Challenging Nursing Education During the COVID-19 Pandemic; a Qualitative Content Analysis

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ABSTRACT

Aims With the beginning of the COVID-19 pandemic, distance education became the main alternative to conventional education in nursing. This study was conducted to explore nursing students' experiences of distance education during the COVID-19 era.
Participants & Methods This study was conducted in 2022-2023, using the qualitative content analysis method, at Maragheh University of Medical Sciences. Experiences were obtained through purposive sampling from 14 nursing students, and the data were collected and analyzed by MAXQDA software with high rigor.
Findings Low readiness to face distance education as the main category and five categories: Educator's poor attitude towards distance learning, Little familiarity with information technology, Weak files provided for practical and clinical courses, Challenging distance assessment, and Weak infrastructure in information technology was found.
Conclusion There were limitations in distance education in most countries, which indicated a low readiness to provide distance education on a large scale.

Keywords Education; Education, Distance; Students, Nursing; Iran

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[1] Suspending classes without stopping learning: China's education emergency management policy in the ... [2] E-Learning during lockdown of Covid-19 pandemic: A ... [3] Nursing education after COVID-19: Same ... [4] Application of universal design for learning (UDL) principles to surgical education during the ... [5] Moral intelligence and its relationship to resilience among nursing students ... [6] Impact of nurse practitioners and nursing education on COVID-19 pandemics: Innovative strategies ... [7] Exploration of the students' perception to virtual education in Covid-19 ... [8] Blended learning via distance in pre-registration nursing education: A scoping ... [9] Online teaching in medical training: Establishing good online teaching ... [10] Curriculum delivery in Medical Education during an emergency: A guide based on ... [11] International council of nurses policy brief: Nursing education and the emerging nursing workforce ... [12] COVID-19 pandemic effects on nursing education: Looking through the ... [13] The impact of COVID-19 on nursing education in Sri Lanka: A reflective ... [14] What might COVID-19 have taught us about the delivery of Nurse ... [15] The promotion of virtual education in Iran: The potential which turned ... [16] Qualitative content analysis in nursing research: Concepts, procedures and measures ... [17] Naturalistic inquiry [18] Classroom management in virtual learning: A perceptions study with school teachers ... [19] Academic success of online learning in undergraduate nursing education programs in the COVID-19 ... [20] The effect of online substitution class caused by coronavirus (COVID-19) on the learning motivation, instructor-learner interaction, and class ... [21] Online learning in nursing education during the COVID-19 pandemic: Stress, satisfaction, ... [22] Barriers and facilitators to online medical and nursing education during the COVID-19 ... [23] Relationship between educational environment and self-directed learning ... [24] How nurse educators perceive the transition from the traditional classroom to the online environment: ... [25] Digital technologies in nursing and midwifery education in Ghana ... [26] E-learning in a new era: Enablers and barriers to its implementation in ... [27] The impact of COVID19 on advanced practice nursing education ... [28] The effect of mobile learning in the acquisition of nursing ... [29] Experiences of nursing students under the unprecedented ... [30] Challenges of studying management during Covid-19 ... [31] E-learning challenges faced by academics in ... [32] Challenges experienced by students studying through open and ... [33] A survey of E-learning methods in nursing ... [34] Leaning in with empathy: Leading through a ...

Introduction

The outbreak of the COVID-19 disease had a serious impact on education all over the world. It caused the closure of most educational centers at all levels and faced the world with the challenge of maintaining the quality education and learning process [1]. Distance education was the only solution for continuing education [2], used in most countries [3]. Being in this situation, in some cases, created the use of new and creative methods for education, which can also be used in the post-COVID-19 era [4]. On the other hand, there were weaknesses and challenges in these educational methods that seriously affected education [2]. The field of nursing was also affected by these changes.

Nurses are among the largest health service providers, so any damage to nursing education can harm the health system [5]. Despite this importance and necessity, At the beginning of the pandemic, all theoretical, practical, and clinical courses were held as distance education, and even in the following semesters, several internship sessions and practical units and most of the theoretical classes were held as distance education [6]. In Iran also at the beginning of the pandemic, according to the national order of the Ministry of Health, and in some cases, according to the provincial decisions of the COVID-19 headquarters, all university, internship, and practical classes were closed or were held as distance education [7].

