Distance Education in COVID-19 Pandemic: What Do Medical Students Think?

COVID-19 Pandemisinde Uzaktan Eğitim: Tıp Öğrencileri Ne Düşünüyor?

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Abstract

Aim: Although distance education is used as an education method from time to time, it has started to be used as a more compulsory method due to the COVID-19 pandemic. Opinions and attitudes towards distance education may change due to differences in education and technical infrastructure between countries. This difference may also differ between faculties in universities. This study aimed to evaluate the attitudes of the students studying at the medical faculties in Turkey towards distance education and the factors affecting these attitudes.

Methods: 490 volunteer students studying at various medical faculties in Turkey were included in the study. Attitudes of students towards distance education with Online Learning Attitude Scale; Other variables that may affect their attitudes were evaluated through the sociodemographic form and questions prepared by the researchers about distance education, and it was applied to the students through an online questionnaire.

Results: It has been found that students studying in medical school have an almost neutral attitude towards distance education. While the flexibility of time and space, the ease of following the lessons, the convenience of disadvantaged students, the environmental friendliness and the increase in attendance are seen as the advantages of distance education; disadvantages of distance education were found to be difficulties in focusing on the screen and motivating to the lectures, creating difficulties in self-control to attend the lectures, technological problems, low interaction during the lectures, feeling isolated and having difficulty in finding a suitable place to participate in the lectures. Technological problems (internet connection, power shortage, etc.), some courses not suitable for distance education in terms of content, and the lack of technical knowledge and skills of instructors regarding distance education are seen as obstacles to the effective implementation of distance education. Although more than half of the students think that distance education reduces their academic success, only 5% of them stated that they want to study only with distance education in the following years.

Conclusions: Although distance education activities have various advantages, in the current study, it was seen that medical faculty students mostly thought that it reduced their academic success and a very small part of them wanted to continue their education with distance education only. Because of technological

improvements, it can be predicted that distance education which have been used more actively with the COVID-19 pandemic, can be implemented more frequently in the future. Therefore, It is thought that it would be beneficial to consider it as a holistic approach in order to organize the curriculum, train the instructors and provide access to distance education in order to implement the education-teaching activities more efficiently.

Özet

Amaç: Uzaktan eğitim zaman zaman bir eğitim-öğretim yöntemi olarak kullanılsa da COVID-19 pandemisi nedeniyle daha zorunlu bir yöntem olarak kullanılmaya başlanmıştır. Ülkeler arasında eğitim ve teknik altyapı farklılıkları nedeniyle uzaktan eğitime yönelik görüş ve tutumlar değişebilmektedir. Bu farklılık üniversitelerde fakülteler arasında da farklılık gösterebilmektedir. Bu çalışma Türkiye'de tıp fakültelerinde eğitim görmekte olan öğrencilerin uzaktan eğitime yönelik tutumlarını ve bu tutumları etkileyen faktörleri değerlendirmeyi amaçlamıştır.

Yöntem: Araştırmaya Türkiye'deki çeşitli tıp fakültelerinde eğitim görmekte olan 490 gönüllü öğrenci dahil edilmiştir. Öğrencilerin uzaktan eğitime yönelik tutumları Çevrimiçi Öğrenme Tutum Ölçeği ile; tutumlarını etkileyebilecek diğer değişkenler sosyodemografik form ve araştırmacılar tarafından uzaktan eğitim ile ilgili hazırlanmış sorular aracılığıyla değerlendirilmiş olup öğrencilere çevrimiçi anket yoluyla uygulanmıştır.

Bulgular: Tıp fakültesinde eğitim görmekte olan öğrencilerin uzaktan eğitime karşı neredeyse tarafsız bir tutumu olduğu bulunmuştur. Zaman ve mekân esnekliği, dersleri takip etmenin kolay oluşu, dezavantajlı öğrencilere kolaylık sağlaması, çevre dostu oluşu ve derse devamı arttırması uzaktan eğitimin avantajları olarak görülürken; ekrana odaklanmada ve derse motive olmada güçlük, derse devama yönelik öz kontrolü sağlamada zorluk yaratması, teknolojik problemler, ders esnasında etkileşimin az oluşu, izole hissetme ve derse katılma için uygun yer bulmada güçlük yaşama uzaktan eğitimle ilgili dezavantajlar olarak bulunmuştur. Teknolojik sorunlar (internet bağlantısı, elektrik kesintisi, vb.), bazı derslerin içerik olarak uzaktan eğitime uygun olmaması ve öğretim elemanlarının uzaktan eğitimle ilgili teknik bilgi ve beceri eksikliği uzaktan eğitimin etkin bir şekilde uygulanmasının önündeki engeller olarak görülmektedir. Öğrencilerin yarısından fazlası uzaktan eğitimin akademik başarılarını azalttığını düşünmekle birlikte yalnızca %5'i ileriki yıllarda sadece uzaktan eğitimle okumak istediklerini belirtmiştir.

