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The Effects of Health Promotion Program on Health belief, Health promoting Behavior and Quality of Life for Middle-aged Women: Based on Health Belief Model

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Abstract

Purpose: *The purpose of this study was to examine the effects of health promotion program, which was based on the Health Belief Model, on the health belief, health promoting behavior and quality of life for middle-aged women.* ***Method****s: The study focused nonequivalent control group pretest-posttest design. Data were collected among 40 middle-aged women (20 were experimental group and 20 were control group) on 1st November 2014 and 25th April 2015. The experimental group received 12 sessions of health promotion program for aging preparation once a week for 12 weeks. Data were analyzed by* $\chi 2$ *and t-test and paired t-test using the PASW 21.0 program.* ***Results:*** *The study results shown that, health belief (t=-2.94, p=.006), health promoting behavior (t=-4.76, p<.001) and higher quality of life (t=-7.65, p<.001) scores of experimental group were higher than the control group.* ***Conclusion:*** *The health promotion program based on the Health Belief Model was effective and increased the health belief and health promoting behavior and quality of life among middle-aged women. It seems health promotion program is necessary to improve middle age women's health and quality of later life.*

Keywords: *Middle-aged, Women's Health, Health promotion, Quality of life, Health belief*

1. Introduction

In modern society, human life expectancy has increased due to the advancement of medical technology and the proportion of the middle age life cycle also has increased. An 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. The mean life expectancy 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 population [1]. The middle age women are becoming an increasingly important period in the health care setup. Middle-aged women become to elderly people who are getting menopausal symptoms and aging changes in each part of the body [2]. Middle-aged women confront physical and behavioral changes such as wrinkles on the face, body weakness, obesity, and bad conduct. The study exposed a lack of self-confidence, depression, and mental problems during this stage of life many

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problems arise causing death and chronic illnesses [3]. Amore et al. [4] reported that compared with peri-menopause, postmenopausal women experienced higher levels of depression and sexual symptoms and associated with changes in mood. They are experiencing emotional problems such as physical symptoms such as flushing, dizziness, nausea, headache, fatigue, palpitations, sweating and anxiety and depression due to menopause and reorganization of the structure, etc [5]. The changes are the big turning point in the process of women's lives, and encouraging them to change their behavior towards health and quality of life. In addition, health promotion programs for middle-aged women are reported to be effective for the promotion of health behaviors [6].

However, there are many, health promotion activities and behaviors related studies conducted among middle-aged women, but there are not properly explained and insufficient information to maintain and promote health [7]. So there is a necessity to develop follow-up studies in more detailed health programme for middle-aged women and synchronize. The study of variables affecting the individual's health behavior, knowledge of the disease, health beliefs, attitudes, and health status revealed that the subjects perceived an effect on health behaviors related to the prevention and management of the illness [8]. In another study on knowledge of health behavior, health belief models (HBM) have been applied to identify the factors associated with health promotion behaviors [9],[10].

Since, the health belief model (HBM) development in 1950, attention has been paid to preventive and promotion aspects of health behaviors, treatment behaviors, and various health behaviors for specific diseases [11]. A study conducted by [12], the health belief model exercise intervention group showed more regular exercise participation rate than the exercise-only intervention group at 6 months after the end of the intervention program. In addition, the HBM was used in another field such as health screening [13], smoking [14] and widely used for systematic analysis [15]. To date, there have been few studies on the effects of health promotion programs on health beliefs, health-promoting behaviors and quality of life in middle-aged women based on HBM. Application of HBM in health promotion program could cope with the physiological and mental changes of middle-aged women and would increase the perceived sensitivity and severity of the individual according to the situation or the risk. The purpose of this study was to examine the effects of a health promotion program based on HBM on health beliefs, health-promoting behaviors, and quality of life of middle-aged women.

2. Research Methods

2.1 Research design

The study was designed with a nonequivalent control group pre test-post test design.

2.2 Samples and setting

The study participants were forty middle-aged women between 40 and 64 years old living in G city, who access public health center and selected as convenient sampling as a voluntary basis through bulletin board display and leaflet promotion. Participants were assigned 20 middle-aged women in each experimental group and control group respectively. The eligibility criteria included an age of 40-64 years, who understands the purpose of this study and has accepted to participate, who can respond to the questionnaire, without severe disease or mental disorders and those can participate in the program and perform health promotion activities. The samples size was calculated by G*Power (power=.80, effect size=.50, and significance level= .05). The actual sample size is 17 in each group, a total of 40 samples were recruited in order to avoid dropout rate. During the program, the participants were asked to be in rapport and explained the purpose and the progress of the study. There were no dropouts due to active monitoring such as stickers and posting regular notice. Finally, the data were analyzed with the samples of 20 in experimental group and 20 in the control group.

