ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 8, pp. 19514-19520, August, 2017

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

THE EFFECT OF HEALTH PROMOTION EDUCATION GIVEN TO WOMEN ON REDUCTION OF CARDIOVASCULAR RISK FACTORS

Derya ADIBELLI[1] and Dilek KILIÇ[2]

[1]Akdeniz University Kumluca Health Science Faculty, Antalya, Turkey
[2]Atatürk University Nursing Faculty Community Health Nursing Department, Erzurum, Turkey

DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0709

ARTICLE INFO

Article History:

Received 15th May, 2017
Received in revised form 25th June, 2017
Accepted 23rd July, 2017
Published online 28th August, 2017

Key Words:

Cardiovascular diseases, health behavior, health promotion, risk factors, women

ABSTRACT

This study was conducted with 121 women as an interventional study with pretest-posttest groups. In order to collect the data, questionnaire form, Framingham Risk Scoring System, Cardiovascular Disease Risk Factors Knowledge Level Scale, Healthy Life Style Behaviors Scale, and Self-Efficacy/Sufficiency Scale were used. Blood pressure, serum lipid and glucose, body weight, height, and waist circumference of groups were measured. Chi-square, t test, ANOVA, Dunnet T3 Post Hoc test, and correlation analysis were used for analysis. It has been found that health promotion education given to women has reduced cardiovascular risk factors. Furthermore, cardiovascular disease knowledge, healthy life style behaviors ($p<0.05$), and self-efficacy/sufficiency levels of intervention group have increased after the education. The change in metabolic variables are significant ($p<0.05$). Health promotion education is effective in reducing cardiovascular disease risk.

INTRODUCTION

According to data from the World Health Organization (WHO), approximately 17.3 million deaths occurred due to cardiovascular diseases and by the year 2030, deaths related to CVD will conjecturally increase to 23.3 million (www.who.int, 2016). This data suggests that health care and development measures should be implemented more effectively. In women, CVD develops about ten years later than males and thus serious complications such as myocardial infarction and sudden death can be seen later than in men (Engbending & Wenger, 2008). However, despite this time advantage, CVD is the leading cause of death in women. In the past, hormonal factors were known to protect women from cardiovascular diseases. However, recent studies have shown that the incidence of obesity, metabolic syndromes, and cigarette smoking in women is becoming the leading cause of death for women of all ages (Engbending & Wenger, 2008; Kuznar, 2010, Pucci *et al*., 2017). In addition to these traditional risk factors, a growing number of others such as pregnancy and reproduction, gestational diabetes, and menarche/menopause have also been identified (Humphries *et al*., 2017). This suggests that reducing risk factors in CVD prevention is also important for women at least as it is for men (Çengel, 2012).

An individual should adjust his/her lifestyle not only by protecting from illness but by showing behaviors that increase the level of well-being throughout life. In case of behavioral change, positive health behavior must be acquired and sustained. In the process of behavioral change, the nurse should take initiatives to develop individual's self-efficacy/competence perceptions that have a decisive influence on behavioral change. The nurse should also try to strengthen the individual's perception about his/her success. Because of the coexistence of multiple risk factors in atherosclerotic heart disease, determining the risk of developing cardiovascular disease in adult patients is crucial in terms of health protective and developmental approaches. In this context, the protection approach from cardiovascular diseases should be directed at lowering total cardiovascular risk and controlling risk factors, not just a single cardiovascular risk factor. In this way, it will be possible to reduce the frequency of fatal and non-fatal atherosclerotic cardiovascular events and their complications, and to improve the quality and duration of the life (Koldaş, 2008).

An individual should adjust his/her lifestyle not only by protecting from illness but by showing behavior that increases the level of well-being throughout life. In case of behavioral change, positive health behavior must be acquired and sustained. Self-efficacy is important in both health-related

Corresponding author:* **Derya ADIBELLI
Akdeniz University Kumluca Health Science Faculty, Antalya, Turkey

behavioral change intentions and in the control phase of the action. High level of self-efficacy/adequacy is necessary and important for health professionals who are responsible for the protection, maintaining, and promotion of the health of the community (Kaşıkçı, 2011). In the process of behavioral change, the nurse should take initiatives to develop individual's self-efficacy / competence perceptions that have a decisive influence on behavioral change. The nurse should also try to strengthen the individual's perception about his/her success. In the literature, there are data related to nursing interventions reduce cardiovascular disease risk factors (Park *et al*., 2017; Folta *et al*., 2011; Parra-Medina *et al*., 2011; Dijulio & Anderson, 2009; Howard *et al*., 2006; Erickson, Westborg & Eliasson, 2006; Krantz *et al*., 2013; Hayashi, Farrell, Chaput, Rocha & Hernandez, 2006; Ham & Kim, 2011; Gallagher, Kirkness, Armari & Davidson, 2012; Hardcastle, Taylor, Bailey & Castle, 2008; Price, Griffin & Holman, 2011).

