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The Effect of Problematic Internet Use, Social Appearance Anxiety, and Social Media Use on Nursing Students' Nomophobia Levels

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This study examined the effect of problematic Internet use, social appearance anxiety, and social media use on nursing students' nomophobia levels. This study was conducted with 755 undergraduate nursing students. Sociodemographic data were evaluated using percentages and means. The effect of problematic Internet use, social appearance anxiety, and social media use on nomophobia levels was assessed by simple linear regression analysis. The mean age of participants was 21.4 ± 1.3; 82.5% were female, and 59.7% (n = 450) had adequate incomes. According to the regression analysis, nomophobia levels have a strong, positive, and significant relationship with the variables of problematic Internet use (β = .39, P < .000), social appearance anxiety (β = .27, P < .001), and social media dependency (β = .28, P < .001). Examining the correlation between nursing students' problematic Internet use, social appearance anxiety, and social media use levels, nomophobia levels had a positively moderate relationship with problematic Internet use (r = 0.259, P < .001), social appearance anxiety (r = 0.320, P < .001), and social media use levels (r = 0.433, P < .001). There is a direct correlation between nomophobia levels and the variables of problematic Internet use, social appearance anxiety, and social media use.

KEY WORDS: Nomophobia, Nursing student, Problematic Internet use

Today, information and communication technologies have become an integral part of our lives. Many people, particularly teenagers, spend much of their time with technological devices for studying, searching for information on the Internet, playing games, and communicating.[1,2] Mobile phone use has been gradually increasing, not only for communication, but also for access to the Internet and social networks.[3]

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According to the Household Information Technology Use Survey carried out in Turkey, 96.8% of the households in Turkey have mobile or smartphones.[4] Hong et al[5] found widespread use of smartphones among high school and college students, especially because of the opportunity to increase and establish social relationships. Studies conducted on the issue with nursing students have shown that using smartphones in the clinical setting helps students to use time effectively,[6,7] calculate and administer medications,[8] and increase levels of self-efficacy.[7,9] In particular, students reported that using smartphones supported clinical decision making, improved competence levels, and decreased stress levels during clinical practice.[10–13] However, smartphone use also has some harmful effects on students. In a study by Jacobsen and Forste,[14] university students wasted time by entering social networks, watching videos, and playing games, rather than studying. Tavolacci et al[15] conducted a study with 760 university students in France and determined that a third, particularly females, feared losing their smartphone connection, and their academic performance deteriorated. Use of smartphones during class may negatively affect attentiveness not only for the owner but also classmates, and may even distract instructors. Students who do not turn off the smartphone at bedtime spend less time studying; because they have fun spending time on the smartphone, they may not realize how lost time affects preparation for examinations.[16] Constantly checking or using smartphones, checking for text messages or e-mails, connecting to social networks, and surfing the Internet can cause sleep disturbances, stress, anxiety, decreased physical activity, and reduced academic performance.[17]

Choi and Lee[18] emphasized that overuse of smartphones leads to many problems, including social media dependency, nomophobia, and problematic Internet use, which has negative effects on the psychological, social, academic, and professional life of an individual.[19,20] Nomophobia is described as the anxiety and distress experienced by individuals who habitually use Internet-based communication devices, especially when the devices are not available. Users fear that they will not be aware of messages, recent events, and various

experiences shared on social media.[21] Individuals with nomophobia continuously check for messages or calls and experience anxiety and distress when they are out of the coverage area or mobile phone usage is limited. They tend to keep the phone switched on 24 hours a day, or take the smartphone to bed with them.[22] The use of smartphones, especially for social connections, is very high among teenagers with social media dependence,[23] who use programs such as Facebook to share experiences and build and maintain social relationships.

Other studies have found that individuals with social anxiety also have higher levels of social media use.[24] Social appearance anxiety affects the frequency of social media use through the desire for privacy.[25] Social appearance anxiety stems from physical characteristics such as height, weight, muscle structure, skin color, and face shape (nose, distance between eyes, smile); it is the result of negative body image–related appearance.[26,27] Young people who experience anxiety in face-to-face communication also frequently use social media and thus the Internet.[1]

Studies in Turkey reported that 95% of university students used the Internet to connect to social networks, 75.7% spent most of their Internet use time on Facebook, 99% used the Internet every day, 16.4% used social networks for online chatting, and 82.5% stayed abreast of university activities via social media tools including Facebook, Twitter, and blogs.[28] The increase in problematic Internet use and social media dependency is the basis of nomophobia, which has recently become a serious problem.[21,29,30] Anxiety negatively affects the ability to concentrate on daily life.[31] Gezgin et al[32] found a moderately positive relationship between nomophobia prevalence and Internet addiction. Adnan and Gezgin[33] examined nomophobia prevalence among university students and emphasized the importance of focusing on factors that affect nomophobia, particularly the effects of Internet and social network addiction.

