



Patients' Satisfaction with Medical Emergency Services in Iran from 2000 to 2017: A Systematic Review and Meta-Analysis

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Abstract

Context: The emergency department is the first place in the hospital that patients will be referred to receive services. Patients often experience an emergency referral in their lives. Emergency care and paraclinical services are provided to patients in this department. The current study aimed at evaluating the patients' satisfaction with the emergency departments in Iran through a systematic review and meta-analysis.

Evidence Acquisition: The databases including Web of Science (WOS), Embase, PubMed, Scopus, Ovid, as well as the Iranian databases such as Irandoc and Magiran in the Persian and English languages were searched from 2000 to 2017. The STROBE (strengthening the reporting of observational studies in epidemiology) checklist was used to assess the quality of the research methodologies. The random model was used to determine the mean value of satisfaction, and the results were reported with the confidence interval (CI) of 95%. Also, sensitivity analysis, subgroup, and meta-regression were conducted. The Egger test was used to investigate the publication bias in the studies.

Results: Based on the random model, the mean of satisfaction with emergency services in Iran was 70.52% (95% CI: 63.81 - 77.23). The results of the sensitivity analysis showed no change before and after the analysis of the results. Highest and lowest rates of patient satisfaction were reported in the Eastern (79.17%) and Northern regions (67.15%) of Iran, respectively.

Conclusions: The current study findings showed that patients' satisfaction with emergency services in Iran was high compared with the neighboring countries. Health policymakers should increase patients' satisfaction through appropriate training, information, and increased human resources.

Keywords: Patient Satisfaction, Emergency, Iran, Meta-analysis, Systematic Review

1. Context

The emergency department is the first place in the hospitals that patients will be referred to receive healthcare services. Emergency care and paraclinical services are provided to patients in this department (1). When referring to the emergency department, the patients with life-threatening and risky conditions expect their disease to be evaluated without any loss of time, and receive care and treatment quickly (2). The patients referring to the emergency departments need to receive the high attention of healthcare providers due to their worrying mental conditions. They also expect the staff to reduce their stress by showing appropriate behaviors towards them as well as their families. These behaviors and the quality of the provided services are effective in increasing or decreasing the

degree of patient satisfaction (3).

A set of patient experiences in the hospital is defined as patient satisfaction (4). Attention paid to patients' satisfaction and their expectations of the provided services lead to the improvement of the professional activities and the quality of hospital services. Patient satisfaction is considered as one of the important criteria in the evaluation of hospital process performance (5). One of the most important indices of service quality in hospitals and health care centers is the patient satisfaction; hence, the patients' satisfaction with the quality of the services provided in the hospital should be considered (6). Patient satisfaction can be a valuable criterion to assess the quality of provided services and determine the degree of the staff competence (7).

Various studies are conducted to determine the degree

of patient satisfaction and its affecting factors in the emergency department in different parts of the world. Each of these studies provides valuable results and suggestions to improve and promote the medical emergency services (8). In a study conducted in Hormozgan province, Iran, in 2012, about 87.4% of the patients were satisfied with emergency services, which had the highest level of satisfaction with the behavior of physicians and nurses (9). In another study conducted in Babol, Iran, from 2013 to 2014, the satisfaction rate of patients with emergency services was reported 87.9% (10). In a study conducted in Turkey from 2012 to 2013, the overall satisfaction rate of patients with emergency services was 91.2% (11). In Australia, this rate was reported 95.1% in English speaking patients and 90.5% in non-English speaking patients. In the current study, the employment of translators improved the level of satisfaction with healthcare services in emergency department (12). In recent years, a number of studies were conducted to assess the satisfaction of the patients referred to the emergency department in the Iranian hospitals. Information on the degree of satisfaction and the factors influencing the increase or decrease in satisfaction can greatly help health policymakers, hospital managers, and emergency service staff. Also, due to the increasing number of patients referring to the emergency departments, being aware of the views of patients can significantly improve the quality of services in provided in this department. The current study aimed at evaluating the patients' satisfaction with the emergency department services in Iran through a systematic review and meta-analysis.

