Satisfaction of Patients and their Relatives with Ambulance Services

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Abstract

Background: The satisfaction level of service receivers is recognized as one of the quality indicators of health services.

Objectives: The present study aimed to determine the satisfaction level of service receivers with ambulance services as an important component of health services and the factors affecting this satisfaction.

Methods: This descriptive cross-sectional study was carried out in Kırklareli, Turkey, in January 2021. The data were collected through a 2-step questionnaire consisting of a demographic information form developed by the researchers and the 112 Emergency Services Patient Satisfaction Scale. The minimum and maximum scores were 26 and 130.

Results: The mean score of the scale was obtained at 120.62±10.42 (ranging from 60-130). A positive correlation was found between the age groups and the mean of scale score (rs=0.338; P<0.001). The Cronbach's alpha reliability coefficient of the scale was calculated at 0.957.

Conclusion: As evidenced by the obtained results, respondents' overall satisfaction with ambulance services was found to be high. The level of satisfaction was enhanced with respondents' age. It was concluded that effective measures should be implemented to improve the quality of services by uncovering the major reasons for service receivers' dissatisfaction. Moreover, it was found that the 112 Emergency Services Patient Satisfaction Scale is reliable and measurement results should be used to improve the services.

Keywords: Ambulance services, Satisfaction, Emergency Services Patient Satisfaction Scale

1. Background

The definition of emergency in health services varies according to service providers and receivers. Healthcare professionals emphasize that an emergency is a life-threatening situation for the patient, while patients may describe an emergency as the most uncomfortable health condition. The description of "a health emergency is a sudden or unexpected threat to physical health or wellbeing, requiring an urgent assessment and alleviation of symptoms" has been suggested to provide a common perspective for healthcare professionals and patients (1). When a change in one's health condition is considered an emergency, urgent health support should be provided on the scene and the person should be safely transported to a suitable treatment facility.

Medically equipped vehicles designed for safe transportation of patients are named "ambulance", from the Latin word "ambulare", which means "to walk or move around" (2). Ambulance services are considered a major part of pre-hospital care and can be defined as the starting point of emergency services. In an emergency, patients do not have a choice about the ambulance services due to the time-critical nature of emergency services. Nevertheless, the fact that patients do not have a choice does not mean that their satisfaction with the provided service can be disregarded. Multiple studies have assessed satisfaction with ambulance services; nonetheless, there is a dearth of research on the satisfaction level in Turkey (3). In light of the aforementioned issues, the present study aimed to determine the level of satisfaction with ambulance services and the factors affecting it.

1.1. Ambulance Services in Turkey

The first ambulance services in Turkey started with the aim of transporting the wounded from the battlefield to the hospitals behind the front lines. The name "ambulances" cannot be assigned to vehicles transporting injured people in those days. For many years, ambulance services in Turkey have been provided by municipalities, some public institutions, and hospitals without being subject to any legal regulation. The ambulance services have been described for the first time in the Traffic Law dated 1983 and the responsibility was given to the Ministry of Health for highways and municipalities for city centers (4). 077-Hızır Emergency Services established in 1986 with the collaboration of the Ministry of Health and the municipalities of Istanbul, Ankara, and Izmir is considered the beginning of today's ambulance services (5). As a part of a restructuring in 1994, Hızır Emergency Services was affiliated to the Ministry of Health, its name was changed to 112 Emergency and Rescue Services, and it was expanded country-wide (6).

Ambulance services throughout the world are broadly classified into two models of Anglo-American and Franco-German. Almost all patients in the Anglo-

American model are transported to hospitals with large facilities as quickly as possible to get higher quality care. In the Franco-German model, emergency physicians and high-tech are transported to the scene in order to bring the hospital facilities to the patient. Austria, France, Germany, Norway, Russia, Switzerland, and Finland are among the countries which adopted the Franco-German model. The adopters of the Anglo-American model include the USA, United Kingdom, Ireland, Netherlands, Australia, Canada, and Turkey ([7]). Nevertheless, in Turkey, some emergency health service stations also recruit physicians and use highly equipped ambulances. In this respect, it can be stated that these two systems are applied in Turkey; however, the generally applied method is the Anglo-American model which can be briefly described as a "scoop and run" philosophy ([8]). Consequently, the contact time of the patients with the ambulance and caregivers is relatively shorter.

