• Basic Research

Effect of Educational Program on Quality of Life among Women with Polycystic Ovarian Syndrome

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Abstract

Background: Polycystic ovarian syndrome (PCOS) is a hormonal problem and has a significant effect on women's quality of life. Women with PCOS may have irregular or prolonged menstrual cycles and fail the ovary to release eggs. Aim: The study aimed to evaluate the effect of educational program on quality of life among women with polycystic ovarian syndrome. Research design: A quasi-experimental design was adopted to achieve the study aim. **Research setting:** The study was performed at the outpatient gynecological clinic at Maternity and Children Hospital in Hafer Al Batin Governorate, KSA. A sampling: a purposive sample of 110 women with PCOS. Tools: Data was collected using three different tools. (1) a structured interviewing questionnaire, (2) a healthy practice assessment scale, and (3) a polycystic ovary syndrome health-related quality of life questionnaire. **Results**: The healthy practice was improved, with a statistically significant difference between the two phases with the improvement of women's quality of life. The practice means score increased from $(12.41\pm4.56 \text{ to } 29.84\pm3.15)$ in the post-intervention phase with a statistically significant relationship between their total quality of life score and their pre-intervention knowledge and practice. The post-intervention, there was a direct relationship between women's total quality of life, their knowledge, and their self-care practice score. Conclusion: When compared to their pre-intervention score, the educational program effectively improves women's knowledge, health self-care practice, and quality of life. Recommendations: To increase women's knowledge about PCOS and improve their quality of life, health education programs should be provided to all women who access gynecological clinics.

Keywords: educational Program, polycystic ovary, Quality of Life.

Introduction

Polycystic ovary syndrome (PCOS) is a hormonal condition that affects many women of reproductive age. Women with PCOS may have irregular or prolonged menstrual cycles. The ovaries may produce many small collections of fluid (follicles) and fail to release eggs regularly. PCOS has a significant negative impact on women's health-related quality of life (HRQOL) and psychological function, with reports of high levels of depression in PCOS women compared to those without the condition ⁽¹⁾. The worldwide incidence of PCOS is similar between 6 percent and 9 percent documented in the United States, the United Kingdom, Spain, Greece, Australia, Asia, and Mexico. This information proposes that there are no racial or ethnic influences on the prevalence of PCOS. According to the World Health Organization (WHO), PCOS affects 116 million women (3.4 percent) worldwide. Hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology are all symptoms of PCOS. The pathophysiology of PCOS is unknown, but complex interactions between genetic, metabolic, and environmental factors may be to blame ⁽²⁾.

Conversely, it is very crucial to be diagnosed early to reduce the disease's undesirable complications. A woman with amenorrhea has a 90 percent chance of having PCOS, according to certain alarming symptoms. Adolescent menstrual irregularity is a sign of hyperandrogenemia, which is one of the leading causes of PCOS and other symptoms like hirsutism, acne, central obesity, and infertility ⁽³⁾.

Asymptomatic, mild, classic, and metabolic forms of polycystic ovary syndrome (PCOS) are the four subtypes based on the severity of symptoms. Women with only polycystic ovarian morphology are asymptomatic form. Anovulation and polycystic ovarian morphology in a mild form. Hyperandrogenism with ovarian dysfunction (anovulation and/or polycystic ovarian) is the classic form. Obesity and/or insulin resistance are present in the metabolic form, which is a mixture of mild and classical forms (abdominal obesity, insulin resistance, increased waist-hip ratio)⁽⁴⁾.

Women are frequently not diagnosed until they attempt to conceive. The effects of obesity, metabolic, inflammatory, and endocrine abnormalities on ovulatory function, oocyte quality, and endometrial receptivity. obesity and/or insulin resistance clarify PCOS subfertility. Furthermore, compared to other subfertility women, PCOS women have a higher rate of miscarriage ⁽⁵⁾.

PCOS in adult women has Risk factors that involve obesity, especially abdominal obesity. Obesity affects at least 30.0 percent of PCOS-affected adult females. Insulin resistance is the cause of hyperinsulinemia. Insulin resistance will affect (50-70%) of adult females with PCOS, resulting in a variety of comorbidities such as glucose intolerance, metabolic syndrome, dyslipidemia, and hypertension (6). PCOS has been associated with several clinical outcomes and disabilities, including reproductive (menstrual irregularity and infertility), metabolic (insulin resistance, diabetes mellitus, and cardiac disorders), and psychological (insulin resistance, diabetes mellitus, and cardiac disorders), PCOS fertility treatment includes Clomid for PCOS, Femara (Letrozole), Metformin, Injectable Gonadotropins, and IVF – In Vitro Fertilization for PCOS ^(2,3).

A multidimensional belief used to describe or treat the physical, emotional, and social elements of specific diseases is defined as health-related quality of life (HRQOL). Chronic conditions, such as PCOS, can have major consequences that must be accurately assessed in terms of QOL. HRQOL can be assessed by both generic and specialized instruments. Several recent research studies have discovered a significant decline in quality of life (QOL) and a highly stressful life for adult females with PCOS, negatively affecting their psychological, social, and sexual well-being ^(7,8). Several studies have examined the impact of PCOS on women's life quality, with some qualitative studies focusing on the impact of PCOS on women's HRQOL. The research, on the other hand, was almost entirely quantitative. PCOS is an important cause of psychological morbidity and affects women's HRQOL, according to several studies on QOL in PCOS adult females from various countries ^(9,10).

