

# Are Nomophobia and Alexithymia Related? The Case of Health Students

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## ABSTRACT

**Objective:** This paper aims to determine whether there is a relationship between nomophobia and alexithymia in nursing and midwifery students studying at the undergraduate level and the factors affecting nomophobia and alexithymia.

**Method:** This cross-sectional study was conducted with undergraduate nursing and midwifery students in a public university. No sampling was used. The response rate was 71.42%. Data were collected by a Personal Information Form, Nomophobia Scale, and Toronto Alexithymia Scale. The data were analyzed with the SPSS-22 program. Type 1 error level was considered as  $p < 0.05$ .

**Results:** The nomophobia scores of female students, third-year students, and those who spent most of their lives in urban areas were higher and statistically significant. The Toronto Alexithymia Scale-20 scores of nursing students ( $p = 0.022$ ) and students with chronic diseases ( $p = 0.011$ ) were higher and statistically significant. There is a very weak positive correlation between the duration of daily telephone usage and nomophobia ( $p < 0.01$ ). In addition, a weak level positive correlation was found between nomophobia and alexithymia scores ( $p < 0.01$ ).

**Conclusion:** The participants' nomophobia scores were at a moderate level. The mean of the scores obtained by the participants from the alexithymia scale was close to half of the mean score to be taken from the scale. No significant difference was found between many socio-demographic characteristics and nomophobia groupings (low, moderate, severe).

**Keywords:** Nomophobia, Alexithymia, Nurse, Midwife

## 1. INTRODUCTION

While the number of smartphones used by a multitude of people was 1.57 billion in 2016, it increased to 2.53 billion in 2018 (1). According to a report published by the Turkish Statistical Institute (TSI), the rate of smartphone availability in Turkey rose from 53.7% in 2004 to 98.7% in 2018 (2).

Smartphones offer a wide range of applications, such as voice-text communication, connecting to the Internet, taking photos, listening to radio and music, finding addresses, shopping, banking, and playing games (3). With ever-increasing features, smartphones have positive effects on people's daily life, professional life, and learning processes. However, excessive and uncontrolled use of smartphones also brings along many problems. One of these problems is nomophobia (4).

Nomophobia, i.e., the fear of being deprived of mobile phones (a term coined with some letters from the words "No Mobile Phobia") is actually a digital and psychiatric disease that many smartphone users catch without even realizing

it. The term was first coined in 2008. Clinical psychology has defined nomophobia as "the unreasonable and unintentional fear experienced when the individual cannot access or communicate on the mobile device." These people feel better when they access their phones, so they become more and more addicted to their devices over time (5-7).

The use of smartphones causes distraction among health professionals, which, in turn, leads them to be unable to remember important information. This disease also both threatens patient safety, privacy protection, and the security of personal data and disrupts communication between patients and staff (8). 78.1% of nurses working in hospitals use their mobile phones or other communication tools at work mostly to make calls, check/send e-mails, and text to their family members or friends (9). On the other hand, 23.4% of nursing students, who are prospective health professionals, always use smartphones in clinical applications and do not think that this creates a distraction (8).

Alexithymia is a Greek word meaning difficulty in recognizing and verbally expressing one's emotions. Alexithymia, which was initially preferred to describe symptoms in psychosomatic patients (10,11), was later accepted as a personal disposition. It has even sometimes been recognized as a condition, disease, psychosomatic symptom, cognitive impairment, lack of skills, and neurological failure caused by a lack of social support (12). Failure to experience and voice emotions sufficiently when emotionally distressed can lead to the development of somatic symptoms (13-16). Alexithymic people usually tend to be addicted to something (17). Alexithymic people, who behave like a robot lacking creativity and have little empathy, have an external locus of control and prefer loneliness. They seem to adapt to social situations, but they are aware that they cannot be like others and prefer to conceal it (17,18).

Alexithymic individuals have poor social skills and often feel uncomfortable in face-to-face communication. communication through technology is therefore a less stressful way of social interaction for them (19). Social interaction problems experienced by alexithymic individuals can trigger the overuse of mobile phones and nomophobia. The fact that students who will work in the field of health, where communication skills and attention are very important, become almost dependent on mobile phones will negatively affect both the individuals they serve and their professional lives.

