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ASSESSMENT OF PAIN IN PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT WİTH ACUTE CORONARY SYNDROME

AKUT KORONER SENDROM İLE ACİL SERVİSE BAŞVURAN HASTALARDA AĞRININ DEĞERLENDİRİLMESİ

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ABSTRACT

Objective: Early diagnosis and treatment of acute coronary syndromes, ST-segment elevation myocardial infarction, non-ST-segment elevation myocardial infarction, and unstable angina are vital for patient prognosis. This study aimed to characterize the presentation and follow-up pain of patients admitted to the emergency department with a diagnosis of non-ST-segment elevation myocardial infarction, while accounting for sociodemographic characteristics.

Materials and methods: Thirty-six patients who presented to the emergency department with chest pain and were admitted with a diagnosis of non-ST-segment elevation myocardial infarction between February 2025 and May 2025 were included in the study. Sociodemographic and clinical characteristics, Troponin-T values, McGill Short Form Pain Scale, and Visual Analog Scale scores of the patients were examined.

Results: Among 360 emergency department patients with chest pain, the Short-Form McGill Pain Questionnaire McGill Short Form Pain Scale, total score averaged 6.58 ± 2.66. The Sensory Domain score was 3.82 ± 1.81, and the Perceptual Domain was 2.76 ± 1.76. Current pain intensity (Present Pain Intensity, PPI) averaged 2.43 ± 1.02. Comparing marital status, single patients (x = 3.20, SS ± 1.84) had a higher mean emotional domain score than married patients (x = 2.62, SS ± 1.73). Pain severity prompting the emergency visit decreased with age. Both the emotional domain score (r = 0.16, p = 0.003) and McGill Short Form Pain Scale, total score increased with higher Troponin-T values (r = 0.14, p = 0.009).

Conclusion: Building upon these findings, gender, education level, occupation, income level, body mass index, cohabiting partner, and previous acute coronery sendrome history were not significant variables. In contrast, marital status, having a chronic disease, having received education about a chronic disease, age, and Troponin-T level were identified as significant variables.

Keywords: Acute coronery sendrome, Nurse, Myocardial infarction, Pain Assessment

ÖZET

Amaç: Akut koroner sendromların—ST yükselmeli miyokard enfarktüsü, ST yükselmesiz miyokard enfarktüsü ve unstabil angina—erken tanı ve tedavisi hasta prognozu açısından hayati önem taşımaktadır. Bu çalışma, sosyodemografik özellikler göz önünde bulundurularak, acil servise ST yükselmesiz miyokard enfarktüsü tanısıyla yatırılan hastaların başvuru ve takip ağrı durumlarını karakterize etmeyi amaçlamıştır.

Gereç ve Yöntem: Şubat 2025 ile Mayıs 2025 tarihleri arasında acil servise göğüs ağrısı ile başvuran ve ST yükselmesiz miyokard enfarktüsü tanısıyla yatışı yapılan 36 hasta çalışmaya dahil edilmiştir. Hastaların sosyodemografik ve klinik özellikleri, Troponin-T değerleri, McGill Kısa Form Ağrı Ölçeği ve Görsel Analog Skala puanları incelenmiştir.

Bulgular: Göğüs ağrısı olan 360 acil servis hastası arasında, McGill Kısa Form Ağrı Ölçeği toplam puan ortalaması 6,58 ± 2,66'dır. Duyusal Boyut puanı 3,82 ± 1,18, Algısal Boyut (Duygusal Boyut) puanı ise 2,76 ± 1,76'dır. Mevcut ağrı şiddeti (PPI) ortalaması 2,43 ± 1,02'dir. Medeni durumlar karşılaştırıldığında, bekar hastaların (x = 3,20, SS ± 1,84) ortalama duygusal boyut puanı evli hastalara (x = 2,62, SS ± 1,73) göre daha yüksek bulunmuştur. Acil servis ziyaretine yol açan ağrı şiddeti yaşla birlikte azalmıştır. Yüksek Troponin-T değerleri ile hem duygusal boyut puanı ($r = 0{,}16, p = 0{,}003$) hem de McGill Kısa Form Ağrı Ölçeği toplam puanı ($r = 0{,}14, p = 0{,}009$) artış göstermiştir.

