ORIGINAL ARTICLE
Impact of Educational Intervention on the Knowledge of Polycystic Ovarian Syndrome among Lady Health Visitors

SABA KIRAN[1], REHANA TABBASUM[2], AYESHA NAZ[3], NADEEM MASIH[4], ARFA NADEEM[5]
[1]Clinical Nursinginstructor Al Haramain Institute of Health Sciences
[2,3]Nursing Instructor Aligarh College of Nursing and Allied Health Sciences
[4]Sr. Nursing Instructor Aligarh College of Nursing and Allied Health Sciences
[5]Nursing Instructor Aligarh College of Nursing and Allied Health Sciences
Corresponding author: Saba Kiran, Email: Saba.malik175@yahoo.com, Cell: 0300-1600471

ABSTRACT
Background: PCOS, a common endocrine disorder, is more common in adolescent girls and young women during their reproductive years. According to the World Health Organization (WHO), 116 million (3.4%) of women worldwide have PCOS in 2012. PCOS increases a woman's risk of type 2 diabetes, cardiovascular disease, infertility, anxiety, and depression, as well as a poor quality of life related to her health.
Objectives: To determine the impact of education intervention on the knowledge of poly cystic ovarian disease among lady health visitors in Public Health Nursing School Lahore.
Methodology: A Quasi- experiment one group pre-test post-test study design was conducted at Public Health Nursing School in Pakistan. A total of 141 people were recruited through random sampling. First- and second-year lady health visitor (LHV) students aged 17 to 30 participated in the study. It was done with full knowledge and consent. To analyze the data, the most recent version of SPSS 24 was employed.
Results: According to the study's findings, the bulk of participants, 114 (80.9%), were between the ages of 17 and 20, with 75 (53.2%) of them living in metropolitan regions. The results showed that the data was normally distributed because the P-value was less than 0.05. The findings showed that, in comparison to their values at the pretest, the mean post intervention knowledge score was significantly higher after educational intervention (p 0.0001).
Practical Implications: The midwives and labor and delivery nurses (LHVs) play a key role in the healthcare industry. Women should receive counselling, information, and encouragement related to polycystic ovary syndrome. The long-term advantages of education would help women understand how to adjust their lifestyles according to polycystic ovarian syndrome.
Conclusion: It is concluded that the post intervention score of participants was high than pre-intervention. As a result, educational sessions had a positive effect on improving knowledge scores about polycystic ovarian syndrome.
Keywords: Polycystic Ovarian Syndrome; Knowledge; Educational Intervention; Lady Health Visitor

INTRODUCTION

Poly Cystic Ovarian Syndrome is one of the most common endocrine disorders affecting women of reproductive age (1). Polycystic ovary (PCO) affects 6% to 20% of females in reproductive age. PCOS became a widespread health issue among teenagers and young women. Around 116 million women worldwide have PCOS (2).

In general, PCOS prevalence estimates are extremely diverse and range from 2.2% to 26% (3). According to the World Health Organization (WHO), 116 million (3.4%) women worldwide had PCOS in 2012 (4).

PCOS is characterized by the accumulation of numerous cysts on the ovaries, as well as metabolic problems and recurrent anovulation (5). If unchecked, it can lead to serious health problems such as diabetes and heart disease (6). PCOS can be present from birth, but symptoms do not manifest until puberty (7).

The main symptoms of PCOS, such as irregular menstrual cycles, acne, and polycystic ovarian morphology on pelvic ultrasound, overlap with usual puberty changes in adolescent girls, making diagnosis challenging (Abbott & Wallace, 2020). The main clinical indications that were assumed to be positively connected to PCOS diagnosis in young women were irregular menstrual cycles (8). PCOS are also related to infertility (6). In Pakistan, PCOS is the primary cause of infertility. PCOs were common in 38.5% of females who were experiencing infertility. The additional reasons of female infertility are pelvic inflammatory disease, endometriosis, 12.3% per-prolactenemia, 2.9%, and hypothyroidism, 1.3%, which together account for 44% of the cases (9).

PCOS frequently appears during puberty and has an impact on young women's QOL, self-esteem, and body image (10). The latest consensus report on the PCOS effects on women's health urged that mental health concerns be taken into account in every woman with PCOS and emphasized the necessity for the creation of effective interventions (11). Healthy eating habits and nutrition education are critical for improving the nutritional health of adolescents with PCOS (12).

Adolescent girls are at more risk of PCOS. In Pakistan, there are 16.5 and 25 million adolescents between the ages of 10y to 15y and 15y to 24y, respectively (5).The female teenager's ratio between the ages of 10y, 14y ,15y and 19y is 9 million (13).

