



Nomophobia and Related Factors in Students of a Faculty of Humanities and Social Sciences

Bir İnsani ve Sosyal Bilimler Fakültesi Öğrencilerinde Nomofobi ve İlişkili Faktörlerin İncelenmesi

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ABSTRACT

Objective: Nomophobia is defined as the involuntary fear experienced by the individual when he/she cannot access his mobile device or cannot communicate on the mobile device. This study aimed to examine nomophobia and related factors in the first- and fourth-year students in the Department of Turkish Language and Literature and Western Languages and Literatures at the Faculty of Humanities and Social Sciences of Firat University.

Methods: In this cross-sectional study, a questionnaire survey including questions about sociodemographic features and smartphone use and nomophobia questionnaire (NMP-Q) was performed.

Results: Data were collected from 325 participants (69.2% female), with an average age of 21.06±3.54 years. The NMP-Q score was 73.21±26.60 points. No significant difference was found between the genders according to the NMP-Q score ($p>0.05$). Those carrying chargers, spending time with a smartphone before bedtime, and checking their smartphones as soon as they wake up had a higher NMP-Q score ($p<0.01$). NMP-Q score increased with the increase in the duration of using smartphones, daily usage time, daily frequency of checking smartphones, and daily mobile internet usage time ($p<0.001$).

Conclusion: It may be helpful to delay the age of starting smartphone use as much as possible to reduce the level of nomophobia in university students since those who started using smartphones at an earlier age are more prone to nomophobia.

Keywords: Nomophobia, university, students, mobile phone

ÖZ

Amaç: Nomofobi, birey mobil cihazına erişemediğinde veya mobil cihaz üzerinde iletişim kuramadığında, bireyin yaşadığı istemsiz korku olarak tanımlanmaktadır. Bu çalışmada Firat Üniversitesi İnsani ve Sosyal Bilimler Fakültesi Türk Dili ve Edebiyatı ile Batı Dilleri ve Edebiyatları Bölümleri'ndeki birinci ve dördüncü sınıftaki öğrencilerde nomofobi ve ilişkili faktörlerin incelenmesi amaçlanmıştır.

Yöntemler: Kesitsel tipte bir araştırmadır. Sosyo-demografik özellikler ve akıllı telefon kullanımı ile ilgili sorular ve nomofobi ölçeğinin yer aldığı bir anket formu uygulanmıştır.

Bulgular: Üç yüz yirmi beş öğrenciye ulaşılmıştır. Öğrencilerin %69,2'si kadın olup, tüm öğrencilerin yaş ortalamaları 21,06±3,54'tür. Öğrencilerin, Nomofobi ölçeği puanı 73,21±26,60 olarak saptanmıştır. Nomofobi ölçeği puanlarına göre cinsiyetler arasında istatistiksel olarak anlamlı bir fark bulunmamıştır ($p>0,05$). Yanında şarj aleti taşıyanların, yatmadan önce akıllı telefonla zaman geçirenlerin, uyanır uyanmaz akıllı telefonunu kontrol edenlerin daha yüksek nomofobi ölçeği puanına sahip olduğu bulunmuştur ($p<0,01$). Akıllı telefonu kullanma yılı, günlük kullanma süresi, günlük kontrol sıklığı, günlük mobil internet kullanım süresi arttıkça nomofobi ölçeği puanı artmaktadır ($p<0,001$).

Sonuç: Daha erken yaşta akıllı telefon kullanmaya başlayanlar nomofobiye daha yatkın olduğundan, üniversite öğrencilerinde görülen nomofobi düzeyini düşürmek için akıllı telefon kullanmaya başlama yaşını olabildiğince geciktirmeye çalışmak faydalı olabilir.

Anahtar Sözcükler: Nomofobi, üniversite, öğrenciler, mobil telefon

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Introduction

Nomophobia is a disorder of the contemporary digital and virtual society and is the result of the development of new technologies that enable virtual communication (1,2). Developments in technology cause changes in culture. Culture can also affect a person's health-related behavior, as it is one of the factors that drive a person's behavior. To protect the health of individuals and to treat them while they are sick, it is necessary to know their behavior and the factors associated with their behavior (3). Therefore, nomophobia is a public health problem (4,5).

