



Factors Affecting Nursing Students' Digital Burnout Levels During in Pandemic: A Web-Based Cross-Sectional Study

Pandemi Sırasında Hemşirelik Öğrencilerinin Dijital Tükenmişlik Düzeylerini Etkileyen Faktörler: Web Tabanlı Kesitsel Bir Araştırma

Banu TERZİ¹, Fatma AZİZOĞLU², Çaęla SEVEN³

¹Akdeniz University, Faculty of Nursing, Fundamentals of Nursing Department, Antalya
· copurbanu@hotmail.com · ORCID > 0000-0002-9500-6872

²Haliç University, Faculty of Health Sciences, İstanbul
· fatmaazizoglu@yahoo.com · ORCID > 0000-0002-7102-9797

³Haliç University, School of Nursing, İstanbul
· sevencaglaa@gmail.com · ORCID > 0000 0002 1279 3664

Makale Bilgisi/Article Information

Makale Türü/Article Types: Araştırma Makalesi/Research Article

Geliş Tarihi/Received: 01 Kasım/November 2022

Kabul Tarihi/Accepted: 10 Temmuz/July 2024

Yıl/Year: 2024 | **Cilt – Volume:** 9 | **Sayı – Issue:** 2 | **Sayfa/Pages:** 199-216

Atıf/Cite as: Terzi, B., Azizoęlu, F., Seven, Ç. "Factors Affecting Nursing Students' Digital Burnout Levels During in Pandemic: A Web-Based Cross-Sectional Study" Journal of Samsun Health Sciences 9(2), August 2024: 199-216.

Sorumlu Yazar/Corresponding Author: Banu TERZİ

Yazar Notu/Author Note: The study was presented at 6th International 2nd International Congress on Basic Nursing Care at 15-17 October 2022.

FACTORS AFFECTING NURSING STUDENTS' DIGITAL BURNOUT LEVELS DURING IN PANDEMIC: A WEB-BASED CROSS-SECTIONAL STUDY

ABSTRACT

Aim: To identify factors affecting the digital burnout levels of nursing students during the pandemic period.

Method: The descriptive and cross-sectional study was conducted with 1000 nursing students. Data of the research was collected between March-April, 2021 as online survey by using "Introductory Information Form" and "Digital Burnout Scale". In addition to descriptive statistical analyses, Kruskal-Wallis test and Dunn-Bonferroni test were used for the comparison of non-normally distributed quantitative variables between more than two groups. Spearman correlational analysis was used for evaluating the relationships between quantitative variables. Statistical significance level was accepted as $p < 0.05$.

Results: Regarding the Digital Burnout Scale scores of the students, average total scores were 2.70 ± 0.92 (Min.=1-Max.=5, Median=2.67) for "Digital Aging" dimension, 3.17 ± 1.06 (Min.=1-Max.=5, Median=3.33) for "Digital Deprivation" dimension and 2.76 ± 0.93 (Min.=1.17-Max.=5, Median=2.67) for "Digital Exhaustion" dimension. Average total score of the overall scale was 2.83 ± 0.86 (Min.=1.04-Max.=5, Median=2.79).

Conclusions and Suggestions: Nursing students experienced high level of digital burnout during the pandemic. The year of study of students and the time they spend on digital environments affects the level of digital burnout. Measures should be taken to reduce digital burnout during the distance nursing education.

Keywords: COVID-19, Digital Burnout, Nursing Students, Distance Education.



PANDEMİ SIRASINDA HEMŞİRELİK ÖĞRENCİLERİNİN DİJİTAL TÜKENMİŞLİK DÜZEYLERİNİ ETKİLEYEN FAKTÖRLER: WEB TABANLI KESİTSEL BİR ARAŞTIRMA

ÖZ

Amaç: Pandemi döneminde hemşirelik öğrencilerinin dijital tükenmişlik düzeylerini etkileyen faktörleri belirlemektir.

Yöntem: Tanımlayıcı ve kesitsel tipteki çalışma 1000 hemşirelik öğrencisi ile yürütülmüştür. Araştırmanın verileri Mart-Nisan 2021 tarihleri arasında “Tanıtıcı Bilgi Formu” ve “Dijital Tükenmişlik Ölçeği” kullanılarak online anket şeklinde toplanmıştır. Tanımlayıcı istatistiksel analizlerin yanı sıra, normal dağılmayan nicel değişkenlerin ikiden fazla grup arasında karşılaştırılmasında Kruskal-Wallis testi ve Dunn-Bonferroni testi kullanılmıştır. Nicel değişkenler arasındaki ilişkileri değerlendirmek için Spearman korelasyon analizi kullanılmıştır. İstatistiksel anlamlılık düzeyi $p < 0.05$ olarak kabul edilmiştir.

Bulgular: Öğrencilerin Dijital Tükenmişlik Ölçeği puanları incelendiğinde, toplam puan ortalamaları “Dijital Yaşlanma” boyutu için $2,70 \pm 0,92$ (Min.=1-Max.=5, Medyan=2,67), “Dijital Yoksunluk” boyutu için $3,17 \pm 1,06$ (Min.=1-Max.=5, Medyan=3,33) ve “Dijital Tükenme” boyutu için $2,76 \pm 0,93$ (Min.=1,17-Max.=5, Medyan=2,67) olarak bulunmuştur. Ölçeğin toplam puan ortalaması $2,83 \pm 0,86$ (Min.=1,04-Maks.=5, Ortanca=2,79)’dır.

