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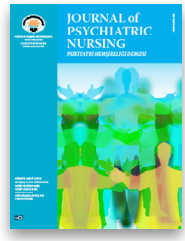

Original Article

Examining the correlation between smartphone addiction and social and emotional loneliness levels of nursing students

Merve Kızılırmak Tatu

Department of Nursing, Gazi University Faculty of Nursing, Ankara, Türkiye

Abstract

Objectives: The aim of this study was to examine the correlation between nursing students' smartphone addiction and their social and emotional loneliness levels.

Methods: This study was designed as a descriptive-cross-sectional trial. The study was conducted between May 15, 2022, and June 30, 2022. The sample of the study consisted of students (n=243) who met the inclusion criteria and voluntarily agreed to participate in the study. The data were collected using the "Personal Information Form," "Smartphone Addiction Scale" (SAS), and "Social and Emotional Loneliness Scale (SELSA-S)."

Results: It was found that the students' mean scores were 29.89±10.75 in the SAS-Short Version and 58.62±11.14 in the SELSA-S. Men's family emotional loneliness levels were higher than the levels of the women; 4th-year students had lower levels of smartphone addiction and higher levels of social loneliness. Romantic emotional loneliness levels of the students who used smartphones for communication-chat were higher than those who use smartphones for entertainment-music and social media. Those with insufficient friendship and family relationships had higher smartphone addiction levels.

Conclusion: A significant correlation was found between smartphone addiction and social and emotional loneliness. As the level of smartphone addiction increased, the level of social and emotional loneliness increased. It is recommended to implement programs to fight smartphone addiction to protect and promote the psychological health of university students.

Keywords: Nursing students; smartphone addiction; social and emotional loneliness.

In recent years, smartphones have become an indispensable component of our daily lives. The rapid pace of individuals' lives, faster rate of communication, and the emergence of novel business fields have been introduced and smartphones have become a must in daily life.[1] Overuse of smartphones can lead to behaviors that closely resemble addiction.[2] Smartphone addiction, as a type of technology addiction, is a self-control disorder that can manifest itself through prolonged use of mobile phones.[3] The symptoms of smartphone addiction include extended periods of phone use beyond normal and frequent phone checks as well as heightened tension and restlessness, physical symptoms (headache, dizziness, etc.), diminished academic achievement, postponement of daily life activities, avoidance of social interactions, inability to reach one's full potential, and intense feelings of loneliness in the absence of a phone.[3] Factors such as diminished self-confidence and self-esteem, all communications by telephone, inadequacies in interpersonal communication, the ability to express oneself more easily and make friends in virtual settings, and the feeling of self-actualization by satisfying the need for acceptance and approval in virtual settings raise the risk of smartphone addiction.[4,5]

University students turn to smartphones to meet their social support and communication needs, depending on the char-

Address for correspondence: Merve Kızılırmak Tatu, Department of Nursing, Gazi University Faculty of Nursing, Ankara, Türkiye
Phone: +90 537 36119 71 **E-mail:** mervekzlrmak@gmail.com **ORCID:** 0000-0002-3218-2705
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acteristics of their developmental period.[6] The advances in smartphone technology and the desire to communicate, interact, and socialize with others have led to a significant increase in smartphone usage among students.[7] University students use their smartphones for socializing, planning leisure activities, shopping, communicating with friends and family, being active on social media, playing online games, checking e-mail, taking notes, studying, and interacting with their teachers.[8]

The increase in the duration of phone usage among university students results in their detachment from society, leading to social isolation and feelings of loneliness.[6] Loneliness can be defined as the avoidance behavior of human beings, as social beings. Emotional loneliness is defined as the lack of close relationships and interaction; whereas, social loneliness is described as the lack of social relationships.[9] The fact that humans are social beings leads them to escape from the feeling of loneliness. It is known that individuals, particularly teenagers, tend to maintain their existence in virtual environments with tools such as the internet, computer, and telephone to get rid of loneliness.[10] Smartphones have been reported to be a device frequently used by shy people to cope with their loneliness.[11] Studies have reported that there is a significant correlation between smartphone addiction and loneliness among university students, and as addiction increases, loneliness increases.[11,12] In this sense, individuals who feel lonely are thought to be more likely to be addicted to using smartphones.