2.3 Research Tools

2.3.1 Health beliefs

The health belief measurement tool was used to assess the health beliefs middle aged women. The tool was developed by Lee and Jeong [13]. The questionnaire consisted of 4 subcategories (perceived sensitivity, perceived seriousness, perceived usefulness, and perceived disability), a total of 22 questions using 5 points Likert scale. It has a range of 22 points to 110 points, and high score indicates high level of health beliefs. In the present study, the higher the score, the higher the belief in health beliefs. The reliability of the tool was Cronbach's α= .79 and Cronbach's α= .92 in the present study.

2.3.2 Health Promoting Behavior

The Health Promoting Lifestyle Profile (HPLP) tool was developed by Walker, Sechrist & Pender [16]. The tool was revised by Seo [17] as Health Promoting Lifestyle ProfileⅡ(HPLP-Ⅱ) and modified with supplements based on culture. HPLP-Ⅱ was used to measure the degree of health promoting behavior of the middle-aged women. This tool 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. It has a range of 50 points to 200 points, and high score indicates high level of health promoting behavior. The reliability of the instrument of Cronbach's α= .92 in the study of Seo [17] and the Cronbach's α= .98 in this present study.

2.3.3 Quality of life

In this study Quality of life scale was used to measure the quality of life and developed by Noh [18]. This tool 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 47 points to 235 points, and the higher the score of the respondent was, the higher the level of quality of life. The items such as 28, 31, 32, 33, 34 and 35 were negative questions and converted into statistical terms. The reliability of the tool was Cronbach's a = .94 and Cronbach's α= .97 in the present study.

2.4 Ethical considerations

The study was approved by Kaya IRB-27, a member of the K University Bioethics Committee. 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

2.5 Research process

Step 1: The health promotion program based on HBM was organized based on health beliefs, health promoting behavior and quality of life for middle-aged women. Step 2: Weekly programme plan designed (Table 1). The programme was planned for 12 weeks, only 1st week assigned for 90 minutes and following weeks were 60 minutes, Time allotted an hour (20 minutes-education, 10 minutes-group discussion and 30 minutes- exercise) for experimental group. *Step 2:* In order to facilitate this study, three nurses (who are working in public health center) were hired as a research assistant. The purpose and process of this study was explained to the research assistants and they were responsible for the participants such as preparation, refreshments, handout allocation, exercise correction, and Survey (pre and post test). *Step 3:* the intervention was implemented from February, 2015 to April, 2015 for 12 weeks. Experimental group received exercise program, handouts, health log book and health monitoring diary, the control group not involved in exercise intervention, but handouts and leaflets were distributed to them. Step 4: at the end of the intervention on 30th April 2015 collected post test survey questionnaire from both the group.

2.6 Data analysis method

The collected data were analyzed using SPSS IBM 21.0 program. General characteristics of participants and homogeneity test of the characteristics between two groups were analyzed using descriptive statistics and chi-square test. Study variables between two groups before the experiment were analyzed using t-test. Applied effects of the health promoting education program were examined using Paired t-test and group difference test by t-test. A *p*-value of less than .05 was considered statistically significant. Cronbach's alpha was used to test the reliability of the instrument.

3. Results

3.1 Homogeneity of the general characteristics and outcome variables of the Participants

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 (p>.05) (Table 2,3).

3.2 Effects of the health promotion program based on HBM among Experimental and Control group

The Effects of the health promotion program based on HBM presented in Table 4. The health promotion program based on HBM statistically significant positive effects on health belief (t=-2.94, *p=.006),* health promoting behavior (t=-4.76, p<.001) and quality of life (t=-7.65, p<.001).

4. Discussion

The present study was carried out with the aim of studying the effects of the health promotion program based on HBM on health belief, health promoting behavior and quality of life for middle-aged women. The findings showed that the mean scores of overall health belief in the experimental group significantly improved 12 weeks after the program, indicating the positive effect of education on having health beliefs.

First, there was no previous study on the effect of health promotion program based on HBM in middle-aged women. A study conducted by Lee & Kim [19], among unmarried college students the perceived severity and perceived sensitivity scores of the experimental group were significantly increased after the education of HPV vaccination, and the HBM, It showed the consistent with the results of the present study. The study of workplace health promotion programs for employees [20], health beliefs of workers showed an average of 3.46 points and felt that the program changed their health behavior. It suggested the health promotion programs are highly needed at the workplace. In a study [12], the effects of an exercise intervention program for adult based on HBM said that, the program affects the benefits of exercise and sensitivity to disease and the level of exercise participation, susceptibility and severity. In the analysis of the factors related to the performance of hand washing by the clinical nurses [21] reported that the health promotion program based on HBM encompasses perceived sensitivity, severity, benefit, and disability, also found significant variables. The same study suggested that the health promotion program based on HBM increases the perceived sensitivity and severity of the individual's health, increases the benefit and overcomes the obstacles. So, the present study on the effects of a health promotion program based on HBM is an effective nursing intervention for middle-aged women.

