

# Research Paper:

## The Satisfaction of Ischemic Heart Disease Patients With Nursing Care in Emergency Department



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## ABSTRACT

**Background:** Emergency department congestion is among the major barriers to receiving nursing care for high-priority conditions, like ischemic heart disease. Therefore, it can affect patients' satisfaction with the quality of care. This study aimed to investigate satisfaction with emergency care among patients with ischemic heart disease.

**Methods:** This cross-sectional study was conducted on 600 randomly-selected patients with ischemic heart disease who were admitted to the emergency department of Shahid Beheshti Hospital in Kashan City, Iran, from April to October 2017. The required data were collected, applying the Patient Satisfaction Instrument (PSI). The obtained data were analyzed using descriptive and analytical statistics, including Independent Samples t-test, Analysis of Variance (ANOVA), Multivariate Regression, and Pearson's correlation analysis in SPSS software.

**Results:** In total, 50.7% (304) of the studied patients were male. The Mean±SD score of patient satisfaction with nursing care was 71.90±14.76. The highest and lowest scores of patient satisfaction were related to technical-professional care (4.40±1.09) and patient education (3.17±0.74) subscales, respectively. Patient satisfaction was significantly correlated with previous experience of hospitalization and educational level (P=0.03). Pearson's correlation analysis results suggested a positive and significant correlation between age and satisfaction (P<0.01; r=0.310).

**Conclusion:** In this study, patient satisfaction of technical-professional care was at an acceptable level; however, it was low on the subscale of patient education. Nevertheless, nursing managers should create conditions to promote patient education for more patient satisfaction. Additionally, devoting more time for patient education is required by nurses.

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## Highlights

- Patient satisfaction is considered to be a hallmark indicator of health care quality.
- Ischemic heart disease is among the main causes of patients' admission to the emergency department.
- Patients with ischemic heart disease admitted to the emergency department require urgent care.

## Plain Language Summary

The current study assessed the satisfaction of patients with ischemic heart disease in terms of the care received in the emergency department of an educational hospital in Kashan City, Iran. The study patients' total satisfaction was at a relatively desirable level; however, these patients had low satisfaction with patient education. Furthermore, the lack of knowledge is among the main reasons for the frequent referral of ischemia patients. Therefore, nursing managers and health policymakers must take appropriate actions to improve such care.

### 1. Introduction

Today, emergency departments are the main sector to provide healthcare to critical conditions, like Ischemic Heart Disease (IHD) patients (Tanabe et al. 2004). Every day a significant number of patients with severe heart disease or similar causes of myocardial infarction refer to the emergency department with the hope of surviving life-threatening conditions (Messina et al. 2015). The increased number of patients in this ward, along with the concurrent admission of IHD patients, has led to population crowding in the emergency rooms (Tanabe et al. 2004).

Emergency department congestion leads to prolonged waiting time for receiving care. Increased waiting time and prolonged emergency care delivery could reduce the quality of care and increase adverse outcomes in ischemic heart patients with life-threatening conditions (Henneman et al. 2010). As a result, addressing these patients' satisfaction in the emergency department may improve the quality of the care provided (Lee et al. 2008).

Patient satisfaction has emerged as a central focus of healthcare delivery during the last decades, and nursing care has become one significant component of patient satisfaction (Atallah et al. 2013). Patient satisfaction with hospital services and the balance between the perceived and expected care (Akhtari-Zavare et al. 2010), are major principles that should be considered, especially in the emergency department. Besides, patient satisfaction evaluation has become increasingly important for healthcare organizations (Shamsi et al. 2016; Sun et al. 2004; Welch 2010); it can only be understood through

individuals' expression of their inner perceptions (Johansson, Oleni & Fridlund 2002; Suhonen et al. 2012).

Patient satisfaction is critical in emergency departments. Every year, approximately 6 million patients with chest pain visit emergency departments. Moreover, this condition has been identified as the second leading cause of seeking emergency services in the United States (Walker, Galuska & Vega 2010). However, increasing population growth has reduced patient satisfaction with emergency care (Suhonen et al. 2012). Other factors, such as the inadequate number of beds and the long wait to receive care and medical interventions, could also affect patient satisfaction (Kulstad et al. 2010). Nurses are the main care providers and have the greatest interaction with hospitalized patients. Consequently, not only can nursing care play a crucial role in patient satisfaction with the provided care (Tang, Soong & Lim 2013), but it can also be used as a strong indicator in examining patient satisfaction (Brown et al. 2005; Fontova-Almató et al. 2019).