Sonuç: Uzaktan eğitim faaliyetlerinin çeşitli avantajları olmasına rağmen mevcut çalışmada tıp fakültesi öğrencilerinin; çoğunlukla akademik başarılarını azalttığını düşündükleri ve çok küçük bir kısmının yalnızca uzaktan eğitim ile eğitimlerine devam etmek istedikleri görülmüştür. COVID-19 süreciyle birlikte daha aktif olarak kullanılmaya başlanan uzaktan eğitim faaliyetlerinin günümüz teknolojik koşulları da düşünüldüğünde ilerleyen zamanlarda daha aktif kullanılmaya devam edilebileceği öngörüsü ile eğitim-öğretim faaliyetlerinin daha verimli uygulanabilmesi için ders programlarının düzenlenmesi, öğretim elemanlarının yetiştirilmesi ve uzaktan eğitime erişimin sağlanması için bütüncül olarak ele alınmasının faydalı olabileceği düşünülmektedir.

INTRODUCTION

The first cases of COVID-19 virus began to appear in Wuhan, China, in December 2019. A few months after, it was declared as a pandemic disease by the World Health Organization (WHO) (1). The global incidence of COVID-19 has increased significantly in a short period, and since the beginning of the pandemic, nearly two billion students have been affected by the closure of schools. United Nations Educational Scientific and Cultural Organization (UNESCO) reported that 184 countries have shut down schools and more than 1.5 billion learners were affected after COVID-19 (2). As a precaution, all educational institutions in Turkey also closed and activities were suspended on March, 2020. Distance education

(DE) activities, which were partially implemented in many different education areas in Turkey before, have started to be implemented at all levels including universities due to the COVID-19.

DE was included in education programs in different countries, including Turkey at varying rates before the pandemic. It has many advantages such as providing flexible learning opportunities, ease of transportation, and low cost (3-5). However, in face-to-face education, interaction with students or cooperative learning is easier and learning material is more concrete than DE (4,5). In rapid transition regarding the remote implementation of the entire program during pandemic process, more focus was placed on participation and compliance with technical needs and requirements for the effectiveness of the educational environment. Due to differences in university education and technical infrastructure differences among countries, opinions and attitudes towards DE may also differ in different countries.

There have been some studies examining the attitudes of university students regarding DE in Turkey (6-9). In these studies, students' attitudes, the relationship between sociodemographic factors and attitudes, factors determining the attitudes, and students' opinions about the advantages and disadvantages of DE were examined. In a study looking the attitudes of students studying at different faculties towards DE, it was concluded that students' attitudes were generally negative. While no significant difference was observed in attitudes according to gender. It was observed that attitude scores of those having a computer, permanent internet access and mobile devices were higher than those without (6). In another study, opinions of students receiving tourism education about DE were evaluated. In this study, students stated that DE method provides flexibility in terms of time and space, the cost is low, and they want it to be implemented in their schools (7). In a different study, students enrolled in DE programs were interviewed, and

students' opinions were asked. It was stated that about half of the students couldn't learn with DE method. In addition, students stated that DE reduces academic success, but it's easier for them to repeat the lecture and they feel more comfortable than face-to-face education. The authors highlighted the standardization and lack of supervision of DE activities in Turkey as the most important problem (8). In a study conducted after the pandemic, the perceptions and attitudes of teacher candidates about synchronous DE were examined. It was stated that they generally had negative attitude towards synchronous lectures, didn't consider themselves competent and unwilling to provide DE in the future (9).

Medical faculties in Turkey also stopped face-to-face teaching and training activities in this regard, and to maintain the continuity of education, DE has emerged as a new teaching method. In medical education program in Turkey, while the first 3 grades there are theoretical courses and in 4th and 5th grades, laboratory applications of some courses, in-hospital internships constitute most of the training. In the 6th grade, students gain pre-graduate work experience in certain clinics. Even though hybrid methods (e.g., distance and face-to-face together) are well adopted in different countries, the impact of DE is likely to be revolutionary, especially in lower/middle-income countries. Also in Turkey, before COVID-19 outbreak, DE methods have not been widely adopted on medical faculties.

