

Effectiveness of structured teaching programme on knowledge regarding polycystic ovarian syndrome (PCOS) among adolescent girls studying in selected college at Mangalore

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Abstract

This study evaluates the effectiveness of a structured teaching program on Polycystic ovary syndrome (PCOS) among adolescent girls in selected colleges in Mangalore. PCOS is a common health problem affecting adolescent girls due to an imbalance in hormones. Girls with PCOS produce higher androgens, affecting egg development and release, leading to irregular or missed periods and infertility. Some girls may also experience depression, requiring support from therapists or health professionals. The study aimed to assess adolescent girls' pre-test knowledge score on polycystic ovarian syndrome, evaluate the effectiveness of a structured teaching program, and identify the association between pre-test knowledge score and demographic variables. This study used an evaluative research approach with a pre-experimental one-group pre-test post-test design, selecting 60 adolescent girls from Mangalore college. Internal consistency and reliability were measured using a Split Half Method and Spearman brown prophecy formula, respectively. The study found that adolescents had an average pre-test knowledge of 39.56%, with a significant improvement after administering STP, as evidenced by a post-test knowledge score of 81.61%. The mean knowledge score was highest in anatomy and physiology (51.3%), followed by lab investigation and complication (70%). No significant association was found between pre-test knowledge scores and demographic variables. The study found that structured teaching programs significantly improved adolescent girls' knowledge on PCOS, indicating that such programs are an effective teaching strategy.

Keywords: Knowledge; Structured teaching programme (STP); Poly cystic ovarian syndrome (PCOS)

1. Introduction

Adolescence is a crucial period between childhood and adulthood, marked by significant biological, intellectual, psychological,¹ and economic changes. It is a time of physical and sexual maturity, heightened reasoning abilities, and often presents challenges such as irregular or absent menstrual periods, infertility,² polycystic ovarian syndrome, and anovulation, which are common issues in adolescents.³ Polycystic ovarian syndrome (PCOS), also known as Stein-Levinthal syndrome, is a condition characterized by irregular periods, hair growth, and infertility.⁴ Girls with PCOS produce higher androgens, affecting egg development and release. This results in cysts, which build up in the ovaries and may become enlarged.⁵ Teenagers may experience various PCOS symptoms, including irregular periods, heavy menstrual bleeding, ovarian cysts, hirsutism, alopecia, acne, skin tags, exhaustion, depression, anxiety, apnea, thyroid problems, and overweight, which can be suspected and diagnosed.⁶ Some girls with PCOS may become depressed, in which case it may help to talk to a therapist or other mental health professional. Talking with other teens and women with PCOS is a great way to share information about treatment and get support.⁷

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2. Methodology

- **Research Approach:** An evaluative approach is used in this study to evaluate the Effectiveness of structured teaching programme (STP) on Knowledge regarding polycystic ovarian syndrome (PCOS) among adolescent girls.
- **Research design:** Pre-experimental one group pre-test-post-test design is adopted for this study. The pre-test (O₁) is carried out to determine the knowledge of adolescent girls on PCOS followed by the administration of the STP. Post-test (O₂) is conducted on the 7th day following the pre-test and STP.
- **Setting of the study:** For the present study setting of the study is a selected college in Mangalore. This college is selected as per the convenience of the investigator. Formal permission would be obtained from the concerned authorities for conducting the study
- **Population :** In the present study the population comprised of **adolescent girls**, studying in selected colleges.
- **Sample:** Sixty adolescent girls aged 16-19 years in the selected colleges of Mangalore.
- **Sampling technique:** In the present study the 60 samples are chosen by Non probability purposive Sampling techniques of adolescent girls in selected colleges in Mangalore.

2.1. Data collection instruments

Data collection instruments are the Procedures or instruments used by the researcher to observe or measure the key variables in the research problem.

Baseline proforma is used to collect the baseline information from adolescent girls of selected colleges.

Structure knowledge questionnaires used to determine the knowledge levels of adolescent girls on PCOS.

