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The Relationship Between Nomophobia and Alexithymia in Nurse Interns: Descriptive Study

İntörn Hemşirelerde Nomofobi ve Aleksitimi İlişkisi: Tanımlayıcı Araştırma

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ABSTRACT Objective: The aim of the study is to examine the relationship between nomophobia and alexithymia in intern nursing students. **Material and Methods:** The universe of the research consisted of intern students of Atatürk University Nursing Faculty (n=250). The sample of the study consisted of students who used smart phones and volunteered to participate in the research (n=207). Post hoc power analysis was performed to determine the adequacy of the sample size of the study. In the power analysis, it was determined that the power of the study was 0.99 at the significance level of 0.05 and at the 95% confidence interval. Sociodemographic Data Form, Nomophobia Scale and Toronto Alexithymia Scale were used in the study. Data analysis was done with SPSS program. **Results:** It was found that of the students on the Nomophobia Scale mean score was 69.55±27.74; the Toronto Alexithymia Scale mean score was 51.12±11.15 It was determined that 44% of the students had moderate nomophobia, 15% had extreme nomophobia, and 28% had alexithymia. As a result of the research, it was determined that there was a positive and significant correlation between the mean scores of the Nomophobia Scale and the Alexithymia Scale ($p<0.05$). **Conclusion:** It was determined that the students had moderate nomophobia and alexithymia and they affected each other. As the level of nomophobia of the students increases, the level of alexithymia also increases.

Keywords: Alexithymia; nomophobia; nursing

ÖZET Amaç: Araştırmanın amacı intörn hemşirelik öğrencilerinde nomofobi ve aleksitimi arasındaki ilişkiyi incelemektir. **Gereç ve Yöntemler:** Araştırmanın evrenini Atatürk Üniversitesi Hemşirelik Fakültesi intörn öğrencileri oluşturmuştur (n=250). Araştırmanın örneklemini, akıllı telefon kullanan ve araştırmaya katılmaya gönüllü olan 207 öğrenci oluşturmuştur. Çalışmanın örneklem büyüklüğünün yeterliliğini belirlemek için "post hoc" güç analizi yapılmıştır. Yapılan güç analizinde çalışmanın 0,05 anlamlılık düzeyinde %95 güven aralığında çalışma gücünün 0,99 olduğu belirlenmiştir. Araştırmada Sosyodemografik Veri Formu, Nomofobi Ölçeği ve Toronto Aleksitimi Ölçeği kullanılmıştır. Verilerin analizi SPSS programı ile yapılmıştır. **Bulgular:** Öğrencilerin Nomofobi Ölçeği puan ortalaması 69,55±27,74; Toronto Aleksitimi Ölçeği puan ortalaması 51,12±11,15 bulunmuştur. Öğrencilerin %44'ünde orta düzeyde, %15'inde aşırı düzeyde nomofobi olduğu ve %28'inde ise aleksitimi bulunduğu belirlenmiştir. Araştırma sonucunda Nomofobi Ölçeği ile Aleksitimi Ölçeği puan ortalamaları arasında pozitif yönde anlamlı ilişkili olduğu belirlenmiştir ($p<0,05$). **Sonuç:** Öğrencilerde orta seviyede nomofobi ve aleksitimi olduğu ve birbirlerini etkiledikleri belirlenmiştir. Öğrencilerin nomofobi düzeyi arttıkça aleksitimi düzeyi de artmaktadır.

Anahtar Kelimeler: Aleksitimi; nomofobi; hemşirelik

Advances in technology have made accessing information simple. One convenient tool for this is the smartphone. Today, individuals of all ages use smartphones, and the time spent in the cyber world has increased, resulting in decreased levels of communication.[1,2] The widespread use of social media can also be explained by the decrease in face-to-face communication. In fact, the use of smartphones by young people is more related to social media.[1] The increasing use of smartphones has also paved the way for several technology-induced problems. Of these problems, nomophobia comes to the fore.[2]