Smartphone addiction has increased in Türkiye and in the world day by day, with recognition of its negative impact on the lives of university students. In the literature, it has been reported that students who are addicted to smartphones suffer from sleep problems.[12] According to the studies, extended periods of smartphone use negatively affect students' academic achievement.[13,14] Other studies have reported that as smartphone addiction increases, students' well-being and satisfaction with life diminish.[7,13,15] A study conducted with nursing students reported that they consider smartphones as a symbol of prestige and an extension of themselves, the smartphone prevents their loneliness, they can express themselves more easily with their smartphones and deem them indispensable in their daily lives.[16]

Smartphone addiction negatively affects university students in physical, psychological, and social dimensions.[17] It becomes clear that conducting risk assessment studies is important for addressing the problems caused by adverse impacts. Accordingly, the aim of this study is to investigate the correlation between smartphone addiction and the social and emotional loneliness levels of nursing students, and answers to the following questions were sought:

1. What is the level of smartphone addiction among nursing students?
2. What is the social and emotional loneliness level among nursing students?
3. Do the smartphone addiction and levels of social and emotional loneliness among nursing students differ based on their socio-demographic characteristics?
4. Is there a significant correlation between smartphone addiction and the social and emotional loneliness levels of nursing students?

What is presently known on this subject?

- Smartphone addiction has increased in Turkey and in the world day by day, affecting the lives of individuals negatively. University students are included in a risky group for developing addiction due to their distance from their families, difficulties in planning leisure time activities, and attributes associated with their developmental stage. Smartphone addiction negatively affects university students in physical, psychological, and social dimensions. The increase in the duration of phone usage among university students results in their detachment from society, leading to social isolation and feelings of loneliness.

What does this article add to the existing knowledge?

- A correlation was found between smartphone addiction and social and emotional loneliness; as smartphone addiction increases, so does social and emotional loneliness.

What are the implications for practice?

- The results of this study suggest the importance of fighting smartphone addiction among nursing students. Fighting against smartphone addiction will contribute to the elimination of social and emotional loneliness by preventing students at risk from developing addiction.

Materials and Method

Design of the Study

The study was designed as a "descriptive and cross-sectional study."

Location and Time of the Study

The study was conducted in the nursing department of a state university between May 15, 2022, and June 30, 2022.

Population and Sample

The population consisted of nursing students (n=979) from a state university. The convenience sampling method, one of the non-probability sampling methods, was used to determine the sample.[18,19] Accordingly, the sample was determined to be 240 with the formula (n=N.t2.p.q/d2 (N-1) + t2.p.q) using the sampling method with a finite population. The sample consisted of students who met the inclusion criteria (n=243). The inclusion criteria were voluntary participation, while the exclusion criteria were foreign nationality and limitations in reading and understanding the Turkish language.

Data Collection Tools

Personal Information Form

It consists of 11 questions about sociodemographic characteristics of the participants and their characteristics related to smartphone use.

Smartphone Addiction Scale-Short Version (SAS-SV)

Kwon et al.[4] (2013) developed the scale, and Noyan et al.,[2] (2015) conducted its Turkish validity and reliability study. The SAS-SV has 10 items and a single dimension. A total score of the scale ranges from 10 to 60. The scale has no cutoff point. Higher scores signify that the risk of addiction increases. While the Cronbach's Alpha internal consistency coefficient was 0.86 in the original version of the scale,[2] it was 0.87 in the present study.

Social and Emotional Loneliness Scale (SELSA-S)

DiTommaso, Brannen, and Best[20] (2004) developed the scale to evaluate the feeling of loneliness, and Akgül[21] (2020) conducted its Turkish validity and reliability study. The scale includes 15 items and three subscales (Romantic Emotional Loneliness, Family Emotional Loneliness, and Social Loneliness). A total score of the scale ranges from 15 to 105. The scale has no cutoff point. As the score of the scale rises, social and emotional loneliness increases. While the Cronbach's Alpha internal consistency coefficient of the scale was 0.92 in the original version of the scale,[21] it was 0.64 in the present study.

