

# THE RELATIONSHIP AMONG NOMOPHOBIA, FEAR OF MISSING OUT AND DEMOGRAPHIC VARIABLES: EXAMPLE OF THE HEALTHCARE MANAGER CANDIDATES

Haydar Hoşgör<sup>1</sup>, Derya Gündüz Hoşgör<sup>2</sup>

<sup>1</sup> Uşak Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu, Tıbbi Hizmetler ve Teknikler Bölümü, Tıbbi Dokümantasyon ve Sekreterlik Programı, Öğr. Gör. Dr.

<sup>2</sup> Maltepe University Vocational School Medical Services and Techniques Department, Istanbul

**Corresponding Author:** Derya Gündüz Hoşgör, Marmara Training Village 34857, Istanbul  
deryahosgor@maltepe.edu.tr

## ABSTRACT

### The Relationship Among Nomophobia, Fear of Missing Out and Demographic Variables: Example of the Healthcare Manager Candidates

**Objective:** The aim of this study is to examine the effect of the fear of missing out on the nomophobia, and to determine whether differences between these variables and demographic features.

**Method:** In accordance with this purpose, the students who were studying at the Department of Health Management in 2017-2018 autumn semester at universities in Istanbul were included in this study and data of 273 respondent were evaluated. Personal information form and FoMO and Nomophobia scales were used for data collection. Descriptive statistics, t-test, correlation and regression analyses were used in the data analysis.

**Results:** According to the analysis outcomes, the levels of nomophobia and FoMO of the students are above average. The results of the study demonstrate that there is a significant relation at a moderate level and positive direct relationship between nomophobia and fear of missing out, as well as the fear of missing out explains 30% of nomophobia. Also, the results show that there are statistically significant differences between students' levels of nomophobia and fear of missing out, and their demographic features. Moreover, these differences are stem from students who control his smartphone at least 33 times a day, carry a continuous charger, control his smartphone as soon as waking up, connect to the social media via the smartphone.

**Conclusion:** It has been concluded that for future healthcare manager candidates, the fear of missing out on social networks is a predictor of nomophobia, also known as the fear of being deprived of the smartphone.

**Keywords:** nomophobia, fear of missing out, social media, university students, healthcare management

## ÖZET

### Nomofobi, Sosyal Ortamlarda Gelişmeleri Kaçırma Korkusu ve Demografik Değişkenler Arasındaki İlişkiler: Sağlık Yöneticisi Adayları Örneği

**Amaç:** Bu çalışmanın amacı nomofobi üzerinde sosyal ağlardaki gelişmeleri kaçırma korkusunun etkisini incelemek ve bu değişkenler ile demografik özellikler arasında farklılık olup olmadığını saptamaktır.

**Yöntem:** Bu amaç doğrultusunda 2017-2018 güz yarısında İstanbul'daki üniversitelerde Sağlık Yönetimi Bölümü'nde okuyan öğrenciler çalışmaya dahil edilmiş ve 273 katılımcının verisi değerlendirilmiştir. Verilerin toplanmasında kişisel bilgi formu ile FoMO ve Nomofobi ölçekleri kullanılmıştır. Verilerin analizinde tanımlayıcı istatistikler, t-testi, korelasyon ve regresyon analizlerinden faydalanıldı.

**Bulgular:** Öğrencilerin nomofobi ve FoMO düzeyleri ortalamasının üzerinde saptanmıştır. Nomofobi ve FoMO değişkenleri arasında orta düzeyde ve pozitif yönlü anlamlı bir ilişki bulunmuş olup, Nomofobinin %30'unun FoMO tarafından açıklandığı hesaplanmıştır. Ayrıca öğrencilerin nomofobi ve FoMO düzeyleri ile demografik özellikleri arasında anlamlı farklılıklar görülmüştür. Bu anlamlı farklılıkların ise akıllı telefonlarını günde en az 33 kez kontrol eden, yanında sürekli şarj cihazı taşıyan, uyanır uyanmaz akıllı telefonunu kontrol eden ve sosyal medya hesaplarına akıllı telefonları üzerinden bağlanan öğrencilerden kaynaklandığı tespit edilmiştir.

