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THE EFFECT OF THE COVID-19 PANDEMIC PROCESS ON COMMUNICATION BETWEEN PRE-HOSPITAL EMERGENCY HEALTH SYSTEM EMPLOYEES AND ONLINE MEDICAL CONTROL

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ABSTRACT

Objectives: This study aims to evaluate the effects of the Covid-19 pandemic process on the communication between the pre-hospital emergency health system employee and online medical control.

Methods: The study, which collected data collected between May-July 2021, was planned as descriptive. Five hundred health professionals working in the Turkish pre-hospital emergency health system participated in the study. The data were collected online with a 17-question questionnaire applied to the participants.

Results: 64.0% of the participants stated that they could always communicate with the online medical control during the regular period without any problems, and 55% of the participants stated that they were not adversely affected by communicating and consulting with the online medical control during the pandemic process, and 74.0% of the participants stated that they were unable to communicate with the online medical control during the pandemic period and that there aren't situations where they could not perform the medication and/or medical intervention that should be done for the benefit of the patient. It is seen that the pandemic process has less effect on communication and consultation with the online medical control and has less effect on the inability to perform a medical intervention, which should be done for the benefit of the patient, in those who have effective communication with the online medical control and can conduct a positive consultation process.

Conclusion: The Covid-19 pandemic process adversely affected the communication between the pre-hospital emergency health system employee and the online medical control. This is a situation that can negatively affect the quality of pre-hospital emergency health system service and increase mortality.

Keywords: Pre-hospital Emergency Medicine, Ambulance, Online Medical Control, Medical Communication

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COVID-19 PANDEMİ SÜRECİNİN HASTANE ÖNCESİ ACİL SAĞLIK HİZMETLERİ ÇALIŞANI VE ON-LİNE MEDİKAL KONTROLÖR ARASINDAKİ İLETİŞİME ETKİSİ

ÖZ

Amaç: Bu çalışma, Covid-19 pandemi sürecinin hastane öncesi acil sağlık hizmetleri çalışanı ile on-line medikal kontrolör arasındaki iletişim üzerine etkilerini değerlendirmeyi amaçlamaktadır.

Gereç ve Yöntem: Tanımlayıcı tipte planlanan çalışmanın verileri, Mayıs-Temmuz 2021 tarihleri arasında toplandı. Çalışmaya Türkiye hastane öncesi acil sağlık hizmetlerinde çalışan 500 sağlık profesyoneli katılmıştır. Veriler, katılımcılara uygulanan 17 soruluk anket ile on-line olarak toplanmıştır.

Bulgular: Katılımcıların %64,0'ı normal dönemde on-line medikal kontrolör ile sorunsuz iletişim kurabildiklerini, %55'i pandemi sürecinde on-line medikal kontrolör ile iletişim kurmanın ve müzakere etmenin olumsuz etkilenmediğini, %74,0'ı pandemi sürecinde on-line medikal kontrolör ile iletişim kuramadıkları için hasta yararına yapılması gereken ilaç ve/veya tıbbi müdahaleyi gerçekleştiremedikleri durumlar olmadığını ifade etmiştir. On-line medikal kontrolör ile etkili iletişimi olan ve olumlu bir müzakere süreci yürütebilen kişilerde, pandemi sürecinin on-line medikal kontrolör ile iletişim ve müzakere süreci üzerinde ve hasta yararına yapılması gereken bir tıbbi müdahalenin yapılamaması üzerinde daha az etkiye sahip olduğu görülmektedir.

Sonuç: Covid-19 pandemi süreci, hastane öncesi acil sağlık hizmetleri çalışanı ve on-line medikal kontrolör arasındaki iletişimi olumsuz etkiledi. Bu, hastane öncesi acil sağlık hizmetlerinin hizmet kalitesini olumsuz etkileyebilecek ve mortaliteyi arttırabilecek bir durumdur**.**

Anahtar Kelimeler: Hastane Öncesi Acil Tıp, Ambulans, Online Medikal Kontrol, Tıbbi İletişim

INTRODUCTION

In countries that have adopted the Anglo-American model of the pre-hospital emergency health system (EMS), EMS employees perform medical interventions and drug applications, considered important in their roles and responsibilities. Medical directors also have responsibilities in fulfilling the roles and responsibilities of EMS employees. One of the most important of these responsibilities is being a medical controller. The duty of the medical controller is done in two ways offline (indirect) and online (direct) (Ekşi, 2016). Offline control is done through published standards, protocols, training policies, and field audits for EMS (Sanders, 2012). In online control, the main purpose of the medical director is to transmit direct instructions and suggestions to the EMS employee working in the field via radio, telephone, or another communication tool to increase service quality (Tift and Nable, 2020). However, various situations can negatively affect the communication between the EMS employee and the

online medical control (OLMC). It is possible to define these negativities as problems due to the communication tools used in the system and the problems resulting from the education or the lack of knowledge/skill status of the EMS employee or the physician working as an OLMC (Hindman and Maggiore, 2011; Husain et al, 2016). The Covid-19 global pandemic process, in which the whole world has been struggling since the beginning, has had significant effects on all areas of the health sector and serious effects on EMS (Şan et al, 2021; Lerner et al, 2020; Amiry and Maguire, 2021). However, as in many other areas, it is not possible for a pandemic process that affects EMS so deeply to not impact OLMC, which is determinant in maintaining EMS service quality.