Sonuçlar ve Öneriler: Hemşirelik öğrencileri pandemi sürecinde yüksek düzeyde dijital tükenmişlik yaşamıştır. Öğrencilerin öğrenim gördükleri yıl ve dijital ortamlarda geçirdikleri süre dijital tükenmişlik düzeyini etkilemektedir. Uzaktan hemşirelik eğitimi sırasında dijital tükenmişliği azaltmak için önlemler alınmalıdır.

Anahtar Kelimeler: COVID-19, Dijital Tükenmişlik, Hemşirelik Öğrencileri, Uzaktan Eğitim.



INTRODUCTION

Coronavirus disease (COVID-19), has caused a contagious pandemic by rapidly spreading in China and many other countries (Bao et al., 2020). The pandemic has reached our country in a very short time. The pandemic brought along many restrictions on the daily life and drastic measures were taken across the country to prevent the spread of the pandemic. One of the most important of these measures was closing all the schools and rapidly engaging distance education system.

In Turkey, distance learning for nursing was first started in 1993 for the undergraduate program. This was followed by the nursing degree completion program established in 2009–2010. Afterwards, Inonu University Health Sciences Institute started a Surgical Nursing Distance Education Non-thesis Master's Degree program in the 2011–2012 academic year. Ataturk University Health Sciences Institute has been providing distance associate degree education for surgical nursing, pediatric nursing, public health nursing, fundamentals of nursing, and psychiatry nursing since 2012–2013. In general, it can be stated that in Turkey, distance nursing education is used for associate degrees, degree completion, and graduate studies (Şenyuva, 2013). With the COVID-19 pandemic, distance education was started in schools at all levels in our country. With the introduction of the distance education system into our lives, the time spent in virtual environments with digital tools has increased. Especially during the COVID-19 pandemic, spending too much time in digital environments has also brought digital burnout to the agenda (Erten & Özdemir, 2020). Burnout is a syndrome which refers to the mental, emotional and physical exhaustion caused by the long term and excessive stress which is conceptualised as a result of chronic workplace stress that cannot be managed successfully. Maslach and Jackson (1981) define burnout as a serious result of exhaustion which is harmful for the individual and organization. Moreover, although people are still at risk of burnout, the concept of digital burnout has emerged due to the increased use of and exposure to digital tools. Digital burnout is classified as a specific type of burnout triggered by the long term and excessive use of digital devices. In a survey conducted in United Kingdom, 75% of the participants stated experiencing digital tiredness. Burnout is not associated only with a physical work environment anymore, it is also related to the technology's effect on the interaction with the work environment and the functioning of the society. According to Breytenbach (2015), digital burnout is defined with the amount of burnout experienced. People who experience digital burnout show symptoms such as constant tiredness, concentration impairment or difficulties in coping with routines. This burnout causes a decrease in the productivity while struggling to focus on the multiple duties constantly (Breytenbach, 2015).

Digital burnout is caused by spending too much time on digital environments and may cause stress, tiredness, desensitisation towards the environment, lack of attention, physical and mental problems (Erten & Özdemir, 2020). Digital burnout is characterized by sleep deprivation and reduced work productivity, family problems, fatigue, stress, loss of interest, depersonalization, difficulty managing emotions, and physical and mental problems (Quill, 2017). These issues may reflect negatively on daily life. On the other hand, considering digital stress during distance learning; the inability to adapt to virtual learning assignments, exams, reduced learning time and interpersonal relationships have been reported to cause stress among students during the COVID-19 lockdown. A sense of isolation and lack of a sense of community were cited as challenges in online learning environments (Kumpikaitė-Valiūnienė et al., 2021).

Due to uncertainties in the COVID-19 pandemic, it has remained unclear how much longer nursing education can be sustained entirely through distance learning. Although face-to-face education was gradually introduced after the pandemic, some theoretical courses continued to be conducted through distance education. Nursing students, who are an important element of the nursing education system, should be capable of fulfilling the requirements of this system (Terz et al., 2021).

Although studies on this subject are limited in the literature, in a study conducted with university students, a moderate positive and significant relationship was found between students' digital burnout levels and their perceived stress levels. It was also observed that as students' digital burnout levels increased, their perceived stress levels also increased (Göldağ, 2022). In another study conducted with nursing students, it was found that students experienced digital burnout above average; average time spent on the internet per day, stress level, physical and psychological health and economic status affected the level of digital burnout (Çelik Durmuş et al., 2022). Nursing education started to be provided as distance education following the diagnose of the first COVID-19 case in our country. During distance education, all of the theoretical and applied classes of nursing education were carried out on digital environments in line with the nursing curriculum. Considering the duration of the classes in nursing curriculum, it can be said that the students spent a lot of time on digital environments. How this affects nursing students should be an important issue of investigation. In this direction, this research searches for answers to the following questions in order to determine digital burnout of the nursing students during the distance education during COVID-19.

Questions of the research:

- What are the characteristics of nurses and their thoughts on COVID-19 and the digital environment during COVID-19?

- What are the levels of digital burnout of the nursing students during the COVID-19 pandemic?
- Are there any significant differences between the characteristics of nursing students, digital environments and their thoughts on COVID-19 during the COVID-19 pandemic?

Purpose of the study:

The aim of the study is to identify the factors affecting the digital burnout levels of the nursing students during the COVID-19 pandemic.

METHOD

Design: The the descriptive and cross-sectional study.

Participants: Population of the research comprised undergraduate and graduate nursing students who are members of Nursing Student Association of Turkey (N=2500). It was aimed to reach all of these students without any sample size calculations. The research was completed with a total of 1000 students (%40 of the population).

