

Impact of Levels of Perceived Stress Among Senior Nursing Undergraduates in Clinical Practice on Mobile Addiction: A Cross-Sectional Study

Hemşirelik Son Sınıf Öğrencilerinin Klinik Uygulamalarda Algıladıkları Stres Düzeyinin Mobil Bağımlılık Düzeyine Etkisi: Kesitsel bir çalışma

Özlem BİLİK¹ , Eda Ayten KANKAYA² , Nazife Gamze ÖZER ÖZLÜ³ 

ÖZ

Bu kesitsel çalışmada, hemşirelik son sınıf öğrencilerinin klinik uygulama sırasında algıladıkları stres düzeyinin mobil bağımlılık üzerine etkisini incelemek amaçlandı. Araştırmaya toplam 97 hemşirelik öğrencisi katılmıştır. Araştırma verileri "Tanımlayıcı Özellikler Bilgi Formu", "Hemşirelik Öğrencilerine Yönelik Algılanan Stres Ölçeği" ve "Mobil Bağımlılık Ölçeği" aracılığıyla toplandı. İstatistiksel analiz SPSS 26.0 kullanılarak yapıldı. Katılımcıların %62,9'u (n=61) kadın olup yaş ortalaması 22,41±2,58'dir. Katılımcıların %83'ü (n=83) çalıştıkları bölümden memnun olduklarını ifade ederken, %52,6'sı (n=51) öncelikle sosyal medya olmak üzere sıklıkla mobil cihaz kullandığını bildirdi. Öğrenciler günde ortalama 4,56±2,12 saatini mobil cihazlarla geçirdiği saptandı. Araştırmada öğrencilerin algılanan stres ortalama puanları 66,51±22,32 ve mobil bağımlılık ortalama puanları ise 67,72±20,34'tür. Algılanan stres düzeyi, mobil bağımlılıktaki varyansın %12'sini açıklamaktadır. Çalışma sonuçları, hemşirelik son sınıf öğrencileri arasında klinik uygulama sırasında yaşanan stresin mobil bağımlılık üzerinde önemli bir etkisinin olduğunu ortaya çıkardı. Bunun yanı sıra hemşirelik öğrencilerinde etkili stres yönetiminin sağlanması ve mobil bağımlılık konusunda farkındalık düzeylerinin artırılması için seminer, uygulamalı eğitim gibi düzenlemeler yapılabilir.

Anahtar Kelimeler: Klinik Uygulama, Algılanan Stres, Mobil Bağımlılık, Hemşirelik Öğrencileri

ABSTRACT

In this cross-sectional study, it was aimed to examine the effect of the stress level perceived by senior nursing students during clinical practice on mobile addiction. Ninety-seven senior nursing undergraduate students participated in the research. Research data collection involved the use of a "Descriptive Characteristics Information Form," the "Perceived Stress Scale for Nursing Students," and the "Mobile Addiction Scale." SPSS 26.0 was used to analyze the data. Among the participants, 62,9% (n=61) were female, with a mean age of 22,41±2,58 years. While 83% (n=83) expressed satisfaction with their department, 52.6% (n=51) reported frequent mobile device use, primarily for social media. On average, students spent 4,56±2,12 hours daily on mobile devices. In the study, students' mean perceived stress scores were 66,51±22,32 and their mobile addiction mean scores were 67,72±20,34. The perceived stress level accounted for 12% of the variance in mobile addiction. The study results revealed a significant impact of stress experienced during clinical practice on mobile addiction among senior nursing undergraduates. In addition, arrangements such as seminars and practical training can be made to ensure effective stress management in nursing students and to increase their awareness of mobile addiction.

Keywords: Clinical Practice, Perceived Stress, Mobile Addiction, Nursing Students

¹Doç. Dr., Özlem BİLİK, Dokuz Eylül Üniversitesi, Hemşirelik Fakültesi, Cerrahi Hastalıkları Hemşireliği Anabilim Dalı, e-mail: ozlem.bilik72@gmail.com, ORCID No: 0000-0002-8372-8974

² Dr. Öğr. Üyesi, Eda Ayten KANKAYA, Dokuz Eylül Üniversitesi, Hemşirelik Fakültesi, Cerrahi Hastalıkları Hemşireliği Anabilim Dalı, e-mail: edaayten.kankaya@deu.edu.tr, ORCID No: 0000-0002-2519-4732

