Adıyaman Üniversitesi Sağlık Bilimleri Dergisi, 2022;8(1):45-56
doi:10.30569.adiyamansaglik.967965

E-ISSN: 2458-9176

ADIYAMAN ÜNİVERSİTESİ SAĞLIK BİLİMLERİ DERGİSİ
JOURNAL OF HEALTH SCIENCES OF ADIYAMAN UNIVERSITY

Research Article/Özgün Araştırma

Self-regulated learning levels of nursing students and their views on distance education

Hemşirelik öğrencilerin öz-yönetimli öğrenme düzeyleri ve uzaktan eğitime yönelik görüşleri

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Atıf gösterme/Cite this article as: Sümen A, Evgin D. Self-regulated learning levels of nursing students and their views on distance education. *ADYÜ Sağlık Bilimleri Derg*. 2022;8(1):45-56. doi:10.30569.adiyamansaglik.967965

Abstract

Aim: This study, which was planned during compulsory distance education due to the coronavirus pandemic, was carried out to determine the self-regulated learning skills and readiness of nursing students and their views on distance education.

Materials and Methods: The study was carried out with a cross-sectional and correlational design. The study was conducted in the Nursing Department of the Health Sciences Faculty. The sample of this study consisted of 184 nursing students. Data were collected with a personal information form, the Opinion Scale for Distance Education, the Self-Regulated Learning Skills Scale, and the Self-Directed Learning Readiness Scale.

Results: The mean score of the effectiveness subdimension of the opinions scale for distance education was low. There was a positive and significant relationship between students' readiness for self-directed learning and their self-directed learning skills with their views on distance education.

Conclusion: In order for students to have positive views and behaviors in the distance education process, their readiness for self-directed learning should be evaluated and their self-directed learning skills should be improved.

Keywords: Distance Education; Nursing; Self-Regulated Learning; Student.

Öz

Amaç: Koronavirüs salgını nedeniyle zorunlu uzaktan eğitim sırasında planlanan bu çalışma, hemşirelik öğrencilerinin öz yönetimli öğrenme becerileri ve hazır bulunuşlukları ile uzaktan eğitime ilişkin görüşlerini belirlemek amacıyla yapılmıştır.

Gereç ve Yöntem: Araştırma, kesitsel ve ilişki arayıcı desende gerçekleştirilmiştir. Araştırma Sağlık Bilimleri Fakültesi Hemşirelik Bölümü'nde gerçekleştirilmiştir. Bu çalışmanın örneklemini 184 hemşirelik öğrencisi oluşturmuştur. Veriler, kişisel bilgi formu, Uzaktan Eğitim Görüş Ölçeği, Öz-Yönetimli Öğrenme Becerileri Ölçeği ve Kendi Kendine Öğrenmeye Hazırbulunuşluk Ölçeği ile toplanmıştır.

Bulgular: Uzaktan eğitime yönelik görüşler ölçeğinin etkililik alt boyutu puan ortalaması düşük olduğu tespit edilmiştir. Öğrencilerin özyönetimli öğrenmeye hazır oluşları ve özyönetimli öğrenme becerileri ile uzaktan eğitime ilişkin görüşleri arasında pozitif yönde anlamlı bir ilişki olduğu tespit edilmiştir.

Sonuç: Uzaktan eğitim sürecinde öğrencilerin olumlu görüş ve davranışlara sahip olabilmeleri için öz-yönetimli öğrenmeye hazır bulunuşlukları değerlendirilmeli ve öz-yönetimli öğrenme becerileri arttırılmalıdır.

Anahtar Kelimeler: Uzaktan Eğitim; Hemşirelik; Öz-Yönetimli Öğrenme; Öğrenci.