2. Evidence Acquisition

2.1. Literature Search

The results of the current study were obtained based on the preferred reporting items for systematic reviews and meta-analyses (PRISMA) (13). Two of the authors independently searched the databases, including Web of Science (WOS), Embase, PubMed, Scopus, Ovid, as well as the Iranian databases, Irandoc, and Magiran in the Persian and English languages from 2000 to March 2017. The Cohen kappa coefficient between the results obtained from the two authors was 0.73. In addition, Google Scholar and the reference list of articles were also reviewed. The search strategy in the current study was as follows:

The inclusion criteria were:

- 1- The studies reporting patients' satisfaction with the emergency department.
- 2- The studies clearly reporting data.
- 3- The studies with observational designs.

The exclusion criteria were:

- 1- Case report, case-series, letter, and review studies
- 2- The studies reporting patients' satisfaction in different hospital wards other than emergency departments.
- 3- The studies with similar data and results.
- 4- Interventional studies

2.2. Data Extraction

After the enrollment of the studies based on the inclusion and exclusion criteria, 2 of the authors independently extracted the name of the first author of each article, the publication year, the sample size, the mean value of the reported satisfaction, the geographical region of the study, and the type of the study. The controversy between the extracted data was resolved by discussion or by a third person as the referee.

2.3. Assessment of the Quality of Studies

The strengthening the reporting of observational studies in epidemiology (STROBE) checklist was used to assess the quality of the research methodologies in the included studies (14). Based on this checklist (22 questions), the studies were divided into 3 groups of high-, moderate-, and low-quality. The studies scored 1 to 8 were ranked the low-quality, the studies scored 9 to 16 were ranked the medium-quality, and the ones scored 17 to 22 were ranked the high-quality studies.

2.4. Statistical Analysis

The random model was used to determine the mean value of satisfaction and the results were reported with the confidence interval (CI) of 95%. The P value < 0.05 was considered the level of significance. The I² test was used to evaluate the heterogeneity of the selected articles (15). Sensitivity analysis was performed to ensure the stability of the results. In addition, meta-regression was conducted to examine the possible source of heterogeneity based on the publication year and the sample size. Subgroup analysis was conducted based on the quality of the studies, geographic location, sample size, and the publication year. The Egger test was used to investigate the publication bias in the studies (16). The data were analyzed with Stata software version 12 (Stata Corp, College Station, TX, USA).

3. Results

After searching the databases and the omission of the duplicates, a number of 30 articles was finally selected and entered into the meta-analysis based on the inclusion criteria of the study (9, 10, 17-44). Figure 1 shows the procedure for selecting the articles.

The characteristics of the 30 selected articles are shown in Table 1.

