Yıldız Vatansever, E & Baltaci, S. (2022). Investigation of the Relationship Between Nomophobia and High School Entrance Exam (LGS) Scores in Terms of Sociodemographic Variables. *International Online Journal of Education and Teaching (IOJET), 9*(1). 142-175.

Received : 16.09.2021
Revised version received : 04.12.2021
Accepted : 08.12.2021

INVESTIGATION OF THE RELATIONSHIP BETWEEN NOMOPHOBIA AND HIGH SCHOOL ENTRANCE EXAM (LGS) SCORES IN TERMS OF SOCIODEMOGRAPHIC VARIABLES

Research article

Esra Yıldız Vatansever (0000-0002-8126-8361).
BİLNET Schools
esrayildizvatansever@gmail.com

Corresponding Author:
Şehnaz Baltacı (0000-0003-1961-1840)
Bursa Uludag University

sehnazbg@uludag.edu.tr

Biodata(s):

Esra YILDIZ VATANSEVER has been a computer teacher at secondary schools for five years. She received her Masters' degree from Bursa Uludag University, Computer Education and Instructional Technologies Department. Her areas of interest include social media, technological device addiction, and the effects of technological addiction on education.

Şehnaz BALTACI is an Associate Professor at Computer Education and Instructional Technology, Faculty of Education, Bursa Uludag University, Turkey. She holds her Ph.D. from the University at Albany, SUNY, NY, USA. Her research interests are Web 2.0 technologies, technology integration, social media, technology addiction, and teacher education.

INVESTIGATION OF THE RELATIONSHIP BETWEEN NOMOPHOBIA AND HIGH SCHOOL ENTRANCE EXAM (LGS) SCORES IN TERMS OF SOCIODEMOGRAPHIC VARIABLES

Esra YıldızVatansever

esrayildizvatansever@gmail.com

Sehnaz Baltaci

sehnazbg@uludag.edu.tr

Abstract

Nomophobia, a type of technological addiction defined as the fear of being deprived of a smartphone, is quite prevalent in young individuals with the widespread use of mobile phones. This study aims to determine the nomophobia level of secondary school 8th-grade students. The effect of nomophobia on academic achievement was investigated by comparing the detected nomophobia levels of the students and the High School Entrance Exam (LGS) scores. These effects on LGS scores were determined by gender, parental attitude, parental education level, smartphone usage purpose, daily smartphone checking frequency, whether or not to carry a charger, areas where the smartphone is mostly used, and checking the smartphone before going to sleep. For this purpose, a correlational survey model was used in the study. The "Personal Information Form" and "Nomophobia Scale" were applied during the 2019-2020 academic year. According to the results of the research, nomophobia in secondary school students differs according to gender, the purpose of using a smartphone, the areas where the smartphone is mostly used, whether or not to carry a charger or not, whether or not to have a smartphone with them before going to sleep; while parental attitude, parental education level, daily smartphone checking frequency doesn't differ their nomophobia. It was determined that the students had moderate nomophobia levels, and the nomophobia sub-factor scores differed according to students' LGS scores.

Keywords: nomophobia, high school entrance exam (LGS), secondary school students, smartphone addiction

1. Introduction

Turkish Language Association (TDK) defines addiction as "The state of being connected; depending on the will, power or help of something else" (TDK, 2019). Since technology has become the center of our lives, it has become easier to become addicted (Uysal, Özen, & Madenoğlu, 2016). As in other behavioral addictions, technology addiction is defined as a feeling of absence when one cannot reach the technological product or activity that one is addicted to (Yeşilay, 2020). Ertemel and Aydın (2018) stated four basic features reinforce technology addiction, which is not found in media such as television, books, and magazines but in digital environments. These features are; absence of an end sign, fear of missing out (FOMO), rewards, and dependence.

The book prepared for Secondary School Level Technology Addiction Education (TBMEP, 2019) by Turkey Anti-Addiction and Education Program defines the following symptoms of technology addiction: desire to spend more and more time with technology, getting angry when you can't use it as much as you want, using more than planned each time, continuing to use

technology despite the problems it causes, being on your mind even when you are not using it, and disruption of responsibilities due to devices used. Platform-owning corporations build new experiences using behavioral psychology and expand the amount of time individuals spend in front of screens due to the newly created economic world (Ertemel, 2017). Uza (2019) further mentioned that mobile phone applications encourage mobile phone addiction. Therefore, technology addiction is rapidly growing and is becoming a difficult situation to be avoided. When technology addiction is not taken under control, it leads to many negativities in the physical, psychological and social areas. The increase in the duration of internet use, the fact that access has become easy and widespread, and communication forms are limited to the virtual environment create a new problem such as "internet addiction." "Internet addiction" was first described by Ivan Goldberg in the 1990s to indicate problematic internet use. Apart from internet addiction, problematic internet use, pathological internet use, cyber addiction, and compulsive internet use are other concepts that correspond to this addiction (Senormanci, Konkan & Sungur, 2010).

While mobile phones were only capable of making calls and sending messages when they were first produced, the new features attract individuals of all ages and decrease the age of mobile phone usage (Choi et al., 2015) day by day. While 73% of users in Turkey state that they use their mobile phones too much, this rate is 46% in Europe (Deloitte,2019).

Bianchi and Phillips (2005) state the symptoms of mobile phone addiction as follows; experiencing financial crises due to excessive use of mobile phones, feeling anxiety and depressive feelings intensely when the mobile phone is not picking up, difficulty reducing mobile phone use or controlling quitting, and referring to the use of mobile phones to escape from emergencies and problems. Lee, Chang, Cheng, and Lin (2014) state that smartphone addicts check their smartphones first thing in the morning and last thing at night. According to Deloitte Global's 'Mobile User Survey,' Turkey is ahead of Europe in terms of smartphone addiction in 2017, with 28 percent of users in Turkey looking at their phone when they get up in the morning compared to 15 percent in Europe. They added that while the rate of checking their phones at night is 23% in Turkey, this value is 13% in Europe, and that phone users look at the phone screen approximately every 13 minutes while they are awake, compared to 15 minutes in 2015 (Deloitte, 2017). A study repeated by the same company in 2019 stated that daily social media usage in Turkey increased in all age groups compared to 2017. Turkey is ahead of Europe regarding social media usage and gaming on mobile phones (Deloitte, 2019). Using social media, such as Instagram and Twitter, is also high in Turkey compared to Europe. While checking Instagram once per hour is 49% in Turkey, it is 9 % in Europe. Playing online games at least once a day is 49%, while it is 21% in Europe (Deloitte, 2019).

In addition to the dozens of benefits that mobile phones provide, if they are used too much, they also bring many unfavorable psychosocial and physical conditions in individuals (Ertan, 2019). For this reason, the addiction to smart mobile phone use poses an important problem for all age groups (Yildirim & Correia, 2015; Yücelten, 2016). Statista's (2021) data states that today, six billion smartphones are in usage and are expected to grow by several hundred million in the next few years. In Turkey, over 60% of the population has smartphones (56.24 million) and expected to be 63.62 million in 5 years.

