Psychosocial Adjustment and Self-Care Behaviors of Heart Failure Patients

Kalp Yetersizliği Hastalarının Psikososyal Uyumu ve Öz Bakım Davranışları

ABSTRACT

Objective: The aim of this study was to determine the effect of psychosocial adjustment of heart failure patients on their self-care behaviors.

Methods: The sample of the study consisted of 130 patients who applied for heart failure diagnosis at a state hospital's cardiology outpatient clinic, cardiology clinic, and coronary intensive care unit between March and August 2017 and met the research criteria. Data about the patients were collected through a descriptive form, the Psychosocial Adjustment to Illness Scale—Self-Report, and the European Heart Failure Self-Care Behavior Scale -12. The analysis of the data was carried out using frequency, mean, standard deviation, the Mann–Whitney U test (U), Kruskal–Wallis test (X^2), independent samples t-test, and one-way analysis of variance.

Results: The mean Psychosocial Adjustment to Illness Scale—Self-Report total score of the patients was 51.1 ± 17.3. Among the Psychosocial Adjustment to Illness Scale—Self-Report sub-domains, the vocational environment received the highest mean score with 10.4 ± 3.9, while the extended family relationships received the lowest. The mean European Heart Failure Self-Care Behavior Scale total score was 31.2 ± 5.6. While there was no statistically significant relationship between Psychosocial Adjustment to Illness Scale—Self-Report and European Heart Failure Self-Care Behavior Scale, a weak positive correlation was found between the healthcare orientation sub-domain and European Heart Failure Self-Care Behavior ($P > .05$).

Conclusion: While the self-care behaviors of the patients were at a sufficient level, their psychosocial adjustment was at a bad level. A positive significant relationship was found between self-care behaviors and healthcare orientation.

Keywords: Adjustment, cardiovascular disease, heart failure, nursing, self-care

ÖZ

Amaç: Bu araştırmanın amacı kalp yetersizliği hastalarının psikososyal uyumunun öz bakım davranışları üzerine etkisini belirlemektir.

Yöntem: Araştırmanın örneklemini Mart – Ağustos 2017 tarihleri arasında bir devlet hastanesinin kardiyoloji polikliniği, kardiyoloji kliniği ve koroner yoğun bakım ünitesinde KY tanısı ile başvuran ve araştırma kriterlerini sağlayan 130 hasta oluşturmuştur. Hastalara tanıtıcı form, Hastalığa Psikososyal Uyum - Öz Bildirim Ölçeği (PAIRS-SR) ve Avrupa Kalp Yetersizliği Öz Bakım Davranışları Ölçeği – 12 uygulanmıştır. Verilerin analizinde; frekans, ortalama, standart sapma, Mann Whitney U testi (U), Kruskal Wallis testi (X2), bağımsız örnekler t testi, tek yönlü varyans analizi (ANOVA) kullanılmıştır.

Bulgular: Hastaların PAIS - SR toplam puan ortalaması 51,1 ± 17,3 olarak bulunmuştur. PAIS - SR alt boyutlarından en yüksek puan ortalamasını 10,4 ± 3,9 ile mesleki çevre alt boyutu alırken en düşük puan ortalamasını geniş aile ilişkileri alt boyutu almıştır. AKYÖ toplam puan ortalaması ise 31,2 ± 5,6 olarak bulunmuştur. PAIS – SR ve AKYÖ arasında istatistiksel olarak anlamlı ilişki belirlenmezken, sağlık uyumu alt boyutu ile AKYÖ arasında pozitif yönde zayıf ilişki belirlenmiştir ($P > ,05$).

Sonuç: Hastaların öz bakım davranışları yeterli düzeyde bulunurken psikososyal uyumları kötü düzeyde bulunmuştur. Öz bakım davranışları ile sağlık bakımına uyum arasında pozitif yönde anlamlı ilişki belirlenmiştir.

