

Assessment of Interest of Healthcare Employees in Distance Training in the Coronavirus Disease-2019 Pandemic Process

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ABSTRACT

Introduction: In-service healthcare personnel training is an ongoing process. However, emerging unknowns require momentary planning. The Coronavirus disease-2019 (COVID-19) pandemic has made distance training (DT) compulsory for healthcare employees (HE). Thus, it is important to learn about their interest levels. This study investigates the interest of HE in DT during the pandemic process.

Methods: The research population consisted of 3,442 personnel registered to take the “HE COVID-19” training at research and training hospital in 2020. The population of the study consisted of all personnel employed at research and training hospital and registered for the training. The study was planned retrospectively for reaching all personnel whose training registrations were made between 17.03.2020 and 15.04.2020. This study was used the data of the personnel who completed the “HE COVID-19 Training” within the scope of the announcements that were made as DT as reported on the Hospital Training System.

Results: The total training completion rate of the participants was found to be 90%. When the interests of the HE in the DT in the process of the COVID-19 pandemic were compared, no statistically significant difference could be observed in the participation rates of the specialist doctors, resident doctors, and nurses ($p=0.094$). The rate of the resident doctors to complete the training until the second announcement was significantly lower compared to the specialist doctors and nurses (specialist doctor vs. resident doctor $p=0.044$; nurse vs. resident doctor $p<0.001$). The rates of completing the training after two announcements were significantly higher among the resident doctors than the specialist doctors and nurses and among the specialist doctors than the nurses (respectively $p=0.018$, $p<0.001$, $p=0.018$).

Conclusion: Continuous training must ensure that HE are adequately prepared to deal with public health emergencies such as the COVID-19 pandemic. DT should be prioritized in the Emergency Action Plan.

Keywords: COVID-19, distance training, healthcare employees, pandemic

Introduction

Developments in information and communication technologies have gained a new dimension with the concept of distance training (DT) that allows the individual to learn throughout their life by accessing information everywhere and any time (1,2). DT is a modern and effective form of learning where the educator and learner are at different places, and learning and instruction activities occur at a desired time (2,3). DT may be in the form of academic, organizational, or community education (4).

While the third decade of the twenty-first century was starting, humanity faced a threat of a pandemic. This disease related to this new virus high virulence defined for the first time on January 7, 2020, was named as

Coronavirus disease-2019 (COVID-19) by the World Health Organization, and this epidemic experienced was announced as a pandemic on March 12, 2020. This threat on the global level has in a short time affected the healthcare systems of countries, social life, economy, and in a way, modern life. As much as the treatment of the disease, precautions toward preventing the spread and reducing the exposure of sensitive groups and protection of healthcare personnel have constituted the main topics of the fight. The way to reach these goals in the COVID-19 pandemic involves education and information. For this reason, DT has become the most frequently preferred channel by administrators and experts, especially in all countries that experience the viral distribution intensely. In this context, in the scope of the precautions by the Turkish



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Ministry of Health in the fight against COVID-19, trainings to be given to healthcare personnel have been registered for all personals over the Hospital Training System (HTS) in the form of DT rather than face-to-face training on March 17, 2020. This study was planned to investigate the interest of healthcare employees (HE) in DT in the process of the COVID-19 pandemic.

Methods

The hospital where the research was conducted is one of the four pandemic hospitals declared in the province of İstanbul in Turkey due to epidemics experienced in the 2000s. It became prominent in epidemics that were experienced in previous years, and it has developed a hospital culture. During this pandemic, too, intense planning and work have been carried out for all necessary training and logistic support. The Turkish Ministry of Health canceled face-to-face training on 16.03.2020 in the scope of the precautions for the fight against COVID-19. With the organization of the İstanbul Provincial Directorate of Health, the "Healthcare Personnel COVID-19 Training" was prepared as a DT. With the organization of the İstanbul Provincial Directorate of Health, the "Healthcare Personnel COVID-19 Training" was prepared as DT. The DT contained general information about COVID-19 (epidemiology, form of contagiousness), case management, contact tracing, infection management precautions, personal protective equipment usage and isolation, patient room characteristics, entry-exit to and from the room, approach to the COVID-19 patient, cleaning of the patient room, patient transportation, and things to do after the death of a COVID-19-positive patient.