**Sonuç:** Geleceğin sağlık yöneticisi adayları açısından sosyal ağlardaki gelişmeleri kaçırma korkusunun, akıllı telefondan mahrum kalma korkusu olarak da bilinen nomofobinin yordayıcısı olduğu sonucuna varılmıştır.

**Anahtar Kelimeler:** nomofobi, gelişmeleri kaçırma korkusu, sosyal medya, üniversite öğrencileri, sağlık yönetimi

## INTRODUCTION

In addition to the standard functions offered by mobile phones, smartphones are mobile communication devices with an operating system. Thanks to numerous mobile applications smartphone technology have developed rapidly in recent years. Today, smartphones are considered to be tools of convenience enabling people to surf on the internet, connect social network, shop online, and do mobile banking (1). In other words, smartphones have now become an integral part of people's daily lives (2) and this has triggered their tendency to be dependent on smartphones. Besides, the more smartphones have become affordable the more people have become dependent on them (3).

According to the "Digital in 2018 Report", published annually by "We are Social" (4); 68% of the total population of the world (approximately 7.6 billion) use smartphones, 53% use internet, 42% use social media actively and 39% connect social media via smartphones. The same report points out that in Turkey such ratios go up to 90%, 67%, 63%, and 54% respectively. These figures point to a growing sign of smartphone addiction in Turkey. Thus, problematic and overuse of smartphones have become an important research topic in the literature review (5,6).

Nomophobia, derived from the abbreviation of the words "no-mobile-phone phobia" in English, is defined as the fear of deprivation of a smartphone and considered to be the new phobia of the modern age (7). From another point of view, nomophobia is a general state of anxiety and discomfort experienced when one has no access to his/her smartphone or computer (8,9). Although nomophobia is not a listed disorder in the fifth edition of the "Diagnostic and Statistical Manual of Mental Disorders" published by the American Psychiatric Association, it was proposed in the previous edition of the same publication that nomophobia should count as a special type of fear (10).

Regarding the people who are prone to this type of fear, Celik and Atilla (11) claim that the more young people tend to use smartphones the more they are negatively affected by nomophobia. Similarly, Wallace (12) emphasizes the point that higher prevalence of nomophobia on university campuses has direct connection with easier access to computer laboratories. It is significant to note that in the majority of the research cited in national (13-20) and international (21-28) literature, experimental and control groups include just students to a great extent.

On the other hand, it is known that young people having nomophobic tendencies display certain behavioral patterns. In this context, Kanmani et al. (29) describe the characteristics of nomophobic individuals as follows: they never turn off their phones, they check incoming calls and notifications at all times, they live next to their mobile phones and chargers, they use their phones at inappropriate

times, they check their phones as soon as they wake up, they do not turn off their phones at night and spend time in bed with their smartphones. All these data are important as that relate to the connection between nomophobia and problematic smartphone use.

Many health problems and other complaints nomophobic individuals suffer from have been referred to in the literature. Some of those problems are depression (30), neck pain (31), visual impairment, obesity, carpal tunnel syndrome, behavior disorders, hopelessness, insecurity, alexithymia (32), lack of tolerance, social isolation, low self-esteem (33), decreased physical and social activities (34), sleep disorder and energy lowness (35), in/out-vehicle traffic accidents (36) and low academic performance (13, 37).

Similar to smartphone addiction, another current type of fear that influences young adults is "Fear of Missing Out" (FoMO) which is also known as fear of missing developments in social media. It is believed that FoMO, which is a new type of fear concerning people who constantly check if their friends share something new (a piece of news, status updates, photos, etc.) on the net, is a new type of dependence (1). FoMophobic individuals think that others have more satisfying experiences than themselves, and therefore they stay online and follow what others do (38). Hence, FoMO is conceptualized in terms of fear of missing opportunities, resting from something, missing the agenda, not being aware of social interactions, failing to stay connected, and to be deprived of new experiences (39).

