



# Opinions of Students Studying in Associate Degree Health-Related Departments Requiring Professional Practice and Skills toward Web-Based Distance Education during the Pandemic: A Cross-Sectional-Descriptive Study

Canan Sarı<sup>1</sup>, Leyla Adigüzel<sup>2</sup> and Birsal Canan Demirbağ<sup>2,\*</sup>

<sup>1</sup> Trabzon University, Tonya Vocational School, Elderly Care Program, Department of Health Care Services, Trabzon, Turkey

<sup>2</sup> Karadeniz Technical University, Faculty of Health Sciences, Department of Nursing, Trabzon, Turkey

\* **Corresponding author:** Birsal Canan Demirbağ, Karadeniz Technical University, Faculty of Health Sciences, Department of Nursing, Trabzon, Turkey. Tel: +9004622300476; Email: cdemirbag@gmail.com

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## Abstract

**Background:** The COVID-19 pandemic has affected all sectors of society, especially education. However, the negative effects are even higher on the students who study in an associate degree program in the field of health for two years.

**Objectives:** This study aimed to explore the opinions of students studying in an associate degree program in health-related departments with skill-based requirements towards web-based distance education during the pandemic.

**Methods:** This descriptive cross-sectional study was conducted on students who received associate degree education in home care, elderly care, physiotherapy, and first and emergency aid departments of a vocational school. The study data were collected from 264 volunteer students studying at vocational schools using the online questionnaire developed by the researchers.

**Results:** The study revealed that 72% of the students did not consider web-based distance education as the right education method during the pandemic, 95.8% did not find the opportunity to care for/touch patients during their education, and 74.8% were afraid of working after graduation due to the possibility of malpractice (61.4%).

**Conclusion:** Based on the study results, it was determined that students studying in departments with skill-based requirements in the field of health had a negative perspective on web-based distance education.

**Keywords:** COVID-19, Online learning, Perception, Student

## 1. Background

COVID-19 disease that was first appeared in Wuhan city of China, spread on December 31, 2019, rapidly to many countries, especially in Europe, and was declared a pandemic by the World Health Organization (1). After March 10, 2020, when the first case of COVID-19 was confirmed in Turkey, the case and death rates gradually increased, and until April 21, 2021 (with the completion of the third wave of a pandemic), 61,500 cases of infection were recorded, with 346 cases of death (2). The COVID-19 pandemic has had negative effects mainly on people's physical and mental health, lifestyles, and work areas (3).

The negative effects of the pandemic have been also reflected in the field of education (4). Many countries across the world have imposed a series of prevention measures to control the spread of the virus, impose social distancing, break the chain of transmission, reduce the rate of spread in the society, and protect public health (5-8). Emergency instructions were developed in line with these measures, and schools, universities, and other educational institutions were temporarily closed in many countries, including Turkey (9-11). On March 25, 2020, schools and educational institutions were temporarily closed for the first time in Turkey. They have reopened afterward thanks to decreased

number of cases. However, due to the rapid spread of the third wave of the pandemic, it was decided to close the schools again on April 15, 2021 (12).

Due to the uncertainty caused by the pandemic, the closure of educational institutions ended the face-to-face education model, and the web-based distance model of education was implemented accordingly (13). The web-based distance education model is a method in which communication is provided from a specific center in places where traditional education cannot be carried out for various reasons (14). This model, applied as an alternative to the face-to-face education model, has advantages, including the elimination of the concepts of time and space, provision of the opportunity to watch the lessons again, attending lessons in a quieter environment than classroom environment, and the ability to take notes (13-15). However, during distance education, the quality of the education was adversely affected due to the lack of equipment, such as computers and the internet that could ensure the continuity of education, the low quality of internet, and lack of infrastructures required for the departments with skill-based requirements (16). This situation negatively affected the practical skill acquisition of students studying in health-related departments, where the main focus was on humans, as well as clinical and laboratory applications (7, 13, 14).

