Clinical and Experimental Health Sciences

Health Promotion Model-Based Health Education Program in Acute Coronary Syndrome Patient: An Experimental Study

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ABSTRACT

Objective: This study was conducted to examine the effect of a Health Promotion Model-based health education program on increasing the health-promoting behaviors of acute coronary syndrome patients.

Methods: This is an experimental study that used a pretest-posttest design with a control group. The sample consisted of 101 patients hospitalized with the diagnosis of acute coronary syndrome in Turkey. The data were collected by using a Patient Monitoring Form and the Health Promoting Lifestyle Profile-II. While the patients in the control group received routine procedures, the patients in the experimental group were included in the health education program.

Results: The health promoting-behaviors of the control group were found to be higher than those of the experimental group in the first follow-up ($p<0.001$). In the last follow-up, on the other hand, it was found that the experimental group's health-promoting behaviors and smoking cessation rate were higher than the control group. Additionally, the experimental group's LDL levels, rehospitalization rates and percutaneous coronary intervention rates were found to be lower than the control group ($p <0.05$).

Conclusion: The Health Promotion Model-based health education program was found to be an effective method in increasing health-promoting behaviors and smoking cessation rates, and controlling LDL levels in acute coronary syndrome patients. It had a positive effect on reducing the rate of rehospitalization and percutaneous coronary intervention.

Keywords: Acute coronary syndrome, health-promoting behaviors, patient education, secondary protection.

1. INTRODUCTION

Cardiovascular diseases (CVD) are the leading causes of mortality/morbidity in developed and developing countries (1,2). It has been reported that recurrent coronary events increase mortality in individuals surviving ACS and put a great burden on the country's economy (3). In the guidelines of the European Society of Cardiology on ACS treatment, secondary protection for individuals with ACS is strongly recommended. The guidelines recommend increasing health-promotion behaviors (HPB) (1,2). HPB include health-related behaviors such as health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, stress management and smoking cessation (4,5). The most important factors that affect HPB are known to include lack of knowledge (6,7). In previous studies conducted on this topic, it has been found that individuals with ACS have low knowledge levels and attention about HPB and smoking cessation (8). As to be understood from these results, it occurs to us as an important necessity to conduct educational interventions to increase HPB in patients with ACS. However, as a result of the literature review, it was seen that there are a limited number of intervention studies on these topics (9-11).

Education is an important and effective method used in meeting the information needs of patients and developing behavioral change (12,13). Brown et al. (14) reported that educational interventions are beneficial for patients, but more research is needed to determine the most effective and appropriate format, duration, timing and methods of education. Anderson et al. (15) recommended comparing the effectiveness of different methods and approaches to present educational content. Undoubtedly, providing education to protect and promote the health of the individual, family and society and to prevent illness is one of the primary roles of nursing. However, patient education is not just a technical application and a simple presentation. It is also a set of goals and values. It has own philosophy and the goal is to change behavior. In order to develop behavior change, a systematic and planned application is required. Because different factors

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cause different behaviors and attitudes to emerge. In order to know these factors and to plan initiatives in this direction, health protection and improvement behaviors of individuals are explained with models (5,16). Models/theories, which are an important component of the scientific knowledge content of nursing, are used as guides in patient education as well as in every stage of nursing (17). Nola Pender's Health Promotion Model is one of the widely used models to explain health protection and promotion behaviors. The model is not aimed at preventing any disease or disability, but it aims to improve health, or in other words, to increase the general health and well-being of the individual (Figure 1) (5). It has been reported that trainings prepared on the basis of Health Promotion Model in various chronic diseases are effective in improving health behaviors. Ersin and Bahar (18), in their study where they examined the effect of patient education based on Health Promotion Model on early detection behaviors of breast and cervical cancer, reported that patients developed positive behavioral changes after the education. Çövener (16), in his study to standardize diabetes education, created a Type I diabetes management model based on the Health Promotion Model.

