





The effect of Killip class on the development of anxiety in intensive care unit patients with acute myocardial infarction

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ABSTRACT

Objectives: This study aims to investigate the effect of Killip class on the development of anxiety and depression in patients admitted to intensive care unit (ICU) with acute myocardial infarction (AMI) and to identify risk groups in terms of anxiety and depression.

Patients and methods: Between May 2024 and October 2024, a total of 200 patients (140 males, 60 females; mean age: 61.4±12.1 years; range, 31 to 89 years) with acute ST elevation MI (STEMI) and non-ST elevation MI (NSTEMI) were included. The Hospital Anxiety and Depression Scale (HADS) was administered within the first 24 h after the patients' treatment in the ICU was completed and the patients were transferred to ward.

Results: Anxiety was observed in 60 (30%) of the patients, while depression was observed in 93 (46.5%) of the patients. A total of 148 (74%) of the patients were Killip in Class I, while the others had a class other than Killip I. Having a class other than Killip I and prolonged ICU stay significantly increased the anxiety scores ($p=0.003$ and $p=0.016$). In the univariate and multivariate regression analysis, having a classification other than Killip I was found to be an independent predictor of ICU anxiety (odds ratio [OR]=0.456; 95% confidence interval [CI]: 0.210-0.993; $p=0.048$).

Conclusion: Killip classification is an independent predictor of anxiety in AMI patients. Since patients with AMI, particularly those who are in Killip Class II-IV, are in the risk group for anxiety, it is of utmost importance to evaluate the anxiety status of these patients as soon as possible and to reduce the affecting factors by identifying them.

Keywords: Acute myocardial infarction, anxiety, depression, intensive care unit.

Cardiovascular diseases are one of the major causes of morbidity and mortality in Türkiye and in the world.^[1] According to the World Health Organization (WHO) and Turkish Statistical Institute (TurkStat) data, ischemic heart disease is the leading cause of death, which reveals the importance of investigating this disease in every aspect.^[1,2]

Acute myocardial infarction (AMI) not only affects the quality of life of patients, but also causes psychological problems. Anxiety is common in patients with AMI during the acute phase. One of the main causes of anxiety is the fear of death. In addition, severe angina and other symptoms experienced by patients, hospitalization and related stressors can also cause anxiety, as patients feel that their health and life goals are threatened. While anxiety is at the forefront in patients in the first days, depression is more common in the following days. Post-AMI depression

may be associated with the uncertainty experienced by individuals, physical limitations, anxiety about loss of function, anxiety about not being able to continue social life, and feelings of guilt about their past life.^[3-5]

While AMI can cause psychological problems, psychological comorbidities which occur in patients can adversely affect the treatment process. Intense anxiety triggers activation of the sympathetic nervous system and increases the release of hormones such as adrenaline and cortisol, causing an increase in heart

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rate and blood pressure and increasing the workload of the heart, which can cause a more severe course of physical disease. Additionally, anxiety and depression may cause problems in adaptation to the primary disease. Due to these effects, providing psychological support to patients with high levels of anxiety and depression may improve the prognosis and reduce the rate of rehospitalization. In addition to the physical recovery process in these patients, their psychological states should also be carefully monitored.^[3,6]

Killip classification is a classification system used to clinically evaluate the hemodynamic status of patients with AMI and to identify the risk of mortality.^[7] It consists of four classes. Killip Class I is the lowest class with mortality risk (6%) without signs of heart failure. In Killip Class II, ventricular gallop rhythm (S3) and wet crackles can be seen in the lung bases, while in Killip Class III, there is acute pulmonary edema and the risk of mortality is around 38% and in Killip Class IV, the mortality risk (80%) is the highest class in which cardiogenic shock is seen.^[7] Considering that the level of anxiety experienced by patients will differ depending on the severity of the disease and the nature of the symptoms, it is thought that the levels of anxiety and depression experienced by patients in different classes of AMI according to the Killip classification would vary.^[8]

In the present study, we aimed to investigate the effect of Killip class on the development of anxiety and depression in patients admitted to intensive care unit (ICU) with AMI and to identify risk groups in terms of anxiety and depression.

