



Research article

Nurse instructors' perception towards distance education during the pandemic

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ABSTRACT

Background: The nursing department also completely switched to distance education during the COVID-19 pandemic. This new situation made the studies regarding attitudes, experiences, and difficulties of nursing instructors towards distance education more important.

Objectives: To determine the factors affecting the perceptions of nurse instructors towards distance education during the pandemic.

Design: This is a descriptive and cross-sectional study.

Participants: A total of 389 nurse instructors working at a university constituted the sample.

Methods: An information form and the Perceptions of Distance Education scale were used for data collection. The data were analyzed using frequency, percentage, arithmetic mean, Cronbach Alpha internal consistency analysis, *t*-test, one-way ANOVA and Kruskal Wallis test were used in the analysis of the data.

Result: The nurse instructors' distance education perception scale score and perception regarding basic perspective, and resource access subdimension scores were at a medium level and the education-planning subdimension score at a high level. Those whose opinions on distance education changed compared to the pre-COVID-19 period, those who received education related to distance education, those who used new practices in the lessons, those who believed that distance education is effective, and those who thought that nursing is a suitable program for distance education had higher distance education perception scores.

Conclusions: It was determined that difficulties experienced by nurse instructors in distance education negatively affected the perception of distance education, and that positive experiences in distance education affected the perception positively. It is recommended to organize trainings for instructors to improve distance education skills, to encourage students to participate in classes, and to support nurse lecturers in overcoming difficulties.

1. Introduction

Distance education (DE) in universities is increasing worldwide day by day and has shown a rapid development with the effect of technological developments, especially in the last decade (Irinoye et al., 2016; Öztürk et al., 2017). However, the Covid-19 pandemic that started in the last months of 2019 and has affected the whole world in a short period of time, forced all countries to a sudden and unplanned transition to DE (Ali et al., 2020; Bokayev et al., 2021; Bezerra, 2020; Irinoye et al., 2016). To reduce the spread of Covid-19 in Turkey, face-to-face education was terminated in all educational institutions as of March 25, 2020 and it was decided to continue with the remaining period in the spring semester of the 2019–2020 academic year with DE (Council of

Higher Education, 2020a; Keskin and Kaya, 2020). Due to the continuation of the pandemic, online education was also continued in 2020–2021 in line with the recommendation of the Ministry of Health to continue with DE (Council of Higher Education, 2020b). It was decided by the Council of Higher Education that theoretical classes shall be continued with DE as much as possible in the spring semester of the 2020–2021 academic year, and students were divided into groups for face-to face education for practical classes, provided that maximum attention was paid to hygiene and social distance (Council of Higher Education, 2021).

DE is defined as “a form of education made from a certain center by using various communication tools without the students and teacher coming together in the same place” (Turkish Language Association,

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2020). DE enables educators and students to participate in education without any time and place limitation through information communication technologies (Bokayev et al., 2021; Isman, 2011; Öztürk, 2015; Öztürk et al., 2017; Yildiz and Erdem, 2018). Just as formal education, DE also has its advantages and disadvantages. Advantages of DE are the following; it provides equal opportunities for those who cannot access face-to-face education, it can be used to meet the educational needs arising due to the increasing population, it enables lifelong learning, it provides an opportunity for the active use of developing educational technologies, it enables self-learning, students can be provided with different options, it offers flexibility in terms of location and time, and it enables full-time employees and individuals of all abilities to access education (Delva et al., 2019; Isman, 2011; Kahyaoglu Süt and Küçük-kaya, 2016; Öztürk, 2015; Senyuva, 2019; Xing et al., 2018; Yildiz and Erdem, 2018). Disadvantages of DE however are: limited communication between educator-student and student-student, limited observation to support assessment throughout the training, limited collective activities, difficulties for students who have limited access to information communication technologies such as computers or the internet or are not trained in using them properly, and families not being able to support students equally (Bokayev et al., 2021; Kahyaoglu Süt and Küçük-kaya, 2016; Süer et al., 2005).

