

Evaluation of the Satisfaction of Nursing Students Receiving Distance Education in the COVID-19 Pandemic

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Abstract

Background: Nursing education, which has a theoretical, laboratory, and applied education models among education-teaching methods, has been carried out mainly through distance education during the COVID-19 pandemic.

Aim: The study aimed to evaluate the distance education given to nursing students in terms of student satisfaction during the COVID-19 pandemic.

Methods: The study was conducted in descriptive design. The research was carried out at a university located in the north of Türkiye. A total of 323 students studying in the nursing department constituted the research sample. Research data were collected with Personal Information Form and Satisfaction Scale for E-Courses (SSEC). Mann-Whitney U-test and Kruskal-Wallis test were used in the analysis of research data.

Results: The mean age of the students in the study was 20.84 ± 2.15 years and 80.2% of them were female. The mean of the total SSEC score was 115.33 ± 23.69 . It was determined that students' e-course satisfaction was moderate (66%), teacher-student interaction sub-dimension (70%), and environment design sub-dimension (73%) were high. It was determined that the e-course satisfaction level of the students who did not have any problems in attending e-courses, who were 4th-grade students, and who did not have any difficulties in learning applied courses was better ($P < 0.05$). It was found that 44.7% of the students had difficulty following the courses, and 73.6% did not want nursing education to be done entirely by distance education.

Conclusion: While the students are more positive than the theoretical courses of nursing education given by distance education, they do not respond positively to the fact that courses developing practical and nursing skills are provided by distance learning. It is recommended that nursing educators should structure their education curricula in accordance with the process, develop constructivist learning models, and in the coming period, experience students' e-learning experiences, and their use in clinical work environments and design research studies for this.

Keywords: COVID-19, nursing education, nursing student, satisfaction scale for e-courses

Introduction

The COVID-19 pandemic, which first started to spread from bats in the animal market in Wuhan, China's Hubei province, in December 2019, has rapidly started to be seen in many countries.¹ The World Health Organization named the COVID-19 outbreak SARS-CoV-2 as of March, 11 2020 and declared it a pandemic.² In Türkiye, education and training were suspended in all educational institutions on March 16, 2020, and education continued for several terms with the distance education system.³ This situation affected a total of 7.940.133 higher education students, 79.054 students studying in nursing programs, and 1.562 nursing educators in Türkiye.^{3,4} While the COVID-19 pandemic is still an ongoing process, it has created changes and given different points of view to art, commerce, social environment, justice, equality, patient care, ethics, and many other fields.⁵ One of the fields as this change and influence is experienced in education activities. As in many fields, nursing education, which is both a theoretical and applied science, has become compulsory to be applied remotely, and the continuity of educational activities through distance education has been tried to be ensured.⁶

Nursing education enables students to learn about cognitive, sensory, and psychomotor skills based on theory, laboratory, and clinical practice. Hence, during the education

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process, the student must learn both theoretical knowledge and clinical skills and must develop and apply the skills they have gained. The clinical practice training received during face-to-face training allows the student to integrate theoretical and laboratory training with practical training in a real health-care environment and learn by experience with the support of professional trainers and clinical nurses in a real patient and health system environment. In nursing education, it is aimed for the student to develop their knowledge and skills in subjects such as professional competence, empathy, communication, teamwork, critical decision-making, and critical thinking and to be ready for the profession.^{6,7}

Distance education is a form of education that individuals receive in a planned and programmed manner, regardless of time and place, through environments supported by internet technologies.⁸ The giving of distance education in nursing education in Türkiye was realized for the 1st time in 1991 by giving nursing education to high school graduate nurses with an associate degree program.⁹ In many institutions that switched to distance education after the pandemic, it has become mandatory to offer online education without sufficient knowledge and permanent learning plans to deliver online education.¹⁰ Some of the students who returned to their homes with the break-in education at the beginning of the pandemic in Türkiye experienced anxiety and stress in continuing their education due to the lack of sufficient internet connection, tablets, and computers to participate in distance education.^{11,12} Along with the COVID-19 pandemic, the transition to distance education in nursing has provided the opportunity to teach lessons using technology and online tools and to use and experience distance education technologies for both students and educators. E-learning tools have assisted students in proceeding with their education and continuous learning in this process. In addition, the use of new technologies such as virtual reality and augmented reality in learning provides constructive learning by helping students to visualize and concretize concepts, to create a more remarkable environment, and to help students learn by themselves.¹³

