Satisfaction Level of Patients after Treatment Admitted to Emergency Department

Faruk Özşahin[1], Mücahit Günaydın[1], Hüseyin Alper Vardar[1], Gamze Tüten[1], İsmet Eraydın[1], Yunus Karaca[2], Umut Eryiğit[2], Abdülkadir Gündüz[2], Selim Yurtsever[1]

[1]Department of Emergency Medicine, Trabzon Kanuni Training and Research Hospital, Trabzon, Turkey
[2]Department of Emergency Medicine, Karadeniz Technical University Faculty of Medicine, Trabzon, Turkey

Abstract

Objective: This study aimed to determine the factors affecting patients' satisfaction levels treated in yellow, red, and green areas who applied to the emergency department of an education and research hospital.

Material and Methods: With this study, 1383 patients aged between 14 to 85 who applied to the emergency department from October 2012 to January 2013 were accepted. Multiple-choice questions were asked in terms of the factors that were affecting patient satisfaction.

Results: Having compared yellow, green, and red zones, statistically significant differences have been found in the aspect of the perception of patients' social insurance, the way for applying and being accepted to the emergency department, the reason for coming to the emergency department, the staff that is first met, time between entrance and physical examination, the doctor's attitude, the waiting time for test results and treatment of the patient, and the total time spent in the emergency department ($p<0.05$). On the contrary, a statistically significant difference was not found between the yellow, red, and green areas patients in terms of the convenience and the adequacy of space of the emergency department, the medical care quality and the attitudes of the nurses and personnel, the state of hygiene and the medical supplies and equipment of the hospital, the quality of the observation, the adequacy of the information provided to the patient during discharge, or the satisfaction of the overall treatment that was experienced while in the emergency department ($p>0.05$).

Conclusion: Studies related to satisfaction may offer important clues in the direction of increasing standards of quality in the emergency departments. *(JAEM 2014; 13: 118-23)*

Key words: Triage, emergency medicine, patient satisfaction

Introduction

The concept of the emergency department involves all types of environmental and biological conditions that threaten human health and life. The importance of the emergency department in modern medicine is increasing by the day (1). Patient satisfaction in the emergency department is associated with several factors, such crowding and complexity of emergency services. However, the basic factors in patient satisfaction in the emergency department still have not been classified (2, 3). Patient satisfaction is also an important component of emergency unit targets and a marker showing the quality of care provided (4). The purpose of investigation into patient satisfaction is to establish how patients regard the quality of service they receive and to determine the order of priority of factors influencing their satisfaction, the reasons for their choosing the hospital concerned, their expectations from the hospital, and negativities experienced during the provision of service and the style of that provision and to design them in order to meet expectations (5). Research into satisfaction may provide important indications regarding functioning in emergency departments and the improvement of quality standards.

Materials and Methods

Type of Research

The purpose of this survey study was to determine the satisfaction following yellow, red, or green zone examination of patients attending our education and research hospital emergency department. Ethical committee approval was obtained. The study was planned and performed in agreement with the "Helsinki Declaration Ethical Principles for Medical Research Involving Human Subjects."

Correspondence to: Umut Eryiğit; Department of Emergency Medicine, Karadeniz Technical University Faculty of Medicine, Trabzon, Turkey
Phone: +90 543 216 27 58 e-mail: umuteryigitacil@gmail.com

Received: 22.11.2013 **Accepted:** 11.02.2014

DOI: 10.5152/jaem.2014.63497

Location and Nature of the Research

The emergency department in the education and research hospital where the study was performed serves all age groups. After visiting the triage area at the entrance to the emergency department, patients are referred to yellow, red, or green zones. The hospital where the study was performed is a regional toxicology, trauma, and advanced emergency care center.

Research Sampling

One thousand three hundred eighty-three patients attending the education and research hospital emergency department between October 1, 2012 and January 1, 2013 constituted the study sample. Inclusion criteria were application to the emergency department and admittance to the emergency observation unit. Ambulatory patients diagnosed and treated in the primary examination room and then discharged, patients aged under 14 or over 85, patients with diseases representing an obstacle to communication, patients with shock, patients with impaired consciousness, patients with drug or alcohol abuse, patients requiring emergency transport/intervention (critical intervention zone patients), patients receiving cardiopulmonary resuscitation (CPR), and those declining to participate in the study were excluded.