According to the latest data provided by the Turkish Ministry of Health, in addition to 4.910 land ambulances, including 250 snow-pallet ambulances, 62 motorcycle ambulances, 22 snow track ambulances, 91 intensive care & bariatric ambulances, and 63 ambulances with 4 stretchers, 6 sea ambulances, 17 helicopter ambulances, and 4 air ambulances gave service were available in Turkey in 2018 ([9]).

2. Objectives

The present study aimed to determine the satisfaction level of service receivers with ambulance services as an important component of health services and the factors affecting this satisfaction.

3. Methods

3.1. Study Design

This descriptive cross-sectional study was carried out in Kırklareli, in January 2021. Kırklareli is a city with about 360.000 inhabitants, located in northwestern Turkey. There are nine hospitals in the city, including five public and four private hospitals. All the hospitals have their own ambulance services; moreover, there are 17 emergency health service stations which are geographically distributed based on the population of the city operate independently from the hospitals. As in all of Turkey, the emergency health number for Kırklareli City is 112. All calls are collected in a command-and-control center which directs the most suitable ambulance to the caller. Both hospital ambulances, including the private ones and ambulances of emergency health service stations, are dispatched by that single command and control center.

3.2. Target Population and Sampling

According to the information obtained from the Provincial Health Directorate, ambulance services were provided to 43.507 cases in Kırklareli during 2020. The sample size of this study was calculated at 572 cases using the Epi-info-7 StatCalc and considering 43.507 of the target population, 95% of the confidence interval, 5% of margin of error, 50% of prevalence, and the design effect of 1.5. The number of participants increased to 629 cases based on the expected sample attrition of 10%. Randomly selected individuals were contacted by phone, the study was introduced, and verbal consent was obtained. Individuals who personally got service from an ambulance were targeted as much as possible. In the case where direct communication with the service receiver was not possible, the relative who called the emergency call center was interviewed. In the definition of the respondent, the person transported by ambulance was named as "patient", and the relative calling the emergency call center was named as "patient relative". A total of 588 respondents were surveyed and the participation rate was 93.5%.

3.3. Data Collection

The data were collected by a 2-step questionnaire consisting of a demographic information form developed by the researchers and the 112 Emergency Services Patient Satisfaction Scale. This questionnaire which was developed by Karasu in 2018 consists of 26 items rated on a 5-point Likert scale, ranging from strongly disagree=1 to strongly agree=5. The minimum and maximum total scores are 26 and 130. There is not a cut-off point in the scale and higher scores are suggestive of a higher level of satisfaction with the received services. The scale contains four sub-scales: "Ambulance Personnel", "Call Operator", "Treatment on the Scene", and "Technical Equipment of the Ambulance". The Cronbach's alpha reliability coefficient of the scale was reported to be 0.907 ([10]).

3.4. Statistical Analysis

The obtained data were analyzed in SPSS software (version 22). Descriptive statistics are presented as numeric values, percentages, standard deviations, and averages. Data distribution was verified by using Kolmogorov-Smirnov and Shapiro Wilk tests. Chi-square, Mann Whitney, and Kruskal Wallis tests were used in the analysis of the data which were not normally distributed. Findings were evaluated at a 95% confidence interval, and a p-value less than 0.05 was considered statistically significant. The "Mean Scale Score" was calculated by dividing the total score by the number of items (n=26). In a similar vein, the "Mean Sub-Scale Scores" were calculated by dividing each sub-scale total score by the number of items forming that sub-scale.

3.5. Limitations

Due to the COVID-19 pandemic, this study used a

phone survey which limited the respondents to the individuals who had a phone.

3.6. Ethical Consideration

This study was approved by Kırklareli Provincial Health Directorate Research Applications Examination and Evaluation Commission (dated 04.05.2020 and numbered 29) and Kırklareli University Institute of Health Sciences Ethics Committee (dated 06.04.2020 and numbered 5). In addition, permission was obtained from Karasu for the use of the scale.

4. Results

The mean age scores of the total, female, and male respondents were reported as 45.1±13.5, 44.4±13.2, and 45.6±13.8, respectively. Moreover, 89.5% (n=526) of respondents reported that they had health insurance. In terms of monthly income, 8.2%, 9.9%, 21.8%, and 60.2% of the respondents had no income, an income below the national minimum wage, an income at the national minimum wage level, and an income above the national minimum wage, respectively. Table 1 displays the mean score distribution of the 112 Emergency Services Patient Satisfaction Scale based on certain sociodemographic characteristics of the respondents.