Studies on the attitudes of students who were studying in the field of health towards web-based distance education were mainly focused on nursing, dentistry, and medical faculty students studying four years at the undergraduate level (7, 15-21). It should be noted that studies evaluating the views and thoughts of associate degree students studying in health departments of universities on web-based distance education during the COVID-19 pandemic are quite limited in the literature (22).

## 2. Objectives

Considering the fact that the pandemic has been going on for about one and a half years, it is clear that students who receive associate degree education in the field of health will graduate without acquiring clinical skills, laboratory practice, summer internship, or even touching a patient. In the future, this situation will create problems since these students will have to give care to patients in risky groups while they lack enough practical skills, approach the patient with fear, do not know the team spirit, cannot use their critical thinking or critical decision-making skills. Therefore, this study was planned to determine the opinions of students studying in associate degree health-related departments requiring professional practice and skills towards web-based distance education during the pandemic.

## 3. Methods

### 3.1. Type of Study

This descriptive cross-sectional study was carried out during the COVID-19 pandemic and aimed to determine the views of students on web-based education in this period.

### 3.2. Study population

The study population included 335 students studying at Home Care, Elderly Care, Physiotherapy, and First and Emergency Aid departments in the spring term of 2020-2021, in a vocational school of a rural region in the province of Trabzon, east of Turkey. The aim was to reach all students without sampling. The study was completed with 264 (%78.8) students who were willing to continue participation in the study.

### 3.3. Data collection

Following the reception of the necessary written permission from the relevant institutions, an online questionnaire (i.e., a Google Form) was prepared by the researchers to collect the students' data. The form was then sent to the students via e-mail and an android phone application. The required data were then collected from the completed questionnaires and sent back by the volunteered students between March 24, 2021, and April 31, 2021.

### 3.4. Participant information form

The data collection tools were created by the researcher following the review of literature and observation of the problems encountered in web-based education (6, 21-41). The form included 48 items, and the first 10 items involved descriptive data, such as age, gender, department, class, graduation from high school, family type, having a room of one's own, and being a distance education student at home. The other 38 items included the students' views on the materials used for distance education, quality of internet, quality of the education provided, difficulty in doing homework, the sufficiency of exam evaluation, and fear of working after graduation.

### 3.5. Data collection tools

The data were collected using the "Participant Information Form" including items about the socio-demographic characteristics of participants and their attitudes toward web-based distance education.

### 3.6. Ethical considerations

Institutional permission was granted by Tonya Vocational School Directorate of Trabzon University (dated 10.03.2021), and the study protocol was approved by the Ethics Committee of Trabzon University (dated 22.03.2021; No. E 81614018-000-289). Informed written consent was obtained from the students, and only those who completed the consent form (the first part of the data collection questionnaire) were able to continue the survey. Moreover, participation in the study was based on willingness.

### 3.7. Statistical analysis

The data were analyzed using SPSS software (Version 23) through a Chi-square test to compare the relationship between students' demographic variables and their opinion of the web-based distance education model as a correct method of education. Descriptive data of students' socio-demographic characteristics, including their age, gender, and educational status were presented as numbers (n), percentages (%), and mean±SD. The data were evaluated at a confidence level of 95%, and a p-value less than 0.05 ( $P < 0.05$ ) was considered statistically significant.

## 4. Results

In total, 73.9%, 78.8%, 35.2%, 52.3%, 31.8%, and 58.3% of participants were in the age range of 18-20, female, first-year students, lived in the city center, had income equal to their expenses, and studied in the first and emergency aid program, respectively. Moreover, 50.4%, 75.4%, 62.5%, and 70.9% of the students were high school graduates in a health-related subject who had a nuclear family, a room of their own at home, and at least one more person who received web-based distance education at home, respectively (Table 1).