Procedure

The study was conducted between May 15, 2022, and June 30, 2022. The data were gathered using the "Personal Information Form," "SAS-SV," and "SELSA-S." Data collection tools were transferred into the online medium through "Google Forms." The form was composed of "Personal Information Form," "SAS-SV," and "SELSA-S" respectively. The data were collected by sending the link to "Google Forms" to the students through WhatsApp, social media (Instagram, Facebook, etc.), and e-mail. Before starting the application, the students were informed about the purpose of the study and the process, and that they could withdraw from the study at any time before, during, and after the application. The students' informed consent was obtained through "Google Forms." It took 10–15 min on average to apply the data collection forms.

Data Analysis

SPSS 25 software was used to analyze the data. Descriptive statistics were given as mean, standard deviation, number, and percentage. Compliance with normal distribution was checked with the "Kolmogorov–Smirnov" test. "Independent T," "One-Way ANOVA," "Mann–Whitney U," and "Kruskal–Wallis" tests were used to analyze the data. For the correlation between variables, "Spearman" and "Pearson" analyses were performed. Statistical significance was accepted as $p<0.05$.

Ethical Considerations

Ethical approval from the University's Ethics Commission (05.04.2022/Research Code Number:2022-471) and written permission from the relevant unit of the university were obtained to conduct the study. Informed consent was obtained from the students, who would participate in the study, through Google Forms, after making necessary explanations about the purpose of the study, the application method, the process, and the planned results. The study was conducted in accordance with the Declaration of Helsinki.

Results

The mean age of the students was 20.97±1.88. About 88.5% of the students were female, 46.1% were 2nd-year students, 60.5% were residing in dormitories, 81.1% considered their income level as medium, and 97.9% had no mental disorders. The daily average time of smartphone use was 5.65±2.61 h; 54.3% of the students used the smartphone during the day, and 37.4% used it for social media purposes. 68.3% of the students evaluated their friend relationships as satisfactory, and 79.8% of the students evaluated their family relationships as satisfactory (Table 1).

It was found that the students' SAS-SV total mean score was 29.89±10.75. Their mean scores were 58.62±11.14, 16.29±7.41, 22.36±3.35, and 20.00±3.89 for overall SELSA-S, romantic emotional loneliness subscale, family emotional loneliness subscale, and social loneliness subscale, respectively (Table 2).

A significant difference was found between the mean scores of the family emotional loneliness subscale of SELSA-S according to gender (Z=-2.716, p=0.007). The male participants had higher scores of family emotional loneliness compared to their female counterparts. A significant difference was found between their SAS-SV mean scores according to their university year (F=4.558, p=0.004). SAS-SV mean scores of 3rd-year students were higher than those of 1st, 2nd, and 4th-year students. A significant difference was found between the students' mean scores on the social loneliness subscale of SELSA-S, in terms of the university year (KW=8.460, p=0.037). Accordingly, the social loneliness mean scores of the 4th-year students were higher than those of the 1st, 2nd, and 3rd-year students. A significant difference was found between their SELSA-S total mean scores and their mean scores on the romantic emotional loneliness subscale according to their purpose of using smartphones (KW=18.293 p=0.003; F=4.552 p=0.000). Their SELSA-S total mean score and the mean scores of the romantic emotional loneliness subscale of the students who used smartphones for communication-chat purposes were higher than the scores of those who used smartphones for entertainment-music and social media purposes.

A significant difference was found between the SAS-SV mean scores of the students according to their friend rela-

Table 1. Sociodemographic characteristics of the students

	n	%
Age	20.97±1.88	
18–20	109	44.9
21–23	121	49.8
24 and above	13	5.3
Gender		
Female	215	88.5
Male	28	11.5
Degree		
1st year	12	4.9
2nd year	112	46.1
3rd year	104	42.8
4th year	15	6.2
Person/persons sharing living quarters		
Dormitory	147	60.5
Student house	20	8.2
With family	76	31.3
Income status		
High	14	5.8
Middle	197	81.1
Low	32	13.2
Average daily use time of smartphone (hour)	5.65±2.61	
Time of smartphone use		
Night	111	45.7
Day time	132	54.3
Purposes for smartphone use		
Communication-chat	59	24.3
Entertainment-music-movie	65	26.7
Doing homework and research	13	5.3
Social media	91	37.4
Playing games	6	2.5
Following daily news	5	2.1
Shopping	1	0.4
Others	3	1.2
Friendship relationships		
Satisfactory	166	68.3
Poor	9	3.7
Partially satisfactory	68	28.0
Family relationships		
Satisfactory	194	79.8
Poor	8	3.3
Partially satisfactory	41	16.9
Status of mental disorder		
Available	5	2.1
Non-available	238	97.9
Total	243	100

