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Effectiveness of Capacity Building Lifestyle Modification on Polycystic Ovarian Syndrome (PCOS) on Knowledge and Attitude Among Adolescent Girls of Udupi District, Karnataka - An Interventional Study

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ABSTRACT

PCOS is a hormonal condition that primarily affects young girls and women in their reproductive years. The female reproductive system is regulated by the intricate interactions of five reproductive hormones: progesterone, luteinizing hormone, follicle stimulating hormone, gonadotropin-releasing hormone, and estrogen. PCOS is a hormonal condition caused by an imbalance in these hormones and it causes abundant body hair, acne, irregular or prolonged menstrual cycles, and hair loss. This study was conducted among 150 adolescent girls who are studying in Pre-University College of Udupi District, Karnataka. A simple random technique was followed in selecting the participants for the study. A demographic proforma, knowledge questionnaire, and attitude scale was used to collect the data from the participants. The pretest knowledge score of the experimental group was 59 (78.7%) (Moderate), 14 (18.6%) (Poor) and only 2 (2.7%) (Good), whereas in control group, the pretest score was 4 (5.3%) (Moderate), 71 (94.7%) (Average), none of them had good knowledge. Seventy five percent of the adolescent girls had an unfavorable attitude in both the experimental and control group. After the intervention, posttest knowledge score showed 75 (100%) (Good) and all had favorable attitude towards PCOS. Thus, the capacity building lifestyle modification program was effective to improve the knowledge and attitude regarding PCOS.

Keywords: PCOS, knowledge, attitude, adolescent girls

INTRODUCTION

Adolescence is the transitional phase of growth and development between childhood and adulthood. Many physical, sexual, cognitive, social, and emotional changes occur during adolescent period and these changes brings anticipation and anxiety to the adolescent child and their families.[1] Polycystic ovarian disease is commonly seen among members of the younger generation, with almost 10 million affected globally. The global prevalence of PCOS varies from (5%

to 18%), with an average prevalence of 276.4 cases per 100 000 people in Europe. Around (50%) of women are not aware that they have PCOS or they have a delayed diagnosis. [2] One in every four is said to have polycystic ovarian syndrome in India.[3] Polycystic Ovarian Syndrome is a condition that affects women's ovaries, the reproductive organs that produce progesterone and estrogen hormones that help in regulating the menstrual cycle and produce small amount of hormones inhibin, relaxin, and male hormones called androgens. [4] A comprehensive literature search was carried to identify the effect of awareness program on PCOS among adolescent girls. A study conducted among 300 adolescent girls aged (14-18) years reported that (96.3%) were not aware of polycystic ovarian syndrome, (32%) had an irregular menstrual cycle, (26.3%) had hirsutism and (13.2%) had weight gain. The prevalence rate of polycystic ovarian syndrome was (12.3%) with (10.3%) high risk and (23.3%) low risk. [5] A study in Kannur, India identified the risk factors and their association with selected socio-demographic factors regarding polycystic ovarian syndrome. Hundred adolescent girls between the age group of (16-19) years were interviewed through a semi-structured questionnaire. The results revealed that there is an association between the area of living and consumption of fast food, the habit of doing exercise, type of game preferred, age of menarche, family history of obesity and infertility, age, skipping of breakfast, and preference of food. Thus, the study concluded that a new generation of adolescent girls is at risk of the polycystic ovarian syndrome, and this may contribute to other major health problems. Therefore, creating awareness among adolescent girls about the modification of dietary factors, physical exercise, lifestyle, and prevention of complications is important.[6] The effect of planned teaching program on PCOS among 100 adolescent girls was studied in Mangalore, India. Interview was conducted using a structured knowledge questionnaire. The findings of the study revealed that the mean post-test knowledge score (21.74) was higher than the mean pre-test knowledge score (11.86). The "t" value (t 99 =27.61) was greater than table value (t 99 =1.66). Thus, the study concluded that a planned teaching program was effective in gaining knowledge about polycystic ovarian syndrome in adolescent girls .[7] PCOS is a frequently observed endocrinological disorder during the adolescent period. Early recognition and appropriate treatment measures for PCOS are important to prevent long-term complications in adolescents. The above relevant research study depicted that adolescent girls are in dire need to gain sufficient knowledge and develop a positive attitude regarding polycystic ovarian syndrome as they tend to be future mothers. Hence, the investigator has a pivotal role in creating awareness among adolescent girls about recognition of the symptoms and adoption of a healthy lifestyle to prevent the complication of polycystic ovarian syndrome. Thus, the researcher felt that capacity-building lifestyle modification enhances physical and psychological well-being.

