Research Article (Araştırma Makalesi)

Assessmentof Service and Social Conditions of 112 AmbulanceWorkers

112 Ambulans Çalışanlarının Hizmet ve Sosyal Durumlarının Değerlendirilmesi

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Özet

Amaç: 112 Acil Sağlık Hizmetleri (ASH) ölümlerin, sakatlanmaların erken müdahale ile önlenmesine ve sağ kalıma önemli bir etkisi olan kritik bir birimdir. Vardiyalı çalışma, yoğun iş yükü, mesleki tatminsizlik, güvenlik kaygısı ve stres gibi birçok etken 112 ASH çalışanlarını olumsuz yönde etkilemektedir. Bu çalışmada Kahramanmaraş ilinde bulunan 112 ASH'de çalışan sağlık personelinin çalışma koşullarının, beklentilerinin, iş memnuniyetlerinin, hizmet ve sosyal durumlarının değerlendirilmesi, karşılaştıkları olumsuzlukların saptanması ve daha verimli çalışmaları için öneriler sunulması amaçlanmaktadır.

Gereç ve Yöntemler: Araştırma Kahramanmaraş ilinin112 ASH'degörevli sağlık çalışanları ile yapılmıştır. Çalışanların hizmet ve sosyal durumlarını incelemek üzere 29 sorudan oluşan anket formu geliştirilmiş ve bu anket formu Google Formlar üzerinden elektronik anket haline getirilmiştir. İki yüz elli iki sağlık çalışanı elektronik anketi doldurarak araştırmaya katılmıştır.

Bulgular: Çalışanların iş performansını etkileyen en önemli etmenler mesleki tatmin, saygı ve maaş düzeyidir. Çalışanlar 24 saatlik bir nöbette gördükleri vakaların çoğunluğunu yeşil alan hastası olarak belirtmiştir. Vakalara ortalama varış süresi ve hastalarınhastaneye teslim edilme süreleri çoğunlukla 0-10 dakika içerisinde gerçekleşmektedir. Hastaların hastaneye teslim edilmesi sırasında en çok karşılaşılan sorunlar hastayı teslim alan hekimin yaklaşımı ve yardımcı personel eksikliğidir. Çalışanların çoğu görevli olduğu birimde çalışan güvenliğine ilişkin koruyucu tedbirlerin yeterli olmadığını ve fiziksel saldırıya maruz kaldığını belirtmektedir.

Sonuç: Çalışmamız sonucunda 112 çalışanlarının iş memnuniyetsizliği yaşadığı tespit edilmiştir. Bu durumun sebepleri maaş düzeyi, saygınlığın yetersizliği ve güvenlik korkusudur.112 acil sağlık hizmetlerinin kullanımında ve organizasyonunda bazı eksiklikler bulunmaktadır. Bu faktörler çalışanların iş memnuniyet düzeylerini etkilemektedir. Yüz on iki çalışanlarının çalışma şartları daha iyi hale getirilmeli, acil sağlık hizmetlerinin koordinasyonu en yakın zamanda iyileştirilmelidir.

Anahtar kelimeler: 112, Acil,Ambulans,Çalışma koşulları, İş memnuniyeti

Abstract

Objective: 112 Emergency Health Services (EHS) is crucial for preventing deaths and injuries with early intervention and significantly impacts survival. Many factors like shift working, occupational dissatisfaction, safety concern, and stress adversely affect 112 EHS workers. This study aimed to evaluate the working conditions, expectations, job satisfaction, service, and social conditions of 112 EHS staff working in Kahramanmaras to determine their difficulties and provide suggestions for more efficient working conditions.

Material and Methods: This study was conducted with health workers working at 112 EHS in Kahramanmaras. A survey form was developed to investigate their service and social conditions. It was converted into an electronic survey containing 29 questions via Google Forms. Two hundred fifty-two health workers participated in the study by filling out the electronic survey.

Results: The most important factors affecting workers' job performance were job satisfaction/respect and salary level. Workers reported the majority of the cases encountered during a 24-hour shift were green zone patients.The average arrival time to the cases and the delivery time of the patients to the hospital are mostly within 0-10 minutes. Emergency room physicians' approach and the lack of allied health personnel were the most common problems during patients' delivery to the hospital. Most workers stated that protective measures on occupational safety in the EHS were insufficient and that they were subjected to physical assault.