tionships (F=6.58, p=0.002). SAS-SV mean scores of those with poor friend relationships were higher than those with satisfactory friend relationships. A significant difference was found between the SAS-SV mean scores of the students according to their family relationships (F=6.57, p=0.002). SAS-SV mean scores of those with poor family relationships were higher than the scores of those with satisfactory friend relationships (Table 2).

Table 2. SAS-SV and SELSA-S scores of the students according to their sociodemographic characteristics

Sociodemographic characteristics	n	SAS-SV	SELSA-S			
			Romantic emotional oneliness	Family emotional loneliness	Social loneliness	SELSA-S total
Age						
18–20	109	30.40±10.47	16.36±7.14	22.16±3.50	20.09±3.95	58.62±10.83
21–23	121	30.07±11.22	16.35±7.70	22.61±3.28	20.04±3.84	59.01±11.46
24 and above	13	23.92±6.70	15.15±7.33	21.69±2.75	19.00±3.97	55.84±11.68
Statistical analysis*	F=2.163 p=0.117		F=0.162 p=0.850	KW=2.278 p=0.320	KW=0.590 p=0.744	KW=0.707 p=0.702
Gender						
Female	215	29.96±10.57	16.18±7.48	22.51±3.32	20.08±3.86	58.78±11.34
Male	28	29.35±12.26	17.14±6.91	21.25±3.48	19.42±4.10	57.82±9.88
Statistical analysis*	t=0.280 p=0.780		t=-0.642 p=0.52	Z=-2.716 p=0.007	Z=-0.895 p=0.371	Z=-0.310 p=0.756
Degree						
1st year	12	25.66±6.22	13.33±5.74	22.16±2.20	19.33±1.72	54.83±6.52
2nd year	112	30.47±9.75	15.55±7.32	21.97±3.61	19.50±3.51	57.03±10.71
3rd year	104	31.00±11.83	17.31±7.69	22.75±3.35	20.43±4.54	60.50±12.21
4th year	15	21.20±8.80	17.13±6.56	22.73±1.33	21.33±2.05	61.20±7.20
Statistical analysis*	F=4.558 p=0.004		F=1.75 p=0.157	KW=2.628 p=0.453	KW=8.460 p=0.037	KW=7.246 p=0.064
Person/persons sharing living quarters						
Dormitory	147	29.21±10.38	16.53±7.46	22.11±3.65	19.67±4.08	58.31±11.80
Student house	20	30.05±11.92	16.30±8.20	22.60±2.50	20.50±4.47	59.40±11.59
With family	76	31.17±11.17	15.84±7.17	22.78±2.90	20.57±3.29	59.15±9.83
Statistical analysis*	F=0.833 p=0.436		F=0.215 p=0.807	KW=1.465 p=0.481	KW=1.765 p=0.414	KW=0.376 p=0.828
Income status						
High	14	33.71±13.92	14.57±6.12	22.21±1.31	20.64±4.86	57.42±7.44
Middle	197	29.31±10.34	16.28±7.53	22.53±3.31	20.10±3.87	58.93±11.44
Low	32	31.75±11.55	17.09±7.23	21.37±4.06	19.12±3.53	57.59±11.01
Statistical analysis*	F=1.64 p=0.19		F=0.215 p=0.807	KW=2.131 p=0.345	KW=3.620 p=0.164	KW=0.136 p=0.934
Time of smartphone use						
Night	111	30.59±10.64	16.13±6.97	22.28±3.37	19.90±3.68	58.33±11.17
Day time	132	29.30±10.64	16.43±7.78	22.43±3.35	20.09±4.07	58.95±11.20
Statistical analysis*	t=0.280 p=0.780		t=-0.310 p=0.757	Z=-0.274 p=0.784	Z=-0.364 p=0.716	Z=-0.009 p=0.993
Purposes for smartphone use						
Communication-chat	59	29.27±12.21	19.88±8.62	22.84±3.07	21.10±4.26	63.83±12.69
Entertainment-music- movie	65	28.47±9.45	14.64±6.78	22.23±3.87	20.24±3.33	57.12±10.36
Doing homework and research	13	26.92±9.56	13.84±8.75	21.84±3.13	18.76±3.89	54.46 ±12.68
Social media	91	31.93±10.44	15.45±5.81	22.19±3.10	19.14±3.75	56.79±9.08
Playing games	6	32.33±10.63	22.00±9.50	22.83±5.03	22.83±5.74	67.66±15.66
Following daily news	5	27.20±13.88	10.60±1.51	23.66±2.94	20.33±3.14	56.33±7.25
Shopping	1	43.00±0.00	21.00±0.00	24.31±3.14	23.19±3.11	55.46±4.45
Statistical analysis*	F=1.56 p=0.147		F=4.552 p=0.000	KW=1.485 p=0.915	KW=8.989 p=0.110	KW=18.293 p=0.003
Friendship relationships						
Satisfactory	166	28.56±10.78	16.40±7.94	22.24±3.30	20.25±3.82	58.90±11.48
Poor	9	40.00±8.70	18.11±6.33	23.88±3.58	17.77±7.29	59.77±13.31

