### Effect of Lifestyle Modifications on Improving Women's Perimenopausal Symptoms

#### Hasnaa Gamal Abd Elmoneem Abd Allah<sup>1</sup>, Mervat Ali Khahmis<sup>2</sup> & Ahmed Mohamed Abbas<sup>3</sup>

<sup>1.</sup> Assistant lecturer at Maternal & Newborn Health Nursing, Faculty of Nursing, Assuit University, Egypt.

<sup>2</sup>. Professor of Obstetrics & Gynecological Nursing, Faculty of Nursing, Assiut University, Egypt.

<sup>3.</sup> Professor of Obstetrics & Gynecological Medicine, Faculty of Medicine, Assuit University, Egypt.

#### Abstract:

Background: Perimenopause starts many years before menopause and is the starting point for women's reproductive aging. It is characterized by wide range of menopausal symptoms. Lifestyle modification is suggested as the first line of treatment for women with perimenopausal symptoms. Aim of the study: The study aims to evaluate the effect of life style modifications on improving the perimenopausal symptoms among women. Subjects and methods: Ouasiexperimental study with a pre-post-test design of 120 perimenopausal women collected by using a purposive sample, conducted at gynecology clinic and general medicine clinic at Assuit university hospitals within 7 months from January to July 2023. Four tools were used for this study, structured interviewing questionnaire, menopausal rating scale, health promotion lifestyle profile and follow up sheet. **Results:** This study reveals that There was a highly statistically significant difference regarding the mean of total score of all subscales of MRS including (somatic, psychological and urogenital) of perimenopausal women before and after healthy life style modifications (P=0.001). There was a highly statistically significant difference (P=0.001) regarding total Health-Promoting Lifestyle Profile (HPLP) levels before and after health education. Conclusion: the healthy lifestyle modifications were very effective in improving the women's perimenopausal symptoms. Health education plays an important role in improving the women's unhealthy lifestyle behaviors. Recommendations: Conduct further research with longer observation period and bigger sample size to determine the impact of life style modifications on reducing women's perimenopausal symptoms.

#### Keywords: Improving, Lifestyle modifications, Perimenopause & Perimenopausal symptoms.

#### Introduction:

Menopause is a natural ordinary change in female's health driven by a decrease in estrogen and progesterone production and it is an inevitable event in midlife for women. (Genazzani et al., 2024). It is a time of transition in women's lives that occurs between the ages of 40 and 60 years. (Alnjadat et al., 2024). Menopause is defined by the world health organization (WHO) as twelve months of amenorrhea following the end of the last menstrual cycle without clearly identifiable medical reasons (Misiker et al., 2023).

Perimenopause is the gateway to the women's reproductive aging which starts a few years prior menopause (Wang et al., 2024). It starts when the ovaries progressively stop producing estrogen and continues until up menopause. This stage often s begins between the ages of 40 and 55 and persists for at least a year after amenorrhea (Simpson et al., 2024).

Perimenopause is associated with wide variety of symptoms such as somatic concerns (hot flashes, heart discomfort and sleeping difficulties), urogenital concerns and psychological concerns (mood swings and anxiety) (Khan et al., 2023). All of these

manifestations have an impact on women's health and lower their quality of life (Abdelaziz et al., 2022).

Vasomotor symptoms such as hot flushes and night sweats affect 60–80% of climacteric women and generally appear in perimenopause and can last well into menopause (**Bakouei et al, 2023**). While perimenopause is a natural physiological transition but perimenopausal symptoms can occasionally be severe that they interfere with the woman's daily activities (**Huang et al., 2023**).

Lifestyle Medicine (LM) is a rapidly expanding specialty of medicine that is described as "the incorporation of healthy lifestyle practices into the modern contemporary field of medicine to minimize risk factors for chronic disease and if disease exists already and serve as an adjuvant in its management (Li et al., 2023).

Lifestyle modification is suggested as the first line of treatment for women experiencing perimenopausal symptoms. Unhealthy lifestyle habits for example eating poorly and not exercising regularly exacerbated the consequences of changing the estrogen level (**Rees, et al., 2022**). Furthermore, certain researches indicated that a healthy lifestyle can decrease severeness of perimenopausal symptoms. For perimenopausal women, a balanced diet and regular exercise have several advantages (Yoshany et al., 2022).