Statistical Analysis

Data analysis was performed with Statistical Package for Social Sciences 11.5 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were expressed as mean±standard deviation for discrete variables and case number and percentage (%) for categorical variables. Significance of differences between group means was analyzed using one-way analysis of variance (one-way ANOVA). The post hoc Tukey HSD test was used to determine factors responsible for significant results from one-way ANOVA. Categorical variables were assessed using Pearson's chi-square or Fisher's exact chi-square tests. $p<0.05$ was regarded as significant.

Results

The sociodemographic characteristics of patients examined in the yellow, red, and green zones are shown in Table 1.

Analysis of patients' perception of their reception at the emergency department, the physical adequacy of the department and physicians' medical care, and the quality thereof revealed no significant difference between yellow, red, and green zone patients ($p<0.05$).

No significant difference was also determined between yellow, red, and green zone patients in terms of ease of access to hospital, adequacy of signposting in the emergency department, and ease of access to the examination room ($p>0.05$) (Table 2).

There was also no significant difference between the yellow, red, and green patient groups in terms of nurses' medical care and interventions, other personnel medical care and interventions, and physicians', nurses', and other personnel's behavior ($p>0.05$) (Table 2).

No significant difference was determined between the yellow, red, and green patient groups in terms of hospital cleanliness, hospital medical equipment, monitoring under observation, procedures performed during monitoring and feedback, and satisfaction with the information provided ($p>0.05$). Analysis of patient satisfaction in terms of waiting times for tests revealed that these times were significantly longer in the red zone patients compared to the green zone ($p<0.05$).

Discussion

Since emergency departments are the busiest sections in hospitals, they need to function with a specific discipline, and there needs to be constant effort to ensure the maintenance of that discipline. In that context, emergency department patient satisfaction with the care received is becoming increasingly important. Dissatisfied patients may look to alternatives, such as emergency clinics and other hospitals.

Hospitals' objective is to meet patient expectations. These expectations may vary depending on the expectation of people with the same or similar conditions. For that reason, the scope of the service given to every patient and the details, duration, and nature of the treatment vary. This also affects patients' satisfaction levels (6).

Everything can be done better in order to create good patient satisfaction. Patients must respond well to treatment, personnel morale must be raised, and the risks of misdiagnosis must be reduced. Problems regarding administration must be resolved, the hospital or emergency department must be popular in the region, and financing for the institution must be increased (7).

Kelly (8) suggests that patient satisfaction levels do not express reality as much as patient expectations. These expectations may express a lack of medical knowledge. The most important variables in terms of emergency department satisfaction are pre-examination waiting times, nursing care, concern shown by doctors, how personnel are organized, and the medical information provided by nurses and doctors.

The general satisfaction level in all terms among patients in the emergency care department in our study was 91.2%. Yellow zone general satisfaction level was 90.9%, red zone satisfaction was 95.5%, and green zone satisfaction was 90.6%. The statistical analysis revealed no significant differences between the yellow, red, and green zones ($p<0.05$). Boudreaux et al. reported a patient satisfaction level of 50.0%, while Topaçoğlu reported a level of 94.4% in a study performed at the Dokuz Eylül University Medical Faculty emergency department in Turkey (9, 10). We think that the great majority of patients being satisfied with our hospital emergency department is due to its being the central hospital in the region.

Some studies have observed an increase with service satisfaction as age rises, while others have reported no effect of age on satisfaction with health services (11, 12). The general mean age in this study was 40.9. Mean ages of patients in the green, yellow, and red zones were 36.4, 41.6, and 59.2, respectively, and no significant difference in satisfaction levels on the basis of age was determined ($p<0.05$).

Sünter et al. reported that gender had no effect on satisfaction in health institutions (13). Our study results were in agreement with theirs, and no difference was determined between general satisfaction levels ($p<0.05$).