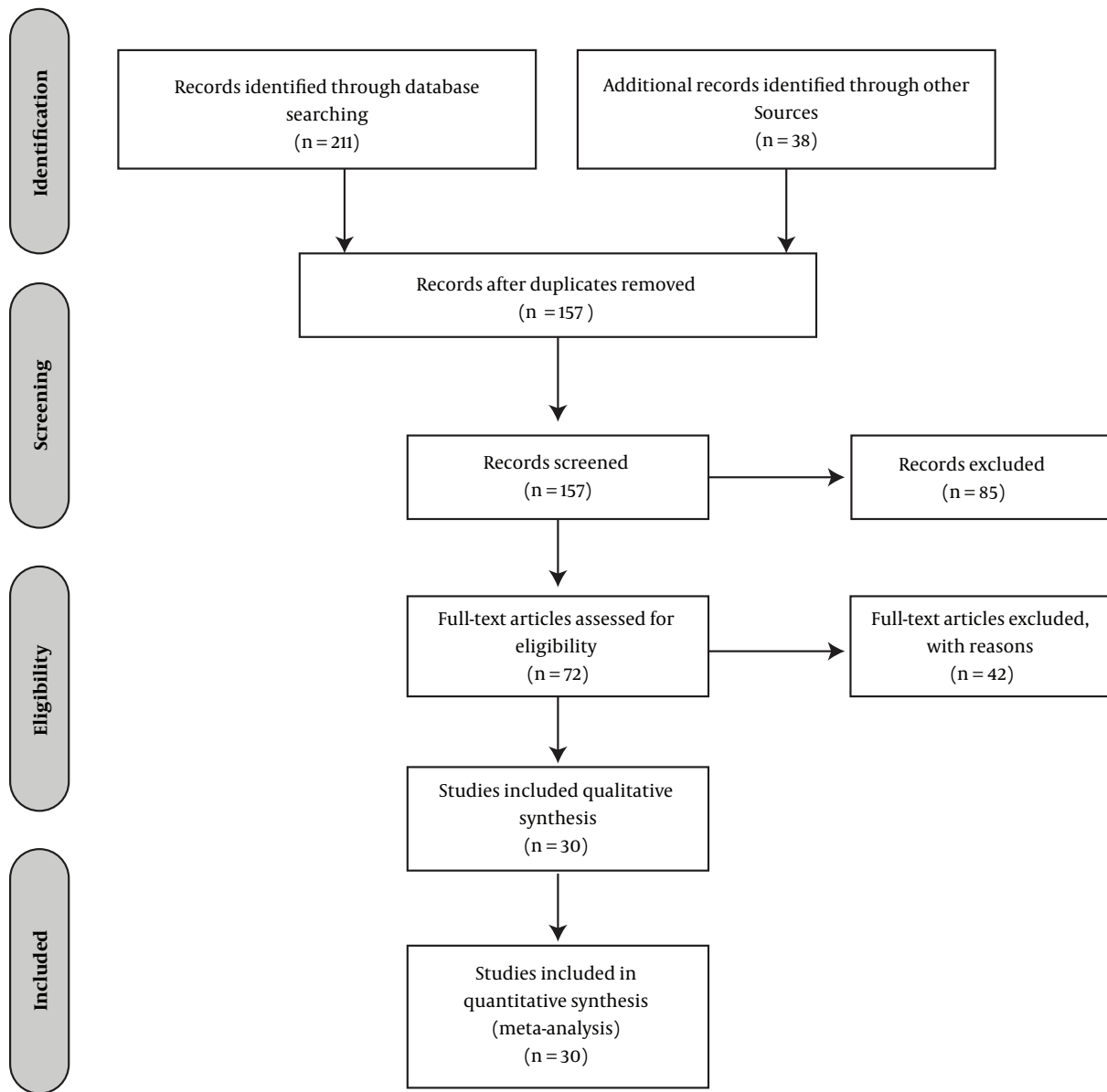


Figure 1. The Procedure of Searching and Finding the Articles

3.1. Overall Satisfaction of Patients with Emergency Services

Based on the random model sampling, the mean of satisfaction with emergency services in Iran was 70.52% (95% CI: 63.81 - 77.23). [Figure 2](#) shows the results of this analysis.

3.2. Sensitivity Analysis

Sensitivity analysis was performed to ensure the stability of the results ([Figure 3](#)). The results showed no change before and after the analysis of the results.

3.3. Subgroup Analysis

The results of subgroup analysis are presented in [Table 2](#) based on the publication year, geographical area, quality of the study, and sample size.

3.4. Meta-Regression

The meta-regression results are shown in [Table 3](#) and [Figure 4](#).