1.1. Theoretical Background

Increasing dependence on technology day by day causes many new negative phenomena to be defined and developed. Internet addiction, social media addiction, game addiction, fear of being without Internet (netlessphobia), fear of missing out (FOMO), and nomophobia are some of these negative phenomena (Eşitti, 2015; Öztürk, 2015; Gökler, Aydın, Ünal & Metintaş,

2016). Among these cases, "nomophobia" is one of the situations that will create a physical and psychological risk in the individual with excessive attachment to the mobile phone.

Individuals with nomophobia may have both physical problems such as headache (Sharma, Sharma, Sharma & Wavare, 2015), vision problems (Haug et al., 2015), hand, wrist, and neck pain (Kanmani, Bhavani & Maragatham, 2017), and insomnia due to constantly looking at the screen (Haug et al., 2015; Kwon, Kim, Cho & Yang, 2013; Yogesh, Abha & Priyanka, 2014; Singh & Yadav, 2015); and psychological problems such as attention deficit (Kıraç, 2019), depression (Bekaroğlu & Yılmaz, 2020; Erdem, Kalkın, Türen & Deniz, 2016; Kim, Seo & David, 2015; Randler et al., 2016), anxiety (Gezgin, Şahin & Yildirim, 2017; Minaz & Bozkurt, 2017), lack of social life, difficulty with making friends outside of social media, having problems in family relationships (Akman, 2019), the desire to check the phone constantly, and low productivity and academic performance (Augner & Hacker, 2012; Shan, Deng, Zhang & Zhao 2013; Kuyucu, 2017; Durak 2019).

Considering the effects of nomophobia on the individual, the attitudes of individuals towards smartphones gain even more importance during childhood and adolescence, which is the period when psychological, physiological, and social development is most affected. Küçükvardar and Tıngöy (2018) also stated that digital disease symptoms increased sharply among children and young people. School-age children's acquaintance with nomophobia affects their friendship relations, attitudes towards lessons, and academic success both inside and outside the school.

1.2. Nomophobia and Sociodemographic Variables as Predictors of Academic Performance

Technological addictions can affect our family life, work, social life, and school life. When the effects of technological addictions are not noticed or noticed late, it can cause many permanent or temporary damage to the individual. The academic life of the individual may also be affected by these damages.

The studies examined and the observations show that technology and all the addictions that come with it have reached children in the secondary school, primary school, and even kindergarten generation. The academic life of school-age children and family life and social life are also of great importance. Especially the knowledge gained in the first years of academic life is of great importance in forming the basis that a person will use throughout her life. Again, the child's attitude towards the academic life at the beginning is a factor that will affect the attitude towards the whole academic life. For this reason, all kinds of factors that will positively or negatively affect the academic life of school-age children should be investigated, and precautions should be taken. The extent to which the child, whose academic life has started or is about to begin, interacts with the Internet, social media, games, and similar platforms in technological products is an impressive factor in her education. According to studies (Ayar, Özalp, Özdemir & Bektaş, 2018; Betoncu & Ozdamli, 2019), school-aged children and young adults spend a lot of time in front of the computer have detrimental physiological, psychological, and social effects. He thinks that this will lead to a decrease in his academic performance. Regarding whether there is a link between demographic characteristics and nomophobia, the studies' findings differ. Although some researchers claim there is no link between gender and problematic smartphone use (Walsh & White, 2007), smartphone usage patterns vary by gender (Wei & Lo, 2006; Aktaş & Yılmaz, 2017; Bal & Balcı, 2020).

Akdemir (2013) investigated the relationship between Facebook use and academic procrastination of elementary school students and stated a significant positive correlation between them. Çetinkaya (2013) studied secondary school students' online addiction and found

that pupils who described their academic success as low had the highest levels of internet addiction. In another study conducted with middle school students, Çubuk (2019) divided the grades between 0-100 into five groups and compared them with their internet addiction levels. According to Çubuk (2019), pupils with higher academic achievement have less internet addiction. When assessing online addiction by grade level, she found that internet addictions rise as the grade level increases, with eighth-grade kids having the most internet addictions. This circumstance can be regarded as addiction becoming more prevalent as one gets older, potentially leading to more serious difficulties in the individual.

Mythily, Qui, and Winslow (2008) examined the prevalence of excessive internet use among young people. Their research, which included 2735 students in Singapore with an average age of 13.9, found that internet addiction varies depending on academic achievement. They concluded that students with high internet addiction have low academic achievement. Anlayışlı and Serin (2019) examined high school students' internet addiction and depression status according to gender, academic achievement, and internet usage time. They found that there was a significant difference between academic achievement and internet addiction. Other research revealed similar results (Yang & Tung, 2007; Elmas, Kete, Hızlısoy & Kumral, 2015; Bekar, 2018; Yildiz Durak, 2019; Prasad et al., 2017; Son & Johnson, 2020; Sharma, Kumar, Lamba & Awasthi, 2021).

In a similar study conducted with high school students, Binali (2015) examined the relationship between personality traits, internet addiction, and academic achievements of 367 students studying in the 11th and 12th grades. Binali (2015) concluded that there is a significant difference between internet addiction levels and academic achievement and that as students' grade point averages increase, their duration of internet use decreases. Probably, students with negative attitudes toward the course and who cannot perform satisfactorily at an academic level would focus on using their smartphones during and after class. To have a more balanced perspective of the impacts of mobile phones on attention and learning, Mendoza, Pody, Lee, Kim, and McDonough (2018) state that mobile phone usage and learning performance must be carefully considered. As a result, this viewpoint contrasts with the notion that smartphones are always detrimental to learning.

However, some researchers state that smartphones improve learning conditions when used as a supplement (Öztürk, 2007; Gazioğlu & Ergin, 2008; Jan, Ullah, Ali, & Khan, 2016; Çalış,-Duman & Aksoğan, 2018). Rashid and Asghar (2016) found that smartphones are important for self-directed learning concerning problem-based learning performance, and nomophobic behaviors are less common among learners who can take responsibility for their learning and regulate their performance. According to the social cognitive theory, individuals can overuse technology to relieve their life pressures, self-esteem, and bad situations/emotions associated with low performance.

It is known that parental factors are also effective on the academic achievement of individuals. When the studies in the literature are examined, it is seen that many studies are stating that the parental factor is a significant predictor of academic success (Griffiths, 1996; Özer & Anıl, 2011; Özkan & Yildirim, 2013). Sarıer (2016) explained the effect size of family-related factors affecting academic achievement as family's attitudes and behaviors, socio-economic level, father's education level, family's participation in education, and mother's education level, respectively. The attitudes and behaviors of parents on this subject are critical. Cho and Lee (2017) found that parental characteristics are linked to students' tendency to use problematic and uncontrolled smartphones.