Przybylski et al. (40) and Dossey (41) point out that, because smartphones and internet have become an integral part of our daily life, people tend to spend longer hours in various social networking environments such as Facebook, Instagram, Twitter, Youtube, WhatsApp, and thus they become more inclined to FoMO. The findings of a study conducted by Gokler et al. (42) with the participation of 200 university students support the view above. And the research findings show that there is a positive and significant relationship between problematic use of smartphones and FoMO. In addition, it is reported that the number of social media accounts people have and check frequency on Facebook and Twitter implies a positive and significant relationship with FoMO.

Hosgor et al. (43)' state that students who are inclined to FoMO tend to carry a charger at all times, check their smartphones as soon as they wake up, go to bed with smartphones, stay connect to the social media everyday continuously, check smartphones at least 50 times a day, have a social media account history for minimum 7 years, have at least 4 different social media accounts, and spend at least 7 hours on social networks everyday. At the same time, the findings are noteworthy in terms of gained identity with similar behavioral patterns of the tendency to

nomophobia and FoMO.

According to Riordan et al. (44); FoMO, defined as the desire of staying socially connected through social media, is associated with lower life satisfaction and mood. In parallel, Dhir et al. (45) refer to the relationships between FoMO and excessive alcohol consumption, anxiety, depression and mental exhaustion. Regarding young people with high FoMO levels, Przybylski et al. (40) say that they are more likely to control their messages while driving, before going to bed, as soon as they wake up and are more likely to use Facebook during lectures. However, such findings in the literature do not seem to have sufficient evidence to support the variables affecting FoMO and that are affected by it. Similarly, Hetz (46) also points out that there are very few experimental studies on FoMO and the issue should be addressed in different contexts. Thus, it can be said that this study, in which the relationships among FoMO, nomophobia, smartphone and social media use are investigated with respect to young adults, will contribute to the scientific field.

## METHODS

In the descriptive study is used face to face survey method with students.

### Objective and Importance

In this study is aimed the effect of fear of missing out on the nomophobia. As well as, it was examined whether a significant difference among the fear of missing out, nomophobia, and qualified of respondents. There is limited research conducted about this topic in Turkey context. Therefore, it can be stated that the study will contribute to the literature in terms of addiction to smartphone and social media.

### Study Population and Sampling

The study population consists of studying at the Department of Healthcare Management at universities in the province of Istanbul, Turkey during the 2017-2018 autumn semester. The sampling was executed since it was difficult to access all students studying at universities in Istanbul. As related to sampling volume, Tavsanlı (47) explain that the sampling volume must be 5-10 times of the number of questionnaire items. When considering that 30 items in the study questionnaire, the minimum and the maximum number of the respondent must be 150 and 300, respectively. In this context, the valid data were collected from 273 university students and the required sample size was achieved. All permits were taken from relevant institutions without ethics committee decision and the study executed only within the framework of the volunteerism of the participants.

When Table 1 is examined, it is seen that 75.1% of 273 students were female; 56.4% of respondents were at least 21 years old. 54.2% of them checked their smartphones

minimum 33 times; 50.9% of students declared that they are carrying a charger; the majority of participants (81.3%) explained that they are controlling their smartphone as soon as waking up; a significant portion of them (87.2%) report that they didn't turn off their smartphones at night. While more than half of students (59.3%) have minimum three social media accounts, 55.4% of them spend 3 hours in social media via their smartphone.

### Data collection instruments

**Fear of Missing Out Scale:** This scale had developed by Przybylski et al. [40] and was adapted to Turkish by Gokler et al. (42). The scale has one dimension structure, 10 items, and a 5-point Likert Scale (1: Not true, 5: Extremely true). The score obtained from the scale varies between 10-50 and there is no specific cut-off point of the scale. There is no reverse item on the scale. As the score obtained from the scale increases, FoMO levels of the participants also increase. The Cronbach' Alpha coefficients of the original scale and it's adapted to Turkish were 0.95 and 0.84, respectively. In the study, the reliability coefficient of the FoMO scale was found to be 0.83.