Although the use of distance education methods for nursing education has been successful and has been able to replace or be useful with face-to-face education in nursing education [8], But when it is necessary to use only distance education, the importance of examining it will become stronger.

different methods and strategies are used for distance learning, which can be e-learning, web-based learning, online learning, mobile learning and digital learning, asynchronous learning (e.g., sharing recorded lectures), synchronized learning (e.g., live video interactions), and blended learning [9, 10]. Although the literature suggests that this training can be helpful in the formation of cognitive, emotional, and psychomotor skills of students and many technology-based interventions have also been proposed for nursing education [11], the sustainability and effectiveness of e-learning interventions, especially in low- and middle-income countries, face many challenges, such as deficiencies in the development of information technology and unequal access to these facilities in urban and rural areas, limited access to the Internet, and economic and political problems [12]. Disruption in distance nursing education was reported in 73% of the member countries of the International Institute of Nursing in 2020 [13]. However, despite the serious challenges in distance education, many achievements and positive points have also been reported in different educational contexts [2, 14], encouraging us to continue using this educational method in nursing.

Recognizing the educational achievements and weaknesses during the COVID-19 era for nursing students, provided in the form of distance education, can help improve and use these strategies in the future. If there are educational deficiencies, finding a solution to compensate for them will be helpful. However, the low cost and the possibility of training many students with this educational method cannot be ignored [14, 15].

Considering that the quality of education provided, especially in emerging and critical situations, depends a lot on the educational context and situation, and due to the influence of numerous factors in each educational platform and the existence of major differences between the structure, infrastructure, and human resources of different colleges and universities and the feeling of need of researchers as people who are directly involved in education made us determined to do this study. Based on this, the present study has investigated nursing students' experiences of distance learning during COVID-19 in the educational context of the Maragheh University of Medical Sciences.

Participants and Method

This qualitative study was conducted from November 2022 to September 2023 using the conventional content analysis method [16] by 14 participating Maragheh University of Medical Sciences nursing students. More than 700 students in medical and paramedical fields are studying at this university. More than 30 nursing students are enrolled in this faculty every semester. During the COVID-19 pandemic, Face-to-face education was canceled, and distance education was conducted based on the Navid system (LMS) and online classes based on numerous software, including Adab Connect and several similar mass communication software, and social networks were also used for communication between educators and students. The students who studied for at least three semesters during the COVID-19 era at the Maragheh University of Medical Sciences have participated in the study. Purposive sampling methods are used to select participants.

Individual semi-structured interviews were used to collect data. Basic, general, and unbiased questions were given in line with the methods of education provided during the COVID-19 era, and further questions were formed based on the analysis of the interviews (Appendix 1).

Before starting the data collection, participants were informed about the objectives and method of the study, and informed consent was obtained from all the participants. The data confidentiality and anonymous interview analysis were explained to the participants. All participants were informed that participation in the study is optional, and they are

allowed to withdraw from the study at any stage without any complications or consequences for them. Also, the participants determined the time and place of the interview for their comfort.

The interviews were conducted to the participant's choice in a private room in the first author's room in the nursing faculty, and four interviews were conducted in the ward supervisor's room in the hospital after coordinating with the supervisor. The interviews were conducted and analyzed in Persian, and the quotations were translated into English to write the article. To confirm and complete the initial categories, four participants were re-interviewed. In the ice-breaking stage of interviews and gaining the participant's trust, general questions such as their ages, academic semesters, and last semester's grades were asked, and then the main questions were asked. the experiences of the participants were asked in-depth and with maximum details in all interviewees. The first interviews were longer than the last, but the average interview time was 46 minutes. The interviews were recorded with the participant's permission, listened to several times, and immediately transcribed to the Word software.

Granheim and Lundman's qualitative content analysis technique was used for data analysis [16], and Maxqda10 software was used for data management. Data were analyzed immediately after the transcription of the first interview. The transcribed interviews were read several times to form an overview of the participants' experiences; after that, the interviews were broken into small semantic units, which included words, sentences, or phrases. The extracted semantic units were labeled and merged into more abstract codes to reduce the content. the codes and concepts extracted from the study were continuously compared and interpreted by the research team, and then based on differences and similarities, categories and subcategories were merged.

