Effectiveness of Roy Adaptation Model on Self Body Image among Employed Women with Peri-Menopausal Symptoms

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Abstract

Background: Peri-menopause period is a milestone in a woman's life, with accompanying bodily changes and symptoms that can have a profound effect on her body image. **Aim of the study:** To examine the effect of application of Roy adaptation model on coping with peri- menopausal symptoms and self-body image among employee women. **Subjects and Method: Study design:** A quasi-experimental design was used. **Setting:** Study was conducted at Menoufia University administrative building, Menoufia Governorate Egypt. **Study Subjects:** A convenient sample of 100 administrative employed women at menopausal age (45-55 years) who working in administrative building. **Tools:** Self - Administered Socio-demographic & Reproductive Characteristics Questionnaire, Menopausal Rating Scale, Roy Adaptation Model Scale. **Results:** Highly significant improvement in the percentages of "Effective Adaptation behavior" responses, in each of the four subunits. Physiological mode, self-concept mode, Role function mode and Interdependence mode. Finally, a high significant positive correlation between total score of Roy Adaptation behavior and post intervention total score of body self-image. **Conclusion**: Implementation of educational intervention based on Roy adaptation model has positive consequences on improving women's coping ability regarding peri-menopausal period and its related risk factors. **Recommendation:** Re- implementation of the study at different settings including women across their life span to promote self- body positivity, Raising awareness about menopause and its impact on women.

Keywords*:* Employed women, Perimenopause, Roy adaptation model, Self-body image**.**

Introduction

Self-Body image is a lifelong battle throughout women's lives. Women's self-image may be affected by perimenopausal period as a result of skin aging and changein hair density and distribution which have been identified as windows of vulnerability for increased body dissatisfaction **(Gillen & Markey, 2019)**. Peri-menopausal symptoms can be highly distressing, significantly impacting various aspects of women's lives, including personal, social, and professional domains. Perimenopause is

marked by a range of major symptoms, encompassing central nervous system (CNS) related issues such as vasomotor symptoms, sleep disturbances, anxiety, depression, migraine, and changes in cognitive performance **(Monteleone et al., 2018)**.

Additionally, changes in weight and metabolism, and changes in body composition **(Forney et al., 2019; Magraith, 2023)**. Psycho-social manifestations may include a diminished sense of confidence, challenges with self-identity and body image and an increased susceptibility to anxiety and depression. Perimenopause is great physical, hormonal, and psycho-social changes which have been identified as windows of vulnerability for increased body dissatisfaction **(McLean & Paxton, 2019)**. Women's self-image may be affected by perimenopausal period as a result of skin aging and changes in hair density and distribution. Also, significant changes in body composition and body fat distribution which exacerbate body image concerns **(Bienenfeld et al., 2019)**.

In the workplace, these symptoms can hinder a woman's ability to perform optimally **(Hvas & Gannik, 2018)**. Despite these challenges, many women refrain from seeking help, driven by factors such as embarrassment, fear of adverse reactions from others, or cultural taboos associated with the condition **(Soares, 2019)**.

Menopausal symptoms have been reported to adversely affect employees work performance and reducing work satisfaction **(Soares et al., 2019)**. In addition to the effects of menopausal symptoms on individual occupational well-being. As the life expectancy and working age of women increase, many can expect to spend more than one-third of their lives in menopause, with a significant proportion of this in employment according to Organization for Economic Co-operation and Development **(OECD, 2022)**.

Roy's model of adaptation aims to increase women physiological and cognitive adaptability to perimenopause symptoms. Nurses as a part of health care providers have responsibilities to help women in dealing with perimenopause symptoms **(Callis, 2022)**. Nurses can provide nursing care by using Roy adaptation model at peri -menopause period aim to promote symptoms management and improve quality of life and valuates women in physiologic mode, self-concept mode, role function mode and interdependence mode aiming to provide holistic care **(Russo, 2019)**.

Nurses have a vital role to play in helping women to cope during and after the menopause, offering individual assessment, education and support **(Bienenfeld et al., 2019)**. Nursing goal is to promote peri – menopausal women health, in each of the four adaptive modes, by maintaining adaptive responses and converting ineffective responses to adaptive ones **(Allan & Evans., 2019)**, by using the nursing process to assess an individuals' adaptation level and coping processes **(Dixon., 1999; Women and Equalities Committee, 2022)**.

Significance of the study:

In Egypt, menopausal women constitute a considerable sector of the whole population. Percentage of women at menopausal age to all women age group is 20.5%, their percentage to the whole population is 10.7%. Recent statistics in

Egypt proved that about 4.7 million of women at age of 45 years or more have more consequences due to menopause. This number is expected to increase to 13 million by the year 2030 **(El-Rahman et al., 2023)**. 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 **(Women and Equalities Committee, 2022)**. The incidence of menopause in Egyptian women is higher than in the West, when combined, body dissatisfaction, low self-esteem, and experiencing weight stigma can have lasting negative physical and mental health consequences into menopausal women **(Harrington & Overall, 2021)**.

Aim of the study

Evaluate the effect of application of Roy adaptation model on coping with self-body image satisfaction among employee's women.

Research Hypothesis:

-Women who apply Roy adaptation model will experience lower intensity in menopausal symptoms post intervention than pre intervention.

-Women who apply Roy adaptation model will have better coping abilities of menopause symptoms post intervention than pre intervention.

-Women who apply Roy adaptation model will have better coping abilities of menopause symptoms post intervention than pre intervention.

Subjects and Method

Study design:

Quasi experimental design (pre –post intervention) was used to achieve this study.

Study Setting:

This study was conducted at Menoufia university administrative building, Menoufia governorate, Egypt.

Study Subjects:

A convenient sample of 100 administrative employee women at menopausal age (45-55 years) who working in administrative building at Menoufia University was recruited in the study according to the following inclusion criteria:

-Women who have 45–55-year-old.

-Free from chronic disease which affect menopausal changes as diabetes, hypertension, cardiac disease and thyroid disorder.

Exclusion Criteria:

-Women with previous history of cancer.

-Women with previous hysterectomy

-Women who use hormonal replacement therapy.

-Have previous psychological \disorders or diseases.

