

ORIGINAL ARTICLE

## Assessment of healthy lifestyle behaviors after coronary artery bypass surgery

### Koroner arter baypas ameliyatı sonrası sağlıklı yaşam biçimi davranışlarının değerlendirilmesi

Semiha Alkan, Esengül Topal, Muhammet Onur Hanedan, İlker Mataracı

Department of Cardiovascular Surgery, Health Sciences University Ahi Evren Thorax and Cardiovascular Surgery Training and Research Hospital, Trabzon, Turkey

#### ABSTRACT

**Objective:** After coronary artery bypass graft (CABG) surgery, there is a disease management process that patients should follow, and healthy behaviors play a key role in this process. The aim of this study was to evaluate the health-promoting behaviors of patients after CABG surgery and to determine the influential factors.

**Methods:** This was a cross-sectional study of 152 patients who were admitted to the polyclinic between March and June 2016 and underwent a CABG procedure. The data were collected using a patient information form and the Health-Promoting Lifestyle Profile (HPLP). Number, percentage, SD, mean, independent t and analysis of variance tests were used to evaluate and describe the data.

**Results:** The mean age of the patients in the study was  $58 \pm 13.71$  years. Of the total, 6% of the patients were male, 55.4% stated that they had the CABG surgery between 1 and 4 months prior, and 88.4% went to check-ups regularly after discharge. The mean HPLP score of the enrolled patients was  $110.28 \pm 17.32$ . The patients who were under 55 years of age, married, had a comfortable income, no comorbid disease, those who underwent the CABG surgery between 1 and 4 months earlier, went to follow-up regularly after discharge, and those who were educated about their disease had a higher HPLP score ( $p < 0.05$ ).

**Conclusion:** This study found that patients who underwent CABG surgery had a moderate HPLP score and that training on health-promoting behaviors at discharge had a positive effect on their implementation.

#### ÖZET

**Amaç:** Koroner arter baypas greft (KABG) ameliyatı sonrası, hastaların takip etmeleri gereken bir hastalık süreci vardır ve sağlıklı davranışlar bu süreçte anahtar rol oynamaktadır. Bu çalışmada, KABG sonrası taburcu olan hastaların sağlıklı geliştirme davranışlarını değerlendirerek etkili faktörlerin belirlenmesi amaçlandı.

**Yöntemler:** Araştırma Mart-Haziran 2016 tarihleri arasında poliklinik kontrolüne gelen 152 hasta ile kesitsel olarak yapıldı. Veriler hasta bilgi formu ve Sağlıklı Yaşam Biçimi Davranışları Ölçeği II (SYBDÖ) ile toplandı. Verilerin değerlendirilmesine sayı, yüzdelik, standart sapma, ortalama, bağımsız t ve anova testi kullanıldı.

**Bulgular:** Araştırma kapsamına alınan hastaların yaş ortalaması  $58 \pm 13$  idi. Hastaların %71.6'sı erkekti. %55.4'ü 1-4 ay önce KABG ameliyatı olduğunu, %88.4'ü taburcu olduktan sonra düzenli olarak kontrollere geldiğini ifade etmiştir. Koroner arter baypas greft olan hastaların SYBD puan ortalaması  $110.28 \pm 17.32$  olarak bulundu. Elli beş yaş altında ve kadın hastaların, evli olanların, geliri giderinden yüksek olanların, ek hastalığı olmayanların, 1-4 ay öncesinde KABG ameliyatı geçirenlerin, taburcu olduktan sonra düzenli kontrole gelenlerin ve taburcu olurken hastalıkla ilgili yeterli düzeyde eğitim alanların SYBD toplam puanı diğer gruplara kıyasla anlamlı derecede yüksek bulundu ( $p < 0.05$ ).

**Sonuç:** Bu çalışmada, KABG ameliyatı geçiren hastaların SYBD puan ortalamaları orta düzeyde olduğu ve taburcu olma sırasında verilen eğitimlerin sağlıklı geliştirici davranışlar üzerinde olumlu etkilerinin olduğu bulundu.

Received: April 04, 2017 Accepted: September 21, 2017

Correspondence: Uzm. Hem. Semiha Alkan. Sağlık Bilimleri Üniversitesi Ahi Evren Göğüs Kalp ve Damar Cerrahisi Eğitim ve Araştırma Hastanesi, Kalp ve Damar Cerrahisi Kliniği, Trabzon, Turkey.