1.3. Significance and Aim of the Study

Many studies have been conducted on the factors affecting academic success (Öksüzler & Sürekçi, 2010; Aslanargun, Bozkurt &Sarıoğlu, 2016). Arıcı (2007) suggests that, at the point of success or failure, the characteristics of the individual and the environment in which the individual interacts (geographical, spiritual, physical, environmental, opportunities, etc.) were effective. It is stated that out-of-school factors are more effective than in-school factors in student achievement (Öksüzler & Sürekçi, 2010), and when we look at out-of-school factors, family is the most critical factor. Dam (2008) stated that factors such as the educational status of the parents, the loss of life among family members, divorce, the attitude of the parents towards the child, the expectations of success from the child, and the attitudes of the parents towards school are effective on student success. Central and local assessment and evaluation systems are used to determine the academic success of students. Researchers think that central/nationwide examination systems are more effective than local examinations to demonstrate academic achievement (Kahraman, 2014; Buldur & Acar, 2018). It is also thought that central examination systems set a standard for measurement and evaluation (Genç, 2005), enable comparison of achievements at the national level, and determine the academic level of students (Büyüköztürk, 2016).

Turkish Ministry of National Education (MEB) conducts several central exams. LGS is a national-scale examination system that determines students' academic success and places students in different educational institutions based on their scores. The exam, repeated every year in the spring semester, covers the 8th-grade students studying at the secondary school level. LGS is among the essential exams that shape an individual's academic life. As a result, it is suggested that the elements that influence students' LGS achievement should be investigated. The literature on smartphone addiction and nomophobia (Güneş & Gücük, 2020; Hoşgör, 2020; Sırakaya, 2018) generally focus on high school and university students. In addition, studies on the academic achievement of secondary school students (Aslanargun, Bozkurt & Sarıoğlu, 2016; Çubuk, 2019) discuss nomophobia very limitedly.

Secondary school students have the highest potential to use technology (Durak & Seferoğlu, 2018). It is crucial to investigate the extent to which children studying at secondary school are affected by nomophobia, what variables are related to their academic performance, and whether nomophobia affects academic performance. This study aims to determine the nomophobia levels and LGS scores of secondary school 8th-grade students and examine the relationship between nomophobia levels and LGS scores in terms of various variables. Research questions guiding the study are:

1. What are the nomophobia levels of secondary school 8th-grade students?

2. Do nomophobia levels and LGS scores of 8th-grade secondary school students differ in terms of:

a. gender,
b. parent's education
c. parental attitudes,
d. smartphone usage purpose,
e. daily smartphone checking frequency,
f. whether or not to have a charger along,
g. whether or not to keep the smartphone by side while sleeping,
h. where is the smartphone used the most

3. Is there a relationship between Nomophobia levels and LGS scores of 8th-grade secondary school students?

2. Methodology

This study was conducted to examine the effect of secondary school 8th-grade students' Nomophobia levels on LGS scores in terms of various variables. For this purpose, the relational survey method was used in the study. The relational survey method aims to collect data to reveal specific characteristics of a group in its current form (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2017).

The research study group consists of 34 8th grade students, 22 boys, and 12 girls, studying at a private secondary school in the 2019-2020 academic year and will enter LGS at the end of the year. The convenient sampling method was used to determine the study groups. This method provides convenience in terms of time, money, and labor in reaching groups or individuals suitable for the study (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel, 2017).

2.1. Data Collection Tools

Data were collected by demographic information form and NMP-Q Scale (Yildirim and Correia, 2015). In addition, the students' LGS scores were obtained from the school administration. The demographic information form consists of 11 questions about students' gender, parental attitudes, parental education status, smartphone usage purposes, daily smartphone usage frequency, carrying a charger with them, keeping the smartphone with them before going to sleep, and where the smartphone used the most. The Nomophobia scale (NMP-Q) was developed by Yildirim and Correia (2015) and is a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale has four factors. The factors are: not being able to access information, giving up convenience, not being able to communicate, and losing connectedness (Table 1).

Table 1. *NMP-Q factors*

Factors	Item number
Not being able to access information	1-2-3-4
Giving up convenience	5-6-7-8-9
Not being able to communicate	10-11-12-13-14-15
Losing connectedness	16-17-18-19-20

Cronbach's alpha reliability coefficient for internal consistency of the NMP-Q is .876, indicating that the scale has good internal consistency. Table 2 also shows the reliability coefficients for the sub-factors of the NMP-Q.

Table 2. *Reliability analysis of NMP-Q*

NMP-Q and Sub-factors	Cronbach's Alpha	Number of Items
Not being able to access information	0.562	4
Giving up convenience	0.753	5
Not being able to communicate	0.850	6
Losing connectedness	0.681	5
NMP-Q	0.876	20

NMP-Q scale's scores are given in Table 3.

Table 3. *Nomophobia scale scores*

Scores	Nomophobia Levels
NMP-Q score = 20	Absent
21 ≤ NMP-Q score < 60	Mild
60 ≤ NMP-Q score < 100	Moderate
100 ≤ NMP-Q score < 140	Severe

Participants in the study can have a score between 20 and 140 on the NMP-Q scale. The absence of nomophobia is indicated by a score of 20, mild nomophobia is indicated by a score of 20-60, moderate nomophobia is indicated by a score of 60-100, and severe nomophobia is indicated by a score of 100-140 (Yildirim & Correia, 2015).The data were analyzed using the SPSS (Statistical Package for Social Sciences) for Windows 21.0 program. Table 4 shows the Skewness and Kurtosis coefficients in the NMP-Q scales of the students.

Table 4. *Skewness and kurtosis coefficients in nomophobia scales of students*

Scale and sub-factors	Skewness	Kurtosis
Not being able to access	0.097	-0.476
Giving up convenience	-0.160	-0.814
Not being able to communicate	0.118	-1.178
Losing connectedness	0.526	-0.392
Total Scale Score	-0.002	-0.467

Since the skewness and kurtosis values of the Nomophobia Scale and its sub-factors are between -1.5 and +1.5, the scores obtained from the scales show a normal distribution (Büyüköztürk, 2011). However, in parametric tests, each sub-factor of the sample is required to be n>30 (Can, 2017). Therefore non-parametric tests were used in statistical analysis. Mann Whitney U and Kruskal Wallis H tests were used to evaluating demographic characteristics. Spearman Rho Correlation analysis was applied to compare the nomophobia scale total score, its sub-factors, and LGS scores.

3. Findings

3.1. Distributions of Sociodemographic Characteristics

Descriptive analyses of the sociodemographic characteristics of the study group are given in Table 5 and Table 6.