Sample size calculation:

In order to calculate the sample size required to examine the effect of application of Roy adaptation model on coping with peri- menopausal symptoms among employee women, the sample size was calculated according to the following equation:

$$\textbf{Sample size } n = [DEFF*Np(1-p)]/[(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$$

n= Sample size

N: population size = 280 Wome employee

p: hypothesized % frequency o 13% +/-5 outcome factor in the populatio (from pilot study) =

d: confidence limits as % o 5% 100(absolute +/- %) =

DEFF: design effect = 1

Z: probability when P is less tha 1.96

0.05 =

α : alpha error 0.05

Confidence interval of 95% was used, with a sample size of 101 employee women, which approximated to 100 women as current study sample size. Out of all employees' women at menopausal age (45-55 years) who are working in administrative building at Menoufia University.

Tools of data collection:

Tool One: Self-Administered Socio-demographic & Reproductive Characteristics Questionnaire.

It was designed by the researcher. It included the following: name, age, marital status, educational level and body mass index (BMI). It also included menstrual history and reproductive characteristics such as date of last menarche and number of births.

Tool Two: Menopausal Rating Scale (MRS):

Designed by (**Heinemann et al., (2003)** according to international versions of the Menopause Rating Scale (MRS). Menopause Rating Scale (MRS) is a health-related quality of life scale (HRQoL). Has three categories i.e., physical, psychological, urogenital. Subcategories included: 1) physical symptoms (hot flushes/sweating, heart discomfort, sleeping problem, muscle and joint problem); 2) psychological symptoms (depressive mood, anxiety, and tiredness); 3) urogenital symptoms (sexual problem, bladder problem and dryness of vagina).

Scoring system:

Menopause Symptoms Rating Scale consists of 11 items. It has three categories:

-Each item was evaluated with five-point Likert scale 0-4: (0= None. 1 = Mild, 2 =Moderate, 3= Sever, and 4 = V. sever). The perimenopausal employee women 'response to each subscale was evaluated by summing all its items to have the subscale' total score. The total subscale score of each perimenopausal employee women was categorized into "No physical symptoms level" when she achieved less than <27% of its total score, "Mild to Moderate physical symptoms level" when she achieved 27% to <80% of its total score, "Severe to Very severe physical symptoms level" was considered when he/she achieved ≥ to 80% of its total score.

The Grand total symptoms of Menopause Symptoms Rating Scale were evaluated giving a range of 0 - 44. The total subscale score of each peri-menopausal employee women was categorized into "No physical symptoms level" when she achieved less than <27% (0-11) of its total score, "Mild to Moderate physical symptoms level" when she achieved 27% to <80% (12-35) of its total score, "Severe to Very severe physical symptoms level" was considered when he/she achieved ≥ to 80% (36-44) of its total score.

Tool Three: Roy Adaptation Model Scale (RAMS).

The instrument was developed by Russo (2019) based on the original assessment of Roy adaptation model assessment (Roy, 2005). The instrument is psychometrically scale with four subscales; each subscale represents one of the four adaptive modes of the RAM (physiologic 9 items, self-concept 9 items, role function 7 items and interdependence 9 items) in 34 items totally. This scale was used in this study

to measure the four adaptive modes for menopausal symptoms among employee women.

Scoring system:

Roy Adaptation Modes Scale" (RAMS):

It consists of 34 items to measures several components of adaptation. Each item was rated on a five - point Likert scale from one to three (1=disagree, 2=neither disagree nor agree, 3 =agree). The grand total score can range from 34-170; "No Adaptation behavior" ranges from 34-68, "Ineffective adaptation behavior" ranges from 69-102 and "Effective adaptation behavior" ranges from 103-170.

Tool Four: Body Image Satisfaction Questionnaire (BISQ):

Was developed by (**Berscheid, et al., 1973).** The Body Image Satisfaction Questionnaire (BISQ) is a questionnaire in order to evaluate the body image satisfaction (BIS) level.

Scoring system:

The Body Self-Image Questionnaire. It consisted of 39 items. Each is a five -point Likert type scale (1 – 5): 1= Never, 2= rarely, 3= Sometimes and 4= Mostly and 5= Always. The total score ranges between 39 and 195. Scores from 39- 77 reflect to Dissatisfaction on BSI, scores from 78-117 reflect to moderate satisfaction on BSI, and scores from 118-195 reflect to Complete Satisfaction on BSI.

Reliability of instruments:

Reliability was estimated among 10 participants by using test-retest method with two weeks apart between them. Then Cronbach alpha was calculated within the two scores. It was 0.83 which indicates that instruments were reliable to detect the objectives of the study.

Validity of instruments

Validity of the instruments was assessed using content validity by three experts in the field of Community health Nursing and one expert has doctorate degree in maternal and newborn nursing). The relevancy, clarity, fluency, and simplicity of each component in the tool were examined by the Experts, their suggestions were incorporated into the instruments, and they found the tool was useful and helpful.

Pilot study:

A pilot study was conducted on 10 women to assess the feasibility of the study as well as clarity and objectivity of the tools. The needed modifications were incorporated to add or omit questions if needed, the time required for tool fulfillment were calculated. Also, to assess the availability of environment which facilitate the data collection. Pilot study was excluded from the total study sample size.

Administrative and ethical consideration:

Approval of the research was obtained from the Ethics Committee of Scientific Research in the Faculty of Nursing, Menoufia University before the start of the study. An official letter to conduct the study obtained from the administrator of the faculty of nursing and performed to the administrator of chosen setting to permit collecting of research data. Ethical considerations to look at this study included: Apply the subject's rights to freely choice to participate in the study, the rights of privacy and safety for the subjects were secured and they were allowed to withdraw from the study whenever they wanted.