The Lincoln and Goba four criteria were used to improve the study's rigor [17]. Confirming the students' statements summary during each interview by other students who were not involved in the study and continuous involvement and communication of the main researchers with the research field were used for data credibility. The research team reviewed manuscripts and asked probing questions to gain confidence in correctly inferring participants' statements during the interview. All codes and categories were extracted by the first and second authors to create dependability. Also, two qualitative studies researchers outside of the research team attended the meetings and evaluated the stages of analysis. The continuous comparison of data and the continuous review of the analysis process during the research increase the confirmability of the findings, and these steps are recorded in an orderly and accurate manner. for transformability of the study was tried by sampling with the maximum variance and wide range of students in terms of gender, age, academic progress status, academic semester, residency place, and interest in nursing, as the research environment, as well as the characteristics of the participants in the research, were described in depth and richly.

Findings

The mean age of the students was 23.00±0.88 years, and most of the participants were female. Four participants were very interested in nursing, and two expressed little interest in nursing (Table 1).

Table 1. Personal characteristics of participants in the study of nursing students' experiences of distance education in the era of COVID-19 (n=14)

Number	Age	Gender	Interest in nursing	Average grade point	Semesters in COVID-19	Semester	Residence status
1	24	Male	Hight	18.22	4	8	Non-native
2	24	Female	Medium	17.26	4	6	Native
3	22	Male	Medium	16.87	4	6	Non-native
4	23	Female	Hight	17.89	4	7	Non-native
5	22	Female	Medium	17.52	4	6	Non-native
6	23	Male	Low	14.5	4	6	Non-native
7	24	Female	Medium	17.23	4	6	Native
8	23	Male	Medium	17.83	4	5	Non-native
9	22	Female	Hight	19.2	4	8	Non-native
10	22	Female	Medium	18.1	3	6	Non-native
11	24	Male	Hight	17.89	4	8	Non-native
12	24	Female	Medium	17.56	4	7	Non-native
13	23	Male	Medium	16.87	4	6	Non-native
14	22	Female	Low	15.62	4	5	Native

Data analysis led us to "Low readiness to face distance education" as the main category. The main category consisted of five categories; educators' poor attitude towards distance learning, little familiarity with information technology, weak files provided for practical and clinical courses, challenging distance evaluation, and weak infrastructure in information technology (Table 2).

In the era before the outbreak of the COVID-19 pandemic, there was a limited infrastructure for providing online or offline courses. On the other hand, due to the practical and clinical nature of

nursing, the focus was more on clinical and practical education. With the sudden spread of the COVID-19 disease and the cancellation of all face-to-face courses, nursing education was in a situation where it was poorly prepared for this educational method.

Table 2. Summarizing the results of the study obtained from nursing students' experiences of distance learning in the era of COVID-19

Category	Sub-category
Educator's poor attitude towards distance learning	Inappropriate file loading time
	Preparation of low-quality podcasts by educators
	Inappropriate time to offer online class
	Few opportunities to read some file
A little familiarity with information technology	Weakness in working with software
	Weakness in solving software problems during presentation
	Incomplete loading of the file in the system by the educator
Weak files provided for practical and clinical courses	Upload short videos and sometimes not related to the procedure
	Loading theoretical material for practical courses
	Upload the equipment usage brochure instead of the podcast
	Non-uploading of materials by sessional clinical instructor
Challenging distance evaluation	Lack of practical evaluation
	Failure to control fraud
	Unfair grading of assignments
Weak infrastructure in information technology	Constant internet outages
	Lack of access of some students to the Internet and laptops
	Hardware problems or old system problems

"Previously (before COVID-19), in the Navid system, educators used to leave files for us, but either they were forced to have a brief discussion again in class, or they left unimportant material there. They would leave two or three files, and we read them whenever we had time. COVID-19 came, everything went to Navid and online class." (Participant No. 2)

Low Readiness to Face Distance Education

One of the important categories in this study was the educator's weak attitude towards distance learning. At the beginning of the outbreak, most educators thought that COVID-19 would end soon and they would be able to make up for the canceled classes, and for this reason, they did not upload a file at the beginning of the semester. At the end of the first semester after starting COVID-19, they had to upload many files, and students did not have the opportunity to read all of them. Of course, the students had the experience of uploading a large number of files at the end of the semester in the following semesters as well, which students said that in most cases, neglect and being considered unimportant by the educators could be the cause of such a thing.