Conclusion: As a result of our study, it was determined that 112 employees experienced job dissatisfaction.This situation is the level of salary, lack of dignity, and fear of security.However, there are some deficiencies regarding the use and organization of 112 emergency health services. It is necessary to immediately improve 112 EHS workers' working conditions and the coordination of EHS.

Keywords: 112, Ambulance, Emergency, Job satisfaction,Working conditions

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INTRODUCTION

Attempts to resolve injuries in accidents and disasters, emergency health problems in sudden diseases, or take measures for them are as old as human history. Pre-hospital care involves the health care services provided outside of the hospital until reaching the hospital (1). In our country, pre-hospital emergency health services have been provided free of charge through 112 ambulances by 112 EHS affiliated with the Ministry of Health since 1994 (2).Patients use the emergency health system in acute conditions such as hypoglycemia, septicemia, labor and asthma attacks, or emergencies such as myocardial infarction, bleeding, injuries, and traffic accidents. The first hour is crucial for patients, especially in cardiopulmonary arrest, severe trauma, acute myocardial infarction, and airway obstruction. It was reported that mortality rates were reduced, and recovery and survival increased by resuscitation and stabilization performed during that period (3).

Through 112 EHS, it is aimed to prevent deaths and reduce injuries resulting from various reasons such as inappropriate handling methods, lack of knowledge, negligence, and delay in transport to the hospital. Recently, deaths and injuries in traffic accidents, other accidents, or medical cases have significantly decreased since pre-hospital emergency health services have been extended and supported for ambulance and staff (4).

112 EHSis crucial for preventing deaths and injuries with early intervention and significantly impacts survival. Therefore, the workers in this department should be self-sacrificing. Thus, workers' morale, motivation, and job satisfaction are extremely important. However, many factors such as shift working, heavy workload, failure to solve workers' problems, occupational dissatisfaction, safety concern, and stress negatively affect 112 EHS workers. Therefore, service providers and service recipients also have some expectationsof health services (5).

This study aimed to evaluate the working conditions, expectations, job satisfaction, and service and social conditions of 112 EHS workers in a province to determine the difficulties they face and provide suggestions for more efficient working conditions.

MATERIALS AND METHODS

This descriptive study was conducted with health workers in 112 EHS in aprovince between September 2019 and November 2019. The administrative staffand health workers who refused to participate in the study were excluded from the study. For the study, type 1 (alpha-α) error and type 2 (beta-β) error were determined as 0.05 and 0.20, respectively. The power analysis of the study was performed using the G*Power 3.1 program. The minimum sample size to be reached was found to be 241when the effect size was 0.20, and the degree of freedom was 2. The power of the study, in which 252 workers were reached, was calculated as 0.89.

A survey form including open-ended, multiple-choice, and three-point Likert-type questions was developed to measure health workers' service and social conditions. It was then converted into an electronic survey via Google Forms. The link to the electronic survey was sent to workers' e-mail addresses registered in a province 112 EHS, and they were asked to respond to the survey voluntarily. Written permissions were obtained from the Provincial Health Directorate and 112 Provincial Ambulance Service Chief of Staff. Ethics committee approval was obtained from a University Faculty of Medicine Clinical Research Ethics Committee for the study, dated 05.05.2019 and numbered 13.

Statistical analysis

Statistical analyses were performed using IBM SPSS Statistics Premium V.23 (Windows). The statistical significance level was considered as $p<0.05$. We used Kolmogorov-Smirnov and Shapiro-Wilk tests to evaluate the assumption of normality. Normally distributed (parametric) data were presented as mean and standard deviation. Non-normally distributed (non-parametric) data were presented as median, minimum and maximum. Qualitative data were presented as frequency and percentage.

RESULTS

A total of 252 health care workers participated in the research by answering the questionnaire. Fifty two point five percent(n=128) of the participating health workers were male. Sixty six point seven percent(n=138) of the participants were aged between 20 and 29. Emergency medical technicians (EMT) working in 112 EHS constituted the majority by 48.8% (n=119), followed by paramedic workers by 33.2%.Sixty nine point seven percent (n=170) of the workers were high school or associate degree graduates. The average monthly working hour was between 160 and 175 hours by 70.4% (n=171). The most important factor affecting job performance was reported to be job satisfaction/respect at43.%0 (n=104), followed by salary at 24.8% (n=60) (**Table 1**).