Field work:

Pre-intervention phase:

-It included the review of the past and current national and international related literature on the various aspects of the phenomena using articles, periodicals, magazines and books to be acquainted with the actual dimension and magnitude of the study phenomena and to guide in developing the study instruments.
-Submitting official letters from the dean of the faculty of nursing, Menoufia University about the purpose of study to obtain an official permission from the general secretary and the director of human resources in the Menoufia University administration of the Menoufia University, including the purpose of the study.
-The duration of intervention phase lasted three months, from January to April 2022.
-Applying of surveying diagnostic questions related to per-menopausal symptoms among 280 employee women in the Menoufia University administration for selection of women with inclusion criteria.
-Researcher introduced herself to the studied women and took their oral consent to participate in the study after explaining the aim of the study.
-The duration for collecting pretest took 1 month.
-Researcher started to collect the data from participant women by the pretest questionnaire on the first visit to assess study variables.
-The tools of data collection required 25-30 minutes to be filled by each participant.
-The researcher planned for the number of educational sessions that would intervene in addition to illustrated educational-booklet.
-There were six educational sessions for two months to participant women about how to manage menopausal symptoms.
-The plan for interview was one session per week for three months.
-Tools were administered to the participants to fill it and were assured for the confidentiality of their information.
-The researcher designed the educational intervention based on the information obtained from initial assessment, in addition to literature review, and the concepts of Roy Adaptation model under guidance of the supervisors.
-A structured interview was conducted to the studied women were divided into groups; each group consisted of 5-10 studied women and one hour per session to avoid overcrowding for employee women in groups to avoid wasting time of their work.

Implementation phase:

-The implementation was planned on 12 sessions for throughout a week, each session took one hour. But the sessions were carried on only 6 sessions due to work load and no enough time for the studied women.
-At the beginning, the researcher introduced an orientation to the program, and used lecture, videos and group discussion and a copy of booklet illustrating about peri-menopause, causes, risk factors, and per-menopausal symptoms and its preventive behaviors and the concepts of Roy adaptation model.
-Next sessions were arranged about coping behaviors based on Roy adaptation models respectively.

First session : (relieving intensity in menopausal symptoms) : Aimed to enhance the studied women's knowledge about types of symptoms of menopause,

its adverse effects on their health & lives & how to relieve these symptoms by focusing on management for menopause physical, psychological, urogenital symptoms through modifying unhealthy nutritional behaviors,, avoidance of noisy, wearing comfortable cotton clothes, using moist ointments, control of urine incontinence and caffeine intake, kegel exercise, memory refreshment as reading, weight management, breathing exercise and personal hygiene. Group discussion was allowed to ensure their complete understanding and feedback was taken at the end of each session.

Second session: (Physiologic mode coping behavior session): Aimed to enhance the studied women's knowledge about types of symptoms of menopause, its adverse effects on their health and lives, and how to relieve these symptoms by focusing on having enough hours of sleep, joint and muscular exercises, balanced diet, modifying unhealthy nutritional behaviors,, increasing intake of fresh vegetables, fruits and carbohydrates, increasing dairy intake, breathing exercise, relation technique and personal hygiene. Group discussion was allowed to ensure their complete understanding and feedback was taken at the end of each session. The researcher used different methods throughout this session as group discussion and demonstration and re demonstration techniques

Third session: (Self-Concept Mode session); The researcher aimed to improve studied women self-concept by focusing on coping with stress, ways to remaining positive, caring of self, the importance of looking healthy and maintain personal neatness. The researcher used different methods throughout this session as group discussion. Also, role play in problem solving situation were used.

Fourth session: (Role Function Mode); The researcher aimed to enhance studied women role function by focusing on managing social isolation, taking time for self, relaxation, communication with others and modifying daily routine. The researcher used different methods throughout this session such as group discussion and role play.

Fifth session: (Interdependence role mode); The researcher aimed to enhance interdependence role of studied women by focusing on the way of developing relationships with others, getting support from family and coworkers, managing difficult time of menopause. The researcher used different methods throughout this session as group discussion.

Sixth session: (Self body image improvement session): The researcher aimed to increase the satisfaction of studied women self-image related to their body changes as a result of menopause by focusing on adornment of Overall Appearance, betterment of body fitness, attention to grooming and well dressing. The researcher used different methods throughout this session such as group discussion and role play.

There were one month to let participant women apply the information they gain and manage their menopausal symptoms. During this period the researcher will follow the participated women by telephone call to ensure the continuity.

Evaluation phase:

- The researcher recollected data after one month of implementation of the educational intervention.

- At the end of the course of education8al session, the effect of the education intervention was evaluated by using the same format of pretest.
- The post-test questionnaire to evaluate the coping with the menopausal symptoms and self-body image after the educational sessions. And comparing it with per-intervention data in order to know differences, similarities and gap of practice.

Statistical Analysis:

Data was entered and analyzed by using SPSS (Statistical Package for Social Science), version 22. Graphics were done using Excel program. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student paired t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ^2) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used (if the table was 4 cells), or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

Results

Table (1): represents diagnostic questions for peri menopausal symptoms among 280 employee women in Menoufia university administrative building, showed that there was high statistical significance in the majority (95 %) of women aged 45-55 years suffering from common menopausal symptoms as presence of irregular menstruation, sexual and bladder problems and impaired self -body image.

Fig (1): shows that there were high statistical difference regarding to weight change since menopause onset 52% of studied women reported weigh change in addition to measuring levels of body mass index; there are 5% of studied women with health weight while 27% of women reported over weighing, but the more than half of the studied women (68%) have an obesity.

Table (2): represents the efficacy of application of Roy adaptation model on coping behaviors with peri- menopausal symptoms among employee's women. Post -intervention program revealed a highly significant improvement (p<0.000) in the percentages of "Effective Adaptation behavior" responses, in each of the four subunits: Physiological mode, self-concept mode, Role function mode, Interdependence mode, as well as Grand total Adaptation behavior. In addition, the percentages of "No Adaptation behavior" responses, in each of the four subunits: Physiological mode, self-concept mode, Role function mode, Interdependence mode, as well as Grand total Adaptation behavior showed decreased highly significant percentages (to 3 %) in post-intervention (p<0.0001).

Fig (2): shows that there is statistically significant difference regarding to grand total levels of menopause rating scale between pre- and post-intervention, in which 5% of studied women with no symptoms, while mild to moderate symptoms represent 63 % and sever symptoms are 32%. While post intervention program the percentage of no symptoms becomes high (83%) and 78% moderate symptoms, zero sever symptoms.

Table (3): shows the body self-image regarding to Overall Appearance Evaluation, Fatness Evaluation, and Attention to Grooming among studied women. There is high statistically significant difference in the improvement of self-body image between pre& post intervention, while pre-intervention the majority of studied women (75 %) their overall appearance neither attractive nor sexually appealing. In addition to the fatness body evaluation, they suffered from fatty body, overweight and flabby stomach so they wished to be thinner. While post intervention of improving ways to self bod image, nearly three quarters of studied women felt their body looks attractive and sexually, thinner body parts.