Sonuç: Bu bulgulardan yola çıkılarak; cinsiyet, eğitim düzeyi, meslek, gelir düzeyi, beden kitle indeksi, birlikte yaşanılan kişi ve geçmiş akut koroner sendrom öyküsü anlamlı değişkenler olarak bulunmamıştır. Buna karşın; medeni durum, kronik bir hastalığa sahip olma, kronik hastalık eğitimi almış olma, yaş ve Troponin-T düzeyi anlamlı değişkenler olarak belirlenmiştir.

Anahtar Kelimeler: Akut koroner sendrom, Hemşire, Miyokard enfarktüsü, Ağrı değerlendirmesi

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INTRODUCTION

Acute Coronary Syndrome (ACS) is one of the leading causes of cardiovascular death and accounts for a significant portion of emergency department visits (Timmis, A. et al. 2023). The risk of developing ACS increases with age, and it occurs more frequently in men than women. Smoking, hypertension, diabetes, sedentary lifestyle, obesity, and poor nutrition are important risk factors for the development of ACS (Singh, A. et al. 2017). Clinically, ACS presents as ST-segment elevation myocardial infarction (STEMI), non-ST-segment elevation myocardial infarction (NSTEMI), and unstable angina. Early diagnosis and treatment are vital for patient prognosis (Atwood, J., 2022; Rao, S.V. et al., 2025). According to the literature, NSTEMI constitutes the majority of ACS cases; STEMI cases are becoming less common (American College of Cardiology, 2024; Ibanez et al., 2018).

"Chest pain," typically described as pressure or burning, is the primary presenting complaint (Byrne R. A. et al., 2024; Atwood, J., 2022; Rao, S. V., et al., 2025). Age, gender, education level, and cultural background directly affect how patients perceive and articulate pain (Aydın, E. et al., 2023; Raja, S. N., et al., 2020). Women, older adults, and individuals with lower education levels often report pain differently (Wibring, K. et al., 2022), which may contribute to diagnostic delays and missed treatment opportunities.

While methods such as ECG and cardiac troponin are indispensable for diagnosing ACS, it should not be forgotten that the process begins with a carefully obtained pain history (Lazar et al., 2022). For healthcare professionals working under intense pressure and time constraints in emergency departments, accurate and rapid pain assessment is crucial. Knowing that pain descriptions vary according to individual characteristics reduces uncertainty and supports problem management (Aydın, E. et al., 2023; Kaya, B. et al., 2023; Mohamed, A. S., et al., 2019; Raja, S. N., et al., 2020). A detailed assessment of chest pain is important for the rapid initiation of nursing care and treatment. Nurses play a key role in pain assessment and monitoring at every stage from triage to discharge in the emergency department (Zipes, D. P., 2018). Care plans using pain scores are more effective in patient management and increase the efficiency of the nursing process, accelerating patient recovery (Zhu, H., Ding, D., 2024).

Despite all these efforts, it is known that the rate of missed STEMI in patients with chest pain is at the level of 2–5%. It has been reported that the rate of missed and subsequently detected STEMI constitutes 20-39% of all emergency malpractice decisions (Halpern, E. J., 2013), and that cardiac events occur in 16.2% of patients during the 6-week follow-up after discharge despite all examinations and follow-ups (Kaya, B. et al., 2023).

The aim of this study is to evaluate pain in patients presenting to the emergency department with chest pain and scheduled for follow-up and hospitalization with a preliminary diagnosis of NSTEMI. The study will define pain in terms of its intensity, localization, and multidimensional components. It will also examine the relationships between these characteristics and sociodemographic and clinical variables. The results are expected to support existing data on pain assessment and follow-up processes in patients diagnosed with NSTEMI, or provide new data to improve patient comfort and accelerate diagnostic processes. Thus, it aims to provide practical decision support data for both nurses and other healthcare professionals. The research also aims to make diagnostic processes in emergency departments more reliable by placing the subjective aspect of patient history on a more objective basis.

