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Investigation of Nomophobia, Alexithymia and Smartphone Usage Among Medical Faculty Students

Tıp Fakültesi Öğrencilerinde Nomofobi, Aleksitimi ve Akıllı Telefon Kullanımının İncelenmesi

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ABSTRACT

Purpose: To determine the frequencies of nomophobia and alexithymia in medical school students and to show whether there is a relationship between nomophobia and alexithymia.

Materials and Methods: This is a descriptive study conducted on 83 medical faculty students. For the assessment of nomophobia and alexithymia among the study population, the "Smartphone addiction scale" and "Toronto Alexithymia Scale" were used. The data were analyzed using SPSS 22 statistical software.

Results: Nomophobia and moderate alexithymia have been detected in 100% of the medical faculty students. The nomophobia scores of medical faculty students do not show a significant difference according to gender (p=0.3), grade levels (p=0.6), type of exercise (p=0.2), exercise frequency (p=0.2), the time that they spent on a smartphone (p=0.9), time of the day that they mostly use their smartphones (p=0.4), carrying a portable charger (p=0.6), or the most common reason to use the smartphone internet (p=0.5).

Conclusion: The increase in the usage of smartphones in daily life leads to dependence on smartphones, especially in young people and students. In the future, more studies of nomophobia are needed to understand the factors affecting this psychological condition.

Keywords: *Nomophobia; alexithymia, smartphone, medical faculty, student.*

ÖZET

Amaç: Bu çalışma ile tıp fakültesi öğrencilerinde nomofobi ve aleksitimi sıklığını belirlemek ve nomofobi ile aleksitimi arasında bir ilişki olup olmadığını ortaya koymak hedeflenmiştir.

Gereç ve Yöntem: Araştırmamız 83 tıp fakültesi öğrencisi üzerinde gerçekleştirilen tanımlayıcı bir araştırmadır. Çalışmada nomofobi ve aleksitimi değerlendirmesi için "Akıllı telefon bağımlılığı ölçeği" ve "Toronto Aleksitimi Ölçeği" kullanıldı. Veriler SPSS 22 istatistik yazılımı kullanılarak analiz edildi.

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Bulgular: Araştırmamıza dahil edilen tıp fakültesi öğrencilerinin %100'ünde nomofobi ve orta derecede aleksitimi saptanmıştır. Tıp fakültesi öğrencilerinin nomofobi skorları arasında cinsiyete (p=0,3), okudukları döneme (p=0,6), yaptıkları egzersiz türüne (p=0,2), egzersiz sıklığına (p=0,2), akıllı telefon ile gün içinde geçirdikleri süreye (p=0,9), akıllı telefonlarını en sık kullandıkları saatlere (p=0,4), taşınabilir şarj cihazı taşıyıp taşımamalarına (p=0.6) veya akıllı telefon internetini en sık kullanma nedenlerine (p=0,5) göre istatistiksel olarak anlamlı bir fark tespit edilmemiştir.

Sonuç: Günlük yaşamda akıllı telefon kullanımının artması, özellikle gençler ve öğrencilerde akıllı telefon bağımlılığına yol açmaktadır. Gelecekte, nomofobiyi etkileyen faktörleri daha iyi anlamak için daha fazla çalışmaya ihtiyaç vardır.

Anahtar kelimeler: *Nomofobi, aleksitimi, akıllı telefon, tıp fakültesi, öğrenci.*

INTRODUCTION

Today, besides the convenience that smartphones bring to our lives with the development of technology, there are also some negative effects of excessive use. One of these negative effects is nomophobia (No-Mobile Phone-Phobia). Nomophobia is a panic situation caused by the excessive fear of being disconnected from the communication provided by the mobile phone (1,2). Nomophobia has yet to find a formal place within the DSM-V, however, it is commonly accepted as a phobia based on DSM-V diagnostic criteria (3). Currently, some study groups are proposing to consider the inclusion of nomophobia in the DSM-V (4). A recent meta-analysis involving 12,462 participants from ten countries showed that the prevalence of moderate to severe nomophobia is 70.76% among university students and young adults (5).