Table 2. Cont.

Sociodemographic characteristics	n	SAS-SV	SELSA-S			
			Romantic emotional oneliness	Family emotional loneliness	Social loneliness	SELSA-S total
Friendship relationships						
Partially satisfactory	68	31.79±10.02	15.79±6.13	22.47±3.45	19.69±3.37	57.95±10.21
Statistical analysis*	F=6.58 p=0.002		F=0.441 p=0.644	KW=1.507 p=0.471	KW=3.083 p=0.214	KW=0.484 p=0.785
Family relationships						
Satisfactory	194	28.68±10.61	16.32±7.80	22.59±3.18	20.06±4.12	58.98±11.58
Poor	8	37.00±9.21	20.00±4.14	20.50±4.07	20.62±3.02	61.12±7.19
Partially satisfactory	41	34.21±10.23	15.43±5.63	21.63±3.84	19.60±2.80	56.68±9.61
Statistical analysis*	F=6.57 p=0.002		F=1.27 p=0.281	KW=1.849 p=0.397	KW=1.849 p=0.397	KW=2.994 p=0.224
Status of mental disorder						
Available	5	31.40±6.26	17.00±7.93	22.20±1.09	18.40±2.30	57.60±8.96
Non-available	238	29.86±10.43	16.28±7.41	22.36±3.38	20.04±3.91	58.69±11.22
Statistical analysis*	Z=-0.51 p=0.60		T=0.214 p=0.831	Z=-0.627 p=0.531	Z=-1.267 p=0.205	Z=-0.090 p=0.928
Total	243	29.89±10.75	16.29±7.41	22.36±3.35	20.00±3.89	58.62±11.14

*: In normally distributed data, "Independent t-test" (t-table value) statistics were used to compare two independent groups, and "One-way ANOVA test" (F-table value) statistics were used to compare three or more groups. In non-normally distributed data, "Mann–Whitney U" test (Z-table value) statistics were used to compare two independent groups and "Kruskal–Wallis H test" (KW-table value) statistics were used to compare three or more groups. SAS-SV: Smartphone Addiction Scale-Short Version; SELSA-S: Social and Emotional Loneliness Scale.

Table 3. The correlation between SAS-SV and SELSA-S scores of the students

	SELSA-S							
	Romantic emotional loneliness		Family emotional loneliness		Social loneliness		SELSA-S total	
	r*	p	r**	p	r*	p	r*	p
SAS-SV	0.189	**0.003**	0.090	0.163	0.102	0.111	0.207	**0.001**

*: "Spearman" correlation coefficient was used when at least one of the two quantitative variables was not suitable for normal distribution; **: Pearson correlation coefficient was used for the correlation between two normally distributed continuous variables. SAS-SV: Smartphone Addiction Scale-Short Version; SELSA-S: Social and Emotional Loneliness Scale.

