Araştırma Makalesi/ Research Article

Evaluation of Nursing Educators' Perceptions of Distance Education During the COVID-19 Pandemic and Affecting Factors

Hemşirelik Eğitimcilerinin COVID-19 Pandemisinde Uzaktan Eğitim Algıları ve Etkileyen Faktörlerin Değerlendirilmesi

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ABSTRACT
Objective: To evaluate perceptions of distance education in nursing educators and affecting factors during COVID-19.
Methods: This descriptive cross-sectional research was conducted with 374 educators from different schools of nursing in Turkey. The data were collected using a Personal Information Form and the Perception of Distance Education Questionnaire and were analyzed by descriptive analysis, independent samples t-test and ANOVA, linear regression analysis, and thematic analysis.
Results: Four factors related to educators' perceptions of distance education were found: a high level of satisfaction with distance education (DE), incorporating brainstorming and video-viewing techniques, and the realization that course learning outcomes could be achieved. Seven themes regarding advantages of DE emerged: provided better time management, flexibility, and ease of access, video recordings of lessons made learning easier, physical environment issues were solved, DE is a suitable method for theoretical courses, DE made assessment and evaluation easier, DE ensured the continuation of education, and DE improved the educators' technology skills. In addition, six themes regarding disadvantages of DE emerged: inadequate technological infrastructure, DE caused health problems, deterioration of the learning and teaching process, challenges in applied education, difficulties in assessment and evaluation, and an increase in educator and student workloads.
Conclusion: To increase positive perceptions of nursing educators towards DE, active teaching techniques should be encouraged to increase satisfaction with DE. The perceptions of nursing educators should be taken into consideration to better structure the course curricula and to eliminate the distance education infrastructure deficiencies of the institutions.
Keywords: Nursing education, distance education, perception of educators, COVID-19 pandemic

ÖZ
Amaç: Bu çalışmada, COVID-19 sürecinde hemşirelik eğitimcilerinin uzaktan eğitim algılarının ve etkileyen faktörlerin incelenmesi amaçlanmıştır.
Yöntem: Kesitsel ve tanımlayıcı türdeki araştırma, Türkiye'deki farklı hemşirelik okullarından 374 hemşirelik öğretim elemanı ile yapılmıştır. Veriler araştırmacılar tarafından geliştirilen Veri Toplama Formu ve Uzaktan Eğitim Algısı Anketi kullanılarak toplanmıştır. Veriler, tanımlayıcı istatiksel analizler, bağımsız örneklem t-testi, ANOVA, lineer regresyon analizi (Stepwise) ve tematik analiz ile değerlendirilmiştir.
Bulgular: Eğitimcilerin uzaktan eğitimden memnun olma düzeyleri, derslerde beyin fırtınası ve video izletme tekniği kullanma durumu ve uzaktan eğitimle verilen derslerde öğrenme hedeflerine ulaşılacağını düşünme durumunun uzaktan eğitim algısı ile ilişkili dört faktör olduğu saptanmıştır. Uzaktan eğitimin avantajlarına yönelik; zaman yönetiminin daha iyi olması, esneklik ve erişim kolaylığı sağlaması, derslerin video kaydının yapılmasının öğrenmeyi kolaylaştırması, fiziksel çevre sorunlarını çözmesi, teorik dersler için uygun bir yöntem olması, ölçme ve değerlendirmeyi kolaylaştırması, eğitimin devamını sağlaması ve eğitimcilerin teknoloji becerilerini geliştirmesi olmak üzere yedi tema, uzaktan eğitimin dezavantajları ile ilgili de; yetersiz teknolojik altyapı, sağlık sorunlarına yol açması, öğrenme-öğretme sürecinin bozulması, uygulamalı eğitimlerdeki zorluklar, ölçme ve değerlendirmedeki zorluklar, eğitimci ve öğrenci iş yüklerinde artış olmak üzere altı tema belirlenmiştir.
Sonuç: Hemşirelik eğitimcilerinin uzaktan eğitime yönelik olumlu algılarını artırmak için uzaktan eğitimden memnuniyeti artıracak aktif öğretim teknikleri teşvik edilmelidir. Ders müfredatlarının daha iyi yapılandırılması ve kurumların uzaktan eğitim altyapı eksikliklerinin giderilmesi için hemşirelik eğitimcilerinin algıları dikkate alınmalıdır.
Anahtar Kelimeler: Hemşirelik eğitimi, uzaktan eğitim, eğitimci algısı, COVID-19 pandemisi.