MATERIAL AND METHODS

This study was a descriptive, cross-sectional, correlational study. The research was conducted in the Emergency Department of a specialized hospital providing services in thoracic, cardiovascular, and vascular surgery, affiliated with the Ministry of Health in Istanbul, between February and May 2025. The study population consisted of all patients who presented to the Emergency Department of the specified hospital with chest pain and were admitted for follow-up with a diagnosis of NSTEMI. The sample consisted of 360 patients randomly selected during the study period and meeting the inclusion

criteria. Patients included in the study were 18 years of age and older, possessed the cognitive ability to communicate verbally at the time of presentation, could speak and understand Turkish, could describe their pain experience in their own words, and voluntarily participated and signed an informed consent form. Patients whose chest pain was definitively determined to be of non-cardiac origin, who had cognitive impairment to the extent that they could not communicate, or who had a clinical condition that prevented them from describing their pain were excluded from the study.

Data Collection Tools: To collect data, researchers first used a Personal Information Form, then the Visual Analog Scale (VAS), the patient file, and finally the McGill Short Form Pain Scale (SF-MPQ).

Personal Information Form: This form consists of 34 questions. It includes questions on patients' sociodemographic data such as age, gender, marital status, education level, and occupation. It also asks about clinical characteristics, including a history of known coronary or chronic disease, independence in activities of daily living (ADL), exercise and dietary habits, tea and coffee consumption, and details about pain (duration, onset, and severity) at presentation to the emergency department.

McGill Short Form Pain Scale (SF-MPQ): This pain scale provides information on the location, duration, spread, severity, and type of the patient's pain. The SF-MPQ uses 15 descriptive adjectives (items 1-11, sensory, and items 12-15, emotional) to describe the sensation of pain, with each adjective's effect on the patient rated on a scale from 0=none, 1=mild, 2=moderate, 3=severe (Yakut, Y. et al., 2007). The scale was developed by Melzack in 1987 (Melzack, R., 1987) and adapted into Turkish by Yakut et al. in 2007. A Turkish validity and reliability study reported Cronbach's alpha of 0.705 and test-retest reliability of 0.713 (Yakut, Y. et al., 2007).

Visual Analog Scale (VAS): The VAS asks a patient to mark a point on a defined scale to indicate the intensity of their pain. VAS can be used to measure the worst, least, or average pain in the last 24 hours or the last week.

Data Collection Phase: Data were collected between February and May 2025 by researchers visiting the hospital where the study was conducted. Data were collected through face-to-face interviews with patients who met the research criteria and agreed to participate.

Ethical Permissions

This study was approved by the Xxxx Xxxx Xxxx Ethics Committee on August 29, 2024, under registration number 2024/17, in accordance with the Helsinki Declaration and the Ministry of Health's Good Clinical Practice Guidelines. Written permission was obtained from Dr. Siyami Ersek, Chest Heart and Vascular Surgery Training and Research Hospital, on November 4, 2024, to conduct the research. The Istanbul Provincial Health Directorate approved the study with decision number 2025/1 dated January 27, 2025; permissions for the scales used in the study were obtained via email.

Data Analysis

Statistical analysis of the data was performed using SPSS 22. The categorical variables of the study were presented as numbers and percentages, and the numerical variables were presented as mean and standard deviation. The suitability of the data for normality was evaluated using the Kurtosis test, which indicated that the data were normally distributed. The Independent Samples t-test was used for variables with two groups, and the One-Way Analysis of Variance test was used for variables with more than two groups. Relationships between scales and their sub-dimensions were examined using correlation analysis. Scale reliability was assessed using Cronbach's alpha.

RESULTS

The study group consisted of patients with an average age of 61.83±12.54, mostly male (72.5%), married (76.7%), and primary school graduates (57.5%). It was found that 89.2% (n=321) of the patients with a middle income level (91.9%) lived with their families, and 38.9% (n=140) were self-employed.

Only 36.1% (n=130) of the patients with a BMI of 28.45±4.66 smoked, and 13.6% (n=49) consumed alcohol (Table 1).