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Geliş Tarihi/Received:08.07.2021 **Kabul Tarihi/Accepted:**04.01.2022 **Yayım Tarihi/Published online:**23.04.2022

Introduction

The coronavirus (COVID-19), which quickly spread around the world after its emergence in the Wuhan province of China and mobilized international health authorities due to its effects, has been declared by the World Health Organization (WHO) as a pandemic.[1] In line with the WHO's instructions, national administrations have taken various measures to protect public health and to survive the pandemic with minimal damage.[2] In this regard, Turkish universities discontinued traditional education on March 12, 2020 based on a decision by the Higher Education Council. In order to prevent education from discontinuing, as of March 23, it was restarted in the form of digital and distance education.[3] As the coronavirus pandemic continued, the Higher Education Council decided to continue the 2019-2020 spring term education process only with distance education, open education, and digital education opportunities and that no face-to-face education would be provided.[4] As a quick solution to the crisis caused by COVID-19, universities rapidly switched to emergency remote teaching to continue courses and programs with web-based distance education instead of face-to-face education.[5]

Distance education is a method that provides users with a planned, designed, and comprehensive learning experience, synchronously (interactively) or asynchronously (non-interactive), without time and space limitations, through electronic or non-electronic systems.[6] In distance education, synchronous and asynchronous communication can be established between students and educators via services such as interactive web pages, e-mail, file transfer platforms, discussion and new groups, and chat rooms.[6] The students can individually access teaching materials such as course documents and videos at any time.[7]

The number of distance education centers as part of universities in Turkey is growing. With distance education centers, students can complete a non-thesis master's degree, a bachelor's degree, an associate degree, certificate programs, and common compulsory courses.[8] Distance education in the department of nursing was first started in Turkey in 1993 with the opening of an associate degree program. This was followed by a web-based degree completion program for nursing via distance education in 2009-2010 and a distance education non-thesis master's program in 2011-2012.[9]

The distance education process, which has become mandatory in higher education due to the coronavirus pandemic, has also affected nursing education. In order to continue learning, information technologies are particularly beneficial when face-to-face training is not possible. Nurses use technology as a tool that guides processes and policies in order to provide good-quality, qualified, and low-cost care to individuals and communities.[10] In nursing education, which is based on theoretical and clinical practice, it is necessary to gain clinical skills with clinical education as well as theoretical knowledge. The student develops vocational professionalism and vocational competency skills during clinical training.[11,12] For this reason, nursing instructors and managers must be aware of the theoretical and practical needs of nursing students in distance education and be ready to meet them. It is also thought that the negative impact of the practice on nursing students whose application areas are clinics will be even bigger.[11,13] A study examining the opinions of nursing department students regarding the approval of these distance education programs showed that 87.5% of the students did not approve of distance education for nursing education and 83.5% said that distance education would cause deficiencies in the laboratory and clinical applications, which have an important place in an application-oriented profession like nursing.[14] Another study reported that the statement "nursing bachelor's education should be in the form of formal education" had a high mean score and students did not agree with statements such as "the teaching method should be in the form of open education and distance education".[15] Abdelaziz et al. reported in their study conducted in Egypt that a combination of traditional education and distance education would be more effective.[17]

This study, which was carried out during the distance education process that was compulsory due to the coronavirus pandemic, determined the self-directed learning skills and readiness of nursing students and their views on distance education.

Research questions

- What are the views of nursing students on distance education?
- What are the self-regulated learning skill levels of nursing students?
- What are the self-directed learning readiness levels of students?
- Is there a relationship between the views of nursing students on distance education and self-directed learning skills and readiness?
- What are the factors affecting the views on distance education, self-regulated learning skills, and readiness of nursing students?

Materials and Methods

Design

The study was carried out with a descriptive, cross-sectional, and correlational research design. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist for reporting cross-sectional studies was used.

Participants and setting

The study was carried out between 20.05.2020 and 30.06.2020 in the Nursing Department of a Health Sciences Faculty. The study population consisted of 211 students studying in the nursing department. The incidental sampling method was used for this study; therefore, students who attended school when the study was carried out and who volunteered to participate formed the sample. Nursing students were eligible to participate if they were: enrolled in a nursing program and answered the questionnaires completely. In the study, 184 students were included. The participation rate was 87.2%.

Dependent variables. Opinion Scale for Distance Education mean score, Self-Regulated Learning Skills Scale mean score, and the Self-Directed Learning Readiness Scale mean score.