Table 5. *Descriptive analysis of sociodemographic characteristics*

Demographics	N	%
Gender		
Boy	22	64,7
Girl	12	35,3
LGS scores		
250-350	15	44,1
351 and higher	19	55,9
LGS score average	372,93±59,32	
Education level of mothers		
High school graduate and below	17	50,0
University	17	50,0
Education level of fathers		
High school graduate and below	18	52,9
University	16	47,1
Parent attitude		
Authoritarian or disinterested	4	11,8
Protector	15	44,1
Democratic	15	44,1

Table 5 shows that 64.7% (n=22) of the students participating in the study were boys, and 35.3% (n=12) were girls. The mean LGS score of the students was 372.93±59.32, 50.0% (n=17) of the students had a university graduate mother, 52.9% had a high school graduate or below father, 44.1% (n=15) perceived democratic attitudes from their parents, and 88.2% lived with their parents.

In Table 6 below, the students' frequency of use of smartphones, the purpose of use, and places of use are given.

Table 6. *Descriptive analysis of students' use of smartphones*

Variables Related to Smartphone Usage	N	%
Frequency of daily smartphone checking		
Does not control	4	11.8
10 minutes and under	13	38.2
Between 10-30 minutes	10	29.4
30 minutes and over	7	20.6
Smartphone Usage Purposes		
Making calls		
No	11	32.4
Yes	23	67.6
Texting		
No	10	29.4
Yes	24	70.6
Surfing on the internet		
No	10	29.4
Yes	24	70.6
Doing homework or researching		
No	21	61.8
Yes	13	38.2
Playing games		
No	12	35.3
Yes	22	64.7
Shopping		
No	21	61.8
Yes	13	38.2
Following news		
No	27	79.4
Yes	7	20.6
Listening music		
No	7	20.6
Yes	27	79.4
Storing data		
No	29	85.3
Yes	5	14.7
Smartphone Usage Places		
In bed		
No	7	20.6
Yes	27	79.4
In the car		
No	11	32.4
Yes	23	67.6
While walking		
No	25	73.5
Yes	9	26.5
In the movies/theaters		
No	32	94.1
Yes	2	5.9
In family members		
No	18	52.9
Yes	16	47.1
In the toilette		
No	18	52.9

Yes	16	47.1
Have a smartphone charger with them		
No	19	55.9
Yes	15	44.1
Keeping smartphone nearby while sleeping		
No	14	41.2
Yes	20	58.8

According to Table 6, students use smartphones mostly for listening to music (79.4%), texting and surfing (70.6% each), making calls (67.6%), and playing games (64.7%). It was determined that 38.2% of the students checked their smartphones for 1-10 minutes a day. Only 14.7% of the students store data on their smartphones. 79.4 % of the students prefer to use it in bed, 67.6 % like to use it in the car, 26.5% prefer to use it while walking, and 47% prefer to use it in the toilet. 44.1% of the students carry a smartphone charger, and 58.8% had a smartphone while sleeping.

3.2 Descriptive Data on the Nomophobia Scale

Means of the nomophobia scale and its sub-factors aregiven in Table 7.

Table 7. *Means of the nomophobia scale and its sub-factors*

Scale and sub-factors	N	Mean	Std error	Min- Max
Not being able to access	34	16.88	5.16	6-28
Giving up convenience	34	19.94	7.87	5-34
Not being able to communicate	34	24.91	8.95	12-42
Losing connectedness	34	15.79	6.91	5-31
NMP-Q Scale	34	77.52	22.53	30-119

Data analysis showed that the mean of “not being able to access” sub-factor was 16.88±5.16, the mean of “Giving up convenience” sub-factor was 19.94±7.87, the mean of “not being able to communicate” sub-factor was 24.91±8.95, and the mean of “losing connectedness” sub-factor was 15.79±6, 91 (Table 7). The nomophobia scale had a mean of 77.52±22.53. The scores obtained from the scale in the range of 60-100 showed that the study group exhibited moderate nomophobia (mean=77.52, SD=22.53).

3.3 Comparison of LGS and Nomophobia Scale Scores of Students Based on Sociodemographic Factors

In Table 8 and Table 9, there are data on whether the scores of the students’ LGS and Nomophobia scales differ according to variables such as gender, education level of parents, parental attitude, and the purpose of using smartphones, respectively.

Table 8. *Distribution of students' LGS, nomophobia scale and sub-factor scores by gender variable*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	Boys	2	16.50	363.00	110.00	-0.921	0.444
	Girls	12	19.33	232.00			
Not being able to access	Boys	22	18.11	398.50	118.50	-0.488	0.631
	Girls	12	16.38	196.50			
Giving up convenience	Boys	22	14.20	312.50	59.50	-2.618	0.009**
	Girls	12	23.54	282.50			
Not being able to communicate	Boys	22	15.89	349.50	96.50	-1.282	0.204
	Girls	12	20.46	245.50			
Losing connectedness	Boys	22	16.68	367.00	114.00	-0.650	0.534
	Girls	12	19.00	228.00			
NMP-Q Scale Total Score	Boys	22	15.82	348.00	95.00	-1.334	0.191
	Girls	12	20.58	247.00			

**p<0,01

The Mann-Whitney U test (Table 8) was conducted to determine whether there was a statistical difference between LGS scores and NMP-Q Scale and its sub-factors according to gender variable. According to test results, there is no statistical difference between the LGS score and the sub-factors "Not being able to access," "Not being able to communicate," "Losing connectedness," and NMP-Q scale (respectively U=110.00, U=118.50, U=96.50, U=114.00 and U=95.00; p>0.05) according to gender. As a result of the Mann-Whitney U test, the difference between the students' "giving up convenience" sub-factor scores and the gender variable was statistically significant to the detriment of girls (U=59.50; p<0.01). It was discovered that girls' "giving up convenience" sub-factor scores were higher than boys' "giving up convenience" sub-factor scores.

Students' LGS scores, nomophobia scale, and sub-factor scores by mother education level variable are given in Table 9.

Tablo 9. *Distribution of students' LGS, nomophobia scale and sub-factor scores by mother education level variable*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	High school and below	17	15.00	255.00	102.00	-1.701	0.150
	University	17	20.00	340.00			
Not being able to access	High school and below	17	17.68	300.50	141.50	-0.104	0.919
	University	17	17.32	294.50			
Giving up convenience	High school and below	17	18.71	318.00	124.00	-0.708	0.496
	University	17	16.29	277.00			
Not being able to communicate	High school and below	17	17.38	295.50	142.50	-0.069	0.946
	University	17	17.62	299.50			
Losing connectedness	High school and below	17	17.32	294.50	141.50	-0.104	0.919
	University	17	17.68	300.50			
NMP-Q Scale Total Score	High school and below	17	17.97	305.50	136.50	-0.276	0.786
	University	17	17.03	289.50			

According to the Mann-Whitney U test in Table 9, there was no statistical difference between LGS scores and NMP-Q Scale and its sub-factors (respectively U=102.00, U=141.50, U=124.00, U=142.50, U=141.50, and U=136.50; p>0.05) according to mother education level variable.