Table (4): explain what there were high statistical significance differences in self-image regarding to Health fitness evaluation, health fitness influence, and social dependence in pre and post intervention. Nearly to 80% of the studied women in per-intervention reported low satisfaction of body fitness level, weak muscle tone with unsatisfied body shape, also their health fitness influences their functioning and self-body image. While their social dependence influenced by their thoughts about how they appear and compare themselves with others in social situation, but post intervention; about 77% of studied women felt satisfied with their body shape, their health fitness and body image improved, they had positive thoughts about their body in social situation.

Table (5): highlights that there were high statistical significant difference in pre& post intervention regarding to Height Satisfaction, Negative Effect, Investment of Ideals, while in pre-intervention about three quarters of studied women stated that they are sad for their body image and wished to have another better body shape, but post intervention of improving self-body image, nearly 77% become satisfied to their body image and invested to the ideals and well-proportioned body.

Table (6): verifies that there was highly significant difference (P <0.0001) between pre and post intervention of Roy adaptation model program regarding to grand total of subunits of self-body image (Overall Appearance Evaluation, Fatness Evaluation, Attention to Grooming, Health/ Fitness Evaluation, Health/ Fitness Influence, Social Dependence, Height Dissatisfaction, Negative Affect, Investment in Ideals).

Table (7): highlights a high significant association between Roy adaptation behavior and total Body Self-Image levels among studied peri-menopausal women. Post intervention (P<0.0001). Hundred percent of menopausal women who had Ineffective adaptation behavior, had moderate BSI satisfaction (100% pre-intervention). However, all of peri-menopausal women who had effective adaptation behavior had complete BSI satisfaction (100% post-intervention). The association was highly significant statistically (p<0.0001).

Table (8): reveals a high significant negative correlation between post intervention total score of Roy Adaptation behavior and total score of menopausal symptoms (r = -0.44, p<0.0001) among peri- menopausal employees' women.

Table (1): Number and percent distribution of surveying diagnostic questions related to peri menopausal symptoms (N=280)

Suffering Menopausal symptoms	Studied peri- menopausal employees' women	
	No	**%**
Feeling Menopausal symptoms:		
No	1	1
Yes	279	279
irregular menstruation at present:		
No	**3**	**3**
Yes	**273**	**273**
Presence of hot flushes and sweating:		
No	**4**	**4**
Yes	**276**	**276**
Body changes		
No	**9**	**9**
Yes	**271**	**271**
Total	**280**	**100 %**

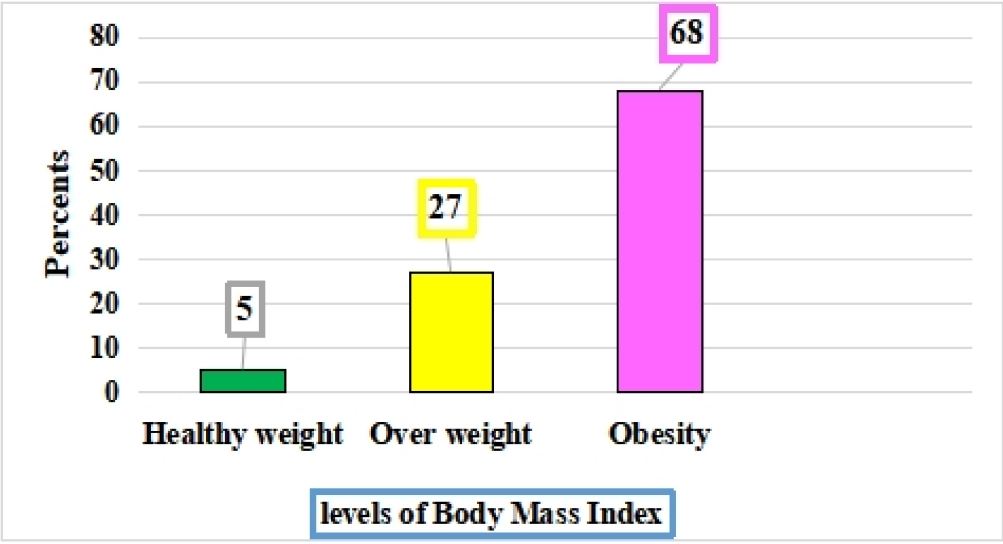

Fig. (1): Levels of Body Mass Index among studied women (n=100)

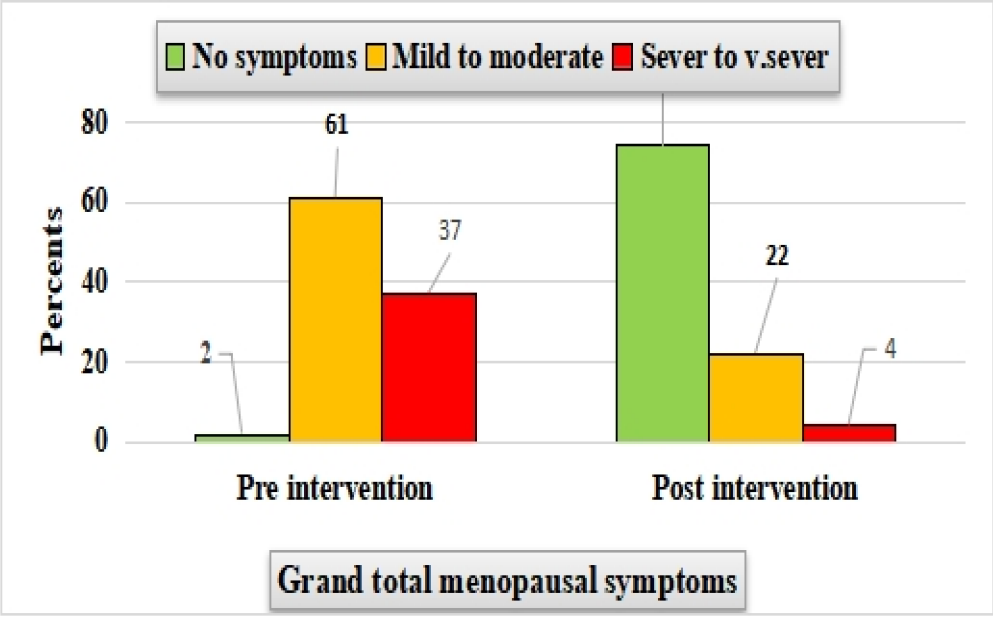

Fig. (2): Levels of grand total Menopause Symptoms among studied women pre and post intervention (n=100)

Table (2): Levels of Roy Adaptation Modes Scale' among studied employed women pre and post intervention (n=100).

