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The Health Students' Perception of Online Education amid the COVID-19 Pandemic

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ABSTRACT

The recent COVID-19 pandemic has changed the lifestyles throughout the World. This study aims to investigate the health students' perception of online education. The field of health requires practical education. Indeed, online education has a different concept. Thus, the health students' perceptions draw attention especially during the hard time of pandemic. This quantitative study was conducted with 581 students studying a field of health in Turkey. The data from an online survey was analyzed with Kruskal Wallis and Mann-Whitney U tests. The results show that some health students see online learning platform not suitable for their fields, even though some are favor of online education with some points. There was no significant difference between the perception of female and male students. The students' perception differences were found statistically significant by faculties, classes, watching lessons live, having technology difficulties and using different device to access to online education. These findings confirmed that the sudden shift to online education made a different experience for health students. The research concludes with suggestions to design online education for any unexpected pandemic.

KEYWORDS

Online education; pandemic; health education; technology difficulties.

INTRODUCTION

World history has been reshaped with a global change affecting every field. COVID-19, which emerged towards the end of 2019, has clearly emerged from the World Health Organization's determination of it as a global pandemic on March 11, 2020. There have been frequent cases of COVID-19 in many countries around the world. It peaked in some countries. Vaccination efforts gained momentum.

Many countries around the world have begun to introduce basic rules such as social distance and the obligation to wear masks. Some countries, for example Turkey, have banned certain age ranges, mainly individuals over 65, from going out. With the increase in the number of cases, all citizens were banned from going out, except for certain groups, first on weekends and then for a week.

This situation, which societies have not been accustomed to in the last 50 years, was received differently by individuals. Social activities such as shopping, education and even worship, which were done in classical ways until before the pandemic, were limited with these new pandemic rules. Individuals and countries tried to continue their activities with different solutions to these unexpected changes. After the declaration of the pandemic in Turkey, it was decided by the Higher Education Center to conduct the remainder of the spring 2020 semester remotely.

In the field of education, in addition to face-to-face education, concepts such as education by letter, education by television, online education, distance education, and digital education have been applied in different ways in the last century (Simonson, 2016; Tadeu et al., 2019). Especially with the development of internet technologies, there are many educational institutions that provide online education. Since these educational institutions provide optional education, they are presented as an education platform that people prefer according to their situation (Baytak, 2010; Ofori-Kusi & Tachie, 2022). Although distance education has many advantages such as providing flexibility from time and space, learners learn at their own pace, it has not replaced classical education worldwide (Moore et al., 2011). However, with the pandemic, schools were not held face-to-face and online education was compulsory in all educational institutions (Adu et al., 2022; Al Lily et al., 2020; Dube et al., 2022).

Different countries around the world tried to continue education with different distance education solutions (Basilaia, 2020; Konyana & Motalenyane, 2022; Moyo et al., 2022; Shava, 2022). In primary and secondary education in Turkey, the Ministry of National Education started to give lessons for different classes over the official state television. For universities, each university has designed education systems within the framework of its own possibilities and capabilities. Some schools tried to teach their students by using content management systems such as Moodle as well as live video conferencing systems such as Zoom. However, not every educational institution was so ready for this sudden change. In addition to the lack of technological opportunities in some institutions, it faced problems such as the lack of readiness of academic staff in this field (Kilinc et al., 2018). Years before this transition, the problem that

can be experienced in the transition to distance education was mentioned (Kalimullina et al., 2021; Moore et al., 2011).

With the transition to distance education, new problems began to emerge with the transition to the field of education. It has been impossible for students who are economically disadvantaged or lacking technological opportunities such as the internet or even computers to attend online classes (Razami & Ibrahim, 2021). Students, teachers, academics and administrators who were not used to this new educational structure tried to find a solution to the problem (Owusu-Fordjour et al., 2020). In addition, the use of systems such as technological devices and online learning systems and the lack of knowledge are seen as the most important disadvantages for distance education (Grishchenko, 2020; Makura, 2022; Omodan, 2022).

Distance education was also used before the pandemic, but its advantages and disadvantages were mentioned in many studies. In the study conducted by Kirali and Alcı (2016), a significant difference was found in the distance education perceptions of the students according to the variables of owning a personal computer and using the computer in a day. However, these distance education perceptions did not show a significant difference for gender (Kirali & Alcı, 2016). Especially during the pandemic process, research has been done on the systems used in distance education (Yıldız et al., 2021). However, only the students' perceptions of content management systems were researched in the study.