Anahtar kelimeler: Uyum, kardiyovasküler hastalık, kalp yetmezliği, hemşirelik, öz bakım

Ebru Baba Sarı [ID]
Afitap Özdelikara [ID]

Department of Internal Medicine, Ondokuz Mayıs University, Faculty of Medicine, Samsun, Turkey

Corresponding author:
Afitap Özdelikara
✉afitapozdelikara@gmail.com

Introduction

The World Health Organization reported that heart disease was responsible for 16% of all deaths and had increased by more than 2 million since 2000.[1] It was estimated that deaths due to cardiovascular diseases will be 22.2 million in 2030. [2] In Turkey, deaths due to diseases related to the cardiovascular system are taking the lead with 39.7%.[3] The Heart Failure Prevalence and Predictors in Turkey study (2012) conducted on 4650 patients determined the heart failure (HF) prevalence as 6.9%.[4]

Heart failure treatment lasts for life and is an important factor in the success of self-care treatment. [5] In HF, treatment and care are mostly provided by self-care in the individual's social environment, except for the attack periods. Self-care is the constant participation of an adult in activities necessary to protect and maintain their health and well-being. [6]

Self-care is necessary for HF to understand the emergence of and cope with symptoms.[6,7] Lack of self-care behaviors in the management of the illness causes repeated hospitalizations and adversely affects the quality of life. [8] Failure to achieve a psychosocial adjustment to the illness can lead to insufficient self-care behaviors and accelerate the development of complications.[9]

Adjustment to the illness is paramount in HF and affects the course of the illness, the frequency of hospitalization, and the quality of life.[10] Heart failure affects psychosocial adjustment negatively as it decreases the individual's independence and daily activities.[11] Psychosocial adjustment includes the individual's work, family, social and sexual life, psychological status, and compliance with their health care. Experiencing psychosocial incompatibility caused by the illness and personality traits increases the severity of physical problems and brings many challenges. Nurses are key in aiding individuals diagnosed with HF to achieve a physical, social, and psychological adjustment to the illness and perform self-care behaviors.[12] The purpose of nursing care is to assist individuals in determining and meeting their self-care needs.[13]

Methods

Design, Sample, and Setting

This is a descriptive and cross-sectional study to determine the effect of psychosocial adjustment of HF patients on their self-care behaviors. The sample of the study consisted of 130 patients who applied for HF diagnosis at a state hospital's cardiology outpatient clinic, cardiology clinic, and first-level coronary intensive care unit between March and August 2017 and met the research criteria. Inclusion criteria were as follows:

▪ diagnosed with HF at least 6 months ago,
▪ over the age of 18,
▪ literate,
▪ able to communicate,
▪ able to speak Turkish,
▪ not diagnosed with a psychiatric disease,
▪ voluntary acceptance to participate in the research.

GPower version 3.1 statistical analysis program was used to determine the sample. The results showed that it should consist a minimum of 111 participants with a 95% CI and 0.95 power ratio. Totally, 138 patients were contacted during the research process, 8 patients were excluded as they incorrectly marked the data form, and the research was conducted with 130 patients.

Preapplication

The descriptive form was preapplied to 10 patients who applied to the relevant clinics of the hospital mentioned with HF diagnosis. Incomprehensible questions were identified and corrected, and the descriptive form was finalized and applied to the research group after preapplication. Preapplied patients were not included in the sample.

Data Collection/Analysis

The data obtained in the study were evaluated using the Statistical Package for The Social Sciences 23.0 for Windows (IBM SPSS Corp.; Armonk, NY, USA) program. The conformity of the data to the normal distribution was examined using the Shapiro–Wilk test. Mann–Whitney U test (U) and Kruskal–Wallis test (X^2), which are non-parametric methods, were used to compare the data that did not fit the normal distribution. In the comparison of normally distributed data, independent samples t-test and one-way analysis of variance were used. The relationship between scale scores was examined using Spearman rank correlation. Normally distributed quantitative data are presented as mean ± standard deviation and non-normally distributed as median (min-max). The relationship between scale scores was analyzed using the Spearman rank correlation. The level of significance was taken as $P < .05$.