The purpose of nursing education is to raise nurses who are sensitive to individual, family, group, and community health situations, who can identify and meet the nursing care needs of healthy or sick individuals, who are able to fulfill the roles and functions required by the profession, who are able to take a role in education, management, and research by considering ethical principles, and who embrace lifelong learning (The Turkish National Core Curriculum for Nursing, 2014). The Turkish National Core Curriculum for Nursing (NCCN) states that nursing education should be carried out for at least four years with a total of 4600 h (at least one third theoretical education, and half clinical practice) (NCCN, 2013). Clinical practice is at the center of the curriculum because it provides students with the opportunity to put theoretical knowledge into practice, provides experience at the bedside and experience in planning, organizing, teaching, and evaluating patient care (Basavanthappa, 2009). Therefore, it is a fact that not all nursing education can be carried out with DE. Previous studies (Andsoy et al., 2012; Kahyaoglu Süt and Küçük-kaya, 2016; Keskin Kiziltepe and Kurtgöz, 2020; Öztürk et al., 2017; Senyuva, 2013) emphasized that nursing education is not fully suitable for DE.

2. Background

Examination of DE in nursing showed that most studies were conducted with nurses and students. There are studies stating that nurses' perception level of DE is not high (Boz Yüksekdağ, 2020) but there are also studies stating that there is positive attitude towards online learning (Kahraman, 2011; Xing et al., 2018). Examination of studies conducted with nursing students showed that there is a moderate (Keskin Kiziltepe and Kurtgöz, 2020; Öztürk et al., 2017) and positive attitude towards DE (Mohamed and IbrahimMohamed, 2018). Prata et al. (2020) reported that applications based on problem-based learning for theoretical classes and applications in nursing education during the pandemic are beneficial, that they promote collaborative knowledge learning and that they are an effective strategy that strengthens relationships between teachers and students, even in times of social isolation. Delva et al. (2019) recommended in their qualitative study, that nursing schools should benefit from evidence-based practices to improve the quality of DE until national quality standards for DE are established by accreditation bodies.

The nursing department also completely switched to DE during the COVID-19 pandemic. This new situation made the studies regarding attitudes, experiences, and difficulties of nursing instructors (NI) towards DE more important. This study examines the perception of NIs, who work in the nursing departments of universities, towards distance education and the factors affecting it. It is thought that the study results

will contribute to improving the effectiveness of DE.

2.1. Aim of study

To determine the factors affecting the perceptions of nurse instructors towards distance education during the pandemic.

2.2. Research questions

- What is the perception of nurse instructors towards distance education during the pandemic?
- What are the factors affecting the perception of nurse instructors towards distance education during the pandemic?

3. Methods

3.1. Design

The study follows a descriptive and cross-sectional research model.

3.2. Participants

The study population was composed of nurse instructors working in the nursing departments of universities. According to the Higher Education Information Management System the number of nurses working in nursing faculty departments of state and private universities in Turkey is 2180 (Higher Education Information Management System, 2020). In determining the sample size, 95% confidence level and 5% margin of error formula were used and it was aimed to reach 327 instructors. Data were collected from 396 instructors who volunteered to participate in the study. However, seven lecturers who filled out the form but worked in other departments and were not nurses were excluded from the sample. The study was concluded with 389 nurse instructors.

3.3. Data collection

The data were collected with the information form and the Perceptions of Distance Education Scale.

3.3.1. Information form

The form was prepared by the researchers in line with the literature (Andsoy et al., 2012; Gök and Kılıç Çakmak, 2020; Kahyaoglu Süt and Küçük-kaya, 2016; Keskin Kiziltepe and Kurtgöz, 2020; Öztürk et al., 2017) and consists of two parts and 18 questions.

The first part contains questions about the instructors' socio-demographic and professional characteristics (age, gender, educational status, place of work, title, area of expertise).

The second part consists of questions regarding the instructors' educational experiences, views, experienced difficulties, and recommendations. Questions about experiences with DE include the need for DE in education, education status related to DE, change of opinion towards DE compared to the pre-pandemic period, use of new applications in DE, eligibility of DE in nursing education, and believing the DE is effective. Questions regarding problems with DE include problems with connection/infrastructure/system, having trouble getting students to participate in the class, having trouble assessing students, having difficulties in preparing online courses, missing face-to-face education, experiencing problems due to working from home, and experiencing physical problems due to inactivity in DE. The NIs were asked to evaluate themselves via Visual Analog Scale (VAS) from 0 to 10 in terms of DE skill competency.