Table 1.: Distribution of Socio-Demographic Characteristics

Sociodemographic Characteristics		**Number (n)**	**Percentage (%)**
Gender	Female	99	27,5
	Male	261	72,5
BMI	Underweight	2	0,6
	Normal weight	74	20,6
	Overweight	151	41,9
	Obese (step 1)	88	24,4
	Obese (step 2)	39	10,8
	Morbidly obese (step 3)	6	1,7
Marital status	Married	276	76,7
	Single	84	23,3
Education	Illiterate	18	5,0
	Literate	20	5,6
	Primary Education	207	57,5
	Secondary Education	83	23,1
	Undergraduate	31	8,6
	Postgraduate	1	0,3
Job	Unemployed	74	20,6
	Civil servant	23	6,4
	Self-employed	140	38,9
	Retired	118	32,8
	Other	5	1,4
Income status	Good	5	1,4
	Middle	331	91,9
	Bad	24	6,7
Who do you live with?	Alone	39	10,8
	Family	321	89,2
	Other	0	0
Smoking	Yes	130	36,1
	I quit	120	33,3
	I’ve never	110	30,6
Alcohol	Yes	49	13,6
	I quit	105	29,2
	I’ve never	206	57,2

When disease characteristics were examined, 50.6% of patients had a history of ACS. The rate of having at least one chronic disease was 80.27% (n=289), and hypertension [60.8% (n=219)], diabetes [36.1% (n=130)], and hyperlipidemia [21.1% (n=76)] were the most frequently detected chronic diseases in patients. 71.9% (n=259) of patients were taking medication regularly. 94.2% (n=339) of patients reported being independent in ADL (Applications for Daily Living), 79.2% (n=285) reported not exercising, 68.1% (n=245) reported eating a healthy diet, and 41.9% (n=151) reported consuming 4-6 cups of tea/coffee per day, while 41.1% (n=148) reported consuming 7 or more cups per day (Table 2).

Table 2.: Distribution of Disease Characteristics

Disease-Related Characteristics		**Number (n)**	**Percentage (%)**
History of ACS	Yes	182	50,6
	No	178	49,4
Presence of chronic diseases	Yes	289	80,3
	No	71	19,7
Chronic diseases	Hypertension	219	60,8
	Diabetes mellitus	130	36,1
	Hyperlipidemia	76	21,1
	Arrhythmias	25	6,9
	Heart failure	14	3,9
	COPD	28	7,8
	Asthma	8	2,2
	Chronic Kidney Failure	14	3,9
	Other	80	22,2
Regular medication use	Yes	259	71,9
	No	101	28,1
Receiving education about the disease	Yes	149	41,4
	No	211	58,6
Ability to perform daily living activities	İndependent	339	94,2
	With help	21	5,9
Exercise status	Yes	75	20,8
	No	285	79,2
Healthy eating	Yes	245	68,1
	No	115	31,9
Tea/Coffee	1-3 cups	61	16,9
	4-6 cups	151	41,9
	7 cups and above	148	41,1

Of the patients who presented to the emergency department with complaints of pain in the midline of the chest [68.3% (n=246)], starting 12.63±9.35 hours prior and with a VAS intensity of 6.68±1.4, 45.0% (n=162) reported continuous pain and 73.3% (n=264) reported not using analgesics before arriving at the hospital (Table 3).

Table 3.: Distribution of Characteristics Related to Pain at the Point of Emergency Department Admission.

Characteristics of Pain		**□x ± SS**	**Min - Maks**
Initial presentation pain (VAS)		6,68 ± 1,42	1,00-10,00
		Sayı (n)	**Yüzde (%)**
Location of the pain	Chest midline	246	68,3
	Left chest	108	30,0
	Right chest	20	5,6
	Left arm/shoulder	84	23,3
	Right arm/shoulder	37	10,3
	Neck/chin	51	14,2
	Abdomen/stomach	48	13,3
	Back	58	16,1
Type of pain	Continuous	162	45,0
	Periodic	116	32,2
	Instantaneous/temporary	82	22,8
Analgesics used without going to the hospital	Paracetamol	68	18,9
	Flurbiprofen	9	2,5
	Dexetoprofen	15	4,2
	Diclofenac sodium	3	0,8
	Pyrazolone	1	0,3

