Awareness of cardiac rehabilitation in people with cardiovascular diseases in Hatay: A cross-sectional study

Hatay'da kardiyovasküler hastalığı olan kişilerde kardiyak rehabilitasyon farkındalığı: Kesitsel bir çalışma

Abstract

Aim: This study aimed to assess the awareness of cardiac rehabilitation (CR) among patients with cardiovascular disease (CVD) in Hatay.

Methods: In the study, 218 patients (44.5% male, 55.5% female) in an age range of 18 to 84 [median 57(46.75–65.25) years] with CVD completed an awareness questionnaire, which included 35 items that addressed knowledge about CVD, CR features and content, CR effectiveness, reasons for not participating in CR programs, and general knowledge about CR.

Results: Ninety-seven (44.5%) participants stated that they had knowledge about CVD, and 29.5% thought CR was required to prevent heart diseases. Fifty-nine subjects expressed they knew the exercises they needed to practice for CVD. Participants mostly accepted that CR effectively regulated blood lipids and blood pressure and managed blood glucose, obesity, and general well-being. One hundred patients (45.7%) reported that they did not participate in a CR program because they had no knowledge of CR. Most participants (60.6%) were undecided about whether the CR program was available in their city and whether it would be beneficial in treating heart diseases (50.5%). Men, young people, and people with higher education levels were more aware of the components of CR ($p<0.05$).

Conclusion: There was a lack of awareness regarding the content of CR, especially in exercise and protective factors for CVDs in Hatay. Seminars are needed to increase the awareness of CR in the community. Health professionals should encourage patients with cardiovascular disease to support the outreach of the CR program.

Keywords: Awareness; cardiac rehabilitation; cardiovascular disease; health knowledge; secondary prevention

Öz

Amaç: Bu çalışma Hatay'da kardiyovasküler hastalık tanısı olan hastalarda kardiyak rehabilitasyon (KR) farkındalığını değerlendirmeyi amaçlamıştır.

Yöntemler: Yaşları 18 ile 84 [medyan 57(46,75-65,25)] yıl arasında değişen kardiyovasküler hastalığı (KVH) olan 218 hasta (%44,5 erkek, %55,5 kadın) tarafından bir anket çalışması tamamlandı. Farkındalık anketi KR'nin özellikleri ve içeriği, KR'nin etkinliği, KR programlarına katılmama nedenleri ve KR hakkında genel bilgileri ele alan 35 maddeyi kapsamaktaydı.

Bulgular: Doksan yedi (%44,5) katılımcı KVH hakkında bilgi sahibi olduğunu belirtti, ve hastaların %29,5'i kalp hastalıklarını önlemek için KR'nin gerekli olduğunu düşünmekteydi. Elli dokuz kişi, KVH için uygulanan, ihtiyaç duydukları egzersizleri bildiklerini ifade etti. Katılımcılar çoğunlukla KR'nin kan lipitlerini, kan basıncını düzenlemede ve kan şekerini, obeziteyi, genel refahı yönetmede etkili olduğunu kabul etti. Yüz hasta (%45,7) KR programına katılmama nedeninin KR hakkında bilgisinin olmaması olarak bildirdi. Katılımcıların çoğu KR yaşadıkları ilde KR programının uygulanıp uygulanmadığı (%60,6) ve KR'nin kalp hastalıklarının tedavisinde faydalı olup olmayacağı (%50,5) konusunda kararsızdı. Erkekler, gençler ve eğitim düzeyi yüksek kişiler kardiyak rehabilitasyonun bileşenlerinden daha fazla haberdardı ($p<0.05$).

Sonuç: Hatay'da KR'nun içeriği özellikle egzersiz ve kardiyovasküler hastalıklar için koruyucu faktörlerde farkındalık eksikliği saptandı. Toplumun KR konusundaki farkındalığını artırmak için seminerlere ihtiyaç vardır. Sağlık profesyonelleri, kardiyovasküler hastalığı olan hastaları KR programının erişimini desteklemeye teşvik etmelidir.

