

Improving medical emergency services system by evaluating patient satisfaction: means for health management

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ABSTRACT

Introduction: One of the important aspects in high quality health care system is delivering health services in an appropriate way which can lead to development of the systems. Patient satisfaction is a quality indicator that has the potential to provide valuable information about the care delivered by an Emergency Medical Services system (EMS). This indicator is considered as an important marker of quality by paramedics.

Method: This is a descriptive- analytical study on 1096 patient satisfaction of emergency services suffering from cardiovascular, dyspnea, low level of consciousness and cerebral problems. Variables such as the type of diseases, technicians' and operators' behavior, time of response and outcome of the missions were measured with a valid checklist. ANOVA and correlation Pearson were employed as analytical tests.

Results: Considering different types of diseases, 4 categories of diseases had positive correlation with satisfaction of the patients and also there was a meaningful correlation between factors which were measured and satisfied patients. (P<0.001)

Conclusion: Developing some instructions for technicians and operators focusing on interpersonal skills and enhanced sensitivities and behaviors not only toward patients but also toward bystanders and family members is recommended to improve patient satisfaction and thought quality of delivered care in the prehospital emergency medical systems.

Keywords: Health management, Patient's satisfaction, Emergency, Disaster management

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Introduction

Patient satisfaction is one of the important measures in quality control process of delivered EMS systems. Considering the patients' recommendations can improve the respective processes, outcomes and their satisfaction. Moreover, patient satisfaction reduces the employees' complaints, leading to the feeling of satisfaction (1). Patient satisfaction is a quality indicator which has impressive importance in health care system; furthermore, its enhancement is one of the vital goals and priorities in health organizations.

One of the important aspects in high quality health care system is delivering health services in an appropriate way which can lead to systems development. In fact, evaluation of patient satisfaction, assessment of the impressive factors and determination of the reasons why patients become unsatisfied can improve the quality of health services delivery (2).

There are several factors which can influence the patient satisfaction; the most important of which are: the time waiting for ambulance, respectful behaviour toward patients, patient involvement in decision making and getting feedback from their visits, follow-up treatments,

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confidentiality, and effective patient-provider relationships and so on. But sometimes because patients do not know their rights (asymmetric information), patients' problems are ignored and medical standards are not met (3).

In 2005, Qidwai, Baqir, and Ayub surveyed 100 patients who were mostly young, married and highly educated. The results showed that they were mostly dissatisfied with the long waiting time and the inadequate skill of emergency room staff. Besides, patients had more expectations from the clinical staff to be treated with dignity and respect. Accordingly, it is important to survey patients' expectations from emergency medical services (4).

The results of the study about measuring impressive factors on patient satisfaction from patients' view point demonstrated that equipment and facilities %68, human resources %68, physical environment of hospitals %66, and managerial factors %47 are the most influential key factors of their satisfaction (2).

The findings of Billings and Kolton (1999) revealed that %37 of patients criticized the way medical services were delivered to them and %30 of other patients were dissatisfied because medical staff did not show respectful manner toward them. However, %34 of patients complained about contacting issues and %6 were not satisfied with the follow-up program (5).

In a study done by Bernard, Lindsell, Handel, Collett, Gallo, Kaiser and Locasto (2007) on patient satisfaction from EMS system, the patients who were surveyed via telephone, were %99.5 satisfied with emergency medical services system in USA (847 patients out of 851), while 3 patients believed EMS system was just efficient and 1 patient was unsatisfied (6).

As there wasn't any study on patient satisfaction in Shiraz Emergency Medical System, there was an attempt to fill the gap by surveying the patient satisfaction and outlining the crucial factors that may influence their satisfaction. Hopefully, the results will help the EMS system managers to improve the quality of their services.

Methods

This is a descriptive- analytical study on 1096 patients of emergency services suffered from cardiovascular problems (447 patients), dyspnea (221 patients), decreased level of consciousness (67 patients) and cerebral (361 patients) problems. So the sample size was equal to population size.

The checklist used in this study consisted of the type of diseases, technicians' and operators' behaviour, time of response, outcome of mission and satisfaction in our prepared forms. Then, we measured the impact of each factor on patient satisfaction and their prioritization. The patient satisfaction was assessed by contacting the patients via telephone and surveying them from prepared forms. Indeed, we assessed the above mentioned variables descriptively and then surveyed the patients analytically to find any relationship between satisfaction and type of diseases, technicians' and operators' behaviour, time of response, and outcome of mission.

SPSS and Excel software were used and ANOVA . were employed as analytical tests for our study. The factors measured in the scale form were:

-Technicians' and operators' behaviour was measured in a scale of 1 (very poor) to 5 (excellent). The first three grades (1-3) were assumed to mean dissatisfaction and the second grades (4-5) were assumed to mean satisfaction.