The Turkish studies on nomophobia predominantly predict its prevalence and incidence, so there are only a few studies that examine the factors that affect nomophobia. In addition, we think that it is important to determine nomophobia levels and the associated factors before students become professional nurses, especially because part of nursing care is to prevent dependency. For this reason, this study examined the effect of problematic Internet use, social appearance anxiety, and social media use on the nomophobia levels of undergraduate nursing students. Hypotheses of the study were as follows.

- H_1: Students whose mean score for problematic Internet use is high have higher levels of nomophobia.
- H_2: Students whose social appearance anxiety level is high have higher levels of nomophobia.
- H_3: Students whose social media use rate is high have higher levels of nomophobia.

MATERIALS AND METHODS

Study Design

This study was carried out as a descriptive, cross-sectional and correlational analysis examining the effect of problematic Internet use, social appearance anxiety, and social media use on the nomophobia levels of undergraduate nursing students.

Population

Participants were undergraduate nursing students in a nursing school located in western Turkey. Inclusion criteria were (1) being a student in the nursing school, (2) having a social media account and using it actively, (3) having and using a smartphone, (4) having Internet access via the phone, (5) volunteering to participate in the study, and (6) signing the consent form. All participants (N = 755) who agreed to participate and met inclusion criteria were included without a sampling method.

Data Collection Tools

A demographic data collection form, the Nomophobia Scale,[21] the Problematic Internet Use Scale (PIUS),[34] the Social Appearance Anxiety Scale (SAAS),[27] and the Social Media Use Integration Scale[35] were used in the study.

The Demographic Data Collection Form

This form, prepared based on current literature, consisted of three questions about age, gender, and income level and three other questions about social network preferences and purposes.

The Nomophobia Scale

This scale was created by Yildirim and Correia[21] to measure the nomophobia of university students. It was validated in Turkish by Yildirim et al.[36] The scale consists of 20 items, covering four dimensions of nomophobia: (1) six items on the inability to communicate (relevant items in the scale: 10, 11, 12, 13, 14, 15); (2) four items on losing connectedness (relevant items: 16, 17, 18, 19, 20); (3) four items on not being able to access information (relevant items: 1, 2, 3, 4); and (4) five items on giving up convenience (relevant items: 5, 6, 7, 8, 9). Possible scores on the scale range from 0 to 140. The scale intervals and corresponding nomophobia levels are 0 to 20 points, absence of nomophobia; 21 to 59 points, mild nomophobia; 60 to 99 points, moderate nomophobia; and 100 to 140 points, severe nomophobia. The instrument uses a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The Cronbach's α values of the sub-dimensions and entire scale were found to be .90, .74, .94, .91, and .92, respectively. Confirmatory factor analysis found that $\chi^2 = 2.86$, root mean square error of approximation (RMSEA) = 0.08, and comparative fit index (CFI) = 0.92.

The scale is a valid and reliable instrument that can be used to assess the nomophobia levels of participants in this study.[36]

The Problematic Internet Use Scale

The PIUS was developed by Ceyhan et al[34] to measure problematic Internet use levels ranging from normal to pathological. It is a dimensional scale based on the individual's self-expression and consists of 33 items with a 5-point Likert-type scale ranging from 1 (not at all appropriate) to 5 (completely appropriate). Scores on the scale range from 33 to 165. Higher scores indicate unhealthy Internet use that affects users' lives in a negative way and may create a pathological tendency such as Internet addiction.[34]

The results of the explanatory factor analysis of the scale show that the scale had three subfactors: negative consequences, social benefit/social comfort, and overuse of the Internet. These three factors together account for 48.96% of the total variance. In terms of the mean Internet use time per week as a demonstration of the discriminatory validity of the PIUS, it was found that those who spent more time on the Internet had more problematic Internet use levels. Moreover, those who perceived themselves as Internet addicts had a significantly higher level of problematic Internet use ratio than those who stated that they had no dependency ($P < .05$). The internal consistency coefficient (α) of the PIUS was .94. The item total score reliability coefficients were found to vary between 0.31 and 0.70 ($P < .001$). The retest correlation of the scale was 0.81 ($P < .001$), while the correlation between the two components was 0.83.[34]