This study aimed to examine the effects of a Health Promotion Model-based health education program on increasing the health-promoting behaviors of acute coronary syndrome patients.

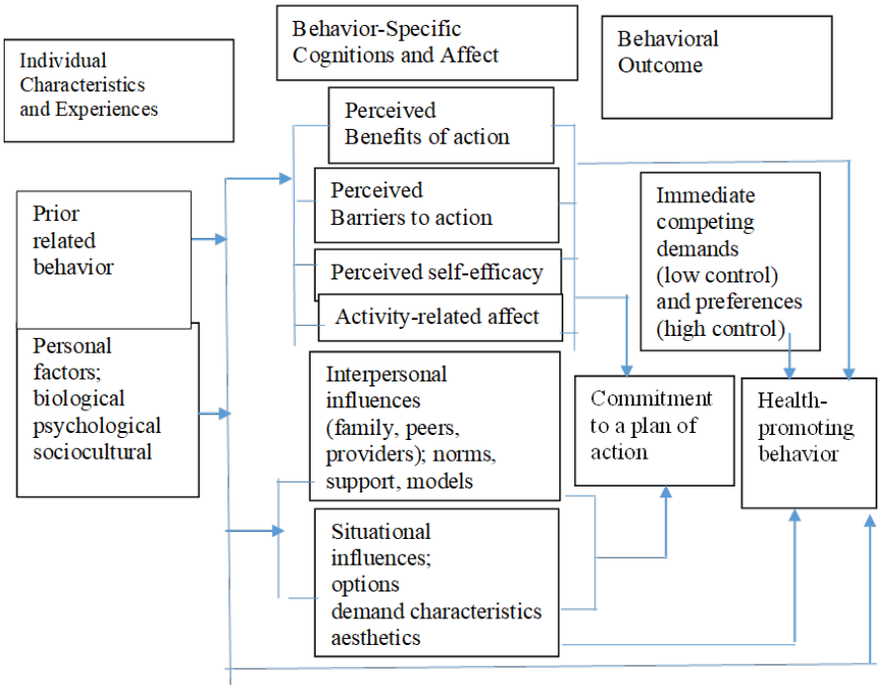

Figure 1. *Basic of Nola J. Pender's Health Promotion Model*

2. METHODS

2.1. Ethical considerations

Ethics committee approval and institutional permission were obtained respectively from Ethics Committee (09.2018.362) and the institution where the study was carried out. The participants were informed by the researcher about the purpose of the research, and their written consent was obtained. In the implementation of the study, the researchers adhered to the World Medical Association (WMA) – Ethical Principles for Medical Research Involving Human Subjects. Due to the nature of the study, it was impossible for the participants to be blind. Blind analysis was used in this study.

2.2. Design

This experimental study used a pretest-posttest design with a control group. The patients in the control group (CG) received routine hospital procedures, whereas the patients in the experimental group (EG) was included in a health education program based on the Health Promotion Model.

2.3. Population and Sample

The population of the research consisted of patients who were hospitalized in the cardiology department of a university hospital for treatment purposes between 07 August 2018 and 30 May 2019. Patients who did not have a history of CVD or a disease that would impede walking or lead to audio, visual or comprehension problems, had one of the diagnostic criteria of ACS, were aged between 18 and 79 years and

could speak and understand Turkish well were included in the study. According to the study by Eshah (11), considering the effect size of 0.5, in a 90% confidence interval and with a 90% test power, the sample size was estimated to be 32 individuals in each group. However, considering that there would be losses, the sample size was kept larger, including 60 in each group, were enrolled in the study. The data of CG and EG were collected at separate times to prevent patients from communicating with each other about the education program. In order to standardize environmental factors. Which group would gather first was determined by drawing lots. According to the result of the draw, the data of the control group were collected first.

The targeted number of patients was reached between 07 August – 15 October 2018 in the CG and between 18 March – 30 May 2019 in the EG. As a result of data losses, the data of 101 patients in total, 52 in EG and 49 in CG, were included in the analysis (Figure 2).