-Time of arrival was measured in a scale of 1 (on time and prompt) to 2 (response with a delay)

-Satisfaction was measured in a scale of 0 (dissatisfaction) to 1 (satisfaction).

-Outcome of mission was measured in a scale of 0 (admission less than 24 hours) to 1 (admission more than 24 hours).

-The diseases were measured in 4 categories namely: cardio vascular, dyspnea, cerebral accident, and decrease level of consciousness.

Results

The findings of the study show that patient satisfaction is one of the important measures in quality control process of delivered EMS. So we assessed patient satisfaction according to several factors (type of diseases, technicians' and operators' behaviour, time of response, outcome of mission) in this study. Then we analyzed the relationship between them.

Considering different types of diseases, 4 categories of diseases had positive correlation with satisfaction of the patients (Table 1). As shown in the table, the following results were obtained:A- Cardiovascular diseases: There were 447 patients in this category from which 435 (%97.3) were satisfied and 12 (%2.7) were unsatisfied with EMS services. These diseases had a meaningful correlation with satisfaction.

Table 1. Satisfaction of patients according to the type of diseases In Shiraz EMS

Type of disease	Satisfied		Unsatisfied		Total	P*
	No.	percent	No.	percent		
Cardio vascular	435	97.3	12	2.7	447	<0.001
Cerebral vascular accident (CVA)	62	92.5	5	7.5	67	<0.001
Breathing difficulties (dyspnea)	206	93.2	15	6.8	221	<0.001
Decrease level of consciousness	347	96.2	14	3.8	361	<0.001

*According to binomial test

B-Dyspnea diseases: There were 221 patients %93.2 in this category from which 206 were satisfied and 15 %6.8 were unsatisfied about EMS services. These diseases had a meaningful correlation with satisfaction.

C-Cerebral diseases: There were 67 patients %92.5 in this category from which 62 were satisfied and 5 (%7.5) were unsatisfied about EMS services. These diseases had a meaningful correlation with satisfaction.

D-low level of consciousness diseases: There were 361 patients in this category from which 347 (%96.1)

were satisfied and 14 (3.9%) were unsatisfied about EMS services. These diseases had a meaningful correlation with satisfaction.

The most and least satisfied patients were from cardiovascular diseases and the breathing difficulties categories respectively.

Another factor was the outcome of 467 missions. 23 missions resulted in death of patients while in 444 missions patient did not need to be delivered to hospital. It is noticeable that in both kind of missions in which the outcome was treatment (outpatient) or death, the patients were satisfied with EMS services.

Technicians' and operators' behaviour is another factor. Out of the initial 1096 missions, 11 missions were eliminated due to the missing data. Hence, the remaining sample consisted of 1085 missions to assess the technicians' behaviour.

The findings show that while 1066 patients were satisfied with the technicians' behaviour (18 patients said it was good and 1048 evaluated it as very good), 12 patients assessed it as average, 19 patients were dissatisfied, 5 considered it as bad and 2 patients believed that the technicians' behaviour was very bad.

Moreover, we evaluated 1096 missions to measure the patient satisfaction with the operators' behaviour. However, we had to eliminate 7 missions, so our sample consisted of 1089 missions. Out of 1089 missions, in 11 missions the patients were unsatisfied (1 patient said it was very bad, 5 considered it as bad and 5 other patients assessed it as average). And the other 1078 patients were satisfied with EMS services (8 patients said it was good and 1070 evaluated it as very good).

The other factor which was measured was arrival time. From 1096 missions, 12 had a delay, 27 missions were on time and 1057 were prompt. In other words, 12 patients were unsatisfied while the other 1084 patients were satisfied with EMS services (Table 2).

Table 2. Effective factors on patient's satisfaction

Effective factors on patient's satisfaction	Satisfied		Unsatisfied		Total
	No	Percent	No	percent	
Type of diseases	1050	95.8	46	4.2	1096
Technician's behaviour	1066	98.2	19	1.8	1085
Operator's behaviour	1078	98.8	11	1.2	1089
Time of response (mission time)	1084	98.9	12	1.1	1096

Discussion

Objective information to assure the quality of care delivered by EMS systems is in demand by governmental agencies, insurance companies, and customers (7). Standard quality indicators such as response time and outcome data may not reflect everything that patients consider as important. Patient satisfaction is a quality indicator that has the potential to provide valuable information about the care

delivered by an EMS system. This indicator is considered as an important marker of quality by paramedics (8).

The review of complaints provided information about EMS system performance, can establish goals such as quality improvement and patient satisfaction for emergency centers. This study surveyed patient satisfaction with emergency medical services according to several factors like the type of diseases, operators' and technicians' behavior and paramedic arrival time.