**Nomophobia Scale:** This scale was firstly improved by Yildirim and Correia (9) and it was adapted to Turkish by Yildirim et al. (20). It has four sub-dimensions, 20 items, and a 7-point Likert Scale. However, 5-point Likert scale is used in this study since the related attendance statements are not in Turkish. These sub-dimensions are giving up convenience (GUC), losing connectedness (LC), not being able to access information (NAI) and not being able to communicate (NC) and Cronbach' Alpha values of each one were 0.81, 0.87, 0.94 and 0.83 for original scale, respectively. On the other hand, Cronbach Alpha values of the Turkish version were 0.91, 0.74, 0.90, 0.94, respectively. In the study, the reliability coefficient of the nomophobia sub-dimensions was calculated to be 0.80, 0.82, 0.91, 0.88, respectively.

Table 2 reflects the levels of mean, standard deviation, minimum, maximum, skewness, and kurtosis of the scales in the study. When Table 2 is examined, it is observed that the mean scores of total nomophobia scale and their sub-dimensions are between 2.42-3.56. Thus, it can be said that the mean values of nomophobia and its sub-scale average were at a moderate level, except for LC sub-dimension. Also, students' FoMO level is above the average. In addition to these, the skewness values of the nomophobia sub-dimensions are between  $|-0.64|$  and  $|0.64|$  while the kurtosis values of them are between  $|-0.72|$  and  $|0.03|$ . On the other hand, the skewness and kurtosis values of the total FoMO scale are between  $|0.29|$  and  $|0.29|$ . Tabachnick and Fidell (48) are reported that the values of skewness and kurtosis in terms of suitable for normal distribution must be within  $\pm 1.96$  in absolute value. In this case, it can be said that FoMO and nomophobia scales are suitable for normal distribution.

## Data Analysis

All statistical analyses were executed via SPSS V21.0. Descriptive statistics, t-test, correlation analysis, and simple linear regression analysis were used in the data analyses.

## RESULTS

The results of t-test in Table 3 show that there is a significant difference between gender and nomophobia (in favor of women); There is no significant difference with FoMO. The results of the study show that there is no significant relationship between gender and smartphone shutdown status variables and nomophobia and FoMO variables. Moreover, there were significant differences between variables nomophobia and FoMO of respondents and variables of daily control frequency of smartphone (in favor of those who check at least 33 times), the status of carried of a charger (in favor of those who say yes), the status control of smartphone as soon as waking up (in favor of those who say yes) and daily usage duration of social media via smartphone (in favor of spending at least 3 hours). On the other hand, there was no significant difference between the number of social media accounts of participants and nomophobia averages whereas a significant difference was found with FoMO levels (in favor of those with at least 3 accounts).

The results of Pearson correlation analysis in Table 4 show that there are significant and positive correlations ( $0.474 \leq r \leq 0.885$ ) between the general nomophobia scale (NTS) and its sub-dimensions. In addition, there was a significant positive correlation ( $r = 0.548$ ) between NTS and the general FoMO scale (FTS).

When the Table 5 in which including the data of the simple linear regression analysis performed to determine the effect of FoMO on nomophobia is examined it is seen that the Durbin Watson coefficient is less than 2.5 and the Variance Inflation Factor (VIF) coefficient is less than 10. Therefore, there is no multiple connection and autocorrelation problem (49). In addition, the estimates about the regression model indicate that the variables are significant and usable ( $F = 116.255$ ;  $P < 0.001$ ) and 30% of the nomophobia is explained by FoMO. In other words, a one-unit increase in students' FoMO levels increases nomophobia levels by 30%. The t-test of the regression coefficient significance,  $\beta$  and  $R^2$  results also confirm this information ( $t = 10.782$ ;  $\beta = 0.548$ ;  $R^2 = 0.300$ ;  $p = 0.000$ ).