Introduction

When the World Health Organization (WHO) declared COVID-19 a global pandemic, significant changes occurred in all areas, from social life to the economy and from business to education (Vatan et al., 2020). One of these changes was the suspension of face-to-face education in many countries around the world due to social isolation mandates to reduce the rapid spread of the disease and the continuation of education by distance education (DE) (Kurnaz and Serçemeli, 2020; Daniel, 2020).

Prior to the pandemic, only a limited number of theoretical courses in education programs were carried out by DE for a limited period, while all education programs, including applied courses, were continued with the DE. This education model has brought many challenges (Kurnaz and Serçemeli, 2020). Despite advances in computer technology and the exponential growth of technological applications that have paved the way for online education, it was seen that very few educators and universities were ready for DE (Moralista and Oducado, 2020). DE brought with it some problems related to assessment and evaluation and exam reliability (Jackson et al., 2020). In addition, opportunity inequalities and digital literacy differences became apparent due to the lack of resources between socioeconomic groups, the lack of infrastructure of schools, problems with internet access in rural areas, and the lack of technological equipment (Sarı and Nayır, 2020).

The DE process in Turkey started on March 23, 2020, with the decision of the Higher Education Council (YÖK). YÖK announced decisions that students who are enrolled in nursing programs could complete their clinical education in health institutions as well as through DE (YÖK, 2020). This new situation made the studies about experiences and perceptions of nursing faculty about DE more important.

DE caused greater difficulties in nursing educational programs that require both theoretical and applied methods (Çifcibaşı et al., 2020). This process has forced educators to think more about how education should be delivered most effectively. Educators spent much more time ensuring that the students and themselves adapted to the new system and that the education could continue smoothly. Following this sudden change in the education system, educators had to quickly become more familiar with new educational tools and teaching methods. For some educators, this change to digital and online DE has created serious stress, while those with prior experience or more familiarity with these tools were found to adapt easily to the process (Georgsson, 2020).

With DE, educators had the opportunity to use digital learning tools and learning methods that they had not experienced before (Daniel, 2020). There is very limited study in the literature that includes perceptions of nursing educators regarding DE during COVID-19 (Eycan and Ulupınar, 2021). Most studies aimed at the difficulties experienced by faculty and students in other fields (Kürtüncü and Kurt, 2020; Olum et al., 2020; Ramos-Morcillo et al., 2020).

Although it is not known how long the pandemic will continue, it is foreseen that DE will continue in universities after the pandemic. This study aimed to evaluate nursing educators' perceptions of DE and affecting factors during the COVID-19 pandemic. The three research questions were as follows:

1. What are the perceptions of nursing educators regarding DE experienced during the COVID-19 pandemic?
2. What are the factors affecting the DE perceptions of nursing educators during the COVID-19 pandemic?
3. What are the perceptions of nursing faculty members regarding the advantages and challenges of DE during the COVID-19 pandemic?

This study can contribute not only to the ongoing development of DE in the pandemic period but also to the development of DE delivered post-COVID and to the scientific literature by understanding the educators' perceptions about DE to improve DE effectiveness.

Method

Design

This study is descriptive cross-sectional research.

Participants and Sample Size

The research population comprised 2.936 faculty members teaching in nursing undergraduate programs from 142 undergraduate nursing programs available in Turkey that are approved by the Higher Education Council (YÖK, 2020). The sample size was calculated by using the d-value method developed by Cohen. The sample to be used in the study is for linear regression modeling, in which approximately 22 independent variables would be measured in effect on a dependent variable; $d=0.10$ (small effect size), $\alpha=0.05$ (margin of error), and 1-

β=0.95 (power) were calculated as a minimum of 336 participants by using the G-power (version 3.1) package program. A total study sample of 374 educators volunteered to participate in the study and completed all forms. Seventy-five incomplete forms were not evaluated. The study was conducted with participants from seven different regions of Turkey and from 70 different nursing schools.

Instruments

Data were collected using a questionnaire developed by the researchers. The first part of the form was a Personal Information Form, and the second part was the Perception of DE Questionnaire (PDEQ) developed based on the literature.