112 health workers were asked to distribute the cases they encountered during a 24-hour shift by percentage according to triage classification. Health workers indicated that 70.0% of the cases they encountered during a 24-hour shift were green zone patients, while 20.0%and 10.0% of them were yellow zone patients and red zone patients, respectively (**Table 2**).

The participants were asked to distribute the cases they encountered during general working life by percentage bythe department. They reported that while 20.0% of the cases they encountered during general working life were internal medicine/neurological emergency patients, 20.0% and 20.0% of them were cardiology emergency patients and trauma and emergency surgery patients, respectively (**Table 2**).

Sevety six point nine percent (n=190) of the participants indicated that they had no authority to intervene and leave the patient at the scene. Eighty seven percent (n=215) of the workers had performed endotracheal intubation at least once. According to 112 health workers, the arrival of ambulances to the hospital was between 0 and10 minutes by 88.7% (n=220). The mean time for patients' delivery to the hospital was 0 and 10 minutes by 66.1% (n=164). Tree most common problems during patients' delivery were the emergency room physician's approach of 62.3% (n=157), the lack of allied health personnel 48.0% (n=121), and the hospital density 38.5% (n=97) (**Table 3**).

Only 30.1% of the participants considered that a doctor should be present in 112 ambulance case teams.

Table 1. Some socio-demographic and job characteristics of 112 EHS workers, 2019

	n	%
Gender		
Female	116	47.5
Male	128	52.5
Age		
Between 20–29	138	66.7
Between 30–39	61	29.5
Between 40–49	5	2.4
50 years and older	3	1.4
Educational status		
High school	63	25.8
Associate Degree	107	43.9
Undergraduate	64	26.2
Master or Ph.D. degree	10	4.1
Job description		
Emergency Medical Technician (EMT)	119	48.8
Paramedic	81	33.2
Nurse	3	1.2
Doctor	14	5.7
Others	27	11.1
Average Monthly Working Hours		
160–175 hours	171	70.4
175–199 hours	63	25.9
200 hours and more	9	3.7
Most Important Factors Affecting Job Performance		
Salary	60	24.8
Safe working environment	23	9.5
Job satisfaction/respect	104	43.0
Social opportunities	4	1.7
Others	51	21.1

Table 2. Distribution of medical characteristics of cases encountered in 112 EHS, 2019				
	n	**Median**	**Minimum**	**Maximum**
Classification of Triage*				
Green	182	70	0	100
Yellow	152	20	0	100
Red	149	10	0	85
Classification of Departments*				
Trauma/Emergency Surgery	136	20	0	50
Internal Medicine/Neurology	135	20	0	70
Cardiology	131	20	0	69
Others	116	25	0	93

* It is shown as the median (minimum-maximum) because it does not fit the normal distribution.EHS: Emergency Health Services

Table 3. 112 health workers' opinions on emergency health services they provide, 2019		
	n	**%**
Do you have the authority to intervene and leave the patient at the scene?		
Yes	57	23.1
No	190	76.9
Meantime of arrival to cases		
0–10 minutes	220	88.7
11–20 minutes	23	9.3
More than 20 minutes	5	2.0
Meantime for patients' delivery to the hospital		
0–10 minutes	164	66.1
11–20 minutes	79	31.9
More than 20 minutes	5	2.0
Have you ever performed endotracheal intubation during your career?		
Yes	215	87.0
No	32	13.0
Problems during the delivery of patients *		
Hospital density	97	38.5
Lack of allied health personnel	121	48.0
Lack of available stretcher	83	32.9
Emergency room physician's approach	157	62.3
Inappropriate referrals	85	33.7
Misdirection of the command and control center	41	16.3
Missing operations in the ambulance	2	0.8
Others	4	1.6

* Participants could mark multiple options. Percentages are the ratio of those who agreed on the problems to all workers.