In the study that Al-Balas et al. conducted with medical faculty students, they found the rate of satisfaction with DE as 26.8% (10). This ratio was found to be significantly higher for students with previous DE experience, if instructors actively participate in sessions, use multimedia and provide sufficient time. It has been reported that the delivery of educational material using simultaneous live sessions represents the basic teaching method. Internet quality and coverage were identified as the main challenge reported by 69.1%. In a study conducted by Ibrahim et

al. with medical students, approximately three-fifths of the students reported that DE replaces classical face-to-face learning and is an adaptable and less time-consuming method (11). They reported the skills of the educator, the subject in question, the way of education, good interaction, motivation and learning management systems as the factors ensuring the success of DE. However, most students acknowledge that clinical education is the most difficult learning goal in DE and exams may be affected by poor internet quality.

As seen in studies conducted with medical students; the fact that students' attitudes, priorities and suggestions about the areas needing improvement change from country to country. When the studies in Turkey are examined, it has been seen that there are description and evaluation studies regarding the distance education activities carried out during the COVID period in different medical faculties. (12-16). There are also studies showing more general results. In a study that Çifcibaşı et al.'s conducted, 40% of the students did not find DE beneficial, 66.7% stated that it was not as effective as face-to-face education and almost half of the students stated that they could not find a suitable environment for study and have problems in internet connection(17); while in study of Karagöz et al.., it was found that students experienced anxiety about lack of education during distance education process, low academic success, the decrease in their motivation to study, and the lack of feedback. Also, 82% of students' working patterns decreased with DE compared to the past (18). Also, Bezircioğlu et al. showed that 1st, 2nd and 3rd grade medical students did not feel competent in time management, and they experienced loss of morale, restricted social relationships because of DE. While synchronous sessions provide time management and opportunity to ask simultaneous questions to lecturer; asynchronous sessions provide suitable opportunity to study with self-paced and personal study habits (19). While the

positive aspects of DE are seen as the recording of lectures, the possibility of listening/watching again, easy access to the materials, comfort of the home environment and the saving of time (19,20); inadequate skills of the instructors, audio and visual problems, limited opportunity to practice, concentration problems due to lack of interaction in the course, difficulty in focusing, and the inability to find a suitable environment at home have emerged as negative aspects (21-23). It necessitates that each country adjusts its solution strategies according to its own problems and current expectations. For this reason, it's important to understand the current attitudes and expectations of students regarding distance medicine education, currently practiced in Turkey.

With this study, it's aimed to investigate the medical students' attitudes towards DE and identifying socio-demographic and different characteristics affecting this attitude. It is thought that this study can bring suggestions in terms of developing medical faculty education programs in line with the expectations of students in the long term and increasing the efficiency of education.

The hypotheses are:

(1) The attitude of the pre-clinical (1-2 and 3rd) grades towards DE is more positive than the clinical (4-5 and 6th) grades.

(2) Medical students' attitudes towards DE are generally positive.

(3) Features like access to the internet, the amount of internet packages and some demographic variables (having an own room, socio-economic status, etc.) affect the attitude towards DE.

METHODS
Participants

This cross sectional survey study based on online questionnaire. Questionnaire link was delivered via snowball sampling (social media, online groups, e-mail or face to face). Inclusion criteria were still training in any medical school in Turkey and agreeing to participate to the

study. Exclusion criteria were taking only face-to-face education at the time of this study. First, 534 volunteer medical students from 1st to the 6th year participated. After controlling data, some data were not included to the analysis because of being outlier, not completing the questions in a right way, being not suitable for the inclusion criteria. Finally, 490 medical students were included. Their age range was 17-26 years (mean [M]=20.55; standard deviation [SD]=1.87), 308 were female (62,9%), 179 were male (36,5%) and 3 were not wanted to indicate their gender (0,6%).

Procedure

With the approval of the ethics committee, a form including sociodemographic information, questions prepared by researchers and "Online Education Attitude Scale" were administered once via an online questionnaire. Data were collected from February to March 2021. Completing the scales took around 8 minutes.

Materials

Socio-demographic Information Form: The form prepared by the researchers aims to reach various sociodemographic information such as age, gender, university, class, perceived socioeconomic status, living place, ways of accessing distance education (such as synchronous, asynchronous) having own computer and room and number of students taking DE other than the participant.

