RESEARCH / ARAŞTIRMA

DOI: 10.51982/bagimli.1015083

Bağımlılık Dergisi 2022;23(3):283-291

Correlation between Nomophobia, Fear of Missing Out and Academic Success

Nomofobi, Gelişmeleri Kaçırma Korkusu ve Akademik Başarı Arasındaki İlişki

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Abstract

Objective: The aim of the study was to determine the relationship between nomophobia and fear of missing out with academic performance among nursing students.

Method: This cross-sectional research was performed with students in the nursing department of a health sciences faculty in a university in Turkey. The study was completed with 241 participants attending the nursing department. Data were collected with the descriptive survey form, nomophobia questionnaire (NMP-Q), and fear of missing out scale (FoMOs).

Results: The research determined that nursing students had mean NMP-Q (73.82±21.27) and FoMOs (21.36±6.93) points at average levels. The model in the research was significant and the variables of gender and income explained 17% of general point average (GPA). Accordingly, GPA was lower by 2.4 points for men and by 0.9 points for those whose income did not match their expenditure

Conclusion: The study identified that NMP-Q and FoMOs points were at moderate levels and these did not have an effect on the academic success level of nursing students. However, considering the seriousness of problems created by increasing technology use and digital problems currently, taking precautionary measures against these problems will be an effective intervention.

Keywords: Academic success, FoMO, nomophobia, nursing student

Öz

Amaç: Bu çalışmanın amacı hemşirelik öğrencilerinde nomofobi ve sosyal gelişmeleri kaçırma korkusu ile akademik performans arasındaki ilişkiyi belirlemektir.

Yöntem: Bu çalışma, Türkiye'de bir üniversitenin Sağlık Bilimleri Fakültesi hemşirelik bölümü öğrencilerinde yürütülen kesitsel bir araştırmadır. Çalışma, Hemşirelik bölümünde eğitim gören 241 katılımcı ile tamamlanmıştır. Veriler; Tanıtıcı Anket Formu, Nomofobi Ölçeği (NMP-Q), Sosyal Gelişmeleri Kaçırma Korkusu Ölçeği (FoMOs) ile toplanmıştır.

Bulgular: Araştırmada hemşirelik öğrencilerinin NMP-Q (73,82±21,27) ve FoMOs (21,36±6,93) puan ortalamalarının orta düzeyde olduğu belirlenmiştir. Araştırmadaki model anlamlı olup değişkenlerden cinsiyet ve gelir durumu, genel puan ortalamasının (GPO) %17'sini açıklamaktadır. Buna göre GPO; erkeklerde 2,4 puan, gelir giderini karşılamayanlarda 0.9 puan daha düşüktür.

Sonuç: Çalışmada NMP-Q ve FoMOs puanlarının orta düzeyde olduğu ve bunların hemşirelik öğrencilerinin akademik başarı düzeyi üzerinde etkili olmadığı saptanmıştır. Ancak günümüzde artan teknoloji kullanımı ve dijital sorunların yarattığı problemlerin ciddiyeti düşünüldüğünde, bu sorunlara karşı önceden tedbir alınmasının etkili bir müdahale olacağı düşünülmektedir.

Anahtar kelimeler: Akademik başarı, FoMO, nomofobi, hemşirelik öğrencisi

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Received/Geliş Tarihi: 26.10.2021
Accepted/Kabul Tarihi: 03.12.2021

Introduction

Currently smartphones, which have become the center of our lives and an inseparable part of human existence, are used in many areas (1,2). An effective tool for the provision of health services especially, smartphones are used for many purposes like presenting health information, patient screening, monitoring physiological symptoms of patients, direct patient care, health education studies and improving workflows (3 4). Smartphones are effectively included in educational processes, just as much as in clinical areas. Studies about nursing students determined that smartphones are chosen to access information in class or clinical environments, and to learn about topics like patient care and medication information (5-7). From this aspect, smartphones provide great advantages to nursing students, but also appear to involve problems. Excessive use of smartphones was stated to reduce quality of life, disrupt sleep quality, and negatively affect social life and verbal communication of students (8).

