the post test. Based on the objectives of the questionnaire, the gathered data was categorized, arranged, tabulated, and examined.

RESULT

Table 1: Demographic Factors of Adolescent Females.

Demographic Variables	Frequency	Percentage(%)
Age in years		
17	3	3
18	28	28
19	69	69
Religion		
Hindu	66	66
Muslim	10	10
Christian	24	24
Others	-	-
Course of study		

First year	36	36
Second year	64	64
Types of family		
Nuclear family	82	82
Joint family	18	18
Extended family	-	-
Age at menarche		
10 – 11 years	4	4
12 – 13 years	35	35
14 – 15 years	33	33
Above 15 years	28	28
Duration of menstruation		
3 days	13	13
4 days	34	34
5 days	48	48
>6 days	5	5
Menstrual cycle		
Regular	85	85
Irregular	15	15
Family history of PCOS		
Yes	8	8
No	92	92
Dietary pattern		
Vegetarian	10	10
Non-vegetarian	90	90

From the table 1 it can be inferred that out of the adolescent girls assessed, 69(69%) were age 19 years, 66(66%) were Hindus, 64(64%) were studying second year, 82(82%) belong to nuclear family, 35(35%) were age between 12 – 13 years at the age of menarche, 48(48%) had menstruation for 5 days, 85(85%) had regular menstrual cycle, 92(92%) had no family history of PCOS and 90(90%) were non-vegetarian.

Figure 1: Pre- and Post-Test Knowledge of PCOS in Adolescent Girls.

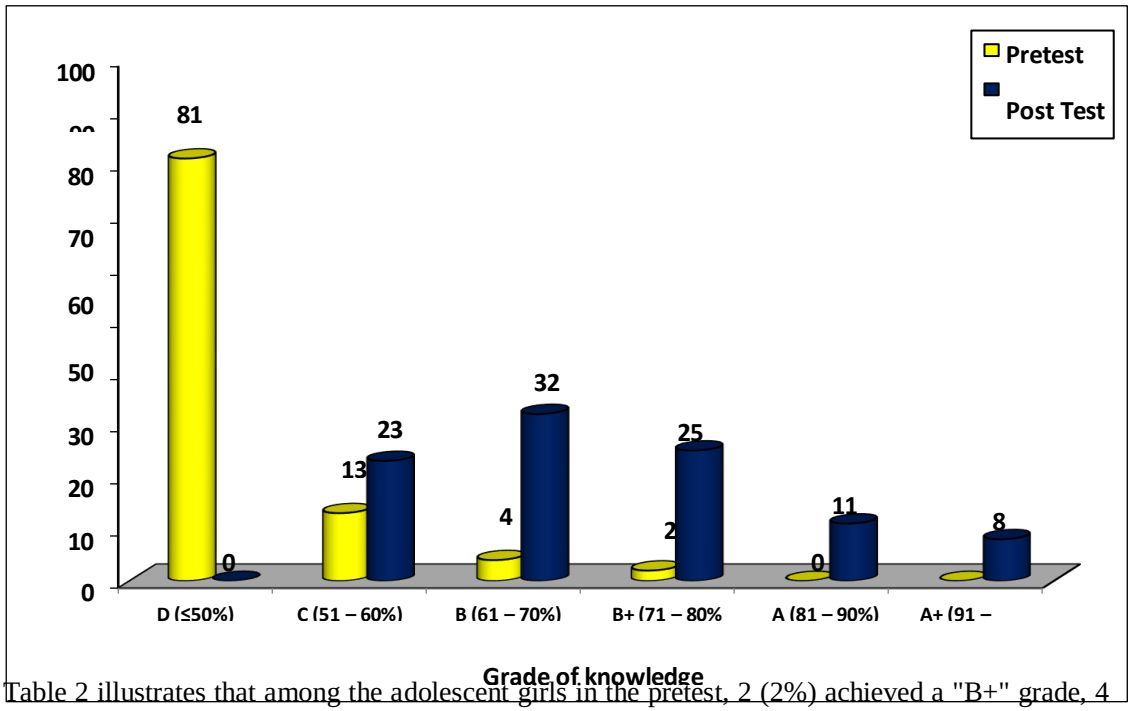

Table 2 illustrates that among the adolescent girls in the pretest, 2 (2%) achieved a "B+" grade, 4 (4%) attained a "B" grade, 13 (13%) received a "C" grade, and 81 (81%) obtained a "D" grade. Conversely, in the post-test following the intervention, 8 (8%) achieved a "A+" grade, 11 (11%) attained a "A" grade, 25 (25%) received a "B+" grade, 32 (32%) obtained a "B" grade, and 23 (23%) achieved a "C" grade.

Table 2: Educational Program Effectiveness on PCOS

Knowledge	Mean	S.D	Mean Difference	Paired 't' test value
Pretest	12.56	3.75	**8.76**	**t = 15.751**
Post Test	21.32	3.54		**p=0.0001, S*** **

***p<0.001, S – Significant

Table 3: Association of PCOS Knowledge with Demographics in Adolescent Girls.