LITERATURE REVIEW

In a study conducted with pre-pandemic teacher candidates in Turkey, it was found that gender, having prior knowledge about distance education, the faculty and the type of website where time was spent had a significant effect on the participants' attitude scores towards distance education (Yenilmez et al., 2017). Especially during the pandemic period, students' perceptions of distance education have begun to be examined more frequently. In another study conducted in Turkey by Savaş (2021), it was revealed that students have problems focusing on distance education according to gender, physical activity, type of university and faculty. Similarly, in a qualitative study conducted with health students, some problems such as computer and internet connection were mentioned (Baykal et al., 2022). However, there is no quantitative research on the perceptions of students studying in the field of health about distance education reaching large masses.

In the research conducted in India, especially internet access was seen as the biggest obstacle. According to the researchers, it has been observed that the students lag behind the lessons because the internet required for watching the lessons and uploading the homework is not provided by the students. In addition, in this study, it was claimed that the length of online courses caused students to focus on problems (Deshpande & Mhatre, 2021).

Especially after breakout of COVID-19, it has become inevitable to conduct health education remotely. For those who do academic studies in the field of health education and

distance education, the use of distance education in the field of health and the sharing of experiences has accelerated (Tzivinikou et al., 2021).

Almoayad and colleagues (2020), a study in Saudi Arabia, investigated the learning experiences and anxiety levels of students during the sudden shift to virtual learning in response to COVID-19. This study found a significant negative correlation between student anxiety levels and their perceptions of responsibility and independence in learning. Student anxiety levels during the sudden shift to online learning moderately influenced student perceptions of independence and responsibility in their learning as well as learning goal achievement (Almoayad et al., 2020). In another study in Saudi Arabia, among 281 health science students, overall 62% of the students expressed their satisfaction with online learning (Aziz Ansari et al., 2021).

A qualitative study in Morocco during the pandemic surveyed 3037 students and 231 professors enrolled in different stages of higher education programs. The study aimed to investigate the limitations of e-learning platforms and how these activities take place at public and private Moroccan universities during the coronavirus confinement. The results of the study showed that both professors and students expressed that online learning is not more interesting than ordinary learning and professors need to provide at least 50% of their teaching in face-to-face mode. This study also showed that students are not satisfied with the distance learning provided by the professors because of technical challenges, Internet connection issues, availability of platforms, and lack of digital skills (Elfirdoussi et al., 2020).

In another study done with undergraduate students in an Indian university, the researchers found that the students claimed to learn better in physical classrooms and by than through online education. Indeed, they think that online education is stressful and affecting their health and social life. However, the students also think that the professors had improved their online teaching skills and online education was useful for the pandemic. The students appreciated the software and online study materials being used to support online education (Chakraborty et al., 2021)

Baczek et al (2021) evaluated Polish medical students' perception of online learning during the pandemic. The students listed the advantages of the online learning as the ability to stay at home (69%), continuous access to online materials (69%), learning at your own pace (64%), and comfortable surroundings (54%). However, the participants of the study also listed some disadvantages of online learning as lack of interactions with patients (70%) and technical problems with IT equipment (54%). This study found no statistical difference between face-to-face and online learning in terms of opinions on the ability of the learning method to increase knowledge (Baczek et al., 2021).

A recent study in Malaysia show that the students preferred blended format, a combination of both online instruction and physical instruction as a future learning method. The students listed interaction, concentration and motivation as the most common difficulties they encountered (Razami & Ibrahim, 2021).

A similar study conducted with 704 students of health-related higher education in Brazil Show that most of the students agreed with having the ability to continue education through distance learning, but relatively few of them enjoyed it. The participants of this study were also concerned about learning of clinical material and professional training and fear of failing the year of education (Peloso et al., 2020).

A study conducted with medical students in Jordan investigated students' attitudes toward online learning based on gender and fields. The study shows that male students had more positive attitudes toward online learning. In addition, the students from Pharmacy fields expressed higher attitudes towards online learning compared to students from either PharmD or Medical fields (Muflih et al., 2021). A study conducted with students in Greek department of Early Years Learning & Care investigated the factors that influence learners' perceptions and attitudes during distance learning. The findings show the importance of role of the educator and technical support (Vasiliki et al., 2021). Similarly, a study conducted in Germany showed that among 559 students, there was no correlation between study engagement and pandemic-related demands. However, the correlation between students' concerns about their economic stability and study engagement was found significant (Koob et al., 2021).