EMS employees have been working in ambulances without a physician, with a system similar to the Anglo-American model, since 2004, in Turkey. In the system, the duty of OLMC is carried out by the people who work in Emergency Call Center (ECC)'s and are defined as consultant physicians. As EMS is a developing system in Turkey, there are some problems in maintaining the system's quality and maintaining communication between the EMS employee and the consultant physician during the OLMC (Demir, 2017). An important question is the impact of the Covid-19 pandemic process, which deeply affects service delivery in many areas, on the EMS employee and OLMC communication problems. Evaluation of the effects of the pandemic process on EMSs, identification of problems, and development of solution proposals are considered important to maintain the development and protect the service quality, especially for developing systems such as Turkey. This study aims to evaluate the effects of the Covid-19 pandemic process on the communication of the EMS employee with the OLMC.

1. MATERIALS AND METHODS

The study, which was planned as a descriptive study, collected data between May and July 2021. The study population consisted of paramedics and emergency medical technicians who were members of an emergency medicine society (N=3800). The number of samples to be reached with a known sample formula was 349 (Naing et al, 2006). Five hundred EMS employees participated in the study.

Research data were collected online with a 17-question questionnaire including sociodemographic questions. The data were evaluated using descriptive statistics in the SPSS 25.0 program. Categorical variables were given as numbers and percentages, and continuous variables were given as mean and standard deviation. The Chi-square test was used to determine

the relationship between independent and dependent variables. The results were evaluated at the 95% confidence interval. P<0.05 was considered statistically significant.

Necessary permissions for the study were obtained from the relevant persons and institutions. This study was conducted in adherence to the Declaration of Helsinki. Written permission was obtained from the Turkey COVID-19 Scientific Research Evaluation Commission. Ethics committee approval (Ethics Committee Decision No: 21-5T/12, Date: 06.05.2021) and written permission from an emergency medicine society were obtained for the study. All participants were informed that participation in the study was confidential and voluntary. Permission was obtained from the participants who agreed to the study.

2. RESULTS

When the socio-demographic characteristics of the participants are examined, it is seen in Table 1 that 34.8% of them are in the 20-25 age range, 54.8% are female, and 40.2% have 1-5 years of work experience.

Table 1. Sociodemographic Characteristics of Participants

Variable	n	%
Age		
20-25	174	34.8
26-30	195	39.0
31-40	120	24.0
41-50	6	1.2
+50	5	1.0
Gender		
Female	274	54.8
Male	226	45.2
Year of professional experience		
1-5 year	201	40.2
6-10 year	178	35.6
11-20 year	117	23.4
+20 year	4	0.8

When the opinions of the participants about OLMC during the regular period and pandemic period are examined, it is seen in Table 2 that 64.0% of them stated that they can always communicate with OLMC in the usual period without any problems, 19.0% of them stated that their OLMC consultations are generally positive in the ordinary period, and 55% of them stated that establishing communication and consulting with the OLMC during the pandemic period was not adversely affected, 77.2% of them stated that they did not have to take medication and/or medical intervention without OLMC approval because they could not communicate with the OLMC during the pandemic process, 74.0% of them stated that there were cases where they did not apply the necessary drugs and/or medical interventions for the benefit of the patient because they could not communicate with OLMC during the pandemic process.

Table 2. Participants' Views on OLMC during the Ordinary Period and Pandemic Process

Variable	**n**	**%**
I can always communicate effectively with OLMC during the usual periods.		
Yes	320	64.0
No	37	7.4
Sometimes	143	28.6
My negotiations with OLMC during the regular periods;		
It usually turns out to be positive.	95	19.0
It usually turns out to be negative.	118	23.6
It depends on the consultant physician who works at OLMC.	287	57.4
During the pandemic, my communication and negotiation with OLMC were negatively affected.		
Yes	225	45.0
No	275	55.0
Since I could not communicate with OLMC during the pandemic process, I had to make medications and/or medical interventions without OLMC approval.		
Yes	114	22.8
No	386	77.2
Since I was unable to communicate with OLMC during the pandemic process, I did not make the drug and/or medical intervention applications that should be done for the benefit of the patient.		
Yes	130	26.0
No	370	74.0

There is a statistically significant relationship between the participants' ability to communicate effectively with OLMC in regular periods and the effects of the pandemic process on OLMC ($p<.05$). It is seen that the effect of the pandemic process on communication and consultation with the OLMC is less, the situation of taking drugs and/or medical interventions without the approval of the OLMC is less, and the situation of not performing the drugs and/or medical intervention applications that should be done for the benefit of the patient is less in those who have effective communication with the OLMC in the ordinary period in Table 3.