	No analgesic use	264	73,3

*VAS: Visual Analog Scale

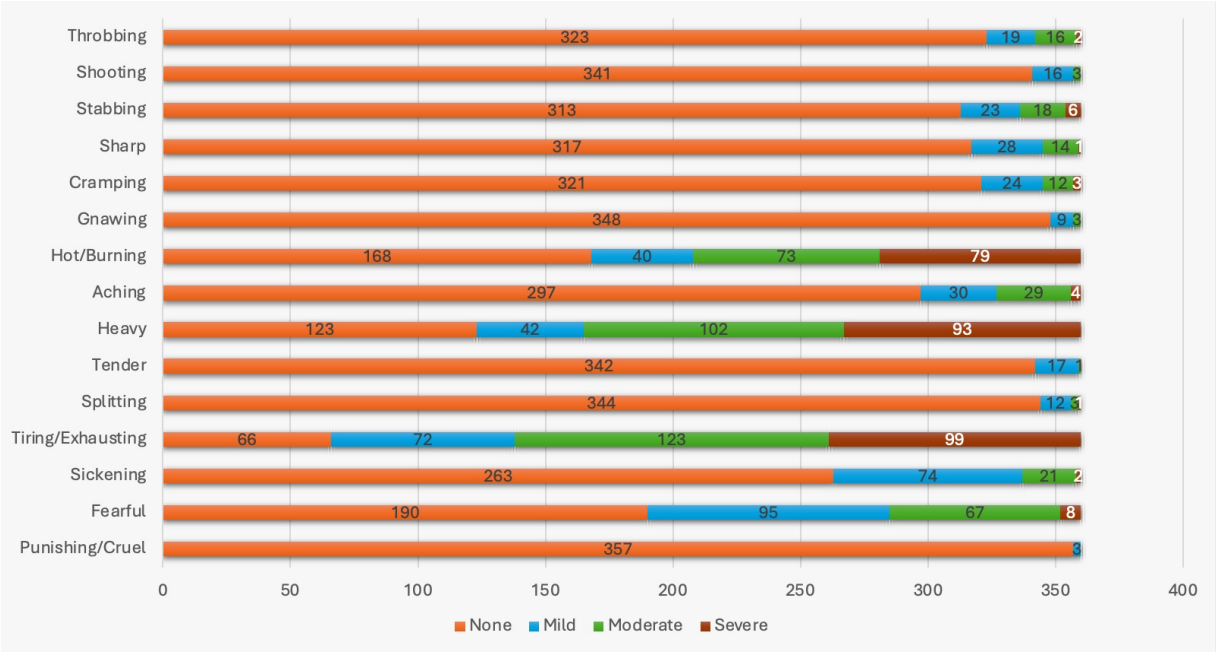
In patients presenting to the emergency department with chest pain, the Cronbach's Alpha reliability coefficient for the multidimensional McGill Scale was 0.61. The mean total McGill Scale Short Form (SF-MPQ) score was 6.58 ± 2.66, the sensory subscale score was 3.82 ± 1.81, the emotional subscale score was 2.76 ± 1.76, and the measured current pain intensity (PPI) score was 2.43 ± 1.02 (Table 4).

Table 4.: Assessment of Pain-Related Characteristics Using the McGill Scale

	x ± SS	**Minimum-Maximum**
McGill Pain Scale Total	6,58 ± 2,66	1-15
Sensory Area	3,82 ± 1,81	1-10
Perceptual Field	2,76 ± 1,76	0-9
PPI	2,43±1,02	0,00 – 5,00

When the characteristics related to pain assessment were examined, it was reported that the pain assessment statements in the Sensory Domain subscale of the McGill Scale used were rated as hot-burning (n=79) and crushing (n=93); and the pain assessment statement in the Perceptual Domain subscale was rated as tiring-debilitating (n=99) (Figure 1)

Figure 1. Pain Assessment Preferences with the McGill Scale.