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Nomophobia is a term that refers to the panic and fear experienced by an individual when they cannot access or communicate with a mobile device.[3-5] Individuals with nomophobia express that they feel uncomfortable when their batteries run out and when they lose online connection, and they experience stress when their phone turns off.[5,6] Studies with students have reported a link between nomophobia and anxiety.[7,8]

Various studies have found that the 18-25 age group is at higher risk for nomophobia.[1,9-13] In studies conducted with nursing students, determined that participants' communication levels decreased as their level of smartphone addiction increased.[1,12,14] Moreover, nomophobia was found to prevent healthcare professionals from communicating effectively with patients, cause misunderstandings, and reduce the quality of nursing care.[15] Another study with nursing students indicated that participants had difficulty recognizing their emotions as their time on social media increased.[12] Failure to identify emotions can result in alexithymia.

Alexithymia is one of the problems resulting from low emotional intensity and the inability to adequately express emotions.[3,10,16] While individuals with alexithymia can continue their daily lives and normal routines, they cannot verbally express their feelings or name the emotions they feel. These individuals often have many somatic complaints, and their imaginations and dreams are limited.[10,17]

It has been found that social media addiction can cause the emergence of or lead to an increase in existing alexithymia.[1,3] A study on hospital employees concluded that nurses with alexithymic symptoms had limited empathy and more problems in their interpersonal relationships.[18] It is important for nurses to be able to understand and convey emotions correctly in order to have healthy communication with patients and their relatives.[3] Nursing students need to understand their own feelings in order to be able to communicate therapeutically with patients.[19] Thus, the problems individuals with alexithymia experience in interpersonal relationships are also a problem in the nursing profession.

Information technologies used in nursing have greatly benefited nurses in areas such as informing patients' relatives, making care plans more accessible, and controlling and monitoring patients.[20] Smartphones can be beneficial if used correctly, but they also comprise negative effects caused by continuous and unconscious use.[1,3,4] The high rate of smartphone use among nurses is believed to be associated with nomophobia.[6] For this reason, communication and accurate conveyance of emotions are important for nursing professionals. This study was conducted to evaluate the concepts of nomophobia and alexithymia in nursing interns.

MATERIAL AND METHODS

TYPE OF STUDY

The research was completed in descriptive and relationship-seeking type. The research was conducted with nurse interns at Atatürk University between May 2020 and October 2020.

RESEARCH QUESTIONS

- What is the level of nomophobia in nursing students?
- Do nursing interns have alexithymia?
- Is there a correlation between intern nursing students' level of nomophobia and their alexithymia status?

STUDY POPULATION AND SAMPLING

The study population consisted of interns (n=250) in the nursing faculty. The study sample consisted of 207 students who met the research inclusion criteria and agreed to participate in the study (n=207). A post hoc power analysis was performed to determine the adequacy of the study's sample size; it was determined that the study power was 0.99 with a 95% confidence interval at a 0.05 level of significance (correlation H1=0.596, lower critical r=-0.136, upper critical r=0.136, power 0.99). This indicates that the sample size was sufficient.

RESEARCH INCLUSION CRITERIA

The research inclusion criteria included not having been diagnosed with a mental disorder and being a smartphone user.

DATA COLLECTION INSTRUMENTS

A sociodemographic data form, the Toronto Alexithymia Scale (TAS-20), and a Nomophobia Scale were used in the collection of study's data.

INTRODUCTORY INFORMATION FORM

The introductory information form consisted of 12 items regarding age, gender, marital status, who the student lived with, parents' levels of education, and duration of smartphone use.

NOMOPHOBIA SCALE

The Nomophobia Scale is a 7-point Likert-type scale consisting of 20 items; it was developed by Yıldırım and Correia in 2015 to measure nomophobia levels.[5] The scale was translated into Turkish by Yıldırım et al.[21] Scores on the Nomophobia Scale range between 20-140. A score of 20 indicates no nomophobia, a score between 20-60 indicates mild nomophobia, 60-100 indicates moderate nomophobia, and 100-140 indicates a high level of nomophobia. There are four sub-scales: not being able to access information, giving up convenience, not being able to communicate, and losing connectedness. In the original scale, the reliability coefficient Cronbach's alpha was 0.92. The Cronbach's alpha in this study was 0.94.