3.3.2. Perceptions of Distance Education Scale (PDES)

There are no reverse items in the 5-point Likert type scale, which consists of 21 items (1-Strongly Disagree 5-Strongly Agree) developed by Gök and Kılıç Çakmak in 2020. The lowest possible score is 21 and the

highest 105. A total score between 21 and 49 is evaluated as low, a score between 49.01 and 77 as medium, and a score between 77.01 and 105 as high perception.

The scale consists of three subdimensions:

1. The subdimension "Perception of Basic Perspective (PBP)" examines how instructors see DE. The PBP subdimension consists of 10 items and the lowest possible score is 10 and the highest 50 points. A total PBP score between 10 and 23.33 is evaluated as low, a score between 23.34 and 36.77 as medium, and a score between 36.78 and 50 as high perception.
2. The subdimension "Resource Access (RA)" examines the nurse instructors' and students' access to DE lesson resources and the DE environment. The RA subdimension consists of 6 items and the lowest possible score is 6 and the highest 30 points. A total RA score between 6 and 14 is evaluated as low, a score between 14.01 and 22 as medium, and a score between 22.01 and 30 as high perception.
3. The "Education Planning (EP)" subdimension examines the job descriptions, responsibilities and expectations of people working in DE. The EP subdimension consists of 5 items and the lowest possible score is 5 and the highest 25 points. A total PE score between 5 and 11.66 is evaluated as low, a score between 11.67 and 18.32 as medium, and a score between 18.33 and 25 as high perception.

In the original study of the scale, the Cronbach's alpha internal consistency coefficient of the PDES was 0.91, the PBP factor was 0.91, the RA factor was 0.81 and the EP factor was 0.80 (Gök and Kiliç Çakmak, 2020). In the current study, the Cronbach Alpha coefficient was 0.90 for PDES, 0.92 for PBP the factor, 0.81 for the RA factor and 0.64 for the EP factor.

Data were collected using a Google questionnaire. Before the study, a pilot study was conducted with 10 NIs to test the data collection tools in terms of expressiveness and comprehensibility. The pilot study results showed that there was no need for changes. Thus, the questionnaires were included in the study. Over 1600 NIs who fit the inclusion criteria (nurse instructors who work in nursing education at the university level in Turkey, and who agreed to participate), and whose e-mail address could be reached were sent a google survey link created through WhatsApp groups. Using the snowball sampling method, participants were asked to share the link created for the study with their friends and acquaintances. The data was collected from January 11, 2021 to February 2, 2021.

3.4. Ethical considerations

Prior to data collection, approval of the Ethics Committee (dated 05.01.2021 - numbered 273) and permission to use the scale was obtained from the researcher who developed the PDES. The data was collected online via Google survey, so no permission was obtained from any institution. The first page consisted of an informed consent section explaining the purpose of the study, and those who gave consent were included. The Google survey was arranged in a way that the personal information of the participants was not visible. Responses given via the Google survey were collected by the researchers and stored in digitally encrypted form. It is planned to obtain professional consultancy after 5 years for the research data to be destroyed digitally with appropriate software.

3.5. Data analysis

The data were evaluated with the Statistical Package for Social Sciences (SPSS) 24.0 windows program, and the statistical significance value was accepted as $p < .05$. The distributions of normality of the mean scores of the PDES were analyzed using the skewness and kurtosis test (-2 to $+2$), and it was found that the scale and its subdimensions showed normal distribution. Frequency, percentage, arithmetic mean,

standard deviation, median, Cronbach Alpha internal consistency analysis, t -test, one-way ANOVA test and Tukey test were used in the analysis of the data. Kruskal Wallis and Games Howell tests were used in cases where there was no normal distribution.

4. Results

The mean age of the NIs was 39.48 ± 9.7 years (min: 23 max: 73 median: 38), and their mean academic experience was 11.57 ± 9.4 years (min: 1 max: 50 median: 8). The NIs descriptive characteristics are shown in Table 1.