On the other hand, the fact that 112 ambulance drivers should be health personnel was supported by 85.5% of the participants, and 41.4% of them considered that patients' relatives should be taken into the ambulance. The 24-hour uninterrupted shift of 112 EHS workers was considered an appropriate way of working by 67.3% of the participants. 59.0% and 37.1% of the participants considered themselves sufficient regarding medical equipment and internal medicine training. The number of workers in 112 EHS was considered sufficient by 47.1% of them (**Table 4**).

While the level of agreement with the proposition that "Motivation is increased by the management/administration's rewarding in our department" was 24.9%, the level of agreement with the proposition that "I can communicate our job-related problems to managers" was 36.7%, and the level of agreement with the proposition that "Managers consider our suggestions on having better working conditions" was 19.9%. Sixty three percent of the workers indicated that the protective measures on employee safety were insufficient in their departments, while 46.7% of them stated that they were subjected to physical assault. Only 41.9%of the workers expressed their satisfaction with working in 112 EHS, and 38.8% of them stated that they would work in another health department if they had the chance (**Table 4**).

DISCUSSION

In the study ofBlau et al., it was suggested to evaluate the satisfaction of health personnel (6).We also received the opinions of workers with this study. Forty seven point five percent and 52.5% of the health workers participating in the study were female and male. According to the survey by Duran et al., the age range of 112 EHS workers was between 25-35 (7).The fact that 66.7% and 29.5% of the participants were in the 20-29 age range and the 30-39 age range, respectively, indicated that the majority of participants were in the early middle age group. Intensive employment of emergency medical technicians with high school graduates and emergency medical technicians and paramedics with an associate degree in 112 EHS may reduce the average age of 112 EHS workers. While 25.8% of the participants were high school graduates, 43.9% had an associate degree, 26.2% had a bachelor's degree, and 4.1% had a master's or Ph.D. degree. While 48.8% of the participants were emergency medical technicians, 33.2% were paramedics, 1.2% were nurses, 5.7% were doctors, and 11.1% were other allied health personnel.

In a study conducted in India in 2008, doctors working more than 8 hours per day were dissatisfied with their working hours (8).112 ambulance service working hours require daytime and shift work, including evening and night hours and weekends. Seventy point four percent of the 112 emergency health care workers participating in the

Table 4. Percentage distribution of workers' opinions on 112 EHS, 2019

	Agree %	Disagree %
A doctor should be present in 112 ambulance case teams.	30.1	49.2
112 ambulance drivers should be health personnel.	85.5	9.1
The patient's relative should be taken into the ambulance.	41.4	27.0
Protective measures for employee safety are sufficient in my department.	13.4	63.0
I am satisfied with working in 112 EHS.	41.9	22.8
The 24-hour uninterrupted shift of 112 EHS workers is appropriate for working	67.3	18.4
Internal medical training is sufficient.	37.1	32.2
I consider myself sufficient with respect to medical equipment.	59.0	10.2
The number of employees working in 112 EHS is sufficient.	47.1	29.5
Motivation is increased by the management/administration's rewards in our department.	24.9	60.8
I was subjected to physical assault.	46.7	41.3
I can communicate our job-related problems to managers.	36.7	33.5
Managers consider our suggestions on having better working conditions.	19.9	50.2
If I had the chance, I would work in another health department.	38.8	34.7

study reported that they worked between 160-175 hours on average and only 3.7% of them reported that they worked 200 hours and more monthly. 112 ambulance workers who participated in this study stated that they were not satisfied with the long monthly working hours. Contrary to the literature, the healthcare professionals participating in our study stated that they were satisfied with the 24-hour uninterrupted shift.

In a study on nurses conducted by De Gieter et al., economic and psychological rewards were demonstrated to affect nurses' motivation (9).In this study, 112 emergency health care workers were asked about the most important factors affecting job performance, and 43.0% of themstated that occupational satisfaction and respect were the main factors,followedby salary by 24.8%. In this respect, the study results were similar to the literature.

In the study conducted by Gülhan et al. in 2012, the patients were classified according to triage examination groups, and it was determined that while 80% of the patients were admitted to the yellow zone, 4.5% and 5.7% of them were admitted to the red zone and green zone, respectively (10).In the study, when 112 health workers were asked to distribute every hundred cases they encountered during a 24-hour shift according to the classification of triage, the majority of cases were reported to be green zone patients representing the non-emergency patient group by 70.0%.On the other hand, it was determined that the red zone patients representing the emergency and critical patient groups were the least encountered patient population with 10.0%. These results of our study are similar to the literature. It was stated that this was due to the low level of health literacy in the society and, therefore, a lack of understanding of the concept of emergency and the unnecessary use of 112 EHS. The abuse of 112 EHS, both by ignorance and intentionally by green zone patients, keeps the 112 command system occupied with heavy call traffic, failing to direct ambulances to critically ill patients, and delays and troubles in transportation.