PATIENTS AND METHODS

This single-center, descriptive, cross-sectional study was conducted at Bakırçay University, Faculty of Medicine, Department of Cardiology between May 2024 and October 2024. Patients with acute ST elevation MI (STEMI) and non-ST elevation MI (NSTEMI) who met the universal definition of AMI were included. Inclusion criteria were as follows: being over 18 years of age, having been hospitalized in ICU for at least 24 h, and not having a diagnosis of depression or anxiety. Patients diagnosed with any psychiatric disease, those with limited cooperation, and those who developed impaired consciousness after AMI were excluded from the study. Finally, a total of 200 patients (140 males, 60 females; mean age: 61.4±12.1 years; range, 31 to 89 years) who

were hospitalized in the ICU with the diagnosis of AMI were recruited. A written informed consent was obtained from each patient. The study protocol was approved by the Bakırçay University, Faculty of Medicine, Non-Interventional Clinical Research Ethics Committee (date: 21.05.2024, no: 2024-1618). The study was conducted in accordance with the principles of the Declaration of Helsinki.

A data collection form including demographic and clinical characteristic data and laboratory results of the patients and the Hospital Anxiety and Depression Scale (HADS) were used. The data collection form contains a total of 27 questions and there are two sections in the form. The first section includes questions regarding sociodemographic characteristics such as age, sex, presence of hypertension, diabetes mellitus, hyperlipidemia, marital status, education, occupation, while the second section includes questions about descriptive characteristics specific to the patient's health status and ICU, such as type of admission to ICU, Killip class during admission, duration of angiography, duration of stay in ICU, status of mechanical ventilation, duration and method of mechanical ventilation, and previous stay in ICU.

The HADS scale contains 14 questions and the questions are scored on a four-point Likert scale. It has two subscales: HAD anxiety subscale (HAD-A) and HAD depression subscale (HAD-D). The HAD-A section assesses anxiety with seven questions and HAD-D section assesses depression with seven questions. Items 1, 3, 5, 6, 8, 10, 11 and 13 of the scale are for anxiety, and they gradually decrease and are scored as 3, 2, 1, 0. The other items 2, 4, 7, 9, 12 and 14 of the scale are for depression and are scored as 0, 1, 2, 3. When the scores of items 1, 3, 5, 7, 9, 11 and 13 for the Anxiety Subscale are added. For the Depression Subscale, the scores of items 2, 4, 6, 8, 10, 12 and 14 are added. The minimum score that patients can get from both subscales is 0, and the maximum score is 21. The cut-off points for the Turkish form of HADS were determined as 10 for the Anxiety Subscale (HAD-A) and 7 for the Depression Subscale.^[9]

Statistical analysis

Statistical analysis was performed using the IBM SPSS version 25.0 software (IBM Corp., Armonk, NY, USA). Continuous data were expressed in mean ± standard deviation (SD) or median (min-max), while categorical data were expressed in number and frequency. The suitability of numerical variables

for normal distribution was examined using the Kolmogorov-Smirnov test. The independent samples t-test was used to make comparisons between two groups of continuous variables. The relationship between categorical variables was examined using the Pearson chi-square or Fisher exact test. To identify

independent risk factors on the development of anxiety, parameters with a *p* value of <0.1 were evaluated in the univariate regression analysis. Those with a *p* value of <0.05 were included in the multivariate regression analysis. A *p* value of <0.05 was considered statistically significant.