Independent variables. Age, sex, year, region of residence, academic success, daily average study time, Internet access, follow-up of distance education, receiving distance education before, satisfaction with distance education.

Data collection tools

Data were collected with a personal information form, the Opinion Scale for Distance Education, the Self-Regulated Learning Skills Scale, and the Self-Directed Learning Readiness Scale.

Personal Information Form. The information form for the students participating in the study was prepared by the researchers based on the current literature and consisted of questions about sociodemographic characteristics of the students and the follow-up of and satisfaction with distance education.

Opinion Scale for Distance Education (OSDE). This scale was developed by Yıldırım et al.[17] to determine the views of students on distance education. The scale is a 5-point Likert type scale, ranging from "I strongly disagree to "I strongly agree," and consists of 18 items. The minimum score that can be obtained from the scale is 18, and the maximum score is 90. The sub-dimensions of the scale are: "personal suitability" that reveals the suitability of distance education for personal life, "effectiveness" for the outcomes of teaching activities carried out in the distance education environments on student achievement, "instructiveness," which provides the opportunity to compare traditional education with distance education methods, and "predisposition" that reveals the approaches of learners towards the work that they must fulfill in the learning process. In the evaluation of scale expressions, a score range of 1.00-1.79 can be interpreted as "very low," 1.80-2.59 as "low," 2.60-3.39 as "medium," 3.40-4.19 as "high," and 4.20-5.00 as "very high". The Cronbach's alpha reliability coefficient of the scale was 0.86[17] and it was 0.90 in the current study.

Self-Regulated Learning Skills Scale (SRLSS). The scale was developed by Kocdar et al. (2018) and is a 5-point Likert-type scale consisting of 30 items.[18] The answers range

from "I totally disagree" to "I totally agree." The minimum score that can be obtained from the scale is 30, and the maximum score is 150. The scale measures the participants' goal setting, help-seeking, self-study strategies, managing of the physical environment, and effort management skills. The Cronbach's alpha reliability coefficient of the scale was 0.93[18] and it was 0.95 in the current study.

Self-Directed Learning Readiness Scale (SDLRS). The scale was developed by Fisher et al.[19] by collecting data from faculty members in undergraduate education and is used to determine and evaluate the readiness levels of students for self-directed learning. The Turkish adaptation of the scale was carried out by Şahin and Erden[20]. It is a 5-point Likert-type scale, ranging from "I strongly disagree" to "I strongly agree," and consists of 52 items. The scale has three sub-dimensions: self-management, willingness to learn, and self-control. The Cronbach's alpha reliability coefficient of the original scale ranges from 0.83 to 0.85[20] and it has been found 0.99 in the current study. The minimum score that can be obtained from the scale is 52, and the maximum score is 260. It was stated that high scores (150 and above) on the scale indicate a high level of self-directed learning readiness.[19]

Data collection

The data collection forms specified by the researchers were transferred to the electronic environment using a search engine forms application. Due to the coronavirus pandemic measures, the form was collected online via the social media application. The students were informed that participation was voluntary, and they were free to decide whether to participate or not. The voluntary consent condition was specified at the beginning of the questionnaire and the students who agreed to participate started to answer the questions after electronically confirming that they volunteered. It took approximately 15-20 minutes to fill out the form. The data were collected over approximately two weeks. It is believed that this method allowed the participants to make neutral evaluations because they were not influenced by anyone, to give more careful answers because they could choose the best time to answer the questions, and to provide more truthful answers because their identities were not exposed.

Ethics committee approval

The research is in line with the Helsinki Declaration. The ethics committee of Akdeniz University in the province gave ethical approval (Document ID: 70904504/326 and Number: KAEK-344) before the study was conducted.

Data analysis

Statistical analyses of the data were made using the SPSS Statistics Base V 23 of the Statistical Package for the Social Sciences software licensed by Akdeniz University. Normal distribution evaluation was done with the Kolmogorov-Smirnov test and non-parametric tests were used in the analysis of numerical variables that did not show normal distribution. Descriptive statistics (number, percentage, mean, and standard deviation), Mann-Whitney U test, Kruskal-Wallis H test, and Spearman's Correlation Analysis were used for data evaluation. Post hoc comparisons used Bonferroni-corrected Mann-Whitney U tests. The results were evaluated at a significance level of $p<0.001$ and $p<0.01$ and $p<0.05$.