Data Collection and Analysis: In the study, “Students Information Form” and “Digital Burnout Scale” was used for data collection.

Student Information Form: The form has a total of 15 questions on sociodemographic information of the students (age, gender, study program, year of study etc.) and information related to COVID-19 and digital environments.

Digital Burnout Scale: The scale developed by Erten and Özdemir (2020) has three dimensions (Digital Aging, Digital Deprivation, Digital Exhaustion) and a total of 24 items. The five point likert type scale has response options as “1-Entirely agree 2-Agree 3-Do not entirely agree 4- Disagree 5-Strongly disagree”. Higher scores from the scale indicate higher level of digital burnout. Validity and reliability coefficient of the original scale is 0.946. By looking into the internal consistency of the scale in this study; α was detected as 0.924 for Digital Aging dimension, 0.914 for Digital Deprivation dimension, 0.845 for Digital Exhaustion dimension and 0.951 for the overall scale. It can be said that the reliability of the scale is very strong.

Data Collection Process: Data was collected between March-April, 2021. Data collection tools of the research were transformed into “Google Surveys”. Link for the online questionnaires was sent to Nursing Student Association of Turkey and

approval was obtained from the board of the association. Whatsapp or MMS messages and the social media account of the association were used to send the questionnaire link to all of the nursing students who are members of the association. Messages were sent to the phone numbers obtained from the member management system of the association. Students were asked to click the Google Surveys link in the message and fill the forms. The link of the questionnaire was messaged to students twice a week throughout the research in order to remind them to fill the questionnaire.

Data Analysis: Number Cruncher Statistical System (NCSS) was used for statistical analysis. Descriptive statistical methods (average, standard deviation, median, frequency, percentage, minimum, maximum) were used for evaluating the research data. Shapiro-Wilk test and graphical analyses were used to test if the quantitative variables were normally distributed. Student-t test was used for the comparison of the normally distributed quantitative variables between two groups. One way variance analysis and Bonferroni correction pairwise comparisons were used for comparing normally distributed quantitative variables between more than two groups. Kruskal-Wallis test and Dunn-Bonferroni test were used for comparing the non-normally distributed quantitative variables between more than two groups. Spearman correlational analysis was used to evaluate the relationships between the quantitative variables. Statistical significance level was accepted as $p < 0.05$.

Ethical Considerations: The Human Rights Declaration of Helsinki was abided by throughout the study. Students' voluntariness and willingness to participate in the study were taken notice of. Written consent of the students who volunteered to participate in the research was obtained by asking them to click the "I agree to fill the online survey." statement in the message that was sent to their mobile phones. Written consent was obtained from the local ethics committee of the Istanbul Medipol University (04/03/2021, permission no: 257) and Ministry of Health Scientific Research Committee.

RESULTS

The results of the research are discussed under three headings:

1. Characteristics of nursing students:

Among the students, 83.5% were female ($n=835$), average of age was 20.31 ± 1.97 (Min.=17, Max.=40, Median=20), 99.7% were undergraduate students and 45.6% ($n=456$) were first grade students (Table 1).

Table 1. Demographic characteristics

Age	<i>Min-Max (Median)</i>	17-40 (20)
	<i>Mean±Ss</i>	20.31±1.97
Sex	Female	835 (83.5)
	Male	165 (16.5)
Education Status	Undergraduate	997 (99.7)
	Postgraduate	3 (0.3)
Grade Level	Preparation	49 (4.9)
	Grade 1	456 (45.6)
	Grade 2	134 (13.4)
	Grade 3	197 (19.7)
	Grade 4	164 (16.4)

It was identified that 78.7% of the students (n=787) connected to the internet via mobile phones and the daily use of internet was 4-6 hours for 45.6% of the students (n=456).

The 61% of the students (n=610) stated feeling exhausted because using digital environments and tools, %65,2 (n=652) considered themselves as a person using virtual and digital environments or tools excessively, 40.9% (n=409) stated feeling fear/anxiety towards digital/virtual fields, 37.5% (n=375) felt stressed on digital/virtual environments, 71.2% (n=712) thought that spending time on digital/virtual environments had negative effects on their lives, 63.4% (n=634) thought that spending time on digital/virtual environments may have negative effects on their future (Table 2).

Table 2. Descriptive characteristics

		n (%)
Device connected to the Internet	Cell phone	787 (78.7)
	Laptop computer	175 (17.5)
	Desktop computer	28 (2.8)
	Tablet	10 (1.0)
Daily time connected to the Internet	<1 hour	9 (0.9)
	1-3 hours	138 (13.8)
	4-6 hours	456 (45.6)
	7-9 hours	256 (25.6)
	≥10 hours	141 (14.1)

Feeling burned out from the use of digital environments or tools	Yes	610 (61.0)
	Undecided	252 (25.2)
	No	138 (13.8)
Seeing yourself as someone who uses too much virtual and digital media or tools	Yes	652 (65.2)
	Undecided	205 (20.5)
	No	143 (14.3)
Presence of fear/anxiety towards digital/virtual environments	Yes	409 (40.9)
	Undecided	280 (28.0)
	No	311 (31.1)
Feeling stressed in digital/virtual environments	Yes	375 (37.5)
	Undecided	266 (26.6)
	No	359 (35.9)
The idea that spending time in digital/virtual environments has a negative impact on life	Yes	712 (71.2)
	Undecided	147 (14.7)
	No	141 (14.1)
The idea that spending time in digital/virtual environments will negatively affect the future	Yes	634 (63.4)
	Undecided	217 (21.7)
	No	149 (14.9)

Among the students, 73.2% (n=732) were not tested for COVID-19, 43.9% (n=439) have COVID-19 diagnosed people in their families, 64.9% (n=649) were worried about COVID-19.