A broad study conducted with 1255 participants belonged to 11 countries showed that more than half of the medical students (60%) considered that clinical and practical skills are best learned in clinics and laboratories (Abbasia et al., 2020). Some of the students preferred classroom teaching and did not feel confident enough to take exit exams after e-learning sessions. This study revealed that the participants' e-learning satisfaction levels were better among developed countries (7.34) compared to developing countries (5.82). Even though most of the students were satisfied with acquiring knowledge, most did not see e-learning as an effective way in acquiring clinical and technical skills.

Distance education has been used more frequently as a necessity during the pandemic process. Since distance education was not a necessity before the pandemic, the perspectives of the participants differed. In some studies conducted in this field, distance education has been accepted as a change and students' perspective or resistance to this change has been examined. Resistance to change can take two forms: open or covert resistance. Overt resistance manifests itself in unconcealed actions and can be positive if managed correctly. Covert resistance includes behaviors that prevent change efforts (Caruth & Caruth, 2013). In this context, the resistance of university students to the transition to distance education has been examined (Genç, 2020). In the study, students' resistance levels to change were determined at a moderate level. According to another finding of the research, although university students think that distance education is instructive, they think that distance education is not very suitable for them and they are not inclined to distance education. In addition, this study showed that attitudes towards distance education differ according to gender. In the study, it was found that male students thought that they were more inclined to distance education than female students. Distance education

susceptibility levels of students show a significant difference according to the department they are studying (Genç, 2020).

The fact that this study is carried out with students in the field of health, that they are health workers candidates who stand at the forefront of the intervention against COVID-19, and that it is one of the fields that require physical application makes this study important. In addition, distance education in risky areas such as health has been a situation that is generally not preferred. However, examining the usage experiences of this student population in the use that emerged after the necessity is important for the future and shaping of distance education.

METHOD

Research Design

The current study followed a quantitative research design which employed a questionnaire to university students to test whether there were any statistically significant results between the groups based on gender, students' faculty, having technology difficulties, accessing online lessons. This quantitative study was applied in the spring semester of the 2020-2021 academic years in Turkey.

Population and Sampling

The sample of this study consists of students in the health education. Health education at university level in Turkey is given in four different faculties. Medical faculties are faculties that train doctors. Dentistry faculties are units that train dentists. Faculties of Health Sciences train students in fields such as 4-year nurses and physiotherapy or dietitian. Health Services Vocational Schools, on the other hand, are 2-year educational institutions that train auxiliary health personnel such as opticians, audiometry or surgery services. Within the scope of this study, students from these four different faculties participated in the study.

The determination of the participants consists of the students who voluntarily participated in the research after the announcement of the participation through messaging groups. Convenient sampling method was used in this research. In this method, the researchers can easily reach the group and the group is ready for the application.

The Instrument

The instrument applied within the scope of the study consists of two separate parts. In the first part of the questionnaire, demographic information about the participants was analyzed, and in the second part, the participants' perspectives on online education were analyzed. In the demographic part of the survey, gender, class, faculty, technology connectivity, device used for school, access problem and following course videos are listed. The second part of the questionnaire consists of 21 questions developed by Gündüz (2013) and the Cronbach Alpha internal reliability coefficient of the scale was stated as 0.84. These questions consist of Likert Scale questions and the answers are ranged from "strongly disagree" (1) to "strongly agree" (5). No personally identifiable information was collected.

Data Collection

An online questionnaire was applied to collect data due to COVID-19 constraints, lockdowns, and social distancing applied throughout the country at the time of the study. The questionnaire was administered in Turkish.

Data Analysis

The data collected online were saved on Excel and then transferred to the SPSS (version 21) program. The demographic characteristics of the participants were reflected with the descriptive analyzes. In this test of normality, the data do not show a normal distribution. Thus, Kruskal Wallis and Mann-Whitney U tests were implemented for the differences between the groups. Mann-Whitney U test was used to evaluate the perspectives on distance education according to the gender of the participants and the technical problems experienced. The Kruskal Wallis test was used to analyze the difference in the perspective of distance education according to the faculty, the device used and the monitoring of the course. The survey test results were analyzed for the factor analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was found 0,965, and then exploratory factor analysis was preceded. The Bartlett's test of sphericity was also found significant ($p < 0.05$).

FINDINGS

The data obtained within the scope of this study were examined with statistical analyzes. The findings were categorized according to descriptive and independent variables. The results of these analyzes are presented below.