"You saw that one educator uploaded 8 files. It wasn't just one lesson, there were two or three lessons like this. I couldn't get to it at all. It was cowardly; how can I study all this at the end of the semester." (Participant No. 10)

Some educators did not pay much attention to preparing quality podcasts and tried to quickly prepare and upload several files. However, there were also educators whose students say that now that COVID-19 is over, they have still saved those files, and if they have forgotten a topic, they refer to that file, which is very comprehensive and practical. However, the issue pointed out by most participants was weak files with few slides and many explanations or bulky PDF files without audio, which in both cases, made learning difficult. However, in most cases, the voluminousness of the materials and the learning problems, including the time limit, were mostly raised by the students who were not very interested in studying during the semester. In contrast, the students who were interested in nursing and were planning their learning and studying during the semester did not express the existence of such a problem very seriously.

"We had an educator who had uploaded a PowerPoint that had two lines of writing, but he explained for half an hour on each slide. The sound of him flipping the pages of the book he was reading was recorded in the file." (Participant No. 4)

In distance education, online classes were also used to hold classes. Students stated that in some courses, educators set online classes to non-office hours, which made some students unable to participate. Some part-time students also could not attend these classes during non-office hours.

"Dr... had sent a message to the representative that our class will be at 9:00 p.m. I was out. My friend called me asking why you are not online. The educator was looking for you. How did I know? I had not checked WhatsApp for several hours. At that time, the educator had left a message on WhatsApp for holding class, which I had not seen." (Participant No. 6)

Little Familiarity with Information Technology

Especially at the beginning of the outbreak of COVID-19, educators had little knowledge of podcast preparation software, which made them unable to prepare good podcasts. Also, the time-consuming nature of podcast preparation was an additional problem for educators. On the other hand, students were not familiar with distance learning systems and could not download or open some files. However, these problems were solved to some extent in the following semesters. After several semesters, some students still had problems using distance learning software and systems.

"I couldn't open the file from Navid with my phone. I told the educator that I can't. He also said that I ticked the box. You can download it with a mobile phone. But I couldn't. I asked my classmates to send me the file. They forgot to send it. I have to remind them again after a few days so that they finally send me a file." (Participant No. 11)

The low familiarity of educators with online class software caused poor class delivery, especially in the early days of COVID-19. On the other hand, every time

a new software was introduced for holding online classes or preparing podcasts, the educators were always unfamiliar with the new software. The same problems prevailed for students as well.

"In class, you could see that the educator couldn't share the screen. It even happened that one of the classmates who were skilled said what to do to get the educator's monitor screen to share again." (Participant No. 1)

In addition to preparing quality podcasts, uploading them into the system and indexing all the files was one of the problems of some educators. The ability to use the podcast in what time frame should be provided for students and the educators can monitor the time spent studying the podcasts by the students were the issues that the students stated that some educators had problems facing the outbreak of COVID-19, especially in the first semester. In most cases, the participants stated that younger educators had fewer problems in this field or found new and diverse solutions to solve information technology problems. In contrast, educators with higher working experience were less willing to use new technologies.

"We were in the second semester, and the educator had not uploaded a file, and it was empty, but its name was in Navid's system. We told the educator, but he said that it had been uploaded. Finally, the IT expert said that the educator had not set the time to display the file for the students. It was three months that we could not see the file." (Participant No. 4)

Weak Files Provided for Practical and Clinical Courses

All theoretical and practical courses were canceled during the COVID-19 era, especially at the beginning of the COVID-19 pandemic. In the following semesters, the number of face-to-face sessions for training and practice was reduced. The rest of the practical sessions and internships should be provided as distance education in LMS for the students. Also, since the educators had no experience providing podcasts and qualified files of practical courses and internships, they could not provide proper education. In the words of one of the participants, *"The file is going to be uploaded about the culture of bacteria in the microbiology unit; the educator came and found a file about the types of culture environments and uploaded the same instead." (Participant No. 14)*

Sometimes, when educators wanted to introduce students to the process of doing work or a procedure, they could not find the video of doing that work or the equipment used in that video was not available in our clinical field. Sometimes, the videos were in other languages the students could not understand. In most cases, the participants stated that most of the uploaded videos were only a small part of the process they are supposed to learn at the bedside or in practice, and these short videos could not create proper learning in them.

