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The Perspectives of Infectious Diseases and Clinical Microbiology Specialists on Online Education Applications and Web-based Seminars

Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Uzmanlarının Online Eğitim Uygulamalarına ve Web Tabanlı Seminerlere Bakış Açıları

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Abstract

Introduction: In this study, it was aimed to obtain information about the perspectives of infectious diseases and clinical microbiology (IDCM) specialists on online education applications and web-based seminars, and their usage and utilization rates.

Materials and Methods: In this descriptive, cross-sectional study, online survey responses of the IDCM specialists in who were members of Infectious Diseases Clinical Microbiology Specialty Society of Turkey (EKMUD) were evaluated.

Results: A total of 184 IDCM specialists answered the survey questions. Of the participants, 77.2% thought that the pandemic disrupted postgraduate medical education and 84.8% thought that the pandemic disrupted pre-graduate medical education. Medical educators involved in education during the Coronavirus disease-2019 (COVID-19) pandemic reported that they mostly continued online education. Of the participants, 84.9% reported that they were able to use the internet in an effective way to gain access to information during the COVID-19 pandemic. Of the responders, 58.2% reported that they followed online training programs, such as web-based seminars and lectures, and 51.6% reported that these online programs contributed to their learning. Participants found online training programs such as web-based seminars and lectures useful in terms of learning competence, that online training programs provided people with gain in space and time, and that they found them more instructive because they gave them the chance to receive training in subjects of their interest. Participants reported that they need/they are interested in and saving time for the trainer and the participants. Due to the COVID-19 pandemic, the participants mostly wanted the 2020 EKMUD congress to be held online. A total 92.9% of the participants reported that online congresses and seminars would decrease travel, participation and sponsorship costs. Only 24.5% of the participants considered that online congresses and seminars would be more effective in terms of social interaction and gaining information than face-to-face congresses.

Conclusion: The IDCM specialists reported that online educational practices such as webinars were benefical. The rate of participation in webinars and online education practices were high during the COVID-19 pandemic.

Keywords: COVID-19, webinar, web-based conferencing, online medical education, medical education

Öz

Giriş: Bu çalışmada enfeksiyon hastalıkları ve klinik mikrobiyoloji (EHKM) uzmanlarının online eğitim uygulamalarına ve web tabanlı seminerlere bakış açıları, bunları kullanma ve bunlardan faydalanma oranları konusunda bilgi edinmek amaçlanmıştır.

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Gereç ve Yöntem: Tanımlayıcı-kesitsel türdeki bu çalışmada Türkiye Enfeksiyon Hastalıkları Klinik Mikrobiyoloji Uzmanları Derneği (EKMUD) üyesi olan EHKM uzmanlarının online anket cevapları değerlendirilmiştir.

Bulgular: Toplam 184 EHKM uzmanı anket sorularını yanıtladı. Katılımcıların %77,2'si salgının mezuniyet sonrası tıp eğitimini aksattığını düşünürken, %84,8'i pandeminin mezuniyet öncesi tıp eğitimini aksattığını düşünmekteydi. Koronavirüs hastalığı-2019 (COVID-19) salgını sırasında eğitime katılan tıp eğitimcileri, çoğunlukla çevrimiçi eğitime devam ettiklerini bildirdi. Katılımcıların %84,9'u COVID-19 salgını sırasında eğitime interneti etkili bir şekilde kullanabildiklerini bildirdi. Katılımcıların %58,2'si web tabanlı seminerler ve dersler gibi çevrimiçi eğitim programlarını takip ettiklerini ve %51,6'si bu çevrimiçi programların öğrenmelerine katkıda bulunduğunu bildirdi. Katılımcılar bu programlarını mekan açısından daha kazançlı olması, ihtiyaç/ilgi alanına giren konunun izlemesine imkan vermesi, eğitici ve eğitilene zaman kazandırması nedenleriyle öğrenim yeterliliği sağladığını bildirmişlerdir. Koronavirüs hastalığı-2019 salgını nedeniyle katılımcıların çoğu 2020 EKMUD kongresinin online yapılmasını istedi. Katılımcıların toplam %92,9'u çevrimiçi kongre ve seminerlerin seyahat, katılım ve sponsorluk maliyetlerini azaltacağını bildirdi. Sosyal etkileşim ve bilgi edinme açısından çevrimiçi kongre ve seminerlerin yüz yüze kongrelere göre daha etkili olacağını düşünenlerin oranı sadece %24,5 idi.