Menopause is a crucial women's health issue to be taken into account when organizing and presenting the women's health care services (Simpson et al., 2022). Health education is one of the most effective strategies for enhancing perimenopausal women's knowledge and understanding of healthy lifestyle behaviors to lower the risk of menopause-related health issues that can effect on them (El-hawy et al., 2023).

#### Significance of the study:

Numerous researches have been carried out on the menopause, prevalence and severity of perimenopausal symptoms that vary based on the socioeconomic, cultural and geographic setting in which woman lives (**Okhai et al., 2022**).

Every year, approximately 1.5 million women worldwide have perimenopausal symptoms. By 2030, 1.2 billion women globally will have encountered menopause or perimenopause (**Moilanen** et al., 2023).

Throughout perimenopause, Seventy to eighty percent of women have subjective perimenopausal symptoms which frequently have a negative effect on their quality of life in social, professional and personal domains (Abd Elmoneem et al., 2024). Approximately 16% of Egyptian women go into menopause between the ages of 45 and 55 and suffer from perimenopausal symptoms between the ages of 35 and 40 years. (Ehab et al., 2021).

By educating the women of perimenopausal age group about the physiological changes occurring during and after menopause and by modifying their life style behaviors, women can improve experiencing their menopausal symptoms (**Wang et al., 2024**). Thus, the present study was conducted to evaluate the effect of life style modifications on improving the perimenopausal symptoms among women.

#### Aim of the study:

The aim of this study is to evaluate the effect of life style modifications on improving the perimenopausal symptoms among women.

#### **Research hypothesis:**

The research hypothesized that; Perimenopausal women who receive health education about the healthy lifestyle modifications will have mild Perimenopausal symptoms than before the nursing intervention.

## Subjects and Methods:

### Research design:

Quasi-experimental study with a pre-post-test design was employed on this study.

#### Setting of the study:

The study was executed at Gynecology outpatient clinic and General medicine outpatient clinic at Assuit University Hospital.

#### Sample:

Purposive sample was utilized in the selection of the participating women.

#### Sample size:

The sample size was predicted to consist of 120 perimenopausal women based on previous similar studies, the following formula was applied:

$$n = \frac{[DEFF \times Np(1-p)]}{[(d2/Z21 - \alpha/2 \times (N-1) + p \times (1-p)]]}$$

DEFF (Design effect) = 1

N (population) = 4000

p (Hypothesized %) = 10% + -5

d (tolerated margin of error) = 0.05

Z (level of confidence) = 1.96

α (Alpha)= 0.05

$$n = \frac{\frac{[1 \times 4000 \times 10\% + /-5(1 - 10\% + /-5)/[(0.05)2]}{[(1.96)21 - 0.05 \times (4000 - 1) + 10\% + /-5(1 - 10\% + /-5)]}$$

#### **Study Participants:**

These criteria were used to choose the women who participate in the study:-

#### Inclusion criteria:

- 1. Women in their perimenopausal years, between the ages of 40 and 55 for as long as twelve months after menopause.
- 2. Menopause naturally occurs.
- 3. Women not using any kind of medications or hormonal replacement therapy sex months prior to the study.

#### **Exclusion criteria:**

- 1. Women with uncontrolled medical conditions such as hypertension, diabetes, heart disease and musculoskeletal conditions.
- 2. Women suffering from unusual gynaecological conditions.

#### Tools of data collection:

Four tools were utilized in this study which created by the researcher and revised by the supervisors. They were as follows:

#### Tool I: Structured interviewing questionnaire:

The participating women's socio-demographic information was acquired using this questionnaire, containing (age, residence, occupation, educational level, marital status, weight and height, body mass index & telephone number for follow up).

**Tool II: Modified menopausal Rating scale (MRS):** This scale was established by **Heinemenn, et al** (2003) to evaluate the perimenopausal symptoms severity. This self-assessment instrument has been frequently used in various clinical and epidemiological studies. The scale comprises of three subscales somatic, psychological and urogenital domains with a total of 11 components containing: hot flushes & sweating, heart discomfort, sleep problem and muscles and joint problems, depression, irritability, anxiety and physical and mental exhaustion, involving Sexual problems, bladder problems and dryness of vagina.

