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# An Investigation into the Relationship between Nomophobia and Social and Emotional Loneliness of Turkish University Students

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## ABSTRACT

This research was conducted to measure the relationship and effects of social and emotional loneliness levels of university students to nomophobia levels. The sample of this study consisted of 692 university students who attended Trakya University in Edirne province of Turkey. The findings obtained in this study showed that it was observed that there was a significant relationship between the level of nomophobia of the university students and the loneliness in the familial relations, one of the sub-dimensions of social and emotional loneliness Scale. In addition, no significant relationship with nomophobia was observed regarding loneliness in social and emotional relations. In conclusion, an increase in the sense of loneliness experienced by university students in familial relationships may suggest that it increases the risk of nomophobia.

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Nomophobia, loneliness, smartphone, mobile technologies, university students

## 1. Introduction

Today, the rapid technological improvements of the 21st century are slowly becoming the center of attention in most fields of social sciences. The growing interest in emerging mobile communication technologies is particularly increasing. This is not surprising, as although they are a very new phenomenon, mobile phones have become a significant part of human lives. Renowned for their affordances of enabling instant communication without physical boundaries, mobile phones today have evolved into the so-called smartphones, hand-held supercomputers with their software applications that benefit human lives in many different aspects (Karaarslan & Budak, 2012). Research shows that there will be approximately 4,78 billion mobile phone users around the world in 2020 and that 3,8 billion of them will be communicating using smartphones (Statista, 2019). This figure is projected to keep increasing in the coming years (Statista, 2019). As a reflection of this global trend, The Global Digital report published in 2019 by We are Social (2019) revealed that the number of GSM subscribers in Turkey had shown an upward trend. While the ratio of mobile phone ownership to population was 73% in 2018, this figure climbed to 93% in 2019. This can be attributed to the market-oriented development and thus reduced cost of mobile communication technologies, the proliferation of mobile applications and the increasing overall number of people becoming familiar with information technology. Mobile devices today are indeed used widely and intensively, not just for communication purposes but leisure, shopping, or social media access. Social media has been especially popularized among the younger generations thanks to connectivity afforded by mobile devices (Hong, Chiu & Huang, 2012; Gezgin & Cakir, 2016; Kanmani, Bhavani & Maragatham, 2017; Lee, Chang, Lin & Cheng, 2014; Lepp, Li, Barkley & Salehi-Esfahani, 2015). The popularity of mobile devices, over which most young people access

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their social media accounts, has in fact risen to such levels that, according to a study conducted by Park and Kaye (2019), they are seen by some users as a *raison d'être*, whereas a few of them regarding it as one of their limbs or organs. However, there has been a significant increase in the number of problems associated with smartphones' heavy and problematic use (Lin, Griffiths & Pakpour, 2018), as may be extrapolated by such remarks. One of the novel social problems brought about by the technological sublime of the 21st century is regarded to be Nomophobia, a fear of being left without a mobile phone, typically arising from heavy and problematic use of smartphones (Aboujaoude, 2019) which, in turn, causes patterns similar to addiction (Tams, Legoux & Léger, 2018; Kara, Baytemir & Inceman-Kara, 2019). Nomophobia may affect an individual's health both physically and mentally (Yildirim and Correia, 2015). In this context, we can refer to nomophobia as a disorder that has an adverse effect on the individual, causing psychological problems and behavioral changes (Rodríguez-García, Moreno-Guerrero & López Belmonte, 2020).