Table 1
Demographic and clinical characteristics of patients

Variables	Anxiety score (n=140)						<i>p</i>	Depression score (n=107)						<i>p</i>
	Score ≤10			10< score <21				Score ≤7			7< score <21			
	n	%	Mean±SD	n	%	Mean±SD		n	%	Mean±SD	n	%	Mean±SD	
Age (year)			62.2±11.7			59.8±12.6	0.199			59.9±11			63.3±12.7	0.043
Sex														
Male	102	72.8		38	63.3		0.154	78	72.9		62	66.7		0.286
Hypertension	82	58.6		33	55		0.640	60	56.1		55	59.1		0.662
Diabetes mellitus	59	42.1		26	43.3		0.876	41	38.3		44	47.3		0.199
Hyperlipidemia	61	43.6		26	43.3		0.975	46	43		41	44.1		0.876
CKD	6	4.3		5	8.3		0.250	4	3.7		7	7.5		0.241
CVD	2	1.4		0	0		1	0	0		2	2.2		0.215
COPD	13	9.3		6	10		0.875	8	7.5		11	11.8		0.295
Smoking	73	52.1		38	63.3		0.144	60	56.1		51	54.8		0.861
Alcohol	28	20		13	21.7		0.789	25	23.4		16	17.2		0.282
Marital status-married	100	71.4		40	66.7		0.501	80	74.8		60	64.5		0.115
Educational background														
0	8	5.7		7	11.7			6	5.6		9	9.7		
1	86	61.4		35	58.3			59	55.1		62	66.7		
2	26	18.6		12	20		0.442	23	21.5		15	16.1		0.073
3	20	14.3		6	10			19	17.8		7	7.5		
CAG history	56	40		23	38.3		0.825	42	39.3		37	39.8		0.939
Previous hospitalization	106	75.7		46	76.7		0.885	84	78.5		68	73.1		0.374
Previous intensive care unit history	49	35		23	38.3		0.653	39	36.4		33	35.5		0.887
NIV	3	2.1		4	6.7		0.201	2	1.9		5	5.4		0.254
Mechanical ventilator	3	2.1		4	6.7		0.201	4	3.7		3	3.2		1
CPR	3	2.1		3	5		0.367	4	3.7		2	2.2		0.687
Use of inotropic agents	2	1.4		4	6.7		0.067	1	0.9		5	5.4		0.099
Intensive care period			1.95±1.3			2.58±2.4	0.016			1.8±0.9			2.52±2.2	0.003
Type of MI														
NONSTEMI	82	58.6		35	58.3			64	59.8		53	57		
Inferior	35	25		11	18.3			24	22.4		22	23.7		
Anterior	21	15		12	20		0.530	17	15.9		16	17.2		0.982
Others	2	1.4		2	3.3			2	1.9		2	2.2		
Type of treatment														
Medical	19	13.6		6	10.2			16	15		9	9.8		
PCI	111	79.3		47	79.7		0.652	84	78.5		74	80.4		0.423
Surgery	10	7.1		6	10.2			7	6.5		9	9.8		
Type of access														
Radial	52	37.1		18	30.5			38	35.5		32	34.8		
Femoral	88	62.9		41	69.5		0.371	69	64.5		60	65.2		0.914
Killip classification														
I	112	80		36	60		0.003	85	79.4		63	67.7		0.06
II, III, IV	28	20		24	40			22	20.6		30	32.3		

SD: Standard deviation; CKD: Chronic kidney disease; CVD: Cerebrovascular disease; COPD: Chronic obstructive pulmonary disease; CAG: Coronary angiography; NIV: Non-invasive mechanical ventilator; CPR: Cardiopulmonary resuscitation; MI: Myocardial infarction; PCI: Percutaneous coronary intervention; Educational background: 0: Illiterate; 1: Primary education; 2: High school; 3: University.

RESULTS

Demographic and clinical characteristics of patients are summarized in Table 1. The mean anxiety score was 7.84 ± 4.9 and the mean depression score was 7.36 ± 4.8 . Anxiety was observed in 60 (30%) of the patients, and depression was observed in 93 (46.5%).

While 148 (74%) of the patients were in Killip Class I, the others had a class other than Killip I. Of the patients other than Killip I, 37 (71%) were in Killip II, 10 (19%) were in Killip III, and five (10%) were in Killip IV. A total of 115 (57.5%) of the patients had hypertension, 85 (42.5%) had diabetes mellitus, and 87 (43.5%) had hyperlipidemia. Of the patients, 117 (58.5%) had non-STEMI, 46 (23%) had inferior

MI, 33 (16.5%) had anterior MI, and four (2%) had other MI (Table 1).