There are several influential factors on patient satisfaction, one of which is paramedic arrival time. It is important for EMS centers to give vital services on time to patients who need them. Furthermore, by considering the fact that emergency medical response time is one of the core responsibilities of EMS system, prompting the response time and using time efficiently are the important factors in delivering qualitative services to patients which ultimately improves the outcome of EMS system in health care. Also, delivering high quality services in EMS system can lead to patient satisfaction (9). This finding is parallel with that of Benard and Linsell that prompt response time is an important factor in patient satisfaction %99.5 (10).

, in their study reported that Persse and Jarvis in their study on customer satisfaction in a large urban fire department emergency medical services system found that 10 percent of customers' dissatisfaction with EMS was because of the long response time (11). In another study Curka and Pepe surveyed the source and nature of the complaints against EMS system in a large urban district, and the findings revealed that 16 percent of the complaints were about dissatisfaction of response time (12).

Similarly, in this study, we found that 12 missions from 1096 missions had long response time which led to dissatisfaction of patients. There was a meaningful correlation between the time of response and patient satisfaction.

Another effective factor in patient satisfaction was the type of the diseases. Kuisma and Matta measured patient satisfaction with emergency services in a scale from 1 (very poor) to 5 (excellent). In their study, the general satisfaction was highest in patients with arrhythmias, breathing difficulties and hypoglycemia. However, the patients with drug overdose had the highest proportion of unsatisfied patients (13).

In this study, satisfaction was highest in cardiovascular diseases and the highest proportion of unsatisfied patients belonged to patients with breathing difficulties (dyspnea). The highest satisfaction with EMS system was from patients with cardiovascular diseases, low level of consciousness, cerebral accidents and breathing difficulties, respectively. Result of this research revealed that there was a meaningful correlation between the type of diseases and satisfaction with EMS system. Technicians' and operators' behavior is also another effective factor on patient satisfaction with EMS system. In evaluation of the patient satisfaction, it was clear that patients were mostly dissatisfied when technicians could not meet their needs or they did not introduce themselves or communicated directly with the patient's relatives (13).

In a study on complaints against an EMS system, Colwell

and Pons surveyed 286 complaints that 43 percent of them were concerned with dissatisfaction with the technicians' behavior (14). Also Benard and Lindsell assessed patient satisfaction in a suburban emergency medical services system and found that technicians' and operators' behavior of medical emergency department was an influential factor on patient satisfaction (10). In another study on incidence, source and nature of complaints received in a large urban emergency medical services system, Curka and Pepe assessed 416,892 complaints which 34 percent of them concerned with bad technicians' and operators' behavior (12).

In this study, we measured technicians' and operators' behavior in five scales. From 1096 missions, 19 patients were dissatisfied while the other 1066 patients were satisfied with technicians' and operators' behavior. There was a meaningful correlation between the technicians' and operators' behavior and patient satisfaction with emergency medical services.

Patient satisfaction with EMS system is not just a factor to increase the patient's obligation to follow medical instruction; it is a mission which medical organizations try to achieve. Patient satisfaction with emergency medical services is one of the most important goals in medical groups which try to improve health in the society. There are multi factors like time of response, type of diseases, technicians' and operators' behavior, equipment and facilities of ambulance and so on which affect the patient satisfaction from EMS services. In a study conducted on postal survey methodology to assess patient satisfaction in a suburban emergency medical services system, Benard and Lindsell claimed that out of 847,851 respondents, 99.5 percent of them were satisfied or very satisfied with their EMS experience (10). Similarly, Presse and Jarvis assessed patient satisfaction in their study and from 2498 patients who were successfully contacted, 23.68 (%94.5) reported overall satisfaction with the service provided (11). In their study about customer satisfaction measurement in emergency medical services, Kuisma and Maatta measured satisfaction in a scale from 1 (very poor) to 5 (excellent). The mean general grades for the service were 4.6 and 4.5 respectively which means over-satisfaction (13).

Conclusion

In this study from 1096 missions, 1050 were very satisfied, 35 partially satisfied and 11 missions were unsatisfied. Overall, 95.8 percent of patients were satisfied about Shiraz EMS system.

As regards to the importance of patient satisfaction in the quality of delivered emergency services, any improvement in EMS system which can lead to patient satisfaction is desirable. So we recommend some instructions to improve medical emergency services:

- 1- Future training programs for technicians and operators need to focus on interpersonal skills and outstanding sensitivity strategies not only toward patients but also toward bystanders and family members.
- 2- Some technical workshops for improving the EMS employees' skills.
- 3- More identification surveys on areas of dissatisfaction

and quality and performance improvement programs.

4- To use more valid and reliable questionnaires to determine most important contributors to patient satisfaction. Finally, a number of important limitations need to be considered. First, there were some missing data in the questionnaire which led to omission of some data from our study. Second, the survey was conducted via telephone, and third some patients in our study were very satisfied, so they may have influenced whole satisfaction and fainted other patient's surveys.

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