Nomophobia (No Mobile Phone Phobia) is described as an involuntary fear and a state of panic that occurs when an individual is out of contact with his or her mobile device or fails to communicate via the mobile device (Dixit et al., 2010; King et al., 2010; Yildirim & Correia, 2015). Since smartphones have become a symbol of status among and a characteristic feature of the young generation (Choliz, 2012), this definition alludes to smartphones under the umbrella term "mobile device". Failure to communicate both offline and online is one of the basic symptoms of nomophobia. Thought to affect the young generation in particular (Gutiérrez-Puertas, Márquez-Hernández & Aguilera-Manrique, 2016), nomophobia is referred to as a novel and predominant phobia of the modern age. Hence, the number of studies conducted into nomophobia is increasing rapidly in the literature. To investigate the factors leading to and reveal the variables associated with nomophobia, academic studies have frequently analyzed demographic features (Burucuoğlu, 2017; Yildirim, Şumuer, Adnan & Yildirim, 2016; Farooqui, Pore & Gothankar, 2018; Yıldız Durak, 2019; Guler and Veysikarani, 2019; Gurbuz & Ozkan, 2020), one's different ways of using one's smartphone (Walsh, White and Young, 2010; Kalaskar, 2015; Bivin, Mathew, Thulasi & Philip, 2013; Gezgin, Şahin & Yıldırım, 2017; Gezgin, Şumuer, Arslan & Yıldırım, 2017; Hoşgör et al., 2017; Yıldırım et al., 2016; Sirakaya, 2018), nomophobic behaviour patterns (Dixit et al., 2010; Bragazzi and Del Puente, 2014; Kaplan Akıllı & Gezgin, 2016; Tavolacci et al., 2015) and psychological problems (King et al., 2013; Uysal, Özen & Madenoğlu, 2016; Yıldız Durak, 2018; Gezgin, Hamutoglu, Sezen-Gultekin & Ayas, 2018; Ozdemir, Cakir & Hussain, 2018; Yaman & Kavuncu, 2019; Kara, Baydemir & Inceman-Kara, 2019; Apak & Yaman, 2019; Buyukcolpan, 2019; Kirac, 2019). In the light of information obtained through these scientific studies, some conclusions have been drawn about nomophobia. The widespread use of smartphones and a rise in the period dedicated to smartphone use for the particular purpose of accessing social networks can be said to increase the risk of developing nomophobia. Among participants of many studies, younger people are more susceptible than older adults to nomophobia and females also running a higher risk of developing nomophobia than males. In addition, it has been reported that nomophobic frequently manifest signs of this disorder when they fail to switch off their smartphones at night, use their phone right before going to sleep by carrying a charger and a power bank with them to bed. Another striking conclusion that has been drawn from studies is that individuals suffering from loneliness are at risk of developing nomophobia.

Loneliness is an emotion that the individual tries to avoid in some way, as the individual is a social entity and is not inherent in nature. Jung (2012) defined loneliness as the experience that occurs when the factors that are important to the individual cannot be delivered to other people or when they have opinions that are not suitable for other people. Studies have reported that there may be a general feeling of loneliness as well as different feelings of loneliness related to parental and friendship relationships (Hortaçsu, 2003). Weiss (1973) categorized loneliness in two ways as emotional loneliness and social loneliness. On the other hand, McWhirter (1990) categorized loneliness in five different ways: interpersonal, psychological, social, cultural and cosmic. The loneliness that arises because different parts of the self-do not relate to each other is defined as psychological loneliness. The situation of moving away from the group or society is called social loneliness. An individual's distancing away from others because of cultural changes is called cultural loneliness. The state of alienation or departure from God due to the disappearance of the religious bond is expressed as cosmic loneliness. Finally, an individual's perceiving of him/herself distancing away from others is defined as interpersonal loneliness. Interpersonal loneliness involves a lack of sense of belonging, especially from friends and family members (DiTommaso & Spinner, 1993). Studies emphasize that the feeling of loneliness, which can be seen in every period of life, is mostly seen during adolescence and youth. It is claimed that loneliness

is a fundamental problem, especially among young people (Orzeck & Rokach, 2004; Roscoe & Skomski, 1989). It is stated that permanent and persisting loneliness prepares the ground for actions and behaviors that will endanger psychological health, increasing the risk of depression, suicide, and other actions (Perlman & Peplau, 1984). When the literature is examined, it is stated that tools, such as computers, the internet, and phones are used primarily, especially among young people, to avoid this negative emotion, and it is stated that the individual uses virtual environments to get rid of loneliness and develop social connections (Anderson, 2001; Morahan & Schumacher, 2003; Turkle, 1995). Young people, who spend too much of their daytime online on the internet, on social networking sites trying to socialize, and who have moved away from his/her environment may suffer from loneliness in the future, even if they do not have a problem at first. Social and emotional loneliness also decreases subjective satisfaction (Salimi, 2011). Individuals who feel loneliness intensely in their lives as time goes on can turn to technological addictions to get rid of this feeling and feeling of restlessness (Mert & Özdemir, 2018).

