



Original Article

Effects of health promoting education program for Korean middle-aged women

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Abstract. [Purpose] This study aimed to examine the effects of health promoting education program on self-efficacy, health promoting behavior, and quality of life of Korean middle-aged women. [Participants and Methods] Participants were total 60 women (experimental: n=30, control: n=30) in the age group of 40–59, who visit community center located at G gu in Seoul. Health promoting education program was performed for 6 weeks, once a week, one hour with 20 minute group discussion. A study questionnaire was designed to measure the general characteristics, self-efficacy, health promoting behavior, and quality of life. [Results] Self-efficacy, health promoting behavior, and quality of life of middle-aged women were significantly improved in experimental group compared to the control group. [Conclusion] Health promoting education program can be utilized as an effective public health intervention in community. It would be appropriate as an addition to the public health policy for middle-aged women in community.

Key words: Middle-aged women, Health promoting education

(This article was submitted Jan. 4, 2018, and was accepted Oct. 7, 2018)

INTRODUCTION

Korea's elderly population, which is over the age of 65, is expected to increase from 11.8% in 2012 to 15.7% in 2020 and 32.3% in 2040, thereby forecasting the aging trend of future population projection¹⁾. The mean life span has changed from 72.25 years for men and 79.6 years for women in 2000 to 77.95 years for men and 84.64 years for women in 2012, thereby presenting that women live an average of 6.69 years more than men, and predicting the increase of middle-aged women population¹⁾. As a result, the middle year is becoming an increasingly important period in the aspect of health care²⁾.

Middle age refers to a stage between the ages of 40 and 60^{2, 3)}, and it is a transitional period of old age, which can be referred to as the peak of life by completing life accomplishments and combining one's ability and experience with abundant life experience and wisdom³⁾. It can involve an emotionally mature and more objective perspective through experiences, as well as possess an open personality that respects the variety of human characters⁴⁾. In particular, middle-aged women have increased prevalence of chronic adult diseases in the later period as they go through hormonal changes before and after menopause, thereby resulting in physical and psychological disorder, and aging^{5, 6)}. Middle age is a turning point in life amongst the growth and development process of humans, and while it is the most stable period in terms of maturity, it is also the period of experiencing physical, social, psychological, and environmental changes^{6, 7)}. Middle-aged people must adjust to several changes and daily lifestyles directly related to their health and the quality of their lives.

In detail, middle-aged women experience physical changes due to aging, such as menopause, involuntal symptoms, and urinary incontinence, as well as chronic diseases, such as osteoporosis, obesity, cancer, cardiovascular diseases, hypertension, diabetes mellitus, arthritis, and depression, among others^{8, 9)}. Due to the role change, conflict, and sense of loss from

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the retirement of their spouse and independence of their children, they experience psychological and social issues, such as self-consciousness crisis, isolation, withdrawal, anxiety, and depression, among others^{4, 10, 11}). Therefore, it can be seen as a crisis from the aspect of health management. Most middle-aged women are negligent about their health even when they have health problems, as they put their family in priority rather than invest in their own health¹²). They also experience physical and psychological fatigue due to the accumulation of life events^{9, 12}).

In order to secure a healthy life expectancy and qualitative life in old age, measures to overcome the physical and psychological issues that are present in middle-aged women are necessary^{2, 6}). A healthy lifestyle must be implemented through health promotion and behaviors starting from middle age with the prevalence of various health problems and chronic diseases. There needs to be a change of action in trying to find the knowledge and method for disease prevention, health maintenance, and promotion^{4, 9}). Self-efficacy is important in order to change actions and maintain such changed actions^{11, 13, 14}). Furthermore, it is the faith in oneself that one can achieve desired results by successfully accomplishing a particular act¹⁵).

The ability to improve health, as well as self-efficacy, is also important in solving both the internal and external issues of middle-aged women^{11, 13}). It was considered to be an important variable in health promotion behavior, and it was shown that managing a healthy lifestyle through health promotion behavior was more effective than disease treatment^{6, 8}). Health promotion behavior is the act of promoting a healthy lifestyle, as well as maintaining and realizing one's stability state and satisfaction of personal needs¹⁶). Prevention, rather than the treatment, can decrease health expenses and extend the mean life span, thereby solving not only the basic health needs of individuals or groups, but also improving the quality of life through a most satisfactory state of stability^{6, 17}).