Nomophobia presents with symptoms like anxiety, agitation, shaking, sweating, respiratory irregularity, tachycardia, tremor, and depression (6). Nervousness for not being able to communicate with others, fear of not being able to connect or have immediate access to information, and fear to lose the comfort provided by smartphones are emphasized as the main underlying causes of nomophobia (7). In recent studies, nomophobia, the new syndrome of the modern age, was found more common in young people (aged 18-24 years) who are called the "Thumb tribe" generation (8). The negative effect of nomophobia on the psychosocial status and academic achievement of young people is noteworthy. It has been reported that nomophobia was associated with low self-esteem, high impulsivity, loneliness, low self-happiness, and difficulty in multitasking (9-13). Nomophobia has also been found to be very common in previous studies involving students from different medical schools around the world. However, the severity of nomophobia differed among students as mild, moderate, and severe (14). It can seem that people will be more social as communication becomes easier with the development of technology. However, the increase in the time that people spend in the virtual environment and the dependence of people on their phones adversely affect the time individuals spend together and in real social life. Therefore, the ability to recognize and understand emotions determines the quality of interpersonal relationships.

Alexithymia is described as difficulty in transferring emotions to others and not being able to distinguish emotions and thoughts (15). In Greek, it is a concept that consists of the combination of words "a=no, lexis=word, thymos=feeling". Although there are many determinants of alexithymia character traits, it basically means emotional deafness. Previous studies have demonstrated that 24.1% of young people experience alexithymia and there is a strong link between alexithymia and phone addiction (16). In addition to simplifying and facilitating communication, smartphones provide to pass time easily. Based on these facts, we thought that smartphones that are so easily accessible, can be addictive and increase the frequency of alexithymia. The aim of this study is to determine the frequencies of nomophobia and alexithymia in medical school students and to show whether there is a relationship between nomophobia and alexithymia.

MATERIALS AND METHODS

The Study Population and Measures

This is a descriptive study conducted on 83 students in a medical faculty in Western Turkey. Detailed questionnaires for the evaluation of alexithymia and nomophobia were sent to all medical faculty students in our faculty, and 83 medical faculty students who answered the questionnaires were included in our study. For the assessment of nomophobia and alexithymia among the study population, Turkish versions of the valid and reliable scales that were frequently used in previous studies were selected. To assess the nomophobia among the medical faculty students, the "Smartphone Addiction Scale (SAS)" which is a self-report scale for smartphone addiction consisting of 33 items with a six-point Likert scale (1: "strongly disagree" and 6: "strongly agree") and a minimum score of 33 and a maximum score of 198 was used (17). For alexithymia assessment, the "Toronto Alexithymia Scale (TAS-20)" comprises three subscales consisting of 20 items: difficulty identifying feelings (DIF: seven items), difficulty describing feelings (DDF: five items), and externally oriented thinking (EOT: eight items) with a five-point Likert scale (1: "strongly disagree" and 5: "strongly agree") was

used (18). The total score ranged from 20 to 100, with higher scores indicating a higher level of alexithymia traits. A total of 57 points or more were accepted as a high level of alexithymia, while the range of values from 40 to 57 was accepted as a moderate level of alexithymia, and 40 points or below were accepted as low level of alexithymia. In addition to SAS and TAS-20 questionnaires, questions about physical exercise and spare time activity characteristics, smartphone usage habits, and demographic characteristics including gender, grade level, residency type, education level of the parents, number of siblings were asked. We created the surveys using "Google Forms" and delivered them to the participants via "WhatsApp" application. Each participant was asked to fill out questionnaires via online surveys. Written informed consent was obtained from participants following a detailed explanation of the objectives and protocol. The study was conducted in accordance with the ethical principles stated in the "Declaration of Helsinki" and the study protocol was approved by the Institutional Ethics Committee (Approval date: 6th November 2020; Decision number:2020/12-4).

Statistical Analysis

The data were analyzed using the software Statistical Package for Social Science (SPSS) for Windows, version 22. Frequency (n) and percentage (%) were calculated for the categorical data, whereas mean and standard deviation (SD) were calculated for the continuous variables. Normality assumptions were assessed before using parametric tests. The Chi-square test was used to compare categorical data. In the comparison of continuous variables of two independent groups; the Mann-Whitney U test was used for the dependent variable that was not normally distributed, and the independent t-test was used for the dependent variable that was normally distributed. P values less than 0.05 were considered significant.

RESULTS

The study was carried out on 83 medical faculty students and our results revealed that 100% of the study population had nomophobia and moderate alexithymia. Demographic characteristics, physical exercise/spare time activity habits, and smartphone usage habits of the study population are summarized in Table 1, Table 2, and Table 3 respectively. In the study, the nomophobia scores of the medical faculty students do not show a significant difference according to gender (p=0.3), grade levels (p=0.6), physical exercise frequency (p=0.2), the time that they spent on a smartphone (p=0.9), time of the day that they mostly use their smartphones (p=0.4), carrying a portable charger (p=0.6), or the most common reason to use the smartphone internet (p=0.5) (Table 4).