Results

Sociodemographic characteristics and univariate analyses

In this study of nursing students, 61.4% were female and their mean age was 20.39±1.20. Of the students, 32.1% had a personal computer, 74.5% had Internet access, and their mean daily Internet usage time was 3.20±1.25 hours. Students' daily average study time was 2.65±1.18 hours. It was determined that 7.1% of the students had received distance education for other programs before and that most of them (75.5%) followed the courses via a smartphone. Of the students, 85.9% said that they were not satisfied with receiving distance education and all of them stated that they did not find nursing education suitable for distance education or were not satisfied with it (Table 1).

Table 1. Descriptive characteristics of the students and their views on distance education (n=184).

Descriptive characteristics and views	n	%
Sex		
Female	113	61.4
Male	71	38.6
Year		
1st year	64	34.8
2nd year	62	33.7
3rd year	58	31.5
Region of residence		
Mediterranean Region	66	35.9
Southeastern Anatolian Region	33	17.9
Marmara Region	26	14.2
Aegean Region	19	10.3
Central Anatolian Region	16	8.7
Eastern Anatolian Region	16	8.7
Black Sea Region	8	4.3
Does the student own a personal computer?		
Yes	59	32.1
No	125	67.9
Does the student have Internet access?		
Yes	137	74.5
No	47	25.5
How does the student rate his/her academic success?		
Very good	14	7.6
Good	84	45.7
Medium	71	38.6
Bad	15	8.1
Distance Education followed by		
Smartphone	139	75.5
Laptop	37	20.1
Desktop Computer	6	3.3
Tablet	2	1.1
Has the student received distance education before?		
Yes	13	7.1
No	171	92.9
Is the student satisfied with receiving distance education?		
Yes	26	14.1
No	158	85.9
Is the student satisfied with receiving education as distance education?		
No	184	100

The total OSDE mean score was 46.59±10.58. The sub-dimension with the highest mean score of 15.96±4.19 was "instructiveness" and the one with the lowest mean score of 6.98±2.77 was "predisposition." The total SRLSS mean score was 100.54±23.60, the sub-dimension with the highest mean score of 28.74±8.19 was "help-seeking," and the one with the lowest mean score of 6.07±2.31 was "effort regulation". The total SDLRS mean score was 195.46±45.89, the sub-dimension with the highest mean score of 76.59±18.00 was "self-management," and the one with the lowest mean score of 59.53±14.49 was "willingness to learn" (Table 2).

Upon comparing some characteristics of the students with their OSDE mean scores, it was determined that males, students in their third year, those living in the central Anatolian region, those with Internet access, those following distance education from the computer, those that had received distance education before, those satisfied with receiving distance education, and those studying three or

more hours a day had more positive views on distance education. The comparison to the SRLSS mean scores showed that those owning a personal computer, those evaluating their academic success as very good, those who had received distance education before, those satisfied with receiving distance education, and those studying for three or more hours a day had higher self-regulated learning skills. The comparison to the SDLRS mean scores revealed that those living in the Mediterranean and Central Anatolian region, those having a personal computer, those evaluating their academic success as very good, those following distance education on the computer, those satisfied with distance education, and those studying for three or more hours a day had higher self-regulated readiness skills (p<0.05) (Table 3).

Table 2. OSDE, SRLSS, and SDLRS total scores (n=184).