Patient satisfaction is beneficial in determining patients' needs and the quality of the provided services, comparing hospitals, identifying organizations with more effective performance, and the areas which require improvement. It can also be used to clarify healthcare policies in different organizations (Bredart et al. 2007; Olshaker 2009; Tang et al. 2013). Research has indicated a desirable level of satisfaction among cardiac patients, i.e. the majority of these patients have been highly satisfied with nursing care (Boulding et al. 2011; Legesse & Walle 2016; Siebens et al. 2010). Lee et al. reported that most patients with a heart attack were satisfied with the care provided (Lee et al. 2008). In addition, proper care

increased patient satisfaction after angiography (Sampson, O’Cathain & Goodacre 2009). However, Tang et al. found that patients were only moderately satisfied with the received care (Tang et al. 2013).

Related studies in Iran have suggested different results. According to Ghamari et al. most patients in coronary care units had moderate satisfaction with nursing care (Ghamari et al. 2008). While Shaikhi et al. reported a high level of patient satisfaction (Sheikhi & Javadi 2004), Jolaei et al. (Joolaei et al. 2011), and Eshghi et al. (Eshghi et al. 2016) found moderate to low satisfaction in this group.

IHD patients face life-threatening situations and require urgent medical treatment (Henneman et al. 2010); thus, assessing satisfaction with the care provided in these patients could reflect the quality of emergency care provided. Accordingly, the current study sought to identify the existing status and understand the gaps in the healthcare system by investigating the level of satisfaction with emergency nursing care in patients with IHD who have referred to the emergency department of an educational Hospital in Iran, in 2017.

## 2. Materials and Methods

This cross-sectional study was conducted on 610 patients with IHD who were hospitalized in the emergency department of an educational Hospital in Iran during April-October 2017. According to the Cochran formula, the sample size was calculated as 607 patients ( $z=1.96$ ;  $P=82.8$ ; and  $d=3$ ); however, it was considered equal to 610 patients for further assurance. The study subjects were randomly selected using a table of random numbers.

The inclusion criteria were minimum emergency department stay of 12 hours due to IHD, minimum age of 18 years, Iranian nationality, willingness to take part in the study, ability to speak and understand Persian, no hearing or speech impairment, full consciousness, and hemodynamic stability. Moreover, incomplete questionnaires were excluded from the study.

The required data were collected with a two-part questionnaire comprising demographic characteristics (age, gender, marital status, educational level, economic status, occupation, and the history of hospitalization) in the first part and the Patient Satisfaction Inventory (PSI) in the second. The PSI was designed by Hinshaw and Atwood (1981) and reported to be valid and reliable (Cronbach’s alpha coefficient= 0.9) by Rafii et al. (Rafii,

Hajinezhad, & Haghani 2009). It comprises 25 items in three subscales of technical-professional care (7 items), trust (11 items), and patient education (7 items). The questions are scored on a five-point Likert-type scale from completely agree (5) to completely disagree (1). While 14 items are positively scored, others have negative scores. Consequently, the total obtainable score ranges from 25-125. Scores  $\leq 69$ , 70-104, and  $\geq 105$  indicated dissatisfaction, satisfaction, and high satisfaction, respectively.

The collected data were analyzed in SPSS at a significance level of 0.05. As the normality test revealed the normal distribution of all data, parametric tests were applied. Independent Samples t-test was used to assess the relationships between some independent categorical variables (gender, marital status, and a history of hospitalization) and mean patient satisfaction value. The relationships of other independent categorical variables (educational level, occupation, and income) with mean patient satisfaction scores were evaluated using the Analysis of Variance (ANOVA). Pearson’s correlation analysis was performed to investigate the relationships between quantitative variables. Finally, Multivariate Regression Analysis was applied to determine the factors affecting patient satisfaction.

## 3. Results

Of 610 distributed questionnaires, 600 were completed and analyzed (response rate=98.36%). The majority of the study participants ( $n=304$ ; 49.3%) were male, and their Mean $\pm$ SD age was 47.99 $\pm$ 14.37 years (Table 1). The total Mean $\pm$ SD score of patient satisfaction with nursing care was 71.90 $\pm$ 14.76. On the subscales of trust, patient education, and technical-professional care, the mean scores were 3.92 $\pm$ 0.90, 3.17 $\pm$ 0.74, and 4.40 $\pm$ 1.09, respectively.

Among the three subscales of patient satisfaction, the highest and lowest scores were related to technical-professional care and patient education, respectively. Independent Samples t-test results suggested no significant relationship between mean satisfaction scores and either gender or marital status ( $P>0.05$ ). However, there was a significant relationship between mean scores of patient satisfaction and a history of hospitalization ( $P=0.03$ ), i.e. mean satisfaction was higher among the study subjects with a history of hospitalization. Pearson’s correlation analysis results revealed a positive and significant correlation between age and satisfaction scores ( $P<0.01$ ;  $r=0.310$ ).