Smartphones have become an important part of people's lives today owing to the developments in communication and information technologies. Nowadays, the use of smartphones is increasing in developed and developing countries (6). The number of smartphone users worldwide has now exceeded three billion. China, India, and the USA have the highest number of smartphone users and are likely to exceed 100 million users (7). As of 2018, there were 41.9 million smartphone users in Turkey. This number is expected to increase to 52.8 million by 2021 and 56.4 million by 2023 (8). According to the We Are Social Statistics of Turkey Electronic Device Use in 2019, 98% of adults in Turkey were mobile phone users and 77% of these people prefer smartphones (9).

Smartphones are mainly used to access information, join social networks, increase social interactions, plan and organize jobs, access e-mails, shop online, and play games (10). Contrary to all these functions and benefits of smartphones, excessive use of smartphones can have negative consequences (11,12). Especially, while young individuals benefit from the opportunities provided by smartphones, they become addicted within a short time and even experience phobia in case of deprivation (13). Nomophobia is the involuntary fear derived from the English word nomophobia ("no mobile phone" and phobia) and refers to the experience when a person cannot access or communicate on their mobile device (1,14,15). Bragazzi et al. stated that nomophobia is a specific phobia and suggested its inclusion in the Diagnostic and Statistical Manual of Mental Disorders (5th Edition). They emphasized that nomophobia may be the forerunner of a more serious psychiatric disorder due to the tendency of psychiatric disorders to cluster together frequently (2,16).

Typical features of nomophobic behaviors include continuously checking whether there are messages or calls, worrying and feeling anxious when the mobile phone is out of range or having restricted use, leaving their smartphone open for 24 h, and going to the bed with a smartphone (2). Young people are more prone to using and adapting emerging technology and therefore more prone to nomophobia (5,17,18). A study conducted on university students in Turkey found that 42.6% of the students had nomophobia. The same study found that gender and the duration of smartphone ownership had affected young adults' nomophobic behaviors, whereas age had no effect (19). In Turkey, another study conducted among university students revealed that the level of nomophobia was higher in women and those with younger age, but no relationship was found between

smartphone use time and nomophobia level (20). Despite this information about nomophobia, evidence on this subject is limited. A systematic review about nomophobia published in 2020 emphasized that nomophobia was in the early stages of research since studies on nomophobia were mostly recent, quantitative, and cross-sectional and performed in a limited population (youth and university students). For this reason, most of the studies on nomophobia are in the discovery phase (5).

Because of the small number of studies and information about nomophobia, high prevalence among the young population, and nomophobia being an important psychiatric and public health problem, this study aimed to examine the nomophobia levels and factors related to nomophobia in students of a Faculty of Humanities and Social Sciences.

Methods

This cross-sectional study focused on 2,111 students at the Faculty of Humanities and Social Sciences, University of Firat, in the 2018-2019 academic year. The incidence of nomophobia was set as 42.6% (19), so the minimum number of people to be included in the study was 319 according to the following formula: $n = Npq^2/d^2(N-1) + pq^2$ (21), with the following values: N (universe size) =2,111, p (probability of occurrence of the event under investigation) =0.426, q (probability of occurrence of the event under investigation not seen) =0.574, t (theoretical value from the t table at a certain degree of freedom and detected error level) =1.96, and d (\pm deviation to be made according to the frequency of occurrence of the event) =0.05.

The Faculty of Humanities and Social Sciences consisted of six departments. Each department was accepted as a cluster, and two departments from six departments were selected by drawing lots. Selected departments were Turkish Language and Literature, and Western Languages and Literatures. The first- and fourth-year students in selected departments were included in this study for comparison between the freshmen and seniors. There were 109 first-year students and 51 fourth-year students in the Department of Western Languages and Literature. Moreover, there were 84 first-year students and 91 fourth-year students in the Turkish Language and Literature Department. In total, there were 335 first- and fourth-year students in both departments. The target sample was 335 students, but 325 students were enrolled.

The study was performed after it was approved by Firat University Ethics Committee, and data collection was started in September 2018. The research ethics permission was obtained from Firat University Non-interventional Research Ethics Committee (date: 21/06/2018, no: 263000).