One of the concepts that are closely related to the feelings of loneliness is the sense of belonging. The sense of belonging enables the individual to see himself as a part of society by satisfying the needs such as love, acceptance, and attention. Therefore, the sense of belonging is a part of social participation. However, today, recent technological developments affecting people affect the sense of belonging adversely, too. Individuals have emotional and social relationships with different frequency and intensity to satisfy the sense of belonging. Also, the first means of satisfying the sense of belonging of people is communication. However, the individual tries to eliminate this communication with technological tools when he cannot satisfy this feeling with real healthy social relations. Nowadays, with the rapid development of communication technologies, communicating via personal computers, tablets and mobile phones is becoming increasingly common, as well as face-to-face communication. Mobile phones are seen as an element that increases social communication, especially among young people, and they are used to make new friends and develop their current relationships. Using mobile phones too much owing to these reasons may cause some problems. It is nomophobia that is thought to become widespread due to the effects of smartphone addiction (Kwon, Kim, Cho, and Yang, 2013), one of the technology addictions, and it has an impact on especially young people (Chen, Yan, Tang vd., 2016; Drouin, Kaiser & Miller, 2015; Hill, 2006; King, Valença, Silva vd., 2010).

There are studies in the literature arguing that lonely and weak sense of belonging individuals has a higher risk of developing smartphone addiction and that they are prone to experiencing other certain problems triggered by this addiction (Casey, 2012; Bian & Leung, 2015; Enez Darcin et al., 2016; Jeong, Kim, Yum & Hwang, 2016; Aktaş & Yılmaz, 2017; Kim, Cho & Kim, 2017; Kim, Park & Choi, 2017; Jiang, Li & Shypenka, 2018; Mahapatra, 2019; Taghizadeh et al., 2019; Shen & Wang, 2019). In a study conducted by Durak (2018) involving 786 secondary school students, it was reported that there was a significant correlation between nomophobia and loneliness and that increasing levels of loneliness played a role in accelerating the risk of developing nomophobia. In another study by Ozdemir, Cakir and Hussain (2018) conducted with 729 university students in Turkey and Pakistan; researchers found positive correlations between nomophobia and self-esteem and loneliness; whereas a negative correlation was found to exist between subjective happiness and nomophobia. However, the strongest positive correlation in the study was found between loneliness and nomophobia. Khosravi and Farah (2019) found a positive correlation between loneliness and nomophobia in another study from Iran, claiming that spiritual well-being plays a mediating role between these two variables. Given that Iranian girls have higher nomophobic scores, it has been reported that improving the sense of spiritual well-being could play a part in reducing loneliness and nomophobia. According to a study conducted by Gezgin, Hamutoğlu, Sezen-Gültekin and Yildirim (2019), undergraduates with a high score on nomophobia reported deprivation and loneliness as metaphors they associated with nomophobia. Kara, Baytemir and Inceman-Kara (2019) reported that teenagers who spend a long time with their smartphones during the day run the risk of developing nomophobia, which is strongly mediated by the loneliness variable. The report also shows that as daily smartphone uses increases, teenagers feel lonelier and more anxious, thereby displaying more nomophobic behaviours.

Although several studies are available in the literature regarding loneliness and nomophobia, little research has been conducted into the correlation between nomophobia and different aspects of loneliness, such as social or emotional loneliness. Therefore, revealing the extent of nomophobia among undergraduates and determining the level of social and emotional loneliness, which is considered to be correlated with

nomophobia, might be important in proposing solutions to nomophobia. In this context, the following questions were posed in this study:

1. What is the level of nomophobia and social and emotional loneliness (social, familial, and emotional) in university students?
2. Is there a significant correlation between the level of nomophobia in undergraduates and the scores of their social and emotional loneliness (social, familial, and emotional)?
3. Do undergraduates' scores of their social and emotional loneliness (social, familial, and emotional) predict their levels of nomophobia?

## 2. Method

This study was conducted as a correlational research study. The correlational research method aims to reveal the relationships between variables and to determine the levels of these relationships (Fraenkel & Wallen, 2006).

### 2.1. Sample

The universe of the research consisted of university students studying in different departments of the Faculty of Education at Trakya University during the 2018-2019 academic year. Convenience sampling method (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2016) was used for sample selection. In order for the sample to represent the universe, the sample size was determined according to the 95% confidence level. In this case, the sample size consisted of 692 university students to represent the universe. The number of participants obtained was found appropriate for the study. 20.4% (141 people) of the participants were studying in the first grade, 13.4% (93 people) in the 2nd grade, 14.6% (101 people) in the 3rd grade, and 51.6% (357 people) in the 4th grade, respectively. 58.7% (406 people) of the students were women and 41.3% (286 people) were men. The average age of the participants was 21.13.