4.1. Findings regarding nurse instructors' distance education experiences

Examination of nurse instructors' distance education experiences showed that 90.2% of the NIs used DE for theoretical, 24.4% for laboratory and 59.9% for clinical application classes. Of the NIs 65.8% stated that they conduct the classes in a synchronous way, 32.1% in form of a hybrid (synchronous and asynchronous together) and 2.1% only asynchronous. As 24.9% of the participants were continuing with their postgraduate studies, they said that they also used DE as a student. Of the NIs 57.3% stated that there is a need for training regarding DE, 52.7% said that they received training in this matter, and that most of the trainings were given by universities but that they also participated in courses/webinars. It was determined that the trainings organized by the institutions were mostly aimed at the use of the DE system, and that courses and webinars were aimed at DE skills for instructors.

Table 2 shows experiences of NIs and the problems they have experienced regarding DE.

Participants were asked for their suggestions about DE. The NIs stated that DE may be suitable for theoretical classes in nursing education but that laboratory and clinical applications should be carried out face-to-face or that simulations, or hybrid/mixed trainings could be used. The NIs suggested that student participation in the classes should be increased, that the used DE systems should be improved, and that instructor trainings should be given to lecturers.

4.2. Findings regarding nurse instructors' perception of distance education

The NIs evaluated their DE skills on a scale from 1 to 10 and their mean proficiency score was determined as 7.44 ± 1.32 (min: 3 max: 10). The total mean PDES and subdimension scores of the NIs are shown in Table 3. The NIs perception regarding PDES, and its PBP and RA subdimensions was at a medium level and their perception regarding the EP subdimension at a high level.

4.3. Findings regarding the factors affecting nurse instructors' perception of distance education

The NIs PDES and experiences, views, and experienced problems regarding DE were compared. There was no significant difference

Table 1
Descriptive characteristics of nursing instructors (n = 389).

Characteristics	n	%	
Gender	Female	373	95.9
	Male	16	4.1
Educational status	Bachelor/master's degree	78	20.1
	PhD	311	79.9
Title	Prof. Dr.	44	11.3
	Assoc. Prof. Dr.	48	12.3
	Dr. Faculty member	126	32.4
	Instructor	66	17.0
	Research associate	105	27.0
University	State	315	81.0
	Foundation	74	19.0

Table 2
Views of nursing instructors towards distance education (n = 389).

			n	%
Experience regarding distance education	Did you need training on DE?	Yes	223	57.3
		No	166	42.7
	Have you received training on DE?	Yes	205	52.7
		No	184	47.3
	Has your opinion changed towards DE compared to the pre-pandemic period?	It has changed positively	73	18.8
		It has changed negatively	108	27.8
		It has not changed		
	Have you used new applications in DE?	Yes	323	83
		No	66	17
	Have you carried out different activities in DE classes?	Yes	231	59.4
	No	158	40.6	
Problems experienced in DE	Is DE suitable for nursing education?	Yes	244	62.7
		No	145	37.3
	Is DE sufficient in conveying skills?	Yes	93	23.9
		No	296	76.1
	Do you believe that DE is effective?	Yes	290	74.6
		No	99	25.4
	I had problems with internet access	Yes	209	53.7
		No	180	46.3
	I had problems with connection/infrastructure/the system	Yes	226	58.1
		No	163	41.9
	I had problems in ensuring students to participate	Yes	307	78.9
		No	82	21.1
	I had problems in evaluating students	Yes	249	64.0
		No	140	36.0
	I had problems in preparing online classes	Yes	91	23.4
	No	298	76.6	
I miss face-to-face education	Yes	253	65.0	
	No	136	35.0	
I had problems working from home	Yes	184	47.3	
	No	205	52.7	
I experienced physical problems due to inactivity in DE	Yes	217	55.8	
	No	172	44.2	

Table 3
Nursing instructors' mean perception towards distance education scale scores (n = 389).

	Number of items	x ± SD	Min-max
Perceptions of Distance Education Scale (PDES)	21	64.62 ± 13.90	28–101
Perception factor regarding basic perspective (PBP)	10	26.28 ± 8.93	10–48
Resource access factor (RA)	6	19.93 ± 4.92	6–30
Education planning factor (EP)	5	18.41 ± 3.53	9–25

x: Mean SD: Standard deviation.

regarding the NIs believing that training for DE is necessary, regarding the type of application of the classes (synchronous, asynchronous, hybrid), regarding carrying out clinical practice via DE, and PDES and subdimension scores ($p > .05$). It was found that NIs who used DE for laboratory classes had higher RA scores ($t = 2.12$ $p = .034$), and that those who used DE for theoretical classes had higher EP scores ($t = 2.41$ $p = .016$). Among the NIs, those who missed giving face-to-face classes had lower PDES ($t = -5.54$ $p = .000$) and PBP scores ($t = -8.28$ $p = .000$) and those who had difficulties preparing online classes ($t = -2.20$ $p = .028$) also had low PBP scores.