Scales	Score range	Received scores	Mean±SD
OSDE	18-90	22-78	46.59±10.58
Personal suitability	6-30	6-30	14.00±6.22
Effectiveness	5-25	5-25	9.63±4.86
Instructiveness	4-20	4-20	15.96±4.19
Predisposition	3-15	3-14	6.98±2.77
SRLSS	30-150	30-150	100.54±23.60
Goal setting	5-25	5-25	16.20±4.74
Help seeking	9-45	9-45	28.74±8.19
Self-study strategies	8-40	8-40	26.89±7.61
Managing the physical environment	6-30	6-30	22.63±5.27
Effort regulation	2-10	2-10	6.07±2.31
SDLRS	52-260	52-260	195.46±45.89
Self-management	20-100	20-100	76.59±18.00
Willingness to learn	16-80	16-80	59.53±14.49
Self-control	16-80	16-80	62.97±14.86

OSDE: Opinion Scale for Distance Education, SRLSS: Self-Regulated Learning Skills Scale, SDLRS: Self-Directed Learning Readiness Scale

Correlation analyses

There was a positive weak relationship between the SRLSS and OSDE total scores, a weak relationship with the sub dimension of personal suitability, and a positive weak relationship with the sub dimension of effectiveness. There also was a positive weak relationship between the SDLRS and OSDE total scores, a positive weak relationship with personal suitability, and a positive very weak relationship with instructiveness (p<0.001) (Table 4).

Discussion

Rapidly developing information and communication technology not only increases the access speed to scientific information, but also facilitates the storage and sharing of information.[21] Technological possibilities need to be used to increase the effectiveness of nursing education, which contains applied and theoretical content.[22,23] Information technologies are used in many areas of nursing such as education, management, research, and care practices.[24] To continue education, information technologies are especially valuable when face-to-face education is not possible. Distance education contributes to the spread of lifelong learning, information access without time and space limits, and enables independent and flexible learning by breaking down walls in the learning process.[25] The results of this study, which was carried out during the distance education process that was compulsory due to the coronavirus pandemic and was carried out to determine the self-regulated learning skills and readiness of nursing students and their views on distance education, are discussed below.

In the study, although only approximately one-third of the students had their computers, the majority of them had Internet access and they spent three hours on the Internet. This finding shows that the majority of students can access distance education in some way and continue their education in this way.[26] The students stated that they studied for 2.65±1.18 hours, on the days they studied, and almost half

of them evaluated their academic success as good. It was determined that 7.1% of the students had received distance education for other programs before and that most of them followed the courses via a smartphone.

Table 3. Comparison between some of the descriptive characteristics of the students and the mean scores of the OSDE, SRLSS, and SDLRS (n=184).