³Dr. Öğr. Üyesi, Nazife Gamze ÖZER ÖZLÜ, Dokuz Eylül Üniversitesi, Hemşirelik Fakültesi, Cerrahi Hastalıkları Hemşireliği Anabilim Dalı, e-mail: gamzeozerozlu@gmail.com, ORCID No: 0000-0003-1144-2472

İletişim/Corresponding Author:

Nazife Gamze ÖZER ÖZLÜ

Geliş Tarihi/Received : 04.03.2024

E-posta/E-mail:

gamzeozerozlu@gmail.com

Kabul Tarihi/Accepted: 13.04.2024

Yayın Tarihi/Published: 30.04.2024

INTRODUCTION

Nursing education is a dynamic process that includes theory and practice, aiming at the acquisition of theoretical knowledge, observation, interpretation and manual skills. In this process, it is aimed for students to gain knowledge, attitudes and skills based on scientific methods that aim to improve the health of sick and healthy individuals, families and society and provide solutions to health problems. While trying to acquire these skills, students may experience traumatic or stressful experiences as well as positive ones (1, 2). Because they learn concepts that are foreign to them such as patient, patient relatives, hospital staff, hospital environment and deal with problems related to them. In addition, they encounter and try to cope with various stress factors that are foreign to them, such as patient suffering or death, emergency situations in the clinic, lack of professional knowledge and practical skills, feeling inadequate and inexperienced, fear of making mistakes, fear of harming the patient. At the same time, caring for palliative care patients and terminal patients creates emotional stress for students. For this reason, nursing education is a stressful process and the educational stress they experience is higher than students in other fields. The presence and severity of stress have positive or negative effects on the student's learning. While a mild level of stress facilitates learning, long-term or high-intensity stress negatively affects students' learning, skill development, clinical and academic performance, self-confidence, as well as their health, and makes it difficult to cope (3), have shown that the level of stress experienced by nursing students during their education is moderate and that there is a significant positive relationship between stress level and grade point average (4), with students experiencing more practical stress than academic stress (5). It has been found that students encounter many health risks during clinical practice, such as injuries from sharp objects, pain, violence, and stress (6). During clinical practice, students deal with patient care; clinical instructors/educators and service personnel; clinical duties and workload; peers from other universities and nursing students; lack of professional knowledge and skills, and the stressful clinical environment (7). It was determined that students most frequently showed avoidance behavior in coping with stress, and as the perceived stress level increased, they used the avoidance strategy more frequently (8).

Technology use in nursing education is important because technology plays an increasing role in modern healthcare. Nursing students' ability to use technology effectively is vital for them to improve their professional practice and be more effective in-patient care. In addition, the use of technology can cause negative consequences due to improper management of stress (9). The most common of these are excessive use of smartphones, problematic internet use, and excessive use of social media (10). Smartphone addiction increases for people who are insecure in coping with stress. Men in early adulthood are more addicted to smartphones (11).

The global shift to online education due to the pandemic has further exacerbated stress levels among nursing students (12-17). In this regard, in order to determine the stress level perceived by nursing students regarding clinical practices, it was found that the perceived stress level of students who do not think they have the knowledge to provide care to an individual diagnosed with Covid-19/do not want to provide care, are afraid of providing care, and are uncomfortable thinking about Covid-19 is high (18). Senior nursing students, in particular, have reported heightened anxiety during clinical practice amid the pandemic (16). The abrupt transition to distance learning and increased reliance on technology has led to heightened internet and mobile device usage among students worldwide (17). In a study looking at the internet addiction levels of nursing students, it was found that the students' internet addiction was at a moderate level, female students experienced internet deprivation more, and the level of addiction increased as the frequency of daily internet use increased (10). In the systematic review and meta-analysis conducted on smartphone addiction and its negative effects in nursing students, nursing students who show high levels of nomophobia regularly use their smartphones during their clinical practice, and the relationship between addiction to smartphones and distractions and this reduces the quality and quantity of service received by patients in the clinical environment. has been detected (9). It has been observed that

nursing students have studied issues such as mobile addiction and clinical decision-making skills (19), depression and self-esteem (20), sleep quality (21) and life stress (22). For this reason, no study examining the relationship between mobile addiction and clinical stress has been found.