The personal information form consisted of 20 questions about the sociodemographic characteristics of faculty members, academic characteristics, and information about DE, and the participants were asked to rate their satisfaction levels of DE and their ability to use technology from 1 (low) to 10 (high). Finally, there were two open-ended questions that asked for participants' opinions of the greatest advantages and disadvantages of DE.

The Perception of DE Questionnaire (POEQ) was developed by researchers based on the literature to measure the participants' perceptions of DE (Oducado, 2020; Subedi et al., 2020). The questionnaire consisted of 11 items and 5-point Likert-type questionnaire ranging from 1 (strongly disagree) to 5 (strongly agree). The possible scores for the POEQ range from 11 to 55, with higher scores, indicating that the participants have a high perception of online education. The Cronbach's alpha of the questionnaire was 0.74 in this study. The POEQ calculated reliability was within the sufficient level for this study (0.70–0.80) (Polit and Beck, 2012).

Data Collection

The data were collected between February and May 2021. Faculty members in nursing programs were informed about the study using their email addresses found on institution webpages, along with the study's weblink. When they clicked on the link, an informed consent form appeared for the participants. After reading this information, the participants could begin completing the questionnaire anonymously after confirming acceptance. A reminder email was sent three times at intervals of 15 days. Those who agreed to participate in the study were not given any incentives. The study took about 10–15 minutes to complete.

Data Analysis

SPSS (Statistical Package for the Social Sciences) version 25.0 (IBM Corp., Armonk, NY, USA) program was used for statistical analysis. The Kolmogorov–Smirnov test was used to determine whether the data had a normal distribution, and it was determined that it had. Descriptive statistical methods (number, percentage, average, median, standard deviation, etc.) were used, and as well as independent samples t-test and ANOVA (variance) analysis were used to test the difference between the groups. Linear regression analysis (stepwise) was used to determine the independent factors which were a master's education level and working only in undergraduate programs, receiving adequate technical support, receiving training about DE, thinking DE courses are as effective as face-to-face courses, giving applied nursing courses via DE, satisfaction with DE, using brainstorming, video viewing in theoretical courses and believing learning goals would be achieved in DE courses that were statistically significant associated with educators' perceptions of DE. The results were evaluated in the 95% confidence range, and significant was determined to be $p < 0.05$.

Thematic analysis was used to analyze the answers of the two open-ended questions. After disassembling and reassembling statements, were organized into categories and subcategories, and themes emerged after looking at the explanations of the subcategories. During this process, the participants' statements were underlined, and codes were written down by each researcher independently, after which the emerged codes were discussed to determine their meanings. A total of 50 codes were determined, the statements regarding these codes were listed, and all the codes were summarized and focused back to the main topic again in order to determine each category. The results were based upon the themes on which researchers were in complete agreement (Polit and Beck, 2012).

Results

The mean age of the participants was 37.82 (SD±8.34; range=23–74), 92.2% (n=345) were women, 64.2% (n=240) were married, 79.7% had a PhD (n=298), 35.3% (n=132) were assistant professors, and 80.5% (n=301) worked at state universities. Almost all participants lectured in BSN programs (n=359), whereas 51.1% (n=191) lectured in master's programs; 24.3% (n=91) also lectured in PhD programs and 38% (n=142) of participants' work duration as an academic was 11 years or more (Table 1).

Table 1. The participants' characteristics (n=374)

Characteristics	Category	n	%	Mean (SD)
Age	All	374	100.0	37.82 (8.34)
Age group	23-39	227	60.7	
	40-74	147	39.3	
Gender	Women	345	92.2	
	Male	29	7.8	
Marital status	Married	240	64.2	
	Single	134	35.8	
Education	Master	76	20.3	
	Doctorate	298	79.7	
Academic title	Research assistant	114	30.5	
	Lecturer	57	15.2	
	Assist. professor	132	35.3	
	Assoc. professor	46	12.3	
	Professor	25	6.7	
Types of university	Foundation	73	19.5	
	State	301	80.5	
Work duration as an academician	1-5 years	119	31.8	
	6-10 years	113	30.2	
	11 years and	142	38.0	
Lectured program type*	Undergraduate	359	96.0	
	Master	191	51.1	
	PhD	91	24.3	

The mean number of teaching hours during the pandemic reported by participants was 14.40 (SD±10.32) weekly, 33.7% (n=126) had DE experience before the pandemic, 69.5% (n=260) received training about DE, 54.0% (n=202) had used the online platform Zoom, 48.7% (n=182) used Microsoft Teams while they were lecturing during the pandemic. In addition, 67.6% (n=253) were lectured synchronously. Just 28.6% (n=107) thought they achieved the learning objectives of the courses, 65% (n=243) thought DE was not as effective as face-to-face education, 28.9% (n=108) always and 48.9% (n=183) usually got technical support during the DE (Table 2).