The "HE COVID-19 Training" DT registration was made for healthcare personnel on 17.03.2020, it was announced for all clinics, and it was stated to complete the training by the date of 20.03.2020. A second callout was made for the personnel who did not complete the treatment on 01.04.2020, and it was reminded that completing the training was a legal obligation according to the In-Service Training Directive of the Ministry of Health (Ministry of Health of Republic of Turkey 2009) (5).

The registration of the HE for access to the training system was made by the system administrator. It was added to hospital computers as a desktop shortcut, and information was provided that it was possible to access from home or via mobile phones. The entries to the system were checked in regular intervals. A short message service was sent again to those who did not enter the system. In addition, by having meetings with unit representatives, support was provided for entry to the training system. The completion status of the training program was examined by a report obtained from the administrator panel of the system.

The population of the study consisted of all personnel employed at research and training hospital and registered for the training. Sample selection was not made, and the study was planned retrospectively for reaching all personnel whose training registrations were made between 17.03.2020 and 15.04.2020.

This study uses the data of the personnel who completed the "HE COVID-19 Training" within the scope of the announcements that were made as DT as reported on HES. A DT report form was used as the data

collection instrument. Institutional permission (date: April 20, 2020, and no: KAEK/2021.04.148) was acquired to collect data. All individuals gave informed consent. The ethical approval for this study was granted by the Clinical Research Ethics Committee of the University of Health Sciences Turkey, Kanuni Sultan Süleyman Training and Research Hospital (approval number: 148, date: 21.04.2021) and it was conducted in accordance with the principals of the Declaration of Helsinki.

Statistical Analysis

In the assessment of the results, the results are given as percentages. The ratios in the groups were compared by chi-squared test. The alpha significance level was accepted as $p < 0.05$.

Results

The hospital where the study was conducted has a bed capacity of 700, whereas 170 these are beds for the intensive care units (ICU). Services at the hospital were provided by 3,142 personnel. The groups and distributions of these personnel were as follows: 672 physicians (21%), 850 nurses (27%), 428 medical technicians (13.6%), 440 patient admission personnel (14%), 422 cleaning and food personnel (13.4%), 150 security personnel (4.7%), and 180 administrative personnel (5.7%). Flexible working was practiced during the COVID-19 pandemic, and healthcare personnel who were specified in risk groups by Ministry of Health were considered on administrative leave. Pandemic-related training were initially provided as face-to-face training within the hospital starting at the end of January. When the face-to-face training was ended due to the contagious nature of the pandemic, the trainings were planned over HTS.

In this study with a retrospective design, which was planned to investigate the interests of HE in DT during the COVID-19 pandemic process, the total training completion rate of the participants was found to be 90% (Table 1). The rate of completion of the DT in the process of the COVID-19 pandemic among the HE was 93% for the physicians (specialist and resident doctors, general practitioner), 88% for the nurses, midwives and health technicians, 91% for the secretariat (medical secretary, patient admission, data entry personnel), 93% for the cleaning services, 80% for the support services (security staff, driver, clinical support unit, cook, technical services) and 93% for the administrative services. Analysing the participating groups, it was noticed that the participation rates in the groups that initially encountered the patient (emergency service, radiology unit, secretariat, resident doctors, pharmacy, drivers) were noticeably high.

After the observation of the first cases in Turkey (the first case confirmed by polymerase chain reaction was determined on March 11, 2020) and an increase in the number of cases, Ministry of Health canceled face-to-face training within the scope of precautions to fight COVID-19. Our hospital started hosting patients suspected for COVID-19 by March 10. The registration for the DT made for healthcare personnel was announced for all clinics, and the process was monitored after the first announcement. On the first day when the training was registered for the healthcare personnel, 323 individuals completed the training (10.3%).