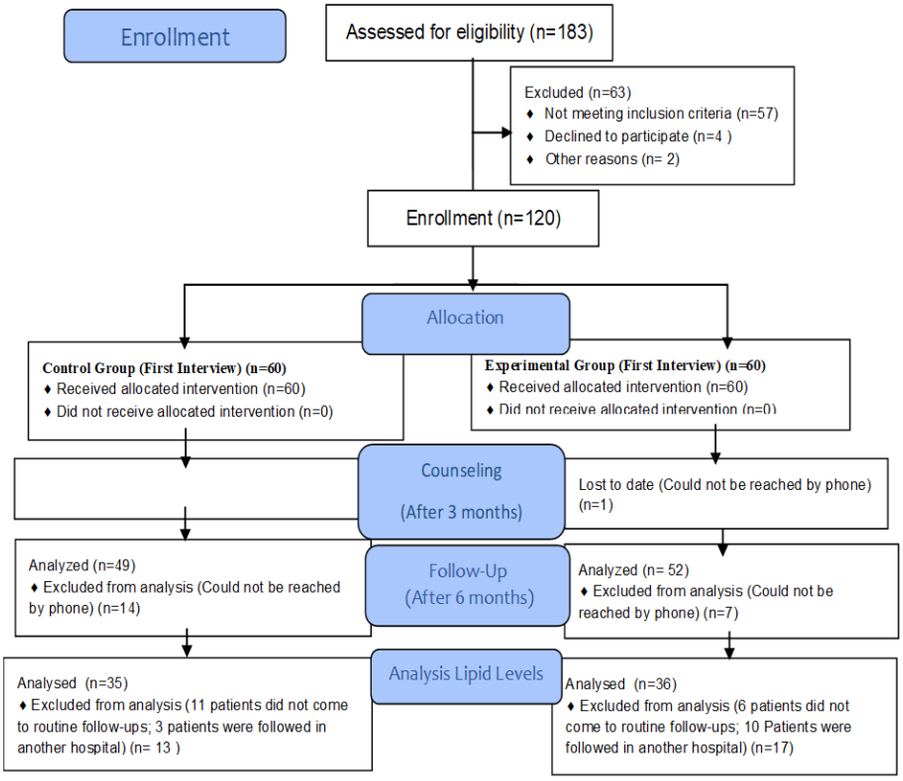

Figure 2. *Study Sampling*

2.4. Data Collection

2.4.1. Patient Follow-Up Form

This form was prepared by the researcher in line with the literature review (1,2,5), information and observations of the researcher. The form consisted of 27 questions regarding socio-demographic characteristics, habits (smoking, alcohol), previous medical history, and current health status (blood pressure, blood pressure, blood sugar level, blood lipid levels, etc.).

The data in the patient follow-up form were filled in by interviewing the patients face to face, examining their files, and obtaining blood results from the hospital system.

2.4.2. Health-Promoting Lifestyle Profile-II (HPLP-II)

This scale was created by Walker and et al. (19) on the basis of the Health Promotion Model and measures HPB which is related to a healthy lifestyle. The HPLP-II tool consists of 52 HPB items that are categorized into six subscales: health responsibility, nutrition, spiritual growth, interpersonal relationships, physical activity and stress management. It is a 4-point Likert-type scale that is used to measure each behavior, and the total score of HPLP-II ranges from 52 to 208. While a minimum of 9 and a maximum of 36 points are obtained from the sub-dimensions of health responsibility, nutrition, spiritual growth, and interpersonal relations, a minimum of 8 and a maximum of 32 points are obtained from the sub-dimensions of physical activity and stress management. A high score on the scale indicates a high level of healthy promation behaviors. In the Turkish reliability

and validity study of the scale, its Cronbach's alpha value was reported as 0.92 (20). In this study, it is found that the Cronbach's alpha coefficient of the scale as 0.91.