Students' LGS scores, nomophobia scale, and sub-factor scores by father education level variable are given in Table 10.

Table 10. *Distribution of students' LGS, nomophobia scale and sub-factor scores by father education level variable*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	High school and below	18	14.61	263.00	92.00	-2.085	0.075
	University	16	20.75	332.00			
Not being able to access	High school and below	18	18.50	333.00	126.00	-0.623	0.551
	University	16	16.38	262.00			
Giving up convenience	High school and below	18	19.61	353.00	106.00	-1.314	0.198
	University	16	15.13	242.00			
Not being able to communicate	High school and below	18	18.67	336.00	123.00	-0.726	0.484
	University	16	16.19	259.00			
Losing connectedness	High school and below	18	16.69	300.50	129.50	-0.501	0.621
	University	16	18.41	294.50			
NMP-Q Scale Total Score	High school and below	18	18.75	337.50	121.50	-0.777	0.443
	University	16	16.09	257.50			

According to Table 10, there was no statistical difference between LGS scores and NMP-Q Scale and its sub-factors (respectively, U=92.00, U=126.00, U=106.00, U=123.00, U=129.50, and U=121.50; p>0,05) according to the father education level variable.

Students' LGS scores, nomophobia scale, and sub-factor scores by perceived parental attitude are given in Table 11.

Table 11. *Distribution of students' LGS, nomophobia scale and sub-factor scores by perceived parental attitude variable*

Scales and sub-factors	Groups	N	Mean rank	sd	X^2	p
LGS score	Authoritarian or disinterested	4	19.25	2	1.981	0.371
	Protector	15	14.80			
	Democratic	15	19.73			
Not being able to access	Authoritarian or disinterested	4	24.75	2	2.936	0.230
	Protector	15	15.23			
	Democratic	15	17.83			
Giving up convenience	Authoritarian or disinterested	4	20.75	2	0.789	0.674
	Protector	15	18.07			
	Democratic	15	16.07			
Not being able to communicate	Authoritarian or disinterested	4	20.63	2	0.519	0.771
	Protector	15	17.57			
	Democratic	15	16.60			
Losing connectedness	Authoritarian or disinterested	4	22.63	2	5.782	0.056
	Protector	15	20.70			
	Democratic	15	12.93			
NMP-Q Scale Total Score	Authoritarian or disinterested	4	22.38	2	1.512	0.470
	Protector	15	18.03			
	Democratic	15	15.67			

Kruskal Wallis H test (Table 11) was conducted to determine whether there was a statistical difference between LGS scores and NMP-Q Scale and its sub-factors according to perceived parental attitudes. Test results showed no statistical difference between the variables (respectively x^2=1.981, x^2=2.936, x^2=0.789, x^2=0.519, x^2=5.782 and x^2=1.512; p>0.05].

Table 12 shows the distribution of students' LGS, nomophobia scale and sub-factor scores by daily smartphone checking frequency.

Table 12**.** *Distribution of students' LGS, nomophobia scale and sub-factor scores by daily smartphone checking frequency variable*

Scales and sub-factors	Groups	N	Mean rank	sd	X^2	p
LGS score	No checking	4	14.25	3	2.619	0.454
	1-10 min.	13	16.15			
	15 min.	10	16.90			
	30 min. and more	7	22.71			
Not being able to access	No checking	4	17.88	3	2.956	0.398
	1-10 min.	13	18.31			
	15 min.	10	20.15			
	30 min. and more	7	12.00			
Giving up convenience	No checking	4	11.13	3	6.019	0.111
	1-10 min.	13	22.58			
	15 min.	10	15.00			
	30 min. and more	7	15.29			
Not being able to communicate	No checking	4	20.13	3	0.398	0.941
	1-10 min.	13	17.04			
	15 min.	10	17.80			
	30 min. and more	7	16.43			
Losing connectedness	No checking	4	13.25	3	3.596	0.308
	1-10 min.	13	21.50			
	15 min.	10	15.80			
	30 min. and more	7	14.93			

NMP-Q Scale Total Score	No checking	4	14.88	3	2.423	0.489
	1-10 min.	13	20.85			
	15 min.	10	15.90			
	30 min. and more	7	15.07			

Table 12 shows that there is also no statistical difference between LGS scores and NMP-Q Scale and its sub-factors according to daily smartphone checking frequency (respectively, x^2=2.619, x^2=2.956, x^2=6.019, x^2=0.398, x^2=3.596 and x^2=2.423; p>0.05).

Table 13 shows the distribution of students' LGS, nomophobia scale, and sub-factor scores by carrying a smartphone charger with them.

Tablo 13. *Distribution of students' LGS, nomophobia scale, and sub-factor scores according to the variable of carrying a smartphone charger*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	No	19	16.05	305.00	115.00	-	0.354
	Yes	15	19.33	290.00		1.109	
Not being able to access	No	19	16.08	305.50	115.50	-	0.354
	Yes	15	19.30	289.50		0.940	
Giving up convenience	No	19	14.89	283.00	93.00	-	0.089
	Yes	15	20.80	312.00		1.720	
Not being able to communicate	No	19	13.74	261.00	71.00	-	0.012*
	Yes	15	22.27	334.00		2.485	
Losing connectedness	No	19	15.58	296.00	106.00	-	0.215
	Yes	15	19.93	299.00		1.268	
NMP-Q Scale Total Score	No	19	14.37	273.00	83.00	-	0.040*
	Yes	15	21.47	322.00		2.065	

*p<0.05

The Mann Whitney U test (Table 13) was conducted to determine whether there is a statistical difference between the students' LGS score, NMP-Q Scale, and sub-factors according to carrying a charger with them. According to test results, there is a statistically significant difference between the scores of the students in the sub-factor of not being able to communicate and the NMP-Q scale (respectively U=71.00 and U=83.00; p<0.05), and whether they carry the smartphone charger with them or not, to the detriment of the students who carry the charger with them. It was seen that the scores of the students who carry the smartphone charger with them in the sub-factor of not being able to communicate and the NMP-Q scale were higher than the scores of the students who did not carry the smartphone charger with them. There was no significant difference between LGS scores (U=115.00), Not being able to access, giving up convenience, and losing connectedness (respectively U=115.50, U=93.00, and U=106.00; p<0.05), and the compared variable.

The distribution of students' LGS, nomophobia scale, and sub-factor scores according to the variable of keeping a smartphone by side while sleeping are given in Table 14.