Table 1 presents a statistically significant correlation between the age groups and the mean score of the scale. It is a positive correlation,(i.e., older age groups show higher mean scores (r_s=0.338; P<0.001). The mean total score assigned to all items was calculated at 120.62±10.42 (min 60, max 130). The mean score of the scale is 4.64±0.40. Table 2 illustrates the mean scores of the 112 Emergency Services Patient Satisfaction Scale.

Table 1. Mean Scores Distribution of the 112 Emergency Services Patient Satisfaction Scale based on Certain Sociodemographic Characteristics of the Respondents

Sociodemographic Characteristic	n	% [95% CI]	Min	Max	Mean ± SD	Mean Rank	p
Gender*							
Female	242	41.2 (37.2±45.2)	2.31	5.00	4.63±0.48	305.6	0.18
Male	346	58.8 (54.8±62.8)	3.69	5.00	4.65±0.34	286.8	
Age**							
29 and under	97	16.5 (13.5±19.5)	3.00	4.96	4.50±0.36	207.3	
30 - 39	116	19.7 (16.5±22.9)	2.96	5.00	4.53±0.41	240.4	
40 - 49	138	23.5 (20.1±26.9)	3.50	5.00	4.74±0.33	285.9	<0.001
50 - 59	149	25.3 (21.8±28.8)	2.31	5.00	4.73±0.45	357.3	
60 and above	88	15.0 (2.1 ± 17.9)	3.58	5.00	4.75±0.40	369.2	
Marital Status*							
Married	453	77.0 (73.6±80.4)	2.31	5.00	4.64±0.43	301.1	0.08
Not married (single, widow, divorced, etc.)	135	23.0 (19.6±26.4)	3.92	5.00	4.64±0.30	272.4	
Education*							
Up to high school	232	39.5 (35.5±43.5)	2.31	5.00	4.66±0.44	324.6	<0.001
High school and above	356	60.5 (56.5±64.5)	2.96	5.00	4.62±0.37	274.9	
Income Generating Job*							
Yes	454	77.2 (73.8±80.60)	3.00	5.00	4.62±0.37	280.3	<0.001
No	134	22.8 (19.4± 26.2)	2.31	5.00	4.70±0.49	342.7	
Self-Assessed Economic Status**							
Very bad – Bad	182	31.0 (27.3±34.7)	3.69	5.00	4.64±0.38	296.8	
Fair	354	60.2 (56.2± 64.2)	2.96	5.00	4.64±0.38	292.9	0.96
Very good - Good	52	8.8 (6.5±11.1)	2.31	5.00	4.60±0.56	297.2	
Number of Times of Getting Service From 112*							
First time	264	44.9 (40.9±48.9)	2.31	5.00	4.60±0.44	276.2	0.02
Twice or more	324	55.1 (51.1±59.1)	3.58	5.00	4.67±0.36	309.4	
Type of Respondent*							
Patient	491	83.5 (80.5±86.5)	2.31	5.00	4.65±0.40	301.2	0.03
Patient relative	97	16.5 (13.5±19.5)	3.73	5.00	4.56±0.40	260.6	

* Mann Whitney U test was used.
** Kruskal Wallis test was used.

Table 2. Mean Scores of the 112 Emergency Services Patient Satisfaction Scale

Item	Item Mean Score($\bar{X}$ ± SD)	Sub-Scale Mean Score($\bar{X}$ ± SD)
Ambulance Personnel		
1. The ambulance personnel asked questions about the patient's/injured person's complaints.	4.45±0.62	
2. The ambulance personnel listened to the patient's/injured person's complaints.	4.49±0.62	
3. The ambulance personnel provided explanatory information about the patient/injured person.	4.47±0.65	4.56±0.50
4. The ambulance personnel sufficiently took care of the patient/injured person.	4.50±0.62	
5. The ambulance personnel gave moral support to the patient/patient's relative.	4.44±0.69	

Table 2. Continued.