No significant difference was found between SAS-SV and SELSA-S total mean scores of the students on the according to their age, gender, person/persons sharing living quarters, income level, duration of smartphone use, purpose of smartphone use, and mental illness condition (p>0.05). Furthermore, no statistically significant difference was found between SELSA-S total mean scores of the students according to their university, friend relationships, or family relationships (p>0.05) (Table 2).

Table 3 shows the correlation between the SAS-SV and SELSA-S. A significant low positive correlation was found between the SAS-SV and the romantic emotional loneliness subscale of SELSA-S (r=0.189 p=0.003). As the level of SAS-SV increased, so did the level of romantic emotional loneliness of the SELSA-S. A significant low positive correlation was found between the total scores of SAS-SV and SELSA-S (r=0.207 p=0.001). As the level of SAS-SV increased, so did the level of SELSA-S. No significant correlation was found between SAS- SV and family emotional loneliness and social loneliness subscales of SELSA-S (p>0.05).

Discussion

The present study aimed to examine the correlation between nursing students' smartphone addiction and social and emotional loneliness levels. Accordingly, it was found that the SAS-SV total mean score of the students was 29.89±10.75. Their SELSA-S total mean score was 58.62±11.14, their mean score on the romantic emotional loneliness subscale was 16.29±7.41, their mean score on the family emotional loneliness subscale was 22.36±3.35, and their mean score

on the social loneliness subscale was 20.00±3.89. In their study, İkiışık et al.,[22] (2020) found that the mean score of the students on the SAS was 29.15±10.43. It was 30.71±9.41 and 23.31±10.20 in the study conducted by Gezgin et al.,[12] (2020) and Yılmaz et al.,[23] (2017), respectively. The studies conducted during the COVID-19 (Coronavirus Disease) pandemic revealed that the smartphone addiction mean scores of students were higher.[12,22] It is considered that this outcome resulted from the remote or online educational processes of students during the pandemic period, the fulfillment of daily routines (shopping, exercise, etc.) online instead of face-to-face, and the reliance on virtual settings to maintain communication and socialization with their family and friends. Furthermore, given that university students are particularly susceptible to experiencing the psychological effects of the COVID-19 pandemic more and elevated levels of stress, anxiety, and depression compared to other segments of society,[24,25] it is considered that students may have utilized smartphones as a means of coping with stress. A study conducted with nursing students found that the mean score of the students on the SELSA-S was 43.61±15.18, their mean score on the romantic emotional loneliness subscale was 19.76±9.04, their mean score on the family emotional loneliness subscale was 11.58±6.24, and their mean score on the social loneliness subscale was 12.28±6.14.[26] Accordingly, it can be asserted that the findings obtained in the present study are compatible with the literature.

A study conducted with nursing students reported that male participants suffered from higher levels of family emotional loneliness compared to their female participants.[26] Other national and international studies have also reported that men suffer from higher levels of loneliness than women.[27,28] It is considered that women's relatively better interpersonal communication skills in society and their inability to share their problems with others due to the pressure on men exerted by living in a patriarchal society lead to this outcome.

The present study revealed that smartphone addiction and social and emotional loneliness intensified as the university year rose. It is thought that students' need to use technology more for reasons such as lessons, homework, group work, communication, etc. as they progress to higher year levels elevated levels of smartphone addiction, and accordingly, the level of social and emotional loneliness. Indeed, the present study found that students used smartphones mostly due to social media (37.4%) and entertainment-music-film (26.7%), followed by communication-chat (24.3%). However, unlike the finding of the present study, a study revealed that 1st-year university students had a higher level of smartphone addiction.[29] The literature reports that smartphone addiction is correlated with loneliness. The anxiety level of an individual who feels lonely may rise and may tend toward various addictions.[30] In their study, İkiışık et al.,[22] (2020) found that the level of smartphone addiction increased as the university year rose, while the study conducted by Cengiz et al.[26] (2020) revealed that the level of social and emotional loneliness lowered as the university year of the students rose. The literature shows no consensus on the mentioned finding.