The nurse plays a critical role in recognizing these concerns and implementing therapy to improve the quality of life of women with PCOS. The clinical-practice program was developed to help guide care for PCOS women. These programs were developed using a synthesis of research evidence, the consensus of experts, and the perspective of patients. The program generally includes statements of expected practice and specific standards of care against which providers can be audited. When the clinical-practice program was followed, improvements in the care quality and results, as well as decreased costs and variation in practice were shown ^(11,12).

The maternity nurse had significant responsibility in counseling the fall of this phenomenon. They are the main individuals in healthcare. By counseling, educating, and providing support for women with a negative self-image of the physical manifestations of PCOS, the nurses can have a positive effect on women with PCOS. To avoid long-term health problems, education helps women understand the syndrome, and its associated risk factors, and encourages women to make positive lifestyle changes ⁽¹³⁾.

Significance of the Study

Polycystic syndrome in the ovarian is a hormonal disturbance in females of reproductive age which has a significant effect on women's life quality. Therefore, researchers affiliated with the maternity and nursing education branches play an important role in providing clear and accurate information about PCOS to women in gynecological clinics. To improve their quality of life, they encourage them to ask questions to obtain the information they require as the primary source of health promotion. Therefore, they play a crucial role in the current education program. Therefore, awareness of women about PCOS is important for therapy and to avoid extra severe consequences of it. To the best of our knowledge, no previous studies on PCOS educational programs have been conducted in Saudi Arabia. The educational program improves the understanding of women's condition and can clarify the expressed needs of women with PCOS regarding lack of knowledge.

Aim of the study

The present study aimed to assess the effect of educational program on the quality of life among women with polycystic ovarian syndrome. This aim is accomplished through:

1. Assess the quality of life among women with polycystic ovary syndrome pre-intervention.

2. Design & implement an educational program regarding the quality of life for women with the polycystic ovarian syndrome.

3. Evaluate the effect of an educational program on the quality of life among women with polycystic ovarian syndrome post-intervention.

Research hypothesis

Women with polycystic ovarian syndrome who will be exposed to the educational program will have a higher quality of life score compared to their score pre-intervention.

Operational definitions

- **Quality of Life** in this study will be psychosocial, emotional, coping, fertility, obesity, and menstrual, hirsutism domains.
- Childbearing age in the current study is the adult female between the ages of 20 and 40 years.
- The educational program and awareness regarding PCOS, and lifestyle modification pre-and post-intervention were detailed by a researcher.
- **BMI** in this study is overweight, obese, and severely obese.
- **Nutrition plan** or meal plan for adult women with PCOS by consultation of nutritionists in the Clinical Nutrition Department affiliated to the setting of the study.
- **Treatment protocol** (Pharmacological &Nonpharmacological Approaches) follow up by Gynecologist in outpatient department affiliated to the setting of the study.

Subjects and Methods

- Design

A quasi-experimental design was adopted to achieve the study aim.

- Setting

The study was conducted at a gynecologic clinic affiliated with the outpatient department at the Maternity and Children's Hospital, where women can get a follow-up period and treatment of various gynecological disorders in Hafr Al Batin Governorate, Kingdom of Saudi Arabia.

Subjects & Sampling

The sample was purposive of 110 women recruited in the current study from the previously mentioned setting. The size of the sample was established on the prior seven months' census report of the hospital for the outpatient clinic. According to the following the inclusion criteria: Women have PCOS at childbearing age (20 - 40 years), fertility status (try to get pregnant, no of abortion, and no of children, free from other gynecologic problems), assessment for anthropometrics, i.e., height, weight, and body mass index (BMI), and willing to participate in the study. The total number of polycystic women, who were admitted to the previous setting (is 152/year).

The sample size was computed using the formula shown below ⁽¹⁴⁾. Wherever: n=sample size, N=population size (152), e=Margin of errors which is±5%. $n = \frac{N}{1 + N(e)^2} \qquad n = \frac{152}{1 + 152x0.0025} = \frac{152}{1.38} = 110$

Tools for data collection:

Three tools were used to collect the data.

Tool: A structured interview questionnaire

It was developed by the researchers. It included three main sections:

Section I socio-demographic data of the women, such as age, level of education, residence, telephone number and what's up, and working status.

Section II obstetrical & clinical history, which included women's weight and height, menstrual histories such as (menstrual duration in days, amount of menstrual bleeding, the regularity of menstruation, and marriage duration) the onset of PCOS, and treatment as a history of PCOs.

Section III the knowledge of women regarding polycystic ovary syndrome. After reviewing related literature and studies, the authors considered it to evaluate the

knowledge of women related to PCOs. It contained six questionnaires with multiple choices. There were various correct answers to every question, such as definition (3 right answers), signs and symptoms (8 right answers), risk factors (8 right answers), complications (6 right answers), treatment (3 right answers), and healthy practice to reduce warning sign of polycystic ovary (8 right answers). Each woman was advised to select more than one answer. This part (pre/posttest format) was used before and after the use of the educational intervention. The reliability was achieved through the Alpha coefficient test by Cronbach. The internal consistency was (0.90) ^(15,16).