Coronary angiography was performed via radial access in 70 (35%) patients and via femoral access in 130 (65%) patients. Seventy-two (36%) patients had previous ICU hospitalization experience. The mean ICU hospitalization time was 2.1 ± 1.7 (range, 1 to 12) days (Table 1).

Considering the factors affecting ICU anxiety, having a class other than Killip I and prolonged ICU stay significantly increased the anxiety score ($p=0.003$ and $p=0.016$, respectively). The factors which significantly increased the ICU depression score were determined as advanced age and prolonged

Table 2
Laboratory data of patients

Variables	Anxiety score (n=140)			Depression score (n=107)		
	Score ≤ 10	10 < score < 21	<i>p</i>	Score ≤ 7	7 < score < 21	<i>p</i>
	Mean \pm SD	Mean \pm SD		Mean \pm SD	Mean \pm SD	
FBG (mg/dL)	156.8 \pm 75.9	143.3 \pm 55.1	0.216	155.5 \pm 79.5	149.5 \pm 58.6	0.548
Urea (mg/dL)	37.9 \pm 16.4	50.6 \pm 47.6	0.816	35.6 \pm 13.6	48.6 \pm 40.4	0.052
Creatinine (mg/dL)	1.01 \pm 0.7	1.35 \pm 1.5	0.186	1.01 \pm 0.7	1.23 \pm 1.25	0.083
Sodium (mEq/L)	139.6 \pm 3.6	139.4 \pm 3.2	0.749	139.3 \pm 3.2	139.8 \pm 3.7	0.276
Potassium (mg/dL)	4.36 \pm 0.6	4.35 \pm 0.7	0.900	4.32 \pm 0.6	4.4 \pm 0.7	0.427
Calcium (mg/dL)	9.1 \pm 0.6	8.98 \pm 0.5	0.241	9.13 \pm 0.6	8.96 \pm 0.5	0.044
AST (IU/L)	47.4 \pm 60.3	65.6 \pm 96.7	0.107	49.5 \pm 61.1	56.7 \pm 85.5	0.491
ALT (IU/L)	26.1 \pm 21.6	31.8 \pm 25.5	0.100	27.7 \pm 24.4	27.9 \pm 21.3	0.948
Total cholesterol (mg/dL)	192.9 \pm 49.3	189.1 \pm 53.2	0.635	200.4 \pm 51.7	181.7 \pm 47.2	0.009
HDL-cholesterol (mg/dL)	38.5 \pm 10.1	38.6 \pm 13.1	0.993	38.6 \pm 9.9	38.5 \pm 12.3	0.917
LDL-cholesterol (mg/dL)	115.9 \pm 37.4	116.3 \pm 39.2	0.951	120.1 \pm 37.6	111.4 \pm 37.8	0.118
Triglycerides (mg/dL)	202.1 \pm 181.8	155.1 \pm 88.6	0.062	208.7 \pm 173.4	164.1 \pm 142.6	0.054
WBC ($\times 10^9/L$)	10.6 \pm 3.3	11.2 \pm 3.8	0.337	10.4 \pm 2.9	11.3 \pm 4.1	0.069
Hemoglobin (g/dL)	13.8 \pm 2.2	13.1 \pm 2.4	0.057	14.1 \pm 2.1	13.1 \pm 2.4	0.004
Hematocrit (%)	43.6 \pm 5.9	41.7 \pm 7.2	0.052	44.3 \pm 5.4	41.6 \pm 7.1	0.003
Platelet count ($\times 10^9/L$)	248.6 \pm 72.9	265.2 \pm 99.1	0.189	250.8 \pm 68.2	256.9 \pm 95.2	0.604
Hs-cTnT	637.1 \pm 1309	1224 \pm 2304	0.061	538.8 \pm 1251	1128 \pm 2039	0.010
HbA1c (%)	7.03 \pm 2.1	6.52 \pm 1.4	0.102	7 \pm 2.1	6.7 \pm 1.7	0.350
TSH (mU/L)	1.94 \pm 2.4	2.02 \pm 3.6	0.860	2.2 \pm 2.7	1.7 \pm 2.9	0.266
T4 (mU/L)	1.24 \pm 0.4	1.24 \pm 0.4	0.981	1.2 \pm 0.5	1.2 \pm 0.4	0.917
LVEF (%)	52.9 \pm 8.6	51.1 \pm 10.8	0.223	52.5 \pm 9.3	52.3 \pm 9.5	0.864