This study was conducted to determine the effects of health promotion education that was given to women on reduction of cardiovascular disease risk factors.

MATERIALS AND METHODS

Design and Sample

This study is an intervention study with a pretest-posttest control group. It was conducted in two district centers between the dates of December 2012 and January 2014. Women who were receiving treatment due to cardiovascular disease, cerebrovascular disease, and diabetes and who refused to participate in the study were excluded from the study population and the universe of the study was composed of a total of 572 women. The Framingham Risk Scoring System and a questionnaire were used to screen the women for cardiovascular disease risk. It was determined that 183 of the women had a %5 and above cardiovascular disease risk. Of this "risk" population, the 121 women who agreed to participate in the study were assigned as intervention and control groups. Research randomizer which is a computer generated randomization program was used by choosing data for intervention group and control group (www.randomizer.org). In this way, 61 people formed the intervention group and 60 people formed the control group.

Measures

Questionnaire form

It was developed by researchers in the direction of related literature (Eriksson *et al*., 2006; Howard *et al*., 2006; Dijulio & Anderson, 2009; Folta *et al*., 2009; Ham & Kim, 2011; Parra-Medina *et al*., 2011; Gallagher *et al*., 2012; Krantz *et al*., 2013). The first part of the form contained questions regarding socio-demographic information such as age, education, occupation, marital status, working status, family type, and income level. The second part addressed cardiovascular risk factors.

Framingham Risk Scoring

In this scoring, the risk of myocardial infarction and coronary death risk were calculated by using the values of sex, age, smoking, family history, existence of cardiovascular disease, existence of diabetes, fasting blood glucose elevation, height, weight, waist circumference, systolic and diastolic blood pressure, total cholesterol, HDL cholesterol, LDL cholesterol. According to the scoring; <%10= is defined as low risk, %10-20= is defined as average risk, >%20= is defined as high risk (Wilson *et al*., 1998). In this study, scoring was calculated by cardiovascular risk factors. Individuals with more than one risk factor and a risk score of 5% or higher constituted the intervention and control groups of our study.

The Cardiovascular Disease Risk Factors Knowledge Level Scale (CARRF-KL)

It was developed by Arıkan *et al*. (2009). In the scale, 'yes', 'no' and 'I do not know' options are used and a maximum of 28 points can be attained by having 1 point for each correct answer. Cronbach's alpha value was found to be .76 in the validity-reliability evaluation of the scale (Arıkan, Metintaş, Kalyoncu & Yıldız, 2009). In this study, Cronbach's alpha value was found to be .79.

Healthy Life Style Behaviors Scale (HLSBS)

This scale was developed in 1987 by Walker, Scherist, and Pender. Validity and reliability of the scale was conducted by Esin in Turkey (1999). This scale consists of 48 items and there are 6 sub-groups such as self-fulfillment, health responsibility, exercise, nutrition, interpersonal support, and stress management. In this scale, 1 point is assigned for the answer of 'Never', 2 points are assigned for the answer of'Sometimes',3 points are assigned for the answer of 'Frequently', 4 points are assigned for the answer of 'Regularly'. Cronbach's alpha value of the scale was found as .92 (Esin, 1999). In this study, Cronbach's alpha value was found to be.91.

Self-Efficacy/Sufficiency Scale (SESS)

This 5 Point Likert type scale was developed in 1982 by Sherer *et al*. Turkish validity and reliability study of this scale was conducted in 1999 by Gözüm and Aksayan. The scale consists of twenty-three items. In this scale, 1 point is assigned for the answer of 'Does not describe me at all', 2 points are assigned for the answer of 'Describes me a little', 3 points are assigned for the answer of 'I am undecided', 4 points are assigned for the answer of 'It defines me well', 5 points are assigned for the answer of 'It defines me very well'. Cronbach's alpha value of the scale was found as 0.81 (Gözüm & Aksayan, 1999). In this study, Cronbach's alpha value was found to be.80.

Blood pressure

Participants' blood pressure values were measured twice in 20 minute intervals at the sitting position from the right arm and after at least 5 minutes rest. Averages of measurements are taken (Erka-Perfect Aneroid).

Serum lipid and glucose

Blood samples were obtained between 07:00 AM and 09:00 AM after approximately 12 hours of fasting. Samples were studied in Sarıkamış District Public Hospital Laboratory by using automatic analyzers (Thermo-Scientific). Serum total cholesterol, HDL, LDL cholesterol, and fasting blood glucose values were obtained.