Table 1. The Main Characteristics of the Enrolled Articles

First Author	Year of Publication	Location	Sample Size	Mean	Quality
Sheykhi	2000	Qazvin	71	59	Medium
Sarchami	2000	Qazvin	993	98.4	High
Golafruz	2001	Sabzevar	193	95.3	High
Saadati	2004	Mashhad	732	61.7	High
Khoshjan	2005	Tehran	759	80.7	High
Ansari	2005	Tehran	1260	80.7	High
Nasiriani	2008	Yazd	100	67.5	Low
Omidvari	2008	Tehran	153	41.8	Low
Shojaii	2008	Kerman	390	75.3	High
Kianmehr	2008	Tehran	638	62	Medium
Amereyoon	2009	Tehran	165	68.51	High
Ebrahimnia	2009	Tehran	360	81.6	High
Dehghan Nayeri	2010	Tehran	360	55.8	Medium
Kalroozi	2010	Tehran	384	83.75	High
Talebian	2010	Qazvin	1575	86	High
Zahmatkesh	2010	Golestan	2400	46.4	Medium
Roudbari	2011	Zahedan	300	80.5	High
Abrahkt	2011	Bushehr	483	35	Low
Soleimanpour	2011	Tabriz	500	63.2	Medium
Kazemifard	2011	Jahrom	526	80.2	Medium
Taheri	2011	Tehran	1152	95	Medium
Moshiri	2012	Arak	30	73.1	Medium
Nooralsana	2012	Fasa	235	77.5	High
Soleimanpour	2012	Tabriz	303	62	Low
Direkvand-Moghadam	2013	Ilam	100	78	High
Khankeh	2013	Karaj	600	33.62	Low
Shams	2013	Esfahan	780	63.9	Medium
Ahmadzadeh	2014	Hormozgan	363	87.4	High
Ahmadi	2015	Orumia	500	53.9	Medium
Datobar	2016	Babol	505	87.9	High

3.5. Publication Bias

According to the Egger test, there was no bias in the publication of the selected studies ($P = 0.94$). [Figure 5](#) shows the publication bias.

4. Discussion

The current study aimed at evaluating the patients' satisfaction with emergency department services in Iran through a systematic review and meta-analysis. The results of the study showed that the patients' satisfaction with

emergency services in Iran was 70.52%. The level of satisfaction in some countries such as Turkey, Australia, and Pakistan was 91.2%, 95.1%, and 84.6%, respectively ([11](#), [12](#), [45](#)).

It seems that the rate of satisfaction with emergency services in Iran is low. Numerous factors can be involved in the reduced satisfaction. The different conditions of health systems in different countries, the use of new technologies, the availability of sufficient human resources, and cultural differences can be the reasons for the increased or decreased degree of satisfaction in different countries.