This paper aims to determine whether there is a relationship between nomophobia and alexithymia in nursing and midwifery students studying at the undergraduate level and the factors affecting nomophobia and alexithymia.

## 2. METHOD

### 2.1. Population and Sample

The population of this descriptive cross-sectional study comprises the students studying in the nursing and midwifery departments of a public university in the 2018-2019 academic year (742 students). No sampling was used. Using the data collection tools described below, the data were collected from the students who volunteered to participate in the study (530 students with a response rate of 71.42%) between 8 April and 12 May 2019.

#### Inclusion criteria

- being a midwife department or nursing student department
- volunteering to participate in the study
- have enough Turkish to answer questions

#### Exclusion criteria

- not being diagnosed with addiction / being treated for addiction (family/individual)

- not being diagnosed with a mental or social illness

#### 2.1.1. Personal Information Form

The form consists of questions to reveal the participants' socio-demographic characteristics (age, gender, department, student classes, family type, place of residence, income level, employment status smoking/alcohol habit, chronic disease status) and mobile phone usage status (daily mobile phone usage time, the purpose of using the phone) (3,4,7).

#### 2.1.2. Nomophobia Scale (NS)

The scale developed by Yildirim and Correia (6) to measure the nomophobia scores of individuals was adapted to Turkish by Yildirim et al. (20). This 7-point Likert type scale (1=strongly disagree, 7=strongly agree) consists of 20 items. The scale consists of four subscales: not being able to access information, losing connectedness, not being able to communicate, and giving up convenience. The scores range from 20 to 140. The average score of 20 points and below is considered as the absence of nomophobia, the average score of 20-60 is considered as low-level nomophobia, the average score of 60-100 is considered as moderate nomophobia, and the average score of 100 points or more is considered as severe nomophobia. The reliability coefficient of the Turkish version of the scale was calculated as .92 for the whole scale, and .94, .74, .and .91 for the subscales, respectively.

#### 2.1.3. Toronto Alexithymia Scale-20 (TAS-20)

First developed by Bagby et al. in 1992, the scale was later revised and finalized as a 20-item scale. The validity and reliability analyses of the Turkish version of TAS-20 were performed by Kose et al. (21). In this 5-point Likert type scale ("Never," "Rarely," "Sometimes," "Often," and "Always"), respondents are asked to select the most appropriate option for themselves. The three subscales of the scale are as follows: difficulty in identifying feelings (TAS-1; 7 items); difficulty in expressing feelings (TAS-2; 5 items); expressive thinking (TAS-3; 8 items). Cronbach's alpha values of the subscales are 0.82, 0.75, and 0.72, respectively. In this study, they were calculated as 0.82, 0.68, and 0.70. The maximum score is 100 while the minimum is 20. High scores indicate a high alexithymia level.

#### 2.2. Ethical Consideration:

Written permission was obtained from the Giresun University Clinical Research Ethics Committee (KA EK:2019-26) and the Dean's Office. As required by the Helsinki Declaration, the students were informed about the research with a document attached to the scales. The data were collected by the researchers in the first 20 minutes of the lessons by the face-to-face interview method.

### 2.3. Statistical Analysis

The data were analyzed with the SPSS-22 package program and error checks, tables, and statistical analyses were performed. The dependent variables of the study were Nomophobia, TAS-20, TAS-1, TAS-2, and TAS-3 scores. The independent variables were socio-demographic characteristics and smartphone usage. For descriptive statistics, percentages, medians, and min-max values were calculated. The chi-square test was used for categorical data, and the Kolmogorov Smirnov test was used to test the suitability of the data for normal distribution. Based on the normality analysis, Student's T-test/Mann Whitney-U or One-Way ANOVA/Bonferroni correction Kruskal-Wallis tests were performed. Means were expressed with standard deviation (mean ± SD), and statistical significance was set at p <0.05.

### 3. RESULTS

The mean age of the students was 20.63 ± 1.87 (17-38), and 13.8% of them were male. 62.4% were nursing students (the ratio is similar to the school average). 2.7% had divorced parents. 11.7% spent most of their lives in rural areas. 4.8% stated that they were currently employed (Table 1).