2.5. Implementation

In the first interviews of both groups, the data of the first follow-up were collected using the Patient Follow-Up Form and HPLP-II in the cardiology clinic. If the patient from whom the first follow-up data were collected was in EG, they were given the Education Program and the Education Manual. In CG, on the other hand, no intervention was made during the research period other than the routine hospital protocols (discharge and medication use training).

The patients in EG were called for counseling interviews three months after the first interview. In these interviews, it was aimed to direct the patient to health-promoting behaviors and provide reminding information.

The patients in both groups were called six months after the first interview and the last follow-up data were collected.

2.6. Implementing the Health Education Program

The health education program was developed on the basis of the Health Promotion Model to promote health and the guidelines of the European Society of Cardiology on ACS treatment, secondary protection for individuals with ACS (1,2,5). A training manual was prepared to increase the memorability of the information given in education. The Education Program and the Education Manual, which were prepared in draft form supported with various images, tables and figures, were submitted to three nurses, who are professors in nursing, and one professor of medicine in the cardiology branch. After making necessary arrangements in line with the feedback that was received from these experts, the Education Program and the Education Manual were finalized.

The patient, who was included in EG, and whose general health status was stable, was invited to the meeting room for the education (in the presence of a relative for each patient). The Education Program that was prepared as a PowerPoint file was presented to the patient. The education sessions were held with a minimum of 2 (one patient and one relative) and a maximum of 10 (5 patients and 5 relatives) persons. The Education Program was completed in two sessions, each session lasting 30 minutes. A 30-minute break was given between the sessions. To ensure the consistency of the education program, all sessions were held by the same researcher. A checklist was also utilized to ensure that all components of the program were provided for every patient. The checklist consisted of 9 items: meeting, sharing the purpose and content of the education, discussing the blood lipid level, blood sugar values, blood pressure level of the patients, education presentation, teaching pulse counting, calculating the body mass index, and receiving feedback. The subject content of the Education Program was given below.

Subject Content of Education

Content	Subtitles
What is Cardiovascular Disease (Coronary Artery Disease)?	
What is a Heart Attack (Myocardial Infarction)?	
What is Coronary Angiography?	
What is the Structure of Blood Vessels?	
How Are Plaques Formed?	- The Effect of Blood Lipid Levels - Damaged Blood Vessel Wall
What Are the Risk Factors Causing Cardiovascular Disease?	- Uncontrollable Risk Factors - Controllable Risk Factors
How Do We Control Risk Factors?	- Nutrition - Physical Activity - Maintaining a Healthy Body Weight - Quitting alcohol and cigarettes - Medication use - Stress management - Health responsibility

The Health Education Program was carried out in line with the components of the Health Promotion Model as follows.

2.6.1. Individual Characteristics and Experiences

While filling the data collection tools, the patients' personal characteristics, attitudes towards health-promoting behaviors and their familial and environmental status regarding the disease were questioned. In line with the information that was obtained, the patients' information needs were identified, and the Education Program was provided, and these points were emphasized.

2.6.2. Behavior-Specific Cognitions and Affect

Perceived Benefits of Action: The positive outcomes that will occur from health-promoting behaviors and the influences of these outcomes on the quality of life were explained, and it was aimed to enhance beliefs in the benefits of behaviors.

Perceived Barriers to Action: It was aimed to increase beliefs in the negative effects of unhealthy behaviors on the human body by describing the pathophysiology of atherosclerosis and risk factors causing atherosclerosis. Possible obstacles to the performance and adoption of behaviors and how these obstacles could be overcome were discussed. The points to be considered while displaying behaviors (e.g., exercise, nutrition) were emphasized.

Perceived Self-Efficacy: The patients were supported in making the decision to start health-promoting behaviors, and their target dates were determined. The functional ability to enhance self-efficacy was taught. The talk test was recommended for a safe exercise. The Body Mass Index (BMI) was calculated over the index table, and radial pulse and blood pressure were measured.