Objective of the study

To evaluate the effectiveness of capacity building lifestyle modification regarding polycystic ovarian syndrome on knowledge and attitude among adolescent girls.

METHODS AND MATERIALS

This interventional study was carried out among 150 (75 experiment, 75 control group) adolescent girl's aged (16-19) years studying in Pre-University Colleges of Udupi district, Karnataka, India. A simple random technique was adopted to allocate the participants to the experimental and control group. Researcher provided the information sheet to the participants and written informed consent was taken from their parents. The data on sample

characteristics was gathered using a semi structured demographic proforma. The knowledge of the adolescent on PCOS was obtained using a structured knowledge questionnaire. Attitude of the adolescent girls towards PCOS was collected using attitude scale.

All the tools were constructed by the researcher. The demographic proforma consisted of 13 items seeking information on background data such as age, religion, education, income, occupation of father and mother, type of family, area of residency, age at first menstruation, regularity of menstruation, and previous information about the polycystic ovarian syndrome. The knowledge questionnaire is comprised of 30 items. These items covered different areas regarding meaning, predisposing factors, signs and symptoms, diagnostic procedures, management, and complications to avoid PCOS. The attitude scale comprised of 10 items. These items included areas like consequences and acceptance of polycystic ovarian syndrome.

The reliability of the knowledge questionnaire was established using split-half method and the coefficient value obtained was r = 0.75 and the reliability of the attitude rating scale was established by Cronbach's Alpha found to be, r = 0.80.

The inclusion criteria included adolescent girls aged (16-19) years and those studying in Pre-University Colleges; who attained menarche, could read and write English, and not undergone PCOS treatment in the previous three months prior to data collection. The adolescent girls who were having chronic diseases like cardiovascular disease, renal disease, and diabetes mellitus, which require a special diet prescribed by a physician were excluded from the study.

For the experimental group, on day one, a pretest was administered by using a structured knowledge questionnaire, and attitude rating scale towards polycystic ovarian syndrome, and on the same day capacity building lifestyle modification program was conducted after the pretest. On the eighth day, the posttest was conducted by using the same tools. For the control group, on day one, a pretest was administered to the participants by using a structured knowledge questionnaire, and attitude rating scale towards polycystic ovarian syndrome, the post-test was conducted eight days after the pretest by using the same structured knowledge questionnaire and attitude rating scale without giving the intervention.

Using averages and percentages, the data were summarized into Microsoft Excel 2019. The Chi-square test was used to determine the significance of the findings after the data underwent additional analysis using the statistical program SPSS16.0 version. A p value of 0.05 or less was regarded as significant in the test.

RESULTS

Most of the adolescent girls 51 (61%) in experimental group and 61 (81.3%) in the control group were aged 16 years. Majority 69(92.0%) of the adolescent girls in the experimental and 64 (85.3%) in the control group belonged to the Hindu religion. Most 18 (24.0%) of the fathers of adolescent girls in the experimental group were educated till high school and 22 (24.0%) till Pre-University in the control group. Most 32 (42.7%) of the mothers were educated till middle school in experimental group, whereas in the control group 35 (46.7%) had education of High school. In the study, maximum 20 (26.7%) of the fathers in the experimental group were self-employed. Whereas, in the control group 30 (40.0%) of the fathers were fisherman in their occupation. The occupation status of the mothers in both the groups were housewives in experimental group 45 (60.0%) and in the control group 53 (70.7%). The adolescent girls belonged to nuclear family in

experimental 37 (49.3%) and control group 47 (62.7%). The family income of the families in the experimental 35 (46.7%) and in control group 24 (32.0%) were Rs. < 10,000. Most of the adolescent girls in the experimental 56 (74.7%) and 51 (68.0%) in the control group resided in the rural area. The age at first menstruation for the adolescent girls in the experimental group 28 (37.3%) and in the control group 29 (38.7%) was 13 years. The adolescent girls had regular menstrual cycle 70 (93.3%) in experimental group and in control group 55 (73.3%) respectively. The number of days of menstrual cycle among adolescent girls in the experimental group 29 (38.7%) had 29 days of cycle and in control group 32 (42.7%). The previous source of information regarding PCOS in the experimental group 60 (20.0%) through family members and in control group 63 (16.0%) had no information on PCOS.