Online Education Attitude Scale: It was developed by Usta et al. (24). There are 20 questions and 4 sub-dimensions in the scale. These sub-dimensions are general acceptance (GA) (7 items), individual awareness (IA) (6 items), perceived usefulness (PU) (3 items) and application effectiveness (AE) (4 items). Cronbach alpha were calculated as 0.77 for the general acceptance factor, 0.85 for the individual awareness factor, 0.79 for the usefulness factor and 0.68 for the application effectiveness. According to the result of the reliability test, the internal consistency coefficient of the whole scale was found to be 0.90. In this study, it was found 0.91. The total scores that can be obtained from the scale range from 20 to 100. Since the scale does not have a cut-off point, the mean value of the total score of the scale was considered as the cut-off score (60) for this study. Cut-off scores for sub-dimensions were determined with the same method as 21 for GA, 18 IA, 9 for PU, and 12 for AE.

Attitudes of students towards Distance Education (DE): It consists of 5-items created by researchers that aim to measure students' attitudes towards DE. The first item aims to see whether students find DE or face-to-face education better. It includes a 3-point Likert-type answer (Face to face; undecided, DE). Item 2 aims to see how distance education affects students' academic success with 5-point Likert-type (Affected very negatively to very positively) answers. 3rd item aims to see whether students prefer DE or face-to-face education in the future. It includes 3-point Likert-type (face-to-face; hybrid; DE) answers. The last 2 items include 7 advantage and 6 disadvantage of DE items that the researchers created in line with their own observations and feedback from their students. Students are expected to select at most 3 items that they perceive as advantages and disadvantages.

Statistical Analysis

After data collection, responses analyzed with SPSS 22.0. A total of 490 people were included in the analysis. Normality was assessed by evaluating skewness and kurtosis values. Hence, skewness and kurtosis values are between -1 and +1, parametric tests were planned to use for the analysis (25). The analyses included descriptive statistics, one-way-ANOVA and t-test. P value < 0.05 was considered statistically significant.

RESULTS

Characteristics of Students

The average age of the students is 20.53 (±1.86) years. The demographic information of the students can be found in the Table 1.

DE Methods

Different kinds of methods that students took their DE can be seen at Table 1.

Table 1. Socio-Demographic Information of Students

Characteristics	Number (Percent)	Characteristics	Number (Percent)
University Type		**Online Education Type**	
Public	301 (61.4)	Synchronous Lectures (SL)	227 (46.3)
Private	189 (38.6)	Video Lectures (VL)	30 (6.1)
Class Status		Class Notes (CN)	2 (0.4)
Pre-clinic (1st, 2nd, 3rd graders)	329 (67.1)	Face to Face (FF)+SL	9 (1.8)
Clinic (4th and 5th graders)	161 (32.9)	FF+VL	1 (0.2)
Socioeconomic Status		FF+CN	1 (0.2)
Below average	53 (10.8)	SL+VL	45 (9.2)
Average	251 (51.2)	SL+CN	27 (5.5)
Above average	186 (37.9)	VL+CN	11 (2.2)
Own Computer		FF+SL+VL	2 (0.4)
Yes	421 (85.9)	FF+SL+CN	2 (0.4)
No	69 (14.1)	FF+VL+CN	128 (26.1)
Own Room		FF+SL+CL+CN	4 (0.8)
Yes	418 (85.3)		
No	72 (14.7)		

Attitude Towards DE

In this study, students' attitudes towards DE were measured using the Online Learning Attitude Scale (24).

According to the results, they were seen that the students have an almost neutral attitude in terms of general attitude (average 57.49±14.57 vs cut-off score 60) and GA sub-dimension (average 20.64± 4.85 vs cut-off score 21). For other sub-dimensions, negative attitude in terms of IA (average 14.87±6 vs cut-off score 18), almost positive attitude in terms of PU (average: 9.77±3.30 vs cut-off score 9) and AE (average 12.22±2.90 vs cut-off score 12) were found. The scores obtained from the attitude scale and its sub-dimensions in this study are given in Table 2.

Table 2. Online Learning Attitude Scale and Sub-Dimension Scores

Instrument	N	Mean ± SD	Range
Online Learning Attitude Scale	490	57.49±14.57	21-94
General Acceptance (sub-dim)	490	20.64±4.85	7-32
Instrument	**N**	**Mean ± SD**	**Range**
Individual Awareness (sub-dim)	490	14.87±6.00	6-30
Perceived Usefulness (sub-dim)	490	9.77±3.30	3-15
Application Effectiveness (sub-dim)	490	12.22±2.90	4-20

N: Number of students, SD: standard deviation, sub-dim: Sub-dimension of Online Learning Attitude Scale

In addition to the scale scores, it was observed that there were similarly negative attitudes towards DE in some questions prepared by the researchers for DE. Questions and answers in this context can be seen in Table 3. For example, approximately 50% of the students stated that DE negatively affected their academic success, 85% stated that some courses or contents were not suitable for DE. 87% of the students think that limited resources are an

obstacle for DE, and 62% think that the lack of knowledge and skills of the lecturers in DE reduces the efficiency of education. In the following years, students who want education to be conducted solely as distance education constitute only 5% of the whole.