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There are gaps in our understanding of the many aspects of PCOS in adolescents. Adolescent screening can offer the chance for early risk factor diagnosis, encouragement of a healthy lifestyle, and early intervention to stop the future onset of PCOS condition (14).

In Pakistan, Lady Health Workers (LHW) are in charge of providing basic healthcare to residents of slums in both rural and urban areas. The performance of health workers is one of the weakest and most neglected parts of the health system in low- and middle-income countries (LMIC) (15).

There is a need for ongoing PCOS education for all healthcare professionals, particularly for healthcare visitors who are under-informed about the condition. The early identification and prompt reporting of PCOS were positively impacted by educational sessions. As the majority of medical professionals are unaware of the significance of early PCOS diagnosis. PCOS should be diagnosed early to avoid consequences. They would be aware of the methods to reduce the risk of PCOS in this way.

The study has noted that lady health visitors (LHV) have a lack of knowledge of PCOS and negative attitude towards the condition. Therefore, it is vital for lady health visitors to be aware of adequate and compulsory knowledge about PCOS and other health issues in order to conduct their upcoming tasks. As the lady health visitors comprise the highest portion of the health care system, they are the key persons in the healthcare delivery system and they work at community level(16). Therefore, the researcher made the decision to give educational intervention to lady health visitors about PCOS. The goal of this study was to fill this

knowledge gap by providing educational material on polycystic ovarian syndrome to the students of lady health visitors.

Objective

- To determine the impact of educational intervention on the knowledge of polycystic ovarian syndrome among lady health visitors in Public Health Nursing School Lahore.

Hypothesis:

H1

There is an effect of educational intervention on the knowledge scores of lady health visitors on polycystic ovarian syndrome among lady health visitors in Public Health Nursing School Lahore before and after educational intervention.

H0 -

There is no effect of educational intervention on the knowledge scores of lady health visitors on polycystic ovarian syndrome among lady health visitors in Public Health Nursing School Lahore before and after educational intervention.

METHODOLOGY

In the present investigation, a pre-experimental, one group pre-test/post-test quasi-experimental study design was adopted. The research was conducted at a public health nursing school in Lahore, a specialized training center in the public sector that offers a two-year diploma for female health visitors. The participants were first- and second-year professionals of lady health visitors enrolled in the 2020-2022 academic year. The study was completed in 9-months. It is started from May 2022 after approval of IRB and completed in January 2023. A sample size of 141 instances is estimated with a 95% confidence interval, a margin of error of 6%, and an expected proportion of knowledge about PCOs among students of 15.63. Data from participants were collected using the random sampling technique. The most basic random sample gives every unit in the population an equal probability of being chosen. All first- and second-year lady health visitor (LHV) students, student with poor and adequate knowledge were included in the study. Student who has already taken educational intervention regarding PCO were excluded from study. Students' knowledge was assessed using a 30 multiple choice question that was adapted from the Knowledge Questionnaire (17) .

Data was gathered at two points: before and after the educational intervention.

Pre-Interventional Phase	Interventional Phase	Post-Interventional Phase
1: Pre-interventional data was collected by researcher through asking multiple choice questions. 2: Questionnaire took almost 20 to 30 minute for completion. 3: It took 8 weeks to completely collect pre data.	1: Ten weeks of educational intervention was given to participants. 2: Health education classes was given to the students in the form of lectures PPT, hand notes and group discussion by using audio-visual aids. 3: Students were given brochures with brief information about PCOS.	1: After educational intervention of LHVs knowledge was assessed by using same validated questionnaire.

For data analysis, the latest version of the Statistical Package for Social Sciences (SPSS) 25 was utilized. For demographic factors and participant knowledge score, frequencies and percentages were determined. For and knowledge score, mean and standard deviation were provided. The dependent sample t-test was used to assess the knowledge of both groups. P-values less than 0.05 were considered significant.

RESULTS

The sample population of 141 lady health visitors were chosen for the study from Public Health Nursing School Lahore. This chapter consists of two sections. This Section I deals with demographic characteristics, section II deals with knowledge regarding to polycystic ovary syndrome.

Section 1: Demographic characteristics of participants: This section showed Demographic Characteristics of participants.