Distance education, which is inevitable for preventing the spread of the pandemic and for human health, has many advantages and disadvantages. In addition to the advantages such as everyone's learning at their own pace, being able to re-watch the points that they could not understand or missed while listening to the live class, no time and space limitations, saving time and energy in physical transportation to school, there are also disadvantages such as feeling lonely and losing motivation due to temporal and spatial differences, lack of physical participation in applied courses, not developing enough of these skills in lessons that require motor skills, and inability to provide one-to-one student-instructor interaction.^{8-12,14} In a study that investigated nursing students' views on the benefits of distance education with a qualitative method, students stated that the most significant advantage of distance education is minimizing time and place restrictions.¹⁵ In another study, on the other hand, students stated that they felt safe and experienced less stress since they were not in the classroom and hospital environment during the pandemic.⁶

In distance education, where teacher-student interaction is less than in face-to-face education, students' understanding of both theoretical and clinical practice courses, giving feedback, and how their nursing skills develop in applied courses, students' interiorization of the courses, and gaining the philosophy of the profession are

discussed.⁶⁻¹⁰ In a study involving nursing department students of 28 universities with state and foundation universities in seven geographical regions in terms of representing the country in general in Türkiye, it was determined that the satisfaction level of the students (n=688) from the distance education process was broadly low. In a study on the subject, it was stated that 87.5% of the students did not approve of providing nursing education through distance education. In the same study, 85.5% of the students indicated that they did not think that nursing knowledge and skills, and 86.9% of them practice skills could be gained through distance education.^{11,12} Students who receive nursing education remotely in the distance education process, which is widely used after the pandemic, questions have arisen on many issues such as the effect of career plans in nursing education distance students, whether the graduation and education process will be prolonged, the effect of courses and simultaneous activities on learning, easy access to information, clarity of course content, whether e-courses meet the learning needs of the student, whether they give learning responsibility, whether the current education curriculum is suitable for distance education.^{11,12,14-16}

It can be said that the researches on the literature were generally conducted to determine the perspectives of the students who have received online education for only mandatory courses and had never taken an online course except for mandatory courses, on the distance education system in general.^{11,12,14-16} It is thought that this study will contribute to the literature by searching the opinions of the students who actually met with online education during the COVID-19 pandemic period, about the online education system, for the courses which they took with online education and addition to their satisfaction level. It is considered that understanding the factors affecting student success in this period, the situations that cause problems in education and their solutions, together with the opinions, suggestions, and satisfaction levels of students about the distance education process in nursing education, will be an illuminating component in the future steps to be taken. This study was conducted to evaluate students' satisfaction levels in nursing education conducted with distance education during the COVID-19 pandemic.

Methods

Study Design

The study's type is a descriptive design.

Sample of the Study

The study population consisted of students (n=481) studying at a university in northern Türkiye in the spring semester of 2020–2021. No sample selection was made in the study; all 1st, 2nd, 3rd, and 4th-grade nursing students were included in the study. A total of 323 students were included in the study as there were students who were reluctant to participate in the research and did not fill out the research forms. The participation rate of the students in the study is 67.2%.

Data Collection Tools

In the collection of research data, the Satisfaction Scale for E-Courses (SSEC) and a survey formed by examining the recent literature were used.^{12,14-17}

Personal Information Form

This form, which was made by the researcher in line with the literature on the subject, consists of three parts and a total of ten

questions, including sociodemographic data of students, technology usage characteristics of students, and their views on the distance education system.^{5,6,8,12} The questions of the form include specifications of students such as age, gender, daily internet use, equipment used to access online courses, whether they have problems in following the lessons, and whether they want nursing education to be done remotely.

Satisfaction Scale for E-Courses (SSEC)

The SSEC was developed by Geçer and Topal (2015).¹⁷ "SSEC" is a 5-point Likert type and consists of scale and score ranged listed as follows: "Totally Agree" (5), "Agree" (4), "Partly Agree" (3), "Disagree" (2), and "Strongly Disagree" (1) The highest score that can be obtained from the scale is 175, and the lowest score is 35. High scores in the scale indicate that the student's level of satisfaction is high and low scores indicate that the level of satisfaction is low. The Cronbach's alpha reliability coefficient of the scale was calculated as 0.96.¹⁷ In this study, the coefficient was found to be 0.88. The e-course satisfaction level of the students was measured as follows.