The Social Appearance Anxiety Scale

The SAAS is a self-reporting style scale developed by Hart et al[26] to measure emotional, cognitive, and behavioral concerns of individuals regarding their appearance. The SAAS is a 5-point Likert-type scale consisting of 16 items. Exploratory factor analysis of the original scale resulted in a one-factor structure. The confirmatory factor analysis found $\chi^2 = 381.21$ as significant at $P < .001$. Its compliance index values were as follows: RMSEA = 0.056, CFI = 0.99, and Tucher Lewis Index = 0.99.

The Turkish validity and reliability study of the scale was confirmed by Doğan and Çolak[25] (N = 340). The Kaiser-Meyer-Olkin value of the Turkish scale and the Barlett's sphericity test χ^2 value were found to be 0.94 and 2674.01 ($P < .001$), respectively. The factor load values of the scale vary between 0.35 and 0.87. The fit indices of the model obtained in the constructed Confirmatory Factor Analysis were examined, and the minimum χ^2 value ($\chi^2 = 143.79$, N = 254, $P = .001$) was found to be significant. Its fit index values were as follows: RMSEA = 0.051, Normed Fit Index = 0.98, CFI = 0.99, Incremental fit index=0.99, Relative Fit-Index = 0.98, Goodness of Fit Index = 0.93, and Adjusted Goodness of Fit Index = 0.90.[27]

The Cronbach's α coefficient of the scale was found to be .93. The reliability coefficient obtained by the split-run testing method was 0.88. The scale was applied to a group of 86 students biweekly, in order to assess its retest reliability, which was found to be 0.85. Findings revealed that the scale had sufficient validity and reliability to measure social appearance anxiety.[27]

The Social Media Use Integration Scale

This scale was developed by Jenkins-Guarnieri et al[37] and consists of 16 items.[36] The Turkish validity and reliability study of the scale was carried out by Akın et al.[35] Confirmatory factor analysis of the scale revealed that the two-dimensional model was well fitted ($\chi^2 = 74.92$, SD = 31, RMSEA = 0.076, Normed Fit Index = 0.93, Non-normed Fit Index = 0.94, CFI = 0.96, Incremental fit index = 0.96, Goodness of Fit Index = 0.94, Standardized Root Mean Square Residual = 0.049). The Cronbach's α internal consistency reliability coefficients of the Social Media Use Integration Scale were .87 for the social integration and emotional link subscale, .71 for the integration with social routines subscale, and .87 for the overall scale. The item-test correlations of the Social Media Use Integration Scale range from .31 to .76. The Turkish version of the Social Media Use Integration Scale is a valid and reliable measurement tool.[35]

Ethical Approval

Before the study began, permissions were obtained from the owners of the scales used in the research by e-mail. The written consent of Dokuz Eylul University Non-Invasive Research Ethics Board was obtained (decision no. 3304-GOA, decision date July 12, 2017). Institutional permission was also obtained. Students were informed about the research purpose, and written consent was obtained from those who agreed to participate.

Data Analysis

The research data were analyzed using IBM SPSS Statistics version 22 (IBM, Armonk, NY). The sociodemographic characteristics of participants were calculated as percentages and means, and levels of nomophobia, problematic Internet use, and social appearance anxiety were determined by percentage calculations. The effects of social media use, social appearance anxiety, and problematic Internet use on nomophobia levels were evaluated using multiple regression analysis. The relation of nomophobia levels with social media use, social appearance anxiety, and problematic Internet use was assessed using Pearson's correlation analysis.

RESULTS

The mean age of participants was 21.4 ± 1.3 years. The sample consisted of 26.6% (n = 201) freshman, 38.8% (n = 293) sophomore, 14.8% (n = 112) junior, and 19.7% (n = 149) senior students. Of them, 82.5% (n = 623) were female, and 59.7% (n = 450) had adequate incomes. Most of them used Facebook, Twitter, and Instagram to communicate with friends, share photos, and have fun. Slightly more than half of the participants (51.1%; n = 386) used social media from 1 to 3 hours a day, and 22.8% (n = 172) used it between 4 and 6 hours a day. A small percentage of participants (3%; n = 2) were not nomophobic, 51.9% (n = 392) were moderately nomophobic, and 13.6% (n = 103) were severely nomophobic.