In the discussion section, all the social, economic, cul-

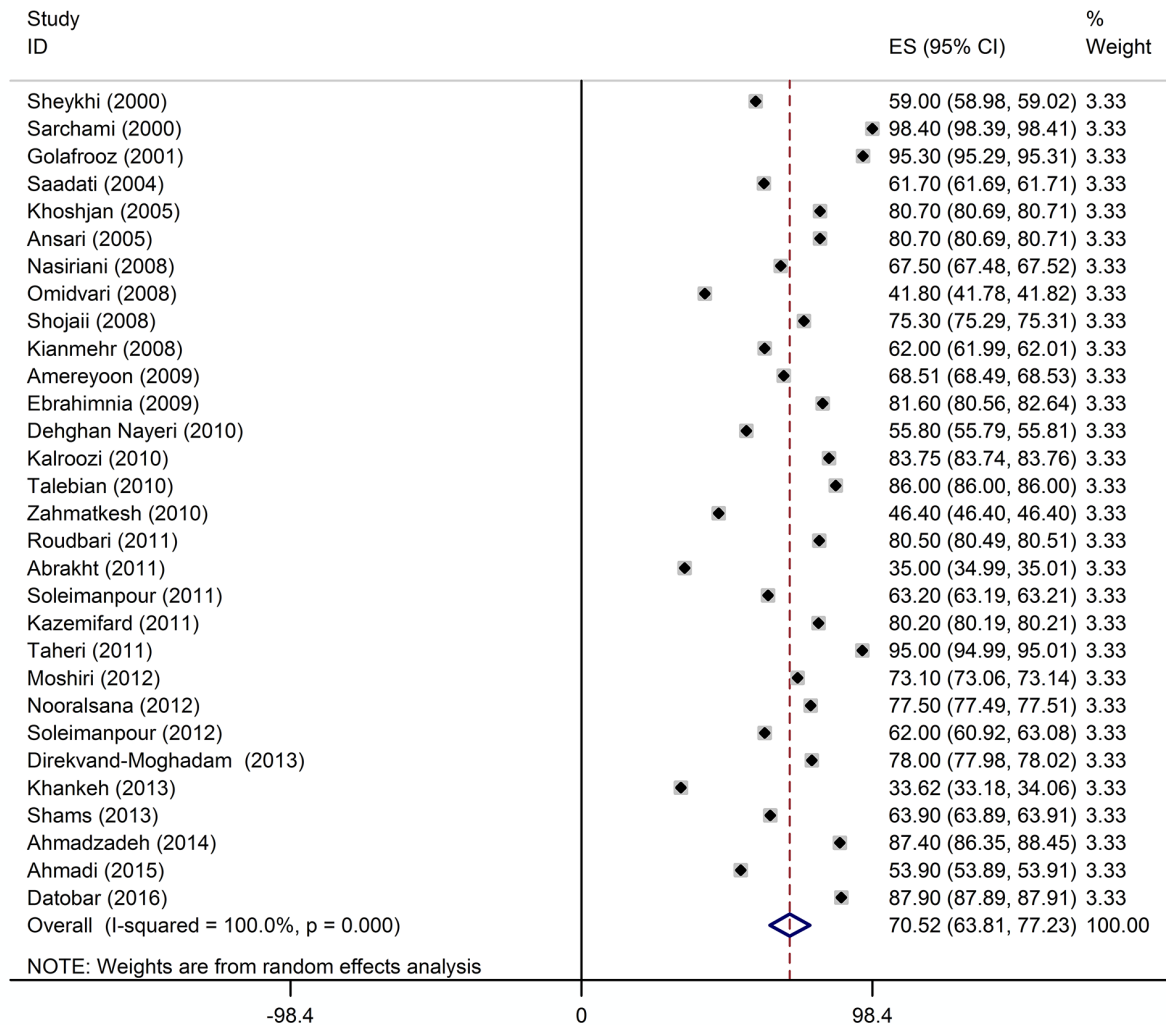


Figure 2. The Overall Mean of Satisfaction with Emergency Services in Iran

tural, and health-related factors contributing to patients' satisfaction or dissatisfaction were discussed. However, due to the limited number of studies conducted in some areas and the lack of evidence, caution was taken during the discussion, which can be mentioned as one of the limitations of the study.

Based on the reasons mentioned in the selected studies, the insufficient number of service providers, as well as long waiting time to receive services, were two important factors with the greatest impact on the patients' satisfaction. Due to the limited number of healthcare providers in various sectors, including the emergency department, many individuals complain about the long waiting time in this department. Waiting time is one of the important fac-

tors affecting patients' satisfaction, and a large number of studies emphasized its importance. The time it takes for a patient to be visited by a doctor is one of the most important predictors of patient satisfaction (46). An important factor in reducing patients' dissatisfaction is to provide them with information about the estimated waiting time before being visited by a doctor (47). Soleimanpur in a study suggested efforts in order to reduce the waiting time in the emergency department and modify the patients' perception of waiting time (41). Waiting time can be influenced by the patients' age and the way of transferring to the emergency department. Accordingly, the older patients and the ones transferred to the emergency department by ambulance experience a lower waiting time and