Satisfaction rate = (Mean score achieved/possible highest score) * 100

If the satisfaction was 49% or less, the level of satisfaction was considered low. Satisfaction level was considered moderate if it was between 50% and 69%, and high if the ratio was above 70%.¹⁸

Data Collection

Research data were collected between 1 July and July 10, 2021, after obtaining ethical approval from Clinical Research Ethics Committee of University of Health Sciences, Kanuni Education and Training Hospital in the spring semester of the 2020–2021 academic year (Approval Number: 2021/113, Date: 30.06.2021). Since the research data were collected after ethical approval, the data collection process was carried out at the end of the spring semester of the 2020–2021 academic year. In the department where the research was conducted, both practical and theoretical courses were given online using Google Meet and BigBlueButton. In this education, the methods such as presentation and homework used in theoretical lessons, on the other side which is practical and laboratory courses, presentations, homework, case management, and video watching were used. According to the decision of the university senate, the minimum course duration for a 2-h course in online was determined as 30 min. The courses were given due to this time. The courses occurred in live according to the curriculum of the department and they were recorded and uploaded to the online system for sharing with the students so that students could watch them again. In the pandemic, the Council of Higher Education supports distance education of students when it gives 6 GB of additional internet usage to the mobile operators of students.

An online survey was created through the "Google form" for university students receiving distance education due to the COVID-19 pandemic. The online survey was sent to the students through message to WhatsApp student groups, and they were asked to share it in WhatsApp groups to reach other participants. On the data collection form entry page, an information form containing an explanation about the purpose of the research, participation in the study is voluntary and personal data will be kept confidential, and then the survey was displayed. It took approximately 15–20 min to complete the data collection forms.

Statistical Analysis

SPSS 25.00 package program (IBM Corp., Armonk, NY, USA) was used to evaluate the research data, and the reliability of the scale was measured with Cronbach's alpha coefficient. The demographic data of nursing students and their knowledge of distance education were evaluated by numbers, percentages, and averages. According to the Kolmogorov–Smirnov test, SSEC did not show normal distribution ($P < 0.05$). Analysis of Mann–Whitney U and Kruskal–Wallis tests were used in the analysis of the data. The statistical significance level was accepted as $P < 0.05$.

Ethical Considerations

For the implementation of the study, both the institutional permission from the institution where the study was conducted and the ethics committee permission from the University of Health Sciences Kanuni Training and Research Hospital Ethics Committee (date: June 30, 2021, number: 2021/113) were obtained. The principles of the Declaration of Helsinki were followed at all stages of the research. It was explained that the students' information participating in the study would not be shared with anyone and their identities would be kept confidential and that they could withdraw from the research whenever they wanted. The students who accepted to participate in the research filled out the survey through the Google form. In the study, no identifying personal information was added to ensure the confidentiality of the information of the participating students. After completing the research survey, the data were downloaded from the Google form to the researcher's password-protected computer.

Results

The mean age of the students was 20.84 ± 2.15 years and 80.2% of the students were female. Among the participants in the study, the rate of students studying in the first grade was 35% ($n=113$), studying in the second grade was 16.4% ($n=53$), 14.9% ($n=48$) was in the 3rd grade, and 33.7% was a fourth-grade student ($n=109$). The ratio of students who stated that they used the internet up to 5 h a day was 52.8%, and the ratio of students who stated that they followed distance education courses on the computer was 56.7%. According to students, the most effective method in accordance with learning in theoretical courses is online courses (29.4%) and case studies (32.5%) in applied courses. Students who stated that they had difficulty following the courses were 44.7%, participants who asserted that they had difficulty learning due to the distance education provided by nursing skills were 72.1%, and students who asserted that they did not want to receive nursing education through distance education were 73.6% (Table 1).

It was determined that students' satisfaction with e-courses was at a moderate level (66%). The sub-dimensions of e-course satisfaction were determined that satisfaction with the materials and communication tools used was moderate (63%), student-instructor interaction and environmental design satisfaction were high (70%), and satisfaction with the e-course content and learning process was moderate (60% and 67%) (Table 2).