The Roy Adaptation Modes Scale'	The Roy Adaptation Modes Scale' levels						□2	P value
	Adaptation behavior (AB)							
	Pre intervention			Post intervention				
	No AB	Ineffective AB	Effective AB	No AB	Ineffective AB	Effective AB		
	%	%	%	%	%	%		
Physiologic Mode	89	11	0	0	13	87	176.2	<0.0001 HS
Self-Concept Mode	100	0	0	0	13	87	200	<0.0001 HS
Role function Mode	12	71	17	0	13	87	99.2	<0.0001 HS
Interdependence Mode	63	20	17	0	13	87	111.6	<0.0001 HS
Grand total levels of Roy Adaptation Modes Scale	72	62	4	3	01	87	164.5	<0.0001 HS

AB= Adaptation Behavior HS=High Significant

Table (3): Distribution of The Body Self-Image Questionnaire (Overall Appearance Evaluation, Fatness Evaluation, Attention to Grooming) among peri- menopausal studied employed women' from their' perspective (n=100)

The body self-image questionnaire	Pre-intervention					Post intervention					□2	P value
	Never	Rarely	Some-Times	Mostly	Always	Never	Rarely	Some-times	Mostly	Always		
	%	%	%	%	%	%	%	%	%	%		
Overall Appearance Evaluation												
1-My naked body looks attractive.	81	2	0	14	3	0	0	13	28	59	157.7	<0.0001 HS
2-I look good in clothes.	79	1	3	17	0	0	13	13	15	59	168.1	<0.0001 HS
3-My body looks good.	75	4	4	15	2	0	0	13	15	72	168.2	<0.0001 HS
4-My body is sexually appealing	80	3	13	2	2	0	0	26	15	59	158.9	<0.0001 HS
Fatness Evaluation												
5-I think my body looks fat in clothes.	14	3	20	62	1	4	5	21	10	60	106.3	<0.0001 HS
6-Parts of my body are fat.	13	3	1	63	20	0	5	26	10	59	108.7	<0.0001 HS
7- My body is fat overall.	17	0	0	51	32	11	8	13	14	55	56.9	<0.0001 HS
8- I have large buttocks.	13	4	20	31	32	13	6	13	9	59	28.1	<0.0001 HS
9 -My body is overweight.	15	2	22	29	32	13	6	13	3	65	42.3	<0.0001 HS
10-My stomach is flabby.	16	1	20	33	30	13	6	13	3	65	42.3	<0.0001 HS
11- I wish I were thinner	15	2	24	29	30	13	0	13	34	40	3.4	0.18 NS
Attention to Grooming												
12- I pay careful attention to my face and hair, so that I will look good.	71	9	3	12	5	3	0	10	34	53	154.7	<0.0001 HS
13- I'm usually well-dressed.	71	10	19	0	0	1	2	10	62	25	170.5	<0.0001 HS
14-I spend time making my appearance more attractive.	71	10	15	2	2	4	0	9	74	13	170.5	<0.0001 HS

Table (4): Distribution of Body Self-Image Questionnaire (Health Fitness Evaluation, Health fitness influence, and social dependence) among studied women (n=100)

The body self-image questionnaire	Pre-intervention					Post intervention					□2	P value
	Never	Rarely	Some-Times	Mostly	Always	Never	Rarely	Some-times	Mostly	Always		
	%	%	%	%	%	%	%	%	%	%		
Health fitness Evaluation												
15-My overall fitness level is high.	75	21	0	1	3	1	2	10	68	19	145.6	<0.0001 HS
16- My body is healthy.	93	5	0	1	1	0	0	13	62	25	170.5	<0.0001 HS
17- My overall muscle tone is good.	71	12	17	0	0	1	1	11	74	13	170.5	<0.0001 HS
18- My body is strong.	70	11	0	17	1	0	3	10	74	13	144.7	<0.0001 HS
19-I have an athletic build.	75	19	1	3	2	3	4	12	81	0	200.0	<0.0001 HS
20- My body is in shape.	82	16	0	3	1	3	1	16	80	0	200.0	<0.0001 HS
Health Fitness Influence												
21- How well my body is functioning influences the way I feel about my body.	1	5	0	14	80	0	4	13	16	67	170.5	<0.0001 HS
22- The way I feel about my body improves when I exercise regularly.	1	1	1	17	78	2	1	10	16	71	176.2	<0.0001 HS
23- My body image is influenced by the state of my health.	1	2	0	4	93	1	4	13	11	71	164.5	<0.0001 HS
Social Dependence												
24- My thoughts about my body depend on the clothes I'm wearing	2	4	3	26	65	1	0	12	28	59	170.5	<0.0001 HS
25- I compare my body to people I'm close to (friends, relatives, etc.).	2	1	0	17	80	83	7	1	5	5	176.2	<0.0001 HS
26- I'm more aware of my body when I'm in social situations.	68	1	28	2	1	0	4	0	13	83	164.5	<0.0001 HS

Table (5): Distribution of Body Self-Image (Height dissatisfaction, Negative Effect, and Investment in Ideals) among studied women (n=100)