Nomophobia (no mobile phone fear) is defined as involuntary fear experienced when individuals cannot access mobile devices like smartphones or cannot communicate using them. Fear of missing out (FoMO) is defined as continuous checking of social networks. Both of these are important digital problems experienced currently (9,10). When the situation is assessed specific to young individuals, these digital problems are the largest sources of concern about negative effects on the learning process and academic success of students. In fact, a correlation was determined between nomophobia and problematic smartphone use in the literature and negative effects were shown on academic performance and clinical practice with high levels of smartphone use among nursing students (5,6,8,11,12).

In Turkey, a positive correlation was identified between nomophobia, FoMO and perceived workload of nurses and nomophobia and FoMO explained 6% of the perceived workload of nurses (13). In a study investigating the effects of nomophobia behavior of surgical nurses on time management and psychological well-being, there were statistically significant correlations between the subdimensions of the nomophobia scale and psychological well-being. Nomophobia behavior was determined to prevent effective communication between patients and health employees, and reduce the amount and quality of work per unit time (14). A study in Italy by Lupo et al. determined that 1/5 of nurses frequently (20.2%) and 8.9% continuously used telephones and electronic devices during working hours and 16.6% accepted that the use of these devices negatively affected work performance. In this study, the use of these types of electronic devices was frightening in terms of offering adequate care and nomophobia was reported to have a significant effect on the risk of error among nurses (15). Another study performed with the aim of researching the relationships between smartphone addiction, work procrastination behavior and burnout among newly-graduated nurses in China determined that mobile phone addiction and work procrastination were important factors causing emotional burnout and cynicism (16). It is important to deal with all these problems that may be linked to smartphone use in nursing education and reveal related factors because these problems experienced by students are considered to be a threat when they begin their professional life. This study was planned with the aim of determining the correlations between nomophobia and FoMO with academic performance of nursing students attending a health sciences faculty.

The research hypotheses: H_1.1. The sociodemographic characteristics of nurses affect nomophobia, FoMO total point averages and academic success points. H_1.2. The features of smartphone use among nursing students affect nomophobia, FoMO total point averages and academic success points. H_1.3. There is a correlation between nomophobia, FoMO and academic success points of nursing students. H_1.4. There is a linear correlation between sociodemographic characteristics and academic success points of nursing students. H_1.5. There is a linear correlation between nomophobia, FoMO point averages and academic success points of nursing students.

Method

Sample

This study is a cross-sectional study. The study was conducted with nursing students who study at the Department of Nursing, Faculty of Health Sciences, Ordu University. The population for the research comprised students in the nursing department of a university (N=426). No sample selection was performed in the study, and all students attending the 1st, 2nd, 3rd and 4th years in the nursing department who use smartphones were included. The study was completed with 241 students who voluntarily participated in the research. The study sample size was calculated as 241 at a 95% confidence interval based on an effect size of 0.15 and a study power of 0.99.

Procedure

The data were collected online through questionnaire forms created on google forms. In the questionnaire form, the necessity option was selected to fill in the propositions regarding the introductory questions and scales and the return was allowed. Electronic surveys are organized by activating the "limit to one answer" feature in the google forms settings tab so that participants can fill out only once. The appearance of the electronic questionnaire on the smartphone was created in a total of six screenshots, including the informed consent section (fifty-two questions).

Before beginning the data collection process, questionnaire

forms were tested with ten nursing students not included in the sample group who attend a different university. After the pilot application, misunderstood and unclear statements were revised and the survey was given its final form. The survey form link was sent to the students through the groups and platforms where students communicate with each other through student representatives. The study was carried out with students who voluntarily participated in the research. Data were collected from 01 April-01 May 2021. The questionnaires were filled in about 10 minutes. Data were collected before the beginning of exam week to ensure reliability of responses given by the nursing students on the forms. Electronic surveys were designed so participants could only complete them once. Additionally, the corresponding author shared their communication information with participants to ensure they could consult with the researcher any time they needed.

Before initiating the study, approvals from the ethics committee (Date-Number: 01.04.2021 ve 2021-83) and Department Head of Ordu University (77158231-915.03.03) were obtained. Approvals were also taken from the authors of the scales used in the study. The study was carried out in accordance with the Principles of the Declaration of Helsinki.

The participants of the research were provided with information about the purpose, plan and duration of the research online and their informed consent was obtained. For this, a consent box was prepared for the survey and only the students who gave consent were able to continue with the survey. Participation in the study is on a voluntary basis and in this context, no fee or gift was given to the participants.