In the study conducted by Banu et al. In 2014, it was observed that the most common reasons for patients' admissions to the hospital by 112 ambulances were multiple trauma, chest pain, pulmonary, neurological, cardiovascular system complaints, and extremity trauma. While pulmonary, neurological, cardiovascular diseases,chest pain, and intoxications were the most common reasons for admission to the intensive care, multi-trauma and extremity trauma and pulmonary and neurological symptoms were the top three reasons among the patients hospitalized in the clinic (11).

In the study conducted by Ali et al. in 2017, when the symptoms of the patients transferred to the hospital by 112 ambulances were examined, trauma patients (18.26%) ranked first, followed by cardiac (17.21%) (chest pain, syncope), traffic accident (14.45%), neurological patients with symptoms (7.1%), pulmonary symptoms (6.4%), gastrointestinal (4.02%) symptoms respectively (12).

In the study conducted by Atilla et al., it was determined that the patients transferred to the hospital by 112 ambulances were admitted to the hospital mostly due to trauma (13).

Health workers were asked to distribute the cases they encountered during general working life by percentage by the department. In the study, when the distribution of cases by departments was examined, the most encountered cases were reported as internal medicine/neurological emergency cases by 20.0%, cardiology emergency cases by 20.0%, and trauma/emergency surgery cases by 20.0%. The most frequent indication of internal and neurological emergency cases may be the increase in the incidence of cerebrovascular events, diabetes, hypertension, atherosclerotic diseases, and renal failure due to increasing life expectancy in society.

In the study conducted by Temizkan et al., the participating employees were asked questions about intervention for the patient, and it was observed that while 52.2% of them had no difficulty in interveningwith the patient, 39.1% of them had a little difficulty, and 8.7% of them had difficulty (14).

According to the results of the study, it was determined that the majority of 112 health workers (76.9%) did not know that they had the authority to intervene/treat and leave the patient at the scene and therefore could not leave the patient at the scene, which may be due to inadequate training, social pressure on transfer to hospital, lack of self-confidence and lack of experience. It may be successful in providing 112 health workers with regular training and performing hospital rotations if necessary to avoid this problem.The vast majority (87.0%) of the 112 health workers reported that they had performed endotracheal intubation at least once during their career, indicating that this treatment was highly administered. However, the red zone patients (10%) ratio was low.

The ambulance service is designed to transport patients with a medical emergency to the hospital emergency department (15).In our study, most of the participants (88.7%) indicated that they delivered patients to the hospital within the first 10 minutes. The factors such as the high number of 112 EHS stations and their strategic positioning in urban areas where the majority of the population lives, shortening of distances between cases and hospitals due to the high density of hospitals in urban areas, and rapid and accurate direction of 112 command and control center can be mentioned as the reasons of this high percentage.

In recent years, the rate of density in emergency services has increased worldwide. Emergency room overcrowding and heavy workload can put emergency physicians and other healthcare professionals into feelings of frustration and burnout (16,17).The time of delivery of cases to the hospital was reported to be 0-10 minutes by 66.1% (n=164) of the participants, supporting that there was no significant delay in the delivery of cases. Regarding the problems experienced in the delivery of cases, the biggest problem was caused by the attitudes of the physician who met the ambulance by 62.3% (n=157). It may be due to the high intensity of emergency services, high workload,the stress of the staff, or the excessive intensity of certain emergency services due to inadequate coordination of 112 operations. This situation also affects the behavior of the physician meeting the patient.Other important problems in the delivery of hospital cases were reported to be the lack of allied health personnel working in emergency services by 48.0% (n=121) and the hospital density of 38.5% (n=97). The increasing intensity of the emergency department and the insufficient number of employees negatively affect each other in a vicious circle. These and similar situations may lead to delays in the delivery and management of 112 patients in hospitals. Full implementation of the family medicine system and increasing the number of allied health personnel may lead to a significant decrease in the intensity of the emergency department.