Sonuç: Enfeksiyon hastalıkları ve klinik mikrobiyoloji uzmanları, webinar gibi eğitim uygulamalarını faydalı bulduğunu belirtti. Koronavirüs hastalığı-2019 pandemisi sırasında web seminerlerine ve online eğitim uygulamalarına katılım oranı yüksekti. **Anahtar Kelimeler:** COVID-19, web semineri, web tabanlı konferans, online tıp eğitimi, tıp eğitimi

Introduction

Social distancing and other isolation measures taken to prevent the spread of Coronavirus disease-2019 (COVID-19) all over the world have led to changes in standard education practices. Social distance measures taken against the COVID-19 disease have also changed medical education, and face-to-face education, seminars and congress sessions have started to be held online quickly. In addition, online trainings and web-based seminars have intensified all over the world in order to rapidly share information about COVID-19, which is a new disease^[1-4]. It has been reported that the form of medical education is expected to change and become more digital, due to the rapid spread of the COVID-19 disease, which requires additional developments in prevention and treatment methods^[1,2].

In fact, it is known that web-based audio and video seminars, meetings, training practices have become widespread in the field of medicine with the widespread use of internet in the last twenty years^[5-7]. Webinar-based teaching in healthcare has been an approach adopted in various specialties, and its utility in medical education has been increasingly recognized^[8].

The webinar describes a seminar that is usually broadcast live on the internet. With webinars, it is possible to easily share information with participants anywhere in the world in real time^[9,10]. There are many studies stating that webinars have developed an effective teaching platform with positive contributions to education^[11-15]. The most important advantages of webinars are providing learners to access speakers at appropriate times, allowing collaborative learning experiences, and creating education and learning environments similar to the advantages of traditional face-to-face learning by allowing two-way communication^[12,16]. In addition, since webinars can be made with an internet connection and a device, they have started to be accepted as a method of reaching information that has become widespread in medical education because it significantly reduces the need for travel, time, space, transportation and costs for face-to-face meetings^[17-21]. As another advantage of webinars, it has been reported that participants' participation in the educational environment is easier in webinars. Therefore, it has been reported to be an effective method for reaching larger crowds^[8,12,22]. It has been reported that webinars provide a learning environment for physicians, that experiences can be shared, that questions can be asked easily, that they provide a comfortable learning in an interactive learning environment, and that feedback can be obtained easily^[17,23,24].

The disadvantages of web-based seminars are disconnection of the internet, deterioration of sound and image quality, exposure to external stimuli more on the internet, difficulty in focusing on these seminars due to viewing on the screen, and loss of interpersonal interaction^[3,6].

Although online digital media trainings in the field of medicine have gained momentum due to the COVID-19 pandemic, they have not yet become widespread. It is reported in publications that medical faculty students prefer face-to-face education to internet-based education and participate in webinars as a complement to their education^[1-4,8].

Despite their increasing use and advantages in the COVID-19 pandemic, it is unclear to what extent educational webinars will take place in the field of medicine. The participant perspective on webinars has not been studied extensively in the publications. Continuous professional development is an important component of medicine that keeps physicians up to date. This study was planned in order to evaluate the perspectives and perceived value of the webinars held in the field of infectious diseases and clinical microbiology (IDCM) and focused on the continuous professional development of physicians.

Materials and Methods

Our study was designed as a descriptive-cross-sectional study. The questionnaire form, consisting of 33 questions in total, was directed to IDCM specialists who were members of the Infectious Diseases and Clinical Microbiology Speciality Society of Turkey (EKMUD) online and the participants volunteered to participate in the study filled the forms in digital environment. The study was approved by the Firat University Non-Invasive Research Ethics Committee with date and number 2020/12-05 - 17.09.2020.

The questionnaire was prepared after evaluating the literature data. The first four items of the questionnaire form questioned the socio-demographic characteristics that defined the participants, the next six items questioned the status of research assistants' and students' education during the COVID-19 pandemic, the next eight items questioned whether IDCM specialists used online training applications and webinars effectively to access information, the next four items questioned the participants' participation in EKMUD webinars and their opinions about these seminars, the next five items questioned the problems about device, time and network connection they experienced while participating in online training programs, and the next six items questioned the IDCM specialists' participation status if the 2020 EKMUD congress would held online or in the congress center.