**Table 1.** Sociodemographic characteristics of the students (n=264)

	N	%
Mean age	(Min-Max: 18-28) Ort±SD: 19.84±1.33	
<b>Age</b>		
18-20	195	73.9
21-28	69	26.1
<b>Gender</b>		
Male	56	21.2
Female	208	78.8
<b>Place of residency</b>		
City center	93	35.2
Town	95	36
Village	76	28.8
<b>Income level</b>		
Income less than expenses	90	34.1
Income equal to expenses	138	52.3
Income more than expenses	36	13.6
<b>Department</b>		
Elderly care	75	28.42
Physiotherapy	74	28.03
First and emergency aid	84	31.81
Home care	31	11.74
<b>Class</b>		
1st class	154	58.3
2nd class	110	41.7
<b>Previously graduated high school</b>		
Health-related department at high school	133	50.4
Other high schools	131	49.6
<b>Family type</b>		
Nuclear family	199	75.4
Extended family	55	20.8
Divorced family	10	3.8
<b>Having a room of their own at home</b>		
Yes	165	62.5
No	99	37.5
<b>Being at least one more person who received web-based distance education at home</b>		
Yes	187	70.8
No	77	29.2
<b>If your answer is yes, define who this person is*</b>		
Brother/sister	42	19.8
Other	171	80.2

\*: Multiple options are marked

Only 30.3% of the students in the study were taught about logging into the system and uploading of those who received training on these subjects did not find it sufficient. In addition, 62.4%, 59.5%, and 76.9% of the students followed the lessons using smartphones, found the internet quality to be moderate, and believed that web-based education during the pandemic decreased the quality of education (Table 2). Furthermore, 72% of the students did not consider web-based distance education to be the right method and argued that it could not improve manual skills for the departments requiring skill-based practices (42.7%). It is worth mentioning that 58.7% of the students had difficulty doing assignments during this period, and their greatest challenge involved the lack of a computer to prepare their assignments despite their search for a computer (35.4%) (Table 2). Moreover, 84.1% of the students faced problems during distance education, 35.8% of whom had difficulty participating or continuing to participate in online courses, and 59.5% questioned the fairness of exams in this period (Table 3). In total, 95.8% of the participants did not have the opportunity to care, work, and perform an emergency practice or touch any

assignments and exams before the start of web-based education during the COVID-19 pandemic, and 41.3% patient during their associate degree education program in the COVID-19 pandemic; therefore, 74.8% of the students were afraid of working after graduation. It was determined that the possibility of malpractice at work was the biggest fear of the students after graduation (61.4%), and they believed that a face-to-face education and laboratory practice should be carried out with the instructor to overcome this fear (33%). In addition, 81.4% of the students did not prefer to receive web-based distance education if it was not for the COVID-19 pandemic, and 39% thought about an academic freeze or repetition of courses due to the difficulties coping with the pandemic (Table 3).

No statistically significant differences were observed between the gender, income level, department, class, education level of participants, and their attitudes toward web-based distance education as the right education method in the COVID-19 pandemic for the departments that required skill-based practices ( $P>0.05$ ). A statistically significant difference was found between the students' age ( $P<0.006$ ), the quality of internet service ( $P<0.002$ ),

**Table 2.** Students' opinion on web-based distance education during the COVID-19 pandemic (n=264)

	N	%
<b>Students in the study were trained about logging into the system</b>		
Yes	80	30.3
No	184	69.7
<b>If the answer is yes, find the training given sufficient</b>		
Yes	47	58.7
No	33	41.3
<b>Devices used following the lessons</b>		
Smartphones	208	62.4
Computers	114	33.7
Tablets	16	4.9
<b>Quality of the internet</b>		
Low	74	28
Moderate	157	59.5
High	33	12.5
<b>Quality of the education decreased during this period</b>		
Yes	203	76.9
No	61	23.1
<b>Consider web-based distance education as the right method</b>		
Yes	70	28
No	194	72
<b>The reason for not being the right method *</b>		
Difficulty understanding practical skills	93	29.8
Difficulty envisioning practical skills	86	27.5
Lack of manual skills for the departments requiring skill-based practices	133	42.7
<b>Difficulty doing assignments during this period</b>		
Yes	155	58.7
No	109	41.3
<b>Difficulty doing homework *</b>		
Not knowing how to do research	56	26.7
Not having a computer or tablet to research	34	16.4
Not having a computer to prepare their assignments even after searching for it	74	35.4
Inadequate internet	45	21.5

