Effect of Health Promoting Lifestyle Educational Intervention on Knowledge and Quality of Life of Menopausal Women

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Abstract

Background: Inadequate knowledge about menopause among women leading to impaired quality of life (QOL). Paying attention to health promotion through lifestyle modification is an important measure to improve the health and quality of life of menopausal women. **Aim:** to evaluate the effect of health promoting lifestyle educational intervention on knowledge and quality of life of menopausal women. **Design:** A quasi-experimental research design (pretest /post-test control/study) was utilized. **Settings:** The study was conducted at obstetrics and gynecological outpatient clinic in Benha University hospital in Egypt. **Sample:** A purposive sample of 78 menopausal women among those attending previous mentioned setting. **Tools:** a structured interviewing questionnaire, health promotion lifestyle model Profile-II and menopause specific quality of life (MENQOL) tools were used. **Results:** Significant improvement in knowledge scores immediately after intervention ($p < 0.0001$) and three months follow-up ($P < 0:001$) in the study group. Highly statistically significant difference ($p < 0:001$) in mean health promoting behaviors score in the study group were found immediately after the intervention and three months follow-up compared to the control group. There was highly statistically significance difference between study and control group regarding all MENQOL after intervention and three months follow up. As all menopause specific quality of life scores decreased immediately post intervention and during follow-up in the study group MENQOL, scores increased in the control group with time. **Conclusion**: An educational intervention focused on health-promoting lifestyle modifications improves menopausal women's knowledge regarding menopause and menopause specific quality of life. **Recommendations:** Designing educational program to reduce the menopause-related health problems is a must.

Keywords: Health promotion, Educational intervention, Knowledge, quality of life, menopause.

I Introduction

Menopause is a natural biological process leading to a transition from a reproductive to a non-reproductive state experienced universally by all women due to ovarian failure. It is one of the most important stages in women's life that occurs at midlife (45-60 years). According to the World Health Organization (WHO), menopause is defined as a true 12-month menstrual cessation due to ovarian follicle loss [1].

The number of menopausal women has been increasing in recent years due to the increase of life expectancy [2]. It is estimated that the population of women aged over 50 years in the world will reach 1.2 billion by 2030. So; menopause is the

center of attention for many health communities and has been raised as a major health and social problem in different countries [3]. Nowadays, most women spend more than one-third of life beyond menopause. After which body undergoes changes reported by women who can affect lifestyle patterns leading to impairment of quality of life (QOL) [4].

Studies show that the menopausal changes have an adverse effect on women's quality of life. It has been expressed that 96% of women have menopausal complaints and quality of life (QOL) is affected not only physically and psychologically but also socially. It is reported that the QOL of women is especially unfavorably marked in the peri menopausal and early postmenopausal periods [5]. Menopause affects short-term quality of women's life such as physical and psychological changes includes vasomotor symptoms, sleep, mood disorders, difficult concentration, daily dysfunction, anxiety, fatigue, and emotional instability; as well as for long-term changes such as genitourinary symptoms and decreased bone mineral density [6].

During menopause, women face many challenges; however, this time is an opportunity to change life and improve health status. Lifestyle which is relatively easy to change can be the focus of interventions in this regard. WHO defines the term ''lifestyle'' based on distinct behavioral patterns that derive from the interaction between personality traits, social interaction, environmental conditions, and socioeconomic status [1].Menopausal women's unhealthy lifestyle and inadequate knowledge about menopausal period is the origin of many serious side-effects of this period and

increase of menopause-related symptoms and impairment of overall QOL at an individual level. This negatively affects the family and society [4].Health education is defined as essential strategy in health care that make changes in behavior and promote good health in order to improve (QOL) [7]. Promoting lifestyle-related behaviors will lead to maintain the function and independence of individuals, improving quality of life and reducing health care costs [8].In this regard Pender's Health Promotion Model (HPM) is one comprehensive model that emphasizes the promotion of health and the empowerment of individuals for achieving better health and preventing diseases through behavioral changes [9]. Nurses play a pivotal role in the delivery of high quality holistic care to people with long term conditions such as menopause through increase awareness of menopausal women regarding changes and healthy lifestyle to prevent menopause related problems [10]

Significance of the study:

Menopause has been given little attention hence gaps exist concerning women's knowledge, quality of life, and the effects of health education on the same subject [1]

According to WHO, 70%-80% of deaths in developed countries and 50%-60% in developing countries are related to unhealthy life style. Scientific evidences suggest that the lifestyle influences health and longevity of the people and has positive effect on reducing the side-effects of menopause [11].The mean age of the menopause in Egypt is 46.7 years, which is low compared to many countries, but this age has been rising recently. The incidence of menopause in Egyptian women is higher than in the West, probably because of the different

'sociocultural attitudes' towards the menopause in different communities [11]

The most important concern of health promotion is prevention of diseases, developing skills and abilities of individuals in taking care of themselves . The studies on health promotion behaviors and the quality of life of menopausal women is an unexplored area of research [12].