"One of the educators had uploaded a clip about assessing a patient with bedsores, it was not even 5 minutes long, and he came to explain about grade 1 bedsores on the patient. Well, we should not be expected to be able to fully learn the assessing of bedsores." (Participant No. 12)

The interesting thing that the participants pointed out in this study was that when some educators did not upload files for practical and internship units, and students requested files for that unit or from the higher authorities, this compulsion for it happened to show in the system that the file has been uploaded, the educators would upload the file that was supposed to be presented for the theoretical part of the lesson in the practical part. Although there were few such educators, it was expressed in most participants' experiences.

"The educator… had come and uploaded the same PowerPoint in the practical part of the lesson as he had presented for the online class. In fact, we didn't say anything either." (Participant No. 7)

Another interesting experience in this study, mostly expressed by students, was uploading brochures on the use of equipment used in the hospital and common drugs in the relevant wards, uploaded by some educators for distance education of clinical courses. In most cases, the students stated that the previous semesters that passed this course had not been explained to them at all, and some of these subjects were asked based on exposure in the next semesters in a clinical setting. These cases were a strong point in education during the COVID-19 era that the students benefited from.

"The brochure of the syringe pump was uploaded in Navid. When we went to the bedside, learning for 70% of the rest of the clinical unit, which was held face to face in the clinical setting, I could work with the syringe pump more easily." (Participant No. 9)

During the COVID-19 pandemic, the faculty members were monitored by the authorities, but the educators who were seasonal, and especially the sessional clinical instructor who coached students in the clinical courses, no code was assigned to them in the Navid system, and irregular uploads occur for some theoretical courses that were assigned a code. on the other hand, they could not prepare and upload appropriate educational files because they were not present in the training sessions on using some software and systems.

"The men's surgery department instructor did not know what the Navid was, nor did he have time to prepare the educational file. He was a nurse himself, and he constantly worked overtime shifts because of a staff shortage. Once, the group's representative said they would offer something for the distance learning part. He said that everyone should bring research about ward drugs. We also saw he was sending wild-goose chase, so we gave up altogether." (Participant No. 6)

Challenging Distance Evaluation

In the era of COVID-19, exams of three semesters were conducted distantly. In this era, evaluation for

practical courses was not held as before COVID-19, which was conducted individually and face-to-face. In most cases, the educators calculated the grades of the practical unit based on the grades obtained in the theoretical unit of the course. This made not only the practical courses that were not well taught less important for the students, but they also did not pay attention to the practical part of the courses in the following semesters.

"In practical courses, they didn't take an exam at all. The faculty didn't even allow the educators to take an exam. For example, they gave me a practical score of half a coarse unit based on a theoretical score of 2.5 coarse units for my practical physiology. That means you fail if you don't get a good theoretical grade." (Participant No. 3)

An important theme in nursing students' experiences of distance learning during COVID-19 was cheating in distance evaluation. The students stated that they had different methods to cheat in the distance evaluation, such as forming group or coding questions and options, sending questions in the group, etc. In the following semesters, the inability to return to the previous questions was done by the faculty. For this issue, the students selected one person by lottery, and that person viewed the questions, took screenshots, and shared them in the group. For each method, students found a cheating method. Although not all students did such a thing, this issue questions the discrimination of exams.

To reduce the possibility of cheating, the faculty reduced the time to answer the questions, and this made the students not focus on the questions that require thinking and go more for the questions with low taxonomy that have a low score. When this issue was combined with the inability to return to the previous questions, the score of competent students who had studied the content and wanted to answer the questions with their knowledge would decrease.