Baykan et al. (14) determined that the level of education affected patient satisfaction. Aytar et al. (15) reported that patients with lower expectations and knowledge had greater satisfaction levels and that patients with knowledge of health-related issues or exaggerated expectations were less satisfied. In our study, the education levels of patients in the green zone were higher than those of patients in the yellow zone, and the level in the red zone patients was lower than both.

Table 1. The sociodemographic characteristics of patients in the groups

Variables	Green Zone (n: 545)	Yellow Zone (n: 727)	Red Zone (n: 111)	p-value
Age	36.4±15.9[a,b]	41.6±19.0[a,c]	59.2±19.0[b,c]	<0.001[†]
Gender				
Female	283 (51.9%)[b]	391 (53.8%)[c]	42 (37.8%)[b,c]	0.007[‡]
Male	262 (48.1%)[b]	336 (46.2%)[c]	69 (62.2%)[b,c]	
Marital Status				
Single	216 (39.6%)[a,b]	205 (28.2%)[a,c]	14 (12.6%)[b,c]	<0.001[‡]
Married	312 (57.2%)[a]	463 (63.7%)[a]	63 (56.8%)	
Widow	17 (3.1%)[a,b]	59 (8.1%)[a,c]	34 (30.6%)[b,c]	
Education				
Illiterate	23 (4.2%)[a,b]	75 (10.3%)[a,c]	29 (26.1%)[b,c]	
Elementary school	128 (23.5%)[b]	195 (26.8%)	36 (32.4%)[b]	
Secondary school	73 (13.4%)	109 (15.0%)	12 (10.8%)	<0.001[‡]
High school	205 (37.6%)[a,b]	225 (30.9%)[a,c]	16 (14.4%)[b,c]	
University	116 (21.3%)[a]	123 (16.9%)[a]	18 (16.2%)	
Profession				
Worker	94 (17.2%)	121 (16.7%)	13 (11.7%)	
Officer	79 (14.5%)	87 (12.0%)	20 (18.0%)	
Retired	53 (9.7%)	72 (9.9%)	12 (10.8%)	
Housewife	121 (22.2%)[a]	215 (29.6%)[a]	30 (27.0%)	0.004[‡]
Student	104 (19.1%)[b]	119 (16.4%)[c]	8 (7.2%)b,c	
Unemployed	17 (3.1%)	17 (2.3%)[c]	8 (7.2%)c	
Self-employed	77 (14.1%)	95 (13.1%)	20 (18.0%)	
Social Security				
Green Card	30 (5.5%)[b]	59 (8.1%)[c]	21 (18.9%)[b,c]	
*Bağ-Kur	60 (11.0%)[b]	107 (14.7%)[c]	40 (36.0%)[b,c]	
Pension Fund	121 (22.2%)	159 (21.9%)	22 (19.8%)	<0.001[‡]
SSK	302 (55.4%)[b]	365 (50.2%)[c]	26 (23.4%)[b,c]	
Private Insurance	6 (1.1%)	14 (1.9%)	0 (0%)	
None	26 (4.8%)	23 (3.2%)	2 (1.8%)	

SSK: Social Insurance Institution

*Bağ-kur: Tradesman, Artisans, and Self-Employed Social Insurance Institution

[†]: One-way ANOVA, [‡]:Pearson's chi- square test, [a]: Significant difference was determined between the green and yellow zone groups (p<0.05), [b]: Significant difference was determined between the green and red zone groups (p<0.05), [c]: Significant difference was determined between the yellow and red zone groups (p<0.05).

There was no difference between the education levels of patients in the green, yellow, and red zones and their general satisfaction.

In a study performed in a military hospital, Campanella et al. (16) found that the most important factor affecting a patient's general satisfaction was doctor behavior. Topaçoğlu (9) also reported that doctor behavior had a significant effect on a patient's general satisfaction. In our study, we determined no significant difference between yellow, red, and green patient group satisfaction levels in terms of the behavior toward patients of doctors, nurses, and other personnel.

Topaçoğlu (9) also reported that the hospital's technical equipment and cleanliness had a positive effect on general satisfaction. No significant difference was determined in our study between the yellow, red, and green zone patient groups in terms of adequate space in the emergency department, ease of access to the examination room, effectiveness of emergency department signposting, and hospital cleanliness.