As part of this study, the participants were asked about their genders, university class, and faculty, the device to connect the online courses, technology difficulties and accessing course platform. The data was analyzed as descriptive analysis.

According to the findings, female students attending the first year constitute the highest majority. Likewise, 2nd year female students come second with 27.5%. Then the male students who go to the 1st grade come next. The number of students going to other classes constitutes a small part of the participants. When the distribution of the participants according to the faculties is analyzed, 46.0% female and 15.3% male attended from Vocational School of Health Services. The proportion of students attending the Faculty of Dentistry is 16.4% (10.5% female and 5.9% male). The proportion of medical school students participating in the study was 16.2% (9.3% female and 6.9% male). The lowest rate of participation in the study was 6.2% for the students of the Faculty of Health Sciences.

Table 1. Descriptive analysis of the participants' demographic information by gender

		Gender			
		Female		Male	
		Count	Total N %	Count	Total N %
Class	1	223	38.4%	79	13.6%
	2	160	27.5%	70	12.0%
	3	9	1.5%	9	1.5%
	4	22	3.8%	9	1.5%
Faculty	Vocational School of Health Services	267	46.0%	89	15.3%
	Faculty of Dentistry	61	10.5%	34	5.9%
	Faculty of Health Sciences	32	5.5%	4	0.7%
	Medical School	54	9.3%	40	6.9%
Access Device	Computer	105	18.1%	60	10.3%
	Smart phone	288	49.6%	94	16.2%
	No Access	15	2.6%	9	1.5%
	Tablet	6	1.0%	4	0.7%
Technology Difficulty	No	85	14.6%	46	7.9%
	Yes	329	56.6%	121	20.8%
Zoom Live	Live	184	31.7%	79	13.6%
	Recordings	187	32.2%	69	11.9%
	Didn't Watch	40	6.9%	16	2.8%

When the participation rates of the participants in the course materials are examined, more than half of the participants (49.6% women and 16.2% men) are connected with smartphones. The rate of participants using their computers was found to be 28.4%. However, it was revealed that some of the students could not reach the course materials (2.6% female and 1.5% male). One of the most important findings in this study was that 77.4% of the participants (56.6% women and 20.8% men) stated that they had technological difficulties in accessing the course materials. While 45.3% of the participants watched the lessons live via Zoom, 44.1% watched the lessons from the recordings. However, 9.7% of the participants never watched the lectures.

The scale used in this study was examined in detail. The total scores based on gender, class, faculty, technology difficulties and the device used were also analyzed. The following table presents the descriptive statistics of the questionnaire for each item.

Table 2. Descriptive statistics of survey items

	N	Min	Max	Mean	Std. Dev
1. Online education is more effective than face-to-face education.	581	1	5	1.91	1.218
2. The department I am studying can accept students via online education.	581	1	5	1.85	1.149
If my 3rd department had a online education option, I would prefer it.	581	1	5	1.93	1.273
4. I would like to take some of my lessons through online education before I come to school.	581	1	5	3.10	1.524
5. Online education provides equal opportunity.	581	1	5	1.92	1.205
6. Online education is not interesting.	581	1	5	3.73	1.306
7. Online education provides permanent learning with the flexibility to repeat as much as desired.	581	1	5	2.80	1.402
8. The reliability of exams made through online education is high.	581	1	5	2.19	1.326
9. The absence of time and place restrictions in online education increases the continuity of education.	581	1	5	2.65	1.396
10. Face-to-face interaction is necessary for the best training to take place.	581	1	5	4.08	1.213
11. Online education enables students to learn from quality teachers.	581	1	5	2.30	1.261
12. Online education provides lifelong learning.	581	1	5	2.54	1.405
13. Online education is more effective than face-to-face education in preparation for exams such as KPSS, TUS, DUS, DGS.	581	1	5	2.34	1.185
14. Online education is more effective in foreign language education than face-to-face education.	581	1	5	2.24	1.071
15. Open Education Faculty (OEF) students graduate with sufficient knowledge and skills.	581	1	5	2.35	1.279
16. In the following years, online education will take the place of formal education.	581	1	5	2.58	1.362
17. In Turkey, education can be given to larger masses through online education.	581	1	5	3.15	1.336
18. As technology develops, online education will be used more widely.	581	1	5	3.59	1.207
19. Students' motivation levels are low in online education.	581	1	5	3.04	1.255
20. My online exam results are higher than my face-to-face exam results.	581	1	5	4.22	1.150
21. Face-to-face interaction is necessary for my education to take place in the best way possible.	581	1	5	4.22	1.150
Total	581	20	86	54.49	12.052
Valid N (listwise)	581				

The descriptive statistics show that the second item of the survey 'The department I am studying can accept students via online education.' has the lowest score as 1.85. Similarly, 'Online education is more effective than face-to-face education.' item has the second lowest scores as 1.91. However, 'My online exam results are higher than my face-to-face exam results.' and 'Face-to-face interaction is necessary for my education to take place in the best way possible.' items have the highest scores as 4.22 in average. Overall, the findings show that the participants' perspective on online education was found to be medium.