Scoring System of Knowledge

A correct response was scored as "one grade" and the wrong one as "zero." By compiling the totals for the correct answers to each question, the total knowledge score was calculated. The overall potential score varied from (0 to 36 points), the calculated mean, and the standard deviation. The higher rating represents a better knowledge of polycystic ovary syndrome. The overall knowledge score was the following

- **Good**: \geq 75 % of total knowledge score
- Average: 60 % <75 % of total knowledge score
- **Poor** :< 60% of total knowledge scores.

Tool 2: Health self-care practice assessment scale

After reviewing related polycystic research studies, the scientists designed it. It was related to evaluating the healthy self-care practice of women that reduces polycystic ovary symptoms. It's a three points scale. It included (18) statements on three primary self-care practices, including self-care practice in nutrition (8 statements), physical activity (6 statements), and self-care practice concerning treatment protocol (4 statements). The accuracy was achieved through Cronbach's Alpha coefficient test. The internal reliability was (0.898) ⁽¹⁶⁾.

System of scoring for self-care practice

Each statement was scored as (0) never done for, (1) sometimes done for, and (2) usually done for the overall probable score varied from one score to the next (0 to 36 marks). Standard Deviations and Means Calculated The higher scores reflect a higher level of healthy self-care practices among women. The following formula is used to compute the total practice score:

- Satisfactory practice: $\geq 60\%$ of the overall score for self-care practice.
- Unsatisfactory practice < 60%% of the overall score for self-care practice.

Tool 3: Questionnaire on health-related quality of life:

It was approved to evaluate the quality of life of adult females with PCOs. A total number of 43 statements were included: psychosocial and emotional (12 statements), fertility (9 statements), obesity and menstrual disorder (9 statements), hirsutism (6 statements), and coping were grouped into six domains: (7 statements). It was provided with an Arabic translation of the questionnaire. Cronbach's Alpha coefficient test was used to determine reliability. The internal consistency of the polycystic ovary syndrome health-related quality of life questionnaire (PCOSQ-43) was tested (0.96). Each domain's reliability was assessed (0.89) for psychosocial and emotional domains, (0.93) for the domain of fertility, (0.92) for the domain of obesity and menstrual disorder, (0.94) for the domain of hirsutism, and (0.87) for the domain of coping ⁽¹⁷⁾.

Quality of Life Scale Scoring System:

Each item is scored on a Likert 5-point scale (always, often, often, rarely, never) ranging from (1) always (worst condition) to (5) never (best condition). The last score varied between 50 and 250. The range of different subscales is determined by the number of items on the scale. In each domain, the average score is assessed by dividing the quantity of the items replied by the total number of items replied.

- Low quality of life: <60% of the total score for quality of life.
- Moderate quality of life: 60-75% of the total score for quality of life.

- High quality of life: >75% of the total score for quality of life.

Field Work:

The study began from 2019 to 2020. After receiving approval from the Dean of Gulf College, Hafar Al-Batin governorate, it was delivered to the health affairs and the authority of the hospital for facilitating data collection. The study's goal was explained in detail. The research was divided into four stages: assessment, planning, implementation, and evaluation. The previously mentioned setting was visited by the researchers three days/ weeks (Sunday, Monday, and Wednesday) from 9.00 am to 12.00 pm, according to the schedule of the outpatient clinic in the studied setting. The educational program included four stages:

- Assessment stage: after ensuring formal authorizations to perform the current research, each adult female was interviewed separately in the outpatient clinic in the waiting place. The aim and the procedure of the study were explained for participation. The tools (2&3) of data collection were used to assess women's knowledge, healthy practices, and quality of life. A pre-test based on the results of the research on women's knowledge and healthy practice needs.
- **Planning stage**: The educational intervention was developed by the researchers based on the findings attained from the interview sheet from the pilot study and assessment stage, and a review of the related literature. Demands, constraints, and deficiencies were identified and translated into common and specific educational intervention goals. The educational health intervention's content is chosen based on known requirements. To match teaching in small groups in the form of group discussion, various teaching strategies and techniques are chosen. An objective of the educational program was to improve the quality of life amongst polycystic ovary women. The content of the interventional program consists of:
 - Definition and polycystic ovary syndrome signs and symptoms.
 - Danger features and polycystic ovary syndrome complications.
 - Health patterns that decrease the intensity of polycystic ovary syndrome symptoms.
 - Healthy nutritional patterns and the significance of practice exercises.
 - Importance of physical activity and practice of daily exercises.
 - The responsibility of treatment protocol.
- **Implementation phase:** The current educational program was implemented through (12) separate sessions for all studied women. Women were recruited into (6) groups, each group had 16 or 17 women. Two sessions for each group session. Each meeting varied from 40-50 minutes, followed by 10-15 minutes for summary and discussion to evaluate what has been taught. An educational handout (Booklet) was established by the researchers and presented to each woman to guide the adult women during the program intervention. It contained knowledge concerning meaning, signs and symptoms, risk factors, complications, and health habits that reduce the intensity of PCOS. Also, it included instructions about healthy nutritional habits. Women were instructed to increase their intake of the following diets:
 - The low glycemic index diet included whole grains, legumes, nuts, seeds, fruits, starchy vegetables, and other unprocessed, low-carbohydrate foods.