For our knowledge, there were no studies in Benha University about effect of health promotion on knowledge and QOL among menopausal women, Therefore, the current study based on Pender's HPM was designed to evaluate the impact of a health-promoting lifestyle educational intervention (HPLEI) on Knowledge and Quality of Life of menopausal women.

Aim of the study:-

This research aimed to evaluate Effect of Health Promoting Lifestyle Educational Intervention on Knowledge and Quality of Life of Menopausal Women.

Research hypothesis: Menopausal women who received health educational intervention focused on health-promoting lifestyle modifications will exhibit better knowledge regarding menopause, and better quality of life (QOL) than those who don't receive.

Operational definitions:

Health Promoting Behavior (HPB): The health-promoting lifestyle by empowering individuals will increase control over their health, improve quality of life, and prevent diseases.

II. Subjects and Method

2.1. Research design: A Quasi-experimental research design (pre/post-test control/study). which specifies that an observation (called a pre-test) was assessed before intervention is introduced to control and study individuals (or other units), the intervention subsequently introduced, and finally a second observation (called a post-test) was applied in different times. The difference between the pre-test and post-test observations is used to estimate the size of the effect of the intervention .

2.2. Setting: The research was applied at obstetrics and gynecological outpatient clinic in Benha university hospital. This setting provides obstetrics and gynecological healthcare services that include family planning, antenatal care, counseling, care for high risk pregnancy, and delivery care and follow up services from 9am-12pm.

2.3. Sampling:

Sample size: (10%) of the annual flow rate of all women (780) of Benha university hospital statistical census center (2020) who attended above mentioned   setting so the sample consisted of 78 menopausal women.

Sample type: A Purposive sample of 78 menopausal women was included in the current research according to the following **inclusion criteria:** (a) women whose last menstrual period was at least 1 year, (b) women who were undergoing menopausal symptoms (c) had intact uterus and ovaries (d) agreed to participate in the study. **Exclusion criteria**: (a) women aged more than 60 years (b) premature menopause (menopausal age <40 years) and menopause secondary to surgery (c) had history of physical and mental disorders and chronic illness, HIV, malignancy, (d) Women with uncontrolled medical conditions such as hypertension, diabetes, heart disease, musculoskeletal conditions (e) undergone radiant therapy and hormone replacement therapy were excluded from the study.

Women were randomly divided into two groups and lottery method was used to randomly allocate study and control groups (Control group taken odd number (38) was not given any planned education program and study group taken even number (38) women who received educational intervention focused on lifestyle modification that was developed by the researchers with the help of literatures.

2.4. Tools of data collection: Three tools were used for data collection.

2.4.1. Tool I: A structured interviewing questionnaire: It was designed by the researchers in simple Arabic language after revising the related literatures [14].It included two parts:

Part one: Socio - demographic data: consisted of (age, menopausal age, menopausal duration, educational level, occupation, residence, marital status, number of children, and number of family member (9 questions).

Part two: Woman's knowledge regarding menopause: It was written in Arabic language in the form of (17) closed end questions included (physiology of menopause (5 items), short term effect of menopause (6 items), long term effect of menopause (3 items), management of menopause (3 items)

Scoring system of knowledge: All knowledge variables were weighted according to items included in each question. Each item was given a score (2) when the answer was complete correct answer, a score (1) when the answer was incomplete correct answer and a score (0) when the answer was (I don't know or wrong). The total score was calculated by summation of the scores of its items. The total score for the knowledge of each woman was calculated by the addition of the total score of all parts. The score of total knowledge was classified as the following:

- Inadequate knowledge: 50% <75%.

- Adequate knowledge: ≥75%.

2.4.2 Tool II: Health-Promoting Lifestyle Profile-II (HPLP-II) developed by **(Pender, 1996)** [15] "and was adapted from **(Kuan et al., 2019)** [16]. To investigate health promoting behaviours, HPLP- II conceptualizes an individual's health-promoting lifestyle, composed of 50 items and six subscales dimensions of health-promoting behaviours: Nutrition (8 items), Physical activity (6 items), Health responsibility (14 items), Stress management (5 items), Interpersonal relations (8 items), and Spiritual growth (9 items). Each question was scored on a four-point Likert scale (1: Never, 2: Sometimes, 3: Often, and 4: Routinely).

Scoring system: The overall score is calculated based on the mean score of the responses to all items; the total score of each subscale was computed by calculating the mean of responses to that subscale's items. Higher scores in each dimension indicate the positive frequency of health-promoting behaviour and lower scores show negative frequency.