**Table 1.** Sociodemographic characteristics of the study patients (N=600)

Characteristics		No. (%)
Gender	Male	304 (50.7)
	Female	296 (49.3)
Marital status	Single	137 (22.8)
	Married	463 (77.2)
Level of education	Illiterate	212 (35.3)
	Under diploma	218 (36.3)
	Diploma & higher	170 (28.3)
Occupation	Jobless	102 (17.0)
	Housewife	236 (39.3)
	Tradesman	163 (27.2)
	Employee	34 (5.7)
	Retired	65 (10.8)
Income (Rials)	<13000000	388 (64.7)
	13000000-26000000	160 (26.7)
	>26000000	52 (8.7)

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ANOVA results indicated a significant difference between mean satisfaction and educational level. Tukey's posthoc test suggested a significant difference between illiterate patients and those with a high-school diploma or higher degrees. In other words, illiterate participants had significantly higher levels of satisfaction ( $P=0.01$ ). Meanwhile, the relationships between mean patient satisfaction and occupation or income level were not significant (Table 2). Furthermore, Pearson's correlation analysis results revealed a positive and significant correlation between mean patient satisfaction and age ( $P<0.01$ ;  $r=0.31$ ).

As per Table 3, with  $df(7, 192)$ ,  $P=0.002$ , and level of significance of 0.05, demographic variables could predict patient satisfaction with nursing care. Based on the obtained value for the coefficient of determination ( $R^2$ ), demographic variables could explain nearly 11% of changes in patient satisfaction. Considering the  $t$  and  $P$  values for demographic variables, only age impacted patient satisfaction; higher age was associated with greater satisfaction with nursing care.

#### 4. Discussion

In the current study, individuals with IHD in the emergency department had the highest level of satisfaction with technical-professional nursing care. Ali et al. reported that cardiac patients were relatively satisfied with their nursing care (Ali et al. 2017). Wolf et al. (Wolf et al. 2008) and Rafii et al. (Rafii, Hajinezhad & Haghani 2008) reported similar results. In other words, nurses were highly skilled in performing procedures; therefore, patients were satisfied with their conducted procedures. Some studies in Iran also reported that patients described the nurses' skill in performing procedures well (Hajian 2007). Greenslade et al. believed that nurses pay more attention to this aspect of care and often try to perform it more accurately (Greenslade & Jimmieson 2011).

Among all the subscales of patients' satisfaction, our study participants were least satisfied with patient education. The findings of Wolf et al. (2008), Rafii, Hajinezhad & Haghani (2008), and Joolaei et al. (2011) were consistent with ours. Likewise, Farahani et al. (2013), Oterhals et al. (2006), and Ghamari Zareh et al. (2008) highlighted the dissatisfaction of patients with education after the di-

**Table 2.** The relationship between patient satisfaction and the independent study variables (N=600)

Variables	Level of Satisfaction			Mean±SD	P	
	No. (%)					
	Not Satisfied	Satisfied	Highly-satisfied			
Gender	Male	136 (44.7)	165 (54.3)	3 (1.0)	72.27±14.45	0.53*
	Female	140 (47.3)	152 (51.4)	4 (1.4)	71.53±15.08	
	Total	276 (46.0)	317 (52.83)	7 (1.16)		
Marital status	Single	63 (46.0)	72 (52.6)	2 (1.5)	73.42±15.83	0.17*
	Married	213 (46.0)	245 (52.9)	5 (1.1)	71.46±14.41	
	Total	276 (46.0)	317 (52.83)	7 (1.16)		
Level of education	Illiterate	101 (47.6)	107 (50.5)	4 (1.9)	74.11±12.95	0.01**
	Under diploma	111 (50.9)	105 (48.2)	2 (0.9)	71.15±15.87	
	Diploma & higher	64 (37.6)	105 (61.8)	1 (0.6)	68.92±14.84	
	Total	276 (46.0)	317 (52.83)	7 (1.16)		
Occupation	Jobless	51 (50.0)	50 (49.0)	1 (1.0)	71.27±14.13	0.27**
	Housewife	108 (45.8)	124 (52.5)	4 (1.7)	72.03±15.51	
	Tradesman	70 (42.9)	91 (55.8)	2 (1.2)	73.56±15.20	
	Employee	14 (41.2)	20 (58.8)	-	70.64±11.60	
	Retired	33 (50.8)	32 (49.2)	-	68.95±12.98	
	Total	276 (46)	317 (52.83)	7 (1.16)		
Income (Rials)	<13000000	190 (50.3)	188 (48.5)	5 (1.3)	71.03±15.42	0.91**
	13000000-26000000	66 (41.2)	93 (58.1)	1 (0.6)	72.34±13.58	
	>26000000	15 (28.8)	36 (69.2)	1 (1.9)	71.09±11.98	
	Total	271 (45.16)	317 (52.83)	7 (1.16)		
Admission to hospital	Yes	145 (47.5)	158 (51.8)	2 (0.7)	73.39±15.46	0.03*
	No	131 (44.4)	159 (53.9)	5 (1.7)	69.44±14.00	
	Total	276 (46)	317 (52.83)	7 (1.16)		

\*Independent Samples t-test, \*\* ANOVA, Confidence interval (P=0.05)

agnosis of cardiac diseases. In addition, Safari et al. reported that a small number of patients were satisfied with the quality of educational services in the Coronary Care Unit (CCU) (Safari M, Unpublished thesis, 2002).

