(RESEARCH ARTICLE)

A study to assess the effectiveness of planned teaching programme on knowledge regarding polycystic ovarian syndrome among late adolescent in selected college of Nagpur city

Ankita Anant Mhaske *, Gayatri Suresh Tokala, Shruti Tanaji Wankhede, Pratiksha Baban Waghade, Jessica Jacob Varghese, Rashmi Devchand Thote, Khushboo Prakash Wankhede, Trupti Dinesh Sulakhe, Neha Vinod Kanoje and Lakshmi Deviprasad Waghmare

Department of Obstetrics and Gynecology, Sitabai Nargundkar College of nursing, Nagpur, Maharashtra, India.

Abstract

Polycystic ovarian syndrome is the most common endocrine disturbance affecting women, and is heterogeneous collection of sign and symptoms with a mild and some of them hard severe disturbances of reproductive, endocrine and metabolic function. To evaluate the effectiveness of information, education and communication regarding polycystic ovarian syndrome among late adolescent girls .The objective of study where to assess the existing knowledge regarding polycystic ovarian syndrome among late adolescent in selected college of Nagpur city, to assess the effectiveness of planned teaching on knowledge regarding polycystic ovarian syndrome among the late adolescent in selected college of Nagpur city, to find out the association between knowledge score with demographic variable regarding polycystic ovarian syndrome among late adolescent in selected college of Nagpur city. A structured multiple questionnaires consist of 24 items including demographic data and knowledge regarding polycystic ovarian syndrome. It was prepared by referring books review of literature, journal and newspaper. The data collection was done from 40 late adolescent was selected using non probability convenient sampling in selected college of Nagpur city. The mean knowledge score in pretest was 8.07±2.17and mean percentage of knowledge score was 53.83±14.51.the mean knowledge score in posttest was 12.57±1.66 and mean percentage of knowledge score was 83.83± 11.0. by using parallel form method of reliability, it is found to be 0.9276and hence tool is reliable and valid .

Keywords: Assess; Effectiveness; Planned Teaching; Knowledge; Polycystic Ovarian Syndrome; Late Adolescent

1. Introduction

The term Polycystic Ovarian Syndrome was first described by Irving Stein and Micheal Leventhal as a Triad of 'Amenorrhea', 'Obesity', and 'Hirsutism' in 1935 when they observed the relation between Obesity and reproductive Disorders[1]. It is hence also known as the 'Stein Leventhal Syndrome' or 'Hyper androgenic Anovulation' and is the most common endocrine ovarian affecting approximately 2-8% women of reproductive age[2]. Polycystic ovarian syndrome is a set of symptoms due to elevated androgens in women. Sign and symptoms of Polycystic ovarian syndrome include irregular or no menstrual periods, heavy periods, excess body and Facial hair, acne pelvic pain, difficulty getting pregnant and patches of thick darker, Velvety Skin[3]. During Adolescence, young women are primarily concerned with finding their identity and expressing who they are in the world, Puberty causes many Physical Changes to take place and adolescents must adapt to their changing bodies. All of these changes can make adolescence a confusing and stressful event.

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* Corresponding author: Ankita Mhaske

1.1. Need of the study

A Mixed Method Study to explore treatment seeking Pathway among women diagnosed with Polycystic Ovarian Syndrome among PGIMER Chandigarh Outpatient Department. This study was aimed to explore the treatment-seeking pathways traversed by women with polycystic ovarian syndrome and elicit their behavior, experiences and perspectives regarding it. This concurrent mixed-method study was conducted on 18–40 years old women diagnosed with polycystic ovarian syndrome at the Gynecology outpatient department, PGIMER, Chandigarh, India. Of the 275 women, who were administered a questionnaire to elicit their treatment-seeking behavior, 62 willing participants were subjected to in-depth interviews. Quantitative responses were descriptively analyzed and presented as count, proportion, mean or median. Framework analysis was performed for the qualitative data. The Result of both types of data were triangulated to construct the pathways to treatment traversed by polycystic ovarian syndrome patients. Many (45%) respondents had no information regarding Polycystic Ovarian Syndrome. Only 9.1% received some information from their doctors. Though the internet was the primary source of information for 37.5% of respondents, they expressed dissatisfaction with the quality of information. Multiple health care agencies were consulted by most (85.8%) of the respondents. Allopathy was the preferred choice of treatment. The average delay in initiating the treatment was 3 months. The major reasons for this were ignorance, the concept of 'normality' and 'endurance[4].