Larson et al. (17) investigated the effect on care-related satisfaction of meeting the patient's information needs. They reported that the meeting of information needs had a significant impact on patient satisfaction. No significant difference was determined between the yellow, red, and green zone patients in our study in terms of information provision during observation and the quality of the information provided.

Table 2. Analysis of patients' evaluation for the emergency department in groups

Variables	Green Zone (n: 545)	Yellow Zone (n: 727)	Red Zone (n: 111)	p-value
Perception of reception at the ED				
Very bad	7 (1.3%)[a]	27 (3.7%)[a]	1 (0.9%)	
Bad	13 (2.4%)	20 (2.8%)	0 (0.0%)	<0.001
Average	78 (14.3%)[b]	95 (13.1%)[c]	3 (2.7%)[b,c]	
Good	259 (47.5%)	342 (47.0%)	45 (40.5%)	
Very good	188 (34.5%)[b]	243 (33.4%)[c]	62 (55.95%)[b,c]	
Ease of transportation				0.143
Yes	528 (96.9%)	702 (96.6%)	111 (100.0%)	
No	17 (3.1%)	25 (3.4%)	0 (0.0%)	
Physical adequacy of the ED				
Yes	452 (82.9%)[a,b]	635 (87.3%)[a]	104 (93.7%)[b]	0.004
No	93 (17.1%)[a,b]	92 (12.7%)[a]	7 (6.3%)[b]	
Ease of access to the examination room				
Yes	494 (90.6%)	683 (93.9%)	105 (94.6%)	0.059
No	51 (9.4%)	44 (6.1%)	6 (5.4%)	
Adequacy of signposting in the ED				
Yes	461 (84.6%)	622 (85.6%)	94 (84.7%)	0.883
No	84 (15.4%)	105 (14.4%)	17 (15.3%)	
Time from admission to treatment				
Very short	124 (22.8%)	140 (19.3%)	21 (18.9%)	
Short	209 (38.3%)[b]	280 (38.5%)[c]	63 (56.8%)[b,c]	0.004
Average	178 (32.7)[b]	251 (34.5%)[c]	24 (21.6%)[b,c]	
Long	25 (4.6%)[b]	41 (5.6%)[c]	0 (0.0%)[b,c]	
Very long	9 (1.7%)	15 (2.1%)	3 (2.7%)	
Quality of physicians' medical care				
Very bad	6 (1.1%)	2 (0.3%)	0 (0.0%)	
Bad	3 (0.6%)	12 (1.7%)	0 (0.0%)	0.009
Average	54 (9.9%)	86 (11.8%)	7 (6.3%)	
Good	260 (47.7%)	331 (45.5%)	43 (38.7%)	
Very good	222 (40.7%)[b]	296 (40.7%)[c]	61 (55.0%)[b,c]	

[†]:Pearson's chi-square test, [a]: Significant difference was determined between the green and yellow zone groups ($p<0.05$), [b]: Significant difference was determined between the green and red zone groups ($p<0.05$), [c]: Significant difference was determined between the yellow and red zone groups ($p<0.01$).
ED: Emergency department

Hospitalization is a phenomenon that impairs the lifestyle with which patients are familiar. The nurse-patient relationship plays a particularly significant role in the satisfaction of hospitalized patients. As the people with whom the patient has most contact and who mediates contact with other departments, the provision of services by nurses affects patient satisfaction (6).

The patient-nurse relationship evaluated in other studies was assessed in this study in terms of nurses' medical care and intervention and their behavior toward patients, and no significant difference was determined between the three patient groups.

Waiting time is a very significant determinant of patient satisfaction. Shorter waiting times mean greater patient satisfaction (18). One study investigated the effect of true waiting time on patient satisfaction. No significant relation was determined between definitive mass waiting time and general satisfaction (19). Explaining to patients why they are waiting in the emergency department and telling them about the waiting process may be an effective means of reducing true waiting time (18-20). In our study, the total time spent in the emergency department by our patients was assessed as very long, long, average, short, or very short, and significant differences were determined in general satisfaction levels in patients in the yellow, red, and green zone groups ($p<0.05$). We attributed the variation that emerged to patients in the red and yellow zones being treated earlier than green zone patients due to their greater need for emergency intervention.