2. Digital burnout levels of the nursing students:

Regarding the Digital Burnout Scale scores of the students, average score of "Digital Aging" dimension was 2.70 ± 0.92 (Min.=1-Max.=5, Median=2.67), average score of "Digital Deprivation" was 3.17 ± 1.06 (Min.=1-Max.=5, Median=3.33), average score of "Digital Exhaustion" was 2.76 ± 0.93 (Min.=1.17-Max.=5, Median=2.67) and the average total score of the overall scale was 2.83 ± 0.86 (Min.=1.04-Max.=5, Median=2.79).

3. Evaluation of the digital burnout levels according to the characteristics of the students and their thoughts on digital environments and COVID-19:

According to the year of study, statistically significant differences were found between the average total scores of "Digital Aging" and "Digital Exhaustion" dimensions of Digital Burnout Scale ($p=0.001$; $p<0.01$) (Table 3).

According to the time spent on the internet, statistically significant differences were found between average scores of “Digital Aging”, “Digital Deprivation” and “Digital Exhaustion” dimensions of the Digital Burnout Scale and the average total score of the overall scale ($p=0.001$; $p<0.01$) (Table 3).

Table 3. Evaluation of Digital Burnout Scale scores according to the descriptive characteristics

			Digital Burnout Scale				
			Digital Aging	Digital Deprivation	Digital Exhaustion	Total Score	
Age		r	0.028	0.001	-0.010	0.018	
		p	0.381	0.983	0.755	0.573	
Gender	Female (n=835)	Min-Max (Median)	1-5 (2.7)	1-5 (3.3)	1.2-5 (2.7)	1-5 (2.8)	
		Mean±Sd	2.68±0.92	3.16±1.06	2.75±0.94	2.82±0.86	
	Male (n=165)	Min-Max (Median)	1-5 (2.8)	1-5 (3.3)	1.2-5 (2.8)	1.2-4.9 (2.9)	
		Mean±Sd	2.77±0.93	3.22±1.06	2.83±0.91	2.9±0.85	
		Test Value	t:-1.141	t:-0.629	t:-1.033	t:-1.086	
		p	*0.254	*0.529	*0.302	*0.278	
Grade	Preparatory (n=49)	Min-Max (Median)	1.1-4.1 (2.7)	1.2-4.5 (3.2)	1.3-4 (2.3)	1.3-3.9 (2.7)	
		Mean±Sd	2.6±0.67	3.03±0.92	2.48±0.68	2.68±0.55	
	1st Grade(n=456)	Min-Max (Median)	1-5 (2.7)	1-5 (3.3)	1.2-5 (2.7)	1.2-5 (2.8)	
		Mean±Sd	2.68±0.9	3.17±1.07	2.76±0.92	2.82±0.85	
	2nd Grade (n=134)	Min-Max (Median)	1-5 (2.6)	1-5 (3.3)	1.2-5 (2.7)	1-5 (2.7)	
		Mean±Sd	2.64±1	3.13±1.14	2.75±0.98	2.79±0.94	
	3rd Grade (n=197)	Min-Max (Median)	1-4.9 (2.5)	1-5 (3.2)	1.2-5 (2.5)	1.2-4.9 (2.7)	
		Mean±Sd	2.5±0.86	3.06±1.07	2.62±0.85	2.67±0.82	
	4th Grade (n=164)	Min-Max (Median)	1-5 (3.2)	1-5 (3.5)	1.2-5 (3)	1.2-5 (3.1)	
		Mean±Sd	3.08±0.94	3.36±0.94	3.02±1.04	3.13±0.86	
		Test Value	F:9.503	F:2.051	F:5.882	F:7.754	
		p	^b 0.001**	^b 0.085	^b 0.001**	^b 0.001**	
	Device used to access internet	Mobile phone (n=787)	Min-Max (Median)	1-5 (2.7)	1-5 (3.3)	1.2-5 (2.7)	1.2-5 (2.8)
			Mean±Sd	2.72±0.91	3.2±1.02	2.77±0.93	2.85±0.84
		Laptop (n=175)	Min-Max (Median)	1-5 (2.5)	1-5 (3.2)	1.2-5 (2.7)	1-5 (2.8)
			Mean±Sd	2.58±0.94	3.02±1.14	2.73±0.96	2.73±0.89
		Desktop computer (n=28)	Min-Max (Median)	1-4.3 (2.4)	1-5 (2.8)	1.3-4.7 (2.7)	1.2-4.5 (2.5)
			Mean±Sd	2.6±0.97	2.87±1.26	2.69±0.96	2.69±0.96
Tablet (n=10)		Min-Max (Median)	1.6-4.4 (3)	1.5-5 (4.2)	1.7-4.8 (2.8)	1.6-4.5 (3.3)	
		Mean±Sd	2.96±0.79	3.75±1.19	3.07±0.98	3.18±0.86	
		Test Value	χ^2 :4.595	χ^2 :7.709	χ^2 :1.642	χ^2 :5.129	
		p	^c 0.204	^c 0.052	^c 0.650	^c 0.163	