Measures

Data for the study were collected with the descriptive survey form, nomophobia questionnaire and fear of missing out scale.

Socio-demographic and smartphone use characteristics form:

This form comprised 2 sections. The first section questioned the sociodemographic characteristics of participants (9 questions-classroom, age, gender, number of siblings etc.) and the second questioned properties related to use of smartphones (12 questions-The duration of smartphone use, daily smartphone usage time, time elapsed with search, number of social media, daily checking smartphone etc.). Additionally, students were requested to check their current GPA (4-point system) in the student information system for academic success.

Nomophobia Questionnaire (NMP-Q)

This was developed in 2015 by Yıldırım and Correia to measure the smartphone addiction of individuals. The Turkish validity and reliability of the scale was investigated by Yıldırım et al. The scale comprises 20 items and has a 7-point Likert rating. The scale has four subdimensions related to the nomophobia status of individuals: not being able to access information, giving up convenience, not being able to communicate and losing connectedness. The nomophobia levels of people are determined according to total points. Accordingly, ≤20 points indicate no nomophobia, 21≤ points <60 is mild levels of nomophobia, 60 ≤ points <100 indicates moderate levels of nomophobia and 100≤ points ≤140 indicates severe nomophobia. In the study by Yıldırım et al., the scale had Cronbach alpha of 0.92, with values of 0.90, 0.74, 0.94 and 0.91 calculated for the subdimensions (17). In this study, the Cronbach alpha value was 0.92, with values of 0.85, 0.79, 0.86 and 0.93 for the subdimensions, respectively.

Fear of Missing Out Scale (FoMOs)

FoMOs is a scale developed by Przybylski et al. in 2013 (18). The Turkish validity and reliability were investigated by Gökler et al. in 2015. The scale comprises 10 items and has a 5-point Likert rating. Each item is given points from 1-5 (1=not true at all of me, 5=extremely true of me). The total points that participants can obtain from the scale vary from 10-50. Increased points obtained from the scale mean that the person has an increased probability of developing fear of missing out. The scale was identified to have Cronbach alpha coefficient of 0.81 (9). In this study, the Cronbach alpha coefficient for the scale was calculated as 0.84.

Statistical analysis

Descriptive statistics were used for the data collected (number, percentage, mean and median scores). The normal distribution of the data was analyzed with the Shapiro-Wilk test. The Mann-Whitney U test and Kruskal-Wallis test were used as nonparametric tests to compare quantitative continuous data for two independent variables. The Independent t-test and one-way ANOVA test were used as parametric tests to compare quantitative continuous data for two independent variables. The relationships between the scores obtained from the scales used in the study were examined using Spearman's correlation analysis. Multiple linear regression analysis was performed to determine the predictors of academic success points (Grade Point Average- GPA). $P<0.05$ was accepted for evaluation of significance. Variables that were significant from the hypothesis tests were included in the regression analysis and the enter model was used.

Results

The distribution of FoMOs, NMP-Q total points and subscale points for nursing students participating in the research can be seen in Table 1. Students in the research had mean FoMOs points of 21.36±6.93 and mean NMP-Q total points of 73.82±21.27. For the NMP-Q subdimensions, highest mean points were found for the not being able to communicate sub dimension (27.10±9.01),

with lowest mean points for the losing connectedness sub dimension (12.56±5.99) (Table 1).

Of nursing students participating in the research, 34.9% were fourth year students and 50.2% were 21-30 years of age. Of the students, 80.5% were women and all were single. Students stated that 74.3% had 3 or 4 siblings and 77.6% stated their income matched their outgoings. Of the students, 88.8% had social insurance and 80.1% lived in the Black Sea region. Among the students, 96.3% did not work in any job and 52.3% stayed in state dormitories (Table 2). When the distribution of NMP-Q, FoMOs and GPA points of nursing students are examined according to some variables, there were statistically significant differences between gender and working in any job for NMP-Q; and between age and region of residence and FoMOs ($p<0.05$). There were statistically significant differences determined between the GPA of students with year of study, age, gender, income level and place of residence ($p<0.05$) (Table 2).