3. Result

3.1. Organization of findings

Analysis of the study findings has been organised under the following headings:

- **Section I:** Description of the baseline characteristics of adolescent girls studying in selected colleges.
- **Section II:** Pre-test knowledge score of adolescent girls on PCOS.
- **Section III:** Effectiveness of STP on PCOS in terms of gain in knowledge score.
- **Section IV:** Association of mean pre-test knowledge score of adolescent girls regarding PCOS and selected demographic variables.

3.1.1. Section I: Description of the baseline characteristics of adolescent girls studying in selected colleges

This section deals with the demographic characteristics of the subjects in terms of frequency and percentage.

Table 1 Frequency and percentage distribution of the baseline characteristics n=60

SL.NO.	Variable	Frequency	Percentage
1	Age		
	16 years	12	20.0
	17-18 years	45	75.0
	19 years	3	5.0
2	Religion		
	Hindu	39	65.0
	Muslim	3	5.0
	Christian	18	30.0
3	Education of father		

	No formal education	16	26.7
	Primary education	27	45.0
	Secondary education	5	8.3
	Pre-university	9	15.0
	Graduation	3	5.0
4	Education of mother		
	No formal education	28	46.7
	Primary education	17	28.3
	Secondary education	12	20.0
	Pre-university	3	5.0
	Graduation	0	0.0
5	Occupation of father		
	Daily wages	27	45.0
	Employed	21	35.0
	Self-employed	12	20.0
	Unemployed	0	0.0
6	Occupation of mother		
	Daily wages	8	13.3
	Employed	9	15.0
	Self-employed	0	0.0
	Unemployed	43	71.7
7	Monthly income of the family (Rs.)		
	< 3,000	15	25.0
	3,000-5,000	25	41.7
	5,000-8,000	5	8.3
	8,000-10,000	6	10.0
	> 10,000	9	15.0
8	Type of family		
	Nuclear	47	78.3
	Joint	13	21.7
	Extended	0	0.0
9	Source of information		
	Health personnel	0	0.0
	Friends, parents, teachers	0	0.0
	Mass media	0	0.0
	No information	60	100.0

3.1.2. Section II: Pre-test knowledge score of adolescent girls on PCOS

This section deals with the analysis and interpretation of data to access the pre-test and post-test level of knowledge of adolescent girls.

The total knowledge score obtained by the subject are arbitrarily graded as follows:

Grade	Knowledge score	Percentage
Poor knowledge	0-10	0-33
Average knowledge	11-20	34-66
Good knowledge	21-30	67-100

Maximum score: 30

Table 2 Frequency and percentage distribution of pre-test and post-test knowledge scores n=60

Grade	Knowledge score	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
Poor	0-10	21	35.0	0	0.0
Average	11-20	38	63.3	56	93.3
Good	21-30	1	1.7	4	6.7

Maximum score: 30

Data presented in Table 2 indicates the pre-test and post-test knowledge scores of adolescent girls. In pre-test majority 63.3% of the subjects have average knowledge, only a few (1.7%) have good knowledge. During post-test majority (93.3%) of the subjects have average knowledge and 6.7% of the subjects have good knowledge (65%). Comparing the pre-test knowledge score with post-test score it was found that majority of the subjects have scored higher in the post-test than pre-test.

Table 3 Range, Mean#, SD, median, mean% scores of pre-test and post-test knowledge score N=60

Knowledge	Range	Mean±SD	Median	Mean%score
Pre-test	7-22	11.87±3.056	12	39.56
Post-test	28-20	24.48±2.480	25	81.61

The data in Table 3 shows that the pre-test score ranged from 7-22 with mean and standard deviation of 11.87±3.056 and post-test score ranged from 28-20 with the mean and standard deviation of 24.48±2.480.