During the DE, the most common teaching technique used in theoretical courses was used question-answer (95.2%) and the least used technique was brainstorming (56.4%). It was found that 92.2% of participants gave clinical courses through DE. For these clinical courses, 90.4% (n=312) of participants used case studies, 76.2% (n=263) showed videos, 42.6% (n=147) required students to submit video recordings that demonstrated their skills, while 12.2% (n=42) continued clinical practice, 11.3% (n=39) continued laboratory work, and 9.3% (n=32) used virtual simulation. The mean technology level of the participants was found to be 7.68±1.39, and the mean satisfaction with the DE was 5.54±1.88 (min-max: 1-10) (Table 2). The average score of the participants from the PDEQ was 29.08 (SD±6.28; range= 13-50).

In the univariate analysis, the variables that were statistically significant in relation to DE perceptions were investigated by using a multivariate linear regression analysis with the stepwise method. As a result of the analysis, a significant regression model, F=40.410, p=<0.001, and 30.5% (R_2=0.305) of the variance in the dependent variable, were explained by the independent variables. Accordingly, a high level of satisfaction with DE (β=0.47; t=10.22; p=<0.001), brainstorming (β=0.10; t=2.28; p=0.023), video viewing (β=0.10; t=2.23; p=0.026) and believing learning goals would be achieved in DE courses (β=0.10; t=2.14; p=0.033) were found to be independent factors related to educators' perceptions of DE (Table 1). The remaining six variables, a master's education level and working only in undergraduate programs, receiving adequate technical support, receiving training about DE, thinking DE courses are as effective as face-to-face courses, and giving applied nursing courses via DE, did not show significant effects (p>0.05; Table 3).

Table 2. Distance education characteristics of participants (N=374)

Characteristics	Mean (SD)	Min-max	
Weekly teaching hour	14.4 (10.32)		
The technology level of the participants (1-10)	7.68 (1.39)	(1-10)	
Satisfaction with the DE	5.54 (1.88)	(1-10)	
	Category	**n**	**%**
DE's experience before the pandemic	Yes	126	33.7
	No	248	66.3
Receiving training about DE	Yes	260	69.5
	No	114	30.5
The educational systems used for DE *	Adobe Connect	55	14.7
	Zoom	202	54.0
	Skype	16	4.3
	Blackboard	18	4.8
	Microsoft Teams	182	48.7
	Google Classroom	44	11.8
	Moodle	36	9.6
	Hangouts Meet	16	4.3
	Edmodo	7	1.9
	Teamlink	11	2.9
Types of teaching in DE	Synchronous	253	67.6
	Mixed (Synchronous-Asynchronous	121	32.4
Thinking that achieved the learning objectives of the courses	Yes	107	28.6
	No	91	24.3
	Undecided	176	28.65(5.57)
Thinking that DE is effective as face-to-face education	Yes	44	11.8
	No	243	65.0
Receiving adequate technical support during the DE	Usually	183	48.9
	Sometimes	73	19.5
	Never	10	2.7
Teaching techniques used in theoretical courses*	Question-answer technique	356	95.2
	Brainstorming technique	211	56.4
	Case studies technique	310	82.9
	Video-viewing technique	283	75.7
Giving applied courses during the pandemic	Yes	345	92.2
	No	29	7.8
Teaching techniques used in clinical courses*	Case studies	312	90.4
	Showed videos	263	76.2
	Video recordings	147	42.6
	Continued clinical practice	42	12.2
	Continued laboratory work	39	11.3
	Virtual simulation	32	9.3

Multiple choice has been selected DE: Distance education

The two open-ended questions were to determine perceptions of the participants about the advantages and challenges of the DE. As a result of the analysis, seven themes regarding advantages emerged: (1) provided better time management, flexibility, and ease of access (2) video recordings of lessons made learning easier, (3) physical environment issues were solved, (4) DE is a suitable method for theoretical courses, (5) DE made assessment and evaluation easier, (6) DE ensured the continuation of education, and (7) DE improved the educators' technology skills (Table 4).