Table 2. Analysis of patients' evaluation for the emergency department in groups (continued)

Variables	Green Zone (n: 545)	Yellow Zone (n: 727)	Red Zone (n: 111)	p-value‡
Quality of nurses' medical care and interventions				
Very bad	3 (0.6%)	5 (0.7%)	0 (0.0%)	
Bad	10 (1.8%)	10 (1.4%)	2 (1.8%)	
Average	60 (11.0%)	92 (12.7%)	10 (9.0%)	0.788
Good	259 (47.5%)	348 (47.9%)	50 (45.0%)	
Very good	213 (39.1%)	272 (37.4%)	49 (44.1%)	
Quality of other personnels' medical care				
Very bad	5 (0.9%)	3 (0.4%)	0 (0.0%)	
Bad	10 (1.8%)	11 (1.5%)	2 (1.8%)	
Average	84 (15.4%)	109 (15.0%)	13 (11.7%)	0.457
Good	268 (49.2%)	365 (50.2%)	48 (43.2%)	
Very good	178 (32.7%)	239 (32.9%)	48 (43.2%)	
Physicians' behavior to patients				
Very bad	4 (0.7%)	0 (0.0%)	0 (0.0%)	
Bad	2 (0.4%)	4 (0.6%)	0 (0.0%)	0.121
Average	31 (5.7%)	49 (6.7%)	5 (4.5%)	
Good	231 (42.4%)	303 (41.7%)	39 (35.1%)	
Very good	277 (50.8%)	371 (51.0%)	67 (60.4%)	
Nurses' behavior to patients				
Very bad	6 (1.1%)	2 (0.3%)	0 (0.0%)	
Bad	6 (1.1%)	9 (1.2%)	0 (0.0%)	
Average	52 (9.5%)	76 (10.5%)	10 (9.0%)	0.451
Good	248 (45.5%)	333 (45.8%)	53 (47.7%)	
Very good	233 (42.8%)	307 (42.2%)	48 (43.2%)	
Personnels' behavior to patients				
Very bad	5 (0.9%)	5 (0.7%)	0 (0.0%)	
Bad	12 (2.2%)	12 (1.7%)	1 (0.9%)	
Average	77 (14.1%)	103 (14.2%)	12 (10.8%)	0.820
Good	259 (47.5%)	347 (47.7%)	51 (45.9%)	
Very good	192 (35.2%)	260 (35.8%)	47 (42.3%)	

‡: Pearson's chi-square test

Study Limitations

This study was performed in the emergency department of an education and research hospital which is a tertiary hospital. So this study may not reflect general patient satisfaction level.

Conclusion

Patients in red, yellow, and green zones were assessed in terms of factors affecting patient satisfaction in the emergency department.

Determination of patient satisfaction levels of emergency department patients who are referred to red, yellow, or green zones following triage can facilitate the determination of deficiencies emerging among the three zones, revision of emergency department standards, and the establishment of emergency department zones, providing more effective and quality serves to meet the expectations of society.

Ethics Committee Approval: Ethical committee approval was obtained from local ethical committee.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - A.G, F.Ö.; Design - A.G, F.Ö., U.E.; Supervision - A.G., Y.K.; Materials - F.Ö., G.T., H.A.V., S.Y., İ.E., M.G.;

Data Collection and/or Processing - F.Ö., U.E., M.G.; Analysis and/or Interpretation F.Ö.; Literature Review - F.Ö., A.G., U.E.; Writer - F.Ö., A.G., U.E.; Critical Review - A.G., Y.K.

Conflict of Interest: The authors declared no conflict of interest.

Financial Disclosure: The authors declared that this study has received no financial support.