- An anti-inflammatory diet, which includes foods such as berries, fatty fish, leafy greens, and extra virgin olive oil, may help to reduce inflammation-related symptoms such as fatigue.
- Dietary Approaches to Stop Hypertension (DASH) suggests changing the nutrition to lower your danger of heart illness. It may also aid in the treatment of PCOS symptoms. fish, poultry, fruits, vegetables, whole grains, and low-fat dairy products are all abundant in this diet. Saturated fat and sugar-rich foods are prohibited from the diet. Also, women were instructed about the importance of weight loss during treatment and on enhancing their quality of life, through participation in physical activity, the practice of daily exercises, and walking daily for more than 30 minutes. Besides the action of medication was explained to women to improve their commitment to treatment protocol and attendance for the follow-up-evaluation phase.
- **Evaluation phase:** The assessment was used two times; the first was pre-intervention and then the post-intervention. The communication for women from intervention through telephone and what's up message for any clarification or questions and or any problems that arise until follow up at three months for the participants. The second time was by interviews in outpatient clinics after three months of the intervention during follow-up in the hospital to evaluate their knowledge, self-care healthy practices, and quality of life scores.

Content validity

The questionnaire sheet was tested for content validity by an expert panel comprising five obstetrics and community health nursing. Tool's reliability was tested by Cronbach's Alpha test (internal consistency) and the results were (90%) which means high reliability of the tools.

Pilot study

A pilot study was carried out for (10) women for each group that represent 10% of the subject; it aimed to assess the efficiency, plan, and content validity of the tool and to find the possible obstacles and problems that might be faced during data collection. The pilot study participants were excluded from the total study sample. According to the results of the pilot study, tool elements were revised to make them clearer for the study sample, and consideration points were reorganized.

Ethical Considerations:

The official agreement was taken from the counsel of the Department of Hospitals and Health Services Administration and the Scientific Research Ethical Committee in Gulf Collages. A letter with the title and goal was also sent to the director of the health affairs, and permission to collect data from the Maternity and Children's Hospital. Following an explanation of the study's purpose, oral informed consent was obtained. Those who agreed to be included in the research were guaranteed their confidentiality, privacy, and the ability to withdraw at any time.

Statistical analysis

The analysis of data was done using the Statistical Package for Social Sciences (SPSS version 23) program. Descriptive & analytical statistics were calculated. To determine relationships between groups, use the difference sample test, t-test, and chi-square test. The relationship between the studied variables was estimated using the correlation coefficient. The significance level is expressed as a p-value. When the p-value was less than 0.05, a significant level value was considered, and when the p-value was less

than 0.001, a highly significant level value was considered, while a p-value > 0.05 indicated non-significant results.

Results

Table (1): reveals that 50% of the women were aged 25-<35 years, with a mean age of 31.88±6.73, It was also noticed that more than one-third 36.37% of women had secondary education, and (55.45%) there were working women.

Figure (1): displays that 46.5% &39.1 of the studied women were overweight and obese at the preintervention phase, respectively, while after the intervention, the BMI of the studied women was slightly decreased, and the obesity percentage reduced from 60.7% to 25.2%.

Table (2): shows that (52.73% & 54.55%) of the studied women had menstrual flow from (4-6) days with excessive blood flow, respectively, and (82.73%) of them had irregular menstruation. Moreover (50.91% & 56.36%) had the onset of the s PCOs from (1-<2 years) and they were medically treated.

Table (3): represents the total mean scores $(8.95\pm5.66\&33.80\pm3.91)$ pre-and post-intervention program in relation to polycystic ovary knowledge of women in the studied sample of both groups respectively.

Figure (2): illustrates that after the educational program intervention, (76%) of the women studied had a good level of knowledge, compared to (5.2%) before the intervention.

Table (4): demonstrates that the total mean scores pre-and post-intervention among the studied women were $(12.41\pm4.56\&29.84\pm3.15 \text{ score})$ as polycystic ovary-related healthy practices.

Figure (3): explains that after the educational Program intervention, (78%) of the women in the study had satisfactory healthy practices, compared to only (24%) before the intervention.

Table (5): shows a high statistically significant difference between mean scores of the psychosocial and emotional, and coping domains for studied women concerning the quality of life at post-program intervention with (p- value<0.001).

Table (6): indicates a high statistically significant difference among mean scores at (p-value <0.001) regarding the women's fertility, obesity, and menstrual disorder domains of life quality between pre-and post-educational intervention.

Table (7): explains the total mean scores $(10.73\pm3.93\&21.77\pm2.86)$ of the hirsutism domain of quality of life between women pre- and post-educational intervention.

Figure (4): illustrates the total quality of life score pre-and post-intervention, it indicates that (59.20%) of them had a high level of quality of life after the implementation compared to (0%) before the intervention for the studied women with PCOS.

Table (8): describes a positive relationship between the total score for quality of life and their knowledge and practices score during the pre-intervention phase for the studied women. There is a high positive relationship between studied women's overall scores for their quality of life, knowledge, and self-care practices score during the post-implantation phase.