Instrument

Descriptive Form

The descriptive form consisted of 7 questions in total developed by the researchers in line with the relevant literature, including descriptive (gender, age, marital status) and disease-related characteristics (duration of disease, hospitalization experience, presence of coexistent chronic diseases, New York Heart Association classification (NYHA: Functional Classification provides a simple way of classifying the extent of HF)).

Psychosocial Adjustment to Illness—Self Report Scale

The Psychosocial Adjustment to Illness Scale—Self Report (PAIS-SR) was developed by Derogatis and Lopez in 1983 and measures the psychosocial adjustment to illness.[14] The Turkish validity and reliability study of the scale was conducted by Adaylar.[15] This scale measures the interaction of individuals with other individuals and institutions making up the sociocultural environment and has 46 items and 7 sub-domains which are healthcare orientation, vocational environment, domestic environment, sexual relationships, extended family relationships, social environment, and psychological distress .[15] Four descriptive expressions are used in the scale to determine the varying levels of adjustment for each area. Patients are asked to choose the answer that best/most closely describes their personal experience from these 4 descriptive statements.[14] Each item's score ranges from 0 to 3. The minimum and

maximum score obtained from the scale is 0 and 138, respectively. In studies conducted with PAIS-SR, scores below 35, scores between 35 and 51, and scores above 51 are considered to reflect good, fair, and poor psychosocial adjustment, respectively. The Cronbach alpha coefficient for this study varied between 0.557 and 0.858 for the sub-domains, and the general alpha value of the PAIS-SR scale was found to be 0.896.

The European Heart Failure Self-Care Behavior Scale-12

The scale was developed by Jaarasma et al[16] to evaluate self-care behaviors in individuals with HF. The Turkish validity and reliability study of the scale was conducted by Baydemir et al.[17] This scale aims to diagnose HF symptoms such as edema, dyspnea, and fatigue and consists of 12 questions measuring treatment applications such as regular use of medications for these symptoms, fluid and salt restriction, diet, exercise regulation, communication with healthcare personnel, and self-care assessment activities such as weight monitoring and edema monitoring. Likert-type scale (between 1 and 5) was used for scoring. The sections were scored as "completely disagree, 5; disagree, 4; neutral, 3; agree, 2; and completely agree, 1." The total score of the scale varied between 12 and 60, where 12-36 points indicated adequate and 37-60 points inadequate self-care behaviors, respectively. The Cronbach's alpha coefficient was obtained as 0.536.

Ethical Principles

Permission was obtained from Ondokuz Mayıs University, Clinical research ethics committee (OMU KAEK 2017/16). Written and verbal permissions were obtained from the institution patients, respectively.

Results

Table 1 shows the patients' mean scores from PAIS-SR and its sub-domains and EHFScBS. Accordingly, the PAIS-SR total mean score was found as 51.1 ± 17.3. Among the PAIS-SR sub-domains, vocational environment received the highest mean score with 10.4 ± 3.9, while extended family relationships

Table 1. Distribution of Patients' Mean PAIS–SR, Its Sub-Domains, and EHFScBS Scores

Scales and Sub-domains	X̄ ± SD	Min–Max
PAIS–SR		
Healthcare orientation	8.5 ± 3.4	0-24
Vocational environment	10.4 ± 3.9	0-18
Domestic environment	6.6 ± 3.8	0-24
Sexual relationships (n=107)	9.1 ± 4.4	0-18
Extended family relationships	2.3 ± 2.4	0-15
Social environment	9.2 ± 5.0	0-18
Psychological distress	6.6 ± 4.0	0-21
PAIS–SR scale total score	51.1 ± 17.3	0-138
EHFScBS	31.2 ± 5.6	12-60

PAIS-SR, Psychosocial Adjustment to Illness–Self Report Scale; EHFScBS, The European Heart Failure Self-care Behavior Scale-12.

received the lowest. The EHFScBS total score mean was found as 31.2 ± 5.6.