Daily time of internet connection	<1 hours (n=9)	Min-Max (Median)	1-5 (2.5)	1-5 (4)	1.5-5 (3.7)	1.2-5 (3.4)
		Mean±Sd	2.74±1.45	3.5±1.61	3.15±1.5	3.03±1.42
	1-3 hours (n=138)	Min-Max (Median)	1-5 (3)	1-5 (3.6)	1.2-5 (3)	1.2-4.9 (3.1)
		Mean±Sd	2.91±0.95	3.46±0.91	2.95±0.91	3.06±0.83
	4-6 hours (n=456)	Min-Max (Median)	1-5 (2.8)	1-5 (3.5)	1.2-5 (2.7)	1.2-5 (3)
		Mean±Sd	2.83±0.9	3.28±1.02	2.85±0.94	2.95±0.85
	7-9 hours (n=256)	Min-Max (Median)	1-4.9 (2.5)	1-5 (3)	1.2-5 (2.3)	1-4.7 (2.6)
		Mean±Sd	2.5±0.83	2.96±1.04	2.55±0.86	2.63±0.77
	≥10 hours (n=141)	Min-Max (Median)	1-4.5 (2.3)	1-5 (2.8)	1.2-5 (2.5)	1.2-4.7 (2.5)
		Mean±Sd	2.42±0.94	2.87±1.18	2.65±0.95	2.59±0.91
		Test Value	χ^2 :42.931	χ^2 :38.346	χ^2 :27.225	χ^2 :47.757
		p	°0.001**	°0.001**	°0.001**	°0.001**

r=Spearman's Correlation Coefficient, ^aStudent-t Test, ^bOneway ANOVA, ^cKruskal Wallis Test, **p*<0.05, ***p*<0.01

According to feeling exhausted due to the use of digital environments or tools, statistically significant differences were found between average scores of "Digital Aging", "Digital Deprivation" and "Digital Exhaustion" dimensions of the Digital Burnout Scale and the average total score of the overall scale (*p*=0.001; *p*<0.01). Students who felt exhausted had significantly lower scores from the scale and its dimensions compared to the students who were indecisive or not feeling exhausted (*p*=0.001; *p*=0.001; *p*<0.01) (Table 4).

Students who consider themselves as someone using virtual and digital tools excessively had significantly lower scores from the scale and its dimensions compared to the students who were indecisive or did not consider themselves like that (*p*=0.001; *p*=0.001; *p*<0.01) (Table 4).

Students who felt fear/anxiety towards digital environments had significantly lower scores from the scale and its dimensions compared to the students who were indecisive or did not feel fear/anxiety (*p*=0.001; *p*=0.001; *p*<0.01) (Table 4).

Students who felt stressed had significantly lower scores from the scale and its dimensions compared to the students who were indecisive or did not feel stressed (*p*=0.001; *p*=0.001; *p*<0.01) (Table 4).

Table 4. Evaluation of Digital Burnout Scale according to the thoughts on digital environments

			Digital Burnout Scale			
			Digital Aging	Digital Deprivation	Digital Exhaustion	Total Score
Feeling exhausted due to the use of digital environments or tools	Yes (n=610)	Min-Max (Median)	1-4.9 (2.3)	1-5 (3)	1.2-5 (2.3)	1-4.9 (2.5)
		Mean±Sd	2.33±0.8	2.91±1.05	2.45±0.78	2.51±0.75
	Indecisive (n=252)	Min-Max (Median)	1-4.9 (3.1)	1-5 (3.5)	1.2-5 (3)	1.5-4.8 (3.1)
		Mean±Sd	3.05±0.7	3.42±0.91	3.01±0.84	3.13±0.68
	No (n=138)	Min-Max (Median)	1.8-5 (3.7)	1.2-5 (4)	1.5-5 (3.8)	2-5 (3.8)
		Mean±Sd	3.66±0.78	3.87±0.89	3.71±0.94	3.73±0.74
	Test Value		F:198.259	F:70.484	F:126.811	F:183.854
	p		^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**
Considering themselves as someone using virtual and digital environments excessively	Yes (n=652)	Min-Max (Median)	1-5 (2.4)	1-5 (3)	1.2-5 (2.3)	1-5 (2.6)
		Mean±Sd	2.49±0.87	2.97±1.07	2.58±0.87	2.63±0.81
	Indecisive (n=205)	Min-Max (Median)	1-4.7 (2.8)	1-5 (3.3)	1.2-5 (2.8)	1.2-4.7 (3)
		Mean±Sd	2.82±0.78	3.35±0.9	2.81±0.85	2.95±0.72
	No (n=143)	Min-Max (Median)	1-5 (3.6)	1-5 (3.8)	1.3-5 (3.7)	1.2-5 (3.7)
		Mean±Sd	3.49±0.85	3.83±0.9	3.54±0.93	3.59±0.79
	Test Value		F:84.600	F:52.755	F:71.724	F:88.905
	p		^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**
Fear/anxiety of digital/virtual environments	Yes (n=409)	Min-Max (Median)	1-5 (2.3)	1-5 (3)	1.2-5 (2.3)	1-4.8 (2.5)
		Mean±Sd	2.36±0.88	2.9±1.07	2.51±0.81	2.53±0.82
	Indecisive (n=280)	Min-Max (Median)	1-4.9 (2.7)	1-5 (3.2)	1.2-5 (2.5)	1.2-4.9 (2.7)
		Mean±Sd	2.65±0.75	3.13±0.97	2.68±0.86	2.78±0.72
	No (n=311)	Min-Max (Median)	1-5 (3.2)	1-5 (3.7)	1.2-5 (3.2)	1.2-5 (3.3)
		Mean±Sd	3.19±0.89	3.55±0.99	3.16±1.01	3.27±0.84
	Test Value		F:77.175	F:36.358	F:43.613	F:70.597
	p		^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**