In Table 3, the satisfaction level of the students toward e-courses and the factors affecting them are examined. Accordingly, there was no significant relationship between gender and sub-dimensions of the scale ($P > 0.05$). It was observed that there was a statistically significant difference in the mean satisfaction scores of the students

Table 1. Nursing Students' Information On Descriptive and Distance Education Use (n=323)

Characteristics	Min-Max		Mean±SD
	18-31	20.84 ± 2.15	
Age	n	%	
Gender			
Female	259	80.2	
Male	64	19.8	
Class			
1	113	35	
2	53	16.4	
3	48	14.9	
4	109	33.7	
Daily internet usage			
Up to 5 h	170	52.8	
Up to 9 h	71	21.7	
9 h and above	36	11.2	
What tools do you use for course access?			
Tablet	15	4.6	
Computer	183	56.7	
Smartphone	125	38.7	
Which method do you think is effective in theoretical courses?			
Watching videos	51	15.8	
Online lecture	95	29.4	
Homework	24	7.4	
Case study	19	5.9	
All of	101	31.3	
None	33	10.2	
Which method do you think is effective in applied courses?			
Watching videos	35	10.8	
Online lecture	58	18	
Homework	19	5.9	
Case study	105	32.5	
All of	64	19.8	
None	42	13	
Did you have any problems following the courses?			
Yes	88	27.3	
Partially	145	44.7	
No	90	28	
Do you have difficulties in learning because of giving nursing practice skills through distance education?			
Yes	233	72.1	
No	90	27.9	
Do you want nursing education to be done entirely by distance education?			
Yes	85	26.4	
No	238	73.6	

Table 2. The Mean and Standard Deviation Values of the Satisfaction Scale for E-courses (n=323)

Dimensions of the scale	Min Max Mean SD				Satisfaction rate (%)
	Min	Max	Mean	SD	
Materials used and communication tools	8	40	24.94	8.41	63
The instructor-student interaction	4	20	13.75	4.02	70
Instructional environment design	12	40	29.13	6.32	73
Attitudes toward e-course	6	29	17.52	3.46	60
Course content and learning process	16	45	29.95	4.79	67
Total	60	171	115.33	23.69	66

according to the grades they studied ($P < 0.05$). According to the post hoc results, it was determined that the e-course satisfaction level of the fourth-grade students was higher than the other classes. It was identified that there was a significant relationship between the students' daily internet usage duration and teacher-student interaction and attitude toward e-courses sub-dimensions ($P < 0.05$). It was determined that students who use the internet for up to 9 h a day have higher levels of student-instructor interaction and attitudes toward e-courses. It also found that there was a significant relationship between the student-instructor interaction, the sub-dimensions of the environment design, and the mean total score of the scale according to the tools used in the courses ($P < 0.05$). It was determined that students who use computers to follow e-courses have higher e-course satisfaction and environment design sub-dimension scores than students who use tablets and smartphones, and students who use smartphones to follow e-courses have higher student-instructor interaction levels (Table 3).

It was specified that the satisfaction levels of the students who did not have any problems in attending distance education courses were higher ($P < 0.05$). It was determined that there was a significant relationship between the situation of students having difficulties in learning practice skills in distance education and the situation of wanting nursing education to be done completely remotely and materials and communication tools used, student-instructor interaction, environment design, attitude toward e-courses and course content, and the teaching process and the scale total score average ($P < 0.05$). It was determined that the satisfaction levels of the students who want to be given nursing education through distance education and those who do not have difficulties in distance education are higher (Table 3).

Discussion

This study determined that the e-course satisfaction of nursing students who received nursing education through distance education was moderate (satisfaction rate=66%), and the highest level of satisfaction was in the sub-dimension of environment design (73%). According to this result, we can enunciate that distance education interface usage for students is easy to use and understandable for students, and it is at a good level in regard to functionality. When