Table 1: Demographic characteristics of the study population

		n	%
Gender	Male	37	44.6
	Female	46	55.4
Grade level	1st	2	2.4
	2nd	11	13.3
	3rd	50	60.2
	4th	18	21.7
	5th	2	2.4
Residency type	Apartment with parents	43	51.8
	Apartment with friends	30	36.1
	Dorm	10	12
Both parents alive	Yes	81	97.6
	No	2	2.4
Siblings	No siblings	12	14.5
	One sibling	43	51.8
	Two siblings	17	20.5
	Three siblings	4	4.8
	>3 siblings	7	8.4

Table 1: Demographic characteristics of the study population			
Education levels of the mothers	Illiterate	1	1.2
	Primary school	13	15.7
	High school	16	19.3
	University	41	49.4
	Postgraduate	12	14.4
Education levels of the fathers	Illiterate	None	None
	Primary school	8	9.6
	High school	14	16.9
	University	50	60.2
	Postgraduate	11	13.3
n, number.			

Table 2: Physical exercise and spare time activity characteristics of the study population			
		n	**%**
Spare time activities of the PCPs	Hobbies	29	34.9
	Sleep	11	13.3
	Travel/Vacation	13	15.7
	Internet surfing	24	28.9
	TV	4	4.8
	Physical exercise	2	2.4
Presence of any chronic disease in the PCPs	Yes	8	9.6
	No	75	90.4
Presence of any chronic disease limiting physical activity in the PCPs	Yes	1	1.2
	No	82	98.8
Regular exercise	Yes	41	49.4
	No	42	50.6
Exercise frequency	1-2 times a week	33	39.8
	3-4 times a week	33	39.8
	5-6 times a week	16	19.3
	7 times a week	1	1.2
Type of exercise	Aerobics	14	16.9
	Walking	37	44.6
	Fitness	16	19.3
	Pilates	1	1.2
	Yoga	4	4.8
	Swimming	2	2.4
	Team sports	2	2.4
	Cycling	2	2.4
	Tennis	1	1.2
	Cardio	3	3.6
	Skipping rope	1	1.2
n, number; PCP, participant.			

Table 3: Smartphone usage habits of the study population			
		n	%
The time that PCPs spent on the smartphone	1-3 hours	25	30.1
	4-6 hours	42	50.6
	7-9 hours	11	13.3
	10-12 hours	4	4.8
	13-15 hours	1	1.2
Carrying a portable charger	Yes	24	28.9
	No	59	71.1
Checking the smartphone immediately after waking up	Yes	74	89.2
	No	9	10.8
Switching off the smartphone at night	Yes	10	12
	No	73	88
PCPs use the smartphone internet mostly for	Social media/text message	57	68.7
	TV series/movies	13	15.7
	Online games	6	7.2
	Online searching	7	8.4
Time of the day that PCPs mostly use their smartphones	Morning (07:00-12:00)	1	1.2
	Afternoon (14:00-18:00)	12	14.5
	Evening (18:00-23:00)	50	60.2
	Night (23:00-07:00)	20	24.1
Communication preference of the PCPs	Social media/text message	45	54.2
	Voice call	25	30.1
	Face to face	13	15.7

n, number; PCP, participant.

Table 4: Association between the nomophobia scores and variables			
		SAS score (Mean±SD)	P value
Gender	Male	93.5±8.9	0.3
	Female	93.2±9.4	
Grade levels	1st	93.5±3.5	0.6
	2nd	90.8±5.5	
	3rd	93.7±10.5	
	4th	94.1±7.6	
	5th	91.5±3.5	
Exercise frequency	1-2 times a week	90.7±10	0.2
	3-4 times a week	91.7±10.7	
	5-6 times a week	93.5±7	
	7 times a week	97.4±8.5	
The time that they spent on smartphone	1-3 hours	90.4±9.9	0.9
	4-6 hours	94.4±8.9	
	7-9 hours	96.9±8.4	
	10-12 hours	90.8±3.3	
	13-15 hours	98	

Table 4: Association between the nomophobia scores and variables			
Time of the day that they mostly use their smartphones	Morning (07:00-12:00)	108	0.4
	Afternoon (14:00-18:00)	93±9.8	
	Evening (18:00-23:00)	93.3±9.3	
	Night (23:00-07:00)	93.1±8.2	
Carrying a portable charger	Yes	95.2±8.2	0.6
	No	92.7±9.4	
The most common reason to use the smartphone internet	Social media/text message	94.6±8.8	0.5
	TV series/movies	90.6±7.3	
	Online games	94.5±5.4	
	Online searching	87.7±14.5	
SAS, Smartphone Addiction Scale; SD, standard deviation.			