1.2. Problem statement

A study to assess the effectiveness of planned teaching programme on Polycystic Ovarian Syndrome among late adolescent of selected colleges of Nagpur city.

Objectives

- To assess the existing knowledge regarding Polycystic Ovarian Syndrome among late adolescent in selected college of Nagpur city.
- To assess the effectiveness of planned teaching on knowledge regarding Polycystic Ovarian Syndrome among late adolescent in selected college of Nagpur city.
- To find out the association between knowledge score with selected demographic variables regarding Polycystic Ovarian Syndrome among late adolescent in selected college of Nagpur city.

1.3. Operational definition

1.3.1. Assess

According to oxford dictionary

Assess is defined as to make a judgment about nature or quality of someone or something.

1.3.2. Effectiveness

According to oxford dictionary

Effectiveness is defined as the fact of producing the result that is wanted or intended; the fact of producing successful result.

1.3.3. Planned teaching programme

It refers to the systematically planned teaching strategy designed to provide information to adolescent girls regarding Polycystic Ovarian Syndrome.

1.3.4. Knowledge

According to oxford dictionary – The information, understanding and skills that we gain through education or experience.

1.3.5. Polycystic ovarian syndrome

It refers to complex condition affecting many organ site in reproductive age women including hypothalamus, pituitary, ovary, pancreas, peripheral glucose sensitive tissues, and skin in different individuals. And causes irregular menstrual periods, obesity, unwanted or excess hair growth and acne.

1.3.6. Late adolescent

According to world health organization late adolescent is defined as individual in the 18 to 21 years age group.

1.4. Assumptions

The Adolescent girls may have inadequate knowledge regarding Polycystic Ovarian Syndrome

- It is assumed that the adolescent girls of selected areas of Nagpur city may have some knowledge about Polycystic Ovarian Syndrome.
- Planned teaching programme will be effective in improving the knowledge level of adolescent girls regarding Polycystic Ovarian Syndrome.

1.5. Research approach

Polit and Hungler (2004) defined as "A general set of orderly discipline procedures uses to acquire information".The approach is adopted for this study is quantitative research, the quantitative research is an applied form of research that involves finding out how well a programmed, practice, procedure or policy is working effectively. The main goal is to assess the effectiveness of planned teaching on level of knowledge regarding Polycystic Ovarian Syndrome among late adolescent.

1.6. Research design

Pre experimental one group Pre-test and Post-test design

1.7. Setting of the study

The study was conducted on late adolescents of Nagpur city. The researcher found the setting appropriate to conduct the study because adequate number of late adolescents was available for the study and also principal and teacher's authorities were cooperative and gave permission to conduct the study.

1.8. Population

Population for this study is all late adolescents of selected college of Nagpur City.

1.9. Target population

In this study the target population consisted of all the late adolescent aged between the age group of 18 to 24 years, who are unaware about Polycystic ovarian syndrome in selected college of Nagpur city.

1.10. Accessible population

The aggregate of cases that conform to designated inclusion or exclusion criteria and that are accessible as subjects of the study.

1.11. Inclusion criteria

- Late adolescent who are aged between 18 -24 years.
- Late adolescent who are willing to participate in the study.
- Late adolescent who are present during the data collection period.
- Late adolescent who can able to read and write English.

1.12. Exclusion criteria

- Late adolescent who have knowledge regarding polycystic ovarian syndrome.
- Late adolescent who don't know English language.

1.13. Sample size

In this study the sample size consist of 40 late adolescent who are Undergraduate.

1.14. Sampling technique

Polit and Hungler(1991) stated that " sampling technique is process of selecting the portion of the population". The sampling technique used in the study was non probability convenience sampling technique. Convenience sampling entails the selection of most readily available individual as subject in the study.

1.15. Tools for data collection

The tool comprises of two sections:

- Section 1-Demographic variable
- Section 2-Questionnaire based by using structured multiple choice questionnaire
- **Section A:** Distribution of late adolescent with regards to demographic variables.
- **Section B:** Assessment of level of pretest and posttest knowledge regarding polycystic ovarian syndrome among late adolescent.

1.16. Data collection procedure

The data for the study was collected and the investigator prior to commencing the task of data collection, a letter seeking permission to conduct study was forward by principal of engineering college, Nagpur.