Data were collected using a researcher-developed questionnaire based on the results of the reviewed relevant literature. The questionnaire was tested through a pilot survey including 18 students, and necessary modifications were made based on the results. The survey was implemented under direct observation after the necessary explanations were made and informed consent was obtained. The survey form consists of two parts: the first section includes questions about demographic information

form and smartphone use, and the second section includes the nomophobia questionnaire (NMP-Q).

Nomophobia Questionnaire: The scale was developed by Yıldırım and Correia (15) and adapted to Turkish by Yıldırım et al. (19), which consists of 20 items. It consists of a total of four subdimensions: “not being able to access information (4 items),” “losing connectedness (5 items),” “not being able to communicate (6 items),” and “giving up convenience (5 items).” Cronbach’s alpha values of the original scale and the Turkish version of the scale were 0.94 and 0.92, respectively. Cronbach’s alpha values of the subdimensions were 0.82, 0.81, 0.93, and 0.87 on the original scale and 0.94, 0.91, 0.90, and 0.74 on the Turkish version of the scale. The confirmatory factor analysis results of the Turkish version of the scale were as follows: $\chi^2(164) = 469.90$, normed $\chi^2 = 2.86$, comparative fit index = 0.92, and root mean square error of approximation = 0.08. The Turkish NMP-Q was a valid and reliable measure of nomophobia. It is a 7-point Likert-type scale. Total scores are calculated by summing up responses to each item, resulting in a nomophobia score ranging from 20 to 140, with higher scores corresponding to a more severe nomophobia. The nomophobia scale does not have a specific cut-off point.

Statistical Analysis

SPSS 21.0 package program (IBM Corp., Armonk, NY, USA) was used in data analysis and error checks, and tables and statistical analyses were made through this program. Depending on the nature of the variables in the statistical analysis, the following analyses were run: percentage, average, t-test, one-way analysis of variance, Tukey HSD, Pearson correlation analysis, and multiple linear regression analysis. Averages were calculated with standard deviation (mean \pm standard deviation), and $p < 0.05$ was accepted as the level of statistical significance.

Results

In this study, 69.2% ($n=225$ people) of the included students were female students, and the average age of all students was 21.06 ± 3.54 [minimum (min) = 17, maximum (max) = 42] years. The socioeconomic level of 88.3% of the students ($n=287$) was moderate, and 52.3% of students ($n=170$) belonged to Turkish Language and Literature Department, and 56.6% of the students ($n=184$) were on the first class. Students’ average duration of using smartphones, average daily smartphone usage time, average daily mobile internet usage time, and average age of starting using a smartphone were 4.78 ± 2.37 years, 5.65 ± 3.86

hours, 4.43 ± 3.77 hours, and 16.27 ± 4.04 years, respectively. The frequency of accessing social media via smartphone was as follows: 5.2% ($n=17$), never; 11.4% ($n=37$), rarely; 40.6% ($n=132$), sometimes; 29.9% ($n=97$) often; and 12.9% ($n=42$), always.

Table 1 presents the scores on the NMP-Q and its subdimensions. The students’ NMP-Q score was 73.21 ± 26.60 (min = 20, max = 140). The scores on the subdimensions were as follows: not being able to access information, 16.04 ± 7.34 (min = 4, max = 28); losing connectedness, 17.28 ± 8.33 (min = 5, max = 35); not being able to communicate, 26.19 ± 11.11 (min = 6, max = 42); and giving up convenience, 13.98 ± 8.53 (min = 5, max = 35).

According to Table 2, the NMP-Q score did not differ significantly according to gender, socioeconomic level, and class ($p > 0.05$). The NMP-Q score was significantly higher in the group aged ≤ 13 years than in the other age groups. Those who see themselves as smartphone addicts, carry a charger with them, spend time with a smartphone before bedtime, leave their smartphones open at night, and check their smartphone as soon as they wake up had a higher NMP-Q score ($p < 0.05$).

As shown in Table 3, the most frequent reason for smartphone use was to follow developments in the environment and agenda. In this study, 84.9% of the participants ($n=276$) thought that an expensive smartphone is not a prestigious tool. NMP-Q scores were significantly higher in students who answered *yes* to the following statements about smartphone use: “It allows me to follow the developments on the agenda,” “It gives me access to social media (Facebook, Twitter, etc.),” “Thanks to its functions, it allows me to play games easily,” and “An expensive smartphone increases my prestige around me” ($p < 0.05$).