Table 4 Area-wise mean standard deviation and mean percentage of the pre-test and post-test knowledge scores of adolescent girls N=60

Area of knowledge	Max. score	Pre-test			Post-test		
		Mean	SD	Mean%	Mean	SD	Mean%
Anatomy & physiology	10	5.13	1.58	51.33	9.00	0.90	90.00
Meaning & incidence	2	0.35	0.52	17.50	1.53	0.50	76.67
Causes & risk factors	5	1.67	0.97	33.33	4.27	0.76	85.33
Signs & symptoms	3	1.27	0.48	42.22	2.38	0.56	79.44
Lab investigations & complications	4	1.48	0.85	37.08	2.80	0.75	70.00
Prevention & management	6	1.97	1.38	32.78	4.50	1.03	75.00

Maximum score 30

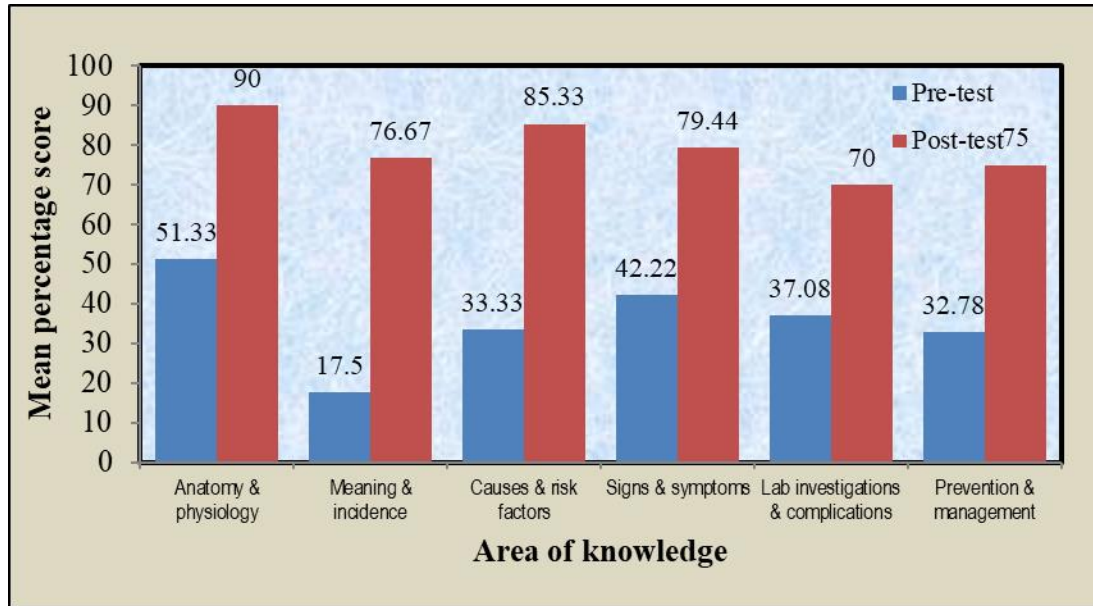


Figure 1 Bar diagram representing the area wise pre-test and post-test knowledge scores of adolescent girls regarding PCOS

Data presented in Table 4 and Figure 10 shows that mean percentage knowledge scores of the pre-test is highest (51.3%) in the area of ‘anatomy and physiology’ and lowest (17.50%) in the area of ‘meaning and incidence,’ whereas the mean percentage of the post-test knowledge score is 90.00% in the ‘anatomy and physiology’ and lowest (70.00%) in the area of ‘laboratory investigations and complications.’

Table 5 Frequency, percentage, cumulative frequency distribution of pre-test and post-test knowledge N=60

Knowledge score	Pre –test			Post- test		
	f	%	C%	f	%	C%
7-8	8	13.3	13.3			
9-10	13	21.7	35.0			
11-12	11	18.3	53.3			
13-14	17	28.3	81.7			
15-16	9	15.0	96.7			
17-18	1	1.7	98.3			
19-20				4	6.7	6.7
21-22	1	1.7	100.0	14	23.3	30.0
23-24				10	16.7	46.7
25-26				15	25.0	71.7
28-30				17	28.3	100.0

The data in Table 5 represents the majority of the subjects obtained higher score in the post-test than the pre-test knowledge score