Data collection for demographic variable was done by structured multiple choice questionnaire. Sample was selected convenient sampling, those who meet the inclusion criteria for sample selection. Total sample was 40. The tool should be given. The investigator introduced herself to the subject and established good rapport with them and explains about the purpose of the study. All respondent co-operated well with investigator during data collection. The data collection process was terminated and thanks to the respondent for their cooperation and prompt response. The collected data was compiled for data collection.

2. Results

A structured multiple choice questionnaire to collect the knowledge score was use for data collection and the analysis was done with the help of inferential and descriptive statistics. The data collection was done from 40 samples from late adolescent in selected college of Nagpur city. Analysis and interpretation was done on the basis of objectives of the study.

2.1. Section A

Table 1 Percentage wise distribution of Late Adolescents to their demographic characteristics (n=40)

Demographic Variables	No of late adolescents	Percentage
Age(yrs.)		
18-19 yrs.	39	97.5
20-21 yrs.	1	2.5
>21 yrs.	0	0
Age of menarche		
≤13 yrs.	28	70.0
>13 yrs.	12	30.0
Religion		
Hindu	37	92.5
Christian	0	0
Muslim	0	0
Buddhist	2	5.0
Other	1	2.5

Education		
12th Standard	3	7.5
First Year	37	92.5
Second Year	0	0
Third Year	0	0
Education of mother		
Illiterate	1	2.5
Primary	2	5.0
Secondary	12	30.0
Graduate	17	42.5
Post Graduate	8	20.0
Type of family		
Joint	8	20.0
Nuclear	31	77.5
Extended	1	2.5
Diet		
Vegetarian	18	45.0
Mixed	22	55.0
Knowledge regarding POLYCYSTIC OVARIAN SYNDROME		
Yes	12	30.0
No	28	70.0
Source of information		
Mass Media	6	50.0
Health Personnel	1	8.3
Books	3	25.0
Friends and relatives	2	16.7
Others	0	0

2.2. Section B

2.2.1. Assessment of level of knowledge regarding polycystic ovarian syndrome among late adolescent in selected colleges of Nagpur city.

This section deals with the assessment of level of knowledge regarding polycystic ovarian syndrome among late adolescent from selected colleges of Nagpur city. The level of knowledge score is divided under following heading of poor, average, good.

The below table shows that 10% of late adolescents had poor level of knowledge score, 75% had average and 15% of them had good level of knowledge score.

Minimum knowledge score in pre-test was 4 and maximum knowledge score in pretest was 13.

Mean knowledge score in pre-test was 8.07±2.17 and mean percentage of knowledge score was 53.83±14.51.

Table 2 Assessment with level of pretest knowledge n=40

| Level of pre-test knowledge score	Score Range	Level of Pre-test Knowledge Score	
		No of late adolescents	Percentage
Poor	0-5	4	10
Average	6-10	30	75
Good	11-15	6	15
Minimum score		4	
Maximum score		13	
Mean knowledge score		8.07±2.17	
% of knowledge score		53.83±14.51	
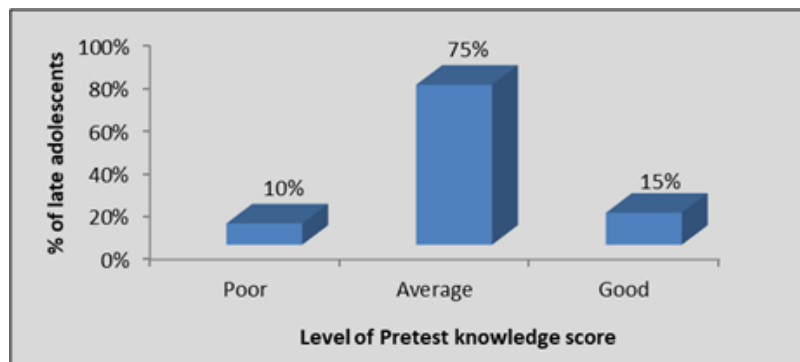
Figure 1 Assessment with pre-test knowledge score

Table 3 Assessment with level of posttest knowledge n=40

Level of post-test knowledge score	Score Range	Level of Post-test Knowledge Score	
		No of late adolescents	Percentage
Poor	0-5	0	0
Average	6-10	5	12.5
Good	11-15	35	87.5
Minimum score		8	
Maximum score		15	
Mean knowledge score		12.57±1.66	
% of knowledge score		83.83±11.08	