Table 1. Distance training completion rates of healthcare employees

	Number	Those who completed training	%
Specialist doctor	341	311	91.2
Resident doctor	293	281	95.9
General practitioner	38	32	84.2
Midwives, nurse, public health staff	850	733	86.2
EMT, first and emergency aid technician	9	9	100.0
Health technician, laboratory assistant, biologist	76	69	90.8
Health technician, radiology	67	67	100.0
Health technician, medical secretary	36	35	97.2
Health technician, anesthesia	63	58	92.1
Dialysis technician	10	10	100.0
Pathology technician	6	6	100.0
Orthosis - prosthesis technician	14	12	85.7
Physiotherapist, physiotherapy technician	16	14	87.5
Pharmacist, pharmacy technician	22	22	100.0
Audiologist, audiology technician	14	10	71.4
Other [†]	23	21	91.3
Social worker, psychologist, and dietician	22	19	86.4
Cleaning	362	335	92.5
Patient admission	169	151	89.3
Data entry (secretary)	226	224	99.1
Security	150	145	96.7
Administrative services	112	104	92.9
Driver	12	12	100.0
Clinical support	45	39	86.7
Cook, food service staff	60	8	13.3
Technical services	56	56	100.0
Genetics	50	48	96.0
Total	3142	2831	90.1

[†]Dental technician, forensic medicine, occupational therapist, child development, elderly care technician, drugstore, chemistry technician, and perfusionist. EMT:

At the date of 20.04.2020, given as the time of completing the training, 12% of the group was reached. However, due to the importance of the issue, a second announcement was made, the time of completing the training was extended, and the process was followed up (Figure 1).

Considering the interest of the physicians in the DT, it was seen that 7% of the specialist doctors, 9% of the resident doctors, and 11% of the general practitioners completed the training on the first day of registration.

When the interests of the healthcare personnel in the DT in the process of the COVID-19 pandemic were compared, no statistically significant difference could be observed in the participation rates of the specialist doctors, resident doctors, and nurses ($p=0.094$). The rate of the resident doctors to complete the training until the second announcement was significantly lower compared to the specialist doctors and nurses (specialist doctor vs. resident doctor $p=0.044$; nurse vs. resident $p<0.001$). The rates of completing the training after two announcements were significantly higher among the resident doctors than the specialist doctors and nurses and among the specialist doctors than the nurses (respectively $p=0.018$, $p<0.001$, $p=0.018$) (Table 2).

Discussion

As the rapidly increasing patient numbers in the pandemic process created a certain load on the healthcare system, exclusion of who are under risk from the system also increased the workload. Increased workload may lead to not only violations of protection precautions but also stress and carelessness in employees. To overcome this, in addition to regular training and raising awareness on the significance of this issue, it is needed to provide easy access to sufficient protective equipment and regulate the pace of working. The training during the pandemic could only be possible as DT as a compulsory necessity of transition to flexible working hours, increased workload, and isolation rules.

Considering the sociodemographic characteristics of the sample, it is seen that most of the participants consisted of physicians (21%) and nurses (27%). The rate of completing the training among the healthcare personnel included in the study was found to be 90%. Participation in the training was high among groups that encountered the patients first such as the emergency services, tomography unit, secretariat, resident doctors, and cleaning staff. It was thought that, although