Demographic Variables	Frequency	Chi-Square & p-value	
		Pretest	Post Test
Family history of PCOS		χ^2=2.040	**χ^2=13.361**
Yes	8	d.f=3	**d.f=4**
No	92	p=0.564	**p=0.010**
		N.S	**S****

As illustrated in, the mean score of knowledge prior to the test was 12.56±3.75 and increased to 21.32±3.54 following the test. The differential received an average score of 8.76. The computed paired 't' test value of t = 15.751 was determined to be statistically significant at the $p<0.001$ level. This Structured Teaching Programme undoubtedly affected the awareness of polycystic ovarian syndrome among adolescent females. It was determined to be effective in increasing the level of understanding about polycystic ovary syndrome among teenage females, as evidenced by the post-test.

Discussion

This study compellingly illustrates the profound impact of structured assisted learning on enhancing teenage girls' understanding and retention of information regarding Polycystic Ovary Syndrome (PCOS). The intervention resulted in significant improvements in knowledge, evidenced by clear and notable differences between pre- and post-test results.

In particular, the GRADE scores reflected a marked increase in awareness of PCOS symptoms, risk factors, and effective management strategies following the intervention. These findings align with previous research underscoring the effectiveness of educational interventions in elevating health literacy. The structured and engaging teaching methods employed such as video assistance, interactive sessions, visual aids, and culturally appropriate materials played a pivotal role in improving knowledge retention. This highlights the potential of targeted educational programs to effectively address the information gap surrounding PCOS for young girls in India.

The urgency of early awareness and education cannot be overstated, especially given the prevalence of PCOS and its associated health risks. In India, cultural sensitivities and limited access to reliable information often contribute to misunderstandings and delayed diagnoses. The results of this study strongly emphasize the critical need for accessible, culturally relevant educational resources that empower young girls with accurate and essential information about PCOS. By fostering informed awareness, we can help

reshape the conversation around this condition and significantly improve health outcomes for countless young women.

JUSTIFICATION:

The analysis of pre- and post-test scores revealed a significant improvement in PCOS knowledge following the intervention. Specifically, the post-test scores demonstrated a notable increase in the understanding of PCOS symptoms, risk factors, and management strategies, as indicated by the shift in GRADE scores.

These findings are consistent with prior research demonstrating the usefulness of educational interventions in enhancing health literacy. Sharma et al. (2019), for example, found that a planned educational program resulted in a considerable increase in awareness of menstruation health and related diseases among a similar adolescent population in northern India. Their findings, similar to ours, underscore the importance of focused treatments in enhancing health knowledge **[7].**

Similarly, in their study on adolescent health education in rural Gujarat, Patel and Gupta (2023) found that assisted teaching modules improved students' comprehension of reproductive health concerns. This supports our conclusion that structured assisted teaching is an effective strategy for delivering important health information **[8].** Furthermore,Gour A, Dubey P, Goel A et al. (2021) found that interactive and culturally appropriate programs were the most effective educational treatments for PCOS awareness, which supports our instructional methodologies **[9].**

Knowledge retention seems to be especially improved by the structured assisted teaching strategy, which included [name specific teaching strategies employed, such as interactive sessions, visual aids, and culturally appropriate materials]. This implies that focused educational initiatives can be extremely effective in filling the information gap about PCOS among Indian adolescent girls.

The findings of the pre- and post-tests showed a notable rise in participants' knowledge of PCOS, suggesting that organized teaching strategies successfully improved comprehension. The increase in post-test scores indicates that systematic education was essential in clearing up misunderstandings and raising knowledge of symptoms, causes, and coping mechanisms.

These results align with research by Kar C.., et al. (2025) that looked at how health education affected teenage girls' understanding of PCOS. According to their research, structured instruction programs greatly raised knowledge of the syndrome and decreased misconceptions about it, demonstrating the value of educational interventions in enhancing teenage health literacy **[10].**

Knowledge retention over time is still a crucial element, even if immediate post-test results demonstrated a noticeable improvement. The study emphasizes the necessity of follow-up evaluations to ascertain the participants' long-term memory retention. This knowledge is crucial for creating educational initiatives in the future that use periodic evaluations to enhance learning.

While organized education enhanced short-term knowledge of PCOS, recall levels decreased after six months without reinforcement, according to a related study by Dashti S, et al. (2022). This implies that in order to guarantee long-term information retention, techniques for continual education, including refresher courses or online learning resources, might be required. The study also looked at the relationships between awareness levels and a number of demographic characteristics, including age, socioeconomic status, and previous exposure to health information. The results indicate that pre-test awareness was higher among those with more education or who had previously heard about reproductive health issues. Post-test findings, however, demonstrated that structured instruction successfully closed knowledge gaps for all demographic groups, confirming its worth as an inclusive teaching method **[11].**

This conclusion is supported by research by Nidhi et al. (2021), which shows that prior awareness and socioeconomic background influence PCOS knowledge levels. In line with the current study's findings that education can act as an equalizing force, their research revealed that structured health education decreased awareness gaps between various demographic groups. A number of misconceptions regarding PCOS were found prior to the intervention, including false beliefs on its etiology, symptoms, and available treatments. These deficiencies were effectively filled by the organized teaching method, and participants' post-test results showed a more correct grasp of PCOS. This emphasizes how crucial well-planned educational programs are in the fight against false information **[12].**