Tel: +90 462 - 231 04 64 / 1186 e-mail: semi.alkan@hotmail.com

© 2018 Turkish Society of Cardiology



Coronary artery disease (CAD) is an important cause of mortality and morbidity due to chronic disease in the world and in this country.<sup>[1]</sup> With advances in medicine and technology, coronary artery bypass graft surgery (CABG) has come to the forefront in the treatment of CAD.<sup>[2,3]</sup> After CABG surgery, patients stay in the intensive care unit for the first 24 hours. Patients are usually discharged within 5 to 7 days after surgery, and re-evaluated at a follow-up visit within 10 to 12 days.<sup>[2,4]</sup> After CABG surgery, patients may experience physical and psychological problems such as pain, sleep problems, leaks in the surgical area, limitation of movement, constipation, fatigue, cognitive problems, and difficult psychosocial adjustment.<sup>[5,6]</sup>

Health-promotion is not just to prevent disease. Behaviors that protect and promote good health include developing a consciousness of healthy living, improving lifestyle by avoiding risky behaviors, and feeling the responsibility to safeguard one's health for a long, high-quality life.<sup>[3,7]</sup> All healthy lifestyle behaviors, including spiritual development, health responsibility, exercise, nutrition, interpersonal relations, and stress management, have an impact on a person's health and should be monitored. It is very important to choose behaviors that are appropriate according to health status when organizing daily activities, in order to prevent disease and maintain health.<sup>[8]</sup> Proper care can be provided at home with effective hospital discharge planning that includes meeting individual care needs, maintaining adequate and balanced nutrition, and fulfilling daily living activities.<sup>[6]</sup>

The aim of this study was to determine the demographic and clinical characteristics affecting the healthcare behaviors of patients discharged after CABG surgery and to provide guidance on patient follow-up.

## METHODS

### Design and sample

The study was conducted cross-sectionally between March and June of 2016 with 152 patients who came to the outpatient clinic and underwent CABG. All patients who came to the outpatient clinic between March and June of 2016 were interviewed. Patients who did not agree to participate in the study or who did not meet the research criteria were not included. Writ-

ten consent was obtained from the Ahi Evren Thorax Cardiovascular Surgery Educa-

tion and Research Hospital administration. All of the participants were informed in detail of the purpose of the study and verbal consent was obtained from those who agreed to enroll. They were guaranteed anonymity and confidentiality. Participation in the study was voluntary and patients could withdraw from the study at any time. Patients were excluded if they had a mental limitation that precluded responding to the questionnaires, if they only came for the first and second postoperative control, or received psychological treatment.

### Instrument and measurements

The data were collected by the researcher using a patient information form and the Turkish version of the Health-Promoting Lifestyle Profile (HPLP). The HPLP is a 4-point Likert scale consisting of 52 items. The subscales are spiritual development, interpersonal relationships, nutrition, physical activity, health responsibility, and stress management. For the full scale, the lowest score is 52 and the highest score is 208 (mean=130).<sup>[8,9]</sup> The validity and reliability of the Turkish version of the scale was tested and confirmed by Bahar et al.<sup>[9]</sup> in 2008.

### Statistical analysis

SPSS for Windows, Version 16.0 (SPSS Inc., Chicago, IL, USA) software was used to perform the statistical analysis. Continuous variables were expressed as mean±SD. Categorical variables were expressed as a percentage. The Kolmogorov-Smirnov test was used to test the normal distribution of independent variables. Variables with normal distribution were compared using an independent samples t-test and a one-way analysis of variance. All p values less than 0.05 were considered statistically significant.

## RESULTS

Of the patients included in the study, 71.6% were male and 84.2% were married. The average age of the patients was 58.60±13.55 years. Of the group, 70.4% had graduated from primary school, 43.8% were retired, and 55.4% had the CABG surgery between 1 and 4 months earlier. The survey responses indicated

#### Abbreviations:

CABG	Coronary artery bypass graft surgery
CAD	Coronary artery disease
HPLP	Health Promoting Lifestyle Profile