The body self-image questionnaire	Pre-intervention					Post intervention					□2	P value
	Never	Rarely	Some-Times	Mostly	Always	Never	Rarely	Some-times	Mostly	Always		
	%	%	%	%	%	%	%	%	%	%		
Height dissatisfaction												
27- I've often wanted to be taller.	1	2	17	30	50	47	40	12	0	0	170.5	<0.0001 HS
28- I wish I were a different height.	1	2	1	30	66	72	12	13	1	2	200.0	<0.0001 HS
29-If I were a different height, I'd like my body better.	0	0	2	32	68	77	11	10	1	2	200.0	<0.0001 HS
Negative Effect												
30- My naked body makes me feel sad.	1	1	1	50	47	72	12	13	1	2	133.4	<0.0001 HS
31- Being around good-looking people makes me feel sad about my body.	4	5	11	40	40	50	34	13	3	0	106.2	<0.0001 HS
32- My naked body makes me angry.	9	0	31	20	40	48	35	13	2	2	111.4	<0.0001 HS
33- I feel depressed about my body.	2	7	31	20	40	49	34	13	3	1	111.4	<0.0001 HS
34- Most days I feel bad about my body.	0	0	20	31	49	72	12	13	0	3	109.9	<0.0001 HS
Investment in Ideals												
35- Controlling my level of body fat is important to me.	1	1	3	15	80	01	2	11	59	28	200.0	<0.0001 HS
36- Having a well-proportioned body is important to me.	1	1	3	15	80	0	2	9	65	22	200.0	<0.0001 HS
37- Muscle definition is important to me.	0	0	1	7	92	0	0	14	28	58	200.0	<0.0001 HS
38- I care about how well-shaped my legs are.	1	1	3	15	80	1	1	13	63	22	200.0	<0.0001 HS
39- Body size matters to me	1	1	3	15	80	0	0	13	59	28	200.0	<0.0001 HS

Table (6): Arithmetic mean of the total body self-image nine subunits as well as grand total body self-image, among studied women (n=100)

The body self-image questionnaire	No. of items	Pre-intervention	Post intervention	t test	P value
		Mean± SD	Mean ± SD		
Overall Appearance Evaluation	4	5.8 ± 2.1	17.6 ± 3.1	22.6	<0.0001 HS
Fatness Evaluation	7	25.2 ± 7.1	28.3 ±5.6	2.5	<0.01 HS
Attention to Grooming	3	4.6 ± 1.4	12.5 ±1.6	25.3	<0.0001 HS
Health/ Fitness Evaluation	6	8.5 ± 2.4	23.4 ± 2.5	29.9	<0.0001 HS
Health/ Fitness Influence	3	6.6 ± 1.5	13.7 ± 2.1	27	<0.0001 HS
Social Dependence	3	4.3 ± 1.7	12.9 ± 1.8	33.3	<0.0001 HS
Height Dissatisfaction	3	4.3 ± 1.3	13.1± 2.0	35.2	<0.0001 HS
Negative Affect	5	11.3 ± 2.5	21.7± 3.1	14.4	<0.0001 HS
Investment in Ideals	5	5.6 ±1.5	20.6 ± 2.1	44.5	<0.0001 HS
Grand total BSE	39	76.4 ± 9.8	163.9 ± 20.1	39.2	<0.0001 HS

Table (7): The relation between Roy adaptation behavior levels and total Body self-Image among peri -menopausal women post intervention

Roy adaptation behavior levels	Total Body Self-Image levels				Total		LR	P
	Moderately satisfaction		Completely satisfaction					
	No	%	No	%	No	%		
Ineffective adaptation	13	100	0	0	13	100	100.0	<0.0001 HS
Effective adaptation	0	0	87	100	87	100		
Total	13	13	87	87	100	100		

LR=Likelihood Ratio. NS= Not Significant

Table (8): Pearson Correlation between perimenopausal women post intervention' Roy Adaptation behavior as independent variable with menopausal symptoms and Body Self-image as dependent variables

Adaptation behavior	Total symptoms		Total Body Self-Image	
	R	P	R	P
Roy Adaptation behavior	-0.44	<0.0001 HS	0.84	<0.0001 HS

r= Correlation coefficient, **P**= Statistical probability, **HS**= High significance

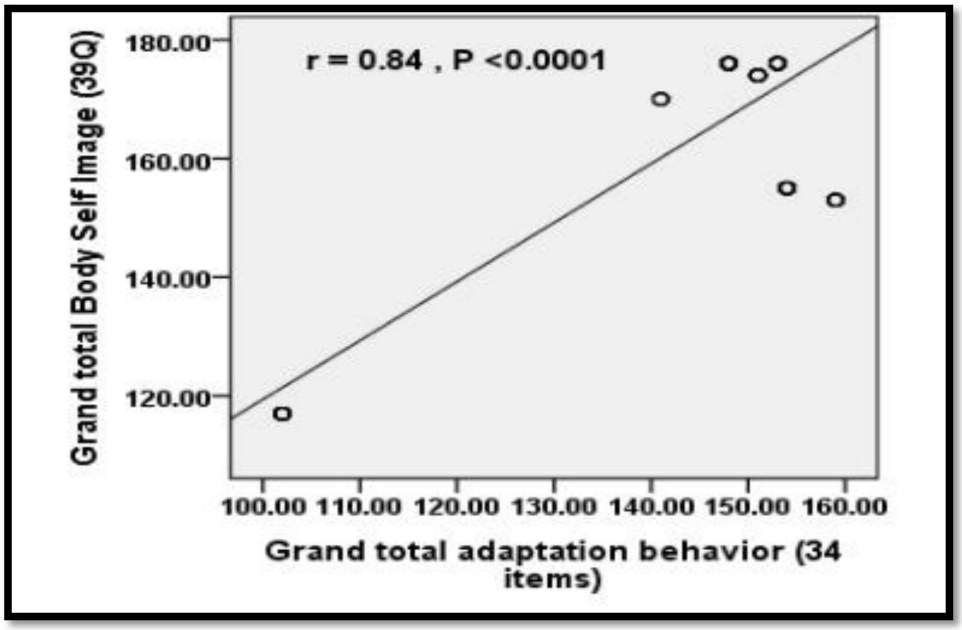

Fig. (3): Pearson Correlation between studied women post intervention' Roy Adaptation behavior as independent variable with Body Self-image as dependent variables.

Discussion

Peri-menopause has created a devastating impression on women's lives worldwide. Every woman's experience of menopausal symptoms is unique, spend a significant number of years of their life in the menopausal phase **(Aloumanis, 2021)**. Symptoms of peri-menopause are not universal, women may experience vasomotor, psychological and urogenital which the intensity and duration of symptoms can change over time. So, nurses as nursing care providers help women with menopause symptoms to develop individualized care management plans **(Hatami & Hojjati, 2019)**.