Body weight, height, and waist circumference

A portable digital weighing tool (0-150 kg) was used for body weight measurements, and a plastic adult tape (0-200 cm) was used for height and waist circumference measurements. BMI was calculated by using the kg/m^2 formulation.

Data were collected in two stages. In the first stage, women were screened for cardiovascular disease. In the second stage, interventional studies were conducted for women in the intervention and control groups. The women "at risk" were determined by using a 'Questionnaire Form' consisting of two parts and the 'Framingham Risk Scoring' in cardiovascular screening. Pretests were applied to both the intervention and the control groups by using 'CARRF-KL', 'HLSBS' and 'SESS'. At the end of the observation period, posttests were applied by using 'CARRF-KL', 'HLSBS' and 'SESS' and blood tests and measurements of blood pressure and BMI were repeated in order to detect the changes in the risk factors. The last posttest data of the control group were collected by repeating the blood tests after applying 'CARRF-KL', 'HLSBS' and 'SESS' after the education and the observation of the intervention group. The women in the control group were given training manuals after the last test. The pre-test and post-test data of both groups were collected by the researchers by face-to-face interviews and observations in their own homes (Figure 1).

Analysis

The evaluation of the data was made by using the computer SPSS 20.0 package program. In the analysis of the data, t-test was used for the comparison of dependent groups and t-test, chi-square, ANOVA, Dunnet T3 Pos Hoc test, and correlation analysis were used for the comparison of independent groups.

Ethical Principles of the Study

The aim and the process of the study were explained to the potential participants of the study and their verbal and written approvals were obtained. Necessary permissions and approvals were received from Ataturk University Health Sciences Institute Ethical Commission (2012.5.1/121) and relevant institutions.

RESULTS

According to Table 1, there was a statistically significant difference between FRS pre-test and post-test scores of intervention group women according to their educational status, marital status, family type, age means, high blood pressure presence in family, BMI values, and waist measurements ($p<0.05$). However, there was no significant difference between the FRS pre-test and post-test scores of these women according to the smoking status ($p=.708$)($p>0.05$).

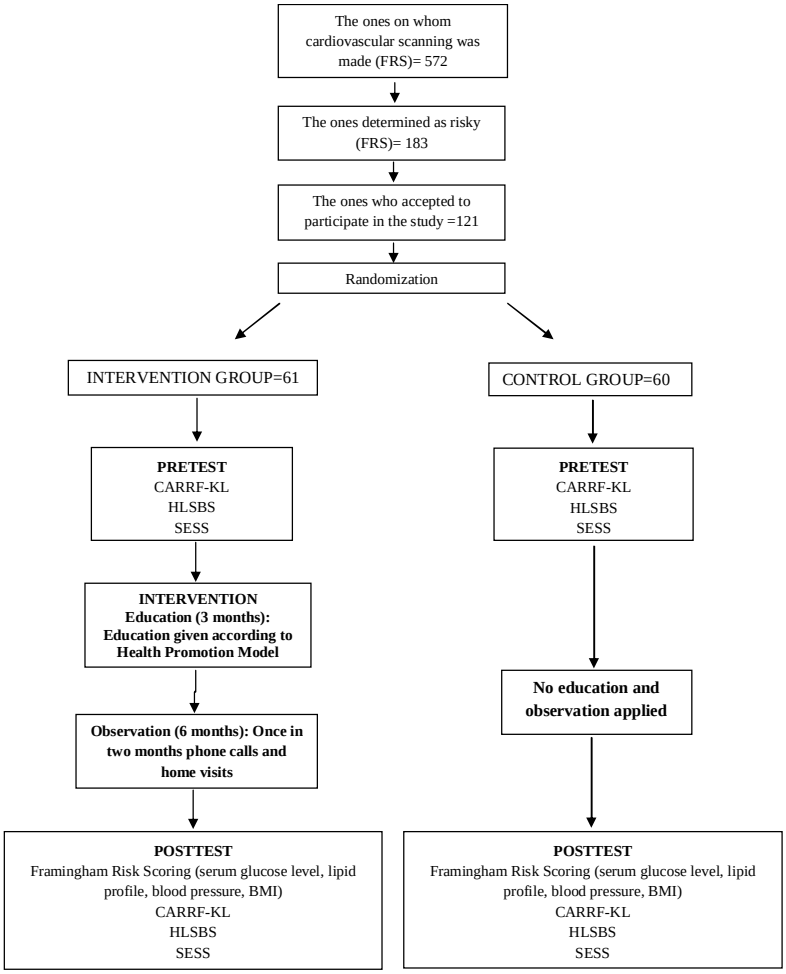

Figure 1 Consort flow diagram

Table 1 The Comparison of Intervention and Control Group Women's Characteristics and Mean of Framingham Risk Scores According to Pretest and Posttest Measurements