Advantages and Disadvantages of DE
It was seen that 86.1% of the students found DE advantageous due to the flexibility of time and place. 39% of the students are due to low economic cost, 38% due to the easy to follow the lectures, 33.5% because of different learning techniques (such as video, presentation), 19.2% due to convenience for disadvantaged students. And 13.3% of them found DE advantageous because it is environmentally friendly and 8.2% since increases attendance.

For disadvantages, 71.4% of the students found DE disadvantageous due to difficulty in focusing on screen and stay being motivated. In addition, half of the students (50.2%) considered difficulty in providing self-control related to attending classes as a disadvantage. 43.3% of them found due to low interaction during learning, 43.5% due to technological problems (such as power outage, internet problems), 31.6% due to feeling isolated and 18.4% due to the difficulty of finding a suitable environment to attend the class. Results can be seen from Table 3.

Table 3. Other Questions related to Distance Education (DE)

Question	Answers	Number (Percent)
DE affected my academic performance	in a very negative way	75 (15.3)
	in a negative way	176 (35.9)
	not affected	117 (23.9)
	in a positive way	101 (20.6)
	in a very positive way	21 (4.3)
Limited resources (poor internet connection, access to technological equipment) are barriers to distance learning	Totally disagree	12 (2.4)
	Disagree	11 (2.2)
	Undecided	37 (7.6)
	Agree	193 (39.4)
	Totally agree	237 (48.4)
Some courses or contents (such as laboratory or clinical practice and internship courses) for DE.	Totally unsuitable	265 (54.1)
	Unsuitable	151 (30.8)
	Undecided	46 (9.4)
	Suitable	20 (4.1)
	Totally suitable	8 (1.6)
Lack of knowledge and skills of lecturers in DE reduces the efficiency of education	Totally disagree	28 (5.7)
	Disagree	68 (13.9)
	Undecided	88 (18.0)
	Agree	177 (36.1)
	Totally agree	129 (26.3)
In the following years, I want	Face-to-face education	268 (54.7)
	Mixed (Face-to-face and DE)	197 (40.2)
	DE	25 (5.1)
Advantages of distance learning	Flexibility of time and place	422 (86.1)
	Low economic cost	191 (39.0)
	Easy to follow the lessons	164 (33.5)
	Convenience for disadvantaged students	94 (19.2)
	Environmentally friendly	65 (13.3)
	Increasing attendance	40 (8.2)

Question	Answers	Number (Percent)
Disadvantages of distance learning	Difficulty in focusing on the screen and being motivated	350 (71.4)
	Difficulty in providing self-control related to attending classes	246 (50.2)
	Technological problems (such as power outage, internet)	213 (43.5)
	Low interaction during learning	212 (43.3)
	Feeling isolated	155 (31.6)
	Difficulty of finding a suitable environment to attend the class	90 (18.4)

Group Differences

For group differences Independent-Sample t-test and One-Way-ANOVA analysis were used. For pre-clinical and clinical levels, it was seen that general attitude towards DE (t(488)=-.40, p>0.05), GA (t(488)=-1.04, p>0.05), IA (t(488)=-0.92, p>0.05), PU (t(488)=-1.71, p>0.05) and AE (t(488)=-1.47, p>0.05) sub-dimensions did not differ significantly. Results can be seen from Table 4.

Table 4. Group Differences according to Class Type

Variable	Class	N	Mean (SD)	*df*	t	*p*
OLAS	Pre-clinic	329	56.85 (14.71)	488	-1.40	0.161
	Clinic	161	58.81 (14.23)			
GA	Pre-clinic	329	20.48 (4.91)	488	-1.04	0.299
	Clinic	161	20.96 (4.74)			
IA	Pre-clinic	329	14.69 (6.13)	488	-0.92	0.358
	Clinic	161	15.22 (5.74)			
PU	Pre-clinic	329	9.59 (3.40)	488	-1.71	0.089
	Clinic	161	10.13 (3.08)			
AE	Pre-clinic	329	12.09 (2.84)	488	-1.47	0.143
	Clinic	161	12.50 (3.03)			

N: Number of students, SD: standard deviation, OLAS: Online Learning Attitude Scale, GA: General Acceptance (Sub-dimension), IA: Individual Awareness (Sub-dimension), PU: Perceived Usefulness (Sub-dimension), AE: Application Effectiveness (Sub-dimension).