Correlation coefficients between continuous variables are presented in Table 4. The NMP-Q score correlated negatively with age ($r = -0.13$, $p < 0.01$). Table 4 also indicates that the NMP-Q score correlated positively with the smartphone use duration ($r=0.21$), daily smartphone usage time ($r=0.29$), daily frequency of checking smartphone ($r=0.27$), and daily mobile internet usage time ($r=0.34$).

The results of the multiple linear regression analysis using NMP-Q score as the dependent variable are shown in Table 5. Variables such as age, duration of using a smartphone, daily smartphone usage time, daily frequency of checking smartphone, and daily mobile internet usage time contributed significantly to the model and explained 16% of the change in the NMP-Q

Table 1. Students’ scores on NMP-Q and its subdimensions

NMP-Q and its subdimensions	M \pm SD	Min-max
Not being able to access information	16.04 \pm 7.34	4-28
Losing connectedness	17.28 \pm 8.33	5-35
Not being able to communicate	26.19 \pm 11.11	6-42
Giving up convenience	13.98 \pm 8.53	5-35
NMP-Q	73.21 \pm 26.60	20-140

SD: Standard deviation, Min: Minimum, Max: Maximum, NMP-Q: Nomophobia questionnaire

Table 2. Some features of the students and NMP-Q scores according to these features

Features	n	%	NMP-Q score M ± SD	Test statistics
Gender				
Male	100	30.8	71.19±25.80	t= -0.913
Female	225	69.2	74.11±26.96	p=0.362
Socioeconomic level				
Low	21	6.5	70.47±27.53	F=0.338
Middle	287	88.3	73.64±25.93	p=0.713
High	17	5.2	69.23±36.43	
Class				
Grade 1	184	56.6	73.19±28.74	t= -0.017
Grade 4	141	43.4	73.24±23.62	p=0.986
Age to start using a smartphone				
≤13	69	21.2	84.46±27.98 ^{*§}	F=9.253
14-17	164	50.5	71.91±26.03 [*]	p<0.001
≥18	92	28.3	67.08±24.16 [§]	
See yourself as a smartphone addict				
Yes	115	35.4	87.68±25.22	t=7.920
No	210	64.6	65.28±23.91	p<0.001
Have a charger with you				
Yes	105	32.3	79.11±25.52	t=2.792
No	220	67.7	70.39±26.70	p=0.006
Spending time with your smartphone before bedtime				
Yes	276	84.9	76.30±25.69	t=5.173
No	49	15.1	55.77±25.06	p<0.001
Turn off your smartphone at night				
Yes	54	16.6	65.05±23.43	t=-2.487
No	271	83.4	74.83±26.93	p=0.013
Checking your phone as soon as you wake up				
Yes	226	69.5	79.10±25.80	t=6.395
No	99	30.5	59.75±23.41	p<0.001
Total	325	100.0		

*§: Groups that cause the difference detected with the Tukey HSD test, SD: Standard deviation, NMP-Q: Nomophobia questionnaire

score. Daily mobile internet usage time contributed the most to the change in the NMP-Q score (B=2.07, p<0.01).

Discussion

The NMP-Q score of the students was calculated as 73.21±26.60 (Table 1). Similarly, in a study conducted by Aşık (22) on vocational college students in Turkey, the NMP-Q score was 72.09. Additionally, the NMP-Q score was 79.71 in the study conducted by Gezgin (23) on university students in Turkey. In addition, the NMP-Q score was 74.65±18.80 in a study conducted on adolescents in Iran (24). Furthermore, it was 67.31±25.70 in a study conducted on adolescents in Spain (25) and 82.39±18.63 in a study conducted on nursing students in Spain (26). In national and international studies on nomophobia,

university students have similar levels of nomophobia. This finding is compatible with those of the present study.

In the present study, although the NMP-Q score was higher in female students than in male students, they did not differ significantly (Table 2). Likewise, no significant relationship has been found between gender and nomophobia in many studies (13,27-32). Contrary to our findings, some studies have revealed that the level of nomophobia was significantly higher in women than in men (19,20,26,33-36). With the difference in the findings, further studies are needed to investigate the effect of gender on individuals' susceptibility to nomophobia.