Tables

Table (1) Socio-demographic data of the studied sample (N= 110).

Socio-demographic data	No	%
Age in years		
20-<25	38	34.55
25-<35	55	50.00
35-40	17	15.45
Mean ±SD (age in years)	31.88	±6.73
Mean ±SD age at PCOS diagnosis	24.5	±5.15
Educational level		
Illiterate/ read & write	15	13.63
Basic education	20	18.19
Secondary education	40	36.37
University education or more	35	31.81
Residence		
Inside Hafr El-Batin	81	73.64
Outside Hafr El-Batin	29	26.36
Occupational status		
Working	49	44.55
Not working	61	55.45



Figure (1): The BMI of the studied sample pre-and post-intervention.

Items	No	%
Menstrual history		
Duration in days		
2-4 days	12	10.90
4-6 days	58	52.73
>6 days	40	36.37
Mean ±SD	6.8	38±1.88
Amount of menstrual bleeding		
Normal	50	45.45
Excessive	60	54.55
Regularity of menstruation		
Yes	19	17.27
No	91	82.73
Duration of marriage		
1-<3 years	22	20.00
3-<4 years	39	35.45
>4 years	49	44.55
Mean ±SD	3.0)4±0.93
Fertility status		
Tried to get pregnant		
Mean ±SD	9.0)4±3.93
<5	10	9.10
5-<10	70	63.63
>10	30	27.27
No of children		
0 children	30	27.28
1 child	40	36.36
2 children	40	36.36
Un intended/unplanned pregnancy	0	0.00
PCOS abortion		
No	50	
2	30	
3	30	
The onset of polycystic ovary		
Less than one year	29	26.36
1 - < 2 years	56	50.91
>2 years	25	22.73
Polycystic Ovary Treatment	25	
Medical	62	56 36
Surgical	27	24 55
Both surgical and medical treatment	21	19 00
Polycystic ovary classification form	<i>2</i> 1	17.07
Asymptomatic	10	9.10
Mild	40	36.36
Classical	40	26.30
Metabolic	20	18 19
wicid00iic	20	10.10

Table (2): The obstetric & polycystic ovary history of the studied sample (N=110).

Items	Correct answers numbers	Pre- intervention (Baseline) Mean ±SD	Post- intervention (3 months) Mean ±SD	Paired t-test	p- value
Polycystic ovary syndrome definition	4	1.04 ± 0.85	2.74 ± 0.44	-19.780	< 0.001
Polycystic ovary syndrome signs and symptoms	7	1.61±0.27	7.47±0.99	-34.548	< 0.001
Polycystic ovary syndrome risk factors	8	$1.80{\pm}1.30$	7.50±0.99	-35.142	< 0.001
Polycystic ovary syndrome complication	6	1.69 ± 1.28	5.85 ± 0.74	-33.955	< 0.001
Polycystic ovary syndrome treatment	3	0.86 ± 0.67	2.76 ± 0.42	-23.241	< 0.001
Healthy practice for decreasing polycystic ovary syndrome symptoms	8	1.95±1.29	7.48±.96924	-33.576	< 0.001
Total	36	8.95±5.66	33.80±3.91	-30.04	< 0.001

Table (3): knowledge mean score pre-and	post-intervention program of the studied sample
(N=110).	

P-value at (<0.001) reflected a highly significant level value.



Figure (2): The total knowledge score of the studied women concerning polycystic ovary syndrome pre-and post-intervention.

Table (4): The self-care healthy practice means score pre-and post-intervention program of the studied sample (N=110).

Items	Item s	Pre-intervention (Baseline) Mean ±SD	Post-intervention (3 months) Mean ±SD	Paired t-test	p-value
Self-care healthy practice for nutritional	7	6.20±3.13	13.10±1.20	- 25.966	< 0.001
Self-care healthy practice for physical	8	5.10±2.25	8.99±1.25	- 23.298	< 0.001
Self-care practice toward treatment procedure	3	1.11±1.28	7.75±0.70	- 37.119	< 0.001
Total	18	12.41±4.56	29.84±3.15	-28.79	< 0.001

P-value at (<0.001) reflected a highly significant level value.



Figure (3): The total self-care healthy practices score concerning PCOS pre-and postimplementation among the studied sample.

Table (5): Association of studied w	vomen's psychosocial,	, emotional, and o	coping domains	of life
quality pre-and post-educational i	ntervention(N=110).			