Anahtar Sözcükler: İkincil koruma; farkındalık; kardiyak; kalp ve damar hastalıkları, rehabilitasyon; sağlık bilgisi

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INTRODUCTION

Cardiac rehabilitation is a personalized, comprehensive program designed to protect, restore, and improve individuals' physical, psychological, social, and occupational conditions via patient education, health behavior change, and exercise training to improve secondary prevention results for patients with cardiovascular disease (CVD) (1-3). CR stabilizes, slows down, and even reverses the progression of atherosclerotic processes in cardiac diseases, resulting in improved morbidity, mortality, and health-related quality of life (4). CR is also known to improve levels of vascular endothelial function, arterial stiffness, blood pressure, total cholesterol, low-density lipoprotein, and triglycerides (4). The incidence of cardiovascular disease is increasing in Turkey (5), and the importance of CR in the management of risk factors in the prevention of CVD is still not sufficiently known (6). Moreover, the concept of CR is not sufficiently recognized in both the public or private national health platforms (7). Lack of demand is one of the factors contributing to the greater need for cardiac rehabilitation in patients (8). European Action on Secondary and Primary Prevention by Intervention to Reduce Events (EUROASPIRE) III research showed that only 7.3% of patients who had a coronary artery bypass graft, percutaneous coronary interventions, myocardial infarction, or non-detached acute myocardial ischemia were referred to CR in Turkey (9). Physical and workplace-related factors can be global barriers that restrict participation in CR in a hospital environment in addition to the lack of demand, motivation, and transport, along with an inability to regulate work hours, travel a long distance, or pay for treatment (10-11). Although previous research has emphasized the low awareness of CR among patients with CVD, the need for comprehensive research on this issue is striking (12-13). In our study, in order to comprehensively assess CR awareness in CVD patients in Hatay, we planned to determine the knowledge about CVD, CR, CR features and content, CR effectiveness, reasons for not participating in the CR program, and compare the results in relation with patients' gender, age, and education level.

MATERIALS AND METHODS

We carried out this cross-sectional study in Hatay in March-April 2022 with patients who were admitted to the cardiology clinic of the university's Health Practice and Research Hospital.

The sample size was calculated according to a previous study (14). It was found that, with a 95% Confidence interval (CI) and a 5% margin of error, at least 218 participants were required.

Inclusion criteria: Diagnosed with cardiovascular disease over three months, 18 years old or older, literate, and agree to participate in the study.

Exclusion criteria: Not having a diagnosis of cardiovascular disease, not living in Hatay, poor cooperation, or having hearing/vision problems.

All participants provided written informed consent to participate in the study per the Helsinki Declaration after receiving information about the study's methodology. Hatay Mustafa Kemal University Non-interventional Clinical Research ethics committee (date: 17.02.2022, decision no: 04) approved the research.

Questionnaire

The researchers developed the Cardiac Rehabilitation Awareness Questionnaire and administered it via face-to-face interviews. The first part of the questionnaire included sociodemographic data, clinical characteristics, age, gender, sleep status, medications, comorbidities, disease, and family history. The second part included 35 items regarding knowledge about CVD (9 items), knowledge about CR features and content (8 items), knowledge about CR effectiveness (5 items), reasons for not participating in any CR program (5 items), and general knowledge about CR (8 items).

Validity of the questionnaire

The Lawshe technique was used to evaluate the validity of the content of the draft questionnaire (15). Within the scope of the Lawshe technique, the draft questionnaire form was sent via email to 5 volunteers with CVD who were blinded to the study. The content validity ratio was 0.99 with $p = 0.05$ significance level based on the answers of the 5 volunteers. Cronbach α (0.879) was used to determine the internal consistency of the validated questionnaire.

Primary outcome measures were the results of the questionnaire parts, which included knowledge about CR features and content and knowledge about CR effectiveness. Results of the CR awareness concerning gender, age, education level, and knowledge about CVD were the secondary outcome measures of the study.