No difference was found between the NMP-Q scores of the students according to their socioeconomic levels (Table 2).

Table 3. Students' purposes of using a smartphone and NMP-Q scores according to the purposes of using the smartphone

Smartphone usage purposes	n	%	NMP-Q score M ± SD	Test statistics
Following the developments on the agenda				
Yes	311	95.7	73.91±26.55	t=2.263
No	14	4.3	57.57±23.39	p=0.024
Communicating with family and friends				
Yes	309	95.1	73.44±26.58	t=0.707
No	16	4.9	68.62±27.45	p=0.480
Using its functions (taking videos, taking photos, alarm clock, MP3 player, etc.)				
Yes	309	95.1	73.33±26.48	t=0.350
No	16	4.9	70.93±29.63	p=0.726
Access to the internet				
Yes	301	92.6	73.83±26.51	t=1.503
No	24	7.4	65.37±26.98	p=0.134
Access to social media				
Yes	286	88.0	75.67±26.34	t=4.668
No	39	12.0	55.12±21.18	p<0.001
Playing games				
Yes	177	54.5	77.62±26.24	t=3.322
No	148	45.5	67.93±26.15	p=0.001
Thought that an expensive phone increases my prestige				
Yes	49	15.1	92.08±28.16	t=5.638
No	276	84.9	69.86±24.91	p<0.001
Total	325	100.0		

SD: Standard deviation, NMP-Q: Nomophobia questionnaire

This finding is supported by a study conducted on high school students in Turkey, in which the NMP-Q score did not change according to the socioeconomic level (36). The widespread use of smartphones, in both developing and developed countries (6), may explain why nomophobia did not differ according to the socioeconomic level.

The NMP-Q score was higher in those who carry a charger with them, spend time with a smartphone before bedtime, leave their smartphone on at night, and use their smartphone as soon as they wake up (Table 2). Similar results were reported in other studies conducted in Turkey (36-38). These results suggest that individuals with nomophobia have features such as having a charger with them, spending time with a smartphone before bedtime, leaving their smartphone open at night, and using the smartphone as soon as they wake up.

NMP-Q scores were significantly higher in those who use their smartphone to follow the agenda, access social media, and play games (Table 3). In studies conducted on high school students and vocational college students in Turkey, the NMP-Q score was significantly higher in students who use their smartphones to

connect to social media in parallel with our finding (36,37). The increasing use of social media has made these platforms a part of life, leading to anxiety in situations when social media is not accessible. Therefore, excessive use of social media is considered a nomophobic behavior (39).

As the ages of the students increased, the NMP-Q score decreased (Table 4). Some studies can support this finding. For example, in a study of university students and public employees in Turkey, Erdem et al. reported a negative relationship between age and NMP-Q score (34). In addition, Gurbuz et al. (29) examined 17-29-year-olds and Gezgin et al. (20) evaluated students of the Faculty of Education in Turkey and showed that the NMP-Q score decreased with increasing age. This negative relationship is also supported by multiple linear regression analysis, which shows that age is a negative predictor of the nomophobia scale score (Table 5). By contrast, other studies in university students have found no significant relationship between age and NMP-Q scores (19,26-28,30,33,40). The contradictory findings related to age in all these studies may be due to the limited age range of university students analyzed and the age ranges of these samples

Table 4. Pearson correlation coefficients among continuous variables

Variables	1	2	3	4	5	6
1. NMP-Q score	1					
2. Age	-0.13**					
3. Duration of using a smartphone	0.21***	0.10*				
4. Daily smartphone usage time	0.29***	-0.17**	0.23***			
5. Daily frequency of checking smartphones	0.27***	-0.08	0.11*	0.48***		
6. Daily mobile internet usage time	0.34***	-0.14**	0.27***	0.87***	0.49***	1

The numbers in the variables row represent the same number of variables in the variables column. *p<0.05, **p<0.01, ***p<0.001. NMP-Q: Nomophobia questionnaire

Table 5. Multiple linear regression analysis predicting the NMP-Q score

Variables	B	SH B	p
Age	-0.82	0.39	0.039
Duration of using a smartphone	1.61	0.60	0.008
Daily smartphone usage time	-0.56	0.72	0.439
Daily frequency of checking smartphones	0.08	0.03	0.017
Daily mobile internet usage time	2.07	0.75	0.006

Model R²=0.16, p<0.001, NMP-Q: Nomophobia questionnaire

were insufficient to distinguish nomophobia among age groups (30).