Therefore, it is important to reveal how much nursing students are affected by mobile addiction in clinical practice. This study aimed to examine the effect of the stress level perceived by senior undergraduate nursing students during their clinical training on their mobile addiction levels. Research questions:

1. "Do the sociodemographic characteristics of nursing students affect their scores on the perceived stress scale and internet addiction scale?"
2. "Is there a relationship between nursing students' level of mobile addiction and perceived stress levels?"
3. "Does the perceived stress of nursing students affect their level of mobile addiction?"

MATERIAL AND METHOD

Study Design

A descriptive, cross-sectional, and correlational investigation design was utilized to explore the relationship between levels of perceived stress by senior nursing undergraduates during clinical training and the extent of mobile addiction.

Participants and Procedures

The study involved the voluntary participation of students. The population for the study included senior students (n=254) taking the nursing care management course in the 2021-2022 academic year. Out of this population, 97 students volunteered to participate and filled out the provided data forms. Senior nursing students typically engage in 336 hours of clinical practice within a semester. However, during the data collection period, students completed 376 hours of clinical practice to compensate for missed practices because of the COVID-19 pandemic.

Inclusion criteria involved volunteering to participate, being above the age of 18, and being a senior student enrolled in the faculty of nursing. Exclusion criteria are students who completed the form incompletely and were not at school at the time of the study.

The dependent variables in the study were mobile addiction and stress perceived by students. Independent variables include age, gender, clinical practice department, experiences of stressful situations related to education, definitions of these situations, time spent with mobile devices (especially mobile phones), purpose of using mobile devices, and use of mobile phones during clinical practice.

After the students were informed about the study before the theoretical lessons, written or verbal consent was obtained from those who wanted to participate. After written consent was obtained, it was conducted between September 2021 and March 2022 using an internet-based Google survey administered by the researchers.

Measures

Data collection tools: "Nursing Students Information Form", "Perceived Stress Scale for Nursing Students" (PSSNS) and "Mobile Addiction Scale" (MAS)

The Nursing Students Information Form, created by the researchers, comprised five questions: students' consent to participate in the research, age, gender, department of application, time spent with mobile devices (specifically mobile phones), and intended use of mobile devices (3, 9, 10).

The Perceived Stress Scale for Nursing Students (PSSNS), The scale was adapted from Sheu et al. It was developed by (23) and adapted into Turkish by Karaca et al. (24). In the

evaluation of the scale consisting of 29 items to measure the stress level perceived by the students; '4–very stressful, 3, 2, 1; A five-point Likert type evaluation is used, from 0 to "not stressful". The scale has six dimensions: Stress due to lack of professional knowledge and skills; Stress experienced while caring for the patient; Stress caused by excess work and homework; Stress from nurses and faculty; Stress caused by the current environment; Stress caused by peers and daily life (23,24). The total score of the scale varies between 0 and 116. High score indicates the high level of stress. In the study of Karaca et al., the Cronbach's alpha reliability coefficient was found to be 0.67–0.93 (24). In this study, Cronbach's alpha reliability coefficient was found to be 0.94.

The Mobile Addiction Scale (MAS), The scale was developed by Fidan (2016) as a mobile device for young people and adults. It has been developed to determine dependency. "It consists of five subscales entitled "Salience (Items 1, 2, 3, 4)", "Tolerance (Items 5, 6, 7, 8)", "Withdrawal (Items 9, 10, 11, 12)", "Relapse (Items 14, 15, 16)" and "Mobile Internet Trend (Items 17, 18, 19, 20)" and a total of 20 items. Salience; this is when an activity becomes the most important activity in a person's life, overpowering their thoughts, feelings and behavior. Tolerance; use increases. Withdrawal is the occurrence of physical and/or psychological problems in the person when use is reduced or stopped. Relapse; addiction recurs after a while, even if use is stopped for a long time. Mobile Internet Trend; tendency to use the Internet on the move. Response options are given as "never", "rarely", "sometimes", "usually", "always" and include an evaluation score between one and five. When the answer approaches 5, it represents a negative situation with the variable, and when the answer approaches 1, it represents a positive situation. The Cronbach alpha value of the scale in the original study is 0.91. The Cronbach alpha value of the 1st subgroup is 0.67, the Cronbach alpha value of the 2nd subgroup is 0.78, the Cronbach alpha value of the 3rd subgroup is 0.82, the Cronbach alpha value of the 4th subgroup is 0.74 and the Cronbach alpha value of the 5th subgroup is 0.81 was found as (25). In this study, Cronbach's alpha reliability coefficient was found to be 0.94. Cronbach alpha values for the sub-dimensions of the scale were found as follows: salience sub-dimension 0.67, tolerance sub-dimension 0.84, withdrawal sub-dimension 0.81, relapse sub-dimension 0.79, mobile internet trend sub-dimension 0.76.

