

The Impact of Educational Intervention Based on Pender's Health Promotion Model on Healthy Lifestyle in Women of Reproductive Age in Iran

Roya Sadeghi, Zohreh Arefi, Davoud Shojaeizadeh, Faramarz Shaahmadi*

Department of Health Education and Promotion, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

Background: Lifestyle is one of the most important factors affecting women's health. Women's quality of life and health depends on their health-promoting behaviors and lifestyles. The aim of this study was to determine the impact of an educational intervention based on Pender model on healthy lifestyle in women of reproductive age in Iran.

Methods: This randomized controlled trial study was carried out in women of reproductive age in Iran, from August to December 2019. The samples were divided into experimental (n = 120) and control (n = 120) groups. 6 training sessions were provided for the experimental group. The questionnaire consisted of several items including socio-demographic characteristics, health-promoting lifestyle profile-II (HPLP-II), self-efficacy, social support and constructs of Pender's health promotion model. SPSS-18 software has been applied for statistical analysis.

Results: The mean age of the experimental group was 31.88 ± 7.624 years and for the control group was 30.33 ± 6.89 years. There was no statistically significant relationship between demographic variables such as marital status, education, employment status, age and body mass index with lifestyle in women. Lifestyle in women had a statistically significant relationship with the structure prior health-related behavior ($p < 0.001$). The score of women in structures of prior health-related behavior, perceived benefits, commitment to action, and social support increased after educational intervention ($p < 0.001$).

Conclusion: Findings showed that educational intervention based on Pender health promotion model has increased the score of healthy lifestyle in women. Therefore, planning and performing educational interventions to improve health promotion behaviors based on this model is essential.

Key Words: Health promoting behaviors, HPLP II, Pender's health promotion model, Reproductive age

INTRODUCTION

In today's world, lifestyle is one of the most important factors affecting well-being [1]. Lifestyle is a common manner of life and behavioral plans that may be beneficial or detrimental to health; and it includes the behaviors that people do regarding eating habits, how they spend their time, physical activity and the use of health services [2]. Healthy lifestyle behaviors help to improve health and unhealthy lifestyle behaviors have bad effects on people's health [3].

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*Corresponding author: Faramarz Shaahmadi

Department of Health Education and Promotion, School of Public Health, Tehran University of Medical Sciences, Keshavarz Blvd, Poursina Ave. Tehran 1417613151, Iran
Tel: 98-2188989128, Fax: 98-2188989129
E-mail: faramarzshah@yahoo.com

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Health-promoting behaviors are any action that is taken to boost the level of health and self-fulfillment of an individual or a group. Individuals are also responsible to themselves, family members and the community, so they must adopt a healthy lifestyle [4].

The World Health Organization considers lifestyle to be specific and definable patterns of behavior that result from the interplay between personal characteristics, social connections, environmental situations, and socioeconomic conditions. Also They believes that there is no ideal lifestyle, and many of the factors that affect a person's lifestyle are unique to him or her [5].

By 2020, seven out of ten deaths in developing countries are projected to be due to non-communicable lifestyle-related diseases. According to the reports collected by the Statistics Center of Iran, by 2025, non-communicable diseases will account for almost 70% of the country's diseases [6].

Health of women is one of the priorities of the World Health Organization and the issue of women's health is frequently emphasized in the meetings of this organization. Prioritizing women's health will help countries achieve many of the targets of the third millennium [7]. Given that women make up almost half of the society, their health is not only acknowledged as a human right but also because of its impact on the health of the family and society. Their lifestyle choices can affect the physical, psychological, mental and social well-being of other family members and make it possible to have healthier generations in the future. Sanchez and colleagues found that nearly 80 percent of women between the ages of 18 and 55 have high-risk, lifestyle-preventable behaviors that can be prevented [8]. Also, according to the findings of the study by Tamakoshi, if lifestyle is managed, 18% of deaths among women can be prevented [9].