"I used to cheat. When the children put the questions in the group, whoever knew the answer said that I cheated too." (Participant No. 6)

"In the pharmacology exam, faculty used the inability to return to the method of the previous questions for the first time, despite prior notice I didn't know. I wanted to review the questions first, but the system didn't allow me to return. Even though I had studied well, I failed in pharmacology." (Participant No. 11)

On the other hand, the power outage in the summer caused some students in the middle of the exam to be unable to continue the exam due to the power outage and the laptop and Wi-Fi being turned off or to lose time reconnecting to the exam with a mobile phone.

"During the doctor's exam… the power was outraged, even I got a letter from the Power Department of our city that the power was outraged at this hour, but the faculty said that we can withdraw your course unit as emergency withdrawal." (Participant No. 8)

Another challenging issue in distance education was how educators grade assignments. The faculty forced the educators to assign a part of the grade to the student's assignments to improve learning with activities during the semester. Still, some educators did not prepare good assignments or gave little importance to grading and studying assignments. In some cases, the feedback to the student did not happen at all or happened late. Some educators gave very little time for assignments, so some students could not complete them on time due to their own or a family member's infection with COVID-19 or the heavy load of other courses. In some cases, students looked for assignment answers on the Internet, which caused the homework done by students to be very similar, and the educator felt that there was fraud and that a good grade was not given to their assignments.

"We had an educator who didn't read the assignments at all. You could see that 20 days have not been seen by the educator in the system. If we sent a message, he would say that he would read the assignments at the end of the semester. Well, what about the feedback?" (Participant no.9)

Weak Infrastructure in Information Technology

One of the experiences that most participants mentioned and stated caused a serious problem in distance education was the problems and limitations related to the Internet and information technology. Because all educational institutions and schools and most offices provided services remotely using the Internet, the Internet bandwidth did not meet all these needs in most cases. This outage or slowdown of the internet caused problems in distance education. This problem showed itself mostly in online classes, and the continuity of the online class was lost due to the frequent interruption of the sound or video; on the other hand, the students not only could not use the class but also had the stress of "what did the educator say now?", or not being able to answer the educator's question and lost the grade would make the situation worse. Therefore, in most cases, students showed interest in offline classes, *"an offline class is much better than an online class that is constantly interrupted."* (Participant No. 11)

"I wasn't like some of my classmates who used to join the class, show themselves, and leave. I was in all the classes, but I was very stressed that the educator would say my name or ask me a question in the middle of the class, my internet would be outraged, and the educator would think that I was only online." (Participant No.2)

Disruption in the Internet network was a problem for most educators and students. Some students had problems with the volume or time of internet packages running out in the middle of the class or the exam. On the other hand, financial issues related to internet purchases caused problems for some students. The students who lived in the villages with weak communication antennas could not go to the nearest city for some classes.

"Our village does not provide a good cell phone antenna. I had to go to the top of the hill next to our

village for class. I was not informed when they sent a message on WhatsApp or when the class time was changed." (Participant No. 8)

The weak computer systems of some educators and students also interfered with distance learning. The weakness of the computer system made the students unable to open the files prepared with high-version software, and the computer's slow speed was a problem for the students, especially during the exam. In some cases, students had problems reading content and connecting to the Internet through mobile phones, or they did not have the ability to provide mobile phones with these capabilities. It was also difficult for educators to open assignments prepared by students due to the old computer systems of the faculty. On the other hand, the weak computer system of some educators made it impossible to install new software, and they had problems preparing quality podcasts. However, this problem was not very serious for most of them, and it was almost solved after the first semester of the COVID-19 pandemic. In some cases, the educators' laptops solved the problem to some extent, but in some cases, the high version of some software on the educators' laptops made the students unable to open the files they sent.

"I had prepared an assignment with Word on my laptop, but the educator couldn't open it. I sent it to him four times, but he couldn't open it. In the end, the IT engineer said I should save it with the old version so that the educator can open it with the school's computer." (Participant No. 3)

Discussion

The outbreak of the COVID pandemic, with all the problems it caused, provided us with valuable experiences that we can use in education in the post-COVID-19 era, or if such a situation repeats itself, we can better prepare ourselves to face it [14]. However, the quality and quantity of education decreased due to the sudden spread of this disease and the compulsion to transfer all educational fields to distance education.