Table 1: Demographic characteristic of participants

Variable	Categories	Frequency	Percentage
Age	17-20	114	80.9
	21-24	27	19.1
Educational Status of Respondents father	Primary Education	44	31.2
	Matric	63	44.7
	Graduate and Above	17	12.1
	No Formal Education	17	12.1
Educational Status of Respondents mother	Primary Education	33	23.4
	Matric	49	34.8
	Graduate and Above	20	14.2
	No Formal Education	39	27.7
Residence	Rural	43	30.5
	Suburban	23	16.3
	Urban	75	53.2

Table 1 showed that One hundred and forty one LHVs who fulfilled the eligibility criteria were recruited into the study. Demographic characteristics including age of participants in year, Education of respondent's father, Education of respondent's mother, and Residence of respondent is presented in tables. Table 1 shows that a total of 141 LHVs participated in study and out of them majority of participants 114 (80.9 %) were of age ranging from 17-20 years and 27(19.1%) were between 21-24 years of age. The Results revealed that majority of respondent's father 63(44.7%) were matric pass, 44(31.2%) were having Primary Education, and 17(12.1%) had Graduation and above level education, and 17(12.1%) had no formal education. The results of Education of respondent's mother showed that among 141 respondents, majority of mothers 49(34.8%) were passed matric, 39(27.7%) had no formal education, 33(23.4%) had primary level education, and 20(14.2%) had graduation and above level education. majority of respondents 75(53.2%) belongs to urban areas.43 (30.5%) have residency in Rural areas and 23(16.3%) lived in suburban area.

Section 2: Knowledge of lady health visitors regarding polycystic ovarian syndrome: This section deals with Knowledge of lady health visitors regarding polycystic ovarian syndrome.

Table 2: Comparison of correct answer rate between pre and post intervention group

Sr.No	Statements	Pre-knowledge score (correct information)		Post-knowledge score (correct information)	
		Frequency	Percentage	Frequency	Percentage
1.	Female Gonad homologues	78	55.4	135	95.7
2.	Ovary is located	85	60.2	136	96.5
3.	The number of ovaries	90	63.8	139	98.6
4.	Ovarian cyst is	89	65.2	137	97.3
5.	Polycystic ovary syndrome known as	53	37.6	108	76.6
6.	Excessive hair growth	88	62.4	136	48.2
7.	Sign of PCOS except	57	40.4	100	70.9
8.	Treatment of PCOS except?	35	24.8	72	51.1
9.	Polycystic ovary syndrome an unlikely diagnosis	65	44	81	57.4
10.	IN PCOS estrogen level increasing the risk of	46	32.6	100	70.9
11.	Preventive measures of PCOS Except	50	35.5	112	79.9
12.	Exercise help to reduce the risk of PCOS	71	50.4	130	92.2
13.	The main cause of PCOS	83	58.8	135	95.7
14.	Insulin is produced	65	46.1	116	82.3
15.	Meaning of insulin resistance	68	48.2	123	87.2
16.	Insulin resistance cause	65	46.1	131	929
17.	Hormonal imbalance	53	37.6	121	85.6

18.	The signs and symptoms of PCOS	82	58.2	135	95.7
19.	Hirsutism means	71	50.4	119	84.4
20.	Endometrial Cancer	63	44.7	131	82.3
21.	Ultrasound scan shows PCOS	84	59.6	127	90.1
22.	Test for PCOS	77	54.6	139	98.6
23.	Treatment measure of PCOS	40	28.4	97	68.8
24.	Drug correct the hormonal imbalance in PCOS	26	18.9	88	62.4
25.	PCOS patients related surgery	61	43.3	108	76.6
26.	Treatment of PCOS except	46	32.6	100	70.9
27.	Laparoscopic drilling procedure for	58	41.1	117	83
28.	Long-term complication of PCOS	53	37.6	129	91.5
29.	Primary prevention of PCOS	61	43.3	103	73
30.	The healthy diet to prevent PCOS except	71	50.4	118	83.7

Table 2 results indicated that proportion of correct answers of statement number 1,2,3,4,6,13,16,18,20, and 22 were significantly higher after delivering intervention. While remaining statement also showed significant difference of correct responses in post knowledge score.

Table 3: Level of knowledge before and after education intervention

Level of knowledge	Pre knowledge		Post knowledge	
	Frequency	Percentage	Frequency	Percentage
Poor Knowledge	59	41.8	2	1.4
Average Knowledge	64	45.4	5	3.5
Good Knowledge	18	12.8	134	95.0

Table 3 shows the level of knowledge of the pre interventional and post interventional groups. There was a substantial change between pre and post intervention knowledge levels, according to the findings. Following the intervention, the percentage of good knowledge increased. Before intervention, approximately 18(12.8%) individuals had strong knowledge, which increased to 134(95%) after intervention.