The present study shows that as the duration of smartphone use increased, the NMP-Q score increased (Table 4). The same result was found in the studies carried out in Turkey by Yildirim et al. (19), Gezgin et al. (20), and Sirakaya (37). Furthermore, the duration of smartphone use is a positive predictor of the nomophobia scale score (Table 5) (41). However, some studies have not found a significant relationship between the duration of smartphone use and NMP-Q score (23,28,42,43). In the present study, the NMP-Q score increased as the students' daily smartphone use time increased (Table 4). This finding is consistent with the literature (28,36). As the daily smartphone usage time increases, the NMP-Q score also increased. The NMP-Q score increased with increasing daily frequency of checking smartphone (Table 4). Similarly, several studies have found that as the daily frequency of smartphone checks increases, the NMP-Q score significantly increases (37,38,42,43). In addition, the multivariate analysis showed that the daily frequency of smartphone checks is a positive predictor of the nomophobia scale score (Table 5). Individuals who have high mobile internet usage during the day had higher NMP-Q scores (Table 4). Likewise, other studies have found a significant relationship between daily mobile internet usage time and NMP-Q score (37,42,43). In addition to its positive contribution to the change in the nomophobia scale score, the duration of daily mobile internet usage made the most contribution in the model (Table 5). Accordingly, daily mobile internet usage appears to be the most important predictor of nomophobia (23).

Study Limitations

This study has some limitations. For example, the small sample size prevents the generalization of the results of this study.

Therefore, more comprehensive and multicenter studies are needed regarding the factors that affect the levels of nomophobia and the behavior of individuals with nomophobia. Since the nomophobia scale used in the study did not have a cut-off point, the frequency of nomophobia among students and the levels of nomophobia of students could not be determined.

Conclusion

This study identified behaviors of individuals with nomophobia, such as seeing oneself as a smartphone addict, always carrying a charger, spending time with a smartphone before going to sleep, not turning off the smartphone while sleeping, using the smartphone upon waking up, using the smartphone to follow current developments, using it to access social media, using a smartphone for gaming, and believing that an expensive phone will increase a person's prestige. The level of nomophobia increases as the duration of smartphone use, daily smartphone usage time, daily frequency of checking the smartphone, and daily mobile internet usage increases and as age decreases. Although age is a negative predictor of nomophobia, duration of smartphone use, daily frequency of checking smartphone, and daily mobile internet usage time are positive predictors of nomophobia. Daily mobile internet usage time contributes most to the change in the nomophobia score. Since those who started using smartphones at an earlier age are more prone to nomophobia, it may be beneficial to try to delay the age of start using smartphones as much as possible to reduce the level of nomophobia as seen in university students. These issues should be considered to raise awareness about behavioral addiction types such as nomophobia in health education given to the public within the scope of preventive medicine to prevent nomophobia. Society should be conscious about the rational and correct use of technology. Healthcare providers, parents, and teachers can play a key role in

these matters. For this reason, our work on university students, who will be the parents and teachers of the future, is valuable. Future studies of the relationship among nomophobia, quality of life, health behavior, and physical activity may help in further clarifying the nature of nomophobia.

Ethics

Ethics Committee Approval: The study was performed after it was approved by Fırat University Ethics Committee, and data collection was started in September 2018. The research ethics permission was obtained from Fırat University Non-Interventional Research Ethics Committee (date: 21/06/2018, no: 263000).

Informed Consent: Obtained.

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Authorship Contributions

Concept: E.P., F.N.K., A.F.O., S.E.D., Design: E.P., F.N.K., A.F.O., S.E.D., Data Collection or Processing: E.P., F.N.K., Analysis or Interpretation: E.P., F.N.K., Literature Search: E.P., F.N.K., Writing: E.P., F.N.K., A.F.O., S.E.D.

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