When the effect of individual patient characteristics on pain perception was examined, gender, education level, occupation, income level, body mass index (BMI), cohabiting partner, and previous experience with acute coronary syndrome (ACS) were found not to be significant variables, while marital status, having a chronic disease, having received education about the chronic disease, age, and Troponin-T level were found to be significant variables. It was determined that single patients (`x =3.20, SD ± 1.84) had higher mean emotional domain scores compared to married patients (`x =2.62, SD ± 1.73), and this difference was statistically significant (t=-2.64; p=0.008).

It was found that patients without chronic diseases (x = 7.00, SD ± 1.26) had a higher mean pain score leading to emergency room visit compared to patients with chronic diseases (x = 6.61, SD ± 1.46), and this difference was statistically significant (t = -2.075; p = 0.04). Similarly, patients without chronic diseases (x = 3.14, SD ± 1.85) had a higher mean emotional domain score compared to patients with

chronic diseases (x = 2.66, SD ± 1.74), and this difference was statistically significant (t = -2.04; p = 0.04).

It was found that patients who received education about their chronic illness (x = 4.07, SD ± 1.89) had higher mean sensory domain scores compared to those who did not receive education (x = 3.64, SD ± 1.74), and this difference was statistically significant (t = -2.25; p = 0.02).

As age increased, the severity of pain that led patients to visit the emergency department decreased, and this difference was statistically significant (r=-0.149; p=0.005).

As the Troponin-T value increased, the emotional domain subscale score (r = 0.16, p = 0.003) and the McGill Scale total score increased (r = 0.14, p = 0.009). No relationship was found between the pain score leading to the emergency department visit and the Troponin-T value, and no relationship was found between the measured current pain intensity (PPI) score and Troponin-T (Table 5).

Table 5.: Relationship between Age, Body Mass Index, and Troponin-T Level with Pain Intensity and Perception.

	Pain that caused a visit to the emergency room.		**Sensory Field sub-dimension**		**Emotional Area sub-dimension**		**McGill Total**		**Current Pain (PPI)**	
	r	p	r	p	r	p	r	p	r	p
Age	-,149**	0,005	0,036	0,495	-0,054	0,311	-0,011	0,835	0,055	0,297
BMI	0,054	0,303	0,087	0,099	-0,009	0,872	0,054	0,311	0,029	0,584
Troponin-T	0,043	0,417	0,048	0,36	,158**	0,003	,138**	0,009	0,058	0,273

DISCUSSION

This study highlights the critical role of pain assessment in patients presenting to the emergency department with ACS, offering important findings that provide a more reliable and objective foundation for clinical decision-making. When examining the impact of individual patient characteristics on pain perception, gender, education level, occupation, income level, BMI, cohabiting partner, and previous ACS history were not significant predictors of pain levels. According to the literature, ACS-NSTEMI is more common in males (Virani S. S. et al., 2021). The fact that 72.5% of the patients in this study were male is consistent with the literature. Furthermore, obesity and a sedentary lifestyle are risk factors for ACS. Research indicates that excess weight and inactivity are among the leading causes of cardiovascular diseases such as ACS (Elagizi, A. et al., 2020). In this study, 36.9% of the patients were obese, 41.9% were overweight, and 79.9% reported not exercising. The literature reports that pain scores are higher in women with lower education and income levels, especially those with high BMI (Mills S. E. E., et al., 2019; Poorhosseini et al., 2019; Roohafza, H. et al., 2025).

The study determined that single patients experienced emotional pain more intensely compared to married patients. It is known that loneliness is associated with high levels of physical pain and poor mental health (Macchia, L. et al., 2025) and that family relationships and social support are associated with less painful outcomes (Franqueiro et al., 2023). In clinical practice, strengthening social support mechanisms and assessing patients' psychosocial status can increase the effectiveness of pain management and early intervention strategies.

In the study, emotional pain and average pain levels were found to be significantly lower in individuals with chronic diseases. Chronic diseases such as DM, HT, and dyslipidemia are known to reduce pain perception by affecting neuropathic processes (Bodman, M. A., et al. 2025; Galiero, R. et al. 2023).