Characteristics	OSDE		SRLSS		SDLRS	
	Mean±SD	Test	Mean±SD	Test	Mean±SD	Test
Sex						
Female	44.90±8.38	-2.530[1]	99.96±21.51	-0.513[1]	198.77±40.25	0.337[1]
Male	49.28±12.98	p=0.013[*]	101.47±26.73	p=0.608	190.18±53.54	p=0.736
Year						
1st year[a]	46.53±9.19	11.949[2]	99.89±22.59	0.026[1]	193.78±45.06	0.303[1]
2nd year[b]	42.30±9.84	p=0.000[***]	98.32±25.77	p=0.987	196.58±50.07	p=0.859
3rd year[c]	51.24±10.98	**c>a,b**	103.65±22.33		196.12±42.76	
Region of residence						
Mediterranean Region[a]	49.24±10.18	24.096[2]	105.81±23.22	11.012[2]	209.80±34.80	17.450[2]
Southeastern Anatolian Region[b]	40.27±8.92	p=0.001[**]	91.06±28.07	p=0.088	197.87±49.19	p=0.008[**]
Marmara Region[c]	44.00±8.60	**e>c,g,b**	103.42±11.80		177.50±47.72	**a,e>f**
Aegean Region[d]	48.47±11.94		96.00±24.60		187.78±34.71	
Central Anatolian Region[e]	54.37±10.34		103.37±11.07		208.12±27.67	
Eastern Anatolian Region[f]	44.81±9.92		91.06±28.77		164.18±72.02	
Black Sea Region[g]	42.75±8.92		105.00±31.04		181.00±50.87	
Does the student own a personal computer?						
Yes	48.83±11.86	1.855[1]	109.25±20.04	2.928[1]	207.11±35.15	2.295[1]
No	45.53±9.80	p=0.067	96.44±24.11	p=0.003[**]	189.96±49.34	p=0.022[*]
Does the student have Internet access?						
Yes	47.86±10.74	2.845[1]	102.60±22.16	0.984[1]	196.18±43.36	0.241[1]
No	42.87±9.25	p=0.005[**]	94.55±26.73	p=0.325	193.34±53.02	p=0.809
How does the student rate his/her academic success?						
Very good[a]	51.71±15.41	1.847[2]	121.71±22.86	33.952[2]	231.28±23.26	17.297[2]
Good[b]	46.29±9.69	p=0.140	107.58±18.48	p=0.000[***]	196.60±47.33	p=0.001[**]
Medium[c]	45.32±10.49		90.22±25.07	**a,b>c,d**	185.83±47.87	**a>b,c**
Bad[d]	49.46±9.60		90.26±15.23		201.20±22.14	
Distance Education followed by						
Smartphone	44.76±9.41	-3.788[1]	100.45±23.16	-0.190[1]	190.21±48.60	-2.706[1]
Computers	52.22±12.06	p=0.000[***]	100.84±25.18	p=0.849	211.66±31.55	p=0.007[**]
Has the student received distance education before?						
Yes	52.15±8.27	1.980[1]	124.46±18.61	3.839[1]	206.69±48.43	1.318[1]
No	46.16±10.64	p=0.049[*]	98.73±22.98	p=0.000[***]	194.60±45.72	p=0.187
Is the student satisfied with receiving distance education?						
Yes	58.69±9.62	7.083[1]	107.34±32.48	2.089[1]	225.92±29.99	3.778[1]
No	44.60±9.36	p=0.000[***]	99.43±21.74	p=0.037[*]	190.44±46.18	p=0.000[***]
Daily average study time						
2 hours and less	44.46±11.27	-2.593[1]	94.51±24.58	-3.283[1]	184.62±53.68	-2.280[1]
3 hours and above	48.45±9.61	p=0.011[*]	105.84±21.47	p=0.001[**]	204.96±35.38	p=0.023[*]

OSDE: Opinion Scale for Distance Education, SRLSS: Self-Regulated Learning Skills Scale, SDLRS: Self-Directed Learning Readiness Scale

[1]Mann-Whitney U test, [2]Kruskal-Wallis H test, [*]p<0.05, [**]p<0.01, [***]p <0.001

Table 4. Relationship between the mean scores of the OSDE, SRLSS, and SDLRS (n=184).

Scales		Personal suitability	Effectiveness	Instructiveness	Predisposition	OSDE
Goal setting	r	0.307	0.159	0.035	-0.217	0.207
	p	0.000***	0.032*	0.641	0.003**	0.005**
Help seeking	r	0.377	0.254	0.110	0.044	0.369
	p	0.000***	0.001**	0.137	0.552	0.000***
Self-study strategies	r	0.280	0.155	0.085	0.011	0.261
	p	0.000***	0.035*	0.252	0.885	0.000***
Managing the physical environment	r	0.283	0.205	0.067	0.048	0.301
	p	0.000***	0.005**	0.365	0.519	0.000***
Effort regulation	r	0.278	0.191	0.050	-0.087	0.235
	p	0.000***	0.009**	0.502	0.238	0.001**
SRLSS	r	0.370	0.213	0.106	-0.050	0.333
	p	0.000***	0.004**	0.150	0.500	0.000***
Self-management	r	0.216	0.111	0.197	0.065	0.338
	p	0.003**	0.133	0.007**	0.383	0.000***
Willingness to learn	r	0.316	0.189	0.101	0.069	0.395
	p	0.000***	0.010*	0.173	0.353	0.000***
Self-control	r	0.281	0.148	0.110	-0.047	0.326
	p	0.000***	0.044*	0.137	0.523	0.000***
SDLRS	r	0.256	0.129	0.151	0.030	0.345
	p	0.000***	0.080	0.041*	0.685	0.000***

OSDE: Opinion Scale for Distance Education, SRLSS: Self-Regulated Learning Skills Scale, SDLRS: Self-Directed Learning Readiness Scale
r: Spearman's Correlation Analysis, r<0.2 very weak, r:0.2-0.4 weak, r:0.4-0.6 medium, r:0.6-0.8 high, r>0.8 very high correlation.
*p<0.05, **p<0.01, ***p<0.001