Statistical Analysis

Statistical analysis of the data was made with IBM SPSS 22 statistics package program. Whether the data showed normal distribution or not was examined by Shapiro-Wilk test. Descriptive statistics of the data were given as mean±standard deviation for continuous variables with normal distribution, as median (minimum; maximum) for continuous variables that did not show a normal distribution, and as frequency and percentage [n (%)] for categorical variables. Student's t-test was used in the analysis of two independent groups with normally distributed continuous data, Mann-Whitney U test in the analysis of two independent groups without normally distributed continuous data, one-way ANOVA and for post-hoc test least significant difference were used in comparison of more than two independent groups with normally distributed continuous data, Kruskal-Wallis test and for post-hoc test Dunn test were used in comparison of more than two independent groups without normally distributed continuous data, and Pearson's chi-square test was used in the analysis of categorical data. In statistical analysis, a p value <0.05 was accepted as statistical significance.

Results

One hundred and eighty four participants answered the questionnaire and the mean age of the respondents was 42.23 ± 11.3 (minimum 24-maximum 80) and 66.8% were women. Some sociodemographic characteristics of the participants are presented in Table 1.

Of research assistant physicians, 78.3% reported that their education did not continue during the COVID-19 pandemic. During the COVID-19 pandemic, the majority of participants in pre-graduate medical education were working at a public university (p<0.0001). During the COVID-19 pandemic, the participants who took part in pre-graduate medical education stated that they continued the education mostly in the form of asynchronous education by uploading the lecture notes to the online education system (p<0.0001). Participants' views on post-graduate (research assistant) and pre-graduate (medical student) trainings during the COVID-19 pandemic are given in Table 2.

Of the participants, 78.3% reported that they had access to information about their field of expertise through webinars, congresses and courses, 75.5% through scientific articles, and 47.3% through books. Of lecturer physicians 93.8%, 90% of specialist physicians, 82.6% of associate professors, 69% of professors and 58.7% of research assistants reported that they had access to information through webinars, congresses and courses, and the difference between them was found to be statistically significant (p=0.001). Of lecturer physicians 93.8%, 82.6% of associate professors, 79.3% of professors, 74.3% of specialist physicians and 65.2% of research assistants stated that they had access to information through scientific articles (p=0.169). Of research assistants 58.7%, 40% of specialist physicians, 56.3% of lecturer physicians, 52.2% of associate professors and 37.9% of professors reported that they had access to information about their field of specialization through books (p=0.231).

 Table 1. Socio-demographic characteristics of the participants

 of the survey

Variables	n	%
Gender		
Women	123	66.8
Men	61	33.2
Total	184	100
Title		
Research assistant	46	25
Specialist physician	70	38
Lecturer physician	16	8.7
Associate professor	23	12.5
Professor	29	15.8
Institution		
State University	71	38.6
Private/Foundation University	13	7.1
Ministry of Health's Training and Research Hospital	60	32.6
Third Line State Hospital	21	11.4
Private/Foundation Hospital	19	10.3

Questions	n	0/0
Do you think that the post-graduate education is disrupted due to the pandemic?	1	
Yes	142	77.2
No	16	8.7
l do not know	26	14.1
Do you think that the pre-graduate education is disrupted due to the pandemic?		
Yes	156	84.4
No	4	2.2
l do not know	24	13
Did your education continue during the COVID-19 pandemic? (Research assistant doctor n=46)		
Yes	10	21.7
No	36	78.3
Were you involved in pre-graduate medical training during the COVID-19 pandemic?		
Yes	48	26.1
No	136	73.9
Institutional employment status in pre-graduate medical education during the COVID-19 pandemic (p<0.0001)		
State University	38	79.2
Private/Foundation University	6	12.5
Ministry of Health's Training and Research Hospital	4	8.3
Third Line State Hospital	0	0
Private/Foundation Hospital	0	0
Method of continuing pre-graduate medical education during the COVID-19 pandemic (n=48) (p<0.0001)		
Uploading lecture notes to the online education system (asynchronous education)	19	39.6
Uploading lecture videos to the online education system (asynchronous education)	14	29.2
Live and simultaneous online course (synchronized training)	15	31.3

Table 2. Opinions on post	tgraduate (research	assistant) and	pre-graduate	(medical	student)	trainings	during	the	Coronavirus
disease-2019 pandemic									

COVID-19: Coronavirus disease-2019

The internet usage status of IDCM specialists participating in the study to obtain information is presented in Table 3. Of the participants 81% stated that they could use the internet effectively to get information about their area of expertise. A statistically significant difference was found in terms of the rates of the participants to use the internet effectively to access information between the titles of the participants (p=0.001) (Table 3).