Characteristics	Pretest (FRS)				Posttest (FRS)				Intervention Pretest-Posttest and Relevance	Control Pretest-Posttest and Relevance	Intervention-Control Posttest Intergroup Relevance
	Intervention Group		Control Group		Intervention Group		Control Group				
	X	S.S.	X	S.S.	X	S.S.	X	S.S.			
Age	35.8	10.45	37.3	12.46	35.8	10.45	37.3	12.46	t=14.132 p=.000	t=1.063 p=.384	t=.693 p=.083
Education											
Primary School	13.62	5.162	12.11	4.615	12.10	4.170	12.11	4.153	t=15.462 p=.000	t=.885 p=.418	t=3.314 p=.001
High school and above	8.49	3.102	10.05	4.455	8.08	2.832	10.29	4.406			
Marriage Status											
Married	10.09	4.269	11.18	4.543	9.32	3.516	11.26	4.237	F=4.060 p=.022 3>2	F=.036 p=.934 -	t=1.148 p=.039
Single	6.00	.	9.00	4.472	6.00	.	9.00	4.282			
Widowed/ Divorced	18.00	7.000	17.00	2.646	15.67	6.429	17.00	1.732			
Family Type											
Extended Family	17.00	7.616	10.94	4.783	14.80	6.496	11.11	4.702	t=11.446 p=.022	t=.360 p=.551	t=3.155 p=.002
Nuclear Family	9.82	3.927	11.33	4.657	9.11	3.262	11.36	4.287			
Hypertension in Family											
Yes	15.43	6.268	16.75	3.545	13.29	5.376	16.33	2.807	t=16.307 p=.000	t=5,316 p=,025	t=1.287 p=.010
No	9.76	4.079	9.83	3.811	9.09	3.422	10.02	3.750			
Smoking Condition											
Smoking	10.13	3.877	11.69	4.127	9.35	3.171	12.00	3.882			
Not Smoking	10.41	5.405	11.05	4.987	9.59	4.557	11.02	4.633			
Quit	11.50	3.782	11.00	4.082	10.33	2.582	11.00	4.320			
Total Cholesterol	256.77	35.53	231.87	33.41	210.95	25.22	235.15	33.03			
LDL	199.16	23.419	192.80	31.133	178.34	18.410	195.80	31.723			
HDL	46.93	9.313	44.52	9.045	51.85	8.446	44.22	8.126	F=.348 p=.708	F=.931 p=.400	t=.683 p=.496
Glucose	102.11	17.063	107.83	16.315	97.02	12.255	110.43	16.321			
Blood Pressure											
SBP	135.16	13.963	140.50	13.074	132.54	11.748	141.92	12.692			
DBP	82.70	9.898	84.42	10.046	81.07	8.322	85.75	10.202			
FRS	10.41	4.685	11.22	4.658	9.57	3.879	11.22	4.658			
BMI	26.13	5.08	28.88	5.78	25.09	4.19	28.85	4.70			
Girth	88.8	11.38	94	13.96	87.6	10.34	94.6	14.2			

There was a statistically significant difference between FRS pre-test and post-test scores of control group women according to the presence of high blood pressure in the family ($p<0.05$).

There was no significant difference between FRS pre-test and post-test scores of these women according to educational status, marital status, family type, age groups, smoking status,

Table 2 The Comparison of Intervention and Control Group Women's CARRF-KL/HLSB/SES Scales Pretest-Posttest Score Means