**Table 1.** Socio-demographic characteristics of students (N = 530)

Variable	Characteristics	Number (n)	Percent (%)
Gender	Male	73	13.8
	Female	457	86.2
Department	Nursing	331	82.1
	Midwifery	199	15.2
Students classes	1.class	150	28.3
	2.class	144	27.2
	3.class	119	22.5
	4.class	117	22.1
Family type	Nuclear	437	82.5
	Extended	79	14.9
	Fragmented	14	2.6
Place of residence	Village	62	11.7
	Town	190	35.8
	Province	278	52.5
Employment status	Employed	25	4.7
	Not employed	505	95.3
Income level perception (n=519)	Low	73	14.1
	Moderate	434	83.6
	High	12	2.3
Smoking habit	Yes	60	11.3
	No	470	88.7
Alcohol habit	Yes	15	2.8
	No	515	97.2

In the study, the participants' perceptions of themselves were also evaluated. As a result of this evaluation where they answered multiple questions, it was found that 96.3% found themselves fair, 92.8% responsible, 93.8% open to new ideas, 88.6% confident, 81.9% determined, 79.9% inquisitive, 86.2% questioning, 70.6% creative, and 69.5% willing to take risks.

Participants reported that they use their mobile phones for an average of 5.46 ± 3.14 hours a day. Of the participants, 62.1% stated that they use their mobile phones to connect to social networks, 5.9% to listen to music, 43.3% to make a phone call, 72.9% to text on WhatsApp, 35% to watch movies, 34.7% to text messages, 39.1% to connect to the Internet, and 22.7% to play games.

As can be seen in Table 2, The TAS-20 score average of the participants in this study was 52.64±10.49 (min-max:25.00-83.00). For nomophobia, the average score is 76.83±25.00 (20.00-140.00). The reliability values of the scales used in this study are high, except for the externally oriented thinking sub-dimension of TAS-20 (Table 2).

**Table 2.** Mean, standard deviation, and reliability values of nomophobia and its subscales and TAS-20 and its subscales

Scales	Mean±SD	Min-Max	Cronbach alpha
Nomophobia	76.83±25.00	20-140	0.92
Not being able to access information	16.74±5.90	4-28	0.80
Losing connectedness	19.10±7.96	5-35	0.82
Not being able to communicate	26.30±9.47	6-42	0.91
Giving up convenience	15.07±3.30	5-25	0.90
<b>Toronto alexithymia scale-20</b>	52.94±10.49	25-83	0.78
Difficulty in identifying feelings	17.72±5.87	7-35	0.82
Difficulty in expressing emotions	13.97±3.74	5-25	0.63
Expressive thinking	23.05±4.24	11-25	0.31

As can be seen in Table 3, the nomophobia scores of female students, third-year students, and those who spent most of their lives in urban areas are higher and statistically significant (p<0.05). Also, the TAS-20 scores of nursing students and students with chronic diseases are higher (p<0.05). It was found that smoking, alcohol use, membership in any association or club, or participation in social activities did not make a significant difference in terms of both nomophobia and TAS-20 scores.

In addition, it was investigated whether some socio-demographic characteristics led to any differences in terms of NS grouping (no nomophobia, low-moderate-severe level of nomophobia). It was found that none of the variables (sex, department, year at university, marital status, family type, whether they lived in urban or rural areas, employment status, smoking status, alcohol use, having any chronic disease, being a member of an association or club, participating in social activities) led to a difference (p>0.05).

As can be seen in Table 4, there is a very weak positive correlation between the duration of daily telephone usage and nomophobia (r=0.148, p<0.01). In addition, a weak level positive correlation was found between nomophobia and alexithymia scores (r=0.321, p<0.01).

**Table 3.** Distribution of the participants’ mean scores of nomophobia and TAS-20 according to socio-demographic characteristics (N = 530).