Statistical Analysis

Descriptive statistics were performed using SPSS 26.0 and the significance level was determined as $p < .05$. Normal distribution of the data was checked by performing the Kolmogorov-Smirnov test. Descriptive statistics including numbers, percentages, means and standard deviations were used for the students' sociodemographic characteristics and scales. Pearson correlation analysis was performed to determine the relationship between the scales. Independent samples t test, Mann Whitney U test and Kruskal Wallis test were performed for the scale scores according to the sociodemographic characteristics of the students. A simple linear regression analysis was used to explain the impact of students' perceived stress levels on the level of mobile addiction.

Ethics of Research

Necessary permissions were obtained from Dokuz Eylül University Faculty of Nursing, the non-interventional research ethics committee (File Number:6480-GOA, Decision No: 2021/20-01) and students who consented to participate in the study for the study's execution.

Limitations

This research presents several limitations that warrant consideration. Firstly, the study's participant pool was relatively small, primarily due to challenges encountered in collecting quantitative data through the Google survey and in effectively communicating the study to the students. Additionally, the study focused on examining the impact of perceived stress during clinical practices on mobile addiction. Finally, as the research was conducted with senior nursing students at one university, it cannot be generalized.

RESULTS AND DISCUSSION

The study involved 97 nursing students. It was found that 62,9% of the students were female and the mean age was 22,41±2,58 years. It was found that 83% of the students were satisfied with their course and 52,6% of them used mobile devices frequently, especially for social media purposes. The mean time students spent on mobile devices per day was found to be 4,56±2,12 hours (Table 1).

Table 1. Examination of the descriptive characteristics of nursing students and the mean scores of the scales

Variables	<i>n</i>	%	<i>Mean±SD</i>	<i>Min.</i>	<i>Max.</i>
Age	97	100	22,41±2,58	20,00	27,00
Gender					
Female	61	62,9			
Male	36	37,1			
Satisfaction with the department you are studying					
Yes	83	85,6			
No	14	14,4			
Mobile devices are mostly intended for use					
Social media	51	52,6			
Studying / attending classes	37	38,1			
Communication	3	3,1			
Work	3	3,1			
Game	3	3,1			

It was determined that students' gender, satisfaction with their department, reasons for using mobile devices and age did not affect the perceived stress and mobile addiction scale score means. It was determined that there was no relationship between the time students spent daily with mobile devices and the perceived stress scale, and that there was a moderate positive relationship between mobile addiction (Table 2). In the study conducted on the internet addiction levels of student nurses and the factors affecting them, it was found that the level of internet addiction increased as the duration of smartphone use increased (26). Constant accessibility and the delivery of a variety of content may lead students to spend more time using their mobile devices. Additionally, the constant alerts and notifications that come with mobile devices can also be distracting and encourage students to constantly return to their devices. Therefore, increasing mobile device usage time may increase the risk of addiction.

Table 2. Students' scores from the perceived stress scale and internet addiction scale according to their sociodemographic characteristics

Variables	<i>n</i>	%	Perceived Stress Scale		Mobile Addiction Scale	
			<i>Mean ±SD</i>	Test statistic <i>p</i> value	<i>Mean ±SD</i>	Test statistic <i>p</i> value
Gender						
Female	61	62,9	67,49±18,54	<i>t</i> =0,505	69,91±19,69	<i>t</i> =1,39
Male	36	37,1	64,86±27,81	<i>p</i> =0,57	64,00±21,14	<i>p</i> =0,16
Satisfaction with the department you are studying						
Yes	83	85,6	66,65±21,79	<i>U</i> =556,500	67,18±20,72	<i>U</i> =520,500
No	14	14,4	65,71±26,16	<i>p</i> =0,80	70,92±18,22	<i>p</i> =0,53
Mobile devices are mostly intended for use						
Social media	51	52,6	64,17±22,36	<i>KW</i> =3,35	69,49±18,91	<i>KW</i> =3,04
Studying / attending classes	37	38,1	68,27±22,89	<i>p</i> =0,500	65,64±20,26	<i>p</i> =0,550
Communication	3	3,1	76,33±21,22		66,00±35,00	
Work	3	3,1	81,00±1,73		52,33±15,82	