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Table 3. Relationship between The Ability to Communicate Effectively with OLMC at All Times in the Ordinary Period and the Effects of the Pandemic Process on OLMC

Variable: I can always communicate effectively with online OLMC during the usual periods.			Yes	No	Sometimes	x^2	P
During the pandemic, my communication and negotiation with OLMC were negatively affected.	Yes	**n**	122	23	80.0	17.435	**.000**
		%	38.1	62.2	55.9		
	No	**n**	198	14.0	63.0		
		%	61.9	37.8	44.1		
Since I could not communicate with OLMC during the pandemic process, I had to make medications and/or medical interventions without OLMC approval.	Yes	**n**	52	20.0	42.0	31.841	**.000**
		%	16.3	54.1	29.4		
	No	**n**	268	17.0	101.0		
		%	83.8	45.9	70.6		
Since I was unable to communicate with OLMC during the pandemic process, I did not make the drug and/or medical intervention applications that should be done for the benefit of the patient.	Yes	**n**	68	14.0	48.0	10.703	**.005**
		%	21.3	37.8	33.6		
	No	**n**	252	23.0	95.0		
		%	78.8	62.2	66.4		

There is a statistically significant relationship between the participants' state of establishing an effective consultation process with OLMC in ordinary periods and the effects of the pandemic process on OLMC ($p<.05$). It appears in Table 4 that the effect of the pandemic process on communication and consultation with the OLMC is less, the situation of taking drugs and/or medical interventions without OLMC's approval is less experienced, and the situation of not performing the drugs and/or medical interventions that should be done for the benefit of the patient is more likely in those who carry out the consultation processes with the OLMC positively in the ordinary period.

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Table 4. Relationship between The Negotiation Situation with OLMC in Ordinary Periods and the Effects of the Pandemic Process on OLMC

My negotiations with online medical control OLMC during the regular periods; / Variable			It usually turns out to be positive.	It usually turns out to be negative.	It depends on the consultant physician who works at OLMC.	x2	P
During the pandemic, my communication and negotiation with OLMC were negatively affected.	Yes	**n**	22.0	64.0	139.0	23.746	**.000**
		%	23.2	54.2	48.4		
	No	**n**	73.0	54.0	148.0		
		%	76.8	45.8	51.6		
Since I could not communicate with OLMC during the pandemic process, I had to make medications and/or medical interventions without OLMC approval.	Yes	**n**	17.0	39.0	58.0	9.438	**.009**
		%	17.9	33.1	20.2		
	No	**n**	78.0	79.0	229.0		
		%	82.1	66.9	79.8		
Since I was unable to communicate with OLMC during the pandemic process, I did not make the drug and/or medical intervention applications that should be done for the benefit of the patient.	Yes	**n**	23.0	41.0	66.0	6.195	**.045**
		%	24.2	34.7	23.0		
	No	**n**	72.0	77.0	221.0		
		%	75.8	65.3	77.0		

3. DISCUSSION

In this study conducted in Turkey, which has a developing EMS, slightly more than 60% of EMS employees stated that they could communicate effectively with OLMC in the ordinary period before the Covid-19 pandemic. Again, only 1 in 5 participants stated that they could get positive results from the consultation processes between the EMS employee and the OLMC, which should be continued for the patient's benefit. It is seen that there are communication problems between EMS employees and OLMC in Turkey, which has undergone a sharp transformation in EMS structuring in the early 2000s and has been in the process of growing in recent years (Ekşi et al, 2015; Lerner et al, 2020).

In the medical controllership system, especially the quality of OLMC plays an important role in the quality of the emergency health service provided to the patient in EMS (Rai et al, 2020). For the effect of OLMC in EMS to work for the patient's benefit, the authorities and responsibilities must be clearly defined, especially in the consultation processes, and especially the process must be maintained in accordance with a certain system structure (Serra et al, 1998). However, most of the time, the qualifications and personality structures of