The above table shows that 12.5% of late adolescents had average and 87.5% of them had good level of knowledge score. Minimum knowledge score in post-test was 8 and maximum knowledge score in posttest was 15. Mean knowledge score in post-test was 12.57±1.66 and mean percentage of knowledge score was 83.83±11.08.
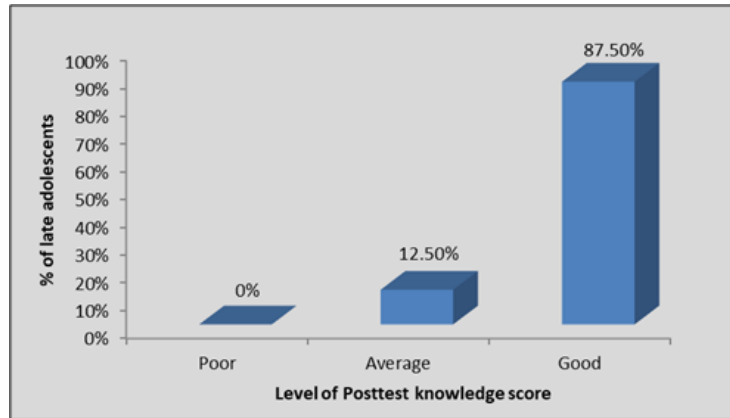
**Figure 2** Assessment with post - test knowledge score

2.3. Section C

2.3.1. *Evaluation of effectiveness of planned teaching programme on knowledge regarding polycystic ovarian syndrome among late adolescent in selected college of Nagpur city.*

This section deals with the effectiveness of Planned Teaching Programme on knowledge regarding Polycystic ovarian syndrome among late adolescents in selected college of Nagpur City. The hypothesis is tested statistically with distribution of pretest and posttest mean and standard deviation of knowledge score. The levels of knowledge score during the pretest and post-test are compared to prove the effectiveness of Planned Teaching Programme. Significance of difference at 5% level of significance is tested with student's paired 't' test and tabulated 't' value is compared with calculated 't' value. Also the calculated 'p' values are compared with acceptable 'p' value i.e. 0.05.

Table 4 Significance of difference between knowledge score In pre and post-test of Late Adolescents n=40

Overall	Mean	SD	Mean Difference	t-value	p-value
Pre Test	8.07	2.17	4.50±2.58	11.02	0.0001
Post Test	12.57	1.66			S,p<0.05

This table shows the comparison of pretest and post-test knowledge score of late adolescents. Mean, standard deviation and mean difference values are compared and student's paired 't' test is applied at 5% level of significance. The tabulated value for n=40-1 i.e. 39 degrees of freedom was 2.02. The calculated 't' value i.e. 11.02 are much higher than the tabulated value at 5% level of significance for overall knowledge score of late adolescents which is statistically acceptable level of significance. Hence it is statistically interpreted that the Planned Teaching Programme on knowledge regarding Polycystic ovarian syndrome among late adolescents was effective. Thus the H_1 is accepted.
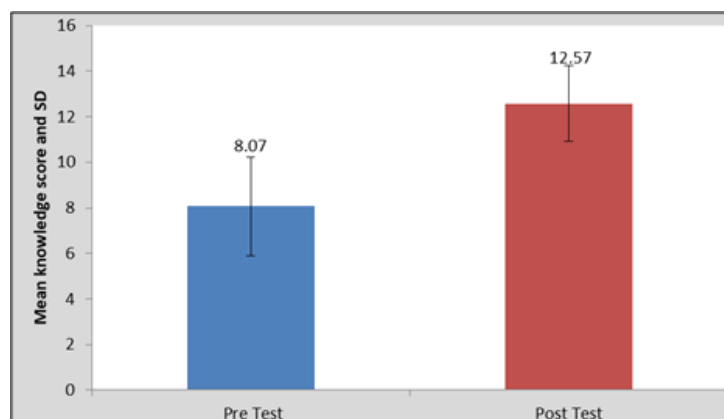
Figure 3 Significance of difference between knowledge score In pre and post-test of Late Adolescents

2.4. Section D

2.4.1. Association of level of posttest knowledge score among late adolescents in selected area of the Nagpur city in relation to demographic variables.