Adaptation with these symptoms is the topic that is still being ignored. To maximize the women health of menopause survivors, application of Roy adaptation model would be advantageous **(Mishraet al., 2021)**. Roy's adaptation model (RAM) is a nursing strategy that is excellent for use with women who have peri-menopause in the early stages **(Johnson et al., 2023)**.

Regarding to diagnostic questions for peri menopausal symptoms among 280 employee women in Menoufia university administrative building, showed that there is high statistical significance in the majority (95 %) of women aged 45-55 years suffering from common menopausal symptoms as presence of irregular menstruation, sexual and bladder problems and impaired self - body image. Consistent to (**Kalhan et al., (2020)** revealed that Prevalence of symptoms among women were found to be 87.7%. Majority of the study subjects had irregular menstruation, impaired body image as a result of increased body weight. Similar results were found with **(Sood et al., (2017)** who reported that the overall prevalence of menopausal symptoms in all domains of MRS was 87.7%. Here, irregularity of menstruation and physical and mental exhaustion was the most common symptom. This result in agreement with (**Thapa et al., (2022)** who reported that **w**eight gain is a symptom of menopause experienced by 60%–70% of midlife women. Additionally, **Vazquez et al., (2021)** noted that during the menopausal transition, women gain an average of 2–3 kg, and a shift to an abdominal fat redistribution occurs which impaired women perception toward their body image.

Body mass index among perimenopausal women as regarded in the current study, which revealed that their majority of women reported high statistically significant difference of increased body mass index on (27% over weighing, 68%e an obesity). Based on **WHO's** data (**2021)** which are 40% of women are overweight and another 15% are obese due to changes in the physiological processes, which occur as a result of the drop in estrogen levels, should also be followed by changes in the diet. The most obvious agreement with (**Cunningham, (2002)** illustrated that all three women voiced that they had gained weight over the past 6 months. The body mass index (BMI) of two of the three women was greater than 25, whereas the third member's BMI was borderline. A BMI of 19 to 25 is associated with a low risk to health, whereas the potential for health risks increases with a BMI greater than 25. The women also revealed that demands on their time kept them from consistently making

healthy food choices and a lack of motivation kept them from exercising on a regular basis.

These results also agree with (**Moccia et al., (2022)**, who added that the peri-menopause is associated with a rapid increase in fat mass and redistributions of fat to the abdomen. Additionally, to (**Manrique, (2020)** ,who clarified that the menopause transition is related to modest increases in body mass index or total fatness. Additionally, **(Aloufi and Hassanien, (2022)** to the mean body mass index (BMI) among our participants were 30.1 which were higher. This could be explained by the low percentage of physical activity among our target population. However, this excess weight raises a concern about a public health problem in that age group in which there will be more liability for other comorbidities such as heart diseases.

Hypothesis 1: Women who apply Roy adaptation model will experience lower intensity in menopausal symptoms post intervention than pre intervention.

As regards Menopausal scale symptoms total score of among employee women pre application of Roy model as regarding to psychological, vasomotor, urogenital symptoms scale in relation to workability revealed that the mean total score of symptoms scale decreased from 21.7±10.4 pre intervention to 9.2±2.9. compared to post application of Roy adaptation model in relation to menopausal rating scale; highlighted the efficacy of application of Roy adaptation model on coping with peri-menopausal symptoms among employee's women which revealed a highly significant improvement ($p<0.000$) in the percentages "none" or "mild" responses. In the three types of menopausal symptoms. In addition, moderate, sever, and very sever responses showed decreased highly significant percentages in post-intervention ($p<0.0001$).

In agreement with **(Sharma et al., (2021)** ,who found that majority reported milder symptoms, 143 (70.4%). The most prevalent moderate and mild symptoms were vaginal dryness 94 (46.3%) and depressive mood 71 (35%). Overall, in all forms, physical and mental exhaustion (86.2%), dryness of the vagina (85.7%), followed by muscle and joint discomfort (77.8%), were commonly reported symptoms. The psychological subscale (67.87%) was more prevalent, followed by urogenital and somatic subscales in their study

Levels of Roy Adaptation Modes Scale among studied employed women pre and post intervention as regarded in the current study, the efficacy of application of Roy adaptation model on coping behaviors with peri- menopausal symptoms among employee's women. Post -intervention program revealed a highly significant improvement ($p<0.000$) in the percentages of "Effective Adaptation behavior" responses, in each of the four subunits: Physiological mode, self-concept mode, Role function mode, Interdependence mode, as well as Grand total Adaptation behavior. This result agrees with (**Roy, (1988); Cunningham, (2002),** who concluded that Roy adaptation model guided the assessment, diagnosis, planning, implementation, and evaluation of care for group of menopaused women and encourage

adaptive coping behaviors by promoting spiritual and physical well-being.

In accordance, **(Santoro et al., (2022)** conducted an interventional program on menopausal women in order to improve their QOL regarding their physical and psychological symptoms and concluded that appropriate training of menopausal women can improve their QOL and promote their health. Our study findings inconsistent with **(El-Said et al., (2021),** who showed that after three and six months of intervention of life style program, the mean difference scores for the total health promoting lifestyle behaviors and its dimensions become higher than the scores in the control group ($p < 0.001$).

Hypothesis 3: Women who apply Roy adaptation model will have satisfied self-body image post intervention than pre intervention.

Body image perception showed relatively consistent associations with menopausal symptoms a more. The degree of satisfaction or dissatisfaction with a woman's appearance breeds the emotional reactions and reflects an affective attitude towards body. Changes taking place in woman's well-being can lead to an altered body image. Attractive women experience greater occupational success and popularity; they also have a higher social self-esteem, better social skills, and better physical and mental health **(Aloufi & Hassanien, 2022)**

In our study findings pre-intervention body self-image regarding to Overall Appearance Evaluation, Fatness Evaluation, Attention to Grooming among studied women.The majority of studied women their overall appearance neither attractive nor sexually appealing. In addition to the fatness body evaluation, they suffered from fatty body, overweight and flabby stomach so they wished to be thinner. In comparison with post intervention of improving ways to self-body image, nearly three quarters of studied women felt their body looks attractive and sexually, thinner body parts.