Activity-Related Affect: Subjective positive or negative feelings that occur before, during and following behaviors were discussed. Factors leading to negative feelings were debated.

Interpersonal Influences: The family member responsible for the individual's care was encouraged to participate in the Education Program. The expectations of family members from the individual and the expectations of the individual from family members were questioned.

Situational Influences: The patients were reminded to make these behaviors permanent by benefitting from the fact that hospitals support health-promoting behaviors (e.g., no smoking, cardiac diets at meals, regular administration of medicines).

2.6.3. Behavioral Outcomes

In the last 10 minutes of the education process, the patients were allowed to ask what they wondered about, and a discussion was held. The patient's priorities were discussed. For each patient, their goals and the dates by which they thought of reaching these goals were determined together with the patient and given to the patient in writing. The achievement of the goals determined in the counseling interviews was questioned. While the positive responses were supported by using behavior-promoting words, feedback was given to change risky behaviors. Behavioral outcome was measured six months after the Education Program using HPLP-II.

2.7. Data Analysis

Descriptive statistical methods (percentage, mean, standard deviation) were used while analyzing the data obtained in the study. Pearson's Chi-squared test was used for the relationships between the categorical variables between two groups. While making comparisons between the groups, Independent-Samples t-Test was used for the parametric data, and Mann-Whitney U-test was used for the non-parametric data. Wilcoxon signed-rank test was used since the data did not show a normal distribution in the intragroup comparisons.

Table 1. *Comparison of groups in terms of demographic characteristics*

		EG (52) n (%)	CG (49) n (%)	Test statistics	p
Sex	**Female**	7(13.5%)	6(12.2%)	0.033*	1.000
	Male	45(86.5%)	43(87.8%)		
Age (Mean ±SD)		56.92±10.49	52.59±8.04	-2.316**	0.023
BMI (Median) (IQR)		27.71(25.73-32.37)	27.10(25.04-30.64)	1104***	0.248
Education level	**Illiterate**	8(15.4%)	5(10.2%)	9.152*	0.057
	Primary	28(53.8%)	27(55.1%)		
	Secondary	6(11.5%)	0(0.0%)		
	High School	7(13.5%)	9(18.4%)		
	Graduate	3(5.8%)	8(16.3%)		
Marital status	**Married**	47(90.4%)	42(85.7%)	0.526*	0.547
	Single	5(9.6%)	7(14.3%)		
Employment status	**Employed**	26(50.0%)	31(63.3%)	1.806*	0.229
	Unemployed	26(50.0%)	18(36.7%)		
Monthly household income (TL)	**<2000**	18(34.6%)	15(30.6%)	0.279*	0.087
	2000-5000	28(53.8%)	27(55.1%)		
	>5000	6(11.5%)	7(14.3%)		
Systemic disease	**None**	17(32.7%)	20(40.8%)	1.511*	0.680
	HT	13(25.0%)	12(24.5%)		
	DM	10(19.2%)	10(20.4%)		
	HT+DM	12(23.1%)	7(14.3%)		
Smoking status	**Yes**	24(46.2%)	32(65.3%)	3.746*	0.072
	No	28(53.8%)	17(34.7%)		
Clinical type of ACS	**NSTEMI**	21(40.4%)	21(42.9%)	3.557*	0.169
	STEMI	31(59.6%)	25(51.0%)		
	UA	0(0.0%)	3(6.1%)		
Intervention	**Stent**	25(48.1%)	27(55.1%)	2.014*	0.365
	Stent+ Balloon angioplasty	21(40.4%)	20(40.6%)		
	Balloon angioplasty	6(11.5%)	2(4.1%)		
Medical therapy	**S+A+B**	25(48.1%)	28(57.1%)	1.342	0.511
	S+A + P	18(34.6%)	16(32.7%)		
	S+A + E	9(17.3%)	5(10.2%)		
Atorvastatin mg (Median) (IQR)		40(20-80)	40(20-80)	1124.5	0.721

**Pearson's Chi-squared **Independent-Samples t-Test ***Mann Whitney U*
A: Acetylsalicylic acid B: Brilinta E: Effient P: Plavix S: Statin-class lipid-lowering

3. RESULTS

When the groups were compared in terms of their demographic characteristics that could affect the results of the research, the mean age of EG was found to be higher than CG ($p<0.05$), but there was no significant difference between the groups in terms of the other characteristics ($p>0.05$) (Table 1).