Table 3. Factors associated with participants' perceptions of distance education (linear regression analysis)

Variables (Model-4)	Unstandardized coefficients		95% Confidence Interval for B		Standardized coefficients			
	B	SE.	LLCI	ULCI	β	t	p-value	VIF
(Constant)	20.513	1.385	17.790	23.236	-	14.812	<0.001*	
Level of satisfaction with distance education (Detractor=1; Passive & Promoter=2)	6.348	0.621	5.127	7.570	0.469	10.218	<0.001*	1.12
Brainstorming technique (No=1; Yes=2)	1.288	0.565	0.178	2.398	0.102	2.281	0.023*	1.06
Video-viewing technique (No=1; Yes=2)	1.434	0.643	0.170	2.698	0.098	2.230	0.026*	1.03
Achieving learning objectives in distance courses (No=1; Yes=2)	0.723	0.338	0.059	1.387	0.098	2.141	0.033*	1.11

*: $p<0.05$, Linear regression (method: stepwise), $R^2=0.305$, Adjusted $R^2 =0.297$, $F=40.410$; $p=<0.001$.
SE: Standard Error; LLCI: Lower limit confidence interval, ULCI: Upper limit confidence interval

Table 4. Advantages of distance education according to participants

Categories	Subcategories	Themes
Better time management, flexibility, and ease of access	No time spent on the road and in traffic Flexible working hours Flexible lesson hours Being able to attend classes in any environment Ensuring sleep and rest	Provided better time management, flexibility, and ease of access
Re-watching video recordings of lessons	Opportunity to re-watch the video recordings of the lessons Making learning easier	Video recordings of lessons made learning easier
Physical environment	No classroom problems Useful for overcrowded classroom	Physical environment issues were solved
Theoretical courses	Suitable for theoretical courses Thinking that theoretical courses should continue after the pandemic	DE is a suitable method for theoretical courses
Assessment and evaluation	Facilitation of evaluation Using variety of assessment methods Exams can be done in a short time Quick reading of exams	DE made assessment and evaluation easier
Reducing the risk of transmission and allowing the continuation of education	Allowing lessons in all conditions Decreased contact Maintaining social distancing Reducing the risk of transmission	DE ensured the continuation of education
Technology	Improving the technology skills of educators Increasing awareness of technology	DE improved the educators' technology skills

In addition, six themes regarding disadvantages emerged: (1) inadequate technological infrastructure, (2) DE caused health problems, (3) deterioration of the learning and teaching process, (4) challenges in applied education, (5) difficulties in assessment and evaluation, and (6) an increase in educator and student workloads (Table 5).

Table 5. Disadvantages of distance education according to participants

Categories	Subcategories	Themes
Technology and infrastructure	Internet outages Technical infrastructure problems Inadequate technical support Shortening the life of equipment Internet package data shortages Problems in adapting to new technology Opportunity inequalities	Inadequate technological infrastructure
Health problems	Ergonomic problems Headache and fatigue The feeling of loneliness and exhaustion	DE caused health problems
Learning and teaching process	Lack of effective learning Inadequate educator-student interaction Lack of motivation Increased absences Lack of active participation to lessons Difficulty involving students in the course Inability to identify the active listening student Difficulty in achieving learning goals Problems of students and educators focusing on the course in the home environment	Deterioration of the learning and teaching process
Applied education	Failure of performing clinical applications Failure of performing laboratory applications Insufficient students' skills	Challenges in applied education
Assessment and evaluation	Unreliable exams Assignment instead of exams Difficulty measuring learning goals Non-objective assessment Difficulties in evaluating applied courses	Difficulties in assessment and evaluation
Educator and student workloads	Required students to spend more effort to learn Working outside of working hours Inability to devote time to academic studies Spending more time to prepare DE courses Lack of overtime concept	Increase in educator and student workloads

Discussion

This study aimed to evaluate the perceptions of nursing educators about DE during the COVID-19 pandemic. The findings of this study may contribute to the evidence of the perceptions of educators regarding DE.