In order to plan for health behaviors and health promotion, we used Pender health promotion model. This model is one of the general and predictive models of health-promoting behaviors which includes personal experiences and characteristics, feelings, and cognitions related to behavior. Personal experiences and characteristics include two constructs of prior health-related behavior and personal factors and directly and indirectly influence behavior through emotions and cognitions. Emotions and cognitions include per-

ceived benefits, perceived barriers, perceived self-efficacy, behavior-related feelings, interpersonal influencers, and situational influencers [10]. The purpose of this research was to specify the effectiveness of educational intervention based on Pender health promotion model on improving healthy lifestyle in women in Iran.

METHODS AND MATERIALS

This randomized controlled trial study was carried out in women of reproductive age in Iran, from August to December 2019. The study followed the pretest-posttest intervention design. In order to select the sample size, 240 applicants (120 women per each groups) were appointed by considering the 95% confidence interval, the power of 80% and 10% attrition rate. The samples were randomly selected from 12 health centers. Six health centers were randomly chosen as intervention group and six as control group. At first, all women participating in the study completed the questionnaires. Then, by reviewing and analyzing the results, the educational intervention based on pender model was designed for the intervention group. Six training sessions were conducted for the intervention group using lecture, discussion and role-playing methods with the aid of slides, films, pamphlets, posters and books.

The following tools have been utilized to collect data:

Self-efficacy: This questionnaire that designed by Sherer has 17 questions, the answer to each question is in the form of a five-point Likert scale [11].

Social support: This questionnaire is developed by Vaux had 23 questions. The answers to the questions are yes or no and scored with 1 and 0 [12].

Health promotion lifestyle profile scale-II: This 52 items questionnaire designed by Walker. Its purpose is to measure six aspects of health-promoting behaviors [13].

Constructs of Pender's health promotion model: Questions were used to assess the structures of Pender's health promotion model, which included perceived benefits (6 items), perceived barriers (6 items), prior related behavior (6 items), situational influences (6 items) and commitment to a plan of action (6 items). All of the questions are graded on a five-point Likert scale. The instrument's content validity was CVI = 0.86 and CVR = 0.80, with Cronbach's al-

pha coefficients ranging from 0.74 to 0.86 for the subscales.

In the first step (pretest), data was collected in all 12 health sites. The intervention group received educational intervention based on Pender's health promotion after the pretest. Three months later, data were collected using the same instruments to assess the efficacy of the intervention. Following that, IBM SPSS version 22 was used to conduct descriptive and analytical statistical tests.

The ethics committee at Tehran University of Medical Sciences provided ethics approval for the study, with the

code IR.TUMS.VCR.REC.1395.57.

RESULTS

The women's mean age was 31.88 ± 7.62 and 30.33 ± 6.89 years in the intervention and control groups, respectively. Almost half of the women in both groups were aged between 25 and 34 years. Table 1 shows the demographic characteristics of the participants.

The total score of healthy lifestyle in participants was

Table 1. Demographic characteristics of the participants (N = 240)

Demographic variables		Group			p-value
		Total (%)	Intervention (%)	Control (%)	
Age	15-24	41 (17.1)	18 (15)	23 (19.2)	0.185
	25-34	124 (51.7)	58 (48.3)	66 (55)	
	35 or older	75 (31.2)	44 (36.7)	31 (25.8)	
Education	Primary School	29 (12.1)	12 (10)	17 (14.2)	0.600
	Guidance School	104 (43.3)	54 (45)	50 (41.7)	
	High School	66 (27.5)	31 (25.8)	35 (29.2)	
	Bachelor and higher	41 (17.1)	23 (19.2)	18 (15)	
Marital status	Single	21 (8.8)	12 (10)	9 (7.5)	0.493
	Married	219 (91.2)	108 (90)	111 (92.5)	
Occupation	Employed	41 (17.1)	19 (15.8)	22 (18.3)	0.607
	Housekeeper	199 (82.9)	101 (84.2)	98 (81.7)	
BMI	less than 18.5	0 (0)	0 (0)	0 (0)	0.528
	18.5 - 24.9	37 (15.4)	16 (13.3)	21 (17.5)	
	25 - 29.9	138 (57.5)	73 (60.8)	65 (54.2)	
	30 and more	65 (27.1)	31 (25.8)	34 (28.3)	

BMI: body mass index.