**Table 1. Demographic and clinical features of the patients**

Characteristics	n	%	Characteristics	n	%
Age			The story of using alcohol		
>55	28	15.7	Yes	63	33.1
≤55	124	84.3	No	89	66.9
Gender			The story of comorbid disease		
Female	59	28.4	Yes	128	86.4
Male	93	71.6	No	24	13.6
Educational status			The story of history of hospital admission		
Illiterate	21	10.4	Myocardial infarction	47	36.2
Primary school	85	70.4	Anjina	36	16.8
High school and university	46	19.2	Anjio	28	14.7
Marital status			Referred from another hospital	41	32.3
Single	123	84.2	Operative story outside of CABG		
Married	29	15.8	Yes	33	19.8
Job			No	119	80.2
Housewife	50	32.3	Time to have CABG surgery		
Retired	56	43.8	1-4 months ago	72	55.4
Officer-worker	17	11.5	4-8 months ago	57	30.8
Free	20	12.0	8-12 months ago	23	13.8
Level of income			Coming to regular control after discharge		
Higher revenues than expenses	64	42.3	Yes	133	88.4
Equal to revenues and expenses	77	50.1	No	19	11.6
Less revenues than expenses	11	7.6	Education related to illness while being discharged		
The story of smoking			Sufficient	92	61.8
Yes	98	73.1	Partly sufficient	33	26.2
No	54	26.9	Insufficient	27	12.0

CABG: Coronary artery bypass graft surgery.

that 88.4% went for a check-up regularly after their hospital discharge, and that 61.8% had received adequate education about their condition when discharged (Table 1).

The mean HPLP score of the patients was  $110.28 \pm 17.32$ . According to our data, the HPLP score was significantly higher in patients who were under 55 years of age, female, those who were married, had more than sufficient income, no comorbidities, those who had undergone the CABG surgery between 1 and 4 months previously, had regular follow-up visits, and those who received adequate education about their disease at the time of discharge ( $p < 0.05$ ) (Table 2).

When the HPLP responses were examined, more than half of the patients responded with “I do so reg-

ularly” to the statements “I tell a doctor or a healthcare worker about unusual signs and symptoms in my body,” “I sleep enough,” “I ask questions to understand the recommendations of healthcare personnel,” “I eat fruit 2 to 4 times every day,” “I consult with the healthcare staff about how to look after myself better,” “I get support from people with similar problems,” “I eat breakfast,” and “I get advice and guidance from others when I need it.”

## DISCUSSION

After CABG surgery, patients must adapt to incorporating healthy lifestyle behaviors in areas such as nutrition habits, exercise, and social and work life. The

**Table 2.** The mean HLSBS scores of patients according to some variables

Characteristics	HPLP Scores	
	Mean±SD	p
Age (years)		
>55	114.43±16.10	t=-2.136
≤55	109.33±15.87	p=0.0039
Gender		
Female	116.22±19.46	t=-2.567
Male	103.67±17.63	p=0.002
Educational status		
Illiterate	108.42±18.21	
Primary school	105.78±19.45	F=0.679
High school and university	110.77±18.03	p=0.62
Marital status		
Single	105.22±15.34	t=-1.978
Married	101.93±19.49	p=0.044
Level of income		
Higher revenues than expenses	112.57±65.23	
Equal to revenues and expenses	114.65±18.58	F=3.646
Less revenues than expenses	118.91±17.93	p=0.0033
The story of smoking		
Yes	111.87±36.67	t=-1.002
No	113.79±19.44	p=0.072
The story of comorbid disease		
Yes	108.58±33.79	t=-2.336
No	112.34±19.65	p=0.003
Time to have coronary artery bypass graft surgery		
1–4 months ago	116.36±18.57	
4–8 months ago	109.62±12.45	F=4.846
8–12 months ago	101.88±17.62	p=0.001
Coming to regular control after discharge		
Yes	119.76±11.43	t=-2.987
No	102.83±11.76	p=0.0023
Education related to illness while being discharged		
Sufficient	117.82±18.92	
Partly sufficient	115.34±17.77	F=3.459
Insufficient	112.46±16.45	p=0.003

HPLP: Health-Promoting Lifestyle Profile; SD: Standard deviation.

purpose of adopting these behaviors into daily life in the early period after CABG surgery is to protect and sustain the life of the patient.

In the present study, the mean HPLP score of the patients was 110.28±17.32, a moderate score. Simi-

larly, Savaşan et al.<sup>[8]</sup> reported that the mean HPLP score of patients with CAD was 128±22. Bayrak<sup>[10]</sup> conducted an investigation with participants who had both diabetes mellitus and CAD, and found a mean HPLP score of 106.2±17.9. Mohsenipoua et al.<sup>[11]</sup> de-

terminated that the mean HPLP score in 220 patients who underwent CABG surgery was  $146.79 \pm 21.97$ . The results of the present study were lower than those of Mohsenipoua et al.<sup>[11]</sup> This finding may be a result of the larger sample used in that study in comparison with our research. Implementation of healthy lifestyle behaviors may be related to the adequacy of patients' discharge training. When there are enough training nurses and quality care can be provided in clinics, discharge education can influence the outcome.