TAS-20

The TAS-20 is a 26-point measuring tool created by Taylor et al. in 1985 to measure individuals' alexithymia levels.[22] It was changed to 20 items in 1994 as the result of a factor analysis study by Bagby et al.[23] A Turkish validity and reliability study of the scale was conducted in 2009 by Güleç et al.[24] The scale consists of three sub-scales: *difficulty identifying feelings*, *difficulty describing feelings*, and *externally oriented thinking*. Individuals with a score of 59 or above are considered alexithymic. With regard to the validity and reliability of the scale, Cronbach's alpha coefficient was found to be 0.78. In the current study, the Cronbach's alpha was 0.81.

DATA COLLECTION

The data were collected online due to the coronavirus disease-2019 (COVID-19) pandemic. The questionnaire consisted of measuring instruments to be used in the research. At the beginning of the questionnaire, information was given about the purpose, subject, and confidentiality of the research. It was also emphasized that filling out the questionnaire was voluntary and had no connection to the participants' grades or educational processes. One participant was only allowed to complete one survey from the same phone.

EVALUATION OF THE DATA

The data were analyzed using SPSS v.22 for Windows (IBM, USA). In the analysis of the data, numbers, percentages, minimum and maximum values, averages, and standard deviations, as well as the Pearson correlation analysis for relational inferences, were used. An analysis of the continuous variables in the study was conducted, and it was determined that all data were distributed normally.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the ethics committee of Atatürk University Nursing Faculty before the research (date: April 6, 2020, no: 2020-3/4). In addition, institutional permission was obtained before the data were collected. The students were able to see the questionnaire after they approved the item "I know that this research is done on a voluntary basis, it is not related to my grades and courses, I only have the right to fill out the questionnaire once". The personal information of the researchers was not asked, the data obtained were not used outside of the study and were not shared with third parties. The study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

DEMOGRAPHIC CHARACTERISTICS OF NURSE INTERNS

It was found that 83.1% of the nurse interns were women, 98.6% were single, and 58.5% lived in the dormitory. The average age of the students is 22.16±1.78. It was found that 40.6% of the students used their smartphones for 3-4 hours per day, and 31.9% of them used their smartphones within 5 minutes of waking up in the morning. It was also found that 45.9% of the students used their smart phones to browse social media and 42% of them believed themselves as partially addicted (Table 1).

TABLE 1: Demographic characteristics of nurse interns.

Features		n	%
Gender	Male	35	16.9
	Female	172	83.1
Marital status	Married	3	1.4
	Single	204	98.6
Cohabitation status	Alone	7	3.4
	Dormitory	121	58.5
	Housemates	10	4.8
	Family	69	33.3
Mother's education level	Illiterate	40	19.3
	Elementary school	117	56.5
	Secondary school	17	8.2
	High school	20	9.7
	University	13	6.3
Father's education level	Illiterate	7	3.4
	Elementary school	93	44.9
	Secondary school	35	16.9
	High school	38	18.4
	University	34	16.4
Residential area	Province	113	54.6
	District	57	27.5
	Village	37	17.9
Daily smartphone usage time	Less than an hour	3	1.4
	1-2 hour	55	26.6
	3-4 hour	84	40.6
	5 hours or more	65	31.4
Time to look at the phone after waking up in the morning	As soon as you wake up	52	25.1
	In five minutes	66	31.9
	In half an hour	46	22.2
	In an hour	32	15.5
	While going to school	11	5.3
Time to use a smartphone before sleeping at night	Just before bed	73	35.3
	Five minutes ago	43	20.8
	Until half an hour ago	37	17.9
	Until an hour ago	34	16.4
	All night long	16	7.7
	Other	4	1.9
The reason for using smartphone	Make a call	34	16.4
	Sending SMS	41	19.8
	Spending time on social media	95	45.9
	Communicating with family members	13	6.3
	Communicating with friends	8	3.9
	Doing research on the internet	10	4.8
	Listen to music	6	2.9
Believing you're addicted to smartphone	Yes	62	30.0
	No	58	28.0
	Partly	87	42.0

Continuous variables	n	Minimum	Maximum	$\bar{X}$	SD
Age	207	19.00	33.00	22.16	1.78

SD: Standard deviation.