#### Scoring system:

Every item had five responses and a five-point Likert scale to determine its score. Minimum score of 0 and maximum of 4 and starts from: 0 = not present, 1 = mild, 2 = moderate, 3 = severe and 4 = extremely severe.

# Tool III: Health Promotion Lifestyle Profile (HPLP):

This profile was implemented based on Pender's health promotion model (**Pender et al., 2011**). It is a standardized tool was employed to evaluate the frequency of lifestyle behaviors exhibited by women. This profile contained 52 items and six subscales: Health responsibility, Physical activity, Nutrition, Spiritual growth, Interpersonal relations and Stress management.

#### Scoring system:

Based on a four-point Likert scale with four possible answers, the previous 52 items were assessed: 1= never, 2= sometimes, 3= often and 4= routinely. The range of overall HPLP scores is:  $\geq$  75% was good, 50 - < 75% was fair & < 50% was poor.

#### Tool IV: Follow up sheet (post – test):

Follow up sheet was designed to assess the efficacy of healthy life style modifications on improving perimenopausal symptoms among women by using MRS and HPLP.

#### Validity and reliability of the tools:

Study tools were translated into Arabic and then displayed to a panel of five specialists in obstetrics and gynecological nursing to check the content validity. The internal consistency of the tools was measured using the Alpha Cronbach's test in order to determine their reliability, tool II (r = 0.822), and tool III (r = 0.954). There was reliability established in the questionnaire items.

#### **Procedures:**

There were two phases of execution of this research: Administrative phase and implementation phase.

#### Firstly: Administrative phase:

Before conducting this study, official written consent was obtained from the authorized responsible hospital directors to carry out the study.

#### **Pilot study:**

A pilot study was applied on 10% of participating women (12 women) to evaluate women's comprehension, clarity, and applicability of the tools and to identify any areas of ambiguity. No modifications were made to the tools and women who took part in in the pilot study were involved in the main study sample.

#### Secondly: Implementation phase:

Data collection was carried out through three phases: Assessment phase:

- The study was executed over seven months from January 2023 to July 2023 through five days per week. The researcher attended 3 days per week at the outpatient Gynecology clinic and 2 days per week at outpatient general medicine clinic to collect data with no more than three women each day.
- The researcher gave a warm greeting to each participating women then explained the purpose of the study and oral informed consent was taken from every woman to participate in the study.
- Each woman was interviewed by the researcher in face-to-face interview separately to collect the socio-demographic data. Subsequently, the investigator gave each woman the pre-test questionnaire, which included the MRS and HPLP after translating it into Arabic.
- Each woman took about 20 30 minutes to complete the questionnaire.
- As regarding illiterate women, the researcher assisted them by reading each sentence from the questionnaire along with its possible responses, and then recording the woman's answer in the questionnaire.

#### Health education phase:

- After finishing the questionnaire, the researcher provided health education to each woman separately that took 30 minutes about the physiological changes of menopause, Perimenopause, menopausal symptoms and its management, healthy life styles modifications including: proper nutrition, exercise, physical activity, adequate sleep, stress management and regular checkup.
- Next, the researcher gave each woman a booklet written in Arabic language about and the healthy lifestyle modifications for improving perimenopausal symptoms illustrated this through pictures.

#### Follow up phase:

- Follow up was carried out after one month from the initial visit after following the guidelines of the healthy lifestyle behaviors to assess women's life style modifications and its impact on improving their perimenopausal symptoms using MRS and HPLP.
- The majority (80%) of participating women attended to the clinic for follow up but 20% of women neglected the second visit and followed by telephone interview.

#### **Ethical considerations:**

The Faculty of Nursing's Ethical Committee approved the research proposal in November 2022. Every woman who took part in the study gave her oral informed consent. Women were assured that any data collected would only be utilized for the study. Privacy was as taken into account when collecting data. The anonymity & confidentiality was assured. The women were reminded that participation in the study was entirely voluntary.

#### Statistical design:

Statistical Package for Social Sciences (SPSS) V.26 was used to organize, categorize, code, tabulate, and analyze the acquired data. Numbers, percentages, averages, and standard deviations were used to portray data in tables and charts. McNemar test was used to show difference before and after intervention. The Pearson correlation between variables was employed to determine statistical significance. T-test was used to compare means of variables. A P-value < 0.05 was declared statistically significant.