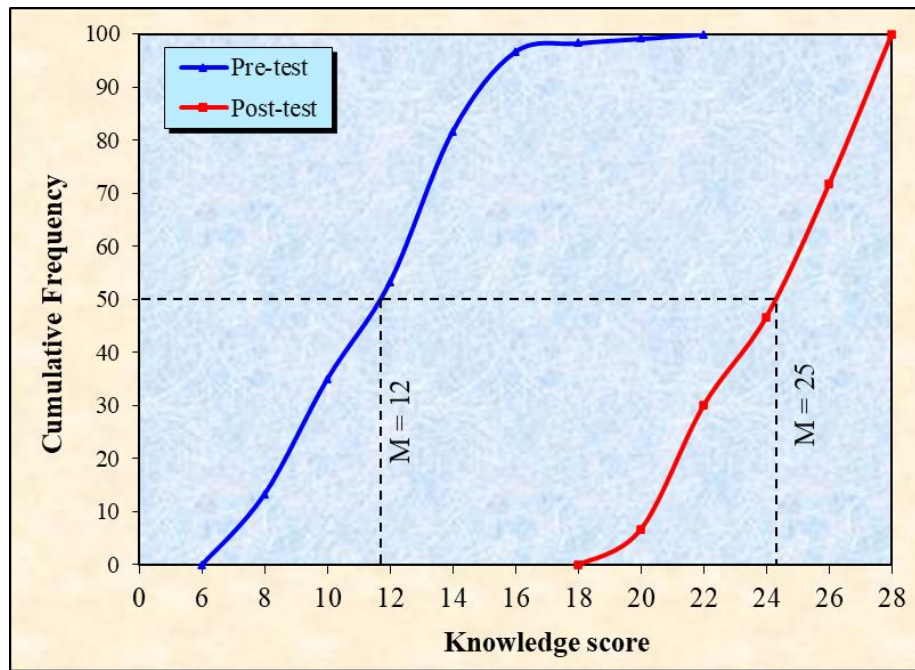


Figure 2 comparing the pre-test and post-test knowledge scores of adolescent girls on PCOS

The data in Table 5 and Figure 13 show that the pre-test ogive lies right to the pre-test Ogive over the entire range showing that the Post -test knowledge score is consistently higher than the pre-test knowledge score. Gain in knowledge score can be shown by comparing Pre-test and Post-test median of knowledge score which is 12 and 25.

3.1.3. Section III: Effectiveness of STP on PCOS in terms of gain in knowledge score

In order to find out significance of mean difference between the pre-test and post-test knowledge scores of different areas a paired ‘t’ test was computed.

To test the statistical difference following null hypothesis was formulated.

H₀₁: There is no significant difference between the mean pre-test and post-test knowledge scores of adolescent girls regarding PCOS at 0.05 level of significance.

Table 6 Mean, mean difference, SD and ‘t’ value between pre-test and post-test knowledge scores N=60

	Mean Score	Mean diff.	SD	‘t’ value	Inference
Pre-test	11.87	12.62	2.64	37.06	Significant
Post-test	24.48				

Maximum score=30, t₅₉=1.67, p<0.05

Data presented in Table 5 show that the computed ‘t’ value [t₅₉=37.06] is higher than the tabled value (t₅₉=1.67) at 0.05 level of significance. Hence the null hypothesis is rejected and research hypothesis is accepted. Therefore, it can be inferred that the difference is significant. This indicates the effectiveness of STP in increasing the knowledge of adolescent girls on PCOS.