Table 2. The differences between groups in health promotion lifestyle profile before and after the Intervention

Scale/Subscale	Groups	Before the intervention (Mean ± SD)	After the intervention (Mean ± SD)	p-value
HPLP II total	Intervention Group	106.07 ± 12.70	118.38 ± 6.908	0.000
	Control Group	107.22 ± 11.139	109.06 ± 9.637	0.131
Health responsibility	Intervention Group	17.31 ± 3.781	20.58 ± 2.738	0.000
	Control Group	17.68 ± 3.183	17.73 ± 3.414	0.871
Physical activity	Intervention Group	17.44 ± 4.087	18.69 ± 2.845	0.005
	Control Group	17.23 ± 3.698	18.23 ± 3.614	0.034
Nutrition	Intervention Group	19.68 ± 4.146	21.98 ± 3.476	0.000
	Control Group	18.90 ± 3.922	20.16 ± 4.225	0.023
Spiritual growth	Intervention Group	17.32 ± 3.249	19.03 ± 2.628	0.000
	Control Group	18.03 ± 2.730	17.36 ± 2.887	0.107
Interpersonal relationship	Intervention Group	16.95 ± 3.696	17.54 ± 2.163	0.184
	Control Group	17.95 ± 2.962	17.33 ± 3.580	0.198
Stress management	Intervention Group	17.37 ± 3.854	20.56 ± 2.643	0.000
	Control Group	17.43 ± 3.524	18.26 ± 3.596	0.071

Table 3. The differences between groups in constructs of Pender's health promotion model before and after the Intervention

Constructs	Groups	Before the intervention (Mean \pm SD)	After the intervention (Mean \pm SD)	p-value
Perceived benefits	Intervention Group	15.83 \pm 2.629	18.43 \pm 2.251	0.000
	Control Group	15.84 \pm 2.387	16.66 \pm 2.822	0.039
Perceived barriers	Intervention Group	17.19 \pm 2.963	16.79 \pm 3.429	0.289
	Control Group	17.70 \pm 2.303	17.23 \pm 2.689	0.199
Prior related behavior	Intervention Group	16.42 \pm 3.271	18.58 \pm 2.158	0.000
	Control Group	17.40 \pm 2.186	17.23 \pm 2.355	0.543
Situational influences	Intervention Group	14.38 \pm 2.154	14.75 \pm 2.101	0.160
	Control Group	15.06 \pm 2.010	15.46 \pm 2.443	0.293
Commitment to a plan of action	Intervention Group	14.40 \pm 2.785	17.40 \pm 2.936	0.000
	Control Group	14.29 \pm 2.254	14.74 \pm 2.471	0.201
Self-efficacy	Intervention Group	45.65 \pm 8.263	47.60 \pm 6.689	0.039
	Control Group	45.10 \pm 8.272	45.64 \pm 8.322	0.054
Social support	Intervention Group	10.36 \pm 1.679	11.38 \pm 1.563	0.000
	Control Group	10.81 \pm 1.404	10.339 \pm 1.492	0.017

106.64 \pm 11.93. In the intervention group, the total lifestyle score increased significantly after the educational intervention. The lowest and highest scores were in the areas of interpersonal relationship and nutrition, respectively (Table 2).

Table 3 shows the results of the health promotion constructs among the study participants. In the intervention group, the score of women in the construct of perceived benefits increased significantly after the educational intervention. Also, in constructs such as self-efficacy, commitment to a plan of action, prior related behavior and social support the mean score after training increased significantly. But, in the constructs of perceived barriers and situational influences, no significant increases were detected.

DISCUSSION

The purpose of this research was to design and assessment an educational intervention based on the constructs of Pender's health promotion model on lifestyle in women. The lifestyle status of the women participating in our study in the experimental group was poor; which was lower than the lifestyle score in studies conducted in Chinese women and pregnant women in Turkey [14,15]. After six sessions of designed educational intervention, the overall lifestyle score in the experimental group increased and this increase was statistically significant. Educational interventions are designed to encourage people to engage in health-promoting behav-

iors by educating them, helping them to do and convincing them to move towards health and health-promoting behaviors. The use of a theoretical framework in health-oriented intervention research is useful; because the use of health education models and theories leads to more effective intervention programs and gives an organized approach to the study.