6. I had confidence in the ambulance personnel's professional knowledge.	4.52±0.59	
7. I was satisfied with the ambulance personnel's overall attitude.	4.47±0.66	
8. The ambulance personnel were wearing uniforms.	4.74±0.46	
9. The ambulance personnel respected the hygiene rules.	4.62±0.68	
10. I appreciated the ambulance personnel's teamwork.	4.66±0.52	
11. The ambulance personnel did their best for us.	4.63±0.56	
12. The ambulance personnel transported the patient/injured person to the hospital as quickly as possible.	4.74±0.50	
Call Operator		
13. The call operator understood my statements.	4.78±0.48	
14. The call operator was respectful to me.	4.79±0.48	4.78±0.47
15. I had confidence in the call operator.	4.79±0.48	
Treatment on the Scene		
16. The ambulance personnel gave the needed treatment to the patient/injured person on the scene.	4.79±0.48	
17. The ambulance personnel brought all the devices they would use to the scene.	4.78±0.51	
18. The ambulance personnel safeguarded the patient's/injured person's privacy.	4.83±0.41	4.67±0.43
19. The ambulance personnel served with a smile.	4.27±0.88	
20. The ambulance personnel gave clear answers to our questions.	4.60±0.63	
21. The ambulance personnel explained the needed procedures.	4.66±0.55	
22. The devices that the ambulance personnel used functioned properly.	4.78±0.44	
Technical Equipment of the Ambulance		
23. The ambulance was equipped enough for all kinds of treatment.	4.83±0.41	
24. Inside the ambulance was convenient for weather conditions.	4.84±0.42	4.71±0.42
25. Inside the ambulance was quiet, noise-free, and comfortable.	4.34±0.87	
26. Transportation to the hospital by ambulance was provided safely.	4.84±0.41	

The Cronbach's alpha reliability coefficient on the 112 Emergency Services Patient Satisfaction Scale was calculated as 0,957.

5. Discussion

There are several studies on satisfaction with health services, healthcare institutions, and other medical services, especially in recent years. Nonetheless, there is a dearth of research on satisfaction with ambulance services. However, health services should be approached with a holistic view. It can be stated that overall satisfaction with ambulance services as one of the most important parts of emergency health services in Turkey is high. In fact, in a study comparing the satisfaction with all public services in a city, it was found that ambulance services were the public service with the highest level of satisfaction ([11]).

In addition, two different surveys conducted in Konya and Kayseri cities without using a standardized scale reported that the overall satisfaction with ambulance services was 93.9% and 90.5% respectively ([12], [13]). There are studies reporting high satisfaction with ambulance services in different parts of the world ([14]). On the other hand, some other studies pointed to a lower level of satisfaction ([15]). These results suggest that those who receive services have expectations regarding ambulance services. As a striking example, the lowest scored item in our survey was related to the "service with a smile".

The respondents who highly scored the job performance of the ambulance personnel highlighted their expectations in other issues. The scores given to the Technical Equipment of the Ambulance sub-scale

were high, whereas the noise inside the ambulance was highlighted. Similar results have been reported in other studies conducted both in Turkey and other countries ([12] - [17]). The evaluation of those outcomes, together with the ones obtained in this study, revealed that the expectations of service receivers should be observed regularly and the factors causing dissatisfaction should be identified and improved. Consistent with some studies conducted outside Turkey ([18]), in the present research, the respondents granted the highest scores to the Call Operator sub-scale, signifying the critical importance of high qualification of health professionals answering calls.

The present study also demonstrated that respondents' level of satisfaction in certain aspects varied according to their sociodemographic characteristics. For instance, based on the results of this study, the level of satisfaction increases with respondents' age and decreases with their education. It was also observed that respondents with an income-generating job and patients' relatives had a significantly higher level of satisfaction, as compared to unemployed ones and patients, respectively. These results are in agreement with those reported in some studies conducted in various countries, whereas they are inconsistent with some others ([12], [13], [18]). Based on these results, it can be stated that satisfaction with ambulance services should be monitored regularly with local studies and improved based on the results.

The 112 Emergency Services Patient Satisfaction Scale developed by Karasu in 2018 was used in this study. Karasu who verified the validity and confidence of the scale reported the Cronbach's Alpha coefficient of 0.907 ([10]). The Cronbach's Alpha coefficient was obtained at 0.957 in the current study, reconfirming the high reliability of this scale.

6. Conclusion

As evidenced by the results of the present study, the 112 Emergency Services Patient Satisfaction Scale which was used for the assessment of satisfaction with ambulance services is reliable. Moreover, measurements should be continuous and the measurement results should be used for improving the provided services.

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Footnotes

Conflicts of Interest: The authors declare that they have no conflict of interest

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