Of the students, 85.9% said that they were not satisfied with receiving distance education, all of them stated that they did not find nursing education suitable for distance education or were not satisfied with it, and their total mean OSDE score was low. Andsoy et al.[27] determined that students did not want to participate in distance education because they did not sufficiently understand subjects that were not taught face-to-face, distance education was not effective, students were distracted outside the classroom, and more time was wasted. In some studies, students reported that clinical education in nursing education was very important in the development of their professional identities and that they were concerned about the lack of implementation of clinical practices in distance education during the COVID 19 process.[28-30] In one study, students defined the lack of clinical practice as an important deficiency and inadequacy in terms of nursing education and stated that they were worried about this issue.[11] In another study, most of the students thought that psychomotor lessons regarding nursing skills were not practical via distance education.[31] The mean score of the effectiveness subdimension of the OSDE was lower than that of the other subdimensions. A previous study determined that students receiving distance education thought the subjects were not very comprehensible or effective, they had difficulties finding a computer or Internet access, and it would be better if a faculty member explained the examples.[31] Important problems that reduce the effectiveness of distance education methods in nursing education and student satisfaction are technical problems related to computer and Internet access experienced by students, computer literacy, perceptions of distant education as low quality, feeling the lack of face-to-face interaction with the teacher and other classmates, and asynchronous written communication.[32,33]

Males, students in their third year, those living in the central Anatolian region, those with Internet access, those following distance education via the computer, those with previous distance education experience, those satisfied with receiving distance education, and those studying three or more hours a day had more positive views on distance education. Similarly, the study of Wei and Chou[34] reported that those having a personal mobile phone, continuous Internet access, and mobile

devices had higher distance education attitude scores than those who did not have the above-mentioned facilities. Having a computer is expected to affect the attitude towards distance education positively.[34] Owning a computer increases familiarity with computers, which positively affects the attitude towards many issues related to computers and the Internet.

Students' readiness is an important factor for the successful use of e-learning applications, which increase rapidly in education and training applications. Readiness has a positive effect on factors such as self-management and interaction with the learning environment.[35] The students' SDLRS total mean scores in the current study were high. Other studies on the readiness of students studying in the nursing department found similarly high results.[36,37] Self-efficacy is one of those individual characteristics that forms the professional identity of nurses.[36] The mean score of the "self-management" subdimension was slightly higher than the willingness to learn and self-control skills subdimensions. In other words, students had a higher level of readiness than a willingness to manage their students to have this kind of readiness are that they have the necessary and sufficient technologies and they are accustomed to using the said technologies. Deficiencies in technological access, technological infrastructure, education regarding the use of technology, and technical support negatively affect e-learning readiness.[38,39] The current study also supports this because students with a personal computer, those who rated their academic success as high, followed distance education via the computer, were satisfied with receiving distance education, and studied for three or more hours a day had higher self-directed learning readiness. For this reason, educational institutions should provide solutions regarding access problems by creating environments such as computer classes for students who do not own the necessary technological tools such as computers in order to contribute to their e-learning readiness. In the study of Orban et al.[40], technology classes increased the technology readiness and literacy of students.