As health promotion education increases health promotion behavior^{6, 7, 14, 17, 18}), this should be implemented so that the middle-aged women can experience living a healthy old age. However, middle-aged women are passing this period unaware of the precise knowledge method of solving their physical and psychological problems due to the lack of education despite its necessity for middle-aged women with health problems. The improvement of the quality of life of middle-aged women is possible by implementing education that provides regular health promotion information in order to build proper health promotion behavior and healthy life habits to take care of their own health^{6, 7}). Education on health management and promotion should be developed and applied.

Studies^{6, 17}) that have implemented health promotion education for middle-aged women reported that health management knowledge and health promotion behavior has increased, while studies^{13, 14}) that have applied a health promotion program reported that self-efficacy and health promotion behavior has increased. There are many previous studies targeting middle-aged women, but there are insufficient studies regarding detailed and systematic education to maintain and promote health. As a result, follow-up studies are necessary. A review of the previous studies has been conducted regarding self-efficacy, health promotion behavior, and quality of life; however, only a few have been done that targeted all three variables at the same time.

The interest of women's health is generally increasing all over the world^{6, 10}). In particular, health management of middle-aged women may be very important on the understanding of international women's health⁶). Such broad understanding can result in better quality of health care and nursing practice. Also, this research can serve as a valuable source of information that would benefit the international health care nurses. Moreover, the findings of the study can contribute to the enrichment of the available literature on public health policies. The aims of this study was to examine the effects of the health promoting education program on self-efficacy, health promoting behavior, and quality of life of middle-aged women.

PARTICIPANTS AND METHODS

This study employed a nonequivalent control group pretest-posttest design. The study sample was a total of 60 women in the age group of 40–59, who visit community center located at G gu in Seoul. Participants for experimental group were 30 middle-aged women, and for control group were 30 middle-aged women. They were recruited through convenient sampling. The eligibility criteria included an age of 40–59 years living in community, understanding of the purpose of this study, consent to participate in the study, and having complete verbal communication ability in Korean. Sample size adequacy (N=23 in each group) using two-group t-test, G power 3 analysis software was estimated based on an alpha level=0.05, effect size=0.80, and power=0.80¹⁹). Therefore, the sample size in the study was adequate. All participants completed the study, and there was no retention.

Health promoting education program as an intervention consisted of the contents from the results of Korean Society for Bone and Mineral Research²⁰), Mahdipour et al.⁶), and Park's study²¹). This intervention were modified and supplemented, and were used in this study. Health promoting education program was applied for the study participants in lecture room, community center. Small book, computerized lecture, audio-visual materials, educational model, and exhibition education were provided by researchers for 6 weeks, once a week, and one hour with 20 minutes group discussion. After every education at the each week, group discussion was performed for 20 minutes with 6 persons. Study participants shared the practical experience of health promoting behaviors and their health problems. The applied period of the health promoting education program was selected based on the results of the previous studies^{6, 7, 14, 17}). Table 1 shows weekly program of this study.

The study questionnaire was designed to measure the general characteristics, self-efficacy, health promoting behavior, and quality of life. General characteristics consisted of age, education, marital status, religion, occupation, family monthly income, monthly income satisfaction, current menstruation status, menopausal age, during the past year hormone therapy

Table 1. Weekly program of this study

Experimental group	Contents	
First week, menopause health care (menopause/urinary incontinence)	Education	Menopause: definition, cause, symptom, diagnostic test, health menopause care, menopause video Urinary incontinence: definition, type, diagnostic test, prevention (Kegel exercise, bladder training), urinary incontinence video
	Group discussion	
Second week, menopause health care (evolutional depression)	Education	Evolutional depression: definition, symptom, self-diagnosis, treatment, prevention, evolutional depression video
	Group discussion	
Third week, female cancer (uterine cancer/breast cancer)	Education	Uterine cancer: definition, risk factor, symptom, diagnostic test, prevention, cervical cancer video Breast cancer: definition, risk factor, symptom, diagnostic test, prevention & early detection, breast self-examination, breast cancer video
	Group discussion	
Fourth week, chronic disease (hypertension/diabetes mellitus)	Education	Hypertension: definition, risk factor, symptom, prevention, self-blood pressure measurement, hypertension video Diabetes mellitus: definition, risk factor, symptom, prevention, self-diabetes measurement, diabetes mellitus video
	Group discussion	
Fifth week, chronic disease (osteoporosis)	Education	Osteoporosis: definition, cause, symptom, diagnostic test, prevention, osteoporosis preventive exercise, osteoporosis video
	Group discussion	
Sixth week, chronic disease (degenerative arthritis)	Education	Degenerative arthritis: definition, cause, symptom, diagnostic test, prevention, degenerative arthritis video
	Group discussion	
Control group	Content	
From the first week to the sixth week	No application of health promoting education	