The rate of the participants who stated that they used the internet effectively to learn about COVID-19 during the pandemic period was 84.9% and there was a significant difference between the titles of the participants in terms of this rate (p=0.01) (Table 3).

Of the participants 58.2% reported that they followed online training programs such as web-based seminars and lectures, and there was a significant difference between the titles of the participants in terms of this rate (p=0.027) (Table 3). Of the participants 92.9% stated that they preferred to follow the national webinars, and there was no significant difference between the titles of the participants in terms of the participants in terms of the remaining the participants in terms of the participants

(p=0.214). Of the participants 51.6% stated that they found the online training programs such as web-based seminars and lectures useful in terms of learning competence, and 41.3% found it partially useful. The rate of finding online training programs such as web-based seminars and lectures to be sufficient in terms of education was highest in specialized physicians and lowest in research assistants, and there was a significant difference between the titles of the participants in terms of this rate (p=0.003) (Table 3).

The reasons why the participants find online training programs such as web-based seminars and lectures related to their field of expertise useful in terms of learning competence and not are presented in Figure 1. They stated that the reasons why they did not find it useful in terms of learning competence were; first, the exposure to external stimuli compared to face-to-face meetings, second, the problem of focusing on the talks/meeting and third, the absence of a socially interactive and connected educational environment (Figure 1). They stated that the reasons for finding it useful in terms of learning competence

		Title*										
		Research assistant		Specialist physician		Lecturer physician		Associate professor		Professor		р
		n	%	n	%	n	%	n	%	n	%	
Can you use the internet effectively to find information about your area of expertise?	Yes	26	56.5	61	87.1	14	87.5	21	91.3	27	93.1	0.001
	No	1	2.2	0	0	0	0	0	0	0	0	
	Partially	19	41.3	9	12.9	2	12.5	2	8.7	2	6.9	
Have you been able to use the internet effectively to learn about COVID-19 during the pandemic period?	Yes	31	67.4	61	87.1	15	93.8	23	100	26	89.7	0.01
	No	3	6.5	0	0	0	0	0	0	0	0	
	Sometimes	12	26.1	9	12.9	1	6.3	0	0	3	10.3	
Can you follow distance education programs such as web-based seminars and lectures related to your area of expertise?	Yes	19	41.3	47	67.1	6	37.5	18	78.3	17	58.6	0.027
	No	6	13	3	4.3	2	12.5	0	0	1	3.4	
	Sometimes	21	45.7	20	28.6	8	50	5	21.7	11	37.9	
Which do you prefer more from national and international webinars?	National	43	93.5	68	97.1	13	81.3	21	91.3	26	89.7	0.214
	International	3	6.5	2	2.9	3	18.8	2	8.7	3	10.3	
Do you find distance education programs such as web-based seminars and courses related to your area of expertise useful in terms of learning competence?	Yes	13	28.3	48	68.6	6	37.5	14	60.9	14	48.3	0.003
	No	4	8.7	4	5.7	2	12.5	1	4.3	2	6.9	
	Partially	29	63	18	25.7	8	50	8	34.8	13	44.8	
What is the best time for you to participate in live distance education programs?	Working hours	5	10.9	6	8.6	3	18.8	3	13	6	20.7	0.196
	Evening hours	32	69.6	50	71.4	6	37.5	17	73.9	19	65.5	
	Weekends	9	19.6	14	20	7	43.8	3	13	4	13.8	

Table 3. The status of using the internet to access information of infectious diseases and clinical microbiology specialists according to their titles

COVID-19: Coronavirus disease-2019

were that first, it was more profitable in terms of place problem, that second, the subject in the field of need/interest could be followed, and that third, it saved time for the educator and the trainees (Figure 1).