Socio-demographic characteristics		Nomophobia		TAS-20	
		Mean±SD Mean Rank	Test/p Value	Mean±SD Mean Rank	Test/p Value
Gender	Male	226.62	U=13842.50 p=0.019	284.75	U=15275.00 p=0.247
	Female	271.71		262.42	
Department	Nursing	268.50	U=31942.00 p=0.561	277.27	U=29040.00 p=0.022
	Midwifery	260.51		245.93	
Students classes	1.class	261.42	KW=11.77 p=0.008	261.63	KW=1.804 p=0.614
	2.class	232.97 <sup>a,b</sup>		257.71	
	3.class	284.87 <sup>a</sup>		281.61	
	4.class	291.07 <sup>b</sup>		263.65	
Family type	Nuclear	76.44±25.43	F=0.380 p=0.684	52.57±10.11	F=0.485 p=0.616
	Extended	79.10±22.19		53.43±11.53	
	Fragmented	76.35±27.26		50.64±15.74	
Place of residence	Village	71.53±27.34	F=2.426 p=0.089	50.66±10.27	F=1.917 p=0.148
	Town	75.73±25.18		52.24±10.55	
	Province	78.77±24.19		53.37±10.49	
Employment status	Employed	74.28±28.19	U=0.572 p=0.601	53.92±8.84	U=1.881 p=0.536
	Not employed	76.96±24.85		52.58±10.57	
Income level perception (n=519)	Low	71.10±24.51	F=2.370 p=0.095	53.43±11.12	F=0.328 p=0.720
	Moderate	77.78±24.90		52.47±10.40	
	High	73.33±24.60		51.50±12.24	
Chronic diseases	Yes	77.92±27.82	t=0.337 p=0.736	56.07±10.78	t=2.543 p=0.011
	No	76.71±24.69		52.26±10.40	

\*Groups with difference caused according to the Independent-Samples T test/ Mann Whitney U Test-One-Way ANOVA/Kruskall Wallis test. <sup>a,b,c,d,e</sup> Tukey HSD

**Table 4.** The relationship between the participants’ age and daily telephone usage time and nomophobia and TAS-20 scores\* (N=530)

	Age	TimeDaily telephone usage	Nomophobia	TAS-20	TAS-1 <sup>a</sup>	TAS-2 <sup>b</sup>	TAS-3 <sup>c</sup>	
Age	r	1	-0.046	-0.065	-0.049	-0.060	-0.047	0.009
	p	-	0.299	0.137	0.255	0.165	0.277	0.828
Daily telephone usage	r	-0.046	1	0.148**	0.058	0.075	0.017	0.042
	p	0.299	-	<b>0.001</b>	0.188	0.087	0.695	0.345
Nomophobia	r	-0.065	0.148**	1	0.321**	0.334**	0.256**	0.174**
	p	0.137	<b>0.001</b>	-	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>

\*Pearson correlation analysis, <sup>a</sup>: Difficulty in Identifying Feelings, <sup>b</sup>: Difficulty in Expressing Feelings, <sup>c</sup>: Expressive Thinking

#### 4. DISCUSSION

The number of studies on nomophobia has increased particularly recently. There is also a plethora of studies on alexithymia. Most of these studies have focused on individuals with a health problem whereas some have focused on individuals with no health problems. However, to the best of our knowledge, no study has been conducted to explore the relationship between nomophobia and alexithymia in health professionals or prospective health professionals. But it should be noted that addiction to smartphones might cause emotional blunting in health professionals or students to become health professionals, which can lead to irreparable delays or disruptions in the patient care they provide. This study, which aimed to determine whether there was a relationship between nomophobia and alexithymia

in nursing and midwifery students and the effect of socio-demographic characteristics on the two, was conducted with 530 volunteer participants.

It was found that the nomophobia scores of the participants were at a moderate level, that they spent approximately 5.5 hours a day with their smartphones, and that they mostly used their mobile phones to connect to social networks. Hosgor et al. found that students of vocational schools of health services spent 1-4 hours with their smartphones and that students felt the need to check their phones as soon as they woke up (22). In another study conducted with university students, it was found that 55% of the students were nomophobic, spent an average of 6.43 hours a day with their smartphones, and their nomophobia levels negatively affected their academic achievements (23). Individuals overusing technological devices face the danger of becoming