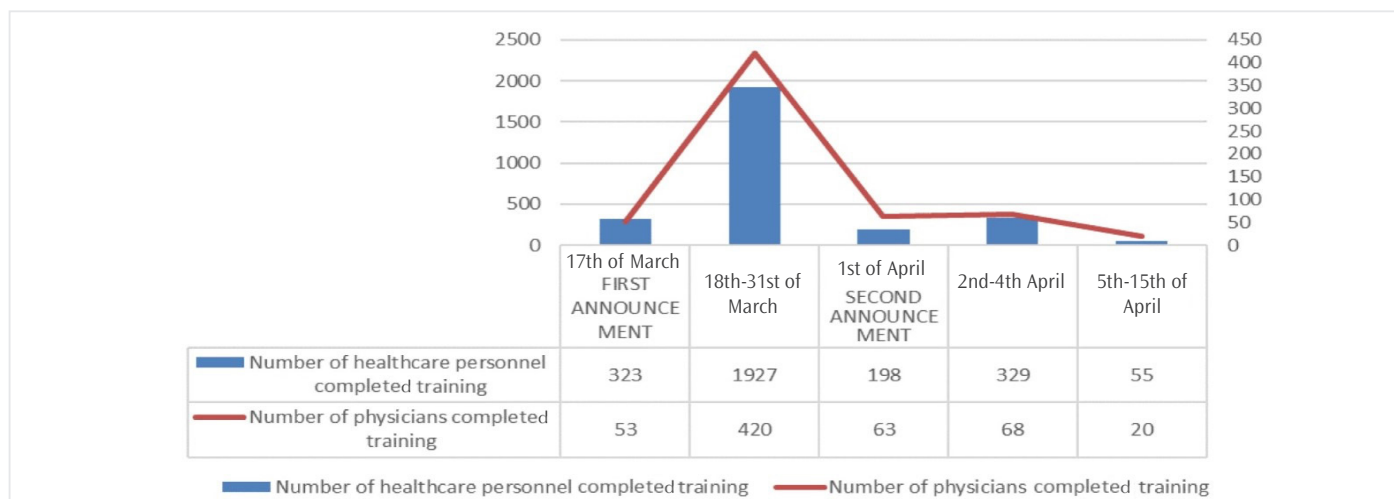


Figure 1. The interest of healthcare employees in distance training during the process of the Coronavirus disease-2019 pandemic. The study was designed as a retrospective study. Healthcare employees' interest in distant training was investigated. Participation in distant training was examined for the dates between the first announcement (March 17, 2020) and April 15, 2020. In the graph, bars represent the number of healthcare personnel that completed training and the line represents the number of physicians that completed them. Columns represent the training periods, and rows represent the personnel type attending the training. The column of numbers on the left-hand side between 0-2500 represents the number range of healthcare personnel, while the numbers on the right-hand side between 0-450 represent the number of physicians

Table 2. Comparison of interests of healthcare employees in training

	Specialist doctor		Resident doctor		Nurse		p
	n	%	n	%	n	%	
Rate of participation at the first announcement	24	7.0	25	8.5	93	10.9	0.094
Rate of completion until the second announcement	241	70.7	185	63.1	615	72.4	0.012*
Rate of completion after two announcements	311	91.2	281	95.9	733	86.2	<0.001**

*p<0.05, **p<0.01

the administrative units were not on the front lines, their interest in the training was high due to concerns of working at a hospital where COVID-19 patients were being monitored and willingness to learn.

Considering the interest of the physicians in the distant training, the higher interests of the resident doctors and general practitioner physicians than the specialist doctors may be explained that a large part of the healthcare personnel, especially at the emergency service and pandemic clinics consisting of resident doctors and general practitioners, they were the group encountering the patient first, and they needed sufficient experience and knowledge about approaching a COVID-19 patient.

In a study that was conducted to investigate the concerns of doctors in Pakistan during the COVID-19 pandemic, it was determined that 80% were concerned about infecting their family members, 63% were concerned about the rapid spread of the disease, and 60% were concerned that the disease would have late-stage complications, whereas 29% of doctors had fears of being a carrier of the disease, and 29% had concerns of not being able to make the diagnosis of the disease (6).

In a qualitative study in China that was conducted to reveal the experiences of providers of healthcare services during the COVID-19 pandemic, it was found that the participants experienced burnout due to working without toilet breaks, without using social environments

due to the protection of social distancing measures, for long shifts with protective gear and due to critical patient care at ICUs, their workload significantly increased, and when their shift ended, they were to exhaust to even move (7). The lower interest of the nurses in our study in the training than the resident and specialist doctors suggested that the nurses could not spare time for the training.

It was seen that the employees were interested in the DT, although the COVID-19 pandemic has created a completely new working environment, it has significantly affected both working life and social life, and despite the additional difficulties experienced in this process. This situation shows that healthcare service employees can use technology to access information in all conditions, they are aware that they need knowledge to be able to adapt to newly emerging situations, and a sufficient awareness could be raised in society regarding the severity of the disease.