Feeling stressed on digital/virtual environments	Yes (n=375)	Min-Max (Median)	1-4.3 (2.2)	1-5 (3)	1.2-5 (2.2)	1-4.7 (2.4)
		Mean±Sd	2.22±0.81	2.78±1.07	2.38±0.77	2.4±0.77
	Indecisive (n=266)	Min-Max (Median)	1-4.4 (2.6)	1-5 (3.2)	1.2-5 (2.7)	1.2-4.7 (2.7)
		Mean±Sd	2.64±0.72	3.13±0.94	2.68±0.81	2.77±0.68
	No (n=359)	Min-Max (Median)	1.1-5 (3.3)	1-5 (3.8)	1.2-5 (3.2)	1.5-5 (3.3)
		Mean±Sd	3.25±0.85	3.6±0.97	3.22±0.98	3.33±0.8
	Test Value	F:139.617	F:60.126	F:84.673	F:128.966	
p	^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**		
Thinking that spending time on digital/virtual environments negatively affects life	Yes (n=712)	Min-Max (Median)	1-4.9 (2.4)	1-5 (3.2)	1.2-5 (2.3)	1-4.7 (2.6)
		Mean±Sd	2.45±0.83	2.98±1.03	2.53±0.82	2.6±0.78
	Indecisive (n=147)	Min-Max (Median)	1-4.8 (3)	1-5 (3.5)	1.3-5 (3.2)	1.2-4.9 (3.2)
		Mean±Sd	3.04±0.83	3.46±0.97	3.11±0.87	3.16±0.77
	No (n=141)	Min-Max (Median)	1.7-5 (3.6)	1.2-5 (4)	1.3-5 (3.7)	2-5 (3.6)
		Mean±Sd	3.58±0.78	3.82±0.94	3.58±0.96	3.64±0.73
	Test Value	F:126.301	F:47.173	F:90.921	F:123.132	
p	^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**		
Thinking that spending time on digital/virtual environments negatively affects future	Yes (n=634)	Min-Max (Median)	1-4.9 (2.4)	1-5 (3)	1.2-5 (2.3)	1-4.8 (2.5)
		Mean±Sd	2.42±0.84	2.96±1.06	2.51±0.83	2.57±0.79
	Indecisive (n=217)	Min-Max (Median)	1-5 (3)	1-5 (3.3)	1.2-5 (3)	1.2-4.9 (3)
		Mean±Sd	2.96±0.74	3.36±0.89	2.97±0.85	3.06±0.7
	No (n=149)	Min-Max (Median)	1-5 (3.6)	1.2-5 (4)	1.3-5 (3.7)	1.6-5 (3.7)
		Mean±Sd	3.51±0.88	3.79±0.96	3.54±0.97	3.58±0.8
	Test Value	F:118.782	F:47.982	F:83.113	F:111.176	
p	^b 0.001**	^b 0.001**	^b 0.001**	^b 0.001**		

^bOneway ANOVA, * $p < 0.05$, ** $p < 0.01$

Comparison of the Digital Burnout Scale scores and the students' thoughts on digital environments is provided in detail in Table 4.

DISCUSSION

COVID-19 pandemic had significant effects on the nursing education in Turkey, as in all over the world. All of the theoretical and applied classes of the nursing education were carried out as distance education during this period. Distance education caused spending most of the daily time on digital environments. It is thought that identifying the digital burnout levels of the nursing students during the pandemic would be a guide for managing the educational methods for the nursing candidates. As a result of the study carried out in this direction, it was detected that the majority of the students used their mobile phones to access internet (n=787, 78.7%) and spend 4-6 hours a day on digital environments (n=456, 45.6%). In a study by Terzi and Azizoglu (2021) which investigates the factors affecting the attitudes of nursing students towards distance education, it was found that the majority of students used their laptops to access digital environments (n=190, 59.7%). In another study, it was found that almost all of the nursing students accessed internet on a daily basis (95.3%), 92.1% of them used their smart phones to access internet and students mostly spent 1-3 hours (42.7%) and 3-6 hours (39.8%) daily on digital environments (Kırca & Kutlutürkan, 2019). The time spent on digital environments is similar to the results of our study.

There has been a significant increase in digital activity with COVID-19 pandemic. According to the Digital 2020 Report, the number of people using internet has reached 4.54 billion people worldwide, with an increase of 7% since January, 2019 (298 million new users) (Kemp, 2020). Excessive use of digital technology is among the many problems being discussed during the pandemic (Eidi & Delam, 2020; Király et al., 2020). In a study carried out on this matter in China with a total of 6416 people, 46.8% of the participants stated that there was a significant increase in the excessive use of internet as a result of the pandemic (Sun et al., 2020). Therefore, the result that the majority of the nursing students spent 4-6 hours on digital environments was an expected result. The time that the nursing students spend on internet should not only be associated with education since students were not obliged to attend the online classes during the pandemic in Turkey.

In our study, while nursing students' digital aging and digital exhaustion levels were moderate, their digital deprivation and digital burnout levels were high.

Excessive use of digital devices to access emails and work related documents results in a little or no "free time" which causes stress and anxiety (Friedman, 2016). There are three types of digital burnout (Bonobo, 2017). These are, (1) constant feeling of overloading, (2) negative emotions for the job and (3) feeling stuck on work and not completing the duties successfully or not showing progress (Chang, 2014). The result that the nursing students had high level of digital burnout indi-

cates that measures should be taken to decrease the burnout during the distance education period.