There was a significant positive correlation at a low level among nomophobia levels and problematic Internet use ($r = 0.259$, $P < .001$), social appearance anxiety ($r = 0.320$, $P < .001$), and social media use levels ($r = 0.433$, $P < .001$) (Table 1).

Multiple regression analysis in Model 1 found that there is a moderately significant positive relationship between nomophobia and social media use levels of the participants ($\beta = .26$, $P < .001$), and 7% of the factors that affect nomophobia levels are explained by social media use dependency total score levels ($F = 54.133$, $P < .001$). It was determined in Model 2 that there is a moderately significant positive relationship between nomophobia levels and mean social appearance anxiety scores ($\beta = .32$, $P < .001$) of participants, and 10% of the factors that affect nomophobia levels are explained by social appearance anxiety total score levels ($F = 85.544$, $P < .001$). It was determined in Model 3 that there is a moderately significant positive relationship between nomophobia and problematic Internet use levels ($\beta = .43$, $P < .001$) of the participants, and 19% of the factors that affect nomophobia levels are explained by problematic Internet use total score levels ($F = 173.278$, $P < .001$).

When the relationship between participant nomophobia levels and other variables was examined in Model 4, a significant positive relationship at a low level was found between nomophobia and problematic social media use levels ($\beta = .11$, $P < .001$) and social appearance anxiety levels ($\beta = .13$, $P < .001$). Nomophobia levels had a moderately significant positive relationship with problematic Internet use levels ($\beta = .34$, $P < .001$). It was determined that nomophobia levels were affected most by problematic Internet use, social appearance anxiety, and social media use variables, respectively. Overall, 22% of the factors that affect nomophobia levels were explained by problematic Internet use, social appearance anxiety, and social media use variables ($F = 68.745$, $P < .001$).

Table 1. The Relation of Undergraduate Nursing Students' Nomophobia Levels With Their Problematic Internet Use, Social Appearance Anxiety, and Social Media Use Levels

	1	2	3	4
1. Nomophobia level	1.0			
2. Social media use	0.259[a]	1.0		
3. Social appearance anxiety	0.320[a]	0.296[a]	1.0	
4. Problematic internet use	0.433[a]	0.318[a]	0.466[a]	1.0

[a] $P < .001$.

DISCUSSION

The results of this study demonstrate the effect of problematic Internet use, social appearance anxiety, and social media use on undergraduate nursing students' nomophobia levels. This study determined that 3% (n = 2) of the undergraduate nursing students were not nomophobic, 51.9% (n = 392) were moderately nomophobic, and 13.6% (n = 103) were severely nomophobic.

In this study, four models were created to consider the correlations between variables. Model 1 examined the relationship between social media use integration levels and mean nomophobia scores. Model 2 examined the relationship between social appearance anxiety and mean nomophobia scores. Model 3 examined the relationship between problematic Internet use and mean nomophobia scores. Model 4 examined the relationship between nomophobia levels and the mean scores of all other variables.

Model 1 showed that participants with high social media dependency levels also had high nomophobia levels. In this study, social media dependency level occupies an important place among the factors that affect nomophobia level (7%, Table 2). Participants with a high level of social media dependence had 0.25 times higher nomophobia levels. The use of social media among young people has been increasing in recent years. Young people easily access social media Web sites, especially because smartphones provide communication, games, shopping, and information exchange. Using smartphones in the clinical setting helps nursing students use their time effectively,[7,13] guides medication calculations and drug preparation,[8] and increases self-efficacy levels.[7,9] In particular, students reported that using smartphones supported clinical decision making, improved competence levels, and decreased stress levels during clinical practice.[10–13] The rate of smartphone use is high, especially for young people with social dependency who connect to social media.[23] Salehan and Negahban[3] found that individuals who frequently use social media depend on smartphones; Hong et al[5] found that addiction rates for those with high social media dependency levels are also high. The literature supports the result that participants with high social media dependency levels also have high levels of nomophobia.

Table 2. The Predicting Status of Problematic Internet Use, Social Appearance Anxiety. and Social Media Use Levels of the Undergraduate Nursing Students for Their Nomophobia Levels

	Model 1	Model 2	Model 3	Model 4
	β	β	β	β
Social media use	.259[a]			.258
Social appearance anxiety		.320[a]		.320
Problematic internet use			.433[a]	.432[a]
R^2	0.067	0.102	0.187	0.216
F	54.133	85.544	173.278	68.745
P	<.001	<.001	<.001	<.001

[a]$P < .01$.