		Pre-	Post-	D • 1/	
Items	int	cervention	intervention	Paired t-	p-value
-	() M	basenne)	(3 months) Moon +SD	test	_
Psychosocial and emotional domains	101	lean ±5D	Weall ±5D		
Depression because of PCOS	1	99+0.61	3 69+0 61	21.01	< 0.001
Moody because of having PCOS	2	01+0.64	3 75+0 65	16.77	<0.001
Blamed for having PCOS	1	.90±0.71	3.57±0.58	18.30	<0.001
Inability to control the situation with PCOS.	1	.97±0.63	3.61±0.59	21.09	< 0.001
Low self-esteem because of PCOS	1	.89±0.64	3.68±0.60	21.18	< 0.001
Aggressiveness because of PCOS.	1	.77±0.68	3.75±0.64	20.50	< 0.001
Pessimistic felt about the treatment.	1	.81±0.63	3.73±0.63	21.78	< 0.001
Embarrassment because of appearance	1	.83±0.62	3.79±0.70	21.22	< 0.001
Women Felt unattractive or ugly.	1	.82±0.64	3.62±0.63	21.73	< 0.001
Emotional instability.	1	.83±0.62	3.72±0.65	22.98	< 0.001
Afraid of getting cancer	1.	.90 ±0.62	3.75±0.65	20.56	< 0.001
Women Tired easily	1.98±0.68		3.58±0.63	18.65	< 0.001
Total	22	2.70±8.91	44.51±7.56	20.48	< 0.001
Coping domain					
Lack of family support and the disease acceptanc	æ.	1.85 ± 0.66	3.70±0.70	21.60	< 0.001
Lack of satisfaction with the existence of a woma	an.	1.90 ± 0.64	3.68±0.78	22.10	< 0.001
The desperate need for a cure.		2.13±0.60	3.50±0.69	17.10	< 0.001
Comfortable speaking with others about PCOS		1.89 ± 0.68	3.67±0.68	18.75	< 0.001
Women felt easy in with others about PCOS		2.06 ± 0.59	3.65±0.92	16.36	< 0.001
Dissatisfaction with her appearance (self-image)		1.99±0.48	3.80±0.94	17.75	< 0.001
Women felt a lack of satisfaction with the role of wife	a	1.80±0.70	3.50±0.79	18.40	< 0.001
Total		13.62±4.35	25.50±5.50	18.86	< 0.001

P-value at (<0.001) reflected a highly significant level value.

	Pre-	Post-		
T 4	intervention	intervention	Paired	
Items	(Baseline)	(3 months)	t-test	p-value
	Mean ±SD	Mean ±SD		
Sad when seeing children	1.81±0.63	3.70±0.58	21.80	< 0.001
Sad when seeing pregnant women.	1.93±0.57	3.70±0.82	18.26	< 0.001
Infertility problems	1.97 ± 0.44	3.90±0.79	20.90	< 0.001
Accept manifestations PCOS	1.70±0.68	3.72±0.63	21.87	< 0.001
Fear of abortion	1.79±0.68	3.66±0.60	20.72	< 0.001
Sad because of infertility problems in the future.	1.77±0.66	3.59±0.60	21.94	< 0.001
Fear of divorce or separation	1.78±0.63	3.65±0.63	23.26	< 0.001
The uselessness of sexual relation	1.83±0.64	3.52±0.55	21.50	< 0.001
Consequences of PCOS medication	1.96±0.62	3.66±0.62	18.80	< 0.001
Total	18.52±5.55	33.10±5.82	21.01	< 0.001
Obesity and menstrual disorder domain				
Trouble dealing with weighing	2.43±0.63	3.72±0.63	21.53	< 0.001
Lose weight to control PCOS symptoms.	1.84 ± 0.62	3.80±0.65	22.81	< 0.001
A rapid return to prior weight after any loss of	1 92+0 61	3 79+0 67	20.43	<0.001
weight	1.92±0.01	5.77±0.07	20.43	<0.001
Concerned about the complete menstruation	2 05+0 67	3 60+0 63	18 99	<0.001
cessation	2.05±0.07	5.00±0.05	10.77	<0.001
Concerned about menstruation at long intervals	1.86±0.65	3.70±0.58	22.01	< 0.001
Willingness to decrease the weight to be more	1 74+0 66	3 69+0 57	21.24	<0.001
attractive to the spouse	1.7 120.00	5.0720.57	21.21	<0.001
Fear of diseases for example diabetes mellitus	2.07+0.57	3.73+0.52	28.82	< 0.001
and hypertension.	2.07 _0.07	5.7520.62	20.02	(0.001
Need to abandon treatments due to repetitive do	1.70+0.66	3.70+0.62	21.88	< 0.001
visits.	1	2020.02		
Afraid of getting cancer	1.76±0.67	3.68±0.60	20.20	< 0.001
Total	17.37±5.74	33.41±5.47	21.99	< 0.001

Table (6): Association of studied women's fertility, obesity, and menstrual disorder domains pre and post-educational intervention for women QOL.

P-value at (<0.001) reflected a highly significant level value.

Table (7): Association of studied women's hirsutism domain of life quality pre and post-educational intervention(N=110).

Items	Pre- intervention (Baseline) Mean ±SD	Post- intervention (3 months) Mean ±SD	Paired t-test	p-value
Embarrassed due to excess facial hair	1.77±0.69	3.43±0.85	17.14	< 0.001
Body and facial hair that is excessive	1.75±0.65	3.60±0.70	19.88	< 0.001
Growth of visible hair on the upper lip	1.78 ± 0.68	3.69±0.72	19.38	< 0.001
The rapid regrowth of undesirable hair after its removal.	1.81 ± 0.64	3.70±0.73	21.10	< 0.001
Embarrassment about excessive body hair	1.80 ± 0.62	3.75±0.75	19.74	< 0.001
Want to cover body and face due to excess hair	1.82 ± 0.65	3.60±0.69	21.11	< 0.001
Total	10.73±3.93	21.77 ± 2.86	19.73	< 0.001

P-value at (<0.001) reflected a highly significant level value.