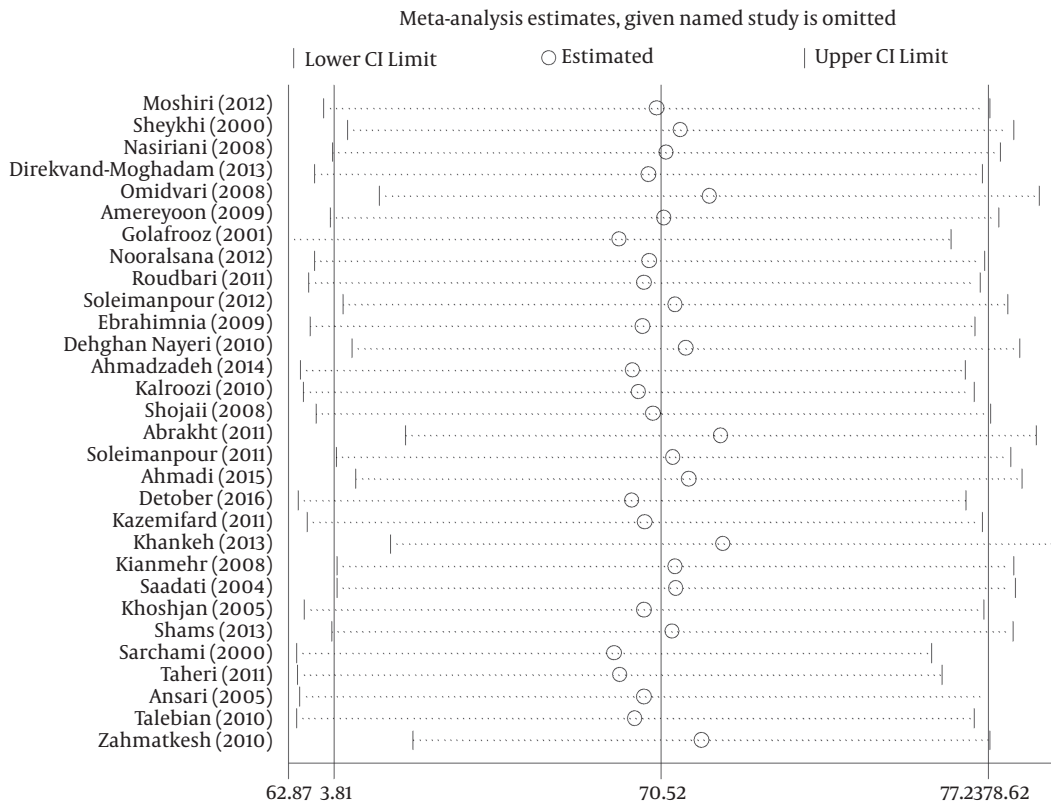


Figure 3. The Result of Sensitivity Analysis

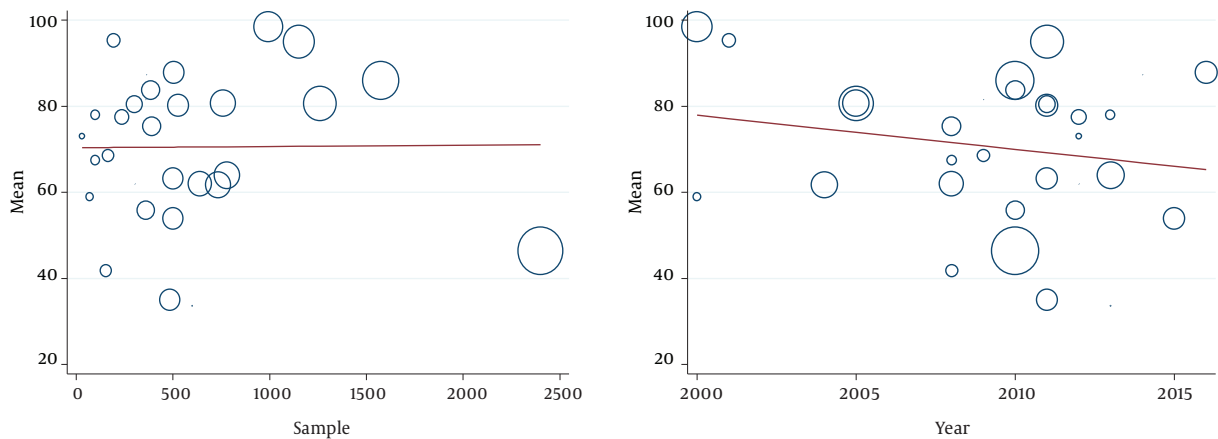


Figure 4. Meta-regression Graphs Based on the Year of Publication and Sample Size of the Study

subsequently are more satisfied (48). In the majority of the studies, the role of the perceived waiting time in patients' satisfaction with the emergency department is reported to be more important than the real waiting time (49, 50). If

the real or appropriate waiting time is higher than the patients' expected time, it probably leads to the reduction of patients' satisfaction (51-53).