#### **Results:**

Table (1): Frequency and d	listribution of th	ne studied w	omen according	to their Socio-demo	graphic
data (n=120):					

Socio-demographic data	Ν	%
Age / vears:		
40 - 50 year	88	73.3
50 - 55 year	32	26.7
Mean ± SD	48.10	± 3.32
Educational level:		
Illiterate	57	47.5
Preparatory education	25	20.8
secondary education	26	21.7
University education	12	10.0
Occupation:		
Worker	23	19.2
House wife	97	80.8
Residence:		
Rural	73	60.8
Urban	47	39.2
Marital status:		
Single	1	0.8
Married	96	80.0
Divorced	1	0.8
Widow	22	18.4
Weight: (Mean ± SD)	85.52	±15.54
Height: (Mean ± SD)	164.5	9±4.46
Body mass index:		
Healthy weight	22	18.3
Over weight	34	28.4
Obese	64	53.3

SD (Standard deviation)

Table (2): Frequence	cy and distribution	of the studied	l women a	according to	their	perimenopausal
sympton	ns in pre and post in	ntervention (n=	120):	U		

Symptoms		Pre inte	rvention	Post int	ervention	P-voluo
Symptoms		Ν	%	Ν	%	1-value
	Non	0	0.0	14	11.7	
Uat flachas	Mild	3	2.5	53	44.2	
swooting	Moderate	32	26.7	46	38.3	0.001**
sweating	Severe	74	61.6	7	5.8	
	Extremely severe	11	9.2	0	0.0	
N	Iean ±SD	2.78	<u>±.64</u>	1.38	±0.769	
Inint and	Non	1	0.8	3	2.5	
muscular	Mild	1	0.8	67	55.8	0.001**
discomfort	Moderate	45	37.5	41	34.2	0.001
	Severe	65	54.2	9	7.5	
N	Extremely severe	8	6./	0	0.0	
N	lean ±SD	2.05:	$\pm 0.00$	1.4/2	$\pm 0.073$	
	NON Mild	27	22.5	59 47	49.2	
Sleep problems	Moderate	10	13.0	4/	39.2 11.6	0.001**
	Severe	49 25	20.8	0	0.0	0.001
	Extremely severe	1	20.8	0	0.0	
Mean +SD	Extremely severe	1 63	+1.08	0.63	+0.687	
	Non	25	20.8	76	63.3	
Heart discomfort	Mild	29	24.2	41	34.2	
	Moderate	$\overline{52}$	43.3	3	2.5	0.001**
	Severe	14	11.7	ŏ	0.0	VIVVI
Mean ±SD		1.46	±0.95	0.39	±0.539	
	Non	42	35.0	50	41.7	
	Mild	5	4.2	62	51.7	
Depressive mood	Moderate	37	30.8	7	5.8	0.001**
•	Severe	34	28.3	1	0.8	
	Extremely severe	2	1.7	0	0.0	
M	Iean ±SD	1.58:	±1.28	0.66	±0.628	
	Non	74	61.6	88	73.4	
Irritability	Mild	5	4.2	27	22.5	0.004**
mmuomity	Moderate	27	22.5	4	3.3	0.001
	Severe	14	11./	1	0.8	
N	lean ±SD	0.84:	$\pm 1.14$	0.32	±0.580	
	Non Mild	97	80.9	104	80.0	
Anxiety	Madarata	4	3.5	14	11./	0.001**
•	Severe	7	5.8	0	1.7	0.001
N	lean +SD	0.41	+0.89	0.15	+0.403	
	Non	2	17	17	14.2	
Physical and	Mild	$\frac{1}{2}$	1.7	99	82.5	
mental	Moderate	59	49.2	4	3.3	0.001**
exhaustion	Severe	57	47.40	0	0.0	
Ν	lean ±SD	2.42:	±0.62	0.89	±0.406	
	Non	68	56.6	92	76.7	
Sevuel problems	Mild	20	16.7	27	22.5	**
Sexual problems	Moderate	27	22.5	1	0.8	0.001
	Severe	5	4.2	0	0.0	
N	lean ±SD	0.74:	±0.95	0.25	±0.489	
Dryness of	Non	32	26.7	15	62.5	
vagina	IVIIId Moderate	19	15.8	42	35.0	0.001**
	Noderate	55 16	44.2		0.8	0.001
N	1  Severe	10	13.3	<u> </u>	1.7	
N	Non	63	$\pm 1.03$	88	±0.002	
	Mild	14	11.7	30	25.0	
Bladder	Moderate	34	28.3	1	0.8	0 001**
problems	Severe	8	67	1	0.8	0.001
	Extremely severe	Ĭ	0.8	Ō	0.0	
Mean ±SD		0.92	±1.07	0.29	±0.525	
Total mean		16.85	5±3.56	6.84	±2.83	0.001