\*: Multiple options are marked

**Table 3.** Students' views on web-based distance education during the COVID-19 pandemic (n=264)

	N	%
<b>Facing problems in distance education</b>		
Yes	222	84.1
No	42	15.9
<b>If yes, what was the issues/problems*</b>		
Understanding practical lessons	133	28.9
Participating or continuing participation in online courses	165	35.8
Homework/exam upload	110	23.9
Taking the exam	52	11.3
<b>Finding the exams fair in this period</b>		
Yes	107	40.5
No	157	59.5
<b>Having the opportunity to care, position, perform an emergency practice or touch any patient during their associate degree</b>		
Yes	11	4.2
No	253	95.8
<b>Fear of working after graduation</b>		
Yes	192	74.8
No	61	25.2
<b>What frightens students most after graduation*</b>		
Touching the patient	19	5.9
Malpractice at work	195	61.4
Being considered incompetent due to the lack of practical skills	104	32.7
<b>Approaches for compensating for the lack of practical application skills caused by these fears *</b>		
Face-to-face education and laboratory practice with the instructor to overcome this fear	69	33
Taking an internship at any institution or working for at least one month for free	59	28.2
Watching videos and trying what is described in these videos on family or acquaintances	30	14.3
I have no idea	29	13.8
Attending courses and/or symposiums	12	5.7
Other**	10	4.7
<b>Preferring to receive web-based distance education during education in the absence of COVID- 19 pandemic</b>		
Yes	49	18.6
No	215	81.4
<b>Believing in academic freeze or repetition of courses due to the difficulties in coping with the pandemic</b>		
Yes	103	39
No	161	61

\*: Multiple options are marked

Other\*\*: Praying for the opening of schools, coping with courage, extending the school and choosing another profession.

**Table 4.** Student's opinion about web-based distance education regarding their general characteristics, views, and thoughts (n=264)

	Web-based distance education as the right method of education		P-value*
	Yes	No	
	n (%)	n (%)	
<b>Gender</b>			
Female	53	155	$\chi^2$ :0.317
Male	17	39	P:0.573
<b>Age</b>			
18-20	43	152	$\chi^2$ :7.630
21-28	27	42	P:0.006
<b>Income level</b>			
Less than expenses	24	66	$\chi^2$ :0.415
Equal to expenses	38	100	P:0.812
More than expenses	8	28	
<b>Department</b>			
Elderly care	18	57	
Physiotherapy	27	47	$\chi^2$ :5.726
First and emergency aid	17	67	P:0.126
Home care	8	23	
<b>Class</b>			
1st class	35	119	$\chi^2$ :2.722
2nd class	35	75	P:0.099
<b>High-school graduated</b>			
Health-related department at high school	33	100	$\chi^2$ :0.399
Other high schools	37	94	P:0.528
<b>Quality of the internet</b>			
Low	10	64	$\chi^2$ :12.867
Moderate	45	112	P:0.002
High	15	18	
<b>Being educated about logging into the system</b>			
Yes	28	52	$\chi^2$ :4.241
No	42	142	P:0.039
<b>Quality of the delivered education decreased</b>			
Yes	31	172	$\chi^2$ :57.000
No	39	22	P:0.001
<b>Having difficulty doing assignments during this</b>			
Yes	20	135	$\chi^2$ :35.699
No	50	59	P:0.001
<b>Facing problems in distance education</b>			
Yes	40	180	$\chi^2$ :47.046
No	30	14	P:0.001
<b>Finding the exams fair in this period</b>			
Yes	45	62	$\chi^2$ :22.302
No	25	132	P:0.001
<b>Being afraid of working and touching the</b>			
Yes	34	169	$\chi^2$ :51.535
No	36	25	P:0.001
<b>Thinking about an academic freeze</b>			
Yes	8	95	$\chi^2$ :30.468
No	62	99	P:0.001
<b>Thinking about a repetition of courses</b>			
Yes	11	92	$\chi^2$ :21.736
No	59	102	P:0.001