Among the other factors affecting patients' satisfac-

Table 2. The Result of Subgroup Analysis

Variable	Number of Studies	Mean (95% CI)	I ² , %	P Value
Year of publication				
200 - 2005	6	79.30% (66.17 - 92.43)	100.0	0.000
2006 - 2010	10	66.81% (57.25 - 76.36)	100.0	0.000
2011 - 2016	14	69.39% (60.53 - 78.25)	100.0	0.000
Region				
East	3	79.17% (60.11 - 98.22)	100.0	0.000
West	7	71.54% (58.71 - 84.37)	100.0	0.000
South	8	72.67% (59.75 - 85.59)	100.0	0.000
North	2	67.15% (26.48 - 98.21)	100.0	0.000
Center	10	68.16% (58.12 - 74.19)	100.0	0.000
Quality of the study				
High	15	81.51% (76.49 - 96.54)	99.9	0.000
Medium	10	65.25% (56.49 - 74.01)	99.9	0.000
Low	5	47.95% (32.92 - 62.98)	99.9	0.000
Sample size				
< 600	21	68.60% (61.67 - 75.54)	100.0	0.000
> 600	9	74.98% (63.61 - 86.34)	100.0	0.000

Table 3. Meta-Regression Results

Variables	Coefficient	Standard Error	T	P Value
Sample size	0.00	0.00	0.04	0.96
Year of publication	-0.79	0.77	0.02	0.29

tion associated with many problems in Iran, the quality of interaction between the patient and the healthcare providers and the provision of information to the patient are remarkable. A large number of studies emphasized the role of patient and healthcare providers' relationships in increasing patient satisfaction. The provision of information to patients using simple strategies such as the use of ID cards, printed brochures, and videos can improve such relationships and increase patient satisfaction (54, 55).

In the meta-analysis results, a significant difference was observed in the mean of satisfaction between different geographical regions in such a way that the highest and lowest rates of patient satisfaction were reported in the Eastern (79.17%) and Northern regions of Iran (67.15%), respectively. Language barriers, as well as cultural and ethnic factors, can be considered as the possible causes of this difference. These factors play an important role in the interaction between the patients and the healthcare providers (12). Such factors, on the whole, lead to an increase in the waiting time and the patients' stay and, ultimately, reduce the healthcare services quality (56, 57). In another study,

Deirkavand referred to the role of language and dialectal barriers in the establishment of relationships between nurses and patients and their impacts on patient satisfaction (22); Taylor also emphasized this role in his study (58). In a study conducted in the emergency departments of 5 hospitals in America, it was found that the mother tongue of 15% of the patients was not English, and the overall satisfaction rate among non-English-speaking patients (52%) was lower than that of English-speaking patients (71%) (59). Nurses use different strategies such as the request for interpreters, the participation of patients' family members and relatives, and the use of bilingual nurses who are familiar with the patient's language and culture to communicate effectively with the patients whose languages are different (60, 61). The study by Hall et al., in the United States revealed that the nurses and nursing staff behavior were the important factors in increasing the patients' satisfaction with the emergency services (62).

There is a diversity of ethnicity in Iran. The impact of this factor on the patients' satisfaction with the emergency department is referred to various studies. Regarding the