In our study, majority of the nursing students considered themselves as people who excessively use virtual and digital environments and were feeling exhausted because of that. Moreover, students felt fear/anxiety and stress towards digital/virtual environments and thought that spending time on digital environments negatively affects their lives and futures. In another qualitative research conducted with a total of 18 undergraduate nursing students studying at two different universities, students stated that they experienced despair, burden and burnout due to distance education; online learning was not capable of meeting the educational goals; they needed social and technical support in order to manage the problems they encounter during online learning; and online learning was very stressful because of all these problems (Suliman et al., 2021). It is stated that the relationship between the use of smart digital tools and stress and burnout has been investigated worldwide (Sansone & Sansone, 2013). It is claimed that being exposed to especially computer and smart phone screens is related to many stress-related symptoms (Lemola et al., 2015). These can emerge as psychological, cognitive or musculoskeletal disorders and may deteriorate the quality of life and daily functioning of the people (Hossmann & Hermann, 2003). Although these support the results of our research, general health status, quality of life and life activities of the students could also be investigated in addition to digital burnout.

In our study, scores of digital aging and digital exhaustion dimensions and digital burnout levels of the 4th year students were significantly high. The determining factor between daily stress and digital burnout is the effect on the individual's motivation. Constant feeling of not willing to work may be an indicator of digital burnout (Bonobo, 2017). Over tiredness, cynicism and disconnection are the primary factors contributing burnout. In our country, nursing students experienced an unprecedented confusion because of the effects of COVID-19 on their university experience. Distance education period started in the spring semester of 2020 following the declaration of pandemic and continuing for both semesters of 2020-2021 with uncertainties may be among the factors causing confusion. On the other hand, not being able to spend time in real clinical environments before graduation and feeling worried that they would not reach their education goals may also contribute to digital burnout (Suliman et al., 2021). Moreover, researches on personality traits showed that extrovert personalities are related to telecommunication burnout and introverts are more easily confronted with stress arising from telecommunication (Meymandpour & Bagheri, 2017). In addition to their year of study, it can be investigated if the personality traits also affect digital burnout.

In our study, digital burnout level decreased as the time spent on digital environments increased. In another study, it was shown that anxiety was more com-

mon in especially younger students, people who prefer to send SMS on digital environments and people who surf less on the internet (Višnjić et al., 2018). Moreover, contrary to the result of our research, Visnjic et al. (2018) investigated the use of smart devices among university students and stated that the intensity and style of smart device use might affect the development of mental health problems. In another study, using electronic media at night was associated with the decrease in sleeping time and increase in depressive symptoms (Lemola et al., 2015). Khuoja et al. (2019), confirmed that the increased use of computers among young people is associated with the increased anxiety levels. Madhav et al. (2017), showed that the increased online activity is related to moderate and severe depression in a group of 3201 American students. Since the time spent on digital environments during distance education could not be questioned in our research, the result stating that the nursing students who spend more time on digital environments had low level of digital burnout did not make sense. However, this result might be due to a fun activity during the time spent on digital environment.

Limitation of Study

The most important limitation was the collection of data through an online questionnaire. In addition, the fact that the effect of teaching methods and online tools used for distance nursing education on the level of digital burnout was not investigated is among the other important limitations of our study. Another limitation is that students in all nursing schools in Turkey could not be reached.

CONCLUSION

In our research, while the average score of digital aging and digital exhaustion dimensions of Digital Burnout Scale was moderate, average score of digital deprivation dimension and the average total score of the overall scale was high. It was also detected that students' year of study and the daily amount of time they spend on digital environments affected the level of burnout. Distance education during the pandemic may cause nursing students to experience digital burnout. Time spend on digital environments may have negative effects on students' burnout levels. Measures should be taken to prevent the candidates of the profession, who are basically human, to experience burnout before starting their careers.

Providing health lifestyle practices (breathing exercises, meditation, yoga etc.) between online classes, developing asynchronized podcast-based communication and education methods in order to reduce the negative effects of being exposed to digital tools for a long time, encouraging students for health campaigns in order to raise their awareness on physical and emotional results of the increased online time and developing methods and tools for asynchronized online teaching are suggested in line with these measures.

Researches which directly investigate the digital burnout levels of nursing students were not found. Therefore, our research is thought to be unique and be a guide for the further researches on this subject. In addition, it can be suggested that each dimension of digital burnout, online teaching methods and tools used in nursing education and their effects on the academic success and professional attitudes of the students should be investigated together.

Acknowledgments

Thanks to apply all nursing students.

Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author Contribution

Design of Study: BT (%40), FA (%40), ÇS (%20)

Data Acquisition: BT (%20), FA (%40), ÇS (%40)

Data Analysis: BT (%50), FA (%50)

Writing Up: BT (%100)

Submission and Revision: BT (%100)