EXAMINATION OF THE MEAN SCORES OF THE NOMOPHOBIA SCALE OF THE NURS INTERNS

The total mean score of the students on the Nomophobia Scale was 69.55±27.74. According to the Nomophobia Scale cut-off points, 44% of the students have moderate nomophobia (Table 2).

EXAMINATION OF THE MEAN SCORES OF THE ALEXITHYMIA SCALE OF THE NURS INTERNS

The TAS-20 total score average of the students was 51.12±11.15. According to the cut-off points of the alexithymia scale, 28% of the intern nursing students have alexithymia (Table 3).

EXAMINATION OF THE RELATIONSHIP BETWEEN THE NOMOPHOBIA AND THE ALEXITHYMIA LEVELS OF NURSE INTERNS

The relationship between the mean scores of the Nomophobia Scale and the Alexithymia Scale is analyzed in Table 4. A significant and positive correlation was found between the total mean score of the Nomophobia Scale and Alexithymia Scale ($p<0.05$). As the students' Nomophobia scores increase, their TAS-20 scores also increase. In addition, a significant and positive correlation was found between all sub-dimension scores of the Nomophobia Scale and the TAS-20 total score ($p<0.05$).

It was found that there was a significant and positive correlation between the scores of Difficulty in Recognizing Emotions and Difficulty in Expressing Emotions, which are sub-dimensions of TAS-20, and the mean score of the Nomophobia Scale ($p<0.05$). No significant correlation was found between the Extraverted Thinking sub-dimension score and nomophobia ($p>0.05$).

DISCUSSION

This section discusses the research findings related to investigating the relationship between nomophobia and alexithymia in intern nursing students in light of the relevant literature.

TABLE 2: Examination of the mean scores of the Nomophobia Scale of the nurs interns.

Scale and subscales	n	Minimum	Maximum	$\bar{X}$	SD
Not being able to access information	207	4.00	28.00	15.99	6.61
Giving up convenience	207	5.00	35.00	16.89	8.84
Not being able to communicate	207	6.00	42.00	23.38	10.32
Loss of connection	207	5.00	35.00	13.28	8.34
Nomophobia Scale total score	207	20.00	140.00	69.55	27.74
Nomophobia levels	n	%	-	-	-
No nomophobia	3	1.4	-	-	-
Mild nomophobia	82	39.6	-	-	-
Moderate nomophobia	91	44.0	-	-	-
Extreme nomophobia	31	15.0	-	-	-

SD: Standard deviation.

TABLE 3: Examination of the mean scores of the TAS-20 of the nurs interns.

Scale and Subscales	n	Minimum	Maximum	$\bar{X}$	SD
Dificulty identifying feelings	207	7.00	35.00	16.62	6.33
Dificulty describing feelings	207	5.00	24.00	12.87	4.36
Externally oriented thinking	207	10.00	32.00	21.62	3.49
TAS-20					
Total score	207	28.00	79.00	51.12	11.15
Alexithymia levels	n	%	-	-	-
Nonalexithymia	149	72.0	-	-	-
Alexithymia	58	28.0	-	-	-

TAS-20: Toronto Alexithymia Scale.

TABLE 4: Examination of the relationship between the Nomophobia Scale and The TAS-20 Scale mean scores.

		Dificulty identifying feelings	Dificulty describing feelings	Externally oriented thinking	TAS-20 total score
Not being able to access information	r	0.294	0.227	0.130	0.297
	p	**0.000**	**0.001**	0.061	**0.000**
	n	207	207	207	207
Dificulty describing feelings	r	0.345	0.350	0.128	0.373
	p	**0.000**	**0.000**	0.067	**0.000**
	n	207	207	207	207
Not being able to communicate	r	0.237	0.209	-0.057	0.198
	p	**0.001**	**0.003**	0.419	**0.004**
	n	207	207	207	207
Loss of connection	r	0.321	0.317	0.009	0.309
	p	**0.000**	**0.000**	0.898	**0.000**
	n	207	207	207	207
Nomophobia Scale total score	r	0.365	0.339	0.053	0.356
	p	**0.000**	**0.000**	0.444	**0.000**
	n	207	207	207	207

TAS-20: Toronto Alexithymia Scale.