In this study, considering the highest score that can be obtained from the questionnaire, it can be said that the perceptions towards DE are moderately positive. In addition, few educators preferred DE to face-to-face education, and few wished to provide DE after the pandemic. Supporting this, other studies have shown that the perceptions of nursing educators towards DE were at a moderate level (Bdair, 2021; Eycan and Ulupınar, 2021). In the literature, similar to this study's findings, since it is a profession that requires practice, students and teachers prefer hybrid education over online education (Bdair, 2021). Also, this study showed that while most of the schools provided practice courses online by using case studies and viewing videos, very few schools required students to make video recordings that demonstrated their skills or used computer virtual simulation programs. The

reason for this is that virtual simulation is not a common teaching tool used in Turkey due to the language barrier and the costs associated with them. In addition, during the pandemic very few schools were able to offer students any laboratory or clinical practice.

In this study, the perceptions of DE were more positive for nursing educators who were highly satisfied with DE, for those who used more active teaching techniques like using brainstorming and video-viewing in their theoretical courses, and for those who believed they could achieve their learning objectives. In Eycan and Ulupınar's (2021) study, it was determined that educators who used new training techniques in courses and believed that DE was effective had higher perceptions of DE. Unlike this study's findings, a study found that educators who teach hands-on courses have more negative views about DE than educators who teach theoretical courses (Seren et al., 2020).

In this study, nearly two-thirds of the participants received training on DE; however, this did not affect the perceptions of the faculty about DE. Contrary to this study, other studies determined that nursing educators who received DE training and were adequately supported by the DE center had fewer problems in the DE process and had more positive perceptions (Sinacori, 2020; Eycan and Ulupınar, 2021; Nabolsi et al., 2021). The success of DE depends on the competence and academic ability of the nursing educators to manage adult learners in an online environment (Sinacori, 2020). Research emphasizes that educators' instructional needs in DE affect their perceptions of DE (Eycan and Ulupınar, 2021) and that educators should be trained in DE (Jones et al., 2020). Research studies have shown that educators are not adequately trained in DE (Nabolsi et al., 2021; Sayan, 2020; Farooq et al., 2020).

The educators, in accordance with the literature, expressed the advantages of DE as follows: flexibility in course hours and working hours, the absence of transportation and traffic problems, and the ability to work anywhere and in the comfort of one's own home. Additional advantages of working remotely were reported in other studies, including increased participation in personal activities, increased time spent with family members, and a better quality of life (Uysal and Yılmaz, 2020; Özdoğan and Berkant, 2020; Kurnaz and Serçemeli, 2020). However, while some educators found it more comfortable to work from home, others reported difficulty focusing due to the comforts of

the home environment (Bdair, 2021; Farooq et al., 2020). In addition, Farooq et al.'s (2020) study explored that remote work disrupted the work-life balance and became an extra stress for female educators, especially due to housework and responsibilities.

In this study, participants stated that the advantage of DE is that the lessons could be recorded, the students could re-watch them whenever they wanted, and the lesson notes could be easily shared, as in accordance with the literature (Şeren et al., 2020; Özdoğan and Berkant, 2020; Kurnaz and Serçemeli 2020). In addition, educators stated that DE eliminated physical environment problems. For that reason, DE can solve overcrowded classroom and physical environment issues.

Educators found disadvantages of DE: internet access and technical infrastructure problems, health problems, difficulties in assessment and evaluation, deterioration of the teaching-learning process, increased workload of the educator and student, and the inability to carry out practical training. It was found that the disadvantages that the participants expressed were similar to the findings of other studies (Bdair, 2021; Eycan and Ulupınar, 2021; Nabolsi et al., 2021).

Many studies have found that educators and students often experienced problems with internet outages and other technical issues during the DE process, which frequently disrupted DE activities (Bdair, 2021; Crawford et al., 2020; Sahu, 2020; Nabolsi et al., 2021; Cacayan et al., 2020). The pandemic caught many institutions off guard and many institutions with inadequate infrastructure were negatively affected in this process. Connecting to the internet globally at the same time and forcing pre-existing infrastructure conditions due to DE complicated the DE system for both faculty and students (Sahu, 2020). In addition to all these negativities, some educators in this study expressed as an advantage that their awareness of technology and technological skills improved during DE, as in line with the literature (Özdoğan and Berkant, 2020).

In this study, educators stated that faculty-student interaction decreased with DE, that students' participation in the courses could not be questioned, and that they did not receive feedback because they did not turn on their cameras during the lessons, pointing to similar problems in previous research (Nabolsi et al., 2021; Sparrows and Cunning, 2020; Şen and Kızılcalıoğlu, 2020). Social interaction with

educators and peers is important for students to develop teamwork and collaboration skills (Nabolsi et al., 2021).