Other factors affecting the NIs' DE perception are show in in [Table 4](#).

Table 4
Factors affecting nursing instructors' perception towards distance education (n = 389).

Variables		PDES x ± SD (n)	PBP x ± SD (n)	RA x ± SD (n)	EP x ± SD (n)
Change of opinion towards DE compared to the pre-pandemic period	Positive ^a	69.20 ± 12 (208)	29.67 ± 7 (208)	20.76 ± 4 (208)	18.76 ± 3 (208)
	Negative ^b	56.32 ± 10 (73)	20.23 ± 6 (73)	18.54 ± 4 (73)	17.54 ± 3 (73)
	Unchanged ^c	61.41 ± 15 (108)	23.83 ± 9 (108)	19.93 ± 4 (108)	18.31 ± 3 (108)
		KW = 59.32 $p = .000$ a > c > b	KW = 74.91 $p = .000$ a > c > b	F = 7.05 $p = .001$ a > c > b	F = 3.28 $p = .038$ a > c > b
Having received training on DE	Yes	66.86 ± 14 (205)	27.13 ± 8 (205)	20.60 ± 5 (205)	19.12 ± 3 (205)
	No	62.12 ± 13 (184)	25.33 ± 9 (184)	19.17 ± 4 (184)	17.61 ± 3 (184)
		t = 3.40 $p = .001$	t = 1.99 $p = .047$	t = 2.88 $p = .004$	t = 4.30 $p = .000$
Using new applications in DE	Yes	66.02 ± 13 (323)	27.09 ± 8 (323)	20.30 ± 4 (323)	18.62 ± 3 (323)
	No	57.77 ± 14 (66)	22.28 ± 8 (66)	18.10 ± 5 (66)	17.37 ± 3 (66)
		t = 4.50 $p = .000$	t = 4.06 $p = .000$	t = 3.35 $p = .001$	t = 2.62 $p = .009$
Believing that DE is effective	Yes	67.38 ± 13 (290)	28.31 ± 8 (290)	20.44 ± 4 (290)	18.63 ± 3 (290)
	No	56.52 ± 11 (99)	20.32 ± 7 (99)	18.43 ± 4 (99)	17.76 ± 3 (99)
		t = -7.13 $p = .000$	t = -8.33 $p = .000$	t = -3.56 $p = .000$	t = -2.10 $p = .036$
Believing that DE is suitable for nursing education	Yes	73.09 ± 11 (145)	32.62 ± 7 (145)	21.27 ± 4 (145)	19.2 ± 3 (145)
	No	59.59 ± 12 (244)	22.51 ± 7 (244)	19.13 ± 5 (244)	17.94 ± 3 (244)
		t = -12.90 $p = .000$	t = -4.23 $p = .000$	t = -3.43 $p = .000$	t = -10.48 $p = .001$
Having connection/system problems	Yes	63.26 ± 13 (226)		19.46 ± 4 (226)	18.06 ± 3 (226)
	No	66.50 ± 14 (163)		20.57 ± 5 (163)	18.88 ± 3 (163)
		t = -2.28 $p = .023$		t = -2.20 $p = .028$	t = -2.27 $p = .023$
Having problems in ensuring students to participate	Yes	63.22 ± 13 (307)	25.19 ± 8 (307)		
	No	69.87 ± 12 (82)	30.35 ± 8 (82)		
		t = -3.99 $p = .000$	t = -4.69 $p = .000$	p > .05	p > .05

(continued on next page)

Table 4 (continued)