It is very important for students to know that distance education will meet their educational needs and expectations, and that they prepare for the process.[41] For this reason, determining the readiness of students before starting the distance education process can make positive contributions to the effectiveness, efficiency, and attractiveness of the learning process. In the current study, students with high readiness for self-directed learning had a positive view distance education. The scores from personal suitability, effectiveness, and instructiveness subdimensions were also higher in this context. Another factor that positively affected the views of students on distance education was the self-regulated learning skill. In the present study, the total SRLSS average score of the students was above the average. The subdimension with the highest mean score was "seeking help" and the lowest mean score was "effort regulation". In order for the individual to be ready for self-directed learning and be able to acquire self-learning skills, it is necessary to have an academic background in a certain area.[42] It was also reported that knowledge has a positive effect on increasing self-efficacy.[43] The high level of knowledge and skills of nursing students supports their self-confidence and greater clinical compliance.[44] In addition, self-efficacy skills could be improved via e-learning methods.[45] In the current study, those students who owned a personal computer, evaluated their academic success as very good, received distance education before, were satisfied with receiving distance education, and studied for three or more hours a day had higher self-regulated learning skills. Students with high academic success were more active and successful in self-regulated learning processes. Alotaibi[35] also reported in his study with nursing students that there was a strong positive relationship between the student's academic success and self-directed learning readiness. Individuals with high academic success are able to quickly put into practice what they learn, can use advanced and effective self-regulatory learning strategies, have inner discipline, are responsible, are attentive, have a high sense of accomplishment, are organized, and have a determined personality.[46] To ensure readiness for self-regulated learning and to acquire self-

learning skills, an individual needs an academic infrastructure in that area. Likewise, it is very important to provide readiness for self-directed learning through the development of self-learning skills. A positive relationship was found between the student's SRLSS and SDLRS mean scores. Therefore, increasing the readiness for self-directed learning is required to increase self-regulated learning skills. In addition, students' computer/Internet self-efficacy for online learning readiness had a mediated effect not only on online learning perceptions and online discussion scores but also on online learning perceptions and course satisfaction.[34]

On the other hand, the most emphasized issue for the students was the insufficient distance education infrastructure conditions of the university. Therefore, students emphasized that many students had problems with Internet access, they could not follow their lessons, and they could not learn efficiently from the lessons when they entered the system. In the distance education system, serious problems have been experienced due to the disconnection of students, lack of infrastructure, inability to reach students without internet access, technical difficulties and lack of technology.[47] In addition, it should be supported by universities so that students living in rural areas without Internet access can receive education on an equal basis with others.[48]

Positive views on distance education can be increased with the planning of distance education, the selection of the people assigned to distance education, and the in-service training support given to the staff. When distance education is a system preferred by both the learner and the teacher, the level of readiness and success will increase.[49]

Strengths and limitations

In the research execution phase, data were collected via online forms rather than by face-to-face interviews due to the social distancing rule and curfew restrictions imposed in the wake of the COVID-19 pandemic, which constitutes a limitation of this study.

Conclusions

Most of the students stated that they were not satisfied with receiving distance education and all of them said that they did not find it appropriate to receive nursing education through distance education. The mean score of the effectiveness subdimension of the OSDE was low. The students' readiness for self-regulated learning and their self-regulated learning skills positively affected their views on distance education. As the students' Self-Regulated Learning Skills score averages increased, their Self-Directed Learning Readiness score averages also increased. In order to be successful in the distance education process, students' readiness for self-regulated learning should be evaluated and their self-regulated learning skills should be increased.

We suggest carrying out further studies regarding students' readiness for self-directed learning and factors affecting self-regulated learning skill levels. Qualitative studies are suggested to evaluate the student views on the subject more comprehensively. This study was carried out with students only. We recommend correlation studies, in which students' and faculty members' views on distance education can be evaluated together. In nursing education, applications in clinical learning, such as simulations, telehealth, and virtual reality, should be widespread, and students should be supported. The budget, physical infrastructure, and resources required for these applications should be planned by the managers.

Ethics Committee Approval

The research is in line with the Helsinki Declaration. The ethics committee of Akdeniz University in the province gave ethical approval (Document ID: 70904504/326 and Number: KAEK-344) before the study was conducted.

Informed Consent

Students were given an explanation about the study and informed that data obtained from the study were to be used only within the scope of the study and that confidentiality would be maintained. Informed consent was obtained from the participants.

Authors' Contributions

Concept/Design: AS; Methodology: AS, DE; Software: AS, DE; Data curation: AS, DE; Writing-Original draft preparation: AS; Supervision: DE; Validation: DE.

Conflict of Interest

The authors declared no conflict of interest.

Acknowledgement

The authors are grateful to all the nursing students for their collaboration in this study.

Financial Disclosure

No funding was received in support of this study.

Peer-review

Externally peer-reviewed

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