In the research, 61.0% of nursing students used smartphones for 6 years or less, 67.2% spent 5 hours or less on the phone every day, 82.6% made more than 60 minutes of phone calls per day, 69.3% had at most two social media accounts, 58.9% checked their phone at least ten times per day, 45.2% used their phone during theoretical lessons, 71.4% checked their phone during lessons and 22.8% carried a power bank charger. Among the students, 62.7% thought that telephone use obstructed lessons and 54.8% thought it affected performance. There were statistically significant differences between the NMP-Q points with telephone use during theoretical lessons and checking phones during lessons ($p<0.05$) (Table 3).

Correlation analysis of FoMOs, NMP-Q and GPA total points and NMP-Q subdimensions is included in Table 4. There was a positive weak correlation between FoMOs points with mean NMP-Q points and NMP-Q subdimensions. There was a high positive correlation between NMP-Q scale points with NMP-Q subdimensions. There was a very weak correlation between the GPA of students with the inability to communicate sub dimension of the NMP-Q scale ($p<0.05$). Accordingly, as the students' fear of missing out on social developments increased, their nomophobia increased; additionally, as fear of not being able to communicate increased, their GPA increased (Table 4).

Simple linear regression analysis results between GPA and some variables are given in Table 5. The model was significant and the variables of gender and income level explained 17% of the GPA ($p<0.05$). Accordingly, GPA was 2.4 points lower for men and 0.9 points lower for those whose income did not meet their expenditure (Table 5).

Discussion

Increasing smartphone use and convenient internet access in recent years has led university students to experience some digital problems like fear of missing out on social developments, not being able to connect to the internet and fear of not having a phone. In this study, the correlation between nomophobia and fear of missing out with academic performance of nursing students was investigated.

In the research, students had moderate levels for NMP-Q points, while they experienced fear of not being able to communicate most when NMP-Q subdimensions were investigated. When studies in the literature assessing the nomophobia levels of nursing students are investigated, different results were obtained. For example, research in Turkey found NMP-Q points of students studying in nursing and medical faculties were at moderate levels (78.7 ± 24.6) similar to our study (19), while a study in Spain identified that nursing students had high NMP-Q points (96.5 ± 21.08) (20). It is thought that these varying results occurred due to research being performed in different countries and in groups with different cultural features. However, studies state that no matter what level NMP-Q points are present in general, the academic success of students is negatively affected (19-21). In the research, the FoMOs mean total points were 21.36±6.93, indicating moderate levels. Similarly, a study completed with university students in Jordan determined that students experienced moderate levels of FOMO (22).

Table 1. The distribution of GPA, FoMOs, NMP-Q total score and subscale scores of the students (n=241)

Scales	Mean ± SD	Median (min-max)
GPA (4-point system)	2.99±0.30	2.97(2.14-3.88)
FoMOs Total Score	21.36±6.93	21(10-42)
NMP-Q Total Score	73.82±21.27	77 (20-120)
***Not being able to access information**	16.18±5.47	17(4-28)
***Giving up convenience**	17.97±6.49	18(5-32)
***Not being able to communicate**	27.10±9.01	29(6-41)
***Losing connectedness**	12.56±5.99	11(5-32)

GPA: General Point Average, FoMOs: Fear of Missing Out Scale, NMP-Q: Nomophobia Questionnaire
*Sub-dimensions of NMP-Q