Variables		PDES x ± SD (n)	PBP x ± SD (n)	RA x ± SD (n)	EP x ± SD (n)
Having problems in evaluating students	Yes	62.68 ± 13 (249)	24.78 ± 8 (249)	19.52 ± 4 (249)	p > .05
	No	68.07 ± 14 (140)	28.93 ± 9 (140)	20.66 ± 5 (140)	
		t = -3.72 p = .000	t = -4.50 p = .000	t = -2.20 p = .028	
Having problems working from home	Yes	62.42 ± 13 (184)	24.73 ± 8 (184)	p > .05	p > .05
	No	66.60 ± 14 (205)	27.66 ± 9 (205)		
		t = -2.98 p = .003	t = -3.29 p = .001		

x: Mean SD: standard deviation F: One Way Anova KW: Kruskal Wallis t: t-test p: Significant value.

PDES: Perceptions of Distance Education Scale PRBP: Perception factor regarding basic perspective.

RA: Resource access factor EP: Education planning factor.

5. Discussion

Nursing education in Turkey was completely carried out by DE during the pandemic. However, the schools decided how to conduct the applied lessons. Some universities postponed clinical applications to be carried out later face-to-face. The general trend has been that only senior students would do clinical practice in the hospital. The fact that almost all the participants stated that they carried out theoretical lessons as DE and that more than half of them conducted clinical practice lessons via DE was interpreted in connection with this situation. It was noteworthy that DE was conducted asynchronous and in form of hybrid education and that the ratio of asynchronous DE was very low. It is known that some schools chose asynchronous education since their infrastructure was not ready for DE. The fact that the ratio of synchronous education was higher is satisfying since it shows that the interaction between the student and the instructor was tried to be maintained.

It is satisfying that more than half of the participants have received training regarding DE during the pandemic. However, the trainings organized by the institutions were more regarding the functioning of the DE system. The fact that more than half of the NIs stated that they needed more training and that they suggested trainings regarding DE lecturer skills, shows that there is still need for training in this matter. It is natural for NIs to want to improve their skills in DE in this new experience where training takes place entirely online. Jones et al. (2020) emphasized in their study that lecturers should be trained in terms of online education.

NIs thought that DE can be used for theoretical lessons and that it is suitable for nursing education in this regard. However, they also stated that DE is not sufficient for gaining skills, that laboratory and clinical applications should be carried out face-to-face and that simulation applications, and hybrid classes could be used. Studies conducted with nursing students reported that DE is not suitable for nursing education (Andsoy et al., 2012; Kahyaoglu Süt and Küçükaya, 2016; Keskin Kiziltepe and Kurtgöz, 2020), that practical courses cannot be conducted with DE (Öztürk et al., 2017; Kürtüncü and Kurt, 2020), that DE is not useful (Irinoye et al., 2016), and that the DE system has positive effects on the learning process, but that it cannot replace face-to-face education (Ali et al., 2020). A study evaluating a DE course reported that some activities can be carried out for theoretical and practical classes in DE,

despite digital access limitation for some students, and that a hybrid education would be suitable (Prata et al., 2020). A study conducted with nurses (Senyuva, 2013) stated that most of the participants thought that nursing education could not completely be carried out via DE. Literature examination showed that NIs, nurses and nursing students are against nursing education being carried out completely by DE. While students have more negative thoughts regarding DE compared to NIs, NIs think that DE has brought along alternative applications and recommendations.

The NIs' Perceptions of Distance Education Scale and Visual Analog Scale scores showed that their perceptions and DE skills are at a medium level. The fact that both results are similar suggests that the NIs evaluated themselves objectively. Gök and Kiliç Çakmak (2020) reported in their study conducted with lecturers that the perception towards DE was at the medium level, which is consistent with the current study. Literature states that nursing students' attitude towards DE is positive (Mohamed and IbrahimMohamed, 2018) and at the medium (Irinoye et al., 2016; Keskin Kiziltepe and Kurtgöz, 2020; Öztürk et al., 2017) level. Studies conducted with nurses showed that the perception level of DE was not high (Boz Yüksekdag, 2020), but there are also studies that reported that there is a positive attitude towards online learning (Kahraman, 2011; Xing et al., 2018). The impression in the current study was that the conditions created by the Covid-19 pandemic might be effective in the moderate perception of DE. The fact that nearly half of the NIs had to conduct their lessons without DE training may have caused this result. Analyses showed that those who had received training on DE and had less problems in the process of DE had a more positive perception, which supports our opinion. However, the fact that the NIs felt that there is a need for training in DE skills and the way of applying the classes did not affect their perception of DE.