SD: Standard deviation; FBG: Fasting blood glucose; AST: Aspartate transaminase; ALT: Alanine aminotransferase; HDL: High-density lipoprotein; LDL: Low-density lipoprotein; WBC: White blood cell; Hs-cTnT: High-sensitive cardiac troponin T; HbA1c: Hemoglobin A1c; TSH: Thyroid-stimulating hormone; LVEF: Left ventricular ejection fraction.

Table 3
Univariate and multivariate logistic regression analysis results

Variables	Univariate logistic regression			Multivariate logistic regression		
	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>
Killip classification (II, III, IV)	0.375	0.193-0.727	0.004	0.456	0.210-0.993	0.048
Intensive care period	1.225	1.028-1.460	0.024	1.101	0.901-1.346	0.347
Use of inotropic agents	0.203	0.036-1.139	0.07			

OR: Odds ratio; CI: Confidence interval.

ICU stay ($p=0.043$ and $p=0.003$, respectively). While no significant parameter affecting the anxiety score was found among the laboratory data of the patients, depression score was significantly increased by low calcium, total cholesterol, hemoglobin and hematocrit and high troponin ($p=0.044$, $p=0.009$, $p=0.004$, $p=0.003$ and $p=0.01$, respectively) (Table 2).

In the univariate and multivariate regression analysis performed to identify the independent predictors of ICU anxiety, having a classification other than Killip I was found to be an independent predictor (odds ratio [OR]=0.456; 95% confidence interval [CI]: 0.210-0.993; $p=0.048$) (Table 3).

DISCUSSION

In the present study, we investigated the effect of Killip class on the development of anxiety and depression in patients admitted to ICU with AMI and identified risk groups in terms of anxiety and depression. Our study results showed that having a class other than Killip I was an independent risk factor for the development of ICU anxiety in patients with AMI.

To prevent ischemic heart diseases, which are the leading causes of death worldwide, all risk factors in the individual must be evaluated together. Previous studies have shown that the main independent risk factors for coronary artery disease (CAD) are being ≥ 45 years of age for men, being ≥ 55 years of age for women, being a smoker and having a chronic disease such as diabetes, hypertension and hypercholesterolemia.^[10] In our study, the presence of these risk factors was observed in the majority of patients. The mean age of the patients was 61.4 ± 12.1 years, 57.5% had hypertension, 42.5% had diabetes, 43.5% had hyperlipidemia and 55.5% were smokers, consistent with the literature.^[10]

In the current study, 70% ($n=140$) of the patients were male patients. Similar to our study, in the studies conducted by Özer et al.^[11] and Demirbaş and Kaya^[3] examining anxiety and depression in patients diagnosed with MI, most of the participants were male. According to the Cardiovascular Risk Factors in Turkish Adults (TEKHARF) study, coronary heart disease was more common in men and the incidence of coronary-related mortality was 5.7 per thousand in men and 3.6 per thousand in women.^[12]

Anxiety and depression are the most common psychological problems in patients with MI. In our study, according to the HADS questionnaire, the mean anxiety score of the patients was 7.84 ± 4.9 and the mean depression score was 7.36 ± 4.8 . Sixty (30%) patients had high anxiety and 93 (46.5%) patients had high depression scores. Among similar studies in the literature, Semiz et al.'s^[13] study of patients with AMI found anxiety in 24% of the patients and depression in 30%. In the study conducted by Kutlu et al.^[14] including patients in ICU, the highest rates of anxiety (37%) and depression (36.5%) were seen in MI among all diagnoses. In their study, Dias et al.^[15] found the rate of depression after AMI to be 41.6%. The results of some studies have shown that the rates of anxiety and depression are higher than our study. In their study with CAD patients, Ekici^[16] reported anxiety in 72.4% of the patients, while Özer et al.^[11] found anxiety in 100% of the patients and depression in 91.1% of AMI patients.