status, subjective health status, and regular exercise status. This consisted of a total of 12 items. Self-efficacy developed by Lee²²⁾ was revised and used in this study to measure the degree of self-efficacy of the middle-aged women participants. It consists of a total of 7 questions using a 5 points Likert scale. The most likely score ranged between 7–35, and the higher the score of the respondent was, the higher was her level of self-efficacy. To determine the reliability of the instrument in this study, Cronbach's $\alpha=0.86$ was used. Health Promoting Lifestyle Profile (HPLP) developed by Walker, Sechrist, and Pender²³⁾ was revised and used in this study to measure the degree of health promoting behavior of the middle-aged women participants. It consists of 6 subcategories (self-actualization, responsibility of health, nutrition, exercise, stress management, relationship), a total of 43 questions using a 5 points Likert scale. The possible score range was 43–215, and the higher the score of the respondent was, the higher the level of health promoting behavior. The reliability of the instrument in this study was Cronbach's $\alpha=0.94$. Quality of life scale developed by No²⁴⁾ was used to measure the quality of life. This scale consists of 5 subcategories (physical health status, economic status, emotional status, family relationship, Neighborhood relationship), a total of 44 questions using a 5 points Likert scale. Possible scores are 44 to 220, and the higher the score of the respondent was, the higher the level of quality of life. The reliability of the instrument in this study was Cronbach's $\alpha=0.87$.

The research was carried out by targeting middle-aged women, who are visiting the community service center. The preliminary survey was initially performed on the control group, and the experimental group. Then the researcher performed health promotion education program for 60 minutes per week, along with 20 minutes of group discussions with the only experimental group for 6 weeks. The study participants were encouraged to ask any questions via phone or e-mail. After 6 weeks of education program, the study participants completed the survey at the community service center. A total of 60 surveys were collected, including 30 each from the experimental group and control group. The average time to complete the survey was 20 minutes. The data collection period was from September, 2014 to May, 2015.

The Institutional Review Board of a university in Seoul, Korea approved this study (KHS IRB-14-057 (RA)). Participants were informed that they could voluntarily take part in this study and that they could also withdraw from participating in the study at any time if they wished. Moreover, they were informed about the anonymity and the confidentiality of the data they would provide. The researchers obtained completed written consent forms from the eligible participants prior to their participation.

The collected data were analyzed using the SPSS version 21.0 statistical software program (IBM Corp., Armonk, NY,

USA). General characteristics of participants and homogeneity test of the characteristics between two groups were analyzed using descriptive statistics and independent t-test. Homogeneity test of study variables between two groups before the experiment were analyzed using independent t-test. Applied effects of the health promoting education program were examined using independent t-test. A p-value of less than 0.05 was considered statistically significant.

RESULTS

General characteristics of study participants and homogeneity are shown in Table 2. For the experimental group, ages 40 to 45 were the largest (53.4%). For the control group, ages 40 to 45 and 50 to 55 were the largest (33.3%, respectively). In terms of education level, 'college or university' was the largest in both groups (experimental: 50.0%; control: 53.3%). The most study participants were married in both groups (experimental: 86.7%; control: 90.0%), and Christianity in religion was the largest in both groups (experimental: 40.0%; control: 90.0%). For occupation, the most was housewife (experimental: 70.0%; control: 60.0%). For satisfaction degree of monthly income, 'poor' was the largest in both groups (experimental: 53.3%; control: 60.0%). The most study participants were currently menstruating in both groups (experimental: 73.3%; control: 70.0%). For the subjective health status, those who responded 'usually' accounted for 73.3% of the experimental group and 60.0% of the control group. The most study participants did not take regular exercise in both groups (experimental: 83.3%; control: 80.0%). As for the general characteristics of the experimental and control groups, as well as the homogeneity test for the study variables before the experiment, it was verified that the two groups were homogeneous at a statistical significance level of $p < 0.05$.

Effects of health promoting education program are presented in Table 3. Health promoting education program had statistically significant positive effects on self-efficacy ($t=11.70$, $p < 0.001$), health promoting behavior ($t=10.89$, $p < 0.001$), and quality of life ($t=16.20$, $p < 0.001$) for middle-aged women.