Table 2. Distribution of participants NMP-Q, FoMOs and GPA according to their socio-demographic characteristics (n=241)					
Characteristics	**n**	**%**	**NMP-Q**	**FoMOs**	**GPA**
Classroom					
1	55	22.8	74.1±20.07	21.6±6.0	2.94±0.35
2	54	22.4	70.2±23.09	22.7±6.2	2.90±0.30
3	48	19.9	70.4±19.7	20.4±6.9	3.04±0.27
4	84	34.9	78.1±20.1	20.8±6.9	3.04±0.29
			p=0.178 KW=4.921	p=0.400 KW=2.946	**p=0.027** F=3.122
Age					
18-20	120	49.8	72.9±19.6	22.3±6.6	2.93±0.32
21-30	121	50.2	74.9±22.7	20.3±7.1	3.04±0.28
			p=0.414 z=-0.817	**p=0.015** z=-2.423	**p=0.007** t=-2.717
Gender					
Female	194	80.5	66.8±21.2	21.0±7.3	2.79±0.34
Male	47	19.5	75.6±20.9	21.4±6.8	3.03±0.28
			p=0.010 z=-2.563	p=0.621 z=-0.495	**p=0.000** t=4.468
Number of siblings					
1-2	62	25.7	77.6±22.3	22.3±6.6	2.98±0.29
3-4	179	74.3	72.6±20.7	21.0±7.0	2.99±0.31
			p=0.087 z=-1.712	p=0.184 z=-1.330	p=0.857 t=-0.181
Income status					
Personal income cover the expense	187	77.6	72.6±23.3	22.1±8.3	2.90±0.29
Personal income doesn't cover the expense	54	22.4	74.3±20.6	21.1±6.5	3.01±0.31
			p=0.776 z=-0.285	p=0.619 z=-0.497	**p=0.021** t=2.355
Social Insurance					
Yes	214	88.8	74.4±21.0	21.3±6.9	3.00±0.30
No	27	11.2	69.3±22.5	21.1±6.8	2.88±0.33
			p=0.181 z=-1.338	p=0.881 z=-0.150	p=0.100 t=1.695
Region of residence					
Marmara	8	3.3	72.5±24.6	19.2±4.1	2.86±0.30
Aegean	2	0.8	92.0±16.9	29.0±9.8	3.36±0.07
Mediterranean	3	1.2	100.0±8.7	27.3±2.8	2.87±0.17
Central Anatolia	19	7.9	64.5±25.6	17.4±5.1	2.89±0.22
Black Sea	193	80.1	74.0±20.6	21.7±7.0	3.01±0.31
Eastern Anatolia	5	2.1	80.6±17.9	21.0±6.6	2.90±0.19
Southeastern Anatolia	11	4.6	75.5±21.0	19.3±6.2	2.79±0.30
			p=0.136 KW=9.740	**p=0.041** KW=13.121	p=0.060 F=2.049
Working status					
Working	9	3.7	56.0±29.1	18.1±5.8	3.13±0.37
Not working	232	96.3	74.6±20.6	21.4±6.9	2.98±0.30
			p=0.035 z=-2.106	p=0.142 z=-1.469	p=0.281 t=1.152
Place of Residence					
Single rent	10	4.1	75.7±22.0	19.1±4.4	3.02±0.44
At home with my family	80	33.2	72.5±20.3	21.3±6.0	2.98±0.32
Rental with friends	15	6.2	73.8±18.2	19.3±5.8	2.85±0.33
State's residence	127	52.7	74.7±22.0	21.7±7.7	3.03±0.27
Private residence	9	3.7	71.2±26.2	23.1±7.1	2.73±0.30
			p=0.912 KW=1.509	p=0.657 KW=3.281	**p=0.019** F=2.759

KW:Kruskall Wallis, F: One-Way ANOVA, z: Mann Whitney U test, t: Independent samples t-test

GPA: General Point Average, FoMOs: Fear of Missing Out Scale, NMP-Q: Nomophobia Questionnaire