The mean age of the patients was 65.8 ± 10.8, and 54.6% of the patients were male and 81.5% were married. In total, 58.5% of the patients reported that they had more than 3 previous hospitalizations, and 68.5% had another chronic illness; 26.9% received aid from their spouses for self-care, 33.1% received help from their children, while 38.5% did not receive any assistance. A total of 51.5% of the patients were in class III, according to the NYHA classification (Table 2).

The distribution of EHFScBS scores evinced that the difference between gender and marital status variables and the EHFScBS score was statistically significant ($P < .05$). This study found that the EHFScBS score was not affected by the variables of hospitalization experience, presence of another chronic illness, receiving assistance for self-care, and NYHA classification (Table 2).

The PAIS-SR score distributions evinced a statistically significant difference between the gender variable and scale score ($P=.000$). The marital status variable did not affect the PAIS-SR score ($P > .05$). The difference between the variables of patients' hospitalization experience, presence of another chronic illness, receiving assistance for self-care, and the NYHA classification, and the PAIS-SR score was found to be statistically significant ($P < .05$, Table 2).

Table 3 shows the relationship between PAIS-SR and its sub-domains and the EHFScBS mean scores of the patients. While no statistically significant relationship was found between PAIS-SR and EHFScBS, there was a weak positive correlation between healthcare orientation sub-domain and EHFScBS ($P=.006$).

Discussion

The PAIS-SR total mean score was 51.1 ± 17.3. The scale evinced that the psychosocial adjustment of the patients was poor (Table 1). Kılıçlı [18] and Doğru and Karadakovan [10] also got similar results with 52.28 ± 19.73, 53.28 ± 18.89, and 68.79±12.79, respectively, and found that the best adjustment belonged to the family relations' sub-domain. The results of this research are in line with the literature. We found that the self-care behaviors of the patients were adequate (31.2 ± 5.6) according to the assessment score range of the scale. Kökçü and Tiryaki[19] found it to be 33.14 ± 9.41. Kamrani et al[20] (2014) (31.86 ± 8.09), Gallagher et al[21] (2011) (25.59 ± 6.16), and Jaarsma et al.[12] (2003) (33.30 ± 7.8) got similar results. In conclusion, the findings obtained in our study were similar to those obtained in previous studies.[16,20-22]

Considering the self-care status of the patients, male patients showed more adequate self-care behavior than women ($P < .05$). Similar to this study, other studies also showed that men had higher self-care ability. We found that the self-care behaviors of singles were inadequate and the marital status variable affected it ($P < .05$). Alemdar and Pakyüz[23] also found that single patients had low self-care agency. We found that the hospitalization experience, coexistent chronic disease, and NYHA classification did not affect self-care behavior ($P > .05$).

Table 2. Distribution of Patients' EHFScBS and PAIS-SR Scores According to Certain Variables

Characteristics	n (%)	EHFScBS		PAIS-SR	
Gender					
Female	59 (45.4)	32.4 ± 5.3	t=2.2	56 (20-87)	U = 1610.5
Male	71 (54.6)	30.2 ± 5.7	P = .027	46 (10-101)	***P* < .001**
Marital status					
Married	106 (81.5)	30.6 ± 5.5	t = −2.6	52 (10-101)	U=1241.0
Single	24 (18.5)	33.8 ± 5.7	P=.011	51 (30-95)	P=.900
Hospitalization experience					
None	7 (5.4)	32.1 ± 3.8	F = 2.7	42 (21-44)[b]	X^2 = 15.9
Once	29 (22.3)	33.4 ± 4.8	P=.051	50 (10-76)[a,b]	***P*=.001**
Twice	18 (13.8)	29.1 ± 4.6		41.5 (12-87)[a,b]	
Thrice or more	76 (58.5)	30.7 ± 6.1		57 (23-101)[a]	
Coexistent chronic disease					
Yes	89 (68.5)	30.7 ± 5.1	t = −1.4	56 (10-101)	U=1238.5
No	41 (31.5)	32.2 ± 6.6	P=.156	44 (19-65)	***P* < .001**
Receiving assistance for self-care					
I don't get help	50 (38.5)	31.2 ± 6.,2	F=2.7	43.5 (10-95)[b]	X^2=21,4
My spouse	35 (26.9)	29.5 ± 5.2	P=.050	58 (12-101)[a]	***P* < .001**
My children	43 (33.1)	32.1 ± 4.9		57 (25-78)[a]	
Relative	2 (1.5)	38.5 ± 4.9		85.5 (84-87)[a]	
NYHA classification					
Class I	5 (3.8)	34.2 ± 4.4	F = 0.6	24 (20-27)[a]	X^2 = 31.6
Class II	26 (20.0)	31.3 ± 6.8	P=.637	42 (10-76)[a]	***P* < .001**
Class III	67 (51.5)	31.1 ± 5.8		54 (23-101)[b]	
Class IV	32 (24.6)	30.7 ± 4.3		63 (19-87)[b]	