Table 3. Factors Affecting Students' SSEC Scores (n=323)						
Characteristic	Materials used and communication tools Mean ± SD	The instructor-student interaction Mean ± SD	Instructional environment design Mean ± SD	Attitudes toward e-course Mean ± SD	Course content and learning process Mean ± SD	Total SSEC Mean ± SD
Gender						
Female	24.85 ± 8.59	13.67 ± 4.08	29.12 ± 6.42	17.53 ± 3.38	29.95 ± 4.74	115.18 ± 23.92
Male	25.29 ± 7.72	14.04 ± 3.82	29.15 ± 5.98	17.45 ± 3.82	29.96 ± 4.99	115.92 ± 22.94
Test	^a U=8107.00	U=7990.00	U=8070.50	U=7894.50	U=8006.50	U=8218.50
P-value	0.86	0.65	0.78	0.55	0.67	0.99
Class						
1	21.83 ± 6.06	12.87 ± 3.00	27.30 ± 4.86	16.30 ± 2.67	28.58 ± 3.58	106.84 ± 14.86
2	20.86 ± 6.63	11.28 ± 3.95	26.45 ± 5.63	15.92 ± 3.27	27.81 ± 4.56	102.33 ± 19.98
3	23.18 ± 7.68	13.37 ± 3.75	28.79 ± 4.63	18.08 ± 3.47	29.60 ± 3.92	113.04 ± 18.43
4	30.93 ± 8.38	16.02 ± 4.02	32.46 ± 7.19	19.31 ± 3.43	32.58 ± 5.21	131.30 ± 26.11
Test	^b KW=66.17	KW=56.74	KW=43.64	KW=57.28	KW=50.83	KW=65.61
P-value	*0.00	*0.00	*0.00	*0.00	*0.00	*0.00
Internet usage frequency (daily)						
	23.58 ± 7.39	13.41 ± 2.86	28.51 ± 5.03	18.60 ± 2.85	30.30 ± 4.03	114.60 ± 17.47
Up to 5 h	26.14 ± 8.99	14.29 ± 4.32	30.02 ± 6.87	17.80 ± 3.57	30.34 ± 5.35	118.70 ± 26.11
Up to 9 h	24.45 ± 7.10	12.92 ± 3.73	28.17 ± 5.19	16.47 ± 3.26	29.42 ± 3.91	111.45 ± 20.07
9 h and above	21.88 ± 8.45	13.27 ± 4.21	27.52 ± 6.70	16.44 ± 3.39	28.77 ± 4.34	107.71 ± 23.12
Test	KW=7.78	KW=8.02	KW=6.09	KW=17.56	KW=3.64	KW=7.52
P-value	0.05	*0.04	0.10	*0.00	0.30	0.05
Tools used in course						
Tablet	28.26 ± 9.83	15.53 ± 3.41	31.33 ± 8.16	17.73 ± 4.43	31.40 ± 4.82	124.26 ± 29.16
Computer	26.04 ± 8.93	13.97 ± 4.56	29.71 ± 6.92	17.86 ± 3.45	30.31 ± 5.33	117.90 ± 26.34
Smart phone	22.91 ± 6.95	13.21 ± 3.08	28.01 ± 4.86	16.98 ± 3.31	29.27 ± 3.79	110.48 ± 17.31
Test	KW=9.76	KW=6.84	KW=6.34	KW=5.53	KW=4.89	KW=7.61
P-value	*0.00	*0.03	*0.04	0.06	0.08	*0.02
Having trouble attending courses						
Yes	19.56 ± 6.90	11.40 ± 4.03	24.87 ± 5.05	15.54 ± 2.96	26.65 ± 4.09	98.05 ± 17.73
Partially	23.55 ± 5.50	13.35 ± 2.86	28.48 ± 4.53	17.11 ± 3.09	29.54 ± 3.69	112.12 ± 14.44
No	32.40 ± 8.47	16.64 ± 3.89	34.27 ± 6.37	20.06 ± 2.93	33.80 ± 4.29	137.32 ± 24.09
Test	KW=93.68	KW=69.74	KW=88.61	KW=81.98	KW=96.18	KW=107.80
P-value	*0.00	*0.00	*0.00	*0.00	*0.00	*0.00
Difficulty in learning practice skills in distance education						
Yes	21.71 ± 6.26	12.51 ± 3.39	26.96 ± 5.08	16.18 ± 2.93	28.14 ± 3.86	105.51 ± 16.69
No	33.23 ± 7.52	16.96 ± 3.76	34.72 ± 5.78	20.96 ± 2.07	34.65 ± 3.62	140.54 ± 20.14
Test	U=2690.50	U=3870.00	U=3414.00	U=2073.00	U=2397.00	U=2051.50
P-value access	*0.00	*0.00	*0.00	*0.00	*0.00	*0.00
The situation of wanting nursing education to be done completely with distance education						
Yes	33.34 ± 2.09	16.90 ± 3.64	35.05 ± 5.77	21.05 ± 2.09	34.67 ± 3.58	141.03 ± 20.11
No	16.24 ± 2.94	12.60 ± 3.52	26.97 ± 5.03	16.24 ± 2.94	28.26 ± 3.98	106.01 ± 17.19
Test	U=2673.00	U=4042.00	U=3078.50	U=1982.50	U=2442.50	U=1973.50
P-value	*0.00	*0.00	*0.00	*0.00	*0.00	*0.00