McNemar test (\*\*) Highly statistical significant difference

(\*) Statistical significant difference



Figure (1): Frequency and distribution of the studied women according to their total perimenopausal symptoms in pre and post intervention (n=120).

Table (3):	Frequency	and o	distribution	of the	studied	women	according	to their	(Mean ±	: <b>SD</b> )	of
	Health-Pro	moti	ng Lifestyle	Profile	e (HPLP)	in pre a	nd post int	erventior	n (n=120)	:	

Itoma	Mea	n voluo	
Items	Pre intervention	Post intervention	p-value
Nutrition	21.93±3.64	29.87±2.87	0.001**
Health responsibility	7.33±3.06	13.96±2.44	0.001**
Physical activity	7.08±2.49	11.57±2.42	0.001**
Spiritual growth	6.43±2.33	12.05±2.35	0.001**
Interpersonal relations	6.33±2.58	12.69±2.66	0.001**
Stress management	7.50±1.42	12.65±3.04	0.001**
Total mean	56.61±14.21	92.79±9.94	0.001**



(\*\*) Highly statistical significant difference





Figure (2): Frequency and distribution of the studied women according to their total Health-Promoting Lifestyle Profile (HPLP) levels in pre and post health education (n=120).

# Table (4): Correlation between the studied women Socio-demographic data and perimenopausal symptoms in pre and post intervention (n=120):

Sasia damagnankia data	Perimenopausal symptoms					
Socio-demographic data		Pre intervention	Post intervention			
Age/ years	R	.222	.260***			
P-value		.015*	.004**			
Educational level	R	169-	360-			
P-value		.065	.000***			
Occupation	R	.184	.236			
P-value		.045*	.010***			
Residence	R	.066	185-			
P-value		.475	.043*			
Marital status	R	.043	.038			
P-value		.644	.684			
Socioeconomic level	R	068-	170-			
P-value		.463	.064			
Body mass index	R	.024	116-			
P-value		.793	.205			

Pearson-test:

(\*\*) Correlation is significant at the 0.01 level (2-tailed).

(\*) Correlation is significant at the 0.05 level (2-tailed).

# Table (5): Correlation between the studied women Socio-demographic data and Health-Promoting Lifestyle Profile (HPLP) in pre and post intervention (n=120):

Sacia demographia data	Health-Promoting Lifestyle Profile				
Socio-demographic data		Pre intervention	Post intervention		
Age/ years	R	146-	059-		
P-value		.111	.522		
Educational level	R	.147	.205		
P-value		.109	.029*		
Occupation	R	045-	094-		
P-value		.626	.309		
Residence	R	.184	.193		
P-value		.045*	.035*		
Marital status	R	005-	.030		
P-value		.956	.743		
Socioeconomic level	R	.241	.250		
P-value		.008**	.005***		
Body mass index	R	.069	.049		
P-value		.453	.596		

Pearson-test:

(\*\*) Correlation is significant at the 0.01 level (2-tailed).

(\*) Correlation is significant at the 0.05 level (2-tailed).

**Table (1):** Demonstrates the perimenopausal women's mean age was  $48.10 \pm 3.32$  years old. Slightly less than half (47.5%) of women were illiterate. More than four fifths (80.8%) of women was house wives and two third of them (60.8%) live in rural areas. Also, more than half of them (53.3%) were obese with the weight's average score was  $85.52\pm15.5$  kg.