Test for Normality: The Kolmogorov–Smirnov test was used to check the normal distribution of the data because sample size is >50.

Table 4: Normality statistics table

Variable	Statistic	Df	Sig
Pre-practices scores	.197	141	.000
Post-practices scores	.212	141	.000

Table 4 shows that data was normally distributed as P-value is < 0.05. Therefore, dependent samples t-test was used to test the hypotheses.

Table 5: Comparison of knowledge before and after educational program (n = 141)

Knowledge Scores	Mean	±SD	Mean difference	Range	Minimum	Maximum	t. value	p-value
Pre Knowledge	13.37	7.92		28	1	21		
Post Knowledge	25.00	2.99	11.63	23	6	28	-16.206	.000

Table 5 compares the knowledge scores of female health visitors before and after intervention. To compare knowledge scores before and after educational intervention, a dependent sample t-test was performed. The results showed that the mean post intervention knowledge score was significantly higher after educational intervention compared to pretest values (p 0.0001).

Hypothesis Testing: Hypothesis testing revealed a significant difference in knowledge scores (p0.0001) between students of lady health visitors on polycystic ovarian syndrome before and after an educational intervention programme. Therefore null hypothesis rejected

DISCUSSION

This chapter focuses on the interpretation of the current study's implications in light of previously available literature on the subject under consideration.

The current investigation was carried out on 141 female health visitor students using a simple random selection technique. Out of 141 participants, 114 (80.9%) were between the ages of 17 and 20. A study conducted by (6) and (4) reported that age of majority of participants was between 16 to 30 year. Another study conducted in India demonstrated that majority of participants were aged between 18 to 30 year (18). Majority of girls enrolled in lady health visitors were came after passing their matriculation. Therefore majority of participants were in adolescent age.

The current study has shown that significant percentage (44.7%) of respondents' fathers were passed matric. Consistent with these results, a study conducted in Benha also concluded that fathers of majority participants had matric level education (19). Pakistan is a developing country and here majority of people had matric level education. . The current study also showed that most of the participants' mothers (44.7%) were passed matric and 31.2% had primary level education. Conversely, existing literature reviewed by (1) reported that majority of the mothers of participants' were having university level education.

The present study has shown that about half of the participants lived in urban areas. This finding is consistent with a study conducted in South India reported that majority (40%) of the participants belongs to urban areas (20). During the pretest, the majority of students (41.85%) had limited knowledge about PCOS, while just 12.8% had excellent knowledge. This can be due to the educational program's consistency and clarity as well as its use of the right medium. It also showed that students had learned about PCOS after completing the educational programme.

Almukhtar et al. (2019) confirmed these findings, revealing that a polycystic ovarian syndrome education course was effective and statistically significant at the 0.001 level (1). Furthermore, a study from Egypt examined the impact of an educational programme on PCOS in adolescent females, and researchers discovered an improvement in knowledge scores, which were low in 84% of the students before to the intervention (21).

Furthermore, the current study findings were corroborated by Abraham etal (2019), who investigated the impact of a structured education programme on students' knowledge of polycystic ovaries (22). It was discovered that the majority of students had insufficient understanding prior to the programme, however in the posttest, 53 (83.3%) of them had appropriate knowledge (22). According to a study conducted in Benha, there was a significant increase in PCOS knowledge scores following the awareness programme (p0.001) (23).

Furthermore, a study in south India was done to assess nursing students' knowledge and awareness of PCOS. The effect of structured teaching programme on PCOS and stated that after implementing their teaching programme, adolescent girls' knowledge level on PCOS improved (6). A study conducted in India in 2020, evaluate the effect of structured teaching programme on improving knowledge and attitude of school going adolescents on reproductive health, using teaching programme was an effective method to improve knowledge and attitude of adolescent girls regarding reproductive health (20).

Furthermore, the study findings are comparable to those of Sunanda et al. (2016), who discovered the effectiveness of a PCOS awareness training and discovered that the programme was effective in improving PCOS knowledge (17).

CONCLUSION

PCOS is a disorder that, if not appropriately handled, can lead to a variety of health problems and have an impact on the reproductive health of adolescent. Lady health visitors who were taught about PCOS gain information, which aids in the early detection and prevention of PCOS. According to the study's findings, an education intervention improves lady health visitor's awareness of polycystic ovarian syndrome. Prior to the utilization of teaching sessions, most students were unaware of polycystic ovarian syndrome. The knowledge score on polycystic ovarian syndrome increased after the educational sessions.

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