Figure (4): The total quality of life pre-and post-intervention among the studied sample.

Table (8): Association between the studied sample's total score of quality of life and their total knowledg	e
and practices score (N=110).	

Variable	Times of assessment	Total Knowledge score		Total healthy	practice score
		r	р	r	р
Quality of life	Pre-intervention (Baseline)	0.213	< 0.05	0.257	< 0.05
	Post-intervention (3 months)	0.544	< 0.001	0.642	< 0.001

 $P-value \ at \ (<\!0.001) \ reflected \ high \ significant \ correlation, \ p-value \ at \ (<\!0.05) \ reflected \ a \ statistically \ significant \ correlation.$

Discussion

PCOS is a systemic issue with numerous consequences both at the time of onset and later in a woman's life. Maternity nursing plays a significant role in identifying these concerns and implementing interventions to improve the quality of life for women with PCOS (Wolf, et al., 2018)⁽¹⁸⁾. The present study revealed that more than half of the studied women had a high level of quality of life after the intervention compared to before the intervention. There is a positive relationship between the studied sample's overall scores for their quality of life, knowledge, and self-care practice score during the post-intervention phase. The existing results agreed with (Bazarganipour, et al., 2012)⁽¹⁹⁾ & (Mohamed & Moustfa, 2019)⁽²⁰⁾. They mentioned a significant association between weight and QOL. This was in the same line with (Moghadam, et al., 2018)⁽²¹⁾, the study reported that there was a significant difference in women's knowledge levels and attitudes pre and post-test. This finding means that the lifestyle modification package was effective for women with PCOS. Also, the current findings were supported by (Mohamed, et al., 2015)⁽¹⁶⁾, who stated that there was a statistically significant difference in mean knowledge score before and after educational sessions in all variables. Thus, the utilization of educational sessions was found to be effective in increasing awareness of late adolescents about polycystic ovarian syndrome.

Furthermore, the findings agreed with (**Mohamed**, **2016**)⁽²²⁾ & (**Mina**, et al., **2018**)⁽²³⁾ & (**Nimo**, **2015**)⁽²⁴⁾ who concluded that educational program was effective in enhancing the knowledge of adolescent girls and providing information in a structured approach leads to improving their awareness of their syndrome. This study result was in concordance with (**Hassan & Farag**,**2019**)⁽²⁵⁾ who discovered the relationship between women's QOL and the incidence of PCOS and improved women's knowledge and increased understanding regarding PCOS. There was an improvement in women's knowledge of allover items with a highly significant relation. Additionally, the total mean score of women's knowledge was improved. The improvement in knowledge grade may be assigned to a comprehensive variety of educational techniques used by the authors as audiovisual materials, pamphlets, lectures, videos, and discussions as well as an Arabic booklet.

The symptoms of PCOS, such as hyperandrogenism, hirsutism, infertility, and pregnancy complications, are exacerbated by obesity. Both obesity and insulin resistance increase diabetes mellitus type 2 and cardiovascular diseases. Obesity also worsens insulin resistance and the reproductive and metabolic symptoms of PCOS. Obesity led to complications for example anovulation, miscarriage, inability to remain pregnant, gestational hypertension, or diabetes). Also, lead to failure or delayed response to various treatments, including clomiphene citrate, gonadotropins, and laparoscopic ovarian diathermy. Weight loss is considered first-line therapy in obese women with PCOS (María, et al., 2012) ⁽²⁶⁾ The current study has also revealed that more than three-quarters of the studied women had irregular menstruation. This outcome harmony with (Afifi, et al., (2017) ⁽²⁷⁾, who stated that half and a little more of their studied subjects had irregular menstruation.

Moreover, this finding matched with (**Colwell et al., 2010**) ⁽²⁸⁾, who discovered that after sharing in a clinical research study, women with PCOS felt more knowledgeable and motivated to implement preventive health strategies. Women with PCOS were able to feel physical and psychological benefits and engage more with their health care providers after learning about how PCOS affects their direct and longstanding health. These results supported the research hypothesis.

The present study showed that more than half of the studied women had a high level of quality of life after the program application compared to none before the implementation. This result agreed with (**Mani, et al., 2015**) ⁽¹⁴⁾, who stated that providing structured education alongside routine medical treatment can help participants better understand their condition, reduce anxiety, and improve their quality of life. The finding also agreed with (**Abd Elmenim & Emam, 2016**) ⁽²⁹⁾, the researchers concluded that lifestyle modifications help in decreasing symptoms of PCOS which subsequently reflected positively on their quality of life. Also, the finding was congruent with (**Dumesic, et al., 2016**) ⁽³⁰⁾, who emphasized the importance of adopting a healthy lifestyle that includes a hypocaloric diet and physical activity to lose weight. In addition to the first line of treatment, which is a lifestyle change, weight loss without adjunct medication leads to at least partial resolution of PCOS symptoms.