Meanwhile, nursing studies have considered patient education as a crucial field of nursing and an inseparable part of patient care that can substantially influence patient recovery (Farsaei et al. 2011; Kalisch, Landstrom, & Hinshaw 2009; Suhonen et al. 2012). However, nurses are often unable to perform this duty due to huge technical-professional load, inadequate information about the methods of patient education, frequent shift change, insufficient pay, dissatisfaction with nursing profession, and the lack of time (Aghakhani et al. 2012; Kiani,

Balouchi, & Shahsavani, 2016). Besides, the undergraduate nursing curriculum in Iran assigns only one credit hour for patient education, which is far below the standard (Azizi-Fini et al. 2012); thus, insufficient training can be responsible for low patient satisfaction.

The present study highlighted a significant relationship between education and satisfaction levels, i.e. illiterate patients were more satisfied with nursing care (probably due to their lower expectations). While this is in line with the results obtained by (Joolaei et al. 2011; Lee et al. 2008; Bredart et al. 2007; Azizi-Fini et al. 2012) stated that patients with higher education levels were more satisfied with nursing staff (Azizi-Fini et al. 2012). Differences in research settings and culture could explain the conflicting results of these studies.

**Table 3.** Multiple regression coefficients for the relationship between sociodemographic variables and patient satisfaction

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Gender	-2.164	1.915	-0.089	-1.130	0.260
Age (y)	0.184	0.063	0.291	2.922	0.004
Marital status	0.488	1.758	0.023	0.278	0.781
Level of education	0.010	1.125	0.001	0.009	0.993
Job	-0.292	0.522	-0.043	-0.560	0.576
Income	0.860	0.866	0.075	0.970	0.333
Admission to hospital	-0.572	1.615	-0.026	-0.354	0.723

Dependent variable: patient satisfaction.

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According to our findings, patient satisfaction increased with aging. Messina et al. also agreed that older individuals were more satisfied with the provided care (Messina et al. 2015). In contrast, Tang et al. found no relationship between age and patient satisfaction (Tang et al. 2013). Jaipaul et al. concluded that satisfaction level increased up to the age of 65-80 years and reduced afterward (Jaipaul & Rosenthal 2003). Therefore, a higher age may reduce people's expectation of care and make them satisfied, even with moderate quality of care.

Additionally, older patients have a history of hospitalization. We observed a significant relationship between patient satisfaction and a history of hospitalization; thus, the experience of hospitalization could affect patients' satisfaction by increasing their familiarity with nursing services and other issues within the ward. Similarly, Thrasher et al. argued that patients with previous experience of nursing care expressed higher levels of satisfaction with nursing services (Thrasher & Purc-Stephenson 2008). These two findings mutually inform one another.

Performing the study in only one hospital and the cross-sectional nature of the study were among the limitations of this study. Therefore, future studies are recommended to evaluate larger samples over longer periods and in a greater number of health centers.

Patient satisfaction with nursing care was at a desirable level in this study. However, patient satisfaction with education was low. The achieved results highlighted the necessity to examine the current provision of in-hospital information and education to IHD patients. Thus, nursing managers should organize educational courses and motivate nurses to prepare the contexts for increased quality of care and improved patient education to IHD patients.

An educational program for nurses can be beneficial in this regard. Many of these patients are readmitted due to a lack of knowledge; therefore, health policymakers could provide an opportunity for patient education by increasing the number of nursing staff in hospitals.

## Ethical Considerations

### Compliance with ethical guidelines

Before data collection, the necessary permissions were obtained from Kashan University of Medical Sciences, the Research Ethics Committee, and hospital authorities (Ethical Code:1141). Moreover, the study participants provided signed informed consent forms after receiving explanations about the study objectives. They were then requested to carefully (but anonymously) complete the questionnaire in the presence of the researcher. The items of the questionnaire were read to illiterate patients, and their responses were precisely recorded. All study subjects were reassured that the study results would not affect their treatment process.

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### Authors' contributions

Conceptualization, Investigation: all author; Methodology, writing – review & editing, and supervision: Mohsen Adib-Hajbaghery, Ismail Azizi-Fini, Fatemeh-Sadat Izadi-Avanji; Writing - original draft: Masoumeh-Sadat Mousavi, Mohsen



Adib-Hajbaghery, Ismail Azizi-Fini; Funding acquisition, resources: Ismail Azizi-Fini.

### Conflict of interest

The authors declared no conflicts of interest.

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