Consistently with (**Marlatt et al., (2020)** ,who revealed that; during late menstrual life and peri-menopausal years, changes in BMI, fat distribution and circulating metabolic outcomes are globally a unique female phenomenon. Recent evidence suggests that female changes in fat mass and body composition are related to the hormonal changes observed during the perimenopausal years which affect self-body image satisfaction. In the same line with a study on 350 women in menopause showed that 74.4% of them feel losing attractiveness after menopause as reported **(Hakimi et al., 2017)**.

Health fitness evaluation, health fitness influence, social dependence as regarded to self-body image of studied women. Nearly to 80% of the studied women in pre-intervention reported low satisfaction of body fitness level, weak muscle tone with unsatisfied body shape, also their health fitness influences their functioning and self-body image. Compared to post intervention most of studied women felt satisfied with their body shape, their health fitness & body image improved, they had positive thoughts about their body in social situation.

Regarding to social dependence in our study finding revealed that majority of studied women influenced by their thoughts about how they appear and compare themselves

with others in social situation. While post intervention; three quarters of studied women become satisfied to their body image and invested to the ideals and well-proportioned body.

In the same line with **(McLean et al., (2019); Marlatt et al., (2020)** indicated that partner comments impacted participants' body esteem, with positive comments leading to an increase in body esteem, and negative ones leading to a decrease in body esteem, regardless of BMI. Additionally, **(Roy, (2017)** reported a belief that investment in health is legitimate, whereas investment in appearance is vain. Further, women endorsed making social comparisons with other women their age, and emphasized internal beauty more than they had in younger years.

Height satisfaction, negative effect, investment of ideals of self-body image for studied women in pre-intervention about three quarters of studied women stated that they are sad for their body image and wished to have another better body shape. Compared to post intervention, nearly more than three quarters become satisfied to their height & invested to the ideals and well-proportioned body. This agrees with (**Aloufi and Hassanien**, **(2022),** who reported that women with higher body image dissatisfaction believed themselves to be more unattractive and were more likely to report higher levels of depression.

Regarding to negative effect of self-body image, our findings revealed that the majority of peri-menopausal women said that my naked body makes me feel sad, feel depressed about my body. Post intervention of self-body image; nearly 77% become satisfied to their body image and invested to the ideals and well-proportioned body this is due to decreasing weight through dietary control, physical activity enhancement, and improved self-concept for studied women. In agreement with **Roy, (2017)**, who intervenes to improve body image, the group received instructions about physical activity and the health benefits of exercise. Exercise enhances weight loss when combined with dietary modification and is one of the best predictors of long-term maintenance of weight loss.

In consistently way with **(Matsuzaki et al., (2019)** the effects of social comparison occurring between females and thin ideal media images has been thoroughly empirically explored in younger samples. Studies have reported consequences such as lowered self-esteem, increased self-consciousness and physique anxiety, higher negative mood and body dissatisfaction, and increased thoughts about altering body shape and guilt. Researchers have consistently reported that improvements in perceived physical fitness and self-efficacy are underlying mechanisms linking exercise and body satisfaction (**Arjona et al., 2019)**. In the same line of **Javadivala et al., (2020)** found that women's improved self-image as a result of decisional balance for performing regular physical activity and self-efficacy of physical activity improved after participating in the intervention program.

Our current study revealed that there was a high significant positive correlation between total score of Roy Adaptation behavior and post intervention total score of body self-image. Due there is no more paper intervene Roy adaptation model on menopause this

result agree with (**Roy and Andrews, (1999); Cunningham, (2010)** who concluded that Roy Adaptation model guided the assessment, diagnosis , planning, implementation, and evaluation of care for group of menopaused women and encourage adaptive coping behaviors by promoting spiritual and physical well-being. **(Roy and Andrews, (1999)** adaptation model provided a holistic approach to assessing and analyzing the menopausal transition **(Cunningham, 2002)**. Small groups facilitated by community health clinical nurse specialists using the Roy adaptation model may provide women with the support and guidance needed to cope with the developmental processes of menopause.

Regarding to grand total of subunits of self-body image verified that there is highly significant difference (P <0.0001) between pre and post intervention of Roy adaptation model program in subunits of self-body image (Overall Appearance Evaluation, Fatness Evaluation, Attention to Grooming, Health/ Fitness Evaluation, Health/ Fitness Influence, Social Dependence, Height Dissatisfaction, Negative Affect, Investment in Ideals). In the same line of **(Javadivala et al., (2020)** found that women's improved self-image as result of decisional balance for performing regular physical activity and self-efficacy of physical activity improved after participating in the intervention program.

Efficacy of application of Roy adaptation model on coping behaviors with peri-menopausal symptoms among employee's women. Post -intervention program revealed a highly significant improvement (p<0.000) in the percentages of "Effective Adaptation behavior" responses, in each of the four subunits: Physiological mode, self-concept mode, Role function mode, Interdependence mode, as well as Grand total Adaptation behavior. Our current study revealed that there was a high significant positive correlation between total score of Roy Adaptation behavior and post intervention total score of body self-image, due there is no more paper intervene Roy adaptation model on menopause this result agree with Roy and **(Andrews, (1999); Cunningham, (2002)**, who concluded that Roy adaptation model guided the assessment, diagnosis, planning, implementation, and evaluation of care for group of menopaused women and encourage adaptive coping behaviors by promoting spiritual and physical well-being.

Concussion

The present study concluded that the implementation of educational intervention based on Roy adaptation model has positive consequences on improving women's awareness and knowledge regarding peri-menopausal period and its related risk factors. In addition, the implementation of Roy adaptation model concepts includes perceived benefits of physiological mode such as exercise and healthy diet, enhancement of self-concept mode, improvement of role function and interdependence role. Finally increasing satisfaction of self-image measures has great effect on coping abilities peri-menopausal symptoms.

Recommendations

Focused on the results of the current study, it can be recommended that: Re-implementation of the study at different

settings including women across their life span to promote self- body positivity. Raising awareness about menopause and its impact on women. Emphasizing a comprehensive, life-cycle approach to health and well-being (including sexual health and well-being), by ensuring that appropriate health information and services are available to women to promote healthy aging and good quality of life before, during and after menopause. Generalizability of study findings to a wide community.

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