Scales	Intervention Group		Control Group		Intervention Pretest-Posttest Relevance	Control Pretest-Posttest Relevance	Intervention-Control Posttest Intergroup Relevance
	Pretest X±SD	Posttest X±SD	Pretest X±SD	Posttest X±SD			
CARRF-KL	19.12±3.14	25.05±1.99	19.33±3.34	19.25±3.35	t=17.239 p=.000	t=1.932 p=.058	t=11.551 p=.000
HLSBS							
Self-fulfillment	36.57±6.31	39.68±6.0	35.54±5.32	34.21±5.02	t=-7.487 p=.000	t=31.054 p=.152	t=6.458 p=.000
Health Responsibility	22.28±4.85	26.41±6.11	21.97±3.45	20.37±3.83	t=-9.303 p=.000	t=1.050 p=.305	t=11.546 p=.000
Nutrition	17.84±2.92	19.25±2.38	17.22±2.88	16.32±2.64	t=6.814 p=.000	t=16.539 p=.221	t=5.592 p=.000
Exercise	10.09±5.46	12.18±4.96	11.02±4.96	10.62±3.78	t=-5.890 p=.000	t=15.878 p=.197	t=4.541 p=.000
Stress Management	17.34±3.33	19.92±4.02	17.20±3.21	15.68±3.19	t=-8.707 p=.000	t=20.932 p=.359	t=10.905 p=.000
Interpersonal Relations	21.27±2.79	22.45±2.82	20.14±2.65	19.23±2.58	t=-6.774 p=.000	t=20.326 p=.385	t=6.719 p=.000
Total	125.80±20.95	154.45±12.26	125.03±18.02	124.93±18.04	t=15.31 p=.000	t=.217 p=.829	t=10.483 p=.000
SESS							
Starting to behavior	28.16±6.53	33.40±3.63	31.13±4.66	31.05±4.72	t=7.706 p=.000	t=7.776 p=.360	t=3.082 p=.003
Preservation of behavior	25.21±5.18	29.24±3.14	26.53±4.49	26.45±4.45	t=7.776 p=.000	t=2.217 p=.204	t=3.994 p=.000
Completing behavior	20.22±3.34	22.29±2.13	19.73±2.89	19.61±2.86	t=6.178 p=.000	t=.761 p=.383	t=5.841 p=.000
Struggle with obstacles	9.86±2.55	12.16±1.65	8.85±2.07	8.86±2.06	t=7.607 p=.000	t=5.574 p=.180	t=9.707 p=.000
Total	83.48±11.67	97.11±6.46	86.25±9.33	85.98±9.27	t=16.239 p=.000	t=1.443 p=.152	t=7.439 p=.000

BMI values, and waist size ($p>0.05$). Posttest results showed that total cholesterol, LDL, glucose, SBP, DBP and FRS values of the intervention group decreased. HDL values increased and the difference between the groups was statistically significant ($p<0.001$). It was determined in the control group that, total cholesterol, LDL, glucose, SBP, DBP values increased and FRS and HDL values did not change and the difference between the groups was statistically significant($p<0.001$).

In the intra-group comparison of the women in the intervention and control groups, the pre-test total score averages of the women in the CARFF-KL, HLSBS and SES scale increased after the health education and the difference was found to be statistically significant ($p<0.001$). It was determined that the mean of the post test scores of the control group women decreased according to the averages of the pre-test scores and the difference was not significant ($p>0.05$) (Table 2). According to the comparison of the mean scores of the CARFF-KL, HLSBS and SES scale of the intervention and the control group, it was determined that the average posttest scores of the women who received the health promotion education was higher than the average score of women in the control group. The difference between the groups was statistically significant ($p<0.001$).

In the study, the relationship between the cardiovascular risk factors of women and the mean of total scores of CARFF-KL, HLSBS and SES scales was examined by Pearson Correlation analysis and the results are given in Table 3.

Table 3 The Relation between Cardiovascular Risk Factors and CARRF-KL /HLSB/SES Score Means

Risk Factors	CARRF-KL Significance	HLSBS Significance	SESS Significance
Total cholesterol	r= -217 p=.017	r= -235 p=.009	r= -117 p=.099
LDL cholesterol	r= -182 p=.046	r= -198 p=.030	r= -153 p=.093
HDL cholesterol	r= 335 p=.000	r= 263 p=.004	r= 315 p=.000
Glucose	r= -267 p=.003	r= -382 p=.000	r= -277 p=.003
Systolic Blood Pressure	r= -241 p=.008	r= -281 p=.002	r= -198 p=.029
Diastolic Blood Pressure	r= -189 p=.038	r= -270 p=.003	r= -209 p=.021
BMI	r= -236 p=.009	r= -261 p=.004	r= -223 p=.014

It was determined that there was a negative relationship between cardiovascular risk factors and CARRF-KL, HLSBS and SES levels, excluding HDL cholesterol. As the cardiovascular risk decreased, there was a statistically significant increase in cardiovascular disease risk factors, knowledge level, healthy lifestyle behaviors and self-efficacy/efficacy levels ($p<0.05$). Although there was a negative correlation between SES levels and total cholesterol-LDL cholesterol values, there was no statistically significant difference ($p>0.05$).

DISCUSSION

In our study, when some of the characteristics of the intervention and control group women and FRS pretest-posttest mean scores were compared to each other, FRS pretest and posttest mean scores indicated a statistically significant difference in the intervention group, according to education status, income status, age group, BMI, and waist measurements. There was no significant difference in the control group. The cardiovascular risk score of individuals with primary education was found to be higher than those with high school or higher education level. Ham and Kim (2011) have conducted a study, in order to improve the cardiovascular health in women, and they have shown that major risk factors such as blood pressure, total cholesterol and glucose levels decrease and risk levels decrease after the intervention in the intervention group.