Table 1. Socio-demographic and clinical characteristics

	n (%)/ median (IQR) (n=218)
Age (years)	57(46.75-65.25)
Age Groups	
<65 years, younger adults	161(73.9)
≥65 years, older adults	57(26.1)
BMI (kg/m²)	28.68(25.69-32.45)
Sex	
Male	97(44.5)
Female	121(55.5)
Level of education	
Primary education or less	118(54.1)
Secondary education	29 (13.3)
High school education	29 (13.3)
Senior education	42(19.3)
Occupation	
Retired	39(17.9)
Employed	79(36.3)
Else	100(46.4)
Marital status	
Single	34(15.6)
Married	167(76.6)
Widowed	17(7.8)
Personal monthly income	
Low	218(100)
Smoking status	
Non-smoker	123(56.4)
Ex-smoker	54(24.8)
Smoker	41(18.8)
Alcohol consumption status	
Non-consumption	189 (86.7)
Ex-consumption	7(3.2)
Current consumption	22(10.1)
Comorbidity	
Yes	102(46.7)
No	116(53.2)
Total number of previous hospitalizations	
0	184(84.4)
1-3	32(14.7)
3<	2(0.9)
Major Diagnosis	
Aortic Aneurysm	2(0.9)
Coronary Artery Disease	16(7.3)
Aortic Stenosis	3(1.4)
Atrial Septal Defect	2(0.9)
Atherosclerosis	15(6.9)
Hypertension	139(63.8)
Cardiac Arrhythmia	15(6.9)
Heart Failure	11(5.0)
Heart Valve Diseases	9(4.1)
Rheumatic Heart Disease	2(0.9)
Cardiomyopathy	4(1.8)
Family history of CAD	
Yes	116(53.2)
No	102(46.8)
Exercise habit	
Yes	57(26.1)
No	161(73.9)
Sleeping status	
Sleeping duration	
8 hours <	80(36.7)
8 hours	63(28.9)
8 hours <	75(34.4)
Use drug/device for sleeping	
Yes /No	8(3.7) / 210(97.3)
Presence of angina	
Yes	6(2.8)
No	93(42.7)
Rarely	119(54.6)

n: frequency, %: percentage, IQR: interquartile range, BMI: Body Mass Index, CAD: Coronary artery disease.

Table 2. CR awareness questionnaire items and results

	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
Knowledge about CVD					
I have knowledge about cardiovascular diseases	19(8.7)	57(26.1)	45(20.6)	85(39)	12(5.5)
I know types of cardiac disease.	24(11)	72(33)	69(31.7)	44(20.2)	9(4.1)
I know the causes of chest pain/angina	18(8.3)	47(21.6)	54(24.8)	94(43.1)	5(2.3)
I know the causes and symptoms of myocardial infarction	9(4.1)	30(13.8)	42(19.3)	118(54.1)	19(8.7)
I know about the causes of heart failure	43(19.7)	66(30.3)	52(23.9)	52(23.9)	5(2.3)
I know the assessment of cardiovascular diseases	59(27.1)	72(33)	47(21.6)	31(14.2)	9(4.1)
I have information about the stent	15(6.9)	21(9.6)	49(22.5)	111(50.9)	22(10.1)
I know emergency management about cardiac diseases	72(33)	43(19.7)	78(35.8)	23(10.6)	2(0.9)
I know the precautions to avoid complications after cardiac surgery	52(23.9)	51(23.4)	76(34.9)	36(16.5)	3(1.4)
Knowledge about CR features and content					
I know the exercises I need to practice for my illness	40(18.3)	43(19.7)	76(34.9)	47(21.6)	12(5.5)
For exercise; I know the FITT; the duration, frequency, intensity, time, and type	50(22.9)	45(20.6)	83(38.1)	31(14.2)	9(4.1)
Cardiac rehabilitation is required for prevent the heart diseases	19(8.7)	20(9.2)	115(52.8)	45(20.6)	19(8.7)
I know and apply what needs to be considered before starting the physical activities	54(24.8)	45(20.6)	70(32.1)	40(18.3)	9(4.1)
I know the importance of a healthy diet	26(11.9)	38(17.4)	86(39.4)	51(23.4)	17(7.8)
I know the key points to maintain and improve my quality of life	25(11.5)	46(21.1)	71(32.6)	59(27.1)	17(7.8)
I know the time to return to work after open heart surgery	66(30.3)	48(22)	70(32.1)	31(14.2)	3(1.4)
I heard about a CR program	76(34.9)	48(22)	56(25.7)	32(14.7)	6(2.8)
Knowledge about CR effectiveness					
CR is effective in regulating blood lipids	7(3.2)	24(11)	119(54.6)	56(25.7)	12(5.5)
CR is effective in regulating the blood pressure	10(4.6)	17(7.8)	105(48.2)	69(31.7)	17(7.8)
CR is effective in the management of blood glucose	10(4.6)	21(9.6)	114(52.3)	60(27.5)	13(6)
CR is effective in obesity management	7(3.2)	24(11)	106(48.6)	64(29.4)	17(7.8)
CR is effective on general well-being	9(4.1)	20(9.2)	112(51.4)	54(24.8)	23(10.6)
Reasons for not participating in CR program					
Reason for not participating in CR program is the cost	72(33)	53(24.3)	76(34.9)	11(5)	6(2.8)
Reason for not participating in CR program is the distance	70(32.1)	52(23.9)	70(32.1)	13(6)	13(6)
Reason for not participating in CR program because I think it is inefficient	77(35.3)	57(26.1)	73(33.5)	8(3.7)	3(1.4)
Reason for not participating in CR program is that I don't know what it is	26(11.9)	25(11.5)	67(30.7)	40(18.3)	60(27.5)
Reason for not participating in CR program is because I think I don't need	43(19.7)	36(16.5)	105(48.2)	21(9.6)	13(6)
General knowledge about CR					
I don't know where CR program is applied	28(12.8)	30(13.8)	68(31.2)	50(22.9)	42(19.3)
CR is applied in Hatay	13(6)	31(14.2)	132(60.6)	31(14.2)	11(5)
I heard about cardiac rehabilitation from social media	102(46.8)	50(22.9)	51(23.4)	12(5.5)	3(1.4)
I follow CR program practice on social media such as youtube and etc.	112(51.4)	52(23.9)	49(22.5)	4(1.8)	1(0.5)
CR is useful and should be applied to people with heart problems	8(3.7)	19(8.7)	110(50.5)	53(24.3)	28(12.8)
One of the keys to a healthy life is CR	8(3.7)	13(6)	96(44)	72(33)	29(13.3)
CR adds years to life, adds life to years	6(2.8)	12(5.5)	100(45.9)	69(31.7)	31(14.2)