In terms of university type, private university students (M= 59.70, SD=14.69) have significantly more positive attitude towards DE than public (M=56.11, SD=14.13) (t (488) = -2.68, p < 0.05). For GA, there is significant difference between private (M= 21.35, SD=4.66) and public (M= 20.19, SD=4.93) university students (t (488) = -2.61, p < 0.05). There are also significant differences in IA (private M= 15.62, SD=5.83 vs. public M= 14.40, SD=6.07) (t (488) = -2.21, p < 0.05); PU (private M= 10.39, SD=3.22 vs. public M= 9.38, SD=3.30) (t (488) = -3.35, p < 0.005) scores. There is no significant difference in terms of AE (t (488) = -0.70, p > 0.05). Results can be seen from Table 5.

Table 5. Group Differences according to University Type

Variable	University Type	N	Mean (SD)	*df*	t	*p*
OLAS	Public University	301	56.11 (14.69)	488	-2.68*	0.008
	Private University	189	59.70 (14.13)			
GA	Public University	301	20.85 (4.88)	488	-2.61*	0.009
	Private University	189	19.36 (4.54)			
IA	Public University	301	15.13 (6.09)	488	-2.21*	0.028
	Private University	189	13.25 (5.17)			

Variable	University Type	N	Mean (SD)	df	t	p
PU	Public University	301	9.95 (3.28)	488	-3.35*	0.001
	Private University	189	8.67 (3.24)			
AE	Public University	301	12.39 (2.88)	488	-0.70	0.483
	Private University	189	11.20 (2.87)			

N: Number of students, SD: Standard Deviation, OLAS: Online Learning Attitude Scale, GA: General Acceptance (Sub-dimension), IA: Individual Awareness (Sub-dimension), PU:Perceived Usefulness (Sub-dimension), AE: Application Effectiveness (Sub-dimension), *: p < 0.05.

The results for owning computer and private room can be seen in Table 6. There are significant differences between students with and without computer in terms of total OLAS score and all subdimensions. That means students with own computer have more positive attitudes towards DE. Also, there are significant differences between students with and without own room in terms of OLAS score and all subdimensions except AE. That means students with own room have more positive attitudes towards DE.

Students having own room have more positive attitudes towards DE. In OLAS (room M= 58.23, SD=14.23 vs. no room M= 53.21, SD=15.81) (t (488) = 2.72, p < 0.05), GA (room M= 20.89, SD=4.77 vs. no room M= 19.18, SD=5.11) (t (488) = 2.78, p < 0.05), IA (room M= 15.10, SD=5.96 vs. no room M= 13.51, SD=6.09) (t (488) = 2.08, p < 0.05), PU (room M= 10, SD=3.24 vs. no room M= 8.44, SD=3.40) (t (488) = 3.73, p < 0.005). However, there is no significant differences for AE (t (488) = 0.48, p > 0.05).

Table 6. Group Differences in Terms of Owning Computer and Room

Variable	Owning Computer	N	Mean (Standard Deviation)	df	t	p
OLAS	Yes	421	58.32 (14.61)	488	3.11	0.002**
	No	69	52.48 (13.35)			
GA	Yes	421	20.85 (4.88)	488	2.36	0.018*
	No	69	19.36 (4.54)			
IA	Yes	421	15.13 (6.09)	488	2.43	0.015*
	No	69	13.25 (5.17)			
PU	Yes	421	9.95 (3.28)	488	3.01	0.003**
	No	69	8.67 (3.24)			
AE	Yes	421	12.39 (2.88)	488	3.18	0.002**
	No	69	11.20 (2.87)			
Variable	**Owning Private Room**	**N**	**Mean (Standard Deviation)**	**df**	**t**	**p**
OLAS	Yes	418	58.23 (14.23)	488	2.72	0.007*
	No	72	53.21 (15.81)			
GA	Yes	418	20.89 (4.77)	488	2.78	0.006*
	No	72	19.18 (5.11)			
IA	Yes	418	15.10 (5.96)	488	2.08	0.038*
	No	72	13.51 (6.09)			
PU	Yes	418	10 (3.24)	488	3.73	0.000**
	No	72	8.44 (3.40)			
AE	Yes	418	12.25 (2.83)	488	0.48	0.629
	No	72	12.07 (3.31)			

N: Number of students, OLAS: Online Learning Attitude Scale, GA: General Acceptance (Sub-dimension), IA: Individual Awareness (Sub-dimension), PU: Perceived Usefulness (Sub-dimension), AE: Application Effectiveness (Sub-dimension), *: p < 0.05, **; p < 0.005

For SES, there are significant differences in terms of OLAS and GA, IA and PU sub-dimensions' scores. In post-hoc tests, students with BA and A SES have significantly differed from each other in OLAS and GA, IA and PU sub-dimensions. Results can be seen from Table 7 and Table 8.