Many prospective studies have indicated that a low socio-economic level that is defined as low education, low income, and low job status increases the risk of death due to cardiovascular diseases in men and women (Stringhini *et al*. 2010). In other studies, it has also been found that the low education level significantly increases cardiovascular risk factors and cardiovascular risk (Emmelin, Nafziger, Stenlund, Veineball & Wall, 2006). In the study of Dijulio and Anderson (2009), it has been stated that there is a decrease in BMI and waist-hip measurements of intervention group women after the intervention. Other research results also support these research findings (Eriksson *et al*., 2006;Folta *et al*., 2009;Parra-Medina *et al*., 2011). It is known that waist circumference measurement is an independent predictor in the development of CHD (Cardiovascular Heart Disease).

In the study, it was determined that total cholesterol, LDL, glucose, systolic and diastolic blood pressure, and the mean FRS values decreased, and the HDL mean increased after the health promotion education of intervention group women. Studies have reported that systolic and diastolic blood pressures, total cholesterol, and LDL levels decreased and HDL levels increased in the post-intervention group.after the intervention (Eriksson *et al*., 2006; Krantz *et al*., 2013). In another study, it has been determined that systolic-diastolic blood pressure decreases in the post-training group of women with cardiovascular risk factors (Howard *et al*., 2006). An increase in HDL level and a decrease in other risk factors in the intervention group show similarity with the literature and it is also a positive development in terms of decrease in cardiovascular risk. In our study, when the CARRF-KL posttest score averages of the intervention and control group women were examined, it was detected that the average score of the intervention group was higher than the average score of the control group. It was found that cardiovascular disease risk factor knowledge levels are significantly related to education level, existence of coronary diseases in family, blood pressure, and smoking status (Tan, Dayapoğlu, Akgün Şahin, Cürcani & Polat, 2013). Our findings show similarity with the results obtained from other studies and it is a positive development in terms of an increase knowledge level about cardiovascular risk factors.

In this study, when HLSBS posttest total mean scores of intervention and control group women were examined, it was determined that the average score of the intervention group was higher than the average score of the control group and there was a significant difference between these groups. In another study, it has been determined that there is a significant development in healthy lifestyle behaviors, nourishment, physical activity, and 10-year cardiovascular risk levels in intervention group women after the intervention (Hayashi *et*

al., 2006). Folta *et al*. (2009) conducted a study with overweight and obese women and Parra-Medina *et al*. (2009) conducted a study with African and American women. They educated these individuals about reducing cardiovascular risk factors. According to the results of the studies, it was found that post-training intervention groups had decreased body weight and daily calorie intake and increased physical activity. Dietary mediators seem to play a significant role in the pathogenesis in cardiovascular diseases (Psaltopoulou *et al*., 2017). In a study, counseling on healthy lifestyle behaviors was conducted for the intervention group and in the post-surveillance period, it was determined that there was an increase in physical activity, fruit and vegetable consumption, and daily fat intake in the intervention group (Hardcastle *et al*., 2008). On the other hand, it has been found in another study that physical activity and diet program given for one month does not affect the condition of cardiovascular risk (Price *et al*., 2011). While our findings are different from the results of study conducted by Price *et al*., they show similarities with data of other studies. When SESS posttest total mean scores of intervention and control group women were examined, it was found that the average score of the intervention group was higher than the average score of the control group and there was a significant difference between these groups. In literature, it has been emphasized that high level of self-efficacy/sufficiency increases by practicing and maintaining healthy lifestyle behaviors (Aksayan & Gözüm 1998; Hayashi *et al*., 2006; Ham & Kim, 2011).

In a study which has been conducted with the aim of evaluating the effect of weight loss program in individuals who carry more than one cardiovascular risks, it has been stated that there is a positive development of intervention group after intervention in knowledge, attitudes, and beliefs for losing weight (Gallagher *et al*., 2012). According to interventional studies conducted on protection from cardiovascular diseases in low-income women, decrease in total cholesterol and glucose levels, increase in physical activity and self-efficacy levels and a positive change in healthy lifestyle behaviors were found in the intervention group after the intervention (Hayashi *et al*., 2006; Ham & Kim, 2011). Similarly, in the study of Kaşıkçı (2011), it has been found that the self-efficacy/efficacy level of the patient increases after the planned training program and after one year follow-up.

In this study, it was determined that there was a negative relationship between cardiovascular risk factors of intervention and control group women and their CARRF-KL, HLSBS and SES levels, excluding HDL cholesterol levels. Although there was a negative relationship between SES levels and total cholesterol-LDL cholesterol values, it was determined that there was no statistically significant difference. In one study, it has been reported that the intervention group had a significant relationship between weight loss and knowledge, attitudes, and beliefs about weight control (Gallagher *et al*., 2012). In other studies, it has been determined that there is a decrease in total cholesterol and glucose levels, increase in physical activity, self-efficacy levels and healthy lifestyle behaviors in the intervention group after the intervention (Hayashi *et al*., 2006; Ham & Kim, 2011).