### 2.2. Data Collection Tools

**2.2.1. Nomophobia Scale (NMP-Q):** In this study, Nomophobia Scale (NMP-Q), which was developed by Yıldırım and Correia (2015) and adapted to the Turkish language by Yıldırım, Şumuer, Adnan and Yıldırım (2016) was used to measure the level of nomophobia in university students. The scale is itemized according to the 7-point Likert type and consists of 20 items and four sub-dimensions. The scale has four sub-dimensions; Not Being Able to Access Information (four items), Losing Connectedness (five items), Not Being Able to Communicate (six items), and Giving up Convenience (five items). The reliability coefficient of the original scale calculated using Cronbach's alpha was .95 and the reliability coefficient of the scale adapted to Turkish was given as .92. The reliability coefficient was .94 in this study.

**2.2.2. Social and Emotional Loneliness Scale for Adults (SELSA-S):** To measure the level of social and emotional loneliness of university students, Social and Emotional Loneliness Scale for Adults (SELSA-S) developed by DiTomasso, Brannen and Best (2004) adapted to Turkish by Çeçen (2007) was used. On the scale consisting of 15 items, there is a 7-point Likert-type structure ranging from "not completely suitable for me" to "totally suitable for me". The scale has three sub-dimensions: loneliness in social, romantic and familial relationships. Social loneliness dimension of the scale consisted of five items (2, 5, 7, 9 and 13.), the romantic loneliness dimension consisted of five items (3, 6, 10, 14 and 15.) and the loneliness dimension consisted of five items (1, 4, 8), respectively. Cronbach's alpha values ranging from .74 to .88 were obtained in the reliability/validity studies for the scale. In this study, Cronbach's alpha coefficients of sub-dimensions of SELSA-S were .81, .82, .78.

### 2.3. Data Collection and Analysis

The data were collected by the researcher through a research questionnaire within one class hour during December 2018. Firstly, the participants were informed about this study and then data were collected from participants on a voluntary basis. The data obtained were analyzed with SPSS 23 software package. In the analysis process, the normality distribution assumption of the data was first examined. Skewness and Kurtosis values calculated for the total scores of the nomophobia, social and emotional loneliness scales were between -1.96 and +1.96 (Tabachnick & Fidell, 2007). Thus, the data were considered to be normally distributed. The

kurtosis and skewness values have been shown in Table 1. Understanding that its assumptions have been met, the parametric statistical test of Pearson Correlation Analysis was used to examine the relationship between nomophobia and social and emotional loneliness scale. In addition, a simple linear regression analysis was used to figure out whether the independent variables predict the nomophobia variable.

### 3. Results

#### What are nomophobia, social loneliness and emotional loneliness levels of university students?

Descriptive statistics obtained from the sub-factors of the nomophobia, social and emotional multidimensional loneliness scale as a result of the first research question in this study are shown in Table 1. According to Table 1, we can say that university students have a moderate level of nomophobia. ( $M=3.91$ ,  $SD=1.297$ ). In addition, concerning descriptive statistics obtained from the sub-factors of the multi-dimensional loneliness scale, it can be said that loneliness in family relationships ( $M = 4.11$ ,  $SD = .987$ ), loneliness in romantic relationships ( $M = 3.83$ ,  $SD = 1.225$ ) and loneliness in social relationships ( $M = 4.09$ ,  $SD = .911$ ) levels are moderate as a result of scale scoring.

**Table 1.** Descriptive Statistics of Nomophobia And Sub-Dimensions of Social and Emotional Loneliness Scales

| Variables           | N   | Min. | Max. | Mean | Std. deviation | Skewness | Kurtosis |
|---------------------|-----|------|------|------|----------------|----------|----------|
| NMP-Q               | 692 | 1,05 | 7    | 3.91 | 1.297          | .249     | -.502    |
| Familial loneliness | 692 | 1    | 7    | 4.11 | .987           | -1.123   | 1.293    |
| Romantic loneliness | 692 | 1    | 6,80 | 3.83 | 1.225          | -.520    | 1.333    |
| Social loneliness   | 692 | 1    | 7    | 4.09 | .911           | -.878    | -.352    |

#### Is there a significant relationship between university students' level of nomophobia and their loneliness in the social, familial and emotional contexts?

The related findings obtained as a result of Pearson correlation coefficient technique analysis conducted to reveal the existence of a relationship between the nomophobia level of university students and loneliness in family, romantic and social relationships are shown in Table 2. When Table 2 was analyzed, it was seen that there was a weak positive relationship between the nomophobia level of university students and loneliness in family relations ( $r = .151$ ;  $p < .01$ ). In addition, it was revealed that there was no statistically significant relationship between nomophobia level and loneliness in romantic and social relationships.