-Good when the total score was ≥ 75%

-Fair when the total score was 50 <75%

-Poor when the total score was < 50%

2.4.3 Tool III: **Menopause-specific Quality Of Life (MENQOL):** It was used for measuring QOL of menopausal women which was developed by**Hilditch et al., (1996)** [17]. It consists of 29 items in four dimension; vasomotor (3 items), psychosocial (7 items), physical (16 items) and sexual (3 items). The women were asked to note experience of the problem; If "no," marked no and went to the next item, if "yes," indicates how bothered was by

the item on a 7-point Likert scale ranging from 0: Not at all bothered to 6: Extremely bothered. For analyses, the item scores were converted to the score ranging from 1 to 8 in the following manner: No symptom = 1, have symptom but not bothered = 2 through to extremely bothered = 8.

Scoring system

Totally 29 questions were used to assess respondents' QOL. (1 mark) was awarded for every correct answer and (0 mark) for every wrong answer. All scores were added and the mean score calculated. In each domain of MENQOL, women who scored equal and below the mean value were categorized as having good QOL while those that scored above the mean value were categorized as having poor QOL.

2.5.1 Administrative approval:

The researchers obtained a written letter from the Faculty of nursing Dean, then directed to Benha university hospital director. Written official letter was taken and delivered to the Director of obstetrics and gynecological outpatient Clinic, in order to obtain approval to conduct the study after explaining its purpose. At the time of data collection agreement was taken from every woman in the study after clear and proper explanation.

2.5.2 Tools validity:

Content validity was done to assure that the utilized tools measure what it was supposed to measure. Tools were examined by a panel of three experts in obstetric and gynecological nursing to determine whether the included items clearly and adequately cover the domain of content addressed.

2.5.3 Reliability:

Test-retest was repeated to the same sample of menopausal women on two occasions and then compares the scores. The Cronbach's coefficient alpha was 0.76 for knowledge and for Menopause-specific QOL was 0.971% and 0.83% for health promotion profile II.

2.5.4 Ethical considerations

The research approval was obtained from Scientific Research Ethical Committee. Each menopausal woman in both groups was informed about the aim of the research then written consent was obtained before data collection. Each woman was informed about time throughout the research. Strict confidentiality was safeguarded throughout the study. The women were assured that all data was used only for research purpose and informed that withdraw from the study at any time before the completion of the study. After the study was completed, handout about health promotion lifestyle modification regarding menopause was distributed to control group.

2.5.5 A Pilot study: Pilot study was conducted on 10% of studied sample (7) menopausal women to assess the clarity, objectivity and feasibility of the tools. As well to estimate the time needed for data collection. Simple modifications were done included paraphrasing of tools. Those women in pilot study were excluded, and researchers added another 7 menopausal women to prevent sample contamination.

2.5.6 Field work: Study carried out under the following phases: preparatory assessment, planning, implementation, break and evaluation phase. These phases were carried out from beginning of January 2021 to the end of August 2021, covering along a period of eight months. The previous mentioned setting was

visited by the researchers two days/week (Saturdays, Tuesdays) from 9.00 am to 12.00 pm until sample size was completed.

A. Preparatory phase:

During this phase, the researchers reviewed of local and international related literatures about the various aspects of the research problem to be acquainted with magnitude and seriousness of the problem and guided the researchers to prepare the required data collection tools. The tools were distributed to three experts in the field, to test its appropriateness, comprehensiveness, clarity, importance and applicability.

B. Assessment phase:

Menopausal women in the research were divided randomly into two groups (study & control) each menopausal woman in both groups was asked to read and sign the informed consent form. The researchers interviewed and greeted each woman individually in both control and study groups, introduced themselves to women, explained the purpose of the study, and asked for participation, the pre-test was performed by administering the coded anonymous questionnaire to the women in the control and study groups. To avoid cross contamination of data between both groups, control group was assessed at first. The women were interviewed to assess socio-demographic characteristics then distribute menopausal women's knowledge sheet to collect knowledge about menopause, after that the researcher distributed health promoting lifestyle profile II questionnaire to collect the lifestyle data of women. Menopause specific quality of life (MENQOL) was observed in both the control and study groups, separately. The information obtained during this phase constituted the baseline for further comparisons to estimate the effect of educational intervention. Average time for the completion of each women interview for each tool was around (10-15 minutes). A number of interviewed women / week ranged from 7-8 women to follow covid - 19 precautions and avoid overcrowding.