Table 14. *The Distribution of students' LGS, nomophobia scale, and sub-factor scores according to the variable of keeping a smartphone by side while sleeping*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	No	14	17.71	248.00	137.00	-	0.931
	Yes	20	17.35	347.00		0.122	
Not being able to access	No	14	12.18	170.50	65.50	-	0.008**
	Yes	20	21.23	424.50		2.617	
Giving up convenience	No	14	12.43	174.00	69.00	-	0.012*
	Yes	20	21.05	421.00		2.490	
Not being able to communicate	No	14	13.61	190.50	85.50	-	0.056
	Yes	20	20.23	404.50		1.911	
Losing connectedness	No	14	13.68	191.50	86.50	-	0.061
	Yes	20	20.18	403.50		1.875	
NMP-Q Scale Total Score	No	14	11.79	165.00	60.00	-	0.004**
	Yes	20	21.50	430.00		2.801	

*p<0.05

Mann Whitney U test results (Table 14) show that students' LGS score, Not being able to communicate, and Losing connectedness sub-factors (respectively U=137.00, U=85.50, and U=86.50; p>0.05) have no significant difference when keeping a smartphone by side while sleeping. However, Not being able to access, giving up convenience, and NMP-Q scale score (respectively U=65.50, U=69.00 and U=60.00; p<0.05) and keeping a smartphone by side while sleeping has statistically significant differences. It was seen that the scores of the students who had their smartphones with them while sleeping were higher than those who did not.

Differences between the students' LGS score, NMP-Q Scale, and sub-factors according to using the smartphone in bed or not are given in Table 15.

Table 15. *Distribution of students' LGS, nomophobia scale, and sub-factor scores according to the variable of using the smartphone in bed or not*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	No	7	17.71	124.00	93.00	-	0.967
	Yes	27	17.44	471.00		0.074	
Not being able to access	No	7	8.29	58.00	30.00	-	0.004**
	Yes	27	19.89	537.00		2.757	
Giving up convenience	No	7	9.86	69.00	41.00	-	0.021*
	Yes	27	19.48	526.00		2.283	
Not being able to communicate	No	7	11.29	79.00	51.00	-	0.066
	Yes	27	19.11	516.00		1.857	
Losing connectedness	No	7	13.64	95.50	67.50	-	0.257
	Yes	27	18.50	499.50		1.152	
NMP-Q Scale Total Score	No	7	9.43	66.00	38.00	-	0.015*
	Yes	27	19.59	529.00		2.408	

**p<0,01; *p<0.05

The Mann-Whitney U test (Table 15) was conducted to determine whether there is a statistical difference between the students' LGS score, NMP-Q Scale, and sub-factors according to using the smartphone in bed or not. Results showed no statistical difference between LGS score, not being able to communicate, and losing connectedness sub-factors

(respectively U=93.00, U=51.00 and U=38.00; p>0.05) according to using the smartphone in bed or not variable.

However, a statistically significant difference was available between not being able to access and giving up convenience sub-factors and NMP-Q scale total score (respectively U=30.00, U=41.00, and U=38.00; p<0.05) when using the smartphone in bed or not take into account. It was found that not being able to access and giving up convenience sub-factors and nomophobia scale scores of the students who use their smartphones in bed are higher than those who do not.

Table 16 shows the Mann-Whitney U test results comparing the students' LGS score, NMP-Q Scale, and sub-factors according to using the smartphone in the toilet or not.

Table 16. *Distribution of students' LGS, nomophobia scale, and sub-factor scores according to the variable of using the smartphone in the toilet or not*

Scales and sub-factors	Groups	N	Mean rank	Sum of ranks	U	Z	p
LGS score	No	18	18.39	331.00	128.00	-	0.597
	Yes	16	16.50	264.00		0.642	
Not being able to access	No	18	14.28	257.00	86.00	-	0.046*
	Yes	16	21.13	338.00		2.009	
Giving up convenience	No	18	15.83	285.00	114.00	-	0.313
	Yes	16	19.38	310.00		1.037	
Not being able to communicate	No	18	13.42	241.50	70.50	-	0.010**
	Yes	16	22.09	353.50		2.541	
Losing connectedness	No	18	14.75	265.50	94.50	-	0.088
	Yes	16	20.59	329.50		1.711	
NMP-Q Scale Total Score	No	18	13.89	250.00	79.00	-	0.025*
	Yes	16	21.56	345.00		2.244	

*p<0.05; **p<0.01

Although there is no statistically significant difference between the students' LGS score, NMP-Q Scale, and giving up convenience and losing connectedness sub-factors (respectively U=128.00, U=114.00 and U=94.50, p>0.05) based on whether they use the smartphone in bed or not, a statistically significant difference was available between not being able to access and not being able to communicate sub-factors, and nomophobia scale (respectively U=86.00, U=70.50 and U=79.00; p<0.05) according to using the smartphone in bed or not. It was found that not being able to access and not being able to communicate sub-factors and nomophobia scale scores of the students who use their smartphones in the toilet are higher than those who do not.

3.4 Analysis of the Relationship Between Students' LGS Scores and Nomophobia Scale and Sub-factor Scores

The relationship between the students' LGS scores and the nomophobia scale and sub-factor scores is given in Table 17.

Table 17. *The relationship between students' LGS scores and nomophobia scale and sub-factor scores*

Scale and sub-factors		LGS
Not being able to access	r	-0.132
	p	0.456
Giving up convenience	r	-0.127
	p	0.475
Not being able to communicate	r	0.012
	p	0.945
Losing connectedness	r	-0.396
	p	0.020*
NMP-Q Scale Total Score	r	-0.181
	p	0.305

*p<0.05

According to the results of Spearman correlation analysis, there was no significant relationship between LGS scores and not being able to access, giving up convenience, not being able to communicate sub-factors, and nomophobia scale scores (respectively; r=-0.132, r=-0.127, r=0.012 and r=-0.181, p>0.05). Results show a significant negative correlation between the LGS scores of the students and the sub-factor scores of losing connectedness (r=-0.396; p<0.05). It was observed that while the LGS scores of the students increased, the scores they got from the sub-factor of losing connectedness decreased.

4. Conclusion and Recommendation

This study examined the effect of secondary school 8th-grade students' Nomophobia levels on LGS scores in terms of various variables. It was observed that middle school 8th-grade students had moderate nomophobia. While the highest average in the nomophobia subscale scores of the students belonged to the not being able to communicate subscale, it was followed by; giving up convenience, not being able to access, and losing connectedness. Middle school students who grew up with technology experience anxiety, depression, etc., when they cannot communicate over the phone. It is thought that those effects will negatively affect their psychology, academic life, social and family life.