**Table 2.** Correlation Matrix between Nomophobia and Loneliness in Familial, Romantic and Social Relations

| Variables              | 1      | 2      | 3      |
|------------------------|--------|--------|--------|
| 1. NMP-Q               | 1      |        |        |
| 2. Familial Loneliness | .151** | 1      |        |
| 3. Romantic Loneliness | .023   | .335** | 1      |
| 4. Social Loneliness   | .069   | .489** | .392** |

\* $p < .05$ , \*\* $p < .01$ ,  $n = 692$

#### Does the university students' loneliness in social, familial and romantic relations predict their levels of nomophobia?

Simple linear regression analysis was conducted to demonstrate to what extent loneliness in familial, romantic and social relationships predict nomophobia. When the correlation matrix in Table 2 is examined, regression analysis was performed only through loneliness in family relationships since there was a significant relationship between nomophobia and loneliness in familial relationships. Therefore, simple linear regression analysis was performed between nomophobia and loneliness in familial relationships. When the simple linear regression analysis results conducted were analyzed in Table 3, it was seen that the level of loneliness in the familial relations of university students explained 2% of the university students' nomophobia levels.

**Table 3.** Simple Linear Regression Analysis Results of Loneliness in Familial Relations Predicting Nomophobia

| Variables           | B     | Std. Error | Beta | t      | p    | Partial (R) | Part (R) |
|---------------------|-------|------------|------|--------|------|-------------|----------|
| Constant            | 3.101 | .209       |      | 14.829 | .000 |             |          |
| Familial Loneliness | .198  | .049       | .151 | 4.002  | .000 | .151        | .151     |

$R = .151$ ;  $R^2 = .023$ ; Adjusted  $R^2 = .021$ ;  $F(1-690) = 16.017$ ;  $p = .000$

#### 4. Discussion and Conclusion

This study, which investigates the correlation between the nomophobia levels of Turkish university students and their levels of social and emotional loneliness, has found that undergraduates display moderate levels of nomophobia along with social and emotional loneliness. Studies conducted into nomophobia in the literature have revealed similar conclusions concerning the prevalence of nomophobia among undergraduates (Oksman & Turtiainen, 2004; Szpakow, Stryzhak, Prokopowicz, 2011; Kaur & Sharma, 2015; Gezgin & Adnan, 2016; Burucuoğlu, 2017; Hosgor, Tandogan & Gunduz Hosgor, 2017; Gezgin et al., 2017; Yildirim et al., 2016; Sirakaya, 2018; Eren et al., 2020). Worldwide, nomophobia among undergraduates is becoming more widespread, and Turkey is no exception. In a recent study conducted by Gurbuz and Ozkan (2020), it has been reported that the number of nomophobic students is on the increase. In yet another study involving a significant number of participants, more than half of all the undergraduates have reported missing something when they do not have their phones with them (Ay, 2008)

Another finding obtained from the research questions of this study is that there is a significant correlation between nomophobia and sub-dimensions of the loneliness scale. There is a significant yet weak correlation between nomophobia and the familial loneliness variable. However, no correlation has been found between nomophobia and the other two sub-variables, namely, loneliness in social and romantic relationships. Academic studies have revealed that lonely individuals are more inclined towards electronic media use and that they are associated with problematic Internet and smartphone use (Davis, 2001; Moody, 2001; Engelberg & Sjöberg, 2004; Morahan-Martin, 2005; Park, 2005; Townsend, 2000; Erol & Cirak, 2019; Shen & Wang, 2019; Kim, Park & Kang, 2020). However, this study asserts that nomophobia has become a part of this condition. In this context, upon the evaluation in the integrity of all the gathered data, young people can be said to be at risk of experiencing more nomophobia as their levels of perceived loneliness from their familial relations increase. In a study undertaken by Gezgin, Ummet and Hamutoglu (2020), involving 407 undergraduates, a positively significant correlation has been found between smartphone addiction and loneliness in familial and romantic relationships. Another study conducted by Gezgin and Ozdamli (2019), involving 277 undergraduates of Turkish origin in the Northern Cyprus Turkish Republic, revealed that the higher the undergraduates' perceived level of loneliness in familial, social and romantic relationships, the greater their risk of developing smartphone addiction. One study involving teenagers found a significant correlation between the level of social and emotional loneliness and Internet addiction (Gezgin, Cakir & Yildirim, 2018), which is reported to be associated with nomophobia (Anli, 2018). Since an increase in Internet addiction brings about a rise in nomophobia risk (Gezgin Cakir & Yildirim, 2018), it is thought that any increase in social and emotional loneliness plays a role in nomophobia. The use of social networking sites is known to be instrumental in the occurrence of nomophobia (Gezgin, Şahin & Yildirim, 2017). As a similar finding, Ummet and Eksi (2016) report that loneliness highly predicts internet addiction among university students. It can be said that this finding is consistent with this research finding, given that internet addiction is a variable highly associated with nomophobia. This conclusion is supported by a study that revealed that loneliness in romantic and familial relationships significantly increases the use of social networks (Dogan and Karakas, 2016).