In the comparison of the groups' overall HPLP-II scores, it was found that the scores of CG were significantly higher than those of EG in the first follow-up ($p<0.001$), and the scores of EG were significantly higher than those of CG in the last follow-up ($p<0.001$). In the intragroup comparisons, it was observed that the last follow-up scores of EG increased significantly in comparison to the group's first follow-up scores ($p<0.001$), while no significant difference was found between the two follow-up scores of CG ($p>0.05$) (Table 2).

When the groups were compared in terms of their HPLP-II subscale scores, all subscale scores of CG were found to be higher than those of EG in the first follow-up. It was seen that all subscale scores of EG increased in the last follow-up in comparison to the first follow-up and became higher than those in CG ($p<0.05$). In terms of CG, it was found that, from the first follow-up to the last follow-up, the nutrition subscale scores significantly increased, while the interpersonal relationships subscale scores significantly decreased ($p<0.05$) (Table 2).

When the groups were compared in terms of their first and last follow-up blood lipid levels the last follow-up LDL values, a 55-unit decrease and a 24-unit decrease was found in EG and CG, respectively. When the difference of the LDL reduction values between the two groups was analyzed, the LDL reduction value of EG was found to be significantly higher than that of CG ($p<0.01$) (Table 3).

According to the comparison between the groups, the smoking rate of EG was found to be significantly lower than that of CG in the last follow-up ($p<0.05$) (Table 4).

In the comparison of the groups in terms of their rehospitalization and PCI application status, the rehospitalization and unplanned PCI application rates after ACS were found to be significantly lower in EG than CG ($p<0.01$) ($p<0.05$) (Table 4).

Table 2. *Comparison of groups in terms of scores obtained from HPLP-II*

		EG (n=52) Median(IQR)	CG (n=49) Median(IQR)	Score range of the scale	U	p
HPLP-II Overall	**First follow-up**	108(99-123)	125(111-138)	52-208	658.5	0.001
	Last follow-up	152(139-163)	126(117-136)		278.5	0.001
	Z	-5.906	-0.116			
	p	0.001	0.907			
HPLP-II Subscales						
Health Responsibility	**First follow-up**	17(13-20)	21(19-24)	9-36	611.0	0.001
	Last follow-up	24(22-27)	22(20-24)		780.0	0.001
	Z	-6.173	-1.471			
	p	<0.001	0.141			
Physical Activity	**First follow-up**	10(9-12)	11(9-16)	8-32	986.0	0.048
	Last follow-up	22(17-25)	11(10-15)		286.0	0.001
	Z	-6.173	-0.850			
	p	0.001	0.395			
Nutrition	**First follow-up**	19(17-22)	21(18-24)	9-36	944.5	0.025
	Last follow-up	30(28-33)	23(20-27)		207.5	0.001
	Z	-6.151	-2.158			
	p	0.001	0.031			
Spiritual Growth	**First follow-up**	23(21-25)	27(25-30)	9-36	647.5	0.001
	Last follow-up	27(25-29)	26(24-27)		858.5	0.010
	Z	-5.069	-1.502			
	p	0.001	0.133			
Interpersonal Relationships	**First follow-up**	22(19-25)	26(22-30)	9-36	731.5	0.001
	Last follow-up	26(24-29)	24(21-26)		858.5	0.010
	Z	-4.942	-1.973			
	p	0.001	0.048			
Stress Management	**First follow-up**	17(15-21)	19(16-21)	8-32	1064	0.152
	Last follow-up	23(21-25)	19(19-22)		560.0	0.001
	Z	-5.858	-2.102			
	p	0.001	0.056			