Game	3	3,1	60,33±28,86	80,33±35,92	
	<i>Mean ±SD</i>	<i>Min-Max</i>			
Age (years)	22,41±2,58	20-44	-	$r=-0,19$ $p=0,05$	- $p=0,35$
Daily time spent with mobile vehicles (hours)	4,56±2,12	1-15	-	$r= 0,09$ $p=0,363$	- $p<0,00$

Table 3. The mean scores of the Perceived Stress Scale for Nursing Students (PSSNS) and Mobile Addiction Scale (MAS)

Scales	<i>Mean ±SD</i>	<i>Min-Max</i>	<i>r*</i>	<i>p</i>
Perceived Stress Scale for Nursing Students (PSSNS)	66,51±22,32	0-115		
Stress experienced while caring for a patient	19,48±6,52	0-31		
Stress from lecturers and nurses	12,70±4,84	0-24		
Stress from homework and workload	12,09±4,50	0-20		
Stress from peers and daily life	9,02±3,32	0-16		
Stress caused by a lack of professional knowledge and skills	6,77±2,91	0-12		
Stress from the environment	6.03±2.74	0-12	0,35	<0,00
Mobile Addiction Scale (MAS)	67,72±20,34	29-120		
Relapse	9,85±3,64	4-17		
Tolerance	9,38±3,65	4-20		
Mobile internet trends	8.47±3.33	4-18		
Withdrawal	7.93±3.33	4-16		
Saliience	7,37±2,59	4-14		

r=Pearson Correlation Analysis between Perceived Stress Scale for Nursing Students and Mobile Addiction Scale

It was determined that the students received the highest scores from the stress experienced during patient care sub-dimension in the perceived stress scale, and from the relapse trend sub-dimension in the mobile addiction scale (Table 3). In the study conducted by Büyükbayram and Bıçak Ayık (2020), it was determined that the level of stress experienced by nursing students during their education was moderate, and in Özdemir's study, it was determined that the students experienced the most stress in the practical field (4). A parallel finding was observed in Duruk's (2019) study, where students reported moderate levels of stress during practical training, and the highest stress was reported during patient care. Additionally, Duruk found that increased stress related to lack of professional knowledge and skills was associated with decreased satisfaction with clinical practices (27). Similarly, Topal Hançer et al. (2019) found that senior nursing students faced high levels of stress, which were primarily attributed to instructors/nurses, challenges during patient care, and homework/workload (8). Given that our research focused on senior students, it is plausible that their anxiety about graduation and assuming professional roles in their future careers may contribute to increased levels of stress, especially during patient care. In the study conducted by Ab Latif et al., it was determined that smartphone addiction among nursing students was at a moderate level (7). Rajman et al. In his systematic review, it was reported that personal smartphone use was distracting in clinical and classroom learning and was discourteous and unprofessional. Smartphones have been found to be frequently used for entertainment (e.g. social networking) rather than professional purposes. Alarming levels of nomophobia and smartphone addiction have been identified among nursing students, causing stress and anxiety and negatively impacting sleep, learning and academic performance. In our study, students' mobile internet use is compatible with the literature, and it is possible that the epidemic that coincided with the clinical practice period contributed to this trend. The increased use of mobile phones by students during this period may be a coping mechanism to cope with the stress caused by the risk of COVID-19 transmission (28-33). This shows that students may have turned to mobile devices as a coping strategy against the difficulties brought by the epidemic. A study found a moderate positive correlation between students' perceived stress levels and mobile addiction (Table 3). When nursing students experience

stress in clinical settings, they seek ways to cope with it. During this process, mobile devices can serve as a distraction and a means of relaxation. However, constantly turning to mobile devices may not be a healthy strategy for coping with stress, and over time this habit can increase mobile addiction. This can hinder students from developing stress-coping skills and increase the risk of addiction associated with excessive use of mobile devices.