In this research, the highest score among the dimensions of lifestyle in the experimental group was the nutrition and the lowest score was allocated to the physical activity. After performing an educational intervention, an increase in scores was observed in all six subscale of healthy lifestyle. The high score in the field of nutrition can be due to various factors, including the environmental characteristics of the study area, which had easy access to fruits, vegetables and dairy products. In many studies in different parts of the world in different age groups, physical activity has the lowest score in health-promoting behaviors [16-19]. An inactive lifestyle and low physical activity are considered a main risk factor for many non-communicable diseases in most countries. In our study, barriers to physical activity included the cost of the club, housework, lack of access, and cultural restrictions. In our study, the relationship between demographic variables of age, marital status, education, occupation and healthy lifestyle in women was investigated and it was observed that there is no statistically significant relationship between demographic variables and health-pro-

moting behaviors. The mean score of social support in the experimental group increased after the intervention, which was statistically significant. Social support is one of the factors of interpersonal influences that is influenced by personal characteristics and experiences of individuals. Important sources of interpersonal influences, including social support from family, peers, and health care providers that can increase or decrease involvement in a health-promoting behavior.

Our research findings showed the fact that in both groups, the social support score increased significantly. This increase in scores in the two groups reflected the fact that most people tended to falsely show the status of social support received from family and others, and showed a huge difference between the existing conditions and the selected answers in the questionnaire.

Although the researchers tried to get real information from the participants by making sure that the questionnaires were confidential and anonymous, the women in the study liked to show their family relationships and the level of social support is good. Also, the trainings given and the intervention programs planned in one of the six intervention sessions made women pay more attention to the role of social support in their health. Training packages and materials presented in the training session were presented to important people in women's lives, and this can also play an significant role in improving the score of women's social support. The mean structural score of prior health-related behavior in the experimental group increased after the intervention, which was statistically significant. Lim et al. [20] reported a significant association between prior health-related behavior and health-promoting behaviors.

Prior health-related behavior are important factors in predicting health promotion behaviors in women. In the present study, the results showed that self-efficacy before the intervention was not significantly different between the two groups, but after the educational intervention, the self-efficacy score in the experimental group increased and this increase was statistically significant. Many studies, have also shown the effectiveness of educational programs to promote self-efficacy for health-promoting behaviors [21,22]. Self-efficacy is not about a person's ability, but about evaluating and judging what they can do to maintain or improve their

health with their abilities. The mean score of perceived benefits in the experimental group increased after the intervention, which was statistically significant. In the health promotion model, perceived benefits are considered as direct motivators of behavior. The mean score of perceived barriers in the experimental group decreased after the intervention. Empirical studies have repeatedly shown that anticipated barriers affect the intention to perform a particular behavior and its actual execution, and have supported the importance of barriers as a determinant of health-promoting behaviors. Regarding the perceived barriers in this study, most of the interventions were performed and predicted in the training session on women's awareness. And in most cases, women knew the same amount of awareness about barriers and their role in performing health-promoting behaviors.

In our research, the findings showed that the structures of situational influencers did not show a statistically significant difference after the educational intervention; and it was shown that the designed educational intervention could not statistically significantly increase its score. A low score in the structure of situational influencers indicates a person's low understanding of any situation or context that can facilitate or deter his behavior. The mean score of commitment to action in the experimental group increased after the intervention, which was statistically significant. Consistent with our findings, Dehdari et al. [23] Also found that students who found more self-efficacy and positive emotions toward eating breakfast were more likely to adhere to a commitment to planning a regular breakfast.

One of the limitations of our study was that women answered the questionnaires by self-expression method, so some of the questions in the questionnaires may not have been answered accurately and correctly, and this has an impact on the results of the study. Other researchers are advised to determine barriers and facilitators of health-promoting behaviors in women by conducting extensive qualitative and quantitative research. We conclude that the designed educational program increased the score in all constructs of Pender's health promotion model and lifestyle in women. Training programs should be continuously planned and implemented to achieve the final goal. Also, after the end of the educational interventions, planning to use appro-

ropriate reminders to complete and continue the training program seems necessary.

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