REFERENCES

- Bao, Y., Sun, Y., Meng, S., Shi, J. & Lu, L. (2020). 2019-nCoV epidemic: Address mental health care to empower society. *Lancet*, 395(10224), e37–e38. [https://doi.org/10.1016/S0140-6736\(20\)30309-3](https://doi.org/10.1016/S0140-6736(20)30309-3).
- Breytenbach, C. (2015). Tackling digital burnout in the workplace. Retrieved from <http://www.destinyman.com/2015/02/10/tackling-digital-burnout-in-the-workplace/>
- Chang, D. (2014). Digital burnout the new, invisible threat to businesses. Retrieved from: <http://fluxtrends.co.za/digital-burnout-the-new-invisible-threat-to-businesses/>.
- Çelik Durmuş, S., Gülnar, E., Özveren, H. (2022). Determining digital burnout in nursing students: A descriptive research study. *Nurse Education Today*, 111, 105300. <https://doi.org/10.1016/j.nedt.2022.105300>.
- Eidi, A. R. & Delam, H. (2020). Internet addiction is likely to increase in home quarantine caused by Coronavirus Disease 2019 (COVID 19). *J Health Sci Surveillance Sys*, 8 (3), 136-137.
- Erten, P. & Özdemir, O. (2020). The Digital Burnout Scale development study. *Inonu University Journal of the Faculty of Education*, 21 (2), 668-683. <https://doi.org/10.17679/inuefd.597890>.
- Friedman, L. (2016). Exhausted? After-hours emails may be to blame. *Lehigh Business*, 2, 18-19.
- Göldağ, B. (2022). An investigation of the relationship between university students' digital burnout levels and perceived stress levels. *Journal of Learning and Teaching in Digital Age*, 7(1), 90-98. <https://doi.org/10.53850/joltida.958039>.
- Hossmann, K. A. & Hermann, D. M. (2003). Effects of electromagnetic radiation of mobile phones on the central nervous system. *Bioelectromagnetics*, 24, 49-62. <https://doi.org/10.1002/bem.10068>.
- Kemp, S. (2020). Digital 2020: Global digital overview 2020, <https://datareportal.com/reports/digital-2020-global-digital-overview> (Accessed date: 30.05.2021).
- Khouja, J. N., Munafo, M. R., Tilling, K., Wiles, N. J., Joinson, C., Etchells, P. J., et al. (2019). Is screen time associated with anxiety or depression in young people? Results from a UK birth cohort. *BMC Public Health*, 19, 82. <https://doi.org/110.1186/s12889-018-6321-9>.
- Kırca, K. & Kutlutürkan, S. (2019). Effect of smart phone addiction levels of nursing students on their communication skills. *Kocaeli University Journal of Health Sciences*, 5 (2), 81-85. <https://doi.org/10.30934/kusbed.523924>.
- Király, O., Potenza, M. N., Stein, D. J., King, D. L., Hodgins, D. C., Saunders, J. B., et al. (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Compr Psychiatry*, 100, 152180. <https://doi.org/10.1016/j.comppsy.2020.152180>. Epub 2020 May 12.
- Kumpikaitė-Valiūnienė, V., Aslan, I., Duobienė, J., Glińska, E., Anandkumar, V. (2021). Influence of digital competence on perceived stress, burnout and well-being among students studying online during the COVID-19 lockdown: A 4-country perspective. *Psychology Research and Behavior Management*, 14, 1483-1498, <https://doi.org/10.2147/PRBM.S325092>
- Lemola, S., Perkinson-Gloor, N., Brand, S., Dewald-Kaufmann, J. F., Grob, A. (2015). Adolescents' electronic media use at night, sleep disturbance, and depressive symptoms in the smartphone age. *J Youth Adolesc.*, 44, 405-18. <https://doi.org/10.1007/s10964-014-0176-x>.
- Madhav, K. C., Sherchand, S. P., Sherchan, S. (2017). Association between screen time and depression among US adults. *Prev Med Rep.*, 1, 67-71. <https://doi.org/10.1016/j.pmedr.2017.08.005>.
- Maslach, C. & Jackson, S. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior*, 22, 99-113.
- Meymandpour, R. & Bagheri, Z. (2017). A study of personality traits, viz., extraversion and introversion on telecommuters' burnout. *Telecom Business Rev.*, 10, 1-7.
- Mheidly, N., Fares, M. Y. & Fares, J. (2020). Coping with stress and burnout associated with telecommunication and online learning. *Front. Public Health*, 8, 574969. <https://doi.org/10.3389/fpubh.2020.574969>.
- Quill, M. (2017). The Harmful Effects of Digital Burnout on Organisational Effectiveness. TMS Consulting, Brisbane, Sydney, Melbourne. Retrieved November 5, 2017 from. <http://www.tmsconsulting.com.au>
- Sansone, R. A. & Sansone, L. A. (2013). Cell phones: the psychosocial risks. *Innov Clin Neurosci.*, 10, 33-7.
- Suliman, W. A., Abu-Moghli, F. A., Khalaf, I., Zumot, A. F., Nabolsi, M. (2021). Experiences of nursing students under the unprecedented abrupt online learning format forced by the national curfew due to COVID-19: A qualitative research study. *Nurse Education Today*, 100, 104829. <https://doi.org/10.1016/j.nedt.2021.104829>.
- Sun, L., Tang, Y., Zuo, W. (2020). Coronavirus pushes education online. *Nature Materials*, 19, 687. <https://doi.org/10.1038/s41563-020-0678-8>.
- Şenyuva, E. (2013). Nurses' view about distance education. *EducTechnol Theory Pract.*, 3(2), 23-41.

- Terzi, B., Azizoğlu, F., Özhan, F. (2021). Factors affecting attitudes of nursing students towards distance education during the COVID-19 pandemic: A web-based cross-sectional survey. *Perspect Psychiatr Care*, 1-9. <https://doi.org/10.1111/ppc.12747>.
- Višnjic, A., Veličković, V., Sokolović, D., Stanković, M., Mijatović, K., Stojanović, M., et al. (2018). Relationship between the manner of mobile phone use and depression, anxiety, and stress in University Students. *Int J Environ Res Public Health*, 15 (4), 697. <https://doi.org/10.3390/ijerph15040697>.