Table 7. Group Differences in terms of SES

Variable	SES type	N	Mean (SD)	F	p
OLAS	BA	53	53.25 (17.12)		
	A	251	58.76 (15.03)	3.34	0.036*
	UE	186	57.49 (12.87)		
GA	BA	53	19 (5.62)		
	A	251	20.99 (4.89)	3.71	0.025*
	UE	186	20.63 (4.84)		
IA	BA	53	13.32 (6.63)		
	A	251	15.58 (6.41)	4.30	0.014*
	UE	186	14.34 (5.06)		
PU	BA	53	8.62 (3.73)		
	A	251	9.87 (3.27)	3.64	0.027*
	UE	186	9.95 (3.18)		
AE	BA	53	12.30 (3.35)		
	A	251	12.31 (2.92)	0.39	0.681
	UE	186	12.08 (2.75)		

N: Number of students, SD: Standard Deviation, OLAS: Online Learning Attitude Scale, GA: General Acceptance (Sub-dimension), IA: Individual Awareness (Sub-dimension), PU: Perceived Usefulness (Sub-dimension), AE: Application Effectiveness (Sub-dimension), BA: Below average, A: Average, UA: Upper Average, *: $p < 0.05$.

Table 8. Post-Hoc Analysis for Group Differences in terms of SES

Variable	(I) SES type	(J) SES type	Mean Difference (I-J)	Standard Error	p
OLAS	BA	A	5.51*	2.19	0.033
		UA	-3.76	2.26	0.220
	A	UA	1.76	1.40	0.423
GA	BA	A	-.1.99*	0.73	0.018
		UA	-1.63	0.75	0.78
	A	UA	0.36	0.47	0.722
IA	BA	A	-2.26*	0.90	0.033
		UA	-1.02	0.928	0.513
	A	UA	1.24	0.58	0.082
PU	BA	A	-1.25*	0.50	0.033
		UA	-1.33	0.51	0.026
	A	UA	-0.08	0.32	0.966

N: Number of students, OLAS: Online Learning Attitude Scale, GA: General Acceptance (Sub-dimension), IA: Individual Awareness (Sub-dimension), PU: Perceived Usefulness (Sub-dimension), BA: Below average, A: Average, UA: Upper Average, *: p < 0.05.

DISCUSSION

Due to COVID-19, living conditions worldwide have radically changed (1). One of the affected areas has been education. In many countries, face-to-face methods have been left in education and DE techniques have begun to be used. Considering medical education, it is known that it is important to practice with patients besides theoretical learning, but this area has also been interrupted with COVID-19. Although DE is a relatively new method, it is seen that it is not very common especially when Turkey is considered. Along with COVID-19, medical faculties, like other departments, have stopped face-to-face education. In this study, we aimed to determine the attitudes of medical students during the pandemic in Turkey towards DE.

Results showed that students have almost neutral attitude in terms of general attitude and for all sub-dimensions and did not differ significantly between pre-clinic vs clinic. However, we hypothesized that pre-clinic and clinic classes would have different attitudes towards DE. Considering that pre-clinic

students receive education based on theoretical courses, we expected that they would be less adversely affected by DE than clinic students. We thought that difficulties of clinical students, especially in continuing their internship courses, would negatively affect their attitudes towards DE. However, according to results, it can be seen that attitudes towards DE in general were not very positive. The reason why they experience the same difficulties even in theoretical courses may be the lack of knowledge and skills of trainers and technical difficulties related to DE. In study conducted by İbrahim et al. (2020), like our study, there was no significant difference between basic classes and clinical classes' attitudes towards DE. However, in this study, it was revealed that students' attitudes were generally more positive. In Al-Balas et al..'s study (2020), in which the satisfaction rates of medical students with regard to DE are low, it is not possible to compare the results exactly when it is considered that only clinical (4,5 and 6th grade) students took part.