Planning phase: Based on the needs that obtained from pretest assessment phase and review of related literatures, the researchers developed Health-Promoting Lifestyle education intervention based on lifestyle modification for menopausal women with simple Arabic language to suit women's level of understanding, A health education intervention was designed by the researchers with the contributions from a group of experts including a gynecologist, physicians, nutritionist, and sport physician. It emphasized the areas of major deficiency women knowledge about menopause and lifestyle changes to adjust to menopausal change. It focused on menopausal symptoms management, healthy diet, healthy physical exercises, and spiritual support individualized for each participant. The women in study group were classified into 5 groups each group includes (7-8 woman) the health education program involved four sessions for each group lasts for four week. The program was implemented according to women' physical and mental readiness. The duration of each session lasted from for 60 minutes including periods of discussion according to achievement, progress and feedback. Telephone number was obtained from women to facilitate follow up and contact in cases women did not attended planned program schedule.

Implementation phase:

Menopausal women in the study group were divided into five groups. Intervention

was carried out through four sessions of total 4-h duration. **The first session**: included general information about menopause as definition, causes, signs and symptoms, short and long term effect of menopause and management of menopause. **The second session**: included healthy lifestyle focused on good nutritional habits, eating healthy diet (food rich with Omega3, fruits, and vegetables) and maintains ideal body weight. **The third session**: concentrated on healthy lifestyle focus on different types of exercises that performed by woman "as walking, jogging, cycling, aerobics. **The fourth session:** stress and pain management, Women taught several methods to relieve pain including heat, massage, and learned good interpersonal relationship with others.

 - Teaching the study group members was performed using the methods of lectures, group discussion, questions and answers, additional media such as videos, demonstration, remonstrations with following the precautions of covid-19.

Break phase:

 The researchers contacted with women in study group by phone to ensure that women followed the education and applied the provided care effectively. The researcher provided any required advice or care to women during break. Control group women followed by phone to avoid drop out from the study, but no care provided to women during break to prevent study bias.

Evaluation Phase:

The effect of the education intervention was evaluated by using the same format of pretest. Post-test was conducted for control group first then intervention group; this was done immediately after educational session and three months

follow up after the last educational session, all participants in both study and control groups were invited through telephone number to complete the post-test questionnaire. Also, according to the principles of ethics in research, the control group was not exposed to any planned education intervention which allowed proceeding with usual lifestyle during this period, but continuous contact regularly. The members of the control group were provided by the educational package or pamphlets prepared by the researchers.

Statistical analysis:

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 22.0) was used for that purpose, followed by data analysis and tabulation. Descriptive statistics were applied (e.g., frequency and percentages).Test of significance (chi-square) was used to test the homogeneity of the outcome variables between the groups and to test the study hypothesis. Pearson correlation coefficients were used. A statistically significant difference was considered at p-value $p \leq 0.05$, and a highly a statistically significant difference was considered at p-value $p \leq 0.001$.

Results : The result of current research were presented under following tables and figures **.**

Table (1): shows that there was no statistically significance difference between study and control group regarding socio-demographic characteristics.

Table (2): illustrates that there was no statistically significance difference between study and control group regarding knowledge about menopause at pre intervention (P= >0.05).Mean while there

were highly statistically significant difference between study and control group immediately after intervention and three months follow up (P= <0.001).

Figure (1): represents that, nearly three quarters of both study and control groups (71, 8% &69.2%) respectively had inadequate total knowledge score about menopause before intervention. While (84.6% &(33.3%)) of study and control group respectively had adequate knowledge score about menopause immediately after intervention .At follow up phase, (79.5%, 33.3%) of study and control groups respectively had adequate total knowledge score about menopause.

Table (3): elaborates that, there was no statistically significant difference between study and control groups regarding all items of health promotion lifestyle profile- II before intervention (P= >0.05). Meanwhile, there was a highly statistically significant difference regarding all health promotion lifestyle profile-II items immediately after intervention and three months follow up. (P= <0.001).

Figure (2) reveals that, total health promotion lifestyle profile-II improved from (28.2%) before intervention to (79.5%) after intervention in the study group and more increase in follow up phase to (82.1%) among study group while there was minimal improvement in the control group from (25.6) before intervention to (28.2%) after intervention and three months follow up .

Table (4): describes that there was no statistically significance difference between study and control group regarding all MENQOL before intervention while there was highly statistically significance difference between study and control group regarding all MENQOL after intervention and three months follow up. As all MENQOL scores decreased immediately post intervention and during follow-up in the study group However all MENQOL, scores increased in the control group with time.

Table (5): clarifies that, there was no statistical significant correlation between total knowledge, health promotion lifestyle and quality of life among studied women in the study group pre-program phase and in the control group throughout all program phases while there was positive statistically significant correlation between knowledge, health promotion lifestyle and quality of life among studied women in the study group at both post program and follow up phases. Additionally there was negative statistically significant correlation between menopause-specific quality of life and knowledge, health promotion lifestyle, quality of life among studied women in the study group at both post program and follow up phases.

Table (1): Distribution of studied women (study and control groups) according to socio-demographic characteristics (n=78).