According to our study results, the average nomophobia score of the students was 69.5, and 44% of the students had moderate nomophobia (Table 2). In other words, almost half of the students experienced fear when they were separated from their phones. In the international literature, there are studies that found moderate nomophobia in nursing students, as well as studies that achieved higher scores.[4,9] A study conducted by Gutiérrez-Puertas found that Portuguese nursing students felt more stress when their charges ran out, and their total nomophobia score was found to be 54.7.[4] In the same study, the nomophobia score of the Spanish students was found to be 35.4.[4] The average score of both groups was lower than the score in this study. It is believed that this difference was due to the varying prevalence of smartphone use and the differences in cultural characteristics. In addition, in Türkiye, education continued online during the pandemic. The high level of nomophobia in Türkiye compared to other countries may have been due to the continuation of education online and the fact that students had to actively use the Internet.

In Türkiye, a study of university students by Öz and Tortop found that more than half of the students were at risk of nomophobia.[25] Moreover, in the study conducted by Yıldırım and Correia, it was stated that 42.6% of young adults had nomophobia.[5] In the study by Çelik İnce, a moderate level of nomophobia was found in nursing students.[26] The results of the our research were similar with the studies conducted in Türkiye. It is believed that the increase in smartphone use due to the stay-at-home rule applied in Türkiye was effective in obtaining this result.

Looking at the TAS-20 scores, which was the other variable of this study, 28% of the students were found to have alexithymia. Different results were revealed on this subject in the relevant literature. In general, it has been reported that the alexithymia levels of nursing students were in the range of moderate to high.[1,10-13] For example, in a study with nursing students in Italy, the level of alexithymia was found similar to our study in freshman students, and it was concluded that emotional skills had a negative relationship with alexithymia.[27] Another study conducted with nurses in Greece found that 14.7% of nurses had alexithymic characteristics.[28] This result was lower than our research finding. It is believed that the difference was due to the fact that the pandemic had a different course than in other countries as well as the individual characteristics of the students.

While there are numerous studies on the empathy and communication skills of nurses in Türkiye.[1,10-12,14] There are limited studies that investigated

alexithymia.[10] A study conducted by Kırca and Kutlutürkan with nursing students investigated the effect of smartphone addiction on communication and found that their level of communication decreased as the level of smartphone addiction increased.[14] Similarly, in the study by Aksoy and Çoban which investigated alexithymia in terms of variables relating to 203 nursing students, the students were found to be moderately alexithymic.[10] In addition, it was concluded in the same study that those with a lack of communication with patients were more alexithymic.[10] A study of nursing and midwife students found that 15.4% of students had alexithymia as well as lower empathy and emotional abilities.[11] These research findings were similar to other research results in Türkiye. In general, the identified alexithymia in students studying in the field of health may have been due to hospital conditions in addition to depersonalization related to constantly facing pain, distress, and grief. In addition, the fact that the vast majority of students were nomophobic at different levels may have contributed to this result (Table 2).

In the last section of this discussion, the relationship between the Nomophobia Scale and the Alexithymia Scale score averages are analyzed.

The research results revealed a significant and positive relationship between the total score averages of the Nomophobia Scale and the Alexithymia Scale ($p<0.05$). The alexithymia status of the students was found to increase in line with their levels of using a smartphone. Similarly, a significant relationship between nomophobia and alexithymia was also found in the literature.[3,16,29-31] Moreover, nomophobia was found to be associated with stress, anxiety, and depression, and alexithymia was found to affect depression, emotional exhaustion, and depersonalization.[28,31]

Nomophobia negatively affects mental and physical health in young people. Especially as time spent on social media increases, it becomes difficult for students to recognize their feelings.[1,12,14] It was found in a study of nurses that alexithymia increased with an increase in social media addiction.[3] Gao et al. have stated that alexithymia, depression, anxiety, and stress are significantly associated with smartphone addiction and that alexithymia is significantly and positively associated with smartphone addiction.[31] This study's findings were similar to the results of international studies. The same developmental traits of young individuals may have led them to focus on similar interests and experience similar problems.