In the present study, while there was no significant difference in anxiety and depression scores according to sociodemographic characteristics such as sex, education and marital status, there was a significant difference between age and depression scores, and as age increased, depression scores increased. In their study, Aydemir et al.^[5] found that depression increased with age. Akkaya et al.^[17]

in their study, age was found to be an independent variable for depression in the multivariate regression analysis. It is thought that reasons such as decreasing expectations from life with age, increase in chronic diseases and their adverse effects on daily life, increase in uncertainties and losses would cause the level of depression to increase.

Being in the ICU is a stressful experience for patients. Psychological well-being is affected due to many factors such as the criticality of the patient's life, painful invasive interventions, inactivity, lack of privacy, disruption of sleep patterns, separation from loved ones and lack of adequate information. It is expected that patients' anxiety and depression levels would increase depending on the duration and frequency of exposure to these factors in ICU. In our study, a significant increase was observed in the patients' anxiety and depression scores as the length of stay in the ICU increased. Additionally, in the univariate regression analysis performed to identify independent predictors of ICU anxiety, the duration of ICU stay was found to be an independent predictor of anxiety. Similarly, in the study conducted by Eryiğit and Aydın,^[18] depression levels of patients increased, as the duration of stay in the ICU increased. The study by Bryant et al.^[19] showed that depression had a positive relationship with a longer stay in the ICU.

The symptoms experienced by AMI patients depending on their hemodynamic status and respiratory distress due to lung congestion in patients other than Killip Class I may cause fear of death and increase the development of anxiety in these patients. In particular, in patients with Killip Class III-IV, respiratory support and hemodynamic support may be required, and these factors may also predispose to the development of anxiety. In our study, with the influence of these possible factors, anxiety development was found to be significantly higher in patients other than Killip Class I. Additionally, being in Killip Class II-IV was found to be an independent predictor for anxiety by univariate and multivariate regression analysis. There is no study in the literature on the effect of the Killip class on the development of anxiety. Ekici^[16] investigated the relationship between CAD severity and anxiety levels and found that as the severity of CAD determined by Gensini and SYNTAX scores increased, anxiety scores as determined by HADS increased. However, Makca^[20] found no significant difference in anxiety and depression scores between

patients with non-critical coronary artery stenosis and critical coronary artery stenosis as evidenced by angiography findings.

In our study, we observed a negative significant relationship between the patients' calcium, total cholesterol, hemoglobin and hematocrit values and their depression scores, while there was a positive significant relationship between the troponin level and the depression scores. Ekici^[16] also found that there was a significant negative relationship between hemoglobin and hematocrit values and the HADS depression scale.

The main limitation to the present study is that the total number of patients and the number of those in Killip Class II-IV are relatively low. To support our study results, further larger-scale, prospective studies are needed regarding the predictive value of the Killip class in the development of anxiety in AMI patients.

In conclusion, Killip classification is an independent predictor of anxiety in AMI patients. Since patients with AMI, particularly those who are in Killip Class II-IV, are in the risk group for anxiety, it is of utmost importance to evaluate the anxiety status of these patients as soon as possible and to identify and reduce the affecting factors in order to facilitate adaptation to the disease and positively affect the treatment process.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Idea, design, data collection and writing the article: N.Ç.; Data analysis and literature review: N.Ş.; Design and data collection: S.G.; Data analysis and data collection: E.E.; Design, data collection and control: G.İ.A.; Idea, supervision and critical review: O.Ş.