CONCLUSION

As a result of the study, the women in the intervention group showed a decrease in the mean values of total cholesterol, LDL, glucose, systolic and diastolic blood pressures and FRS after intervention. Their cardiovascular disease risk factor knowledge levels and lifestyle behaviors were found to be significantly higher than the control group.

Declaration of Conflicting Interest

The authors declare that there is no conflict of interest.

References

Aksayan, S. and Gözüm, S. (1998). Olumlu sağlık davranışlarının başlatılması ve sürdürülmesinde öz-etkililik (kendini etkileme) algısının önemi. *Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu Dergisi*, 2(1): 35-42.

Arıkan, İ., Metintaş, S., Kalyoncu, C. and Yıldız, Z. (2009). Kardiyovasküler hastalıklar risk faktörleri bilgi düzeyi ölçeğinin geçerlik-güvenirliği. *Türk Kardiyoloji Derneği Arşivi*, 37(1): 35-40.

Avrupa Klinik Uygulamada Kardiyovasküler Hastalıklardan Korunma Kılavuzu (Versiyon 2012) Çeviri: Ural D, Kare Yayıncılık, İstanbul.

Cardiovascular diseases. www.who.int /entity/ cardiovascular_diseases/en/. 25 April 2016.

Çengel, A. (2012). Kadınlarda kardiyovasküler risk faktörleri. *Türk Kardiyoloji Derneği Arşivi,*38: 17-24.

Dijulio, K. S. and Anderson, D. (2009). Sustainability of a multimodal intervention to promote lifestyle factors associated with the prevention of cardiovascular disease in midlife Australian women: A five year-follow up. *Health Care for Women International*, 30: 1111-1130.http://dx.doi.org/10.1080/07399330903104524

Emmelin, M., Nafziger, A. N., Stenlund, H., Veinehall, L. and Wall, S. (2006). Cardiovascular risk factor burden has a stronger association with self-rated poor health in adults in the US than in Sweden, especially for the lower educated. *Scandinavian Journal of Public Health*, 34(2): 140-149.Doi:10.1080/14034940510032365

Engbending, N. and Wenger, N. K. (2008). Cardiovascular disease prevention tailored for women. *Expert Review of Cardiovascular Therapy*, 6(8): 1123-1134.Doi:10.1586/ 14779072.6.8.1123

Eriksson, K. M., Westborg, C. J. and Eliasson, M. C. E. (2006). A randomized trial of lifestyle intervention in primary healthcare for the modification of cardiovascular risk factors: The Björknas Study. *Scandinavian Journal of Public Health*, 34(5): 453-461. Doi:10.1080/14034940500489826

Esin, M. N. (1999). Sağlıklı yaşam biçimi davranışları ölçeğinin Türkçeye uyarlanması. *Hemşirelik Bülteni,* 12(45): 87-96.

Folta, S. C., Lichtenstein, A. H., Seguin, R. A., Goldberg, J. P., Kuder, J. F. and Nelson, M. E. (2009). The strong women-healthy hearts program: reducing cardiovascular disease risk factors in rural sedentary, overweight and obese midlife and older women. *American Journal of*

Public Health, 99(7): 1271-1277. Doi:10.2105/AJPH.2008.145581

Gallagher, R., Kirkness, A., Armari, E. and Davidson, P. M. (2012). Weight management issues and strategies for people with high cardiovascular risk undertaking an Australian weight loss program: a focus group study. *Nursing and Health Science,* 14(1): 18-24. Doi:10.1111/j.1442-2018.2011.00651.x

Gözüm, S. and Aksayan, S. (1999). Öz-etkililik/yeterlilik ölçeğinin Türkçe formunun güvenilirlik ve geçerliliği. *Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi,* 2(1): 21-31.

Ham, K. O. and Kim, B. J. (2011). Evaluation of a cardiovascular health promotion programme offered to low-income women in Korea. *Journal of Clinical Nursing,* 20(9-10): 1245-1254.Doi:10.1111/j.1365-2702.2010.03580.x

Hardcastle, S., Taylor, A., Bailey, M. and Castle, R. (2008). A randomised controlled trial on the effectiveness of a primary health care based counselling intervention on physical activity, diet and CHD risk factors. *Patient Education and Counselling,* 70(1): 31-39.