Table 4. Regression analysis on the effect of nursing students' perceived stress on mobile addiction

		Mobile addiction level						
		<i>R</i>	<i>R</i> ²	<i>F</i>	<i>p</i>	<i>β</i>	<i>t</i>	<i>p</i>
Perceived levels	stress	0,35	0,12	13,44	0,00	0,32	3,66	0,00

In the conducted simple linear regression analysis, it was determined that perceived stress among undergraduate nursing students significantly predicts the level of mobile addiction ($F=13.44, p=0.00$). The perceived stress level accounts for 12% of the variance observed in mobile addiction. More specifically, for each unit increase in perceived stress level among students, there is, on average, a corresponding increase of 0.321 units in mobile addiction level (Table 4). In a distinct study examining the correlation between nursing students' perceived stress related to education and internet addiction, a notable positive correlation was evident between the sub-dimensions of practical and academic stress. However, no discernible correlation was found between the nursing education stress scale and the internet addiction scale (32, 33). Another study investigating smartphone addiction levels among university students about perceived stress and life satisfaction found a weak, negative, and significant relationship between students' smartphone addiction levels and life satisfaction. Conversely, a weak, positive, and significant relationship was noted between smartphone addiction levels and perceived stress levels (34). Additional research indicates that increased smartphone use is associated with a decline in general health, establishing a significant relationship between mental health and smartphone addiction (35). Furthermore, a study emphasized that smartphone addiction induces stress and anxiety among nursing students, negatively impacting sleep, learning, and academic performance (36). The findings from our research suggest that students' perceived stress levels might drive mobile addiction, potentially indicating that mobile phones are utilized as a coping mechanism to alleviate stress. Students may resort to mobile phones as a means of escape and stress management. In a parallel study involving nursing senior students, avoidance behavior was identified as the most frequently exhibited coping strategy in stress response (8).

CONCLUSION AND RECOMMENDATIONS

In conclusion, this study establishes that the stress experienced by senior nursing students during clinical practice has a significant impact on their level of mobile addiction. Both perceived stress and mobile addiction levels among the students were assessed as moderate. The results imply that nursing students might turn to mobile addiction as a coping mechanism to deal with stress during clinical practice. To mitigate this trend, it is advisable to implement training programs aimed at enhancing nursing students' stress-coping mechanisms, raising awareness about mobile addiction, and facilitating their adaptation to the demands of clinical practice. The work of nursing education institutions on this issue is very important in preventing mobile phone addiction. It is necessary to support students' biopsychological coping. It is recommended to carry out intervention studies to reduce stressors and prevent mobile phone addiction in clinical practice.