**Table (2):** Declares that before intervention (healthy life style modifications) every participating woman experienced sweating and hot flashes and about more than two thirds (61.7%) of them had sever complaint. More than half (54.2%) of women had sever joint and muscular discomfort. More than two fifths (40.9%) of them had moderate sleep problems. Also, More than two fifths (43.3%) of them had moderate heart discomfort. The vast majority (98.3%) of women had

physical and mental exhaustion. Only more than two fifth (44.2%) of women had moderate complaint of dry vagina. The overall menopausal rating score's mean was 16.85±3.56.

After intervention, the results display that only more than two fifth (44.2%) of women had mild hot flushes and sweating. More than half (55.8%) of women had mild joint and muscular discomfort. Slightly nearly half (49.2) of women had non Sleep problems, otherwise more than two thirds of them had non heart discomfort. Majority (82.5%) of women had mild physical and mental exhaustion. More than two thirds (62.5%) of women had no complaint of dry vagina.

Finally, There was a highly statistically significant difference (P=0.001) regarding the mean of total score of all 11 items of MRS for perimenopausal women before and after following the healthy life style modifications.

**Figure (1):** Represents that there was a highly statistically significant difference (P=0.001) regarding the total perimenopausal symptoms before and after following the healthy life style modifications. Before intervention, slightly more than one third (31.6%) of participating women had moderate complaint of one or more symptoms. After intervention, more than half (50.8%) of them had no complaint of one or more symptoms.

**Table (3):** Illustrates that there was a highly statistically significant difference (P=0.001) regarding the mean of total score of the perimenopausal women lifestyle behaviors before and after health education about the healthy lifestyle modifications.

**Figure (2):** Reveals that there was a highly statistically significant difference (P=0.001) regarding total Health-Promoting Lifestyle Profile (HPLP) levels before and after health education. Before health education, the vast majority (85.8%) of women had poor healthy life style behaviors while after health education, more than two thirds (67.5%) of them had good healthy life style behaviors.

**Table (4):** Displays that after following healthy lifestyle modifications, there was a high statistically significant relationship between women's age, educational level, occupation and improving of perimenopausal symptoms (P < 0.001). Also, there was a statistical significant relationship between women's residence and improving of symptoms (P < 0.01).

**Table (5):** Indicates that after health education about the healthy lifestyle modifications, there was a statistical significant relationship between women's educational level, residence and improving their lifestyle behaviors (P < 0.01). In addition, there was a high statistically significant relationship between women's socioeconomic level and their lifestyle behaviors before and after the intervention (P < 0.001).

#### **Discussion:**

Practicing appropriate and healthy lifestyle behaviors is one of the most effective strategies for women to improve their perimenopausal symptoms. Only a few researches have been done to evaluate the effect of the healthy life style modifications on improving the perimenopausal symptoms (**Wang et al., 2024**).

This study showed that the healthy lifestyle modifications were very effective in improving the women's perimenopausal symptoms. Also, Health education plays an important role in improving the women's unhealthy lifestyle behaviors.

As regards perimenopausal symptoms before the healthy lifestyle modifications, the study revealed that more than one third of participated women had a moderate severity of perimenopausal symptoms. These findings aligned with **Ehab et al.**, (2021) who investigated relationship between menopausal symptoms and health-promoting lifestyle behaviors among women in Tanta, Egypt through crosssectional study.

But this finding was in contrast with **Farahat et al.**, (2020) who executed study assessing the severity of the menopausal symptoms and risk factors for overactive bladder in menopausal women attending Kafr El-Baramoon Family Health Unit, Egypt that showed more than half of the participants had severe menopausal symptoms.

The severity of perimenopausal symptoms varies throughout women. Potential causes include variances in socio-demographic characteristics, culture, financial strains, health issues and women's perceptions of menopause. Other potential causes include low educational attainment and insufficient awareness.

Concerning perimenopausal symptoms before and after the healthy lifestyle modifications, the present study displayed that there was a highly statistically significant difference regarding the mean of total score of all subscales of MRS of perimenopausal women before and after following the healthy life style modifications.