Model 2 reveals that participants with high social appearance anxiety mean scores also had high nomophobia levels. In this study, social appearance anxiety level occupies an important place among the factors that affect nomophobia level (10%). Participants with high social appearance anxiety mean scores had 0.32 times higher nomophobia levels. Individuals with social appearance anxiety are more likely to use social media[24]; those who frequently use social media also use smartphones more frequently for access to the Internet and social media connections. Koronczai et al[38] determined that individuals with appearance anxiety increase their Internet use time in order to increase their personal communication and social interaction. In a study conducted with university students in Turkey, social appearance anxiety was an important factor that affected the frequency of social media use; a desire for privacy and to conceal appearance increased both Internet and social media use rates.[25] Young people who experience anxiety in face-to-face communication reduce anxiety levels by using social media, and thus often use smartphones with Internet connections.[1]

Model 3 showed that participants with high problematic Internet use mean scores also had also high nomophobia levels. In this study, problematic Internet use level occupied an important place among the factors that affect nomophobia level (19%). Participants with high problematic Internet use mean scores had 0.43 times higher nomophobia levels. Similarly, Pavithra et al[39] found in a study with 200 students aged 17 to 27 years that those who had high levels of problematic Internet use had higher nomophobia levels. Bivin et al[40] conducted a study with 547 nursing, dental science, physiotherapy, and Ayurveda undergraduate students. They found a significant positive relationship between mobile phone use and nomophobia severity. The literature supports the result that participants with a high level of problematic Internet use have high nomophobia levels.

Model 4 showed that the undergraduate nursing students with high mean scores for social media dependency, social appearance anxiety, and problematic Internet use also had high nomophobia levels. In this study, these three variables together occupied an important place among the factors that affect nomophobia level (22%).

The nomophobia levels of participants were affected most by problematic Internet use (0.43%), social media dependency levels (0.32%), and social appearance anxiety scores (0.26%), respectively. It is thought that participants with high levels of social appearance anxiety were more likely to use social media, which allowed them to hide their identities. Thus, they have high problematic Internet use rates. It is also thought that these three variables increased the use of smartphones by students. Healthcare professionals' constant use of smartphones reduces mental concentration and thus performance, and thereby causes them to make medical errors.[41] Because students are expected to learn both clinical skills and professional values, they suffer high levels of stress. The sleep quality of nursing students who use smartphones to cope with stress decreases, which consequently increases error rates. Individuals with smartphone dependence experience problems in interpersonal relationships[42] and face-to-face communication.[43] Nurses, who are constantly in contact with people, should have as few problems as possible when communicating with individuals.

CONCLUSION

The nomophobia levels of study participants had a significant positive relation with their problematic Internet use, social appearance anxiety, and social media dependency levels. Participants with high nomophobia levels had higher mean scores in problematic Internet use, social media use, and social appearance anxiety.

Regular evaluation of the nomophobia levels of undergraduate nursing students is recommended to determine the salient factors in detail. In this context, topics such as smartphone and technology dependency should be included in the nursing curriculum of every university, and faculty should be trained on this issue at intervals by experts in this area. In addition, nomophobia levels of nurses working in the clinical setting should be assessed using instruments whose validity and reliability are established. It is especially important to evaluate the effects of nomophobia on nursing care in clinical settings. In order to ensure safe patient care, and to prevent medication and medical errors, smartphone addiction should be identified and addressed at the student level.[44] Because the number of studies on nomophobia is limited, it is recommended to conduct extensive research and graduate studies on this issue. Further interventional studies for the prevention of nomophobia are also needed.

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- Read the article. The test for this CE activity can be taken online at www.nursingcenter.com/ce/CIN. Tests can no longer be mailed or faxed.
- You will need to create a free login to your personal CE Planner account before taking online tests. Your planner will keep track of all your Lippincott Professional Development online CE activities for you.
- There is only one correct answer for each question. A passing score for this test is 10 correct answers. If you pass, you can print your certificate of earned contact hours and the answer key. If you fail, you have the option of taking the test again at no additional cost.
- For questions, contact Lippincott Professional Development: 1-800-787-8985.

Registration Deadline: December 4, 2020

Disclosure Statement:

The authors and planners have disclosed that they have no financial relationships related to this article.

Provider Accreditation:

Lippincott Professional Development will award 1.0 contact hour for this continuing nursing education activity.

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- The registration fee for this test is $12.95