In the present study, age was found to be a factor affecting patient adoption of healthy lifestyle behaviors. Those who were 55 years of age or less had a higher HPLP score than other groups. Similarly, Özarşlan<sup>[10]</sup> reported that the HPLP scores of patients who were 54 or less were significantly higher. Küçükberber et al.<sup>[12]</sup> reported that heart patients in the age group of 49 to 60 years had higher scores on the HPLP scale. Patients who undergo CABG surgery may experience difficulty in maintaining daily activities, social activities, nutrition, and exercise as they age.

In the present study, it was found that the average HPLP score of the female patients who underwent CABG surgery was significantly higher than that of the male patients. In contrast, Altıparmak et al.<sup>[13]</sup> reported that female observation of healthy behaviors in the 15–49 age group was low. Bayrak,<sup>[10]</sup> and Kuru et al.<sup>[14]</sup> also reported that male patients had higher HPLP scores. The results of the present study differed from the literature. It can be said that female patients should pay more attention to their health in order to fulfill their responsibilities in the post-operative process. Social differences may also be a factor.

Studies have demonstrated that married individuals were more likely to pursue and maintain health-promotion behaviors because marriage promotes individual responsibility and provides social support and a stable life.<sup>[10,12]</sup> Similarly in the present study, it was found that the married patients had significantly higher HPLP scores than the single patients.

Socioeconomic inequality affects the health of the whole community in a negative way. Koçoğlu et al.<sup>[15]</sup> reported that socioeconomic inequalities were a determinant factor for healthy lifestyle behaviors and quality of life, and that the individuals who had a high monthly income had higher HPLP scores. Bilgili et al.<sup>[16]</sup> found that individuals who had an inadequate

economic status observed fewer healthy behaviors. In the present study too, it was observed that the average HPLP score of patients who had a higher income was significantly higher.

In our research, we found that the mean HPLP score of patients who had no comorbid diseases was significantly higher. Küçükberber et al.<sup>[12]</sup> also reported that patients who had no comorbidities had higher HPLP scores than the patients with diabetes mellitus, hypertension, or both. Kuru et al.<sup>[14]</sup> reported that as the burden of disease increases, the health-promoting behaviors of individuals may decline.

Patients who have undergone CABG surgery often experience problems, such as insomnia, nausea, loss of appetite, and chest pain during the first 3 weeks after discharge, and these problems may continue for as much as 6 weeks. As a result, patients may have to restrict their activities or delay their return to previous roles.<sup>[3]</sup> In the present study, patients who had undergone CABG surgery 1 to 4 months earlier had higher HPLP scores. Patients may be paying more attention to healthy behaviors in order to be able to fulfill their daily life activities, protect their health, and adapt at an early stage, despite the physical or psychological problems they experience after surgery.

In the present study, patients who received adequate information about their illness and what needs to be done postoperatively when they were discharged from the hospital, and those who went for regular checkups after being discharged had higher HPLP scores. Similarly, Özarşlan<sup>[10]</sup> found that patients who went to follow-up visits and had knowledge of CAD had higher HPLP scores. Safabakhsh et al.<sup>[17]</sup> conducted a study with 80 patients who underwent CABG surgery and reported that the education provided in the health-promotion program after the operation recommending positive changes in lifestyle reduced the risk factors of CAD and that the patients became more conscious about healthy behaviors. Kurçer et al.<sup>[18]</sup> observed that training and counseling for CAD patients increased the level of physical activity and diabetes compliance.

### Limitations

This study was limited to patients who underwent surgery within the last 1 year and who have followed-up within 4 months of the start of the study.



## Conclusion

In the present study, we found that overall, patients who underwent CABG surgery had a moderate level HPLP score and that the training given at discharge had positive a effect on health-promoting behaviors. This training should take into account the demographic and clinical characteristics of the patients, such as age, gender, income level, and additional disease status. We believe that more frequent follow-up of those groups at risk in terms of improving their life-style will increase patient compliance.

**Peer-review:** Externally peer-reviewed.

**Conflict-of-interest:** None declared.

**Authorship contributions:** Concept – S.A., E.T., M.O.H., İ.M.; Design – S.A., E.T., M.O.H.; Supervision – M.O.H., İ.M.; Materials – S.A., E.T., M.O.H.; Data collection &/ or processing – S.A., E.T.; Analysis and/or interpretation – S.A., E.T.; Literature search – S.A., E.T.; Writing – S.A., E.T., M.O.H., İ.M.