^aMann-Whitney U-test, ^bKruskal-Wallis test, *P<0.05, SSEC: Satisfaction scale for e-courses.

we analyze the studies on the subject, in a study conducted among students who took courses with distance education except for the nursing department before the pandemic, it was found that e-course satisfaction was similarly at a moderate level.¹⁸ In a study conducted during the pandemic, it was reported that student satisfaction was at a moderate level, similar to the research results.¹⁴

The fact that the distance education method has a high level of interaction, a well-designed interface where the student can control learning, and easily accessing information can be affected by factors such as the content of the course, the attitude of the instructor, and diversity in student evaluation.^{18,19} Liaw et al.,²⁰ stated that students who believed that an e-learning environment was an effective learning environment had a positive attitude toward e-learning. Moreover, it is remarked that the high level of interaction in e-learning environments, an environment in which students can control their learning and access information readily, and the fact that e-lesson interfaces are designed accordingly may affect the level of student satisfaction. A study on the subject indicated that students who had a positive experience before showing better adaptation to learning techniques.²¹ It is thought that factors such as the efforts of the faculty members who have experienced distance education to assure the continuity of education, using more than one teaching method to meet the information and education needs of the students, making the interaction with the student continuous, and the desire of the students to continue the education process, have affected the satisfaction level of e-courses together with the pandemic.

One of the significant results of this research was that although the e-course satisfaction of the students who experienced both the distance and face-to-face education system was moderate, the majority of the students did not want nursing education to be done through distance education, and they wanted face-to-face teaching methods to pursue in nursing education. Whereas the students showed a more moderate attitude toward the theoretical courses through distance education, they expressed a negative opinion about distance education in courses that require applied and nursing skills. In the literature, it has been seen that nursing students stated that distance education cannot replace face-to-face education; therefore, nursing education should not be given with distance education.^{6,12,15,22-24} However, in a study which made of before the pandemic conducted to the literature, it was determined that students advocated nursing education with an approach in which distance and face-to-face education were used together.²⁵ In many studies on the subject, it is seen that students prefer face-to-face education to distance education in nursing education.^{14,22-26} It has been considered that the continuation of the pandemic and the use of the distance education system, particularly for applied courses, the fact that the students do case management without encountering the patient and seeing the effect of their nursing skills, affect the views of the students in the whole of nursing education and particularly the practical courses are given by distance education. In addition, it is reported that the use of new technologies such as augmented reality and virtual patient simulators, high-resolution images, haptic input, and feedback devices in both face-to-face and distance education have positive contributions to providing positive learning processes, especially by ensuring that students are active in learning and actively participate in learning.^{13,27} With this information, the necessity of developing several methods that will increase the quality of nursing education, integrating it into education, and being prepared in advance in this regard which gains

importance in extraordinary periods such as pandemics when distance education is inevitable.