Socio-demographic characteristics	Study (n=39)		Control (n=39)		X^2	p-value
	no	%	no	%		
Age in years						
45 <50	5	12.8	6	15.4	0.230	.891
50 < 55	26	66.7	24	61.5		
55-60	8	20.5	9	23.1		
Mean ±SD	52.92±2.33		52.79±2.67			
Menopausal age						
45<50	14	35.9	17	43.6	0.482	.488
50 and more	25	64.1	22	56.4		
Mean ±SD	50.07±2.00		50.12±1.89			
Menopausal duration						
<50 year	23	59.0	24	61.5	0.054	.817
50 and more	16	41.0	15	38.5		
Educational level						
Primary education	15	38.5	12	30.8	0.646	.724
Secondary education	18	46.2	19	48.7		
Higher education	6	15.4	8	20.5		
Residence						
Rural	19	48.7	22	56.4	0.463	.496
Urban	20	51.3	17	43.6		
Marital status						
Married	23	59.0	20	51.3	0.466	.495
Unmarried	16	41.0	19	48.7		
Occupational status						
House wife	26	66.7	27	69.2	0.059	.808
Employed	13	33.3	12	30.8		
Number of children						
None	3	7.7	3	7.7	0.061	.970
1-2	12	30.8	13	33.3		
3-4	24	61.5	23	59.0		
Number of family members						
1-3	13	33.3	13	33.3	.000	.812
More than 3	26	66.7	26	66.7		

Table (2): Mean and SD of studied women (study and control groups) regarding total knowledge about menopause throughout the program phases.

| Knowledge	Pre- intervention						Post - intervention						3 months Follow-up				t	p-value
	Study (n=39)		Control (n=39)		t	p-value	Study (n=39)		Control (n=39)		t	p-value	Study (n=39)		Control (n=39)			
	Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD		
Knowledge on physiology of menopause	3.58	1.69	3.46	1.635	.340	.735	3.51	1.53	8.30	1.19	15.38	.000	3.41	1.39	6.41	1.39	9.530	.000
Knowledge on short-term effects of menopause	1.58	2.12	1.51	.913	.208	.836	1.46	1.07	5.35	.77	18.37	.000	1.48	1.07	4.20	1.00	11.547	.000
Knowledge on long-term effects of menopause	5.17	2.81	4.97	1.81	.382	.703	4.97	1.89	13.66	1.47	22.57	.000	4.89	1.75	10.61	1.98	13.476	.000
Knowledge on management of menopause	1.58	2.13	1.51	.913	.207	.836	1.46	1.07	5.35	.77	18.35	.000	1.48	1.07	4.20	1.00	11.547	.000
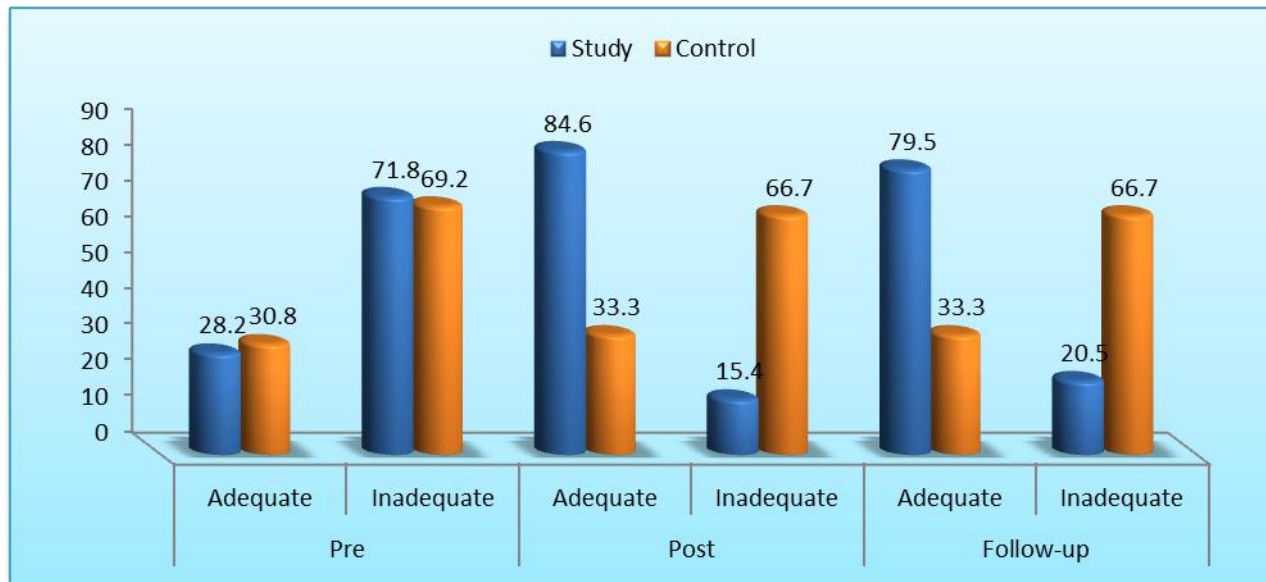
Figure (1): Percentage distribution of studied women (study and control groups) about total knowledge throughout the program phases.