DISCUSSION

For the study results regarding the self-efficacy of middle-aged women who received health promotion education, as well as those who did not receive such education, the pre-self-efficacy score of the control group of 20.37 points became 19.07 points, thereby resulting in a decrease of 1.30 points. The experimental group showed an increase of 6.54 points from 20.43 points to 26.97 points, thereby confirming that health promotion education is effective in increasing the self-efficacy of middle-aged women. This result corresponded with the study of Park et al.¹⁴), in which the health management program targeting middle-aged women increased the self-efficacy score from 20.93 to 27.60, thereby resulting in an increase of 6.67 points. This also corresponded with the study of Park et al.⁷) regarding the effect of applying a health promotion program by combining verbal persuasion based education and accomplishment experience based exercise to middle-aged women, in which the experimental group had a statistically significant increase in self-efficacy. However, in the study of Lee et al.¹⁷), which performed only health promotion education to middle-aged women, self-efficacy did not show a significant increase because education was mostly based on verbal persuasion. Most of the above studies that applied health promotion program combined physiological and emotional status, such as education based on verbal persuasion, which was proposed by Bandura¹⁵), and not verbal persuasion (education), health journal and exercise based on accomplishment experience, and group discussion based on vicarious experience and feedback. In this study, self-efficacy was thought to have increased due to the effect of verbal persuasion through the education of possible diseases on middle-aged women and health promotion practice methods, and the intervention method of vicarious experience through a group discussion. Considering that self-efficacy is an important influence factor in health promotion behavior as in Khosravizade et al.¹³) and Kim, So, and Kim's preliminary research²⁵), the health promotion education performed in this study is an effective nursing intervention to develop health promotion behavior.

For the health promotion behavior of this study, the middle-aged women who did not receive health promotion education showed a decrease of 14.14 points from the previous 155.97 points to 141.83 points, while the middle-aged women who received health promotion education showed an increase of 33.90 points from the previous 146.77 points to 180.67 points. The experimental group showed significantly higher health promotion behavior as compared to the control group, thereby confirming that health promotion education was effective in increasing the health promotion behavior of middle-aged women. This showed corresponding results with the integrated health promotion program application study of Park et al.⁷), which used the same health promotion behavior tool as this study, where the health promotion behavior practice increased from pre 144.2 points to post 159.4 points. In addition, this corresponds with the study results of Lee et al.¹⁷)'s health promotion education program application study that health promotion behavior significantly increased after education, and Khani et al.²⁶) and Park et al.¹⁴)'s results that the health promotion behavior significantly increased after applying the health management program. In Park's health promotion program study²⁷), the health promotion behavior points increased after the program and this study corresponded with the result that there was a significant difference between the experimental group and control group. From the study results^{13, 14, 28}) that self-efficacy has the most significant effect among the cognitive personal factors that affect health promotion behavior, this study's health promotion education showed an increased self-efficacy in middle-aged women, and presented a detailed method of health promotion behavior in daily lifestyle changes, thereby having an

Table 2. General characteristics of study participants and homogeneity (N=60)