the training about logging into the system and uploading assignments and exams before the start of web-based education program ( $P<0.039$ ), thinking that the quality of education decreased with the web-based education ( $P<0.001$ ), difficulty doing assignments during this period ( $P<0.001$ ), believing in the fairness of exams in this period ( $P<0.001$ ), and their opinion on web-based distance education during COVID-19 pandemic as a right education method for the departments that required skill-based practices ( $P<0.05$ ). In addition, a statistically significant difference was also found among facing problems in distance education ( $P<0.001$ ), being afraid of working and touching the patient after graduation ( $P<0.001$ ), recommending an academic freeze or repetition of courses during the pandemic ( $P<0.001$ ), and their attitudes towards web-based

distance education as a right method for departments requiring skill-based practices ( $P<0.05$ ), (Table 4).

## 5. Discussion

COVID-19 is a pandemic that has adversely affected the daily life of individuals worldwide. While immunization and vaccination studies are still in progress, and countries are actively imposing regulations for full or partial closure and reduction of social interaction, the pandemic is still taking a toll on people's lives (21-24). Education has been one of the most affected areas during the COVID-19 pandemic. Students in a two-year associate degree program in the field of health will graduate without gaining sufficient clinical practice skills after web-based distance education. This study aimed to explore the

opinions of students studying in associate degree health-related departments requiring professional practice and skills towards web-based distance education during the pandemic.

According to the study results, most of the students did not consider the web-based distance education model as the right method of education in this period for the departments that required skill-based practices. Based on the results of various studies conducted during the pandemic, students mostly had a negative attitude toward web-based learning, and they preferred traditional practical education; however, they mentioned different reasons for this aversion, depending on the country. Studies conducted with students studying in the field of health in Nepal revealed that web-based education was inevitable in this period; however, it had negatively affected students' clinical decision-making, skill development, empathy, and professional development processes. Moreover, they had a negative attitude toward web-based education since, according to them, learning in a university environment was easier than at home, and internet quality could affect education in this period (17, 23, 24).

Moreover, in a study conducted on dentistry students in a medical faculty in Pakistan, almost all of the students displayed a negative attitude since they believed that web-based education was not an effective method of education and that traditional education was more proper for this purpose. In the same line, students from a pharmacy department in Saudi Arabia mostly preferred the traditional classroom learning model to web-based learning (25, 26). In a study conducted in Turkey, nursing students preferred the traditional model since they believed that only a certain part of nursing practices can be taught through web-based education, even with a good curriculum (27). In India, most students preferred the traditional model of education due to the lack of a separate room of one's own, the frequent internet and electricity outage, low family income, and lack of educational equipment during education (28, 29).

The students in the present study disapproved of web-based education as the right method for the departments with skill-based requirements since they believed that they would not be able to develop their practical skills properly. The majority of students did not have the opportunity to provide care, do urgent practices, or even touch patients in this period; therefore, they were afraid of practicing after graduation. Those who were afraid of working after graduation did not find web-based distance education as the right method for departments that required skill-based practices. Consistently, in studies conducted with medical faculty students in the United States, it was determined that students completely lost their communication skills with

patients during the pandemic, their clinical contact decreased considerably, and they had anxiety about losing their clinical skills (30, 31). Likewise, the results of a study conducted in India revealed that students' communication with patients was limited in web-based education during the pandemic, and students' manual skills gradually deteriorated in a study performed in the Philippines (32, 33). The results obtained from the reviewed studies highlighted the fact that web-based learning was inevitable during the pandemic; however, the process should be managed through the reception of feedback from students at regular intervals to improve the effectiveness of education. Students in the present study generally used smartphones to follow online courses, which was consistent with similar studies (24-28, 32-35). The reason why students mostly followed courses using their smartphones was that they probably did not have computers or tablets.