n: frequency, %: percentage, FITT: Frequency Intensity Time Type, CVD: Cardiovascular disease, CR: Cardiac rehabilitation.

Table 3. Results of from whom cardiac rehabilitation information was received

Information source for CR program	n(%)
No idea	163(74.8)
Medical doctor	30(13.8)
Nurse	3(1.4)
Physiotherapist	14(6.4)
Other Allied health care workers	4(8)

n: frequency, %: percentage, CR: Cardiac rehabilitation

Statistical analyses

Results were evaluated using the SPSS 25.0 program (Statistical Package for the Social Sciences, Inc., Chicago, IL, USA). The normal distribution was evaluated using analytical (Kolmogorov–Smirnov) and visual methods (histograms and probability graphs). The results of the parameters were evaluated with descriptive statistics [frequency (n), percentage (%)], and non-normally distributed data are presented with median and IQR. The $\chi 2$ is used to assess gender and age disparities. The Kruskal Wallis test was used to compare awareness between educational levels. A p value of <0.05 was considered statistically significant.

RESULTS

Sociodemographic and clinical characteristics

The study included 218 patients, 97 (44.5%) males and 121 (55.5%) females, in an age range of 18 to 84 years [median 57 (46.75–65.25 years)]. The majority (67.5%) of the participants were under the age of 25 years. One hundred and thirty-nine (63.8%) patients had a diagnosis of hypertension, and half of the participants had other diseases. About half of the participants had a family history of coronary artery disease (CAD), 57 (26.1%) patients did not exercise, and 119 experienced angina rarely.

Awareness questionnaire results

Knowledge about cardiovascular disease, its causes, and symptoms

The participants' opinions on CR are shown in Tables 2 and 3. The majority of the participants stated that they know about cardiovascular diseases (39%), causes of chest pain/angina (43.1%), causes and symptoms of myocardial infarction (54.1%), and the stent (50.9%). Participants were mostly undecided about the emergency management of cardiac diseases (35.8%), knew the types of diseases (31.7%), and knew the precautions to avoid complications after cardiac surgery (34.9%). Fifty-four percent of the CVD patients claimed they knew the causes and symptoms of myocardial infarction. However, the vast majority (33%) disagreed with the statement about the assessment of CVD, and 33.3% disagreed about the causes of heart failure (Table 2).

Knowledge about CR features and content

Approximately half of the participants were neutral regarding this statement: "Cardiac rehabilitation is required to prevent heart diseases," and 34.9% strongly disagreed with the statement that they had prior knowledge of CR. Regarding exercise, 34.9 % of the participants were undecided about their knowledge of the exercises they need to practice for cardiac disease, and 38.1% were neutral about the duration, frequency, intensity, time, and type of exercise. Further, 32.1% of participants reported knowing and applying what needs to be considered before beginning physical activities. Participants (39.4%) were mostly undecided about knowing the importance of a healthy diet, the key points of CR to maintain and improve their quality of life (32.6%), and the time to return to work after open-heart surgery (32.1%) (Table 2).

Knowledge about CR effectiveness

Roughly half of the participants thought that CR was effective in regulating blood lipids (54.6%), regulating blood pressure (48.2%), managing blood glucose (52.3%), managing obesity (51.4%), and improving general well-being (51.4%) (Table 2).