The study determined that the students had problems partially or completely during the distance education process and the students who did not have any problems in attending the courses had higher satisfaction levels for e-courses. In a large-scale study in Türkiye, 30.1% of nursing students stated that they had an internet connection or infrastructure problems, and 41% of them stated that the device they used was not sufficient.¹¹ According to the 2020 data of the Turkish Statistical Institute, the rate of those who have a desktop computer at home is 16.7%, while the rate of using a portable computer is 36.4% and a tablet computer is 22.4%; the rate of using a smartphone is 99.4%.²⁸ In a study conducted on nursing students in Türkiye, students reported that the biggest problem they experience in distance education is the lack of or limited internet access.⁶ In the study of Bloomfield and Jones,²⁵ students' having problems in distance education was described as one of the disadvantageous components of e-learning. In addition to the incautious of universities and educational institutions during the pandemic, the problems related to the distance education infrastructure, the inadequacy of the students in terms of the internet network, technical information, and materials, and the inadequacy of their knowledge about using distance education interfaces, the lack of a suitable working environment at home, and the presence of more than one child in the same house who continue distance education, suggest that the use of computers and technical equipment and working environment at the same time to follow the lessons induces students to have trouble, as well. In a study on the distance education process of nursing students, it was determined that the children of families with good financial status and living in city centers have easier access to e-learning connections as well.²⁴ In this process, it is considered that it is critical for teachers and counselors to support students in maintaining the participation of students in distance education and to promote them by talking solution-oriented about the problems they experience and the steps to be taken to pass this process better and with higher student satisfaction.

The research stated that among the methods that students think are effective in theoretical lessons, online lectures are more effective in learning, and giving homework to students has a lower effect on learning. Similar to the study, in another study on distance education during the pandemic, they reported that the online course method in theoretical courses was more effective than other methods.⁶ A study on the subject reported that the teaching method (PowerPoint presentation) as an education method is the most widely used.²⁴ The uncertainty of the pandemic and the local and global issues that will require a break from face-to-face education in the future have shown that educators need to use new education curricula and content in ways that support multiple education models. Therefore, instructors need to develop their teaching abilities and skills so that there is no gap between the student's learning needs and learning styles. Informing both educators and students about this system in the distance education process, providing adequate technical and infrastructure support, and providing guidance on this issue will contribute to better management of the process.

The study revealed that the e-course satisfaction level of the fourth-grade nursing students was higher than the students in other grades. Contrary to the research, it was determined in a study that there was

no relationship between students' grade levels and e-course satisfaction.¹⁸ In another study, it was determined that there was no significant relationship between students' attitudes toward distance education and the grade they studied.⁶ According to Liaw et al.,²⁰ student satisfaction is affected by an interactive learning environment, perceived self-efficacy, and anxiety level. It can be explained by the fact that fourth-grade students have completed most of their nursing education and are closer to graduation; hence their anxiety about distance education may be lower, and they may have provided better motivation to e-courses and thus positively affected their satisfaction levels.

The study found that the satisfaction level of the students who wanted nursing education to be given through distance education and who did not experience difficulties in distance education was higher. In the studies conducted on the subject, it was indicated that most of the university students experienced negative emotions such as stress and anxiety during the pandemic, and that they had difficulty in dealing with this situation, and that they had problems in following the courses.^{12,29} In another study, on the other hand, they stated that students have the most motivation problems in distance education, they learn better in a face-to-face classroom environment, and they are better motivated.³⁰ In the Turkish Nursing Education Association workshop report on distance education during the COVID-19 pandemic, it is stated that the students' being in the home environment reduces their motivation.³¹ It has been considered that many factors such as lockdowns, quarantine conditions, fear of being infected and infecting others, of nursing students who experienced distance education for the 1st time during the pandemic period, are effective in accepting the distance education process, displaying a positive attitude, and creating motivation for it.

Limitations

The limitation of this study is that the nursing department students of a single university in Türkiye were included in the study, the data were collected by creating an online survey instead of face-to-face interviews due to the COVID-19 pandemic, and the research result was based on the statements of the participants.

Conclusion

Although the issues related to improving the learning experiences of nursing students have global importance, the satisfaction of nursing students to distance education was evaluated in this study. In the research, it was determined that the satisfaction of the students about distance education was at a moderate level, while they were more positive to give the theoretical courses with distance education, they did not find it positive to give them distance education in the courses that developed applied and nursing skills.

In the training of future nurses, it is observed that the way of education is questioned in the nursing programs carried out with distance education during the COVID-19 pandemic, and it is necessary to use technology and take advantage of the benefits. Along with the introduction of the distance education system into our lives, it is suggested to structure the education curriculum of nursing educators in accordance with the process, to develop constructivist learning models, and to experience the e-learning experiences and use of students in clinical work environments in the coming period and to design research studies for this. Furthermore, during the normalization period, it is recommended to collect data by conducting

comparative and face-to-face interviews with students, planning research, and conducting qualitative studies with in-depth interviews to identify the problems better.

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