IQR=interquartile range *U= Mann-Whitney U test* *Z= Wilcoxon signed-rank test*

Table 3. *Comparison of groups in terms of blood lipid levels*

		EG (35) Median(IQR)	CG (36) Median(IQR)	U	P
HDL (mg/dl)	**First follow-up**	35.0(34-43)	40.0 (34-45)	411.0	0.241
	Last follow-up	40.0(34-42)	39.0(35-44)	459.0	0.610
	Z	-1.047	-0.472		
	p	0.295	0.637		
LDL (mg/dl)	**First follow-up**	125.0(115-163)	109.5(93-138)	309.0	0.010
	Last follow-up	70.0(58-108)	85.0(66-118)	399.5	0.003
	Z	-4.223	-2.940		
	p	0.001	0.003		
Triglyceride (mg/dl)	**First follow-up**	187.0(143-221)	135.0(100-211)	359.5	0.061
	Last follow-up	126.0(88-181)	119.5(73-175)	464.5	0.665
	Z	-3.116	-1.627		
	p	0.002	0.104		
T-Cholesterol (mg/dl)	**First follow-up**	191.0(180-231)	183.0(156-215)	395.5	0.167
	Last follow-up	135.0(117-171)	137.5(124-191)	437.0	0.417
	Z	-4.115	-2.843		
	p	0.001	0.004		

IQR=interquartile range U= Mann-Whitney U test Z= Wilcoxon signed-rank test

Table 4. *Comparison of groups in terms of smoking status and rehospitalization and percutaneous coronary intervention*

			EG (52) n(%)	CG (49) n(%)	X^2	p
Smoking Status	**First Follow-up**	**Yes**	24(46.2%)	32(65.3%)	3.746	0.072
		No	28(53.8%)	17(34.7%)		
	Last Follow-up	**Yes**	13(25.0%)	22(44.9%)	4.411	0.040
		No	39(75.0%)	27(55.1%)		
Unplanned Rehospitalization after ACS		**Yes**	1(1.9)	9(18.4%)	7.647	0.007
		No	51 (98.1%)	40(81.6%)		
Unplanned PCI after ACS		**Yes**	1(1.9%)	7(14.3%)	5.287	0.028
		No	51(98.1%)	42(85.7%)		

X^2 =Pearson Chi-Squared

4. DISCUSSION

4.1. Discussion of the Results on the Health-Promoting Lifestyle Profile-II

While HPB are of vital importance for patients with ACS, in this study, it is found that in the first follow-up that the HPLP-II total scores and responsibility, physical activity, nutrition and stress management subscale scores of both groups were close to the lowest score. Besides, the scores of EG were lower than those of CG. As to be understood from these results, unfortunately, HPB were not on the desired level in the individuals with ACS. The fact that the HPB levels of EG were lower than CG was thought to be associated with age. As highlighted in the Health Promotion Model, with aging, cognitive processes, some dimensions of memory and all functions of the body begin to regress (21). Starting from this point, the necessity of planning interventions to control risk factors after a potentially mortal disease such as ACS, especially in elderly individuals, and to increase HPB has to be emphasized.

In the last follow-up carried out to measure the effectiveness of the Health Education Program towards promoting health, it was observed that EG's HPLP-II scores increased and became higher than those of CG, and these scores of EG were very close to the highest score that could be obtained in the scale. In the analysis of the groups in terms of the HPLP-II subscales, it was seen that all subscale scores of EG increased in the last follow-up, and these last follow-up scores were very close to the highest possible score. These data were evaluated as important findings showing the effectiveness of the education program implemented for increasing health-promoting behaviors, although the mean age of EG was high. Previous studies have reported that there is a positive relationship between the level of knowledge and health responsibility, healthy nutrition (22), physical activity and believing in the benefit of activity, knowing about safe exercise methods, low perception of illness (2), future expectations and spiritual development (23). These findings supported the results of EG in this study. Only nutritional behaviors increased in CG in this study. Nutrition is an issue that healthcare professionals and the media highlight. As a result, patients may easily access information on this topic. It