These findings came in a line with the study of **Li et al.**, (2023) that evaluate the effect of multidisciplinary health education based on lifestyle medicine on menopausal syndrome and lifestyle behaviors of menopausal women, a clinical controlled study. The study showed that menopausal syndrome of participants was significantly improved in the intervention group compared to the control group (P < 0.001). This agreement may due to women's adherence with the healthy lifestyle guidelines to improve experiencing their menopausal symptoms

As regards women's life style behaviors before the health education, the study illustrated that the great majority of women had poor level of life style behaviors. Similar results were shown in study of Yoshany et al., (2022) who conducted a crosssectional study evaluating association between lifestyle and severity of menopausal symptoms in postmenopausal women, Iran, where study illustrated that overall score for health promoting lifestyle behaviors was within the low range. This could be challenging because of the socioeconomic circumstances the world is currently facing as a result of the current global economic crisis.

While this finding in contrast with **Ehab et al.**, (2021) where the average of total health-promoting lifestyle profile score was moderate among the studied menopausal women. The disparity in the customs and attitudes of the participating women from various societies could be the cause of this disagreement.

Regarding women's life style behaviors before and after health education, the study illustrated that there was a highly statistically significant difference (P=0.001) regarding total HPLP levels before and after health education. More than two thirds of them had good healthy life style behaviors after health education.

This finding agreed with Elkheshen et al., (2022) who conducted a study to assess effect of Health Promoting Lifestyle Modifications on Quality of Life menopausal among Women at Menoufiya Governorate, Egypt. The results stated there was a highly statistically significant difference regarding all promotion lifestyle profile-II items health immediately after intervention and three months follow up. This agreement shows the importance and crucial role of health education on improving women's lifestyle behaviors.

In summary, the participated women showed large improvement on experiencing perimenopausal symptoms after following the healthy lifestyle modifications. The study hypothesis is supported by these findings.

### **Conclusion:**

The present study concluded that, there was a highly statistically significant difference regarding the mean of total score of all subscales of MRS of perimenopausal women before and after following the healthy life style modifications. Thus, the healthy lifestyle modifications were very effective in improving the women's perimenopausal symptoms. Health education plays an important role in improving the unhealthy lifestyle behaviors of perimenopausal women.

#### **Recommendations**:

This study recommended that:

- Conduct further research with longer observation period and bigger sample size to determine the impact of life style modifications on reducing women's perimenopausal symptoms.
- Plan and implement educational classes for perimenopausal women using social media about the healthy life style modifications to manage the menopausal symptoms.
- Conduct training programs and workshops for nurses to train them on counseling of women about the physiological changes occurring during the perimenopause transition and the healthy life style modifications.

#### **References:**

- Abd Elmoneem, H., Khahmis, M., Abdel-Hafez, H. & Abbas, A (2024): Assessment of Relationship between Lifestyle Behaviors and Severity of Perimenopausal Symptoms among Women, Malaysian Journal of Nursing, Vol. (15), No. (4), Pp. 51-60.
- Abdelaziz, E., Elsharkawy, N. & Mohamed, S (2022): Health Promoting Lifestyle Behaviors and Sleep Quality among Saudi Postmenopausal Women, Frontiers in Public Health, Vol. (10), No. (28), Pp.50-65.
- Alnjadat, R., Momani, E., Etoom, M., Hamdan, F. & ALrub, S (2024): Level of adherence to diet and physical activity among menopausal women and influencing factors in Jordan: a descriptive cross-sectional study, Front. Public Health, Vol. (12), No. (2), Pp. 1-11.
- Aloufi, B. & Hassanien, N (2022): The Association of Menopausal Symptoms and Social Support among Saudi Women at Primary Health Care Centers in Taif, Saudi Arabia, Cureus, Vol. (6), No. (14), Pp. 2-16.
- Bakouei, S., Bakouei, F. & Bakhtiari, A (2023): Sedentary lifestyle in middle-aged women is associated with severe menopausal symptoms and obesity, Int Q Community Health Educ, Vol. (23), No. (1), Pp. 3-8.
- Ehab, A., Abo-Ali, G. & Oka, S (2021): Menopausal Symptoms and Health-Promoting Lifestyle Behaviors among Women in Tanta, Egypt: An Analytic Cross-sectional Study. Egyptian Family Medicine Journal (EFMJ), Vol. (5), No. (14), Pp. 125-140.
- El-hawy, L., AbdAllah, A., Awad, M. & El Maghawry, H (2023): Educational Intervention on Adopting Health Promotion Lifestyle Among Egyptian Post-Menopausal Females, Egyptian Journal of Community Medicine, Vol. (41), No. (3), Pp. 193-201.