In addition, the current findings were agreement with (**Oers, et al.,2017**)⁽³¹⁾, who stated that lifestyle modification not only affects a woman physically but also affects her mental status. The study also revealed a significant enhancement in psychological health-related QOL of the studied sample post-intervention as compared to pre-program application. These similarities could be because of acquired

knowledge concerning PCOS that may help them to implement self-care healthy practices and accommodate the disease, which reflected finally on their women's life quality. Taking into consideration PCOS as heterogeneous with many symptoms, the maternity nurse working in gynecology clinics needs a full understanding of its pathophysiology, diagnostic measures, and symptoms, nursing intervention and care, health education, and management. This study helps the nurses to make sure that women receive enough oral and written information or knowledge for PCOS to guide them. In summary, our results indicate that educational programs affect the quality of life among women with polycystic ovary positively. This finding supported the research hypothesis.

Abbreviations:

- **PCOS**: polycystic ovarian syndrome.
- **QOL:** Quality of life.
- **HRQOL**: Health-related quality of life.
- **DASH**: Dietary Approaches to Stop Hypertension.
- **NIH**: National Institutes of Health.
- KSA: Kingdom of Saudi Arabia.

Conclusion

The results of this study approved research hypotheses and concluded that an educational program is effectively improving mean knowledge, self-care healthy practice, and quality of life scores compared to their pre-intervention score.

Recommendations

The results of the study, the researcher recommends:

- The educational program is highly recommended for adult females with polycystic ovaries to enhance their quality of life.
- Health education intervention programs must be given to all adult females who attend outpatient gynecological clinics to improve the women's awareness and knowledge about PCOS and its treatment to allow immediate recognition and enhance their quality of life.
- Repetition of the current research on a bigger sample size in wider geographical areas to achieve generalization.

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الملخص العربى العنوان : تأثير تطبيق برنامج تعليمي على جودة الحياة لدى النساَّء المصابات بمتلازمة تكيس المبيض. **المقدمة**: متلازمة تكيس المبيض هي مشكلة هر مونية ولها تأثير كبير على جودة حياة المرأة. النساء المصابات بمتلازمة تكيس المبيض يعانون من عدم إنتظَّام أوطول مدة الدورة الشهرية وفشل المبيض في إفراز البويضات. الهدف من الدراسة: هدفت الدراسة إلى تقييم تأثير تطبيق برنامج تعليمي على جودة الحياة لدى النساء المصابات بمتلازمة تكيس المبيض. يتم تحقيق هذا الهدف من خلال: تقييم جودة الحياة بين النساء المصابات بمتلازمة تكيس المبيض قبل تطبيق البرنامج. تصميم وتنفيذ برنامج تعليمي حول جودة الحياة للنساء المصابات بمتلازمة تكيس المبيض. تقييم أثر البرنامج التعليمي على جودة الحياة بين النساء المصابات بمتلازمة تكيس المبيض بعد تطبيق البرنامج. فرضية البحث: النساء المصابات بمتلازمة تكيس المبيض اللاتي سيتعرضن للبرنامج التعليمي سيكون لديهم درجة عالية في جودة الحياة مقارنة بدرجاتهم قبل تطبيق البرنامج. تصميم الدراسة : تم استخدام تصميم شبه تجريبي لتلبية الهدف من هذه الدراسة. **مكان الدراسة:** أجريت هذه الدراسة في العيادة الخارجية لأمراض النساء بمستشفى الولادة والأطفال بمحافظة حفر الباطن - المملكة العربية السعودية. عينة الدراسة: من خلال عينة هادفة من 110 امرأة مصابة بمتلازمة تكيّس المبيض. **أدوات الدراسة**: تم جمع البيانات باستخدام ثلاث أدوات مختلفة. (1) استبيان المقابلات الشخصية ، (2) مقياس تقييم الممارسات الصحية ، (3) استبيان جودة الحياة المتعلق بمتلازمة تكيس المبيض. النتائج: لقد أسفرت نتائج البحث عن تحسين الممارسة الصحية مع وجود فروق ذات دلالة إحصائية بين المرحلتين مع تحسين جودة حياة المرأة. تعني الممارسة زيادة الدرجة من (12.41 ± 4.56 إلى 29.84 ± 3.15) في مرحلة ما بعد التدخل مع وجود علاقة ذات دلالة إحصائية بين درجة الجودُة الإجمالية لحياتهم ومعرفتهم وممار ستَّهم قُبل التدخل. بعد التدخل ، كانت هناك علاقة مباشرة بين جودة الحياة الإجمالية للمرأة ، ومعرفتها ، ودرجة ممارسة الرعاية الذاتية. الخلاصة: علي ضوء هذه النتائج نستخلص التالي: عند مقارنة النتائج قبل تطبيق البرنامج التعليمي فإنة وجد درجات تحسن عالية فيَّ وجودة الحياة لديّ السيدات بشكلُّ واضح في معلوماتهم وممارساتهم للرعاية الذاتيةُ الصحية. التوصيات: أفضت نتائج هذه الدراسة إلى التوصيات التالية : ازدياد معلومات السيدات حول متلازمة تكيس المبيض وتحسين جودة حياتهن ، ويجب توفير بر امج للتثقيف الصحى لجميع النساء اللواتي يتابعن في العيادات الخارجية لأمر اض

النساء

الكلمات الدالة: برنامج تعليمي ، تكيس المبيض ، جودة الحياة .