The weak attitude of educators towards distance education at the beginning of the COVID-19 pandemic greatly impacted their educational behavior, which was also obtained in a study conducted in Qatar [18]. Considering the practical and clinical nature, the educators' weak attitude towards distance education can be attributed to the fact that the nursing profession is a practical and clinical field, that distance education cannot cover this field well [2].

What emerges from nursing students' experiences regarding education during the COVID-19 pandemic is that they were not very satisfied with distance education. In contrast, in many studies, distance education was associated with student satisfaction [19-22]. Satisfaction with distance education is also an issue that should be paid attention to according to the conditions of providing it. Kim's study showed no satisfaction with distance education before COVID-19, but this satisfaction was created with the spread of COVID-19 [20]. This issue shows the importance of the conditions in this educational method, and perhaps the limitations that exist in our infrastructure and the lack of sufficient preparation in the educators, which have been abundantly mentioned in the participants' experiences, are the main factors. This is while student satisfaction from distance education is one of the important predictive factors to increase the students' academic performance [19, 21].

It should also be noted that in our study, the dissatisfaction and ineffectiveness of distance education were experienced in most cases by students who had little interest in nursing and did not make much effort to improve their education. We had similar restrictions in many countries; however, it may not be the same in terms of the severity of restrictions and the amount of damage to distance education, but it can be said that some of these restrictions can be faced with a high motivation to learn and double effort and increase their satisfaction [19, 23].

A distinctive finding in this study was the loading of more educational content at the end of the semester. Although this work was done by a limited number of educators, it had a great impact on students' views on distance education. Perhaps the reason for this issue, especially in the first semester of the pandemic, can be attributed to the optimism of the educators regarding the control of COVID-19 as soon as possible and the return to the previous routine in education, but the weak point of view of the educators towards distance education cannot be ignored either. This low motivation in some educators makes them prepare low-quality podcasts and actually do not consider distance education seriously. This finding was also found in another study conducted in Iran [7]. On the other hand, the educators' weak point of view towards distance education made the educators working remotely during the pandemic focus on their other professional and personal tasks and hold their online classes in their free time, sometimes during non-office hours. or whenever they can open a time for an online class, they request to hold the class for a few hours later, which would naturally make coordination and attendance difficult for all students. On the other hand, the educators' weak point of view towards distance education made them focus on their other professional and personal work and hold their online classes in their free time, which was sometimes during non-office hours, or whenever they were able to open a time for an online class, they would request to hold the class for a few hours later, which would naturally make coordination and attendance difficult for all students.

Another new finding in this study was the determination of a limited time of several days to study the contents provided by some educators.

While in the pre-COVID-19 era, students could read and review the educational contents until the end of the semester. This restriction applied by some educators is not only in conflict with the principles of cognitive learning and the role of repetition in long-term learning, but it is also somehow related to the loss of students' rights and will be an important factor in causing their dissatisfaction with distance education, which is in line with the results of the study conducted by other studies about the limitations of distance learning in Iran [7].

In the new era, educators and students are familiar with most of the conventional and widely used technologies related to information technology. Still, with the spread of the COVID-19 pandemic, new software for educational content production and new platforms for holding online classes have entered the field; both groups of educators and students were somewhat new, which is in line with the results of the Sinacori study [24] and the Bakui study in Iran [7]. This caused problems in distance learning, especially at the beginning of the COVID-19 pandemic.

The limited knowledge and information of educators in using software for distance education made educators unable to provide acceptable education. However, infrastructure limitations and problems could also increase the severity of this problem. This limited familiarity made the educators unable to solve the problems in the software during online classes, or they could not go through all the steps correctly in uploading educational content they had in offline education. As a result, the overall problems of distance education were seriously challenged, and these findings were in line with the results of the Essel study in Ghana [25]. The lack of familiarity with the software and new teaching methods was not only on the part of the educators, but the students also had such a problem. This has caused them to have problems in managing their time in distance education and meeting their needs in this distance education. Other studies have also obtained these results [7, 24, 26].

Our study's results showed that distance education problems did not occur only in the field of theoretical courses. During the COVID-19 pandemic, the practical classes and internships at the beginning were generally turned into distance education. Then in the next semesters, some of these courses were offered with this method, which was not unique to our country and happened in other countries [6, 21, 22]. Providing practical courses and internships with distance education methods for educators was intangible before this era; as a result, they could not prepare relevant content for these courses at the beginning of the outbreak. To familiarize students with the process of working in practical units or internships, they sometimes found content that had little connection with the course unit to present to the students, and because they did not have enough time to prepare suitable content, they had to use these

contents. These results were also obtained in another study conducted in Iran [7].