REFERENCES

1. Turan, N., Durgun, H., Kaya, H., Ertaş, G., Kuvan, D. The relationship between stress status and cognitive flexibility levels of nursing students. *JAREN*, 2019; 5(1):59-66. <https://doi.org/10.5222/jaren.2019.43265>
2. Tarsuslu, B., Günaydın, N., Koç, M. Relationship between educational stress and psychological resilience in nursing students. *Journal of Human Sciences*, 2020; 17(1): 79-91. <https://doi.org/10.14687/jhs.v17i1.5796>
3. Köse, G., Ayhan, H., Taştan, S., İyigün, E., Özçakır, A.N. Hemşirelik öğrencilerinde eğitim stresi algısı ile internet bağımlılığı arasındaki ilişki. *Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi* 2021; 8(1):58-64. <https://doi.org/10.31125/hunhemsire.907830>
4. Büyükbayram, Z., Bıçak Ayık, D. Hemşirelik öğrencilerinin hemşirelik eğitimi ile ilgili stres düzeylerinin belirlenmesi. *Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi* 2020; 4(2): 90-99. <https://doi.org/10.46237/amusbfd.562097>
5. Özdemir, H., Khorshid, L., Zaybak, A. Hemşirelik öğrencilerinin hemşirelik eğitimine ilişkin yaşadıkları stres düzeyinin belirlenmesi. *Turkish Journal of Science and Health*, 2020; 1(2):20-28.
6. Çakar, M., Yıldırım Şişman, N., Oruç, D. Health risks in nursing students' clinical application. *E-Journal of Dokuz Eylül University Nursing Faculty*, 2019; 12(2):116-125.
7. Ab Latif, R., Mat Nor, M.Z. Stressors and coping strategies during clinical practice among diploma nursing students. *Malays J Med Sci.*, 2019; 26(2): 88-98. <https://doi.org/10.21315/mjms2019.26.2.10>
8. Topal Hançer, A., Güler, N., Süha, B. K. Nursing senior students' perceived stress and stress coping behaviors. *Turkiye Klinikleri J Nurs Sci.*, 2019; 11(4):347-356. <https://doi.org/10.5336/nurses.2018-64617>
9. Osorio-Molina, C., Martos-Cabrera, M. B., Membrive-Jiménez, M. J., Vargas-Roman, K., Suleiman-Martos, N., Ortega-Campos, E., & Gómez-Urquiza, J. L. Smartphone addiction, risk factors and its adverse effects in nursing students: A systematic review and meta-analysis. *Nurse Education Today*, 2021; 98:104741. <https://doi.org/10.1016/j.nedt.2020.104741>
10. Dost, A., Kökçü Doğan, A., Aslan, D. Hemşirelik öğrencilerinde internet bağımlılığı. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, 2021; 4(3):393-401. <https://doi.org/10.38108/ouhcd.871550>
11. Alan, R., Güzel, H. Ş. Akıllı telefon bağımlılığı ile problem çözme becerisi ve stresle başa çıkma tarzları arasındaki ilişkinin incelenmesi. *Düşünen Adam*, 2020; 33(3): 244-253. <https://doi.org/10.14744/dajpns.2020.00088>
12. Beisland, E. G., Gjeilo, K. H., Andersen, J. R., Bratås, O., Bø, B., Haraldstad, K., Hjelmeland, I., Iversen, M. M., Løyland, B., Norekvål, T. M., Riiser, K., Rohde, G., Urstad, K. H., Utne, I., Flølo, T. N., LIVSFORSK network. Quality of life and fear of COVID-19 in 2600 baccalaureate nursing students at five universities: a cross-sectional study. *Health and Quality of Life Outcomes*, 2021; 19(1):1-10. <https://doi.org/10.1186/s12955-021-01837-2>
13. De Los Santos, J., Labrague, L. J., Falguera, C. C. Fear of COVID-19, poor quality of sleep, irritability, and intention to quit school among nursing students: a cross-sectional study. *Perspectives in Psychiatric Care*, 2022; 58(1):71-78. <https://doi.org/10.1111/ppc.12781>
14. Medina Fernández, I. A., Carreño Moreno, S., Chaparro Díaz, L., Gallegos-Torres, R. M., Medina Fernández, J. A., Hernández Martínez, E. K. Fear, Stress, and Knowledge regarding COVID-19 in Nursing Students and Recent Graduates in Mexico. *Investigacion y educacion en enfermeria*, 2021; 39(1): e05. <https://doi.org/10.17533/udea.iee.v39n1e05>
15. Oducado, R. M., Estoque, H. Online learning in nursing education during the COVID-19 pandemic: Stress, satisfaction, and academic performance. *Journal of Nursing Practice*, 2021; 4(2):143-153. <https://doi.org/10.30994/jnp.v4i2.128>
16. Yazici, H., Ökten, Ç. Nursing students' clinical practices during the COVID-19 pandemic: Fear of COVID-19 and anxiety levels. *Nursing forum*, 2022; 57(2), 298-304. <https://doi.org/10.1111/nuf.12680>
17. Dewart, G., Corcoran, L., Thirsk, L., Petrovic, K. Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today*, 2020; 92: 104471. <https://doi.org/10.1016/j.nedt.2020.104471>
18. Cantekin, I., Arıvanlı Çoban, S., Dönmez, H. Covid-19 pandemisinde hemşirelik öğrencilerinin klinik uygulamalara yönelik algıladıkları stres düzeyi. *Yükseköğretim ve Bilim Dergisi*, 2021; 11(3): 592-599. <https://doi.org/10.5961/higheredusci.1002215>
19. Márquez-Hernández, V. V., Gutiérrez-Puertas, L., Granados-Gámez, G., Gutiérrez-Puertas, V., Aguilera-Manrique, G. Problematic mobile phone use, nomophobia and decision-making in nursing students mobile and decision-making in nursing students. *Nurse Education in Practice*, 2020; 49:102910. <https://doi.org/10.1016/j.nepr.2020.102910>
20. Mohamed, S. M., Mostafa, M. H. Impact of smartphone addiction on depression and self-esteem among nursing students. *Nursing Open*, 2020; 7(5):1346-1353. <https://doi.org/10.1002/nop2.506>
21. Ghosh, T., Sarkar, D., Sarkar, K., Dalai, C. K., Ghosal, A. A study on smartphone addiction and its effects on sleep quality among nursing students in a municipality town of West Bengal. *Journal of Family Medicine and Primary Care*, 2021; 10(1):378-386. https://doi.org/10.4103/jfmpc.jfmpc_1657_20