Reasons for not participating in the CR program

Participants were neutral about the reasons why they did not participate in any CR program, including cost (34.9%), distance (32.1%), not knowing what CR was (30.7%), and believing they did not need CR (48.2%). However, 35.3% of the participants strongly disagreed with the statement that "the reason for not participating in the CR was the idea that the program was insufficient" (Table 2).

General knowledge of CR

Many participants (74.8%) declared they had no idea about CR, and 42.2% did not know where to apply for a CR pro-

gram. Most participants (60.6%) did not know whether CR was available in Hatay. 46.8% of the participants strongly disagreed about learning about CR through social media. Most participants (51.4%) followed a CR program practice on social media platforms such as YouTube and others. Half of the participants (50.5%) were undecided about whether people with heart problems could perform CR. 44% of the participants were undecided that CR was one of the keys to a healthy life (table 2).

Table 3 shows where the participants heard about CR programs. Although the majority of the participants (74.8%) did not express their opinions about from which source they received information about CR, others declared that they received information about CR from a medical doctor (13.8%; n = 30), a nurse (1.4%; n = 3), a physiotherapist (6.4%; n = 14), and other healthcare workers (8%; n = 4).

CR awareness between gender, age, education level

There were statistically significant differences between genders, age groups (65 years old/older and up to 65 years old), and education levels in some CR awareness items.

Younger people were more aware than older adults on some CR awareness questionnaire items: 'I know about cardiovascular diseases (p=0.048)', 'I have information about the stent (p=0.027)', 'I know the exercises I need to practice for my illness (p=0.038)', 'I know and apply what needs to be considered before starting the physical activities (p=0.038)', 'I know the importance of a healthy diet (p=0.049)', and 'I know the key points to maintain and improve my quality of life (p=0.016)'. There was a statistical significance in awareness between older and young adults on the following items: 'Cardiac rehabilitation is required to prevent heart diseases (p=0.007)', 'CR is effective in regulating blood lipids (p=0.011)', 'CR is effective in regulating blood pressure (p=0.015)', 'CR is effective in the management of blood glucose (p=0.006)', 'CR is effective in obesity management (p=0.022)', 'CR is effective on general well-being (p=0.003), 'CR is useful and should be administered in people with heart problems (p=0.021)', 'CR adds years to life, adds life to years (p=0.030)'.

Men had more awareness regarding some items of the questionnaire than women. Men had more knowledge about cardiovascular disease (p=0.033) and the cause of angina (p=0.009). Men were more likely to agree that they knew the exercises they needed to practice for CVD (p=0.007) and what should be considered before starting the exercise (p=0.019).

There was a difference in awareness in general between those with higher education and those who were literate ($p<0.05$). Not participating in CR because of cost (p=0.039) and distance (p=0.724) and because thinking that CR was not effective (p=0.365) were between education levels. The statements "CR is offered in Hatay (p=0.388)", "CR is one of the keys to a healthy life (p=0.318)", and "CR adds years to life (p=0.145)" were expressed similarly at all education levels.

DISCUSSION AND CONCLUSION

To our knowledge, this is the first study comprehensively investigating the awareness of cardiac rehabilitation in patients with cardiovascular diseases who were admitted to the Department of Cardiology and referred for CR in Hatay. There needed to be more awareness regarding physical activity, exercise, diets, and protective factors for CVDs in Hatay. The most interesting finding was that most participants needed to learn about CR. CVD patients living in Hatay had sufficient knowledge about CVD but needed further knowledge about the requirement for CR, CR in heart disease, and appropriate exercises for CR. The reasons why patients with CVD did not participate in any CR program did not include the inefficiency of CR, distance, or cost. Most participants were still deciding whether CR was offered in their city and whether it would be beneficial. Males, young people, and people with higher education levels were more aware of the components of CR.

The recent guidelines of the American Heart Association have highlighted the deleterious association between sedentary behavior and CVD morbidity and mortality. However, it is also emphasized that insufficient information is available on many public health data points (such as sedentary behavior) (16). According to this study, 73.9% of patients with cardiac disease have no exercise habits, similar to previous findings. Thus, it is clear that further research is needed to assess future quantitative public health guidelines on sedentary behavior and the importance of regular physical activity, including the need for interventions using randomized controlled trial designs.