Table 3. Distribution of the participants' NMP-Q, FoMOs and GPA according to their phone usage characteristics (n=241)					
Characteristics	**n**	**%**	**NMP-Q Mean ± SD**	**FoMOs Mean ± SD**	**GPA Mean ± SD**
The duration of smartphone use (years)					
6 years and less	147	61.0	74.1±21.4	21.5±7.1	2.97±0.31
7 years and above	94	39.0	73.5±21.0	21.0±6.7	3.02±0.29
			p=0.772 z=-0.290	p=0.640 z=-0.467	p=0.207 t=-1.266
Daily smartphone usage time (hours)					
5 hours and less	162	67.2	74.7±21.4	21.4±6.8	3.00±0.31
6 hours and more	79	32.8	72.2±20.9	21.1±7.1	2.95±0.29
			p=0.392 z=-0.856	p=0.668 z=-0.429	p=0.220 t=1.231
Time elapsed with search (minutes)					
60 minutes and less	199	82.6	73.6±21.5	21.2±6.9	2.98±0.31
61 minutes or more	42	17.4	75.0±20.1	21.8±7.1	3.02±0.29
			p=0.697 z=-0.390	p=0.577 z=-0.558	p=0.389 t=-0.868
Number of social media					
2 and below	167	69.3	72.2±21.5	20.8±6.9	2.98±0.31
3 and above	74	30.7	77.6±20.2	22.5±6.7	2.99±0.29
			p=0.068 z=-1.824	p=0.051 z=-1.949	p=0.883 t=-0.148
Daily checking smartphone (times)					
10 and below	142	58.9	73.2±21.0	20.9±6.5	3.00±0.29
11 and up	99	41.1	74.9±21.6	21.9±7.4	2.97±0.32
			p=0.764 z=-0.300	p=0.432 z=-0.786	p=0.404 t=0.837
Using the smartphone during the theoretical lesson					
No	132	54.8	70.1±22.0	20.9±6.9	3.02±0.31
Yes	109	45.2	78.5±19.2	21.9±6.8	2.95±0.29
			p=0.003 z=-2.990	p=0.254 z=-1.140	p=0.104 t=1.633
Smartphone usage time during theoretical lesson (n=109)					
10 minutes and under	71	65.1	79.4±19.8	21.8±6.6	2.95±0.28
11 minutes or more	38	34.8	75.1±17.8	22.0±.7.1	2.95±0.31
			p=0.824 z=-0.441	p=0.824 z=-0.223	p=0.176 z=-1.352
Checking the smartphone during the theoretical lesson					
No	69	28.6	66.1±21.9	21.0±7.3	3.00±0.31
Yes	172	71.4	77.0±20.2	21.4±6.8	2.98±0.30
			p=0.000 z=-3.734	p=0.583 z=-0.549	p=0.748 t=0.321
Checking the smartphone during the theoretical lesson (times) (n=172)					
3 and below	116	67.4	76.6±21.2	21.6±6.7	3.03±0.32
4 and above	56	32.6	78.2±19.9	20.9±6.9	2.93±0.28
			p=0.805 z=-0.247	p=0.530 z=-0.628	p=0.070 z=-1.811
State of being obstacle lessons using the phone					
Yes	151	62.7	72.7±22.0	21.3±6.8	3.01±0.29
No	90	37.3	75.8±19.7	21.3±7.0	2.94±0.33
			p=0.215 z=-1.239	p=0.884 z=-0.145	p=0.080 t=-1.764
Performance affect the status of the phone use					
Yes	132	54.8	73.5±21.9	21.2±7.0	3.00±0.29
No	109	45.2	74.4±20.4	21.5±6.8	2.97±0.32
			p=0.624 z=-0.490	p=0.829 z=-0.216	p=0.511 t=-0.658
Powerbank transport					
Yes	55	22.8	75.3±20.9	21.2±8.0	2.96±0.27
No	186	77.2	73.5±21.3	21.4±6.6	2.99±0.31
			p=0.841 z=-0.200	p=0.483 z=-0.702	p=0.460 t=0.741

z: Mann-Whitney U test, t: Independent samples t-test

GPA: General Point Average, FoMOs: Fear of Missing Out Scale, NMP-Q: Nomophobia Questionnaire

Table 4. Correlation Analysis Between NMP-Q and its subdimensions, FoMOs And GPA (n=241)

	Characteristics	1	2	3	4	5	6	7
1	**GPA**	1,000	0.020	0.102	0.054	0.056	0.191*	0.011
2	**FoMOs total score**	0.020	1,000	0.363**	0.340**	0.311**	0.272**	0.270**
3	**NMP-Q total score**	0.102	0.363**	1,000	0.698**	0.861**	0.819**	0.697**
4	***Not being able to access information**	0.054	0.340**	0.698**	1,000	0.526**	0.458**	0.357**
5	***Giving up convenience**	0.056	0.311**	0.861**	0.526**	1,000	0.613**	0.558**
6	***Not being able to communicate**	0.191**	0.272**	0.819**	0.458**	0.613**	1,000	0.359**
7	***Losing connectedness**	0.011	0.270**	0.697**	0.357**	0.558**	0.359**	1,000

*p<0.005, **p<0.001

GPA: General Point Average, FoMOs: Fear of Missing Out Scale, NMP-Q: Nomophobia Questionnaire

*Sub-dimensions of NMP-Q

Table 5. Multiple linear regression analysis between GPA and some variables (n=241)

	GPA				
Characteristics	B	S.E.	t	β	p
Classroom	0.033	0.027	1.223	0.125	0.222
Age	0.079	0.056	1.394	0.127	0.165
Gender	-0.370	0.080	-4.603	-0.293	**0.000**
Income status	-0.172	0.072	-2.384	-0.143	**0.018**
Place of residence	-0.035	0.020	-1.738	-0.123	0.083
The sub-dimension of Not Being Able to Communicate	0.002	0.002	1.029	0.064	0.305

R2= 0.172, p<0.05 GPA: General Point Average

The reference variables for gender, income status and place of residence are in order; to be male; not being able to cover their income and expenses, and to stay in the state dormitory.