We can draw certain conclusions about how widespread nomophobia is by looking at the findings of the study and the academic studies that support this study in the literature. The first of these conclusions is that undergraduates are faced with the risk of nomophobia (Sharma, Sharma, Sharma & Wavare, 2015). We can attribute the feelings of loneliness and alienation among undergraduates to the rapid development of technology, its widespread use and the effect of virtual environments. Another conclusion drawn from the study is that the risk of nomophobia increases as undergraduates' level of loneliness in familial relationships increases. The study cites two reasons for this. Firstly, that university students, as opposed to teenagers, receive education in different cities away from their families increases their feelings of loneliness. To overcome this loneliness, university students spend more time with their smartphones, which increases the risk of developing phone addiction and nomophobia as a result of excessive and involuntary uses. Additionally, differences in mentality between university students and their parents have the potential to trigger such loneliness. The gap between baby boomers and generations X and generations Y and Z in social, psychological and cultural terms has widened due to the developments in technology and social media, economic developments and globalization. The world is changing rapidly. Those who cherish this change the most are members of generation Z. Parents who fail to keep up with this change may have communication problems

with generation Z, who live fast and are good at multi-tasking. A predilection for technology and the adoption of individualism as a way of life in generation Z may create conflicts with generation X and baby boomers, who were raised in a more traditional way. Therefore, parents should establish an efficient and genuine communication with their children from infancy to adolescence. It has been demonstrated that individuals who fail to establish close relationships with their parents and peers during childhood will tend towards loneliness in adulthood (Wiseman, Maysless & Sharabany, 2005). Individuals who have developed smartphone addiction are increasingly having disruptions in their familial, social and emotional lives. As a result of these disruptions, individuals are becoming lonelier, using more smartphones in a way that is discordant and thus finding themselves in a spiral of addiction, behaving nomophobically. In light of all these results, this study concludes that individuals who experience loneliness in their familial relationships may be more inclined towards nomophobia.

Research findings indicate that there is a positive relationship between nomophobia and loneliness in family relationships, which are sub-dimensions of social and emotional loneliness. As a result of this finding, some suggestions can be given within the context of this study. Seminars or awareness-raising activities can be conducted to explain the significance of the relationship between university students and their families in terms of nomophobia. At the same time, awareness training about nomophobia can be given to the parents of the students. It is thought that conducting the awareness training in a comfortable and harmonious manner between generation Z and their families will prevent the development of nomophobia through loneliness in family relationships. In addition, to raise awareness of university students and to support students suffering from nomophobia, the units of universities that will provide psychological support should work actively. With the collaborative studies to be conducted between universities and the Higher Education Institution, courses under the themes of "Combating Technology Addiction" or "Awareness against Problematic Technology" should be included in the curriculum. In addition, universities' activating club activities can improve the social aspects of students and keep them away from any sense of loneliness. Finally, in the literature, within the scope of the idea that nomophobic behaviors may be a factor of social media addiction (Kuss & Griffiths, 2017), a model study is recommended to examine the possible relationships among the variables of nomophobia, loneliness and social media addiction.

There are some limitations to this study. Since the nomophobia scale used in this study was not in a cross-section scale structure, the levels of university students concerning nomophobia could not be determined clearly. In some studies, although this situation is solved by cluster analysis, the original scale is not cross-sectional, and comments were made according to the average score from the scale. Finally, this study was conducted with a limited sample that did not represent the entire universe. As another suggestion, it is thought that universities' computer technologies departments will carry out their work on developing new technologies through group work and contribute to the socialization of students. In summary, all these studies will strengthen the social aspects of students and decrease their nomophobia levels. On the other hand, this study was conducted with a university sample. Similar studies can be conducted with university students in other geographical regions of the country, and comparisons can provide a better understanding of the subject. Finally, it is thought that the studies to be conducted with other variables besides loneliness in the nomophobia characteristics of university students will enrich the literature.

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