Regular exercise has a positive effect on CVD risk factors. It can help reduce and control body weight and lower blood pressure (17). According to our study results, CVD patients were more uncertain about the

adequacy of their knowledge about disease-specific exercise and the duration, frequency, intensity, time, and type of exercise. It is recommended that individuals with cardiac diseases be informed about their personalized practices and exercise training, which effectively manage cardiovascular disease risk factors in Hatay.

By lowering serum triglycerides and raising high-density lipoprotein (HDL) cholesterol, exercise positively affects lipid metabolism. Additionally, exercise may decrease lower-density lipoprotein (LDL) cholesterol (18). In the current study, half of the participants were undecided about the blood lipid-regulating effects of CR. Moreover, most of the participants were undecided about the effectiveness of CR in regulating blood pressure, managing blood glucose, preventing obesity, and improving general well-being. Minor lifestyle changes, mainly focused on physical activity, can improve clinical aspects such as metabolic syndrome, which includes central fat deposition, insulin resistance, hypertension, and dyslipidemia (19).

Exercise-based cardiac rehabilitation lowers cardiac mortality and hospital readmission while enhancing patient functionality. Guidelines about CR recommend that healthy adults of all ages perform a minimum of 150 minutes of moderate-intensity endurance exercise five days per week or 75 minutes of vigorous exercise three days per week. Doubling each amount to 300 minutes of moderate-intensity or 150 minutes of vigorous-intensity per week can provide additional benefits (20-21). In the present study, only 17.5% of the patients knew about CR programs. Young people were more aware of cardiac diseases and CR components' effects. Older adults need to be made aware of the impact of CR on heart disease and its positive effects on general well-being. Our study demonstrated the necessity for a focused program to raise public knowledge of exercise training, which is the cornerstone of CR.

According to a study about the awareness of CR among patients with coronary heart disease attending a cardiac care center in Nepal, the majority (57.0%) of respondents were unaware of CR (13). Kweon et al. found that 69.8% of patients with CVD answered that they had not previously heard about the CR program (12). Similar to previous studies, we found that most patients in Hatay had not heard of any CR programs. We recommend that physiotherapists and other healthcare professionals organize and promote CR programs, including counseling sessions, to raise awareness and improve CVD patients' quality of life in Hatay.

Kim et al. declared that the cause of low participation was mostly the lack of awareness. Another study discovered that people with cardiovascular problems were unaware of the existence of CR programs, and non-physician medical professionals and medical doctors had little knowledge of accessibility to the programs (22). Additionally, distance, lack of time, and cost were frequently stated as reasons for not participating (12). Contrary to previous results, we found that the reasons for not participating in the CR program were not only distance, cost, or the thought of not needing it. Also, most patients (74.8%) stated they needed an information source regarding CR programs, and only 13.4% received information from their medical doctors. Non-participation in CR was similar between age groups, genders, and education levels in Hatay. Studies are needed to determine the barriers to participation to improve participation in CR programs.

CR participation rates globally remain low. In 2016, 24% of Medicare beneficiaries who were eligible for it engaged in CR, with 57% and 27% finishing more than 24 and 36 sessions, respectively. Female gender and the risk of CVD development in advanced age affect CR participation (23). Those with higher levels of education learn more from health education and show better health behaviors (24). According to our study results, CR awareness was low in Hatay. The percentage of women, individuals with low education levels, and people aged 65 and over was high in the study. These results may be related to the low level of awareness, as indicated in the literature. It is recommended to organize CR education programs primarily for older females with cardiovascular diseases.

Limitations and Strengths

This is the first study assessing the awareness of CR among patients with CVD in Hatay. Because the study contains comprehensive statements about awareness of cardiac rehabilitation, it provides a broad perspective on awareness of CR and adds to the literature. One of the study's limitations is that it was conducted at a single location. It could have also been conducted in other hospitals in Hatay. There is a wide range of age groups in the present study. Patients could be equal numbers of children, young adults, and older adults. The questionnaire could include questions that could measure not only patients' views but also their disease and awareness levels.

There needed to be more awareness regarding the content of CR, especially in exercise and protective fac-

tors for CVDs in Hatay. Males, people with higher education, and those younger than 65 were more aware of CR components. Data obtained in this study can be used to identify appropriate ways to increase participation in CR programs for patients with CVD in the future. In Hatay, it is recommended to carry out patient education programs of CR awareness mainly for females, for those with low-level education, and for older adults.

Conflict-of-interest and financial disclosure

The authors declare that they have no conflict of interest to disclose. The authors also declare that they did not receive any financial support for the study.

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