Table 3. Differences between perception results based on gender and technology difficulties

		N	Mean Rank	Sum of Ranks	Mean	Mann-Whitney U	p
Gender	Female	414	282.66	117023.00	53.86	31118.0	.059
	Male	167	311.66	52048.00	56.05		
	Total	581			54.49		
Technology Difficulties	No	131	404.96	53049.50	63.24	14546.5	.000
	Yes	450	257.83	116021.50	51.94		
	Total	581			54.49		

The statistical test results indicated that there is no a statistically significant difference between the total test survey score of female and male students, $U(N_{Female}414, N_{Male}167)= 31118.0$, $z=-1.885$, $p>0.05$. Male participants (Md=56.05) have higher mean scores than female participants (Md=53.86).

The online courses require at least some technical skills to access the lessons. A Mann-Whitney U test was used to find the differences between the students who have technology difficulties and who did not have difficulties. The findings indicated that there is a statistically significant difference between the total test survey score of students who have and who do not have Technology Difficulties, $U(N_{NoTD}131, N_{TD450})= 14546.5$, $z=-8.83$, $p<0.05$. The participants who have no technology difficulties (Md=63.24) have higher mean scores than the other group (Md=51.94).

There were four health faculties and this research assessed the test scores differences between the faculties. The Kruskal-Wallis test revealed a statistically significant difference in total test survey score across the four faculties, $\chi^2(3, N=581)= 54.978$, $p<0.05$. The test scores were the highest for the faculty of Faculty of Dentistry (*Md*=62.39) among other faculties.

A Kruskal-Wallis test revealed a statistically significant difference in total test survey score across the four classes, $\chi^2(3, N=581)=16.134$, $p<0.05$. The test scores were the lower for the sophomore students (*Md*=53.81) comparing to other classes.

Table 4. Differences between perception results based on faculty, class, watching lessons and device to access lessons

		N	Mean Rank	Mean	Kruskal Wallis Test	df	*p*
Faculty	Vocational School of Health Services	356	260.78	52.33	54.978	3	.000
	Faculty of Dentistry	95	402.94	62.39			
	Faculty of Health Sciences	36	317.49	55.69			
	Medical School	94	282.18	54.24			
	Total	581		54.49			
Class	1	302	283.64	54.00	16.134	3	.001
	2	230	281.06	53.81			
	3	18	385.64	60.39			
	4	31	381.52	60.94			
	Total	581		54.49			
Watching lessons	Live	263	329.84	57.54	44.125	2	.000
	Recordings	256	268.80	53.01			
	Didn't Watch	56	179.26	46.71			
	Total	575		54.47			
Device to Access lessons	Computer	165	338.25	58.30	29.595	3	.000
	Smart phone	382	275.15	53.17			
	No Access	24	181.25	46.75			
	Tablet	10	380.40	60.70			
	Total	581		54.49			

Because of the pandemic, the students were not able to attend the class physically. The classes were taught through Zoom software live and then the recordings were posted online to be accessed anytime. This research also analyzed how the students followed the lessons. A Kruskal-Wallis test revealed a statistically significant difference in total test survey score across the three groups, $\chi^2(2, N=575) = 44.125$, $p<0.05$. The test scores were the lower for the students who watched the lessons live (*Md*=53.81) comparing to other groups.

In order to access the course materials, the students may use computers, smart phones or tablets. This research conducted a Kruskal-Wallis test to test if there is any difference between test scores of the group based on the access devices. The findings revealed that there is a statistically significant difference in total test survey score across the three groups, $\chi^2(3,$

N=581)= 29.595, p<0.05. The test scores were the lower for the students who do not have access the lessons (*Md*=46.75) comparing to other groups.

DISCUSSION

The aim of this study is to examine the perception of online education of university students studying in the field of health. For this purpose, the data obtained were interpreted with statistical analysis. The findings of this study show that first-year female students constitute the highest majority. Within the scope of the study, the fact that the vocational high school of health services, which provides 2-year education, has many participants, the density of the participants in this study is concentrated in the first 2 classes.