## DISCUSSION

Among 273 administer candidates studying in the Health Management Department which participated in this study; it was concluded that the levels of nomophobia ( $3.18 \pm 0.81$ ) and FoMO ( $2.80 \pm 0.70$ ) of the students were above the average. These data are parallel with the nomophobia findings of Adnan and Gezgin (50) and Burucuoğlu (51). On the other hand, Gezgin et al. (52) conducted a study with 363 students and they deter-

mined a FoMO value at a moderate level, whereas Hoşgör et al. (43) completed a study with 200 students and they calculated a FoMO value above average.

In the study, there was a significant difference between the gender of the students and the level of nomophobia (in favor of women); however, there was no significant difference in terms of FoMO level. Similarly, Lee et al. (53) and Schifferstein et al. (54) also found that women's nomophobia levels differed significantly from men. Gokler et al. (42) reported that there was no significant difference between gender and FoMO in a study conducted with 200 university students.

It was shown that there is no significant difference between both age and smartphone night shutdown status variables and nomophobia and FoMO. These findings in terms of nomophobia and FoMO are coincide with Oz and Tortop (55) 's work and Hosgor et al. (43)'s study, respectively. Also within the scope of the study; it is concluded that levels of nomophobia and FoMO of students who check their smartphones at least 33 times a day, carry a constant battery charger, check their smartphones as soon as they wake up and spend at least 3 hours on social media via smartphones are higher rather than others. In addition, no significant difference was found between the number of accounts in social media and nomophobia whereas it was found to be seen with FoMO (in favor of those with at least 3 accounts). Similarly, in the study of Akilli and Gezgin (56), significant differences were found between the students' nomophobia tendencies and frequent phone control, carry to a charger, and phone control as soon as wake up. Hoşgör et al. (43), in addition to these variables, significant differences were also observed between the students with FoMO tendencies and having at least 7 hours to social media and having at least 4 different social network accounts via social media.

As a result of the correlation analysis performed; significant and positive relations between nomophobia and its sub-dimensions and FoMO were determined. There was also a significant positive relationship at a moderate level between the general nomophobia scale and the general FoMO scale ( $r = 0.548$ ). The results of simple linear regression analysis following the next stage of the correlation analysis showed that; FoMO is 30% effective on nomophobia. In a study conducted with 538 university students by Gezgin et al.(1), it is reported that the relationship between FoMO and nomophobia are significant, positive and at a moderate level ( $r = 0.642$ ) and moreover 41% of nomophobia was explained by FoMO.

When the national and international literature is reviewed, this research is the second following Gezgin et al. (1)'s study which examined the direct relationship among nomophobia, FoMO and some demographic features such as gender, age, the status of use of smartphone and social networks. Therefore, it can be said that the variables

included in this study and the relationships among these variables will contribute to the given field in the literature. However, the non-generalization of the study findings in the context of all university students is an important limitation. In order to obtain more effective results, it may be suggested to address the same issue in different sample groups and larger sample volumes. In addition, another limitation of this study is that the severity of smartphone addiction was not measured in this study.

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## TABLES

Table 1. Demographic characteristics of the respondents.

<i>Characteristics</i>	<i>N</i>	<i>%</i>
<b>Gender</b>		
Female	205	75.1
Male	68	24.9
<b>Age</b>		
21>	154	56.4
21≤	119	43.6
<b>Daily control frequency of smartphone</b>		
33>	148	54.2
33≤	125	45.8
<b>The situation of the carry a charger</b>		
Yes	139	50.9
No	134	49.1
<b>The situation of control of smartphone as soon as wake up</b>		
Yes	222	81.3
No	51	18.7
<b>The situation of closed of smartphone at night</b>		
Yes	35	12.8
No	238	87.2
<b>The number of account in the social media</b>		
3>	111	40.7
3≤	162	59.3
<b>Duration of daily usage of social media by means of the smartphone (hour)</b>		
3>	151	55.4
3≤	122	44.6
<b>Total</b>	<b>274</b>	<b>100.1</b>