References

1. Kyriacou DN, Ricketts V, Dyne PL, McCollough MD, Talan DA. A 5-year time study analysis of emergency department patient care efficiency. Annals of emergency medicine 1999; 34: 326-35. [CrossRef]
2. Yavuz Ş. Acil serviste hasta ve hasta yakınının memnuniyeti ve bunu etkileyen faktörler. Uzmanlık tezi, Marmara Üniversitesi, İstanbul, 2003.
3. Damghi N, Belayachi J, Armel B, Zekraoui A, Madani N, Abidi K, et al. Patient satisfaction in a Moroccan emergency department. International archives of medicine. 2013; 6: 20. PubMed PMID: 23641778.
4. Nelson AM, Wood SD, Brown SW. Improving patient satisfaction. 1st Ed, Maryland: Aspen Publishers, 1997.
5. Yılmaz M. Sağlık bakım kalitesinin bir ölçütü: hasta memnuniyeti. C. Ü. Hemşirelik Yüksekokulu Dergisi 2001; 5: 69-73.
6. Dölek M, Turaba F, Akbinar C, Sezgin B, Aksu H, Solak İ. Ege üniversitesi tıp fakültesi hastanesi acil servis biriminde yatan hastaların memnuniyet düzeyinin incelenmesi. Türkiye Acil Tıp Dergisi 2005; 5: 122-7.
7. Rhee KJ, Bird J. Perceptions and satisfaction with emergency department care. The Journal of emergency medicine 1996;14: 679-83. [CrossRef]
8. Kelly AM. Patient satisfaction with pain management does not correlate with initial or discharge VAS pain score, verbal pain rating at discharge, or change in VAS score in the emergency department. The Journal of emergency medicine 2000; 19: 113-6. [CrossRef]
9. Topaçoğlu H. Acil servise başvuran hastaların memnuniyetini etkileyen faktörlerin analizi. Uzmanlık tezi, Dokuz Eylül Üniversitesi, İzmir, 2002.
10. Boudreaux ED, O'Hea EL. Patient satisfaction in the Emergency Department: a review of the literature and implications for practice. The Journal of emergency medicine 2004; 26: 13-26. [CrossRef]
11. Alcan Z. Bayındır Tıp Merkezi hemşirelik hizmetleri müdürlüğü hasta memnuniyeti anket sonuçları. In: Çoruh M, ed. Sağlık hizmetlerinde toplam kalite yönetimi ve performans ölçümü. Haberal Eğitim Vakfı. Ankara; 1997. p.133-8.
12. Ercan İ, Ediz B, Kan İ. Sağlık Kurumlarında teknik olmayan boyut için hizmet memnuniyetini ölçebilmek amacıyla geliştirilen ölçek. Uludağ Üniversitesi Tıp Fakültesi Dergisi 2004; 30: 151-7.
13. Sünter AT, Canbaz S, Tuncel EK, Çetinoğlu EÇ, Pekşen Y. Üniversite hastanesinde yatan hastaların memnuniyet düzeylerinin değerlendirilmesi. Hastane Yönetimi Dergisi 2006; 10: 46-50.
14. Baykan Z, Özkan S, Maral I. Ana-çocuk sağlığı aile planlaması merkezine başvuran kadınların hizmetten memnuniyet durumları. Erciyes Tıp Dergisi 2004; 26: 98-104.
15. Aytar G, Yeşildal N. Yatan hasta memnuniyeti. Düzce Tıp Fakültesi Dergisi 2004; 3: 10-4.
16. Campanella HC, Campanella PM, Grayson K. Factors affecting department of defense patient satisfaction in a military emergency department. Military Medicine 2000; 165: 396-402.
17. Larson CO, Nelson EC, Gustafson D, Batalden PB. The relationship between meeting patients' information needs and their satisfaction with hospital care and general health status outcomes. International journal for quality in health care : journal of the International Society for Quality in Health Care / ISQua. 1996; 8: 447-56. [CrossRef]
18. Thompson DA, Yarnold PR, Williams DR, Adams SL. Effects of actual waiting time, perceived waiting time, information delivery, and expressive quality on patient satisfaction in the emergency department. Annals of emergency medicine 1996; 28: 657-65. [CrossRef]
19. Sandovski U, Salman H, Bergman M, Neiman V, Bessler H, Djaldetti M. Patients' satisfaction with the staff function in an emergency department. European journal of emergency medicine: official journal of the European Society for Emergency Medicine 2001; 8: 117-22. [CrossRef]
20. Krishel S, Baraff LJ. Effect of emergency department information on patient satisfaction. Annals of emergency medicine 1993; 22: 568-72. [CrossRef]