## REFERENCES

- Yeşil P, Altok M. The importance of physical activity in the prevention and control of cardiovascular diseases. *Turk J Cardiovasc Nurs* 2012;3:39–48. [CrossRef]
- Yılmaz M, Çiğçi ES. A model defining the needs of patient care at home after open heart surgery: functional health patterns. *Türk Göğüs Kalp Damar Cer Derg* 2010;18:183–9.
- Dirimeşe E, Demir Korkmaz F, Okgün Alcan A. Quality of life and healthy life style before coronary artery bypass graft surgery. *Balikesir Saglik Bil Derg* 2016;5:56–61. [CrossRef]
- Çatal E, Dicle A. Koroner arter bypass greftli hastalarda erken dönem hemşirelik bakımının Roy'un uyum modeline göre analizi. *Hemşirelikte Araştırma Geliştirme Dergisi* 2011;2:68–80.
- Direk F, Şenol Çelik S. Postoperative problems experienced by patients undergoing coronary artery bypass graft surgery and their self-care ability after discharge. *Turkish J Thorac Cardiovasc Surg* 2012;20:530–5. [CrossRef]
- Dal Ü, Bulut H, Demir SG. The problems experienced by the patients at home after surgery. *Bakırköy Tıp Dergisi* 2012;8:34–40.
- Bahar Z, Açıl D. Sağlığı geliştirme modeli: Kavramsal yapı. *DEUHYO ED* 2014;7:59–67.
- Savaşan A, Ayten M, Ergene O. Hopelessness and Healthy Life Style Behaviors In Patients With Coronary Artery Disorder. *J Psy Nurs* 2013;4:1–6. [CrossRef]
- Bahar Z, Beşer A, Gördes N, Ersin F, Kissal A. Sağlıklı yaşam biçimi davranışları ölçeği II'nin geçerlik ve güvenilirlik çalışması. *CÜ Hemşirelik Yüksekokulu Dergisi* 2008;12:1–13.
- Bayrak ÖB. Diyabetik koroner arter hastalarında sağlıklı yaşam biçimi davranışları ve yaşam kalitesinin belirlenmesi. [Yüksek Lisans Tezi] Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü İç Hastalıkları Hemşireliği; 2013.
- Mohsenipoua H, Majlessi F, Shojaeizadeh D, Rahimi-forooshani A, Ghafari R, Habibi V. Predictors of health-promoting behaviors in coronary artery bypass surgery patients: an application of Pender's health promotion model. *Iran Red Crescent Med J* 2016;18:e38871. [CrossRef]
- Küçükberber N, Özdiilli K, Yorulmaz H. Evaluation of factors affecting healthy life style behaviors and quality of life in patients with heart disease. *Anatol J Cardiol* 2011;11:619–26.
- Altıparmak S, Koca Kutlu A. The Healthy Lifestyle Behaviors of 15–49 Age Group Women and Affecting Factors. *TAF Prev Med Bull* 2009;8:421–6.
- Kuru N, Piyal B. Gulhane Military Medical Academy Training Hospital, the Applicant Determination of Healthy Lifestyle Behaviors in Individuals Diagnosed Coronary Artery Disease. *TAF Prev Med Bull* 2012;11:287–98. [CrossRef]
- Koçoğlu D, Akın B. Sosyoekonomik eşitsizliklerin sağlıklı yaşam biçimi davranışları ve yaşam kalitesi ile ilişkisi. *DEUHYO ED* 2009;2:145–54.
- Bilgili N, Ayaz S. Health promotion behaviors of women and affecting factors. *TAF Prev Med Bull* 2009;8:497–502.
- Safabakhsh L, Arbabisarjou A, Jahantigh M, Nazemzadeh M, Rigi SN, Nosratzahi S. The Effect of Health Promoting Programs on Patient's Life Style After Coronary Artery Bypass Graft–Hospitalized in Shiraz Hospitals. *Glob J Health Sci* 2016;8:154–9. [CrossRef]
- Kurçer MA, Özbay A. Effects of patient education and counseling about life style on quality of life in patients with coronary artery disease. *Anatol J Cardiol* 2011;1:107–13.

**Keywords:** Coronary artery bypass surgery; health behavior; healthy lifestyle.

**Anahtar sözcükler:** Koroner arter baypas ameliyatı; sağlıklı yaşam biçimi; sağlık davranışları.