There was a statistically significant correlation at weak levels between GPA of students with the inability to communicate sub-dimension of the NMP-Q. Accordingly, as students' fear of not being able to communicate without their phones increased, their GPA points increased. However, in the literature related to smartphone use as a trigger for nomophobia behavior, high levels of smartphone use by nursing students were stated to have negative effects on academic performance (8, 11, 23). This difference may be due to nurses using smartphones generally to acquire information and with the aim of communicating for this purpose. For this reason, as the students' fear of not being able to communicate increased, the GPA may have increased. In fact, in this study, more than half of students spent less than five hours per day using their phone and stated they spent an average sixty minutes talking on their phones per day.

In this study, there were statistically significant differences identified between NMP-Q points of students with their status of using phones during theoretical lessons and checking phones during lessons. A semi-experimental study completed by Kaniaru et al. identified that students without access to mobile phones during lessons paid more attention to the lesson (12). Another study supporting this found that those without access to smartphones in a class, considered to be critically strong and high quality, paid more attention in lessons and gained more information (21).

As the fear of missing out of students increased, their nomophobia was determined to increase. A study of university students in Turkey determined a positive and moderate correlation between NMP-Q and FoMO points (24). Students attending a health management department were identified to have moderate and positive significant correlations between NMP-Q and FoMOs variables, with 30% of nomophobia explained by FoMO. In the research, it was concluded that fear of missing out on developments on social networks was a predictor of nomophobia among students of health management (25).

In the research, students had moderate levels for NMP-Q points and there was no statistically significant correlation identified between NMP-Q points and academic success levels. However, more than half of students stated using telephones during

lessons was an obstacle to listening to lessons. Similarly, a study by Qutishat et al. reported that students displayed moderate levels of nomophobia behavior; however, students with high nomophobia levels had low academic success (22). A study in Spain determined moderate levels of nomophobia among nursing students and the majority listened to lessons less due to excessive smartphone use (26). Contrary to these studies, there are studies including students who have high levels of nomophobia points and this situation was stated to have a negative effect on academic performance (6, 12, 20). As can be seen, though nomophobia may have different levels among nursing students, it negatively affects the academic success of students directly due to fatigue, causing distraction, etc. or indirectly though affecting decision-making skills. In the research, there was no statistically significant correlation between FoMOs points and GPA. Similarly, another study identified students had moderate levels of FoMOs and there was no correlation with average grades (22).

In the research, the year of study, age, gender, income level, place of residence and fear of not being able to communicate explained 17% of the GPA points of students. Accordingly, men had 2.4 points lower GPA compared to women. Additionally, the GPA of those whose income met their expenditure was 0.9 points higher than those whose income did not meet expenditure. In recent years, though male candidates are accepted, traditionally nursing continues to be seen by society as a profession dominated by women. This situation may be an important determinant of the acceptance of male students in the profession and hence their academic success. Additionally, having a better income level may be an element increasing academic success as it eases access to educational opportunities.

This study has some limitations. The collection of data with online survey tools is a limitation. This limitation is due to students not being able to answer the survey, rejecting participation, only answering questions they were interested in, access problems, and participants not conceptualizing the sensitivity of the research topic. However, the researchers made the survey form anonymous to overcome these problems.

In conclusion, nursing students were identified to have moderate levels of nomophobia and FoMOs points and these did not affect academic success in this study. However, students reported that they used phones during theoretical lessons and this situation prevented them from paying attention in lessons. Considering the negative effects of nomophobia and fear of missing out, they appear to be digital problems that require intervention. However, it is clear this intervention will not be provided by limiting use of telephones during lessons and this intervention alone will not solve the problem. For this reason, nurse educators are recommended to perform studies to integrate smartphone use into theoretical learning, and to develop alternative methods, create guidelines and develop policies about how to use accurate resources for access to information.

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