Table 5 Association of post-test knowledge score regarding Polycystic ovarian syndrome among late adolescents in relation to age in years. n=40

Age (yrs.)	No. of late adolescents	Mean posttest knowledge score	t-value	p-value
18-19 yrs.	39	12.56±1.68	0.25	0.79 NS,p>0.05
20-21 yrs.	1	13±0		
>21 yrs.	0	0±0		

This table shows the association of knee joint pain score with age in years of late adolescents from selected colleges of Nagpur City. The tabulated 't' values was 2.02(df=38) which is much higher than the calculated 't' i.e. 0.25 at 5% level of significance. Also the calculated 'p'=0.79 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that age in years of late adolescents is statistically not associated with their post-test knowledge score.

Table 6 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to age of menarche. n=40

Age of menarche	No. of late adolescents	Mean posttest knowledge score	t-value	p-value
≤13 yrs.	28	12.60±1.72	0.18	0.85 NS,p>0.05
>13 yrs.	12	12.50±1.56		

This table shows the association of knee joint pain score with age of menarche of late adolescents from selected colleges of Nagpur City. The tabulated' values was 2.02(df=38) which is much higher than the calculated' i.e. 0.18 at 5% level of significance. Also the calculated 'p'=0.85 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that age of menarche of late adolescents is statistically not associated with their post-test knowledge score.

Table 7 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to Religion. n=40

Religion	No. of late adolescents	Mean posttest knowledge score	F-value	p-value
Hindu	37	12.48±1.69	0.81	0.45 NS,p>0.05
Christian	0	0±0		
Muslim	0	0±0		
Buddhist	2	14±0		
Other	1	13±0		

This table shows the association of knee joint pain score with religion of late adolescents from selected colleges of Nagpur City. The tabulated 'F' values was 3.23 (df=2,37) which is much higher than the calculated 'F' i.e. 0.81 at 5% level of significance. Also the calculated 'p'=0.45 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that religion of late adolescents is statistically not associated with their post-test knowledge score.

Table 8 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to Education. n=40

Education	No. of late adolescents	Mean posttest knowledge score	t-value	p-value
12th Standard	3	12.66±2.51	0.09	0.92 NS,p>0.05
First Year	37	12.56±1.62		
Second Year	0	0±0		
Third Year	0	0±0		

This table shows the association of knee joint pain score with educational level of late adolescents from selected colleges of Nagpur City. The tabulated 't' values was 2.02(df=38) which is much higher than the calculated 't' i.e. 0.09 at 5% level of significance. Also the calculated 'p'=0.92 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that educational level of late adolescents is statistically not associated with their post-test knowledge score.

Table 9 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to Mother's Education. n=40

Mother's Education	No. of late adolescents	Mean posttest knowledge score	F-value	p-value
Illiterate	1	8±0	2.69	0.047 S,p<0.05
Primary	2	12±1.41		
Secondary	12	12.50±1.38		
Graduate	17	12.64±1.41		
Post Graduate	8	13.25±1.98		

This table shows the association of knee joint pain score with mother's education of late adolescents from selected colleges of Nagpur City. The tabulated 'F' values was 2.61(df=4,35) which is less than the calculated 'F' i.e. 2.69 at 5% level of significance. Also the calculated 'p'=0.047 which was less than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that mother's education of late adolescents is statistically associated with their post-test knowledge score.

Table 10 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to Type of family. n=40

Type of family	No. of late adolescents	Mean posttest knowledge score	F-value	p-value
Joint	8	13±1.06	0.71	0.41 NS,p>0.05
Nuclear	31	12.51±1.78		
Extended	1	11±0		

This table shows the association of knee joint pain score with type of family of late adolescents from selected colleges of Nagpur City. The tabulated 'F' values was 3.23(df=2,37) which is higher than the calculated 'F' i.e. 0.71 at 5% level of significance. Also the calculated 'p'=0.41 which was higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that type of family of late adolescents is statistically not associated with their post-test knowledge score.

Table 11 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to Type of Diet. n=40

Type of diet	No. of late adolescents	Mean posttest knowledge score	t-value	p-value
Vegetarian	18	12.44±1.82	0.44	0.65 NS,p>0.05
Mixed	22	12.68±1.55		

This table shows the association of knee joint pain score with type of diet of late adolescents from selected colleges of Nagpur City. The tabulated 't' values was 2.02(df=38) which is higher than the calculated 't' i.e. 0.44 at 5% level of significance. Also the calculated 'p'=0.65 which was higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that type of diet of late adolescents is statistically not associated with their post-test knowledge score.