Table 7 Domains wise paired ‘t’ test showing significant difference between the pre-test and post-test knowledge scores N=60

Domain	Max. score	Mean		Mean diff	‘t’ value	Inference
		Pre-test	Post-test			
Anatomy & physiology	10	5.13	9.00	3.87	20.42	Significant
Meaning & incidence	2	0.35	1.53	1.18	16.16	Significant
Causes & risk factors	5	1.67	4.27	2.60	17.47	Significant
Signs & symptoms	3	1.27	2.38	1.12	12.98	Significant
Lab investigations & complications	4	1.48	2.80	1.32	11.19	Significant
Prevention & management	6	1.97	4.50	2.53	14.44	Significant
Overall	30	11.87	24.48	12.62	37.06	Significant

Maximum score=30, $t_{59}=1.67$

Data in Table 7 shows that ,the computed ‘t’ value in all the areas are higher than the table value ($t_{59}=1.67$, $P < 0.05$) which indicate that there is significant difference between the pre-test and post-test mean knowledge score . Hence, null hypothesis is rejected the research hypothesis was accepted at 0.5 level of significance & inferred that the STP on PCOS is effective in increasing knowledge of the subjects in all the areas.

3.1.4. Section IV: Association of mean pre-test knowledge score of adolescent girls regarding PCOS and selected demographic variables

Association between pre-test knowledge score and demographic variables, the following null hypothesis was formulated:

H_{02} : There is no significant association of mean pre-test knowledge score of adolescent girls regarding PCOS and selected demographic variables.

Chi square test is used to find the association.

Table 8 Association between mean pre-test knowledge score and demographic variablesn=60

Sl.No	Sl. No. Variable	Knowledge score		χ^2	Inference
		≤ mean	> mean		
1	Age				
	16 years	6	6	0.152	Not significant
	> 16 years	21	27		
2	Religion				
	Hindu	18	21	0.060	Not significant
	Others	9	12		
3	Education of father				
	No formal education	9	7	4.497	Not significant
	Primary	14	13		
	Secondary & above	4	13		
4	Education of mother				
	No formal education	16	12	8.179	Significant

	Primary	9	8		
	Secondary & above	2	13		
5	Occupation of father				
	Daily wages	17	10	6.614	Significant
	Employed	7	14		
	Self-employed	3	9		
6	Occupation of mother				
	Employed	3	14	5.712	Significant
	Self-employed	24	19		
7	Monthly family income (Rs.)				
	< 3,000	12	3	12.485	Significant
	3,000-5,000	11	14		
	> 5,000	4	16		
8	Type of family				
	Nuclear	22	25	0.287	Not significant
	Joint	5	8		

$$\chi_1^2=3.84, \chi_2^2=5.99; p \leq 0.05$$

The data in Table 8 show that there is no significant association between knowledge of adolescent girls on PCOS with selected demographic variables such as age, religion, education of the father and source of information except for education of mother ($\chi_2^2=8.179$), occupation of father ($\chi_2^2=6.614$), occupation of mother ($\chi_1^2=5.712$), and monthly income of the family ($\chi_2^2=12.485$). Hence the null hypothesis was rejected for those variables and accepted for the rest of the variables.

4. Discussion

The overall pre-test knowledge was 39.56% and most (63.3%) of the adolescents had average in the pre-test.

There was a marked improvement in the knowledge score after the administration of STP, which was evident from the post-test knowledge score 81.61%.

The mean percentage knowledge score of pre-test was maximum in the area of knowledge on 'Anatomy and physiology' (51.3%) and minimum in the area of 'Meaning and incidence' (17.5%), whereas the mean percentage knowledge score of post-test was maximum in the area of anatomy and physiology (90%) and less in the area of lab investigation and complication (70.%).

The difference in pre-test and post-test knowledge score was statistically significant at .05 level of significance ($t_{59}=37.06$).

There was no significant association between pre-test knowledge scores with selected demographic variables such as age, religion, source of information, type of family, education of the father except for education of mother ($\chi^2=8.179$), occupation of the father ($\chi^2=6.614$), occupation of mother ($\chi^2=5.712$), and monthly income ($\chi^2=12.485$).

5. Conclusion

The study showed that most of the adolescent had average knowledge on PCOS however the knowledge has significantly improved after the administration of structured teaching programme. Hence it was concluded that structured teaching programme is an effective teaching strategy in improving the knowledge of adolescent girls on PCOS.

Compliance with ethical standards

Disclosure of conflict of interest

The author declares no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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