For the health promotion behavior of this study based on HBM was significantly different between the experimental group and the control group. Lee and colleagues [2] reported that the health promotion activities were increased significantly after the education. Another study [22] reported that the experimental group showed significant effects in the study of efficacy expectation promotion program on health promotion progress of rural middle-aged women. Constant follow-up found [23] among study participants' health promotion behaviors were increased significantly in the study of middle-aged women's health care program. The effects of health promotion programs on the rural elderly were investigated by Park and Oh [24] who applied health promotion programs for 16 weeks. Choi [25] explained that there was a significant difference in the health promotion behaviors between the experimental group and the control group for the aged preparation program for middle-aged women. A study revealed that the exercise intervention program using the health belief model for adults improves the regular exercise participation rate after 6 months of the exercise

program compared with the exercise-only intervention group [2]. The study findings of health promotion education showed increased health behavior in middle aged women. As well as presented a detailed method of health promotion behavior in daily lifestyle changes. In Addition, it is recommended to organize low-intensity exercise in order to prevent the incidence of falling, the instructions given in the education booklet and content. The results of this study showed that the health promotion program based on HBM increases the health promotion behaviors of middle-aged women. Health promotion program based on HBM is an effective nursing intervention plan do.

The quality of life of this study based on HBM was significantly different between the experimental group and the control group. A study to compare the quality of life of middle-aged women with that of health promotion program exhibited the quality of life scores of the experimental group was significantly higher (F= 11.201, p=.001) than those of the control group in [26]. A study titled relationship between menopause management, marital satisfaction, and quality of life of middle-aged women by Yeo [27] expressed in part of the quality of life of experimental group (5.1 points) was (F =17.67, p<.001) higher than the control group. Above, results were exhibited the health promotion program based on HBM encouraged each other in a relaxed atmosphere through group discussions helped to form a consensus, and increased intimacy between the subjects, which led to emotional satisfaction, and the quality of life. Participants felt, the exercise program improved the physical function and maintained the health promotion and changes lifestyle. It seems to be effective in improving the quality of life. Therefore, the health promotion program based on HBM would expect to have a positive effect in order to promote the quality of life of middle-aged women.

This study suggests that health promotion programs based on HBM are important interventions that effect the health beliefs, health-promoting behaviors, and quality of life of middle-aged women in order to overcome the problem that middle-aged women are not interested in health promoting activities.

5. Conclusion

The results of this study showed the health belief, health-promoting behavior, and quality of life for middle-aged women were significantly increased through the health promotion program based on HBM. During the 12 week program, health awareness was acquired through health promotion education and the opportunity to establish health-promoting activities. It showed that health promotion program based on HBM can be an effective intervention for health promotion of middle-aged women in the community. In order to increase the efficiency and constantly continue health promotion program, it is necessary to reevaluate the same program by measuring blood indicators, basic physical strength, body mass index, and mental health and widely applied in nursing intervention. Furthermore, the findings of this study could help for the contribution of successful aging by enhancing the quality of life in middle-aged women.

Conflict of interest

The authors declared no conflict of interest.

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Table 1. Weekly Health Promotion Program based on HBM of the study

Week	Goal	Contents		Duration (min)	Method
		Education	Exercise		
1	Understand program objectives and group formation/pre data collection	Greetings and Introduction of program and application process (20mins) Health care of middle-aged women, group discussion (10mins) Self Confidence about health Present health condition and health habits in case of life-threatening illness Benefits of regular life and pre-survey (30mins)	Pre exercise (5 mins) Light body relaxation-stretching Regular exercise (20 mins) -Pelvic floor muscle training exercise -Breast cancer Osteoporosis Preventive movement Finishing exercise (5 mins)	90	Orientation Education Group discussion Exercise
2	Understanding of exercise and health education	Exercise and health education Components of physical activity & health Importance and benefits of regular exercise and methods to adapt body exercise		60	Education, Exercise Group discussion
3	Exercise and Health Education: osteoporosis	Osteoporosis education Definition, cause, symptom, diagnostic test, prevention, osteoporosis preventive exercise		60	Education, Exercise Group discussion
4	Exercise and Health Education: arthritis	Arthritis education Definition, Symptoms, Diagnosis, Diet, and prevention		60	Education, Exercise Group discussion
5	Exercise and Health Education: incontinence	Incontinence training Definition, type, diagnostic test, prevention (Kegel exercise, bladder training)		60	Education, Exercise Group discussion
6	Exercise and Health Education: breast cancer	Breast cancer prevention and management Definition, risk factor, symptom, diagnostic test, prevention and early detection, breast self-examination,		60	Education, Exercise Group discussion
7	Exercise and Health Education: cervical cancer	Cervical cancer prevention and management Definition, Symptoms, Diagnosis, Diet, Prevention		60	Education, Exercise Group discussion
8	Exercise and Health Education: hypertension	Prevention and management of hypertension Definition, Symptoms, Diagnosis, Diet and prevention		60	Education, Exercise Group discussion
9	Exercise and Health Education: diabetes mellitus	Diabetes prevention and management Definition, Symptoms, Diagnosis, Diet, and prevention.		60	Education, Exercise Group discussion
10	Exercise and Health Education: obesity	Obesity Management Definition, Symptoms, Diagnosis, Diet, and prevention		60	Education, Exercise Group discussion
11	Exercise and Health Education: stress	Stress management, interpersonal skills Definition, Symptoms, Diagnosis, and prevention		60	Education, Exercise Group discussion
12	Maintenance health promoting behavior/post data collection	Summary and My health care, sharing of program testimony, End of post-survey		60	Education, Exercise Group discussion