Table 12 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to knowledge regarding polycystic ovarian syndrome. n=40

Knowledge	No. of late adolescents	Mean posttest knowledge score	t-value	p-value
Yes	12	13.16±1.40	1.49	0.14 NS,p>0.05
No	28	12.32±1.72		

This table shows the association of knee joint pain score with knowledge regarding Polycystic Ovarian Syndrome of late adolescents from selected colleges of Nagpur City. The tabulated' values was 2.02(df=38) which is higher than the calculated' i.e. 1.49 at 5% level of significance. Also the calculated 'p'=0.14 which was higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that knowledge regarding Polycystic Ovarian syndrome of late adolescents is statistically not associated with their post-test knowledge score.

Table 13 Association of post-test knowledge score regarding polycystic ovarian syndrome among late adolescents in relation to source of knowledge regarding polycystic ovarian syndrome. n=40

Source of Knowledge	No. of late adolescents	Mean posttest knowledge score	F-value	p-value
Mass Media	6	12.83±1.72	0.40	0.75 NS,p>0.05
Health Personnel	1	13±0		
Books	3	14±1		
Friends and relatives	2	13±1.41		
Others	0	0±0		

This table shows the association of knee joint pain score with source of knowledge regarding Polycystic Ovarian Syndrome of late adolescents from selected colleges of Nagpur City. The tabulated 'F' values was 4.07(df=3,8) which is higher than the calculated 'F' i.e. 0.40 at 5% level of significance. Also the calculated 'p'=0.75 which was higher than the acceptable level of significance i.e. 'p'=0.05. Hence it is interpreted that source of knowledge regarding Polycystic Ovarian Syndrome of late adolescents is statistically not associated with their post-test knowledge score.

3. Discussion

A cross sectional analytical study was carried out in 2020 puducherry, among students aged 18 years and above in a Government college for women located in urban puducherry, the objectives of their research is polycystic ovarian syndrome (PCOS) is one of the most common metabolic and reproductive disorders among women of reproductive aged. In low income and developing countries in India, there are very high chances of developing polycystic ovarian syndrome due to marked variation between culture, ethnic groups, diet, lifestyle, and genetic factors. Study aims to determine the burden of probable polycystic ovarian syndrome among college going students in puducherry. The results interpreted that 25.1percentage (21.8-28.7) of women work having probable Polycystic ovarian syndrome, 18.7percentage (15.8-22.0) had irregular menstrual history, 8.4percentage (6.4-10.8) had Hirsutism and 2percentage (1.8-3.3) had both the symptoms. Regarding food habits, 43.1percentage were vegetarians and this association with

polycystic ovarian syndrome found to be statistically significant. This study concluded high prevalence of probable polycystic ovarian syndrome among college going students, especially among study respondents who were obese, physically inactive vegetarians compared to the counterpart. Earlier detection and proper management of this symptoms can avoid comorbidity in the future .therefore screening is important part in the diagnosis and management of polycystic ovarian syndrome among adolescent girl.

Supporting above study, our study pretest knowledge score was 10% poor, 75% average and 15% had good level of knowledge score. The finding shows that late adolescent had some knowledge regarding polycystic ovarian syndrome prior providing them the structured questionnaire. The total mean percentage of knowledge score of pretest was 53.83±14.51 . In posttest most of the student nurses scored good marks due to effective planned teaching on Polycystic Ovarian Syndrome. The posttest knowledge score was 12.5% average level, 87.5% good level of knowledge score. The post test score was significantly higher than the pretest score and the mean percentage knowledge score was 83.83±11.08. The t-value is 11.02 are much higher than the tabulated value at 5% level of significance for overall knowledge score of late adolescent which is statistically acceptable level of significance. Hence it is statistically interpreted that the Planned teaching programme on knowledge regarding Polycystic Ovarian Syndrome among late adolescent was effective. Thus the H1 is accepted[5].

Recommendation

On the basis of finding of study the following recommendation have been made for the study-

- A Descriptive study can be conducted.
- A similar study can be replicated with a controlled group.
- Other strategies can be used for a similar study.

4. Conclusion

This research study finding conclude that polycystic ovarian syndrome is complex hormonal condition, targetting at reproduction age, planned teaching areas beneficial among adolescents to improve knowledge and spread awareness,of early identification and timely management.

Compliance with ethical standards

Disclosure of conflict of interest

Authors have declared no conflict of interest exists.

Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors.

Statement of informed consent

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

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