Of the participants 49.5% stated that they participated in EKMUD's synchronized online training presentations (via Zoom, etc.), 39.1% stated that they sometimes participated and 11.4% stated that they did not participate. While 28.8% of the participants found these presentations very good, 60.7% found them good, 2.5% found them bad, and 8% stated that they were indecisive. Of the participants 87% stated that they did not have a problem in participating in these presentations. Of those who had problems in participating in these educational presentations, 62.5% (n=15) stated that they had problems in accessing the internet in their place of residence, and 20.8% (n=5) stated that they did not have sufficient knowledge about using online education programs.

Of the participants, 57.1% reported that they followed the online training programs via smart phones, 69.6% via computer,

and 6.5% via tablet, and the rate of following the online training programs via smartphone was found to be significantly higher for research assistants and specialist physicians (p=0.017). Of the participants, 67.4% answered to the question "What is the best time for you to participate in online synchronized training programs?" as evening hours, 20.1% as weekends, and 12.5% as working hours, and there was no significant difference between the titles regarding these preferences (p=0.196) (Table 3).

Of the participants, 59.8% answered to the question "Does your institution have a suitable network structure to participate in online training programs?" as "yes", 29.3% as "no", and 10.9% as "I don't know". Among the participants, 78.9% of those working at private/foundation hospitals, 76.9% of those working at a state university, 41.7% of those working at the Ministry of Health's training and research hospitals, and 33.3% of those working in a tertiary state hospital reported that the institution they worked in had an appropriate network structure to participate in online training programs, and the difference between institutions in terms of this rate was significant (p<0.0001).



Figure 1. Evaluation of distance education programs such as web-based seminars and lectures related to the field of expertise in terms of learning competence

Of the participants, 52.7% stated that they watched the webbased seminar recordings at a different time other than the seminar hour and 47.3% stated that they did not. Of specialist physicians 62.9%, 62.5% of physician lecturers, 60.9% of associate professors, 55.2% of professors, 28.3% of research assistants stated that they watched the web-based seminar recordings at a different time other than the seminar hour and there was a significant difference between the titles of the participants in terms of this rate (p=0.004). In the web-based seminars, 85.9% of the participants stated that they experienced video loss, 61.4% internet disconnection, 60.9% problems with video streams, and 50.5% sound interruptions.

The study questioned how participants wanted 2020 Turkey EKMUD would be hold due to COVID-19 pandemic. Of the participants, 44.6% stated that the congress could be hold in the form of online education, 27.7% at the congress center, and 27.7% in both ways. Of the participants, 65.2% answered to the question "Will you follow 2020 Turkey EKMUD congress if it is held online?" as "yes", 5.6% as "no", and 29.3% as "not sure". Of the participants, 41.3% answered to the question "Will you join 2020 Turkey EKMUD congress if it is traditionally held in the convention center?" as "yes", 21.2% as "no", and 37.5% as "not sure". Of the participants, 51.1% answered to the question "Do you think the rate of participation in online congresses will be higher?" as "yes", 25% as "not sure", and 23.9% as "no". Of the participants, 92.9% answered to the question "Will online congresses and seminars reduce travel, participation and

sponsorship costs?" as "yes", 6.5% as "not sure", and 0.5% as "no".

Of the participants, 46.2% answered to the question "Do you think online congresses will be more effective in terms of interaction and information acquisition than face-to-face congresses?" as "no", 29.3% as "not sure", and 24.5% as "yes".

Discussion

When the World Health Organization declared COVID-19 as a pandemic on March 11, 2020, patients with COVID-19 started to be announced rapidly from all countries^[25]. The increase in patients with COVID-19 followed up in hospitals has caused disruption of medical education^[26-29]. The increase in the number of patients hospitalized with the diagnosis of COVID-19 during the pandemic has caused the postponement of the follow-up of other patients, and there have been disruptions in pre- and post-graduate medical education for many reasons such as the appointment of physicians for the follow-up of patients with COVID-19, cancellation of rotations, closing of academic institutions, and postponement of unnecessary research and studies. Although these measures restrict medical education, it has been found that they must be implemented in order for the health system to cope with COVID-19^[28-32]. Similar to the literature, in our study, most of the participants reported that both pre- and post-graduate medical educations were disrupted during the pandemic period, and 78.3% of research

assistant physicians did not continue their education during the COVID-19 pandemic. The educators who stated that they continued their medical education during the COVID-19 pandemic reported that they continued their education mostly in the form of asynchronous online education.