In some cases, the educators used the same theoretical materials to present practical and clinical lessons, which caused the students' dissatisfaction. Although studies show that distance education is effective in improving students' clinical skills and affects their practice and learning, it should be noted that these materials and contents should be properly presented in distance education. The presented contents should align with clinical and practical courses and course plans. These results align with the findings of studies conducted in Turkey and Singapore [27, 28].

Another experience of the students was the lack of uploading of educational content by the sessional clinical instructor, which is the lack of familiarizing the students with practical and clinical courses in the distance education section that were supposed to cover part of the practical and internship course units, It affects the learning of the students during their short presence in the hospital and practical classes, and the persuasion of the students did not happen in the clinical course and created a practice gap, which has also been obtained same results in other studies [29, 30].

Correct evaluation of students during distance education was associated with challenges such as the lack of evaluation in practical units, which makes these units appear less important. The existence of such a problem was also evident in another study conducted in Iran, and effective evaluation was one of the problems in their findings during the COVID-19 era [7]. An important case that questions the effective evaluation is the existence of cheating in the exam or the inability of the educators to conduct the evaluation correctly. Even though the officials wanted to prevent this cheating with methods, such measures caused damage to the evaluation; in another similar study conducted in England, similar results were obtained. The fact that students have challenges based on their cultural background and inability to manage time made the evaluation challenging for them [31].

Another important factor in the evaluation of students during distance education was the way of grading students' assignments, which was assigned a percentage of the student's total score. Different ways of grading assignments by educators, lack of detailed examination of assignments or insufficient feedback from educators, and giving formal grades caused student dissatisfaction. This factor affected students' confidence in grading and their motivation to provide accurate assignments. Other studies have also reached similar results [22, 32], which indicate the existence of this challenge in other countries as well. One of the main obstacles that caused damage to distance education and was expressed by most participants was infrastructure problems in the field of information technology. This problem was not

specific to our study, and similar results have been obtained in different studies in other countries [25, 32]. The main and important infrastructure needed to provide distance education was the internet and enough bandwidth to cover distance education. Due to the transformation of face-to-face education into distance education in all educational levels of schools and universities and the provision of services by most offices on the Internet platform, the Internet did not respond to all these needs. This restriction and continuous interruption of the Internet caused disruption in online education provision and reduced satisfaction with this distance education method. These challenges not only hindered the student's learning but also caused a decrease in the student's academic success. These findings were present in most studies that worked on the barriers and challenges of distance education [21, 32, 33].

Some students had financial problems buying or accessing the Internet or accessories such as laptops or smartphones to use this distance learning platform. This challenge in our study was truer for non-native students who lived in rural areas, which aligns with Figueroa's book about the high susceptibility of students from low economic status to distance education [34].

It should be noted that the use of distance education platforms cannot be solved only by the existence of related software, and up-to-date hardware must be available to use this software so that this software can be run on them. Poor infrastructure, including restrictions on old hardware and computers, non-smart mobile phones, or old versions, is in line with the findings of other studies in this field [25, 26], which points to the importance of this issue in distance education.

Conclusion

Nursing students experienced distance education while it had many limitations and challenges. Perhaps by using blended education and, in some way, frequent use of distance education in normal conditions, the knowledge and skills of educators and students will be kept up-to-date concerning distance education, and it can also help update the required infrastructure in this regard.

Appendix 1. Semi-structured interview guide

Warm-up and main questions
Describe a day of your training
What was your experience of training during COVID-19?
Can you describe your nursing education experience in the last three years?
Based on your experience, could you talk about distance learning?
Would you describe situations in which you were educated in the COVID-19 era?
Could you describe your experience with the advantages and Disadvantages of distance learning?
Probing questions:
Why do you think that is?
What is the connection between these two things?
Would you please explain in more detail?
Please explain your experience more.
Can you give an example?
General follow-up question:
Any additional experience you would like to share?

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