Hayashi, T., Farrell, M. A., Chaput, L. A., Rocha, D. A. and Hernandez, M. (2006). Lifestyle intervention, behavioral changes and improvement in cardiovascular risk profiles in the California WISEWOMAN Project. *Journal of Women's Health,* 19(6): 1129-1138.Doi:10.1089/jwh.2009.1631

Howard, B. V., Van Horn, L., Hsia, J., Manson, J. E., Stefanick, M. L., Wassertheil-Smoller S, *et al.* (2006). Low-fat dietary pattern and risk of cardiovascular disease: the woman's health intervention randomized controlled dietary modification trial. *Journal of American Medical Association,* 295(6): 655-666.Doi:10.1001/jama.295.6.655

https://www.randomizer.org 20 February 2013

Humphries, K. H., Izahnegadhar, M., Sedlak, T., Saw, J., Johnston, N., Schenck-Gustaffson, K., *et al.* (2017). Sex differences in cardiovascular disease-Impact on care and outcomes. *Frontiers in Neuroendocrinology* (Article in Press) http://dx.doi.org/10.1016/j.yfrne.2017.04.001

Kaşıkçı, M. (2011). Using self-efficacy theory to educate a patient with chronic obstructive pulmonary disease-a case study of 1-year follow-up. *International Journal of Nursing Practise,* 17(1): 1-8.Doi:10.1111/j.1440-172X.2010.01898.x

Koldaş, L. (2008). Bir bütün olarak kardiyovasküler riskin ele alınmasının önemi. *İ.Ü Cerrahpaşa Tıp Fakültesi Sürekli Tıp Etkinlikleri Sempozyum Dizisi,*64:25-42.

Krantz, M. J., Coronel, S. M., Whitley, E. M., Dale, R., Yost, J. and Estacio, R. O. (2013). Effectiveness of a community health worker cardiovascular risk reduction program in public health and health care settings. *American Journal of Public Health,* 103(1):19-27. Doi:10.2105/AJPH.2012.301068

Kuznar, W. (2010). Cardiovascular risk burden for women on the rise, while men see improvement. *News Capsules-Cardiovascular Disease in Women,* 45: 62-64.

Park, M., Song, R. and Jeong, J. O. (2017). Effect of goal attainment theory based education program on cardiovascular risks, behavioral modification, and quality of life among patients with first episode of acute myocardial infarction: Randomised study. *International Journal of Nursing Studies,* 71: 8-16.

Parra-Medina, D., Wilcox, S., Salinas, J., Addy, C., Fore, E., Poston, M. and Wilson, D. K. (2011). Results of the heart healhty and ethnically relevant lifestyle trial: a cardiovascular risk reduction intervention for African-American women attending community health centers. *American Journal of Public Health,* 101(10): 1914-1921.Doi:10.2105/AJPH.2011.300151

Price, H. C., Griffin, S. J. and Holman, R. R. (2011). Impact of personalized cardiovascular disease risk estimates on physical activity-a randomized controlled trial. *Diabetic Medicine,* 28(3):363-372. Doi:10.1111/j.1464-5491.2010.03212.x

Psaltopoulou, T., Hatsiz, G., Papagiorgiou, N., Androulakis, E., Briasoulis, A. and Tousoulis D. (2017). Socioeconomic status and risk factors for cardiovascular disease: Impact on dietary mediators. *Hellenic Journal of Cardiology* (Article in Press), http://dx.doi.org/10.1016/j.hjc.2017.01.022

Pucci, G., Alcidi, R., Tap, L., Battista, F., Mattace-Raso, F. and Schillaci, G. (2017). Sex and gender related prevalence, cardiovascular risk and therapeutic approach in metabolic syndrome: A review of the literature. *Pharmalogical Research,* 120: 34-42.

Stringhini, S., Sabia, S., Shipley, M., Brunner, E., Nabi, H., Kivimaki, M. and Singh-Manoux, A. (2010). Association of socioeconomic position with health behaviours and mortality. *Journal of American Medical Association,* 303(12): 1159-1166.Doi:10.1001/jama.2010.297

Tan, M., Dayapoğlu, N., Akgün Şahin, Z., Cürcani, M. and Polat, H. (2013). Kırsal kesimde yaşayan kadınlarda kardiyovasküler hastalıklar risk faktörleri bilgi düzeyinin belirlenmesi. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi,* 2(3): 331-341.

Wilson, P. W., D'Agostino, R. B., Levy, D., Belanger, A. M., Silbershatz, H. and Kannel, W. B. (1998). Prediction of coronary heart disease using risk factor categories. *Circulation,* 97(18): 1837-1847.

How to cite this article:

Derya ADIBELLI and Dilek KILIÇ *et al.*2017, The Effect of Health Promotion Education Given To Women on Reduction of Cardiovascular Risk Factors. *Int J Recent Sci Res.* 8(8), pp. 19514-19520.
DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0709

****