In this study, those who were not taught about logging into the system and uploading assignments and exams before the start of web-based education and had problems with web-based education experienced difficulties doing their assignments and disapproved of web-based distance education as the right method for departments with skill-based requirements. Based on the literature, people with digital literacy and technology usage skills adapt more easily to online learning. However, people should have sufficient knowledge about online learning for distance education, and those with insufficient knowledge have difficulties managing online learning (23,35,36). In this study, those who had at least one more person receiving web-based distance education at home and those who defined internet quality as moderate did not consider web-based distance education to be the right method for the departments with skill-based requirements. Based on the evidence, the quality of internet connection was essential for online education; therefore, students with limited internet access had problems while following courses. Moreover, online learning created an economic burden on families since they had to purchase a computer, smartphone, and internet connection (20, 23, 37). In a study conducted in the Philippines, it was noted that only 7.4% of students had a high-quality internet connection, and another study conducted in Albania reported that students' perceptions of online learning decreased due to limited access to the internet and technological devices (33, 36).

The students in this study mostly believed that the quality of the education provided during the pandemic was negatively affected. The students also questioned the fairness of the exams and suggested an academic freeze or repetition of courses. Other relevant studies reported that online learning decreased the efficiency and quality of education. Moreover, students did not find the quality of

education satisfactory and had a negative attitude toward online learning due to exam anxiety and worries about graduating in the pandemic (25, 31, 36, 38). Therefore, it can be concluded that most of the participants would not prefer to receive web-based distance education under normal circumstances if it was not for the COVID-19 pandemic. They also did not recommend web-based learning in the future since they had difficulty focusing in online learning and that their manual skills were getting worse (33). However, contrary to this study, in some studies, students accepted distance education as complementary to classical learning. In a study conducted on students of health sciences in medical faculties in Croatia, it was emphasized that more than half of the students considered distance education as complementary and believed that it should be used especially in part-time education after the pandemic (39). It was also observed that online courses were preferred by the students since they were time-saving and that the students could support their families while attending the courses. Moreover, online education offered an opportunity to record and watch the lessons again and develop their skills in digital technology (28, 36, 40).

## 6. Conclusion

Based on the obtained results, it was determined that students who were studying in departments that required clinical practice skills in the field of health had a negative perspective on web-based distance education. This can be explained by the fact that web-based education did not contribute enough to practical application skills. Moreover, since students were not taught about logging into the system and uploading assignments and exams before the start of web-based education, they believed that the quality of the education was decreased and expressed complaints about internet quality. Therefore, it is recommended that students should frequently watch videos of their lessons to gain practical skills, make care plans and case discussions. Moreover, universities should give priority to the establishment of virtual laboratories and simulation centers to improve the practical applications of the students. Students having problems with internet connection and quality should be supported in terms of the equipment and internet quality and have the right to use the internet free of charge at a certain quota. In addition, regardless of the digital literacy level of the students, it is necessary to provide training for them about logging into the system and uploading homework and exams at regular intervals, and feedback should be taken from students to evaluate the effectiveness of the training provided. In addition, further studies on this subject in different schools can further evaluate the opinion of students studying at associate degree level towards web-based learning to

raise awareness about this issue.

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## Footnotes

**Author's contributions:** Conceptualization and methodology: CS, BCD, and LA.

Data collection: CS.

Data analysis and interpretation: CS, BCD, LA.

Drafting the article: CS, BCD, LA.

Manuscript revision and final approval: BCD.

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