Previous research suggests similar results. Durak (2018) tried to determine the nomophobia levels of secondary school students and the variables that affect their nomophobic behavior. He stated that the sample consisting of 7th and 8th-grade students had moderate nomophobia and, as in this study, the students got the highest score from not being able to communicate sub-factor and the lowest score from the sub-factor of losing connectedness. Again, trying to determine the nomophobia levels and smartphone addictions of secondary school students, Semerci (2019) found that 93% of 463 secondary school students were nomophobic, and their perceived nomophobia levels were 45% low, 40% medium, and 8% high, respectively. Eren et al. (2020) found that 48.5% of 307 high school students had mild nomophobia, 45.6% had moderate nomophobia, and 5.9% had severe nomophobia. Burucuoğlu (2017) stated that 73.7% of the college students participating in the study had moderate and high nomophobia. The development of smartphone technology day by day and the proliferation of content and applications suitable for all age groups suggest that secondary school and even primary school students will increase their nomophobia levels. Considering the sub-factors of nomophobia, although the sub-factor of not being able to communicate came to the fore in this study, it is predicted that with the increase in smart mobile phone technology, the sub-factors of addiction, not being online and inaccessible information will increase significantly.

Our study observed that the scores of secondary school students from the giving up convenience sub-factor differed according to their gender. The scores of girls from giving up convenience sub-factor were higher than the scores of boys. The previous research suggested similar results. Semerci (2019) found that girls are 0.340 times more likely to be addicted to smartphones than boys, and low-level nomophobics are more likely to be addicted to smartphones than moderate and advanced nomophobics. In the study conducted with 1447 students studying in secondary and high schools in the Philippines, the relationship between student types and nomophobia was investigated, and it was found that girls were more nomophobic than boys (Buctot, Kim & Kim, 2020). In another study conducted with high school students, Altan (2019) found that girls' scores on the sub-factors of not being able to access, giving up convenience, and losing connectedness were significantly higher than boys. Similar results have also been obtained in studies conducted with university students and individuals in active working life, where the prevalence, effects, and dependencies of nomophobia are investigated (Erdem, Kalkın, Türen & Deniz, 2016; Hakkari,2018; Yılmaz, Köse & Doğru, 2018; Uğuz, 2019).

Research shows that the nomophobia levels of girls significantly higher than that of boys (Sharma, Sharma, Sharma & Wavare, 2015; Gezgin & Çakır, 2016; Matoza-Báez & Carballo-Ramírez, 2016; Yildirim, Sumuer, Adnan & Yildirim, 2016; Kanmani, Bhavani & Maragatham, 2017; Burucuoğlu, 2017; Prasad et al., 2017; Çelik & Atilla, 2018; Turan & İşçitürk, 2018; Yoğurtçu, 2018; Büyükçolpan, 2019; Can, 2019; Çağan, 2019; Yildirim, 2019; Eren et al., 2020). One reason girls exhibit more nomophobic behaviors than boys may be that girls need to communicate and socialize more. Chen et al. (2017) also stated that while girls use their smartphones for social media and communication, boys mostly use them for playing games. Not being able to communicate and using social media constitute the sub-factors of nomophobia and have important effects on determining the level of nomophobia. Therefore, girls' nomophobia levels may be higher (Özden, 2019). It is thought that girls' use of mobile phones to socialize increases the number of feminine content that can be accessed by smart mobile phones. With the increasing content, girls can easily meet their social needs via smartphones. It is thought that as the content increases, the dependence of women on smartphones increases proportionally. Make-up videos, fashion and hair design pages shared on social media applications can be content that increases addiction, especially for girls.

In addition to these studies, there are also studies stating that the level of nomophobia does not change according to gender (Pavithra, Madhukumar & Murthy, 2015; Öz, 2018; Aktaş, 2019; Apak & Yaman, 2019; Ertan, 2019; Bilkay, 2020; Hoşgör, 2020). In addition, there are studies in the literature stating that men are more nomophobic than women (Takao, Takahashi & Kitamura, 2009; Kwon, Kim, Cho & Yang, 2013; Öztunç 2013; Ercan & Tekin, 2019; Jilisha, Venkatachalam, Menon, Olicka, 2019).

According to the LGS scores of the students, results showed that academic achievement did not differ according to gender. Previous research (Gündüver and Gökdaş, 2011; Tanır, 2014) concluded no significant difference between gender and student achievement. There are also studies in the literature stating that student gender affects academic achievement. In a study investigating the effects of socio-economic variables on student achievement, it was found that boys in the study group formed with 691 students studying in the 6th, 7th and 8th grades had higher grade point averages than girls (Aslanargun, Bozkurt & Sarıoğlu, 2016). On the contrary, there are also studies stating that girls have higher academic achievement. Ateş (2008), in his study examining the relationship between the reading comprehension levels of 346 secondary school students and their behaviors and academic achievements regarding the Turkish course, found that the Turkish course and general achievement averages of the girls were higher than the boys. In another study investigating the relationship between the

motivation and emotional intelligence of students studying at secondary education levels and their school success, it was stated in the analyses on the gender variable that the academic achievement of girls was significantly higher than that of boys (Seyis, Yazıcı & Altun, 2013). While the findings of gender and academic achievement obtained in the study are consistent with some of the results in the literature, they are not consistent with others. As a result, it is thought that studies examining whether gender influences academic achievement, with larger sample size, covering various educational levels, determining the differences in boys' and girls' learning styles, and investigating the effects of learning styles on academic achievement are needed.

When the nomophobia and sub-factor scores of secondary school students differed according to their parental education levels, it was found that the nomophobia and sub-factor scores did not differ according to the educational level of the parents. There are no studies in the literature investigating the relationship between the parental education status of secondary school students and their nomophobia levels. In one of his studies conducted at other education levels, Yıldırım (2019) examined the nomophobia levels of high school students whose parents had different educational backgrounds and obtained similar results. He stated that there was no significant difference between the parents' educational status and the nomophobia levels of the students. Öz (2018), Büyükçolpan (2019), Eren et al. (2020), who studied with university students, also concluded that the educational status of the parents did not affect the level of nomophobia. However, in another study on high school students, Göktaş (2019) states that there is no significant difference between the educational status of the mother and the level of nomophobia, while there is a significant difference between the educational status of the father and nomophobia, and that as the education level of the father decreases, the student becomes more nomophobic.

Our study results show LGS scores, nomophobia, and sub-factor scores did not differ according to the parents' attitudes. Bae (2015) stated that there is a negative relationship between democratic family attitudes and nomophobia. Some researchers include parental attitudes in studies on smartphone addiction (Çetinkaya, 2019; Hayırcı & Sarı, 2020). Dirik (2016) examined the smartphone addiction of 200 high school students and the relationship between this addiction and their self-confidence in his study. He divided parental attitudes into disinterested, democratic, authoritarian, and protective. It was found that there was no statistically significant difference between parental attitudes and smartphone addiction. In other studies on smartphone addiction of high school students, the relationship between parental attitudes and smartphone addiction showed no significant relation (Atıcı, 2017; Çetinkaya, 2019; Hayırcı & Sarı, 2019).