We observed that there were negative attitudes towards DE in some questions prepared by researchers for DE. Approximately half of the students stated that DE negatively affected their academic success. In the study Karagöz et al. conducted in the period when distance education activities were just starting to be implemented, revealed that 82% of the students work less than before and they are worried about their academic success. This result supports the result of our study conducted during the period when distance education activities were actively carried out (18). Also, consistent with the current literature (11,20-22), most of the students stated that some courses or contents were not suitable and limited resources are an obstacle for DE, lack of knowledge and skills of the lecturers in DE reduces the efficiency of education. Only a few of the whole wants education to be conducted solely as DE constitute in the following years. Like our study, Al-Balas et al. (2020) found that very few of the

students stated that they would like to continue with DE solely in the future. However, they reported that they were generally satisfied with the performance of the lecturers.

In terms of advantages, most important findings were flexibility of time and place, low economic cost, easy to follow the lectures and usage of different learning techniques. Like our results, Olcay and Döş found flexibility in terms of time and space, low cost as advantages (7). In addition to this, İbrahim et al. pointed out that it is less time consuming as an advantage (11). Also, while Tuncer and Bahadır found easy to repeat the lecture and feeling more comfortable as advantages (8); Bezircioğlu et al and Ekmekçi et al found recording lectures, easy access to materials, home comfort and saving of time (19,20). DE provides a serious advantage in this respect, especially when the closure decisions taken during pandemic process disrupting education and the negative economic effects of the process. It is thought that these advantages can be turned into positive contributions in university education in the long term after the pandemic process.

For disadvantages, difficulty in focusing on screen and staying to be motivated was the first choice chosen by the students. In addition, difficulty in providing self-control related to attending classes, low interaction during learning and technological problems (such as internet) were considered for disadvantages. Especially in the post-pandemic studies, it is seen that technological problems are at the forefront disadvantages. Al-Balas et al. (2020) found that the most frequently mentioned disadvantages were weak internet connection, limitations in internet data packages and variations in education platforms. Also, Ibrahim et al. (2020) found: disadvantages such as weak internet connection, negative attitudes towards DE itself, and the unsuitability of some course contents for DE came to the fore.

In our study, similarly, although technological difficulties were stated as disadvantages, psychological disadvantages such as difficulty

in focusing on screen and being motivated and difficulty in providing self-control related to attending classes, low interaction during learning came to the fore. Although it was seen as an advantage to provide flexibility of place, it is also seen as a disadvantage that it is difficult to find a suitable place to participate in distance education. The problem of difficulty in finding a suitable place was also revealed as the biggest problem in the study of Çiftçibaşı et al. (17). It is thought that this situation may be caused by the pandemic. During the pandemic process, it was seen that not only educational activities, but also many business lines have started to remote work. In this respect, it can be thought that if there is more than one student or employee at home, the physical conditions of the house may not meet the needs of all people, and this situation may hinder synchronous education activities, especially in situations where silence and high attention are required (such as exams, quizzes, presentations). Unlike other studies, the fact that these disadvantages come to the fore can be interpreted as different solutions are required compared to other countries in terms of increasing the quality of DE or addressing disadvantages.

Not surprisingly, students having own room and computer have more positive attitudes. In terms of SES, there are significant differences between groups BA and A SES in OLAS and GA, IA and PU sub-dimensions. It is expected that those who can reach DE difficultly have less positive attitudes. There is no finding in the literature examining the relationship between having a computer and a private room and the attitude towards distance education. However, considering the factors that make distance education difficult, such as the previously mentioned connection problems and difficulty in finding a suitable place, it can be thought that people who do not have a computer or do not have a personal room may have a more negative attitude towards distance education. If DE continues to be implemented, especially by developing countries, it is important to consider students' access to maintain equal education opportunities.

It is thought that DE methods can be used more frequently due to technological developments as well as negative life events. It is seen that DE activities are not used as actively as in developed countries, especially in developing countries such as Turkey. Due to this situation, studies related to this topic in literature are very limited. In this respect, this study can contribute to the literature. In addition, considering that DE activities are being used more actively, it is important to consider the situations experienced by the students in the organization of educational activities. It is thought that this descriptive study can contribute to the literature in this respect.

There are some limitations for this study. In Turkey, there are so many DE education methods, such as only synchronous distance, asynchronous methods like videos or/and class notes and hybrid. These differences could be controlled in future studies. Also, number of pre-clinic and clinic students are not similar. Self-reported and multiple-choice questions may limit the results. If interviews or open-ended questions would be done, more broad view can be reached.

CONCLUSIONS

In conclusion, especially in developing countries, although the use of DE seems to have become widespread due to the pandemic, it is predicted that it can be used much more frequently in the long run, considering technological developments. Considering this situation, for different needs of countries, to conduct DE activities more effectively; it's thought that it would be beneficial to deal with academic, technological, psychological and economic fields in a holistic way.

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