The present study reported that students most frequently used smartphones to access social media (37.4%). Furthermore, the scores of the students who used the smartphone for playing games were higher. The most prevalent activities carried out on mobile phones include social media usage, communication, and engagement in online gaming. The study conducted by İkiışık et al.[22] (2020) reported that students used smartphones mostly to access social media platforms. A study examining students' smartphone use in terms of different variables reported that students most frequently used their phones to access social networks, chat, and surf the internet, respectively.[31] Studies also showed that smartphones are frequently used for entertainment and leisure activities and individuals often use social media platforms over educational applications, which do not contribute to the acquisition of knowledge and skills, fostering academic achievement.[32,33] The present study revealed that 2.5% of the students used smartphones for playing games and these students had higher scores. A study reported that 31% of university students used smartphones to play games.[34] In their study, Özdemir et al.[16] (2019) found that students attributed meanings to smartphones as "what prevents me from feeling lonely" (37.6%), "prevents my need for another person" (17.17%), and "helps me avoid boredom" (65.00%), and had significant relationships with smartphone addiction.

The present study revealed that students with poor friend relationships had higher levels of smartphone addiction. A study reported a significant and negative correlation between interpersonal relationships and smartphone addiction.[35] While technological advances allow people to communicate quickly with many means, they drive them apart. This is due to the addiction and associated problems caused by social media, the internet, and smartphones, which have been gradually integrated into the daily lives of individuals in recent years.[36] Moreover, smartphones are used instead of face-to-face communication to solve problems faced in daily life. Reduced face-to-face communication and socialization in interpersonal relationships are identified as the negative effects of smartphones.[37] Besides, it is possible to argue that virtual settings are suitable mediums for individuals with limited interpersonal relationships and timid personality traits to socialize. The finding of the present study supports the literature.

The present study found that students with poor family relationships had higher levels of smartphone addiction. In the

literature, it is reported that there is a correlation between the duration of smartphone use and the environment we live in. Accordingly, it has been stated that a healthy family atmosphere diminishes smartphone addiction.[38] It is thought that the geographical distance between the students and their families, their loneliness in coping with problems, as well as more frequent use of the phone for entertainment and social communication, has extended the duration of smartphone use and resulted in the development of smartphone addiction.

The present study showed that as the level of smartphone addiction elevated, so increased social and emotional loneliness level. In recent years, mobile devices have begun to shape our lives to a great extent. Over time, these devices, initially limited to basic functions such as phone calls and text messaging, have gone through major modifications. Especially smartphones have become an integral part of everyone's lives worldwide and people have felt a strong attachment to their mobile devices.[15] A study conducted by Noyan et al.[2] (2015) with 367 students reported that 13.4% of the students identified themselves as smartphone addicts.

While smartphones offer numerous conveniences in our daily lives, they also have significant negative effects on psychological health, interpersonal relationships, loneliness, subjective happiness, and socialization.[2] Smartphones affect people both physically and mentally, as well as their social lives. Therefore, overuse of smartphones may hinder young people's face-to-face sharing and their need for social relationships. Accordingly, individuals who lack social relations at the desired level will become lonely. It is considered that one of the main drivers of loneliness is the inability of people to tolerate the technological boom. Smartphone addiction hinders integration into social life and social interaction, making individuals introvert and pushing them away from the real world toward the virtual world. The ability of smartphones to communicate in virtual settings instead of face-to-face communication creates a very suitable atmosphere for individuals who feel lonely.[35] A study conducted by Kim et al.[39] (2017) in South Korea reported that there was a significant correlation between smartphone addiction and loneliness. A study indicated that the use of smartphone isolates individuals and brings out their timid personality traits.[8] The study by Bian and Leung[11] (2015) reported that there was a correlation between smartphone addiction and feelings of loneliness and shyness. The finding of the present study supports the literature.

The limitations of this study are that results of the study cannot be generalized because it is limited to the answers given by the students who participated in the study voluntarily and the study was conducted in a single institution.

Conclusion

The present study revealed that social and emotional loneliness increased as smartphone addiction increased. It is recommended that smartphones, an important element of our daily lives, should be incorporated into the nursing educational curriculum as a type of behavioral addiction under the protective mental health for access to information and correct use of smartphones, and that socially aware and safe use should be supported by collaborating with prominent individuals of society (writers, artists, academicians, etc.). Furthermore, regular screening for smartphone addiction is recommended for the protection of psychological health among university students.

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