addicted to them and even develop a phobia when they are deprived of them. They also waste an important part of the day, which is a fact supported by various studies. Bilgic et al. found that nursing students felt the need to carry their smartphones with them constantly, that they felt bad when they did not have their phones with them, that they saw their phones as an object reflecting their identity, that they learned from their phones much easier, that they believed that their phones were important for them to socialize and have fun and that they admitted that they were addicted to their phones (24). Besides, Kalaskar found that those who spent 5-6 hours a day on their smartphones were more prone to anxiety, sleep disorders, stress, and apathy (25). In this study, which aimed to determine whether socio-demographic characteristics led to any difference in terms of nomophobia, it was found that the nomophobia scores of female students, third-year students, and those who spent most of their lives in urban areas were higher. On the other hand, considering the sex variable, some studies reported that men are more nomophobic (26,27) while some other studies reported that women are more nomophobic (28,29). Some studies reported that sex is not significant in terms of being nomophobic (30-32). Although the present study found no difference in terms of nomophobia between midwifery or nursing students, Hosgor et al. found a difference between nomophobia and students' departments (22). Considering other socio-demographic variables, Yorulmaz et al. found that year at university did not create a difference in terms of nomophobia, which is not consistent with this study, while they found that living in urban areas created a difference in terms of nomophobia, which is consistent with this study (30). Another study conducted with university students reported that none of the variables of age, sex, and education level made a difference in terms of smartphone addiction (33).

In terms of alexithymia, which is the other dependent variable of the present study, it was found that the mean of the participants' scores from TAS-20 was close to half of the total score from the scale. It was also determined that the mean alexithymia scores of nursing students and those having a chronic disease were higher. However, none of the variables of sex, year at university, family type, whether they lived in urban or rural areas, employment status, and perceived income level were found to lead to any difference in terms of alexithymia. In their study that examined the alexithymia levels of nursing students in terms of various variables, Aksoy and Coban found that the alexithymia scores of the participants were at a moderate level, which is consistent with this study, and that sex and perceived income level did not lead to any differences, which is also consistent with this study, but year at university and participation in social activities led to differences, which is inconsistent with this study (34). In the study, a positive correlation was found between nomophobia and smartphone usage duration. In the literature, some studies found a similar correlation (35,36) while some did not (22,37).

The findings of this study showed that the levels of nomophobia and alexithymia of nursing and midwifery

students were related. Our research contributes to the literature as it is the first research that "examines the relationship between nomophobia and alexithymia in students nursing and midwifery", and we suggest that the results of this study will guide other researchers for further studies. In the literature, the positive relationship between nomophobia and alexithymia was mentioned in the study conducted by Yavuz et al. with 1817 adolescents (38). Ozen and Topçu, who conducted research on medical students, also reported a positive relationship between nomophobia and alexithymia (39). In this context, we suggest that the research be conducted in order to show whether there is a similar relationship with other students receiving health education. In the same way, it is considered important to conduct similar studies on healthcare workers. Because Bragazzi et al. describe nomophobia as a condition that should be included in the DSM-V criteria and psychotherapy – pharmacotherapy should be applied (40). The relationship between nomophobia and alexithymia is seen as important in the context of behavioral addictions. Based on the results, it is considered that both situations will cause negative effects both in personal life and in the professional process, and it is thought that early detection will be again on an individual and social basis.

## 5. CONCLUSION

Nomophobia scores of the participants were found to be at a moderate level. The mean of the scores obtained by the participants from the alexithymia scale was close to half of the mean score to be taken from the scale. No significant difference was found between many socio-demographic characteristics and nomophobia groupings (low, moderate, severe). It was determined that being a female student, is a third-year student, and having spent most of the life in urban areas created a significant difference in terms of nomophobia mean scores while being a nursing student and having a chronic disease created a significant difference in terms of alexithymia mean scores. The study concludes that there is a positive correlation between nomophobia and alexithymia scores. It is aimed that nurses/midwifery who have effective and important functions in service have sensory integrity and reflect this to care. On the other hand, the fact that the nursing and midwifery students are free from the negative effects of the mobile devices will help the patient to trust the health personnel and increase the patient nurse interaction. In this context, it is indispensable to ensure that nurses move away from mobile devices in order to increase their interactions with the patient, to establish programs to increase their sensory integrity and to ensure attendance by making them continuous and well-being for both patient and health personnel.

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