DISCUSSION

The present study reports the frequency of nomophobia and alexithymia among the medical faculty students and, also investigates the possible factors that might increase the risk of nomophobia development. Our results revealed that all of the medical students involved in the study had nomophobia and moderate alexithymia. The nomophobia levels among the students have been found approximately equal and the standard deviations were quite low. Moreover, the factors including gender, parental education levels, grade levels, type of exercise, the time that they spent on a smartphone, time of the day that they mostly use their smartphones, the most common reason to use the smartphone internet, and carrying a portable charger were not related to nomophobia.

Our study showed that the nomophobia scores of medical faculty students did not show a significant gender difference. Previous studies comparing the gender differences in nomophobia have conflicting results (6,19). Similar to our results, Adnan and Gezgin (6) did not detect a significant gender difference in nomophobia among college students. On the other hand, Moreno-Guerrero et al (19) have found that women had higher rates of nomophobia than men in their study including 1743 students aged between 12 and 20 years. The conflicting results may arise from the cultural differences between the study populations. Another factor that we investigated for the possible role in nomophobia development in the students was their grade levels. We found that there was no significant relationship between grade levels and nomophobia. Similar to our study, Gezgin et al (20) showed that students' grade levels have no effect on the prevalence of nomophobia.

Exercise frequency and the type of exercise that the medical faculty students prefer did not result in a significant difference in nomophobia rates in the study. Similar to our results, Buctot et al (21) did not find a significant relationship between nomophobia and physical activity. However, unlike our results, there are several studies that demonstrate an inverse relationship between nomophobia scores and exercise frequency (22,23). Since all the participants in the study had physical exercise habits of varying frequencies, our results might have shown no difference in nomophobia rates according to the physical exercise.

Another factor that we investigated in our study was the time that medical faculty students spent daily on a smartphone. We did not detect a significant difference in nomophobia levels according to the average time spent on a smartphone. There are conflicting results in the literature showing a significant difference in nomophobia levels according to the average time spent on a smartphone (9,24). Moreover, Pavithra et al (25) suggested that smartphone addiction also increases as the duration of smartphone use increases, and smartphone addiction can lead to nomophobia. They also stated that those who use the smartphone for more than five hours a day have a higher risk of addiction to the smartphone, and therefore, their nomophobia level is higher than those who use the phone for less than three hours a day (25). In addition, we also investigated whether there was a statistically significant difference in the levels of nomophobia according to carrying a portable charger, or the purpose that they use smartphones mostly and detected no significant differences. We revealed that there was no statistically significant difference in the nomophobia scores of medical school students according to the frequency of checking a smartphone daily or, the time of the day that students mostly use their smartphones. Kaplan et al (26) found that the nomophobia levels of the students who check their smartphones 49 times a day or more are significantly higher than those who check their phones 1-16 times a day.

Parental education levels were found to cause no significant differences in the nomophobia scores of the medical faculty students in our study. In previous studies, an inverse relationship between nomophobia scores and parental education levels has been detected (27,9). The difference between

the literature and our study may arise from the non-homogeneous distribution of parental education levels in our study.

A moderate level of alexithymia was detected in all the medical faculty students in our study. Since individuals with alexithymia can prefer smartphones and the internet to manage their problems and express their emotions, improper smartphone use is related to alexithymia (28). A previous study with 1105 college students showed that alexithymia had a significantly positive prediction effect on mobile phone addiction (29). Another study with 800 high school students found a significant relationship between nomophobia and alexithymia (30). Similar to the literature, it is an expected result that alexithymia was detected in parallel to smartphone addiction and nomophobia in the students included in our study.

CONCLUSION

The present study shows that all of the medical students involved in the study have nomophobia and moderate alexithymia. Considering the rapid changes in technology that will become faster in the coming years, it should be foreseen that the use of smartphones in daily life will become more widespread. These changes may lead to an increase in humanity's dependence on smartphones. In the future more detailed studies of nomophobia which are considered the plague of the age that increases the risk of sleep disorders, brain neoplasms, eye diseases, and its relationship with alexithymia, are needed (31). The main way to reduce nomophobia incidence is to understand the factors affecting this psychological condition well and to use the time on the smartphones more effectively and in a controlled manner

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