Table 2. Descriptive statistics on nomophobia and FoMO scales

Scale	Sub-dimensions	N	Mean	SD	Min.	Max.	Skewness	Kurtosis
Nomophobia	NAI [1-4]	273	3.52	0.89	1.00	5.00	-0.56	-0.19
	GUC [5-9]	273	3.21	1.00	1.00	5.00	-0.14	-0.72
	NC [10-15]	273	3.56	0.97	1.00	5.00	-0.64	0.03
	LC [16-20]	273	2.42	1.03	1.00	5.00	0.65	-0.17
	Total Scale	273	3.18	0.81	1.15	5.00	-0.01	-0.30
FoMO	Total Scale	273	2.80	0.76	1.00	5.00	0.29	0.29

Table 3. Comparison of nomophobia and FoMO levels with characteristics of the respondents

Characteristics of the respondents	Nomophobia		FoMO	
	Mean	SD	Mean	SD
Gender				
Female (n = 205)	3.26	0.79	2.81	0.76
Male (n = 68)	2.94	0.83	2.74	0.73
	T = 2.836		T = 0.646	
	P = 0.005		P = 0.519	
Age				
21 > (n = 154)	3.20	0.75	2.86	0.65
21 ≤ (n = 119)	3.50	0.88	2.71	0.87
	T = 0,571		T = 1.593	
	P = 0.568		P = 0.112	
Daily control frequency of smartphone				
33 > (n = 148)	2.91	0.75	2.59	0.71
33 ≤ (n = 125)	3.50	0.76	3.04	0.74
	T = -6.529		T = -5.036	
	P = 0.000		P = 0.000	
The situation of the carry a charger				
Yes (n = 139)	3.35	0.81	2.91	0.81
No (n = 134)	3.00	0.77	2.68	0.69
	T = 3.638		T = 2.553	
	P = 0.000		P = 0.011	
The situation of control of smartphone as soon as wake up				
Yes (n = 222)	3.33	0.77	2.90	0.75
No (n = 51)	2.53	0.66	2.34	0.61
	T = 6.953		T = 4.973	
	P = 0.000		P = 0.000	
The situation of closed of smartphone at night				
Yes (n = 35)	2.97	0.76	2.64	0.59
No (n = 238)	3.21	0.81	2.82	0.78
	T = -1.701		T = -1.292	
	P = 0.090		P = 0.197	
The number of account in the social media				
3 > (n = 111)	3.22	0.77	2.67	0.79
3 ≤ (n = 162)	3.16	0.84	2.89	0.72
	T = 0.624		T = -2.326	
	P = 0.533		P = 0.021	
Duration of daily usage of social media via smartphone (hour)				
3 > (n = 151)	2.95	0.80	2.61	0.76
3 ≤ (n = 122)	3.47	0.73	3.03	0.68
	T = -5.461		T = -4.754	
	P = 0.000		P = 0.000	



Table 4. The correlation coefficients of research variables

	<b>FTS</b>	<b>NTS</b>	<b>NAI</b>	<b>GUC</b>	<b>NC</b>	<b>LC</b>
<b>FTS</b>	1	0.548**	0.343**	0.506**	0.381**	0.566**
<b>NTS</b>		1	0.719**	0.885**	0.841**	0.843**
<b>NAI</b>			1	0.565**	0.474**	0.488**
<b>GUC</b>				1	0.641**	0.700**
<b>NC</b>					1	0.566**
<b>LC</b>						1

\*\* Correlation is significant at the 0.01 level (2-tailed).

♣ **FTS**: FoMO total scale; **NTS**: Nomophobia total scale; **NAI**: Not being able to access information; **GUC**: Giving up convenience; **NC**: Not being able to communicate; **LC**: Losing connectedness

Table 5. The results of simple linear regression analysis

<i>Variable</i>	<i>B</i>	<i>SE</i>	<i>β</i>	<i>t</i>	<i>p</i>	<i>VIF</i>
<b>(Constant)</b>	1.541	0.158		9.767	0.000	
FTS	0.587	0.054	0.548	10.782*	0.000	1.000

R = 0.548, R<sup>2</sup> = 0.300, Durbin Watson = 1.964, F = 116.255, P < 0.001.

Dependent variable: Nomophobia