HBM: Health Belief Model

Table 2. General Characteristics and Homogeneity of the Participants

(n=40)

Characteristics	Categories	Exp(n=20) n(%)	Cont(n=20) n(%)	χ^2	*p*
Age* (Years)	40-44	2 (5.0)	1 (2.5)	1.286	.864
	45-49	3 (7.5)	2 (5.0)		
	50-54	3 (7.5)	5 (12.5)		
	55-59	2 (5.0)	3 (7.5)		
	60-64	10 (25.0)	9 (22.5)		
Marital status*	Yes	19 (47.5)	19 (47.5)	2.000	.368
	No	1 (2.5)	1 (2.5)		
Religion*	Christian	3 (7.5)	4 (10.0)	1.476	.831
	Catholicism	1 (2.5)	2 (5.0)		
	Buddhism	12 (30.0)	12 (30.0)		
	Others	1 (2.5)	1 (2.5)		
	None	3 (7.5)	1 (2.5)		
Occupation*	Yes	4 (10.0)	4 (10.0)	1.333	.856
	No	16 (40.0)	16 (40.0)		
Family income (10,000 won)	≤ 200	7 (17.5)	7 (17.5)	.286	.991
	200-300	4 (10.0)	4 (10.0)		
	301-400	4 (10.0)	3 (7.5)		
	401-500	3 (7.5)	4 (10.0)		
	≥500	2 (5.0)	2 (5.0)		
Education*	Elementary school	0 (0.0)	1 (2.5)	1.710	.425
	Middle school	4 (10.0)	6 (15.0)		
	High school and above	16 (40.0)	13 (32.5)		
Children*	Yes	20 (50.0)	19 (47.5)	4.746	.191
	No	0 (0.0)	1 (2.5)		
Social activity	One	8 (20.0)	7 (17.5)	.443	.801
	Two and more	12 (30.0)	13 (32.5)		
Drug use	Yes	16 (40.0)	14 (35.0)	.533	.358
	No	4 (10.0)	6 (15.0)		
Menstruation status	Yes	7 (17.5)	3 (7.5)	2.133	.137
	No	13 (32.5)	17 (42.5)		

***** Fisher's exact test, Exp: Experimental group, Cont: Control group

Table 3. Homogeneity of the Outcome Variables of Participants

(n=40)

Variable	Exp(n=20) M±SD	Cont(n=20) M±SD	*t*	*p*
Health beliefs	3.41 ± .35	3.55 ± .43	1.17	.249
Health promoting behavior	2.52 ± .59	2.80 ± .43	1.73	.092
Quality of life	3.33 ± .42	3.11 ± .33	-1.81	.078

Exp: Experimental group, Cont: Control group

Table 4. Effects of health promoting program based on HBM among experimental and control group

(n=40)

Variables	Group	Pre test	Post test	Difference (post-pre)	t /F	*p*
		Mean±SD				
Health beliefs	Exp	3.41 ± .35	4.29 ± .42	0.88 ± .51	-2.94	.006
		t*=-7.78, *p*<.001				
	Cont	3.55 ± .43	3.37 ± .49	-0.18 ± .56		
		t*=-1.46, *p*=.161				
Health promoting behavior	Exp	2.52 ± .59	3.40 ± .28	0.88 ± .55	-4.76	<.001
		t* = -7.12, *p*<.001				
	Cont	2.80 ± .43	2.83 ± .40	0.03 ± .27		
		t* = -.55, *p*=.586				
Quality of life	Exp	3.33 ± .42	4.02 ± .41	0.69 ± .51	-7.65	<.001
		t*=-6.04, *p*<.001				
	Cont	3.11 ± .33	3.11 ± .33	0.00 ± .26		
		t*= -.06, *p*=.961				

t*: paired t test
HBM: Health Belief Model Exp: Experimental group, Cont: Control group