Table 1: Frequency and Percentage distribution of Pretest Knowledge score of the adolescent girls on PCOS in experimental and control group

Pretest level of knowledge	Range of score	Experimental Group		Control group	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Poor	0-10	14	18.6	4	5.3
Moderate	11-20	59	78.7	71	94.7
Good	21-30	2	2.7	0	0

The data in table 1 shows that the pretest knowledge score of the adolescent girls in the experimental group 59 (78.7%) is moderate, 14 (18.6%) had poor knowledge and only 2 (2.7%) had good knowledge. The data for the control group 71 (94.7%) of the adolescent girls had moderate knowledge, 4 (5.3%) had poor knowledge regarding PCOS.
n=75+75=150

Table 2: Frequency and Percentage distribution of Pretest level of Attitude score of the adolescent girls on PCOS in the experimental and control group

Pretest level of Attitude	Range of score	Experimental Group		Control group	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Unfavorable attitude	10 – 29	75	100	75	100
Favorable attitude	30-50	0	0	0	0

The data in table 2 showed that (75%) of the adolescent girls had an unfavorable attitude score ranging from (10-29) in both the experimental and control group respectively. None of the adolescent girls had a favorable attitude regarding PCOS in both the experimental and control group.

Table 3: Comparison of Post-test Knowledge on PCOS among adolescent girls between the experimental and control group

Areas of Knowledge on PCOS	Experimental group	Control group	Levene's test	p value
	Mean ± SD	Mean ± SD		
Anatomy and physiology	4.10 ± 0.2	3.3 ± 1.2	12.52	.000*
Meaning	2.00 ± 0.00	1.32 ± 0.70	8.046	.000*
Incidence	1.81 ± 0.4	1.0 ± 0.7	9.2	.000*
Etiology	1.70 ± 0.5	0.52 ± 0.6	13.6	.000*
Signs and symptoms	3.72 ± 0.5	1.34 ± 0.81	21.74	.000*
Diagnostic measures	1.10 ± 0.16	1.4 ± 0.63	7.10	.000*
Treatment	3.5 ± 0.6	0.9 ± 0.74	24.11	.000*
Lifestyle modification	8.37 ± 0.8	4.4 ±1.34	22.5	.000*

The data presented in the table 3 depicts there is a significant difference (p <.05) in the post-test level of knowledge on PCOS among adolescent girls in the experimental and control group. Thus, the capacity building lifestyle program was effective in enhancing the knowledge on PCOS among adolescent girls.

Comparison of Post-test Attitude on PCOS among adolescent girls between the experimental and control group

Area of Attitude on PCOS	Experimental group	Control group	Levene's test	p value
	Mean ± SD	Mean ± SD		
Incidence	4.7 ± 0.50	1.8 ± 1.14	20.1	.000*
Risk factor	3.1 ± 0.4	1.80 ± 0.10	10.61	.000*
Etiology	1.1 ± 0.3	1.61 ± 0.9	-5.238	.000*
Signs and symptoms	8.85 ± 0.10	3.2 ± 1.30	30.1	.000*
Management	7.3 ± 1.2	4.3 ± 1.64	12.9	.000*
Prognosis	8.42 ± 1.1	3.14 ± 1.04	30.4	.000*

p<.05 level of significance

The table 6 indicates that there is a significant difference (p <.05) in the post-test level of attitude toward PCOS among adolescent girls in the experimental and control group. Thus, the capacity-building lifestyle program was effective in modifying the attitude toward PCOS among adolescent girls.