22. Kim, J. I. The effects of sociality, life stress, and depression on the smartphone addiction of nursing college students. *Journal of the Korea Academia-Industrial Cooperation Society*, 2020; 21(4): 100-108. <https://doi.org/10.5762/KAIS.2020.21.4.100>
23. Sheu, S., Lin, H. S., Hwang, S. L. Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors. *International Journal of Nursing Studies*, 2002; 39(2):165–175. [https://doi.org/10.1016/s0020-7489\(01\)00016-5](https://doi.org/10.1016/s0020-7489(01)00016-5)
24. Karaca, A., Yıldırım, N., Ankaralı, H., Açıkgöz, F. Akkuş, D. Turkish adaptation of perceived stress scale, bio-psycho-social response, and coping behaviours of stress scales for nursing students. *Journal of Psychiatric Nursing*, 2015; 6(1):15-25. <http://dx.doi.org/10.5505/phd.2015.40316>
25. Fidan, H. Development and validation of the Mobile Addiction Scale: the components model approach. *Addicta: The Turkish Journal on Addictions*, 2016; 3(3):433-469. <https://doi.org/10.15805/addicta.2016.3.0118>
26. Erbil, N., Gümüşay, M., Salman, E. Öğrenci hemşirelerin internet bağımlılık düzeyleri ve etkileyen faktörler. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, 2020; 3(1): 17-26. <https://doi.org/10.38108/ouhcd.714737>
27. Duruk, N. Evaluation of satisfaction level and perceived stress in clinical practice among first year nursing students. *Turkish Journal of Research & Development in Nursing*, 2019; 21(3): 1-13.
28. Ahmad Sharoni, S. K., Abu Bakar, Z., Abu Bakar, N. Smartphone addiction among nursing students in higher learning institutions. *ESTEEM Journal of Social Sciences and Humanities*, 2020; 4(1):13-19.
29. Birimoğlu Okuyan, C., Karasu, F., Polat, F. The effect of COVID-19 on health anxiety levels of nursing students. *van Health Sciences Journal*, 2020; 13 (Special issue):45-52
30. Kuru Alici, N., Ozturk Copur, E. Anxiety and fear of COVID-19 among nursing students during the COVID-19 pandemic: A descriptive correlation study. *Perspectives in Psychiatric Care*, 2022; 58(1): 141-148. <https://doi.org/10.1111/ppc.12851>
31. Türkleş, S., Boğahan, M., Altundal, H., Yaman, Z., Yılmaz, M. Diaries of nursing students during the COVID-19 pandemic: a qualitative descriptive study. *International Journal of Environmental Research and Public Health*, 2021; 18(16):8556. <https://doi.org/10.3390/ijerph18168556>
32. Köse, G., Ayhan, H., Taştan, S., İyigün, E., Özçakır, A.N. The relationship between perceived education stress and internet addiction among nursing students. *Journal of Hacettepe University Faculty of Nursing*, 2021; 8(1): 58-64. <https://doi.org/10.31125/hunhemsire.907830>
33. Aktaş, D., Yazıcı, G., Koçaşlı, S., Yılmaz, K. The attitude of nursing students towards mobile learning. *Genel Sağlık Bilimleri Dergisi*, 2021; 3(2):133-142. <https://doi.org/10.51123/jgehes.2021.24>
34. Göldağ, B. The investigation of the relationship between smart phone addiction and perceived stress and life satisfaction. *Information Technologies and Applied Sciences*, 2019; 14(2):193-212. <http://dx.doi.org/10.29228/TurkishStudies.22753>
35. Shirzadegan, R., Mahmoodi, N., Beiranvand, A. Relationship between smart phone addiction and mental health in nursing students of Abadan University of Medical Sciences. *Journal of Fundamentals of Mental Health*, 2018; 21(1):81-85.
36. Zhong, Y., Ma, H., Liang, Y. F., Liao, C. J., Zhang, C. C., Jiang, W. J. Prevalence of smartphone addiction among Asian medical students: A meta-analysis of multinational observational studies. *The International Journal of Social Psychiatry*, 2022; 207640221089535. <https://doi.org/10.1177/00207640221089535>