Table (3): Mean and slandered deviation of studied women (study and control groups) regarding subscale of health promoting lifestyle throughout the program phases.

| Health promoting lifestyle	Pre						Post						3 months Follow-up					
	Study (n=39)		Control (n=39)		t	p-value	Study (n=39)		Control (n=39)		t	p-value	Study (n=39)		Control (n=39)		t	p-value
	Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD		
Health self-responsibility	17.89	3.19	17.94	3.38	0.069	.945	17.94	3.38	51.00	4.24	37.987	.000	18.00	3.74	45.69	4.37	30.053	.000
Nutrition	10.64	3.73	9.33	1.78	1.972	.054	8.79	1.64	25.38	2.25	37.147	.000	9.94	3.07	23.66	6.40	12.063	.000
Physical activity	6.38	1.34	6.46	1.16	0.269	.788	6.38	1.09	21.12	1.43	51.055	.000	6.38	1.01	19.38	4.06	19.357	.000
Stress management	8.07	2.46	8.07	2.46	.000	1.000	8.07	2.46	17.84	1.77	20.107	.000	8.07	2.46	16.25	2.39	14.873	.000
Interpersonal relations	8.30	2.51	8.41	1.64	0.213	.832	8.51	1.71	25.53	1.83	42.358	.000	8.43	1.68	23.30	2.98	27.113	.000
Spiritual growth	10.64	3.22	10.71	3.21	0.105	.916	10.64	3.22	32.10	2.22	34.230	.000	10.79	3.22	29.35	2.86	26.833	.000
Total	61.94	8.61	60.94	7.62	.543	.589	60.35	7.36	173.00	12.29	49.083	.000	61.64	7.68	157.66	16.61	32.764	.000
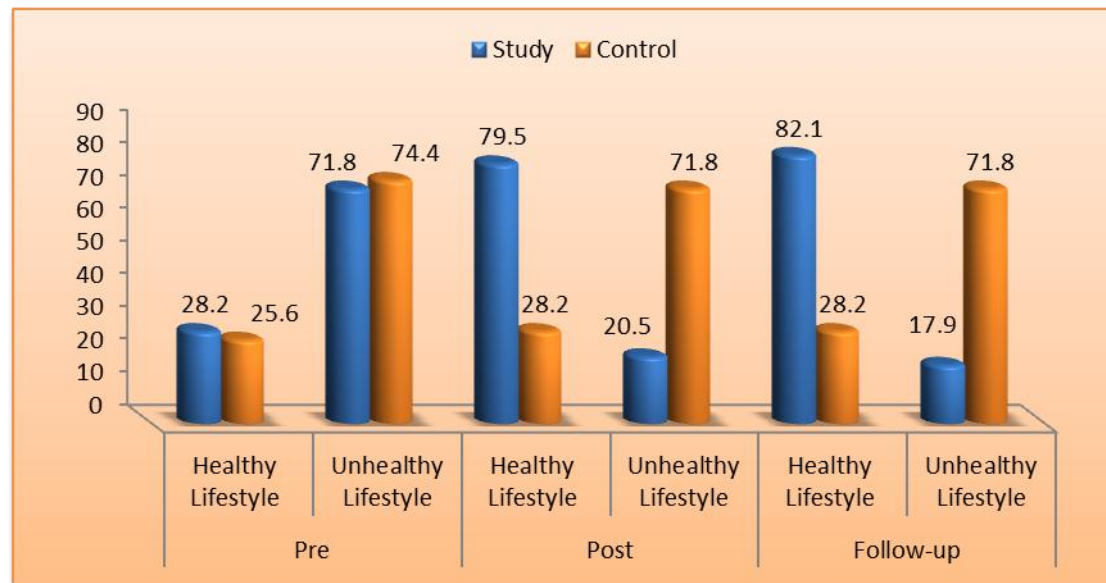
Figure (2): Percentage distribution of studied women (study and control groups) regarding total health promoting lifestyle throughout the program phases.

Table (4): Mean and standard deviation of studied women (study and control groups) regarding Menopause-specific quality of life throughout the program phases.