[a-c]No difference between the same groups.

U, Mann–Whitney U test statistics; X^2, Kruskal–Wallis test statistics; t, independent samples t-test statistics; F, one-way analysis of variance test statistics; PAIS-SR, Psychosocial Adjustment to Illness−Self Report Scale; EHFScBS, The European Heart Failure Self-care Behavior Scale–12.

Table 3. Relationship Between the Patients' PAIS-SR, Its Sub-Domains, and EHFScBS Mean Scores (n=130)

PAIS-SR and Sub-Domains	EHFScBS
Healthcare orientation	**0.242***
Vocational environment	−0.033
Domestic environment	0.036
Sexual relationships (n=107)	−0.072
Extended family relationships	0.153
Social environment	0.168
Psychological distress	0.098
PAIS-SR scale total score	0.110

*Significant at 5% level (P=.006).

PAIS-SR, Psychosocial Adjustment to Illness−Self Report Scale, EHFScBS: The European Heart Failure Self-care Behavior Scale-12.

In terms of the psychosocial adjustment of the patients, male patients were better again. Other studies in the literature also reported that men showed better psychosocial adjustment.[18,24,25] Various studies reported that psychosocial problems such as depression and anxiety were more common in women with heart disease compared to men.[26-29] This finding attained is in parallel with the literature. This study further evinced that hospitalization experience significantly affected psychosocial adjustment and those with 3 or more hospitalizations showed worse psychosocial adjustment (Table 2, P < .05). Similarly, Doğru and Karadakovan[10] also reported that as the number of hospitalizations increased, patients showed worse psychosocial adjustment. Moreover, the psychosocial adjustment of those who had another chronic disease and received help from relatives for self-care was found to be poor (Table 2, P < .05).

Moreover, as the NYHA class level increased, the psychosocial adjustment deteriorated (P < .05). Mauro[12] reported a positive significant relationship between NYHA classification and psychosocial adjustment. Köseoğlu and Enç[30] reported that the degree of the disease affected the frequency of

hospitalizations. This study also evinced that as the NYHA class level increased, the psychosocial adjustment worsened. Mauro (2008)[12] reported that the NYHA class was the determinant of psychosocial adjustment. The relevant results of this study were in line with the literature.[18] A weak, positive significant correlation was found between self-care behavior and healthcare orientation ($P < .05$, Table 3). It has been reported that self-care behaviors were effective in controlling symptoms and decreasing hospitalizations in patients with HF.[31] "Self-care" is defined as individuals fulfilling their responsibilities to protect their personal lives, health, and well-being. Healthcare orientation includes patients' awareness of their disease and adjustment to the illness.[16] Learning self-care behaviors and the presence of self-care capacity betters the adjustment to the illness and quality of life. Thus, the disease is brought under control, complications prevented, and the life span prolonged.[32] Therefore, it is possible to state that healthcare orientation is effective in self-care behaviors.