Characteristics	Categories	Exp. (n=30)	Cont. (n=30)	χ^2	p
		n (%)	n (%)		
Age (years)	40–45	16 (53.4)	10 (33.3)	5.77	0.256 [†]
	46–49	6 (20.0)	3 (10.0)		
	50–55	4 (13.3)	10 (33.3)		
	56–59	4 (13.3)	7 (23.4)		
Education (graduate)	Middle school	3 (10.0)	2 (6.7)	4.22	0.171 [†]
	High school	9 (30.0)	8 (26.7)		
	College or University	15 (50.0)	16 (53.3)		
	≥ Graduate school	3 (10.0)	4 (13.3)		
Marital status	Married	26 (86.7)	27 (90.0)	4.29	0.264 [†]
	Divorced	1 (3.3)	2 (6.7)		
	Bereaved	3 (10.0)	1 (3.3)		
Religion	None	12 (40.0)	16 (53.3)	3.35	0.366 [†]
	Christianity	9 (30.0)	7 (23.3)		
	Roman Catholicism	6 (20.0)	5 (16.7)		
	Buddhism	3 (10.0)	2 (6.7)		
Occupation	Housewife	21 (70.0)	18 (60.0)	1.90	0.367 [†]
	Service	5 (16.7)	6 (20.0)		
	Sale work	0 (0.0)	1 (3.3)		
	Office job	3 (10.0)	3 (10.0)		
	Profession	1 (3.3)	2 (6.7)		
Family monthly income (10,000 KRW)	≤99	7 (23.3)	3 (10.0)	6.73	0.068 [†]
	100–199	9 (30.0)	17 (56.7)		
	200–299	12 (40.0)	6 (20.0)		
	≥300	2 (6.7)	4 (13.3)		
Monthly income satisfaction (level)	Usually	6 (20.0)	7 (23.3)	3.63	0.230
	Poor	16 (53.3)	18 (60.0)		
	Very poor	8 (26.7)	5 (16.7)		
Current menstruation status	Yes	22 (73.3)	21 (70.0)	0.08	0.774
	No	8 (26.7)	9 (30.0)		
Menopausal age (years)	40–45	0 (0.0)	0 (0.0)	0.64	0.887 [†]
	46–49	1 (3.3)	2 (6.7)		
	50–55	4 (13.3)	3 (10.0)		
	56–59	3 (10.0)	4 (13.3)		
	Be menstruating	22 (73.4)	21 (70.0)		
During the past year, hormone therapy status	Yes	1 (3.3)	2 (6.7)	2.93	0.363 [†]
	No	29 (96.7)	28 (93.3)		
Subjective health status	Usually	22 (73.3)	18 (60.0)	4.42	0.218 [†]
	Healthy	8 (26.7)	8 (26.7)		
	Very healthy	0 (0.0)	4 (13.3)		
Regular exercise status	Yes	5 (16.7)	6 (20.0)	0.11	0.739
	No	25 (83.3)	24 (80.0)		

Exp.: experimental group; Cont.: control group, [†]Fisher Exact Test.

educational effect in practicing health promotion behavior.

For the results of the quality of life in this study, the control group who did not receive health promotion education was 132.07 points, while the experimental group who received health promotion education was 168.83 points. The experimental group showed significantly higher quality of life compared to the control group, thereby confirming that health promotion education was effective in the quality of life of middle-aged women. In Chin²⁾'s model study of predicting the quality of life regarding the health of middle-aged women, a healthy lifestyle showed a positive effect in self-efficacy and quality of life

Table 3. Effects of health promoting education program (N=60)

Study variables	Group	n	Pre mean (SD)	t	p	Post mean (SD)	t	p
Self efficacy	Exp.	30	20.43 (3.82)	0.07	0.946	26.97 (2.36)	11.7	<0.001*
	Con.	30	20.37 (3.83)			19.07 (3.35)		
Health promoting behavior	Exp.	30	146.70 (15.72)	1.65	0.105	180.67 (13.47)	10.89	<0.001*
	Con.	30	155.97 (17.17)			141.83 (24.75)		
Quality of life	Exp.	30	130.53 (13.73)	-1.52	0.135	168.83 (14.65)	16.20	<0.001*
	Con.	30	135.80 (13.18)			132.07 (11.90)		

SD: Standard Deviation; Exp.: Experimental group; Con.: Control group, *p<0.05.

regarding health, self-efficacy showed to have a positive effect in the quality of life regarding health, and fatigue showed a negative effect in self-efficacy and quality of life regarding health. The hypothesis that self-efficacy will have a mediating effect between lifestyle and the quality of life regarding health, and between fatigue and quality of life regarding health showed to be statistically significant. Moreover, the quality of life regarding the health of Korea's middle-aged women presented to be lower than that of the general Americans. Strategies those are necessary to relieve physical fatigue and dryness, as well as improve psychological security and confidence, have shown an improvement in the quality of life regarding health, thereby acknowledging the need for health promotion education in nursing intervention.

The generalizability of the results of the study is limited because the data were obtained through the convenience sample method. The participants were middle-aged women who were visiting community center located at G gu in Seoul, Korea that were residing within the proximity of each other. However, middle-aged women in such communities may possess different characteristics from those living in other parts of the region and in the rest of the country.

In conclusion, the self-efficacy, health promoting behavior, and quality of life for middle-aged women were significantly increased through the health promoting education program in this study. It showed that health promoting education program can be an effective public health intervention for health promotion of middle-aged women in the community. In order to increase the effect and constantly continue health promotion education, repetitive future studies that develop and apply programs would be necessary. Furthermore, the findings of this study could help contribute to successful aging by enhancing the quality of life of middle-aged women.

Conflict of interest

None.

ACKNOWLEDGEMENT

The authors are grateful to all the participants who participated in the study.

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