Menopause-specific quality of life	Pre				t	p-value	Post				t	p-value	3 months Follow-up				t	p-value
	Control (n=39)		Study (n=39)				Control (n=39)		Study (n=39)				Control (n=39)		Study (n=39)			
	Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD			Mean	±SD	Mean	±SD		
Vasomotor symptoms	17.17	1.33	17.17	1.33	.985	.987	17.17	1.33	11.28	1.65	17.475	.000	17.20	1.32	4.12	1.004	48.777	.000
Psych-Social symptoms	37.71	4.03	37.74	3.35	0.031	.976	37.71	4.03	23.74	10.67	7.623	.000	37.66	4.01	9.66	1.82	39.575	.000
Physical symptoms	86.15	11.23	85.84	6.76	.147	.884	85.89	7.021	44.89	5.72	30.141	.000	86.15	6.34	22.20	4.18	48.671	.000
Sexual symptoms	16.00	2.05	16.00	2.05	.897	.754	16.00	2.051	6.30	2.91	16.817	.000	15.89	2.04	4.15	1.01	32.321	.000
Total	157.05	16.59	156.76	10.19	.090	.928	156.79	11.82	86.23	12.29	27.319	.000	156.92	10.48	40.15	6.97	53.061	.000

Table (5): Correlation between total knowledge, lifestyle and quality of life among studied women in both study and control groups throughout the program phases.

Variable			Control			Study		
			knowledge	Health promotion	MENQOL	knowledge	Health promotion	MENQOL
Pre	knowledge	r		-.142-	-.005-		.208	.395
		p-value		.390	.975		**.109**	**. 430**
	Health promotion	r			.135	.908		.225
		p-value			.414	.019		.169
	MENQOL	r				-.043-	.225	
		p-value				.795	.169	
Post	knowledge	r		-.078-	-.196-		-.173-	**-.853**
		p-value		.635	.232		**.029***	.031*
	Health promotion	r			.165			-.164
		p-value			.315			**.319**
	MENQOL	r						
		p-value						
Follow-up	knowledge	r		.091	.991		.610	**-.778**
		p-value		.583	**.202**		.019*	.008*
	Health promotion	r			.210			.250
		p-value			.199			**.012***
	MENQOL	r						
		p-value						

Discussion

Menopause is a unique event in women's life which occurs around the age of 50 and 60 years and all women would experience as life expectancy increased among women in the world. Menopause and its complications could impair the sense of wellbeing, health and affect the quality of life. One of the goals of health for all is to improve the quality of life. Various studies have reported the negative effect of

menopause on the quality of life although hormone therapy is the standard treatment for the early symptoms **Abas et al.,(2018)** [18]**.**
Health promotion model (HPM) is effective in reducing risk factors, symptoms specifically in chronic diseases and promotes a healthy lifestyle **Moshki et al., (2020)** [19] . One of the most important concerns regarding improving women

health is to promote healthy lifestyle behaviors **Malik et al., (2021)** [20]. It was identified as main factor that promote quality of life and eventually reduce health care expenses in menopausal women **Asrami, et al., (2016)** [21].It conceptualizes an individual's health promoting lifestyle in terms of the following dimensions; health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management **Kuan et al., (2019)** [16]

The present research aimed to evaluate the effect of health promoting lifestyle educational intervention on knowledge and quality of life of menopausal women. The present study results revealed that there were improvements of all variables of knowledge, menopause specific quality of life of menopausal women. Therefore, the research hypothesis was supported.

Concerning socio-demographic characteristics, the present research results revealed that there were no statistically significant differences between the study and control groups regarding socio-demographic items in terms of age, menopausal age, educational level, occupation, residence, number of children and number of family members. These results mean that the two groups were homogenous. These results were similar to **Fatemeh et al., (2017)** [22]stated that the menopausal women in both intervention and control groups had similar demographics. Additionally **Sedigheh et al., (2019)** [23]reported that no significant difference between the study and control groups were found in terms of demographic characteristics (age, level of education and the mean age at menopause.

Regarding women's knowledge about menopause the present study revealed that there was a highly significant improvement in the study group knowledge immediately post intervention and three months follow up compared to the control group. This might be related to the effect of educational intervention. These findings were in agreement with study

conducted by **Orabi, (2017)** [13] showed that there was statistically significant improvement of knowledge after the interventional program that corrected knowledge: being 51.3% among studied participants before the educational program and improved to 88.8% after the program. Additionally **Helen et al., (2020)** [24] represented that the mean scores of correct knowledge at pre-intervention, immediately post-intervention, and follow-up were 12.3/22 (SD = 3.06), 17.3/22 (SD = 3.21), and 16.5/22 (SD = 2.52) respectively. A significant difference in scores of knowledge at the three-time points was observed due to the educational intervention with a statistical significance of (p < 0.0001). Post- analysis revealed that knowledge score immediately after intervention was significantly greater than that of pre-intervention (p < 0.0001), and at follow-up. Mean knowledge score regarding menopause significantly improved after the educational intervention. It is evident that health education plays an important role in improving information of women about menopause. Controversy the results were contraindicated with **Taherpour et al., (2015)** [25]reported that there was no significant change in the mean score of knowledge from pre-intervention (10.52) to post-intervention (15.14). From researcher point of view this difference in findings might be due to the different educational materials utilized and the presence of study participants with a lower educational level in the comparative study.