- Elkheshen, S., Salama, A. & Elbanna, H (2022): Effect of Health Promoting Lifestyle Educational Intervention on Knowledge and Quality of Life of Menopausal Women, Tanta Scientific Nursing Journal, Vol. (15), No. (4), Pp. 168-187.
- Farahat, T., El Esergy, F. & El Shopaky, S (2020): Risk factors for overactive bladder in postmenopausal women attending Kafr ElBaramoon Family Health Unit, Egypt. Menoufia Med J, Vol. (5), No. (32), Pp. 139-144.
- Genazzani, A., Divakar, H., Suvarna, S. & Benedetto, C (2024): Counseling in menopausal women: How to address the benefits and risks of menopause hormone therapy. A FIGO position paper, International Journal of Gynecology & Obstetrics, Vol. (164), No. (55), Pp. 516–530.
- Heinemann, J., Potthoff, P. & Schneider, P. (2003): The International version of the Menopause Rating Scale (MRS), Health Qual Life Outcomes, Pp. 28.
- Huang, D., Goodship, A., Webber, I., Alaa, A. & El-Osta, A (2023): Experience and severity of menopause symptoms and effects on health-seeking behaviours: a cross-sectional online survey of community dwelling adults in the United Kingdom, BMC Women's Health, Vol. (23), No. (27), Pp. 1-10.
- Khan, S., Kapoor, E., Faubion, S. & Kling, J (2023): Vasomotor Symptoms During Menopause: A Practical Guide on Current Treatments and Future Perspectives, International Journal of Women's Health, Vol. (15), No. (7), Pp. 273–287.
- Li, Y., He, H., Wang, J., Chen, Y., Wang, C. & Lei, X (2023): Effect of multidisciplinary health education based on lifestyle medicine on menopausal syndrome and lifestyle behaviors of menopausal women: A clinical controlled study, Front. Public Health, Vol. (10), No. (5), Pp. 60-69.
- Misiker, B., Kashala, K. & Misker, D (2023): The severity of menopause and associated factors among middle-aged women residing in Arba Minch, BMC Women's Health, Vol. (23), No. (287), Pp.1-3.
- Moilanen, J., Aalto, A. & Luoto, R (2023): Prevalence of menopause symptoms and their association with lifestyle among Finnish middleaged women. Maturitas, Vol. (67), No. (4), Pp. 368-374.
- Okhai, H., Dragomir, L., Pool, E. & Burns, H (2022): Association between health-related quality of life and menopausal status and symptoms in women living with HIV aged 45–60 years in England: An analysis of the PRIME study. HIV and Women's Health, Vol. (18), No. (2), Pp. 1-11.

- Pender, N., Murdaugh, J. & Parsons, M (2011): The Health Promotion Model Manual. Health Promotion in Nursing Practice, Pp. 1-17.
- Rees, M., Abernethy, K., Bretz, S., Ceausu, I. & Durmusoglu, F (2022): The essential menopause curriculum for healthcare professionals: A European Menopause and Andropause Society (EMAS) position statement, Maturitas, Vol. (158), No. (33), Pp. 70-77.
- Simpson, E., Doherty, J. & Timlin, D (2024): Menopause as a window of opportunity: the benefits of designing more effective theory-driven behaviour change interventions to promote healthier lifestyle choices at midlife, Proceedings of the Nutrition Society, Vol. (83), No. (55), Pp. 120–129.
- Wang, Y., Miao, X. & Viwattanakulvanid, P (2024): Effects of a therapeutic lifestyle modification intervention on cardiometabolic health, sexual functioning and health-related quality of life in perimenopausal Chinese women: protocol for a randomized controlled trial, BMJ Open, Vol. (14), No. (5), Pp. 1-12.
- Yoshany, N., Mazloomy, S. & Hanna, F (2022): Association between Lifestyle and Severity of Menopausal Symptoms in Postmenopausal Women, Electronic Journal of General Medicine, Vol. (17), No. (5), Pp. 2-6.
- \_\_\_\_\_
- This is an open access article under
- Creative Commons by Attribution Non-
- Commercial (CC BY-NC 3.0)
- (<u>https://creativecommons.org/licenses/by-nc/3.0/</u>)