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REFERENCES

1. World Health Organization. The top 10 causes of death. Available at: who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death [Accessed: 01.08.2022]
2. TÜİK Ölüm İstatistikleri (2023). Erişim adresi: <https://data.tuik.gov.tr/Bulten/Index?p=Olum-ve-OlumNedeni-İstatistikleri-2019-33710> [Erişim tarihi: 01.07.2024]

3. Demirbaş E, Kaya Y. Relationship between anxiety, depression levels and coping style with stress and sleep quality of patients with myocardial infarction. *BSJ Health Sci* 2022;5:344-55.
4. Sevim ME, Güneş N, Özden SY. Frequency of depression and anxiety after myocardial infarction. *Turk J Fam Pract* 2007;6:74-7.
5. 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;5:199-203
6. Oğuz S, Bayrak B, Genç A, Çamcı G. The effect of sad text on blood pressure. *PHJ* 2018;51:204-10.
7. DeGeare VS, Boura JA, Grines LL, O'Neill WW, Grines CL. Predictive value of the Killip classification in patients undergoing primary percutaneous coronary intervention for acute myocardial infarction. *Am J Cardiol* 2001;87:1035-8.
8. Türk Kardiyoloji Derneği. A.M.İ' de erken dönemde risk tayini, risk derecelerinin belirlenmesi. Available at: <https://tkd.org.tr/kilavuz/k07/4a45c.htm?wbnum=1354> [Accessed: 17.01.2025]
9. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983;67:361-70. doi: 10.1111/j.1600-0447.1983.tb09716.x.
10. Türk Kardiyoloji Derneği. Koroner Kalp Hastalığı Riski ve Değerlendirilmesi. Available at: <https://tkd.org.tr/kilavuz/k11/4e423.htm?wbnum=1604> [Accessed: 17.01.2025]
11. Özer ZC, Şenuzun F, Tokem Y. Evaluation of anxiety and depression levels in patients with myocardial infarction. *Arch Turk Soc Cardiol* 2009;37:557-62.
12. Onat A, Can G, Yüksel H, Ademoğlu E, Erginel-Ünatunal N, Kaya A, et al. TEKHARF 2017 - Tıp dünyasının kronik hastalıklara yaklaşımına öncülük. İstanbul: Logos Yayıncılık; 2017.
13. Semiz M, Erdem F, Erdem A, Tuman TC, Demir MO, Kayka N, et al. Symptoms of post-traumatic stress disorder in patients with acute myocardial infarction. *Abant Med J* 2015;4:47-53.
14. Kutlu R, Demirbaş N, Gök H, Işıklar Özberk DI. Frequency of anxiety and depression, and affecting factors in inpatients in cardiology intensive care unit. *Turk Gogus Kalp Dama* 2016;24:672-9. doi: 10.5606/tgkdc.dergisi.2016.13227.
15. Dias CC, Mateus PS, Mateus C, Bettencourt N, Santos L, Adão L, et al. Acute coronary syndrome and depression. *Rev Port Cardiol* 2005;24:507-16.
16. Ekici B. Koroner arter hastalığı ciddiyeti ile sağlıkla ilişkili yaşam kalitesi, anksiyete ve depresyon ilişkileri. [Uzmanlık Tezi], Ankara: Ufuk Üniversitesi Tıp Fakültesi, Dr. Rıdvan Ege Hastanesi Kardiyoloji Anabilim Dalı; 2010.
17. Akkaya S, Polat C, Ede H, Öztürk Ö. The relation between anxiety, depression and severity of the coronary artery disease among the patients referred to coronary angiography laboratory. *Bozok Med J* 2018;8:40-45.
18. Eryiğit İ, Aydın HT. Determination of intensive care experiences, anxiety and depression levels of patients transferred from the intensive care unit: Descriptive study. *Türkiye Klinikleri J Nurs Sci* 2022;14:896-907.
19. Bryant C, Jackson H, Ames D. Depression and anxiety in medically unwell older adults: Prevalence and short-term course. *Int Psychogeriatr* 2009;21:754-63. doi: 10.1017/S1041610209009399.
20. Makca T. Koroner Arter Hastalığı ciddiyeti ile anksiyete ve depresyon ilişkisi. [Uzmanlık Tezi], Diyarbakır: Dicle Üniversitesi Tıp Fakültesi Kardiyoloji Anabilim Dalı; 2016.