According to a study by Ramezani (2019), teenage females frequently have false notions regarding PCOS, such as the idea that it primarily affects overweight people or that an unhealthy diet is the only cause of it. According to their research, structured education programs greatly enhanced comprehension and dispelled myths, which is consistent with the results of the current study **[13].**

DEMOGRAPHIC PROFILE

Choragudi Srujana et al (2018) conducted a study involving a demographic profile of 92 participants from a college in Guntur. The findings indicated that Totally ninety-two students from III and IV year B. Sc (N) were selected by using convenient sampling technique. A structured knowledge questionnaire was used to collect data. Results: Among 92 nursing college students, 86 (93.47%) students had inadequate knowledge regarding PCOS and significant association was found between the knowledge of PCOS with their demographic variables like previous knowledge about PCOS (?2=472.08) and family history with PCOS (?2=12.53) at 0.05 level of significance **[14].**

These findings were analogous to our assessment of demographic characteristics related to nursing students. Among the surveyed students, 100 were adolescent girls, of whom 69 (69%) were 19 years old, 66 (66%) identified as Hindus, 64 (64%) were in their second year of study, 82 (82%) came from nuclear families, 35 (35%) experienced menarche at ages 12 to 13, 48 (48%) reported menstruation lasting 5 days, 85 (85%) had regular menstrual cycles, 92 (92%) had no family history of PCOS, and 90 (90%) were non-vegetarian.

DISTRIBUTION OF PRETEST AND POST TEST LEVEL OF KNOWLEDGE REGARDING POLYCYSTIC OVARIAN SYNDROME AMONG ADOLSCENT GIRLS

In the pretest, 81 (81%) of the adolescent girls exhibited a "D" grade in knowledge, 13 (13%) received a "C" grade, 4 (4%) attained a "B" grade, and 2 (2%) achieved a "B+" grade. Following the intervention in the post-test, 32 (32%) attained a "B" grade, 25 (25%) achieved a "B+" grade, 23 (23%) received a "C" grade, 11 (11%) obtained a "A" grade, and 8 (8%) achieved a "A+" grade.

EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING POLYCYSTIC OVARIAN SYNDROME AMONG ADOLESCENT GIRL

A study by Sonia Rawat (2017) evaluated the efficacy of a structured teaching program on Polycystic Ovarian Syndrome among adolescent girls. The mean post-test knowledge score (22.55± 3.57) surpassed the mean pre-test knowledge score (11.13± 3.32), resulting in a mean difference of 11.42. The computed "t" value was 23.45, exceeding the tabular value of 1.98 (df 93 at $p < 0.05$). Consequently, the research hypothesis was affirmed. The structured teaching method was deemed effective in enhancing the understanding of adolescent girls. The study's findings indicated that STP effectively improved adolescent girls' awareness on PCOS. Thus, the study revealed that a systematic teaching program significantly enhances awareness of PCOS **[15].**

B. Tamilarasi and V. Vathana (2016) executed a one-group pretest-posttest design to evaluate the efficacy of a structured training program on knowledge pertaining to polycystic ovarian syndrome among 30 adolescent females in Chennai, Tamil Nadu. The study indicated that the mean knowledge score was 11, with a standard deviation of 3.54, while the post-test mean was 17.5, with a standard deviation of 4.88, demonstrating a statistically significant difference with a paired 't' value of 8.45. The study concluded that there was an increase in knowledge levels following the implementation of a structured teaching program **[16].**

The results were analogous to our study's assessment, with a pretest mean score of knowledge at 12.56±3.75 and a posttest mean score of 21.32±3.54. The average difference score was 8.76. The computed paired 't' test value of $t = 15.751$ was determined to be statistically significant at the $p<0.001$ level. This strongly suggests that a Structured Teaching Program on polycystic ovarian syndrome knowledge, when applied to teenage girls, improves their understanding of the condition in the post-test

LIMITATIONS

i)Adolescent females aged 18–19 comprise the sole participants in the investigation. ii)Data collection is restricted to a one-week period. iii)The sole participant base is the SRM College of Nursing.

RECOMMENDATION

A single group pre-test-post-test design could be implemented in the same study, which has the potential to be a comprehensive prevalence study among college students. The results can be extrapolated by conducting

a comparable study with a larger sample size. It is possible to conduct a comparison between studies on adolescent females who live in rural and urban areas.

CONCLUSION

Women with polycystic ovarian syndrome exhibit an imbalance in female sex hormones. Infertility, ovarian cysts, irregular menstruation, and other health issues could result from it. Prevailing prevention programs like awareness campaign will enlighten the understanding of adolescent girls. Preliminary results from the pretest revealed that most of the teen girls in this study highly possessed a low perception of PCOS and barely knew the disease. The experimental group's knowledge efficacy has dramatically risen following the organized training program. The research results show that a structured training program is a useful intervention for raising awareness of polycystic ovarian syndrome. It has been discovered that structured teaching programs are comfortable, economical, and efficient.

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