The pain levels at which elderly individuals presented to the hospital were low in this study. The decrease in the degree of pain felt by individuals as age increases is attributed to: It is thought that an individual's experience of pain, which increases with age, and their medical history are influential factors (Wibring, K. et al., 2022). Furthermore, the literature supports the idea that chronic diseases, which increase with age, lead individuals to develop pain tolerance due to the physical and psychological burden of their illnesses (Lin XX et al., 2024; Shuchang H et al., 2011).

Furthermore, this study shows that patients who did not receive education about their chronic illness had significantly lower sensory domain scores compared to those who did receive education, indicating that individuals' ability to recognize and express pain symptoms was poor. Mackey et al.

(2016) reported that individuals with high levels of health literacy also demonstrated high ability to recognize disease symptoms (Mackey, L. M., et al., 2016). In parallel, the study by Akan and Çınar Pakyüz (2023) states that education improves health behaviors and enhances symptom perception and expression skills (Akan, D. D., & Çınar Pakyüz, S., 2023). Therefore, for elderly patients presenting to the emergency department with ACS, especially those with chronic illnesses and insufficient education about the disease, considering pain intensity and timing as critical early warning signs underscores the importance of developing tailored strategies for these groups in clinical decision-making. The majority of patients experience continuous pain. The study by Granot et al. also showed that in most patients diagnosed with STEMI, pain was persistent and affected the time to hospital admission. A positive correlation has been reported between pain intensity and the affected myocardial area (Granot, M. et al., 2015), and this study also showed that patients presenting to the emergency department had high VAS and McGill pain scores. All these results are consistent with the striking findings of the study, which included the fact that nearly half of the patients experienced continuous moderate chest pain, their pain intensified within 12 hours before hospital admission, and they were admitted to the hospital with a preliminary diagnosis of NSTEMI.

In this study, the most frequently reported pain descriptions included hot, burning, and crushing. This finding is consistent with the contemporary literature on descriptions of ACS pain. While typical ischemic chest pain is usually described using terms like pressure, tightness, or crushing, some cases also report sensory descriptions such as "burning." These studies have indicated that, in addition to the classic "crushing" and "pressure" pain descriptions, burning or indigestion-like discomfort descriptions can also be seen in ACS patients (Brady, W. J., 2000; DeVon, H. A., et al., 2020); this supports the findings of this study. Furthermore, symptoms with an emotional dimension, such as the expressions "tiring" or "debilitating," were reported at high rates in the study, indicating that the pain experience is not merely a physical sensation but is also associated with psychological and general discomfort. In the literature, the identification of fatigue, weakness, and accompanying symptoms, in addition to pain quality, in the diagnosis of ACS points to a broad spectrum of symptoms beyond pain quality (Perona, M. et al., 2024; Canto, J. G., et al., 2025). More systematic studies show that the definition of “atypical (noncardiac) chest pain” includes diagnoses of burning, sharp, or positional pain, and that these definitions have clinical value in identifying symptoms of ischemic origin (Perona, M. et al. 2024). The findings of the study reveal that ACS pain is a multidimensional experience and cannot be reduced solely to the traditional diagnosis of “typical chest pain.” In this context, comprehensive symptom assessments that evaluate both sensory and emotional pain qualities can provide clinicians with a more detailed symptom profile in the diagnosis and management processes of ACS. The findings reveal that pain assessment in patients presenting to the emergency department with ACS is not only a symptomatic indicator but also a strong reflection of cardiovascular risk, highlighting the need to develop holistic strategies for early intervention.

CONCLUSION

This study supports the idea that pain assessment in patients presenting to the emergency department with acute coronary syndrome (ACS) is critical for clinical decision-making processes. Individuals with chronic diseases, who are elderly, single, and lack sufficient knowledge about their illness, experience persistent moderate-to-high levels of pain but do not seek hospital treatment until 12 hours after the pain intensifies. This delay leads to increased pain levels, resulting in elevated Troponin-T levels, making pain not only a subjective symptom but also a cardiovascular risk factor. Education and research on pain, based on the data obtained, can contribute to earlier diagnosis of patients' symptoms, faster, more comfortable treatment, and follow-up processes in emergency department visits, and, consequently, a reduction in cardiac risks.

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