Conclusion and Recommendations

The self-care behaviors of the patients were found to be adequate, while their psychosocial adjustment was found to be poor. Since it is known that the factors affecting self-care behaviors and psychosocial adjustment and the affected area of psychosocial adjustment differ for each patient, it is recommended that nurses provide consultancy sensitive to individual and demographic characteristics and respond to patient needs within the framework of the counseling role. A positive significant relationship was found between self-care behaviors and healthcare orientation. Therefore, it is considered that including patients in healthcare orientation programs for HF and providing them training would support self-care. Taking into consideration the characteristics of patients related to the disease (number of hospitalizations, presence of other chronic diseases, etc.) when planning such training programs would increase their effectiveness.

Limitation
This research was limited to the patients in the clinics mentioned in a state hospital who complied with the research criteria and agreed to participate in the study.

References

1. WHO reveals leading causes of death and disability worldwide. Geneva: World Health Organization; 2000-2019. Available at: https://www.who.int/news/item/09-12-2020-who-reveals-leading-causes-of-death-and-disability-worldwide-2000-2019. Accessed December 31, 2020.

2. Global status report on noncommunicable diseases 2014. Geneva: WHO. Available at: http://apps.who.int/iris/bitstream/10665 /148114/1/9789241564854_eng.pdf?ua=1. Accessed January 7, 2021.

3. Türkiye İstatistik Kurumu (TÜİK), Ölüm Nedeni İstatistikleri. 2017. Available at: http://www.tuik.gov.tr/PreHaberBultenleri.do? id=27620

4. Değertekin M, Erol Ç, Ergene O, et al. Heart failure prevalence and predictors in Turkey: HAPPY study. *Archıves of the Turkısh Socıety of Cardıology*. 2012;40(4):298-308. **[CrossRef]**

5. McMurray JJV, Adamopoulos S, Anker SD, et al. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012. *Turk Kardiyol Dern Ars*. 2012;40(suppl 3):77-137. **[CrossRef]**

6. Pour HA, Gökçe S, Kunter D, Yönem H. Evaluation of self-care behaviours of patients with heart failure Florence Nightingale. *J Nurs*. 2016;24(2):66-71.

7. Avila CW, Riegel B, Pokorski SC, Camey S, Silveira LC, Rabelo-Silva ER. Crosscultural adaptation and psychometric testing of the Brazilian version of the selfcare of heart failure index version 6.2. *Nurs Res Pract*. 2013;2013(5):178976. **[CrossRef]**

8. Türkmen SN, Çam MO. Evaluation of the impact of psychological therapy/education on the psychosocial adaptation of patients With myocardial infarction. *J Psychiatr Nurs*. 2012;3(3):105-115. **[CrossRef]**

9. Türten KT, Akdemir N. Psychosocial adjustment of diabetic patients to their disease. *J Psychiatr Nurs*. 2016;7(2):61-67. **[CrossRef]**

10. Vural Doğru B, Karadakovan A. Evaluation of the correlation Between quality of life and psychosocial adaptation in elderly patients with heart failure. *J Cardiovasc Nurs*. 2016;7(13):88-104. **[CrossRef]**

11. Dirikkan F, Rabacaı LB, Mutlu E. The caregiver burden and the psychosocial adjustment of caregivers of cardiac failure patients. *Turk Kardiyol Dern Ars*. 2018;46(8):692-701. **[CrossRef]**

12. Mauro AMP. Exploring uncertainty and psychosocial adjustment after cardioverter defibrillator implantation. *J Cardiovasc Nurs*. 2008;23(6):527-535. **[CrossRef]**

13. Savaşan A. The relationship between anger and self-care agency in patients with hypertension. *J Psychiatr Nurs*. 2009;1(1):13-17.

14. Derogatis LR. The Psychosocial Adjustment to Illness Scale (PAIS). *J Psychosom Res*. 1986;30(1):77-91. **[CrossRef]**

15. Adaylar M. *Attitudes, Adaptation, Perception and Self-Care Orientations of Individuals with Chronic Diseases* [Unpublished PhD Thesis]. İstanbul: İstanbul University, Health Sciences Institute; 1995.