Individuals with alexithymia have trouble engaging in healthy communication, despite being able to use their smartphones with minimal effort. Alexithymia leads to nurses not being able to express their feelings authentically as well as communication problems. Grynberg et al. noted that individuals who have problems expressing their emotions experience less anxiety and stress when using smartphones, which do not require face-to-face communication.[32] Hamaideh have stated that female students with high levels of alexithymia had higher anxiety scores, while Bian and Leung noted that individuals with a higher level of nomophobia often were socially withdrawn.[7,33]

In studies conducted in Türkiye, it has been stated that there is usually a relationship between nomophobia and alexithymia.[16,30] In a study by Altan, it was stated that alexithymia traits are related to nomophobia.[30] According to the results of the study conducted by Arcan and Yüce, alexithymia has a strong relationship with Internet addiction.[29] For their part, Özen and Topçu stated that smartphone addiction is associated with alexithymia, depression, and Obsessif Compulsive Disorder.[16]

Our research results were in line with other research results. This significant relationship may be caused by the negative impact of addiction to technology on communication and, therefore, emotions, as well as the psychology caused by the epidemic. Indeed, according to one study, alexithymia may emerge as a coping mechanism against stressful situations in emotional difficulty.[34] The circumstances in which education was suspended for a time and continued remotely all over the world have paved the way for students to spend more time on computers, tablets, or smartphones. Therefore, the increased use of smartphones may have led to addiction and emotionally negative consequences.

Intern students about to embark on their professional nursing careers should pay attention to their

use of smartphones and the consequences of unhealthy smartphone use. Moreover, students should be informed about this issue. Phone addiction can pose a risk to nurses as well as patients. It is known that nomophobia in nurses poses a risk as a distracting factor while providing health and medical assistance.[35] In such cases, conducting research and increasing the awareness of student nurses is of importance for the prevention of the risk of possible addiction in the future. It is hoped that this research will raise awareness of students as they begin their careers, allow them to use their smartphones for beneficial purposes, and lead to sensitivity about alexithymia.

LIMITATIONS

The limitations of this research are that the research is conducted during the COVID-19 process, data is collected online, and the answers to the questions depend on the subjectivity of the individuals.

The results of the research can be generalized to the intern students of Atatürk University Nursing Faculty.

IMPLICATIONS

Today, nomophobia is an important problem that negatively affects the academic and social life of young people. Nomophobic ones should be determined from the students studying in my health sciences and it should be ensured that they receive the necessary help to solve the problem. Because the future nurses and healthcare workers being nomophobic will cause them to experience negative problems in their business relationships and social lives. Nurses need to know about the factors that cause nomophobia, risky situations, and applications to be performed in the presence of nomophobia. School health nurses should provide training seminars and advise on nomophobia to prevent the spread of nomophobia in schools.

CONCLUSION

In this study, which investigated the relationship between nomophobia and alexithymia in intern nursing students, it was concluded that students had a moderate level of nomophobia and alexithymia. In addition, students' alexithymia status increased as their nomophobia levels increased, and students' individual characteristics, such as recognizing and expressing emotions, were affected by their use of smartphones.

Given these results, it may be recommended to support the use of smartphones for the benefit of nursing education, to improve student awareness of smartphone addiction, and to provide training for students to recognize and express their feelings throughout their nursing education.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Hatice Durmaz, Huri Melek Akın;* ***Design:*** *Hatice Durmaz, Huri Melek Akın;* ***Control/Supervision:*** *Hatice Durmaz, Huri Melek Akın;* ***Data Collection and/or Processing:*** *Huri Melek Akın;* ***Analysis and/or Interpretation:*** *Hatice Durmaz;* ***Literature Review:*** *Huri Melek Akın;* ***Writing the Article:*** *Hatice Durmaz, Huri Melek Akın;* ***Critical Review:*** *Hatice Durmaz;* ***References and Fundings:*** *Huri Melek Akın.*

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