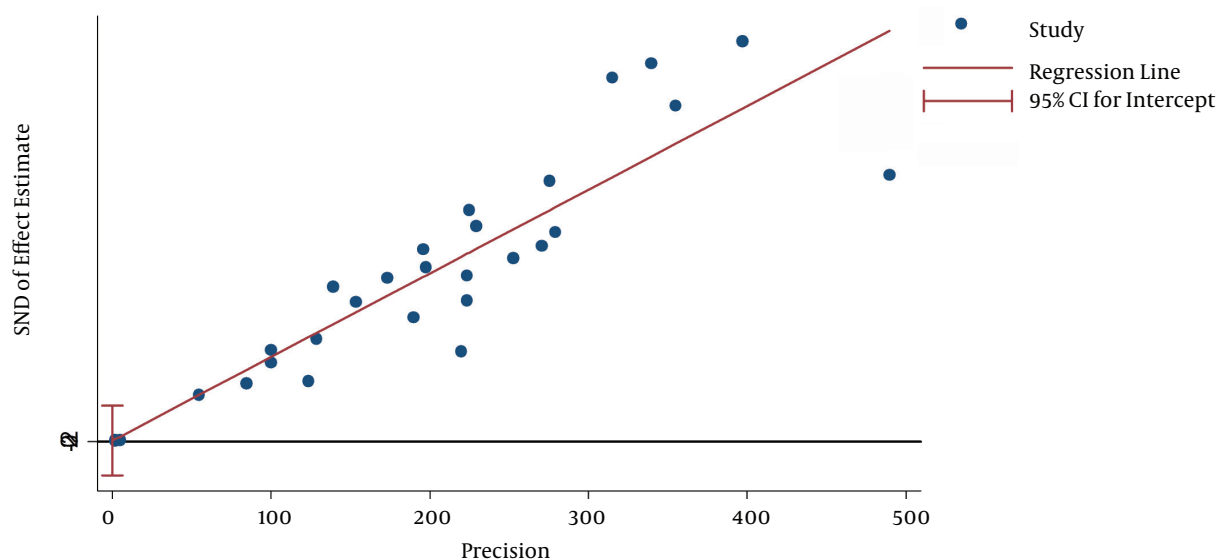


Figure 5. Egger Test Graph for Publication Bias

relationship between age and patient satisfaction, some studies emphasized the absence of any relationships (63), while some others emphasized the existence of such a relationship (51, 64). In this regard, findings of a study by Shams indicated that as age increases, the degree of satisfaction with better management of the department increases, but the satisfaction with facilities and physical environment decreases (37). Keshtkaran and Net showed that satisfaction increases with the increase of age (65, 66). No relationship between age and satisfaction with the emergency department was reported in the study by Rudbari and Hall (34, 62).

The amount of money paid from pockets in hospitals in Iran is high and the people referring to hospitals are dissatisfied with their payments due to the high costs. Khurseed et al., reported that almost half of the patients' dissatisfaction is attributed to the treatment costs due to no insurance coverage and pay out-of-pocket for healthcare services (45). However, there is a lower rate of dissatisfaction in other countries where the expenses are paid by the insurance organizations or the government (62).

In terms of the relationship between patients' satisfaction and gender, Shams and Rudbari found no relationship between these two variables (34, 37). Jafari et al., also reported no significant relationship between gender and satisfaction with healthcare services in the emergency department (67); however, Mosadeghzadeh concluded that the patient's gender is effective in the rate of satisfaction with healthcare services given in the emergency depart-

ment (68).

Moshiri et al., attributed a major part of the dissatisfaction with the emergency department to the costs and facilities (30); Ahmadzadeh et al., also referred to the role of public health and environmental health in the emergency department in patient satisfaction (9).

Another factor investigated in the studies was the time of referral to the emergency department. In the study by Khashjan, the patients referred to the emergency department in morning shift reported a higher level of satisfaction with healthcare services than the ones referred to the same department in the evening shift. It can be attributed to the insufficient human resources and the shortage of equipment and facilities in the evening shift (28). Soleimanpur reported a higher level of satisfaction in the morning shift than the evening and night shifts (41).

Education is another factor that its role in patient satisfaction is assessed in various studies. Some researchers reported an inverse relationship between the two variables, which can be attributed to the increase in the level of awareness and expectations of the patients with higher education (34, 37, 40). Since the individuals with higher education have higher social communicative skills and higher access to information resources, they detect the shortages and defects in the system more clearly and are usually less satisfied (69).

4.1. The Limitations

The following items can be referred to the limitations of the current study: the level of heterogeneity in the se-

lected studies was high, which can be due to the diversity of the research methodologies, the conditions of the place, and other factors. Subgroup-analysis and meta-regression were employed to assess heterogeneity. In some provinces of Iran, no study was conducted on patients' satisfaction with emergency services. In the same way, there was no possibility to analyze the degree of satisfaction based on gender, age group, and other variables extracted from the studies.

4.2. Conclusion

The current study findings showed that patients' satisfaction with emergency services in Iran was high compared with those of the neighboring countries. Health policymakers should increase patients' satisfaction with appropriate training, information, and increased human resources.

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Footnote

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