16. Jaarsma T, Strömberg A, Mårtensson J, Dracup K. Development and testing of the European Heart Failure Self-Care Behaviour Scale. *Eur J Heart Fail*. 2003;5(3):363-370. **[CrossRef]**

17. Baydemir C, Özdamar K, Ünalır A. Validity of the Turkish version of the European heart failure self-care behavior scale. *Anadolu Kardiyol Derg*. 2013;13(6):573-579. **[CrossRef]**

18. Kılıçlı BA, Özdemir L. Psychosocıal adjustment in heart Faılure Patıents Wıth Cardıoverter Defıbrıllator Implantatıon. *J Anatolia Nurs Health Sci*. 2017;20:41-47.

19. Kökcü ÖD, Tiryaki Ö. Investigation of independence status of self-behavior and caring needs of heart failure patients. Online Turkish. *J Health Sci*. 2020;5(2):364-374. **[CrossRef]**

20. Kamrani AA, Foroughan M, Taraghi Z, et al. Self care behaviours among elderly with chronic heart failure and related factors. *Pak J Biol Sci*. 2014;17(11):1161-1169. **[CrossRef]**

21. Gallagher R, Luttik ML, Jaarsma T. Social support and self care in heart failure. *J Cardiovasc Nurs*. 2011;26(6):439-445. **[CrossRef]**

22. Ermiş N, Kasar KS, Karaman E, Yıldırım Y. Self care agency and fatigue in patients with chronic heart failure. *Turk J CardioVasc Nurs*. 2018;9(20):105-112. **[CrossRef]**

23. Alemdar H, Pakyüz ÇS. Evaluation of the effect of self-care power on quality of life in hemodialysis patients. *J Nephrol Nurs*. 2015;2:19-30.

24. Gocer S, Gunay O, Ulutabanca R, Sonkaya Z. Factors affecting psychosocial adjustments to illness of active tuberculosis patients. *Med-Science*. 2017;6(4):700-705. **[CrossRef]**

25. Çelik S, Kelleci M, Avcı D, Temel E. Psychosocial adjustment to illness and methods of coping with stress among young adults with Type 1 diabetes. *Florence Nightingale J Nurs*. 2015;23(2):105-115.

26. Yıldırım O, Erdem A, Alçelik A, et al. Depression and effect of mortality in hospitalized patients with decompensated heart failure. *Koşuyolu Heart J*. 2012;15(1):22-27. **[CrossRef]**

27. Erşan E, Kelleci M, Baysal B. An overview on psychosocial adaptation, depression, anxiety and stress levels in patients with heart disease. *J Clin Psy*. 2013;16(4):214-224.

28. Aydemir Y, Doğu Ö, Amasya A, Yazgan B, Ölmez Gazioğlu E, Gündüz H. Evaluation of anxiety and depression with patient characteristics in patients with chronic respiratory and heart disease. *Sakarya Med J*. 2015;5(4):199-203.

29. Kutlu R, Özberk ID, Gök H, Demirbaş N. Kardiyoloji Yoğun Bakım Ünitesinde Yatan Hastalarda Anksiyete ve Depresyon Sıklığı ve Etki Eden Faktörler. *Türk Göğüs Kalp Damar Cerrahisi Dergisi*. 2016;24(4):672-679. **[CrossRef]**

30. Köseoğlu N, Enç N. Investigation of the factors preventing medication compliance in individuals with chronic heart failure. *J Cardiovasc Nurs*. 2016;7(14):162-168. **[CrossRef]**

31. Riegel B, Moser DK, Anker SD, Et al. State of the science: promoting self-care in persons with heart failure: a scientific statement from the American Heart Association. *Circulation*. 2009;120(12):1141-1163. **[CrossRef]**

32. Fertelli KT, Tel H. Effects self care agency of programmed educatian given to the patients after myocard infarction. *J Turk Soc Crıt Care Nurs*. 2007;11(2):57-61.