was thought that there was an increase in healthy nutrition in CG as a result of meeting the information needs of the patients, even if this increase was insufficient. Based on this, the effect of accessing information on behavioral change became clearer. Another important finding obtained from the data of CG was that interpersonal relationships were negatively affected after ACS. When social support systems are inadequate for individuals who encounter a potentially mortal disease, patients may experience anger towards their relatives (5,23). It was thought that this situation negatively affected the interpersonal relationships of the patients included in this study.

4.2. Discussion of the Results on Blood Lipid Levels

The most significant parameter of dyslipidemia treatment is LDL. The level of LDL is desired to be below 70 mg/dL in high-risk patients (2). In this study, the LDL values of both groups were above the target value in the first follow-up. However, in the last follow-up, the decrease in the LDL value of EG was higher than the decrease in the value of CG, where the LDL value of EG reached the target value. Based on these results, it was concluded that the Health Education Program lowered LDL levels by increasing HPB. These results were important in terms of pioneering interventions to be performed in addition to medical treatment.

4.3. Discussion of the Results on Smoking Status, Rehospitalization and Percutaneous Coronary Intervention

Comparing the groups in terms of smoking status, based on the first follow-up data, the smoking rates of both groups were high. Raising the awareness of patients on this issue and guiding them to quit smoking is important in the treatment process.

Based on the last follow-up data, the smoking rate of EG decreased and became lower than that of CG. Smoking cessation contributes positively to the health status by increasing both the self-confidence and physical activity capacity of the individual (1). In their meta-analysis, Suissa et al. (24) reported that individual and telephone-based counseling programs are efficacious for smoking cessation in CVD patients, and their results showed similarity to those in this study. It was concluded that the Health Education Program was an effective method in reducing rates.

Rehospitalization after ACS and application of percutaneous coronary intervention (PCI) are indicators of poor prognosis. The rates of rehospitalization of ACS patients in the first year were reported as 12.2% (readmission or PCI) (25). In this study, the rate of rehospitalization and application of unplanned PCI in EG was found to be significantly lower than that in CG. Yudi et al. (25) reported that the female sex, diagnosis of diabetes, history of coronary bypass surgery or PCI, low ejection fraction, cardiac failure and obstructive sleep apnea are independent predictors of readmissions. In addition to independent predictors, HPB was reported to have significant effects on recurrent coronary events (7,26). In this study, while the LDL levels of the patients in EG were lower than those of the patients in CG, the HPB and cigarette cessation rates of the former were higher than the latter. Besides, patients with a history of CVD were excluded from the study. None of the patients had obstructive sleep apnea, and the majority of the patients were male. As a result, the sample did not include many factors that could have been identified as primary predictors. In this sense, the groups were similar, and based on the low rate of rehospitalization in EG, it was concluded that the Health Education Program on promoting health had a positive effect on reducing the rates of rehospitalization and PCI.

4.4. Limitations

The findings of this study are limited to the data obtained from the data collection tools “Patient Follow-Up Form”, “BMCS”, “GSES” and “HPLP-II”.

5. CONCLUSION

The Health Education Program, which was modelled on the basis of the Health Promotion Model, was found to be an effective method for ACS patients in terms of increasing their health-promoting behaviors and smoking cessation rates, and controlling their LDL levels. Moreover, it was concluded that the program had a positive effect on reducing the rehospitalization and PCI rates.

Based on these results, we recommend applying training and education programs aimed at increasing health-promoting behaviors for patients after ACS routinely, using behavioral models in planning training and education programs, evaluating the effectiveness of such training or education through counseling interviews, questioning health-promoting behaviors in interviews and motivating patients on this issue.

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