DISCUSSION

The majority 51 (61%) in the experimental group and 61 (81.3%) in the control group were aged 16 years. The maximum 69 (92.0%) in the experimental group and the control group 64 (85.3%) belong to the Hindu religion. In the majority of fathers' educational status 18 (24.0%) were in High school in the experimental group and in the control group, 22 (24.0%) were Pre-University. A maximum number of the mother's educational statuses 32 (42.7%) were studied until middle school in the experimental group and in the control group 35 (46.7%) were in High school. Regarding the occupation status of the fathers, 20 (26.7%) in the experimental group were self-employed and in the control group, 30 (40.0%) were fishermen. The highest percentage of occupation status of the mother was 45 (60.0%) in the experimental group and in the control group, 53 (70.7%) were homemakers respectively. The type of family 37 (49.3%) in the experimental group and in the control group 47 (62.7%) belong to the nuclear family.

A study was conducted to assess the effectiveness of a structured teaching program on knowledge of polycystic ovarian syndrome among adolescent girls in a selected pre-university college in Mangalore. Fifty samples were selected by using a simple random technique. According to the study's findings, 32 (40 percent) of the adolescent girls were under the age of 16, while 43 (53.8 percent) were between the ages of 16 and 17. The majority of adolescent girls, 42 (52.5%), practice Hinduism. The highest number 32 (40%) of adolescent girls' father education status was up to primary education and the majority 38 (47.5%) of adolescent girls' mothers were educated from secondary school. With regard to the type of family majority, 62 (77.5%) belong to a nuclear family.[8]

In the present study, in the experimental group 59 (78.7%) had moderate, and only 2 (2.7%) of the adolescent girls had good knowledge. In the control group 71 (94.7%) of the adolescent girls had poor knowledge.

Similar study findings substantiated to assess the awareness on polycystic ovary syndrome among the female population in Mangalore, Karnataka. An online survey with a questionnaire was done. The data was obtained from 143 female participants. The

study's findings imply that the majority of participants are ignorant of PCOS's causes, symptoms, and problems. Only 8.96% of participants in the current study had good understanding of PCOS, compared to 33.37% who had average knowledge and 45.66% who had poor knowledge.

In the current study, (75%) of the adolescent girls had an unfavorable attitude in both the experimental and control group.

These conclusions are supported by research that was done to assess the impact of a training program on young women's knowledge and attitudes about polycystic ovarian syndrome at a particular educational institution in the Kancheepuram area. Through the use of the purposive sampling technique, a total of 50 samples were collected. According to the study's findings, majority of 20 participants (or 40%) had unfavorable attitudes and 30 participants (or 60%) had moderately favorable attitudes before the test, while 40 participants (or 80%) had favorable attitudes and 10 participants (20%) had moderately favorable attitudes after the test.[9]

The test shows that there is a significant difference ($p < 0.05$) in the post-test level of knowledge on PCOS among adolescent girls in the experimental and control group. Thus, the capacity building lifestyle program was effective in enhancing the knowledge on PCOS among adolescent girls.

In supporting to the current study findings, a quasi-experimental one-group pre-test post-design was adopted to assess the effectiveness of a structured teaching program on knowledge regarding polycystic ovarian syndrome among adolescent girls, in Bangalore. A sample of 60 adolescent girls was selected from NRI higher secondary school, Bangalore by purposive sampling technique. More than half 54 (90.0%) were having inadequate knowledge and 6 (10%) were having moderate knowledge regarding PCOS before a structured teaching program.[10]

The test showed that there was a significant difference ($p < .05$) in the post-test level of attitude toward PCOS among adolescent girls in the experimental and the control group. Thus, the capacity-building lifestyle program was found effective in modifying the attitude toward PCOS among adolescent girls.

In support to the current findings an investigation using a non-experimental descriptive survey design was conducted to assess the attitudes of adolescent girls in higher secondary schools towards PCOD. The study involved 60 adolescent girls from higher secondary schools in Trivandrum. There is no significant association between the attitude of adolescent girls toward polycystic ovarian syndrome with their demographic variables such as age, religion, educational status of parents, community area and type of family, income, and previous knowledge.[11]

Declaration by Authors

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