PBP, one of the subdimensions of the DE perception scale evaluates the general approach to DE. The fact that the PBP score was determined at a medium level may be associated with the NIs wanting training regarding DE skills, their view that DE is not suitable for nursing education and their difficulties in evaluating the class participation of students. A study conducted with nursing students (Keskin Kiziltepe and Kurtgöz, 2020) reported that students had problems attending the classes and experienced learning difficulties in classes aimed at gaining practical skills, and that the attitude scores towards DE of these students were lower. The current study, conducted with instructors, showed similar results. On the other hand, NIs statement that his views on DE have changed positively compared to the pre-pandemic period, that he used new applications in the DE process and that he did different activities, shows that learning by experience has a positive effect on the attitude.

Another subdimension of the DE perception scale, the RA subdimension, evaluates access to class resources and environment. More than half of the NIs had difficulties with connection and the system, which was effective in this score. It is stated in the literature that nursing students experienced difficulties with the internet connection (Fogg et al., 2020; Keskin Kiziltepe and Kurtgöz, 2020) and problems regarding the DE system (Keskin Kiziltepe and Kurtgöz, 2020; Öztürk et al., 2017). It is important to provide equal opportunities to students in DE (Delva et al., 2019). In the current study, it is noteworthy that NIs also had problems in accessing resources like those experienced by students.

In EP, which is another factor of the DE perception scale, the job description, responsibilities, and expectations from the people in charge of the DE are examined. The high level of this perception shows that the lecturers fulfill their responsibilities in the DE system. The fact that the perception of duty and responsibility increased in those NIs who had positive views towards DE compared to the pre-pandemic period, who received training regarding DE, who used new applications in DE classes and who thought that DE is suitable for nursing education, supports our opinion.

Those NIs who experienced connection and system problems, who

had difficulties in making students attend the classes and evaluating them, and who had problems while working from home had lower PDES scores. These results created the impression that the problems that may be experienced in conducting lessons with DE affect the perception towards DE. These results are not only understandable but also suggest that NIs should be supported in dealing with problems. Thus, the DE system can be used more effectively and efficiently, and the DE perception may change positively.

5.1. Struggles and limitations

Having to conduct the surveys online due to the Covid-19 pandemic and not being able to interact with the participants was accepted as a limitation. Since the data of all studies conducted during the pandemic are collected online, it was observed that the participants were negatively affected by this situation and reply less to email notifications. Since the NIs, who filled in the questionnaires, placed importance on DE, may have affected the study results.

6. Conclusion

This study examined the experience, views, and perception of NIs towards DE during the pandemic. It was observed that the participants conducted theoretical, laboratory and practical lessons on online platforms. Although the use of DE in theoretical lessons has been accepted in nursing education, it was found that it is ineffective in clinical practice.

NIs' perception towards DE is at a medium level. While difficulties with DE negatively affect the perception, positive thoughts and experiences positively affect DE perception. NIs want to develop themselves and receive training in terms of DE. It is thought that knowledge and experience will positively affect DE perception. Due to technological developments and being in the information age, it is thought that DE will become an even bigger part of our lives. For educational institutions to adapt to these developments, it is important to support NIs in terms of DE, to organize instructor trainings, to inform them about the use of web tools, to make arrangements to increase student participation in the lessons, and to provide ease of internet access. We believe that developing solutions for problems experienced with DE and providing technical support will change DE perception positively. It is a fact that DE cannot replace clinical practice. However, developing simulation applications in skill training may be beneficial. Conducting qualitative studies to determine the training needs of NIs regarding DE will make significant contributions to the literature. In addition, conducting comparative studies examining the views and perceptions of nursing students and NIs regarding DE will also enrich the DE literature.

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CRediT authorship contribution statement

ÖE and SU design the study, prepared the manuscript, collected the data and guided the paper in the whole process from designing to writing. ÖE analyzed the data. SU reviewed articles and extracted data. All listed authors meet the authorship criteria and that all authors are in agreement with the content of the manuscript.

Declaration of competing interest

No conflict of interest has been declared by the authors.

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