Health institutions with a very large group of employees (physicians, nurses, pharmacists, health technicians, caregivers, allied health personnel, etc.) are among the working areas where violence is most common (18). Violence in the workplace causes a desired staff to think of quitting their job and resigning (19).Also, many past studies suggest that most violence in the workplace is not reported (20). Ambulance workers often have to act quickly and provide medical care in unfavorable life and death situations. In addition to being infected, they often have to deal with unforeseen threats such as the possibility of being attacked by the patient or their relatives (21,22).Violence in health institutions has been defined as "a situation consisting of threatening behaviors, verbal threats, physical assault and sexual assault caused by the patient, patient's relatives, or any other person and poses a risk to health workers (23).

In a study on health workers conducted by Ergör et al., the ratio of exposure to verbal or physical violence was found to be 58.7% (24).Rafeea et al., in their study of violence, found that 78% of respondents were verbal abuse, followed by physical abuse (11%), followed by sexual abuse (3%) (25).In our study, while 63.0% of the participating workers indicated that protective measures on employee safety in their departments were insufficient, 46.7% of them indicated that they were subjected to physical assault.Verbal violence, especially in intensive care and emergency medicine, is a known hazard for healthcare-related personnel (26).

In the study of Wang et al., 74.3% of the participants were verbally attacked, and 49.3%were physically assaulted. The perpetrators of violence included patients, families of patients, or friends of patients (27).Knowledge about workplace violence can be enhanced by Simulation training and other training modules (28). In addition, it will be easier to deal with and manage violence with such training.

In our study,while 63.0% of the participating workers indicated that protective measures on employee safety in their emergency health departments were insufficient, 46.7% of them indicated that they were subjected to physical assault. Only 41.9% of the health workers expressed their satisfaction with working in 112 EHS, and 38.8% of them stated that they would work in another health department if they had the chance.

Researchers' interest in occupational health problems of ambulance workers has increased recently (29,30). Some studies showed a high prevalence of post-traumatic stress symptoms and anxiety disorder (31,32).Some studies indicate that ambulance personnel has more somatic health problems (33)and physical health and more musculoskeletal problems than the general population (34,35).

In our study, while 30.1% of the participants considered that a doctor should be present in the 112 ambulance case team, 112 ambulance drivers should be health

personnel was supported by 85.5% of the participants. Furthermore, 41.4% of the participants considered that patient's relative should be taken into the ambulance. The Anglo-American model, which utilizes paramedics as physician surrogates, or the Franco-German model, a physician physically rides in an ambulance for prehospital emergency services,is recommended (36).

In the study of Duran et al., while 30% of the participants stated that resources were used effectively, 75.6% of them that there was no rewarding, 90.2% of them stated that in-service training was organized in the last six months, 59.5% of them stated that no training was provided for patient and employee safety, and 88.1% of them stated that they did not receive training on patient and employee safety reporting system and that there was no technical infrastructure for injuries.[7]In this study, 59% of the participants considered themselves sufficient concerning medical equipment. 37.1% of them detected that their medical training was sufficient. The number of personnel working in 112 EHS was expressed to be sufficient by 47.1% of the employees.

CONCLUSION

As a result of our study, it was determined that 112 employees experienced job dissatisfaction.The reasons for this situation are the level of salary, lack of dignity, and fear of security.However, there are some deficiencies regarding the use and organization of 112 emergency health services. It is necessary to immediately improve 112 EHS workers' working conditions and the coordination of EHS.It will be useful to monitor the working conditions of 112 EHS workers to determine the factors that decrease their job satisfaction and to attempt to eliminate them. Easily arrangeable issues such as overworking, poor physical environment, and limited social opportunities should be reported to the management, and solutions should be produced. The fact that workers can communicate their problems to their managers, act jointly with solutions, and offer suggestions will be a significant gain for the institution.Making regulations by receiving the opinions of 112 EHS workers and taking measures for occupational health and safety will positively affect their work motivations. It is considered that increasing the medical equipment of employees by organizing internal training at regular intervals, raising their awareness of their authorities and responsibilities, and receiving the opinions and suggestions of workers will increase individual and corporate performance.

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