Regarding promoting lifestyle behaviours, the result of current study clarified that there was no statistically significant difference between study and control groups regarding all items of health promotion lifestyle behaviours pre intervention (P>0.005). Meanwhile, there was a highly statistically significant difference regarding all health promotion lifestyle behaviours items post intervention and follow up (P<0001). Moreover

another study conducted by **Heidari et al. (2018)** [26] supports these results and proved that there was a significant difference in the mean score of health-promoting behaviors in the case group before and after the intervention (P = 0.001).Additionally these results were agreed with **Malik etal., (2021**) [20]**represented** that health promoting lifestyle profile, health responsibility and physical activity was quite low among respondents. This might be due to poor awareness, limited access to healthcare services and poor education. On other hand these results were disagreed with **Amine et al., (2017)** [3]showed that the mean score of health-promoting behaviours was 2.49 with a standard deviation of 0.47 which was moderate.

Our research results are contradictory with the findings of the study conducted by **Enjezab et al. (2017)** [27] which assessed the effect of educational intervention on health-promoting lifestyle of 88 middle-aged women where no statistically significant (P = 0.113) difference was observed in nutrition domain after administration of intervention.

Concerning menopause specific quality of life scores MENQOL, the result of present study revealed that there was no statistically significant differences between the study and control groups regarding all MENQOL scores pre intervention. Meanwhile all MENQOL scores were decreased (mean good quality) during the post intervention and three months follow-up in the study group (p < 0:001) However, scores increased in the control group (p < 0:001) with time. This result came in same line with **Nirmala etal. (2020**) [4]showed that all MENQOL scores decreased during the follow-up in the intervention group (p < 0:001). However, scores increased in the control group (p < 0:001) with time this may be due to effect of education intervention based on lifestyle change have improved the MENQOL; vasomotor, physical domain, psychosocial domain and overall MENQOL.

Also, this results were in same line with **Nirmala etal.(,2020**) [4]represented that further, health education programs on health improvement and maintenance of menopausal women have shown successful improvements in QOL in many domains .Also, **Malik etal.,(2021)** [20]reported poor healthy lifestyle behaviors among women undergoing the postmenopausal phase leading to reduced quality of life. On other hand this result disagreed with **Amine et al.,(2017)** [3]. approved that, the mean score for the quality of life was 7.63 with a standard deviation of 37.45 which indicated the good quality of life among control group the possible reason for having the improved QOL among the menopausal women in the intervention group would be due to the enhanced knowledge and understanding of women regarding the management of menopausal effects satisfactorily. Another reason could be that menopausal women were be able to get rid of irritable menopausal discomforts and enhanced general health status including physical functions, by following up the taught programs made the lives happier and healthier than earlier.

Regarding correlation the present study findings revealed that there was positive statistically significant correlation between health promotion, knowledge and quality of life after intervention and during follow up .On other hand there was negative statistically significant correlation between health promotion and menopause specific quality of life after intervention and during follow up phase. From researcher point of view, the implementation of health promotion lifestyle education based on lifestyle modification help menopausal women to acquire knowledge about menopausal period through promoting healthy behavior that enable them to modify lifestyle. Also, applications of health promotion program have positive effect on improving quality of life.

Therefore, this positive impact of the menopause-specific education intervention based on lifestyle modifications encourages its use at menopausal women. It had many benefits including greater level of acceptability, affordability since it was inexpensive, and enhanced the awareness of women achieved through readily available options and remedies.

Conclusion:

This research proved that there was significant improvement in knowledge scores immediately after intervention and three months follow-up, Also, there was highly statistically significant difference in mean health promoting behaviours and all MENQOL score in the study group were found immediately after the intervention and three months follow-up .These findings concluded that educational intervention focused on health-promoting lifestyle management was effective in improving knowledge, MENQOL of menopausal women. Therefore, the research hypothesis was supported and the aim achieved.

Recommendations: based on the research results, the present research recommended:

1- Designing educational program to increase awareness of menopausal women about healthy lifestyle behaviours regarding menopause.

2-Health promotion model can be used as an appropriate strategy to minimize the menopausal symptoms and improve the quality of life.

3- Training the menopausal women about healthy lifestyle and how to manage menopausal symptoms.

Further researches:

Replication of research result on lager probability sample to achieve more generalization of results.

Nursing implication:

This intervention may offer implications for designing and implementing such interventions in future studies in this nature. This approach is recommended as a health care intervention in postmenopausal health management.

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