Overall, the findings show that the participants' perspective on online education was found to be medium. Participants believe that the faculty they have study is not suitable for online education, but stated that their grades in online education have increased. This could be the sudden shift to online education. This shift was also appeared in study Almoayad et al. (2020). This findings of this study is also support the previous studies that students are happy with online education but not finding adequate for their field **(**Abbasia et al, 2020; Baczek et al., 2021; Chakraborty et al., 2021; Elfirdoussi et al., 2020; Genç, 2020; Peloso et al., 2020).

The findings of this study show that there is no a statistically significant difference between the total test survey score of female and male students. This finding is parallel to previous studies (Kirali & Alcı, 2016; Muflih et al., 2021) but different than another study **(**Yenilmez, et al., 2017). Similar to a previous study by Muflih and colleagues (2021), this study also shows that male students had more positive attitudes toward online learning. The differences between genders could be technology skills between male and female. Further studies could also study attitudes toward online learning based on students' technical skills and gender.

This finding also revealed a statistically significant difference in total test survey score across four faculties. The test scores were the highest for Faculty of Dentistry among other faculties. This finding is similar to previous studies (Genç, 2020; Muflih et al., 2021; Yenilmez et al., 2017). The content of the courses taught in each faculty vary. These differences may affect their attitudes toward online learning. Thus, the structure of the online courses should be based on content of the course.

The findings show that there is a significant difference in total survey score across the four classes. The test scores were the lower for the sophomore students have the lowest scores. The differences can have several reasons but this student groups started with face-to-face education and then took online courses after the outbreak of the pandemic. The resistance against the change may affect this attitude toward online education as it was found in the previous studies (Caruth & Caruth, 2013; Genç, 2020).

The findings show that watching lessons live through video conferencing tool affect students attitudes toward online learning. There was a statistically significant difference

between groups based on following lessons. The test scores were the lower for the students who watched the lessons live comparing to other groups. This finding was not studied in the previous researches. Thus, this results can help educators design their lesson accordingly and the research to investigate the cause of this findings.

The findings indicated that there is a statistically significant difference between the survey score of students who have and who do not have Technology Difficulties. The participants who have no technology difficulties have higher mean scores than the other group. Similar to these finding, previous studies highlighted the importance of role technical support and skills (Baczek et al., 2021; Elfirdoussi et al., 2020; Grishchenko, 2020; Vasiliki et al., 2021).

The findings show that there is a statistically significant difference in the total survey score between the groups of the device usage. As it could be expected, the test scores were the lowest for the students who do not have access the lessons. Students with no adequate device to access the course materials may feel lag behind the class and this could affect their attitudes toward online education (Armstrong-Mensah et al., 2020).

As in any research, there are some limitations in this research as well. Since this study was conducted during the pandemic period, data collection was developed only online. The social and academic abnormalities experienced by the participants during the pandemic may have been reflected in the answers given to this questionnaire.

CONCLUSION

In conclusion, this study found that the health students' perceptions on online education were found to be medium. Even though some are favor of online education with some points, some see this type of learning platform suitable for their fields. There was no significant difference between the perception of female and male students but male students had higher perception scores of online learning. This study also shows that there is a significant difference of perceptions between the faculties. The test scores were the highest for Faculty of Dentistry among other faculties. It also revealed that there is a significant difference of perceptions across the four classes. The test scores were the lower for the sophomore students have the lowest scores. The findings show that watching lessons live through video conferencing tool affect students attitudes toward online learning. There was a statistically significant difference between groups based on following lessons. This study also confirmed that having technology difficulties could a significant effect of their perception of online learning. Indeed, using different device to access to online education also has a statistically significant difference on the perception scores.

With the COVID-19 pandemic, lockdown, which suddenly entered the life of today's society, has made changes in the field of education compulsory. Online education, which was only an option before the pandemic, has become a mandatory choice. Thanks to the developing technological opportunities, educational institutions had the opportunity to conduct their education online during this pandemic process. The perceptions of students studying in health

education, which is an applied field, on online education are important. It is expected that the findings obtained in this study will guide future studies and educators. At the time this study was written, the COVID-19 pandemic was alleviated around the world and the lessons were started to be held face-to-face again. However, it is possible for different pandemics to emerge throughout the world. Thus, the findings of this study are expected to be a guide for what should be done in future pandemics.

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