Participants expressed satisfaction with the reduction of the risk of transmission by maintaining social distancing. They reported experiencing low back pain and other ergonomic problems due to working at the computer in the same position for a long time, in addition to headaches, exhaustion, and loneliness due to fatigue and social isolation. Like the findings of this study, the participants in Özdoğan and Berkant's (2020) study found DE to be a positive endeavor because it prevented the transmission of the disease; however, they experienced physical and psychological problems such as fear and anxiety due to inactivity and lack of socialization.

Participants stated many concerns about assessment and evaluation, although it was an advantage to design and read the exams in a short time. Educators were concerned that the exams were unreliable, the questions were in the hands of the students, homework was often given instead of exams and correcting take time, the learning objectives were difficult to measure, the assessments were not objective, and there were difficulties in evaluating applied courses, similar to the difficulties highlighted in previous studies (Özdoğan and Berkant, 2020; Yüksekdağ, 2021; Cacayan et al., 2020). Student assessment is an important part of education, so it is recommended to implement standard assessment tools for an objective assessment and use plagiarism software detectors or have oral discussions with students (Bdair, 2021).

Participants in this study think that DE was not suitable for applied courses but could be implemented for theoretical courses. In addition, few educators reported that theoretical courses should be continued online after the pandemic. The findings are supported in other studies, and previous research has shown that academics think DE is not appropriate in the areas of health and science where practice applications is predominant (Aksoğan and Duman, 2020; Sayan, 2020; Nabolsi et al., 2021; Seren et al., 2020; Şen and Kızılcalıoğlu, 2020).

Educators reported that the workload of students and faculty increased with DE. Educators had to work outside of working hours, and some complained that they could not spare time for academic studies due to spending too much time for preparing lecture notes. Studies have shown that educators spend a significant amount of time preparing qualified course content, and the time spent interacting with students is greater than in face-to-face teaching (Nabolsi et al., 2021; Kurnaz and Serçemeli, 2020). DE required the student to take more responsibility and to spend more efforts to learn. The literature reports that homework was often given to students as an alternative to exams, and that the students become a little more active in the learning process and show an increase in their personal effort to understand the lessons (Bdair, 2021; Kurnaz and Serçemeli, 2020).

Conclusion and Recommendations

This study showed that few educators preferred DE to face-to-face education, and that few wanted to provide DE after the pandemic. Also, the educators' perceptions towards DE were more positive among those who were satisfied with DE, those who used brainstorming and video-viewing techniques, and those who believed that learning objectives would be achieved in DE courses. The advantage of DE was stated that the lessons could be recorded, the students could re-watch them whenever they wanted, and the lesson notes could be easily shared, and DE eliminated overcrowded classroom and physical environment issues. In addition, educators had experienced some technical problems with DE, that they had not found the interaction with the students sufficient, that they had had some concerns about assessment and evaluation, and that they had not found DE suitable for applied education. For that reason, to increase the positive perceptions of nursing educators towards DE, their satisfaction levels of DE should be increased, and their use of active teaching techniques should be encouraged and supported.

Universities should provide the necessary technical support in order to solve the problems related to DE, systems should be developed to increase the objectivity and safety of assessment and evaluation, and a budget should be allocated for the purchase of educational software that can be used in clinical education such as virtual simulation. The capacity and equipment of simulation laboratories should be made ready in situations when it is necessary to switch to DE again, especially for applied training education. In particular, the perceptions of nursing educators should be taken into consideration by the managers to better structure the course curricula and to eliminate the DE infrastructure deficiencies of the institutions.

Limitations of the Study

The study is limited to nursing faculty working in only one country, the data is collected in an electronic environment, and it is based on the answers of the participants; consequently, it is difficult to validate the data. However, the electronic survey allowed participation from many different institutions from across Turkey.

What did the study add to the literature?

- Few educators preferred DE to face-to-face education, and that few wanted to provide DE after the pandemic. In addition, educators had not found DE suitable for applied education. Educators' perceptions towards DE were more positive among those who were satisfied with DE, those who used brainstorming and video-viewing techniques, and those who believed that learning objectives would be achieved in DE courses.
- DE has many advantages and disadvantages according to educators.
- The perceptions of nursing educators should be taken into consideration by the managers to better structure the course curricula and to eliminate the DE infrastructure deficiencies of the institutions.

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