the person working at OLMC can be decisive in the communication and consultation of the OLMC and the EMS employee. The U.S. National Association of EMS Physicians (NAEMSP) ranks OLMC qualifications according to "essential," "desirable," and "acceptable" qualifications, with key qualifications including a license to practice medicine or osteopathy and familiarity with local and regional EMS activities. In addition, it is obligatory for doctors who will serve as OLMCs to receive some basic training (Husain et al, 2016). The OLMC duty mainly covers EMS protocols and pre-hospital practices, along with professional information for a physician (Rai et al, 2020). In the study, approximately 60% of EMS employees state that the results of consultations with the OLMC for the patient's benefit vary according to the doctor serving as the OLMC. For this reason, it is important to establish a standard among EMS doctors who will serve as OLMC in order to increase the effectiveness of OLMC for the benefit of the patient. During the Covid-19 pandemic process, EMS employees have been faced with unusual duties and responsibilities from time to time (Coşkun, 2020). In many studies, with the increase in the demand for EMS during the Covid-19 pandemic process, there have been occasional problems in the communication between the emergency call center and the EMS employee (Lerner et al, 2020; Stephen and Marc, 2021, Jensen et al, 2021; Jaffe et al, 2021). It has been reported that in the first month of the Covid-19 epidemic in Denmark, the emergency medical call center in Copenhagen was heavily loaded, resulting in a prolonged waiting time for the calls and thus limiting the citizens' access to emergency aid and triage (Jensen et al, 2021), In the Tehran medical system, there was a 347% increase in EMS calls and 21% increase in EMS dispatches (Saberian et al, 2020). In their study in Turkey, Şan et al (2021), stated that the Covid-19 pandemic process increases the EMS usage rates of individuals, which causes an increase in death rates. Undoubtedly, OLMC, which the importance of usage of it for the benefit of the patient during the pandemic process has come to the fore, even more, has been affected. Nearly half of the EMS employees participating in the research state that their communication with OLMC from the pandemic process and the consultation processes that should be done for the patient's benefit have been negatively affected. Again, from the research results, it is seen that some drugs and interventions could not be made due to communication problems with OLMC. Many studies during the Covid-19 pandemic reveal that a significant portion of the problems in the process will continue after the Pandemic (Cullen et al, 2020; Pfefferbaum and North, 2020; Duran and Acar, 2020). Necessary measures should be taken to prevent the problems that occurred during the pandemic process in OLMC, which is a very important factor in increasing the service quality in EMS, not be carried over to the post-pandemic period and not turn into a situation that negatively affects the service quality in EMS.

According to the research results, it is seen that EMS employees who do not have effective communication with OLMC during a regular period and cannot successfully maintain their consultation processes have more negative effects on their communication with OLMC during the pandemic process. While OLMC has many beneficial aspects, such as ensuring tighter control of the procedures in EMS, where seconds matter, it takes time to perform a procedure and causes EMS employees to implement or avoid implementation without OLMC communication and consultation (Husain et al, 2016). In the study of Waldrop et al (2020), it is stated that ethical dilemmas experienced by EMS employees may increase when they cannot communicate effectively with OLMC. More than a quarter of EMS employees who participated in the study stated that communication and negotiation processes with OLMC were negatively affected during the Pandemic, and they stated that because they could not communicate with the OLMC, they had to do the drugs and/or medical interventions without the approval of OLMC which they needed to do with OLMC approval, or they avoided making the application. Studies show that one of the most common causes of medical mistakes is communication problems and insufficient information flow. Delay or misapplication in the care of critically ill patients who need urgent medical attention can cause irreparable mistakes (Bronsky and Woodson, 2018).

Sometimes the chaotic and unpredictable nature of treating critically ill patients in the field makes communication even more important but often more difficult. Communication-based problems can negatively affect the service quality in EMS, even in ordinary periods, and may push EMS employees to make medical mistakes. In addition to all this, this research reveals that the problems in EMS OLMC in the ordinary period may increase and negatively affect the EMS operation and service quality when extraordinary conditions and procedures such as pandemics are valid. It is impossible for businesses and actions that do not work properly in ordinary periods to function successfully under extraordinary conditions, especially in an important service area such as EMS, directly related to human life (Ekşi, 2016). For this reason, it is beneficial to detect and solve problems that exist in ordinary periods of time so that the service quality in EMS can be maintained in extraordinary periods.

CONCLUSIONS

The Covid-19 pandemic process adversely affected the communication between the EMS employee and the OLMC. To maintain the service quality for the benefit of the patient in the EMS during the extraordinary periods, it is considered important to first solve the problems that exist during the ordinary period and create measures according to the characteristics of the extraordinary condition.

Author Contributions

Concept SD, AE, SG, SÖ; Design SD, AE, SG, SÖ; Materials SD, AE, SG, SÖ; Data Collection&/or Processing SD, AE, SG, SÖ; Analysis/Interpretation SD, AE, SG, SÖ; Literature Search EG, KK; Writing SD, AE, SG, SÖ.

Conflict of Interest

There isn't any conflict of interest.

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