In the period of the pandemic that has affected the entire world, like all institutions that provide education, medical schools have also used distance education, and in this period, practical and bed-side training were stopped. However, while these training can be stopped for a short time, it cannot be in question to stop the training of the healthcare personnel in the field. The healthcare personnel in the field will not only provide care for their patients but also apply the ways of protection with

the training they receive. This is why the interest in the training involved a high participation rate (8).

Study Limitations

The most important limitation of our study was that it was retrospective. We did not question whether the participants participated in these training voluntarily or out of necessity. We did not compare the participation rate of COVID-19 training with the participation rates of in-service trainings on other topics.

Conclusion

Understanding of COVID-19 infection and risk factors for negative outcomes among HE is important not only for characterizing the contagion patterns of the virus and risk factors for infection but also for preventing future infections of HE and other patients, providing information, updating infection prevention and management precautions at healthcare facilities and on a national level, and reducing secondary COVID-19 contagions in healthcare settings (9).

When healthcare systems are not prepared to cope with an epidemic of a contagious disease, education, instruction, and improved communication are needed. Continuous education is needed to ensure that healthcare teams are sufficiently prepared to cope with public health emergencies.

The COVID-19 pandemic experienced by the world today has shown that distance education and training should be included in a prioritized manner in Emergency Action Plans after earthquakes, erosions, tsunamis, tornadoes, floods, or fires, as well as contagious diseases (pandemics) (10). COVID-19 should not be assessed as only a crisis. It also provides great opportunities to be tested from all aspects from education to social life.

Ethics Committee Approval: The ethical approval for this study was granted by the Clinical Research Ethics Committee of the University of Health Sciences Turkey, Kanuni Sultan Süleyman Training and Research Hospital (approval number: 148, date: 21.04.2021) and it was conducted in accordance with the principals of the Declaration of Helsinki.

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References

1. Senyuva E, Kaya H. Nurses' lifelong-learning tendencies and their attitudes toward distance education: A sample of Turkey. *The New Educational Review* 2014; 36: 17-29.
2. Fidan M. Distance education students' attitudes towards distance education and their epistemological beliefs. *Hacettepe University J Education* 2016; 3: 536-50.
3. Isman A. Distance education, 4th ed. Ankara: Pegem Akademi; 2011.
4. Welsh ET, Wanberg CR, Brown KG, Simmering MJ. E-learning: Emerging uses, empirical results and future directions. *International Journal of Training and Development* 2003; 1: 245-58.
5. Ministry of Health In-Service Training Regulations. Ministry of Health of Republic of Turkey 2009. B.10.0.SEG.0.72.00.03-010.03/15296. Available from: <https://shgm.saglik.gov.tr/TR-9838/yonetmelik.html>
6. Urooj U, Ansari A, Siraj A, Khan S., Tariq H. Expectations, fears and perceptions of doctors during COVID-19 pandemic. *Pak J Med Sci* 2020; 36: S37-42.
7. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: A qualitative study. *Lancet Glob Health* 2020; 6: 790-8.
8. Tokuç B, Varol G. Medical education in Turkey in time of COVID-19. *Balkan Med J* 2020; 37: 180-1.
9. World Health Organization. Protocol for assessment of potential risk factors for coronavirus disease 2019 (COVID-19) among health workers in a health care setting 2020. Available from: [https://www.who.int/publications/i/item/protocol-for-assessment-of-potential-risk-factors-for-2019-novel-coronavirus-\(2019-ncov\)-infection-among-health-care-workers-in-a-health-care-setting](https://www.who.int/publications/i/item/protocol-for-assessment-of-potential-risk-factors-for-2019-novel-coronavirus-(2019-ncov)-infection-among-health-care-workers-in-a-health-care-setting)
10. Telli S, Altun D. The coronavirus and the rising of online education. *Journal of University Research* 2020; 1: 25-34 (Turkish).