All over the world, the COVID-19 pandemic has brought a different approach to medical education due to social distance measures, and online education applications have replaced traditional education methods^[27,28,32-34].

With the development of technology, the half-life of the information has become shorter and it has become inevitable to reach the developments and changes in medical information immediately. Therefore, sources of medical information have also changed over the years^[35-37]. In our study, the majority of the participants stated that they accessed medical information mostly through webinars, congresses, courses and scientific articles, and less often through books. This result was found meaningful in terms of showing that physicians working in the field of IDCM could keep up with the rapidly developing technologies. Differently from our study, in the study by Naeem and Bhatt^[38], it was reported that doctors mostly obtained information from books and texts and did not use the internet for this purpose. In the same study, it was suggested that text books, which were sources of medical information, should be preferred in order to reach general information, and it was reported that information sources such as literature reviews, peer reviews, and peer information exchange should be used for up-to-date information[38].

Today, knowing the resources that doctors use to access medical information is very important in terms of medical education. In our study, most of the participants stated that they could use the internet effectively to reach information about their areas of expertise. The fact that they used the internet at a high rate to quickly access various and desired information was found to be quite meaningful in terms of showing the adaptation of IDCM specialists to technological developments. Similar to our study, in the study by Cherrez-Ojeda et al.^[39], most of the doctors reported that they used information and communication technologies to reach academic knowledge. In a study, it was reported that, unlike our study, doctors did not use the internet much to access information, and they obtained information mostly from texts and books^[38].

Nowadays, parallel to the rapid development of technology, the rapid increase of new medical knowledge has led to the development of new information sources. In pre-pandemic periods, webinars, online education environments and e-learning modules were recommended for continuing medical education due to some advantages^[5,40,41]. Emergency communications, remote collaboration, and scientific sessions, which have gained momentum due to the COVID-19 pandemic, have created a global need for communication technology^[29,42].

In our study, most of the IDCM specialists reported that they found online training programs such as web-based seminars and lectures useful in terms of learning competence, that online training programs provided people with gain in space and time, and that they found them more instructive because they gave them the chance to receive training in subjects of their interest. The majority of the participants stated that they attended the synchronized online education presentations of EKMUD and found the presentations good. Similar to our study in the literature, there are publications stating that webinars are very useful in terms of learning competence. In these publications, it has been stated that online training programs are very useful in terms of reaching a large number of people, providing time and space for participants, reducing costs, providing professional communication and cooperation^[8,29,40,43-46].

In our study, the majority of the participants stated that they wanted the EKMUD congress to be held online during the pandemic period. Most of the physicians stated that they would participate in the online congress. Webinars seem to have brought solutions to congress and seminar presentations held collectively. It was reported that some meetings and congresses were held online during the COVID-19 pandemic^[46]. It is recommended to increase viewability by recording training conferences^[32].

Participants in the study reported that they generally followed online training programs through mobile phones and computers. In a study conducted, supporting our findings, it was reported that physicians accessed online health information mostly through mobile phones and secondly through computers^[38].

Since the data in our study were obtained only from physicians working in the specialty of IDCM, it was a limitation of the study that the results could not be generalized to doctors working in other specialties. It is likely that webinar applications have increased in order to have a rapid flow of information due to the COVID-19 pandemic. Again, for the same purpose, it is highly probable that the rate of participation and benefiting from webinars and online training applications has increased due to the sensitivity of IDCM specialists to the subject.

Conclusion

In the face of this emergency that leads to the interruption of medical education, technological advances can create online training opportunities that offer training opportunities close to the classroom and clinical environment. In a period when the advantages and disadvantages of online education in medical education are discussed, more research is needed to bring a new perspective to medical education and to see the applicability of online education in some medical fields.

Ethics

Ethics Committee Approval: The study was approved by the Firat University Non-Invasive Research Ethics Committee with date and number 2020/12-05 - 17.09.2020.

Informed Consent: Informed consent was obtained from the participants before the survey.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Concept: T.Ö.K., C.A., B.K., M.T., Design: T.Ö.K., C.A., B.K., Y.Ç., M.T., Data Collection or Processing: T.Ö.K., M.T., Analysis or Interpretation: T.Ö.K., Literature Search: T.Ö.K., Writing: T.Ö.K., Y.Ç.

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