When we look at the effects of parental attitudes on academic achievement in the literature, a limited number of results overlap with this study. In contrast, many studies have found that democratic parenting attitudes affect academic achievement positively. Arcan (2006) stated that students with low academic achievement perceive parental attitudes as more protective and authoritative than students with medium and high academic achievement. Yılmaz (2000) said that among high school students, the academic motivation of students with a democratic parental attitude is higher than that of children from families that do not adopt a democratic perspective. Gökçedağ (2001) stated a negative relationship between authoritarian attitude and academic achievement of high school students, while there is a positive relationship between democratic attitude and academic success. Gelir (2009), on the other hand, obtained similar results with our study and found that academic achievement did not differ according to parental attitudes. In addition, he also stated that among the reasons why these results conflict with other studies in the literature, the parental attitude scale is not compatible with the social order of our

country. It is necessary to re-examine the relationship between nomophobia and LGS scores and parental attitudes on a larger sample.

Study results show that LGS scores, nomophobia, and sub-factor scores did not differ according to the frequency of daily checking smartphones. This result contradicts the findings of other studies in the literature. Determining the dimensions of nomophobia in university students, Güler and Veysikarani (2019) found that 30.6% of 320 students check their phone every 10 minutes, 20.6% of them check every 20 minutes, 18.8% every 5 minutes, and 17.2% of them stated that they check their phones every 30 minutes. They observed that as the number of students checking the phone increased, their nomophobia levels increased. In another study (Güllüce, Kaygın & Börekçi, 2019) with university students, 27.3% of 395 students checked their smartphones 1-16 times a day, 27.8% 16-32 times a day, 17.2% 33-48 times a day, and 27.6% 49 times a day or more. This study determined that there is a significant relationship between the frequency of daily smartphone checking and the level of nomophobia. It has been stated that the nomophobia levels of those who check their smartphones daily at 33 or more times are higher than those who check 1-16 times (Güllüce, Kaygın & Börekçi, 2019). These differences are thought to be due to the average age. Children studying at secondary school and lower levels need parents more than children at higher levels. Although there are students who use their smartphones for social media and games a lot in these age groups, it is thought that the students who still carry the phone to communicate with their families are more than the students who are studying at the upper level. However, as the smartphone market progresses, it is predicted that similar results will be obtained in all dimensions of nomophobia among students in these age groups in the next few years.

The studies in the literature on the place where the smartphone is used the most confirm the results of our research. Our results showed a statistically significant difference between LGS score, not being able to access, and giving up convenience sub-factors and NMP-Q scale total score according to using the smartphone in bed or not variable. This result is similiar with many studies in the literature (Akıllı & Gezgin, 2016; Çağan, 2019; Göktaş, 2019; Hoşgör, Tandoğan & Hoşgör, 2017; Sırakaya, 2018; Yildirim, 2019). In a study conducted in England, it was found that nine out of every ten people use their phones until late hours to surf the social network and communicate before going to sleep. As a result, they have insomnia, and the majority of the participants check their mobile phones before going to bed at night (Singh & Yadav, 2015). Pavithra, Madhukumar, and Murthy (2015) stated that spending time with a smartphone before going to bed at night is one of the characteristic features of nomophobic individuals. It is thought that the evaluation of the time before going to sleep as free time, the increase and accumulation of social media posts mostly in the evening hours, may cause this situation. It has been observed that the scores of the students who use their smartphones most in the toilet on the sub-factors of not being able to access, not being able to communicate, and in the nomophobia scale are higher than the scores of the students who do not use their smartphones in the toilet. No study on this variable has been found in the literature, but it is thought that this result in secondary school students should be addressed in nomophobia studies. These results confirm the view in the literature that young people use smartphones more when they are alone and bored (Kanmani, Bhavani & Maragatham, 2017; Yildirim, 2019; Yoğurtçu, 2018). These results can be interpreted that the limited social life of the individual outside of school and family increases the need for a smartphone.

It has been observed that the scores of the students who carry a smartphone charger with them on the not being able to communicate sub-factor and the nomophobia scale are higher than the scores of students who do not have a charger. It has been observed that similar results have been obtained in many studies examining nomophobia and the variables related to nomophobia (Akıllı & Gezgin, 2016; Hoşgör, Tandoğan & Hoşgör, 2017; Polat, 2017; Çelik

& Atilla, 2018; Sırakaya 2018; Yoğurtçu, 2018). Göktaş (2019) determined that the average nomophobia and all sub-factors of high school students with a charger were higher. Turan and İşçitürk (2018) worked with nomophobia levels of the students of the Faculty of Theology. They found that 82.4% of the participants stated uncomfortable when their phones were discharged. Güllüce, Kaygın and Börekçi (2019) also noted that the scores of the university students who have a charger with them on the nomophobia and addiction subscale are significantly higher than the scores of the students who do not have a charger. Carrying a charger is a common nomophobia symptom. Individuals stated that they exhibited this behavior mostly because they were afraid of not being able to communicate. In the Century we live in, mobile phones have become used out of habit rather than out of necessity. Since individuals meet all their communication and needs over the phone and get used to the situation, their phones running out of battery or shutting down for any reason cause them to falter and panic. Although it has been concluded that the fact that secondary school students carry a charger with them does not affect their LGS scores (academic success), it is thought that the feeling of panic that the students experience when their battery runs out may affect every aspect of their lives. For this reason, it is thought that this variable should be examined in more detail.

Our results also show that the scores of the students who kept their smartphones with them while sleeping, not being able to access and giving up convenience sub-factors and nomophobia scale scores were higher than the scores of the students who did not have their smartphones with them while sleeping. In many studies in the literature, it is stated that people keep their phones open 24 hours a day and keep them with them at night (Bragazzi & Pointte, 2014; Singh & Yadav, 2015; Akıllı & Gezgin, 2016; Güllüce, Kaygın & Börekçi, 2019). Dixit et al. (2010) found that 73% of university students who own a smartphone do not turn off their phones even while sleeping and keep them within reach. In the same study, 20% of the students stated that their concentration drops, and they experience tension when their smartphones are not within distance or when the battery runs out. Rosen et al. (2016) also found that half of the university students sleep with their phones switched on and that students wake up at least once a night to check incoming messages or notifications. In the study, it was stated that this situation would impair the students' sleep quality, and they would have learning difficulties at school the next day. Therefore their academic life would be negatively affected. In this study, no relationship was found between the behavior of holding the smartphone while sleeping and the LGS scores (academic success) of secondary school students. However, Erdem, Kalkın, Türen and Deniz (2016) state that students who keep their smartphones with them while they sleep may have to spend less time on their lessons than they planned because they cannot control the time while using smartphones and spend their limited time in preparation for exams. It is thought that students keep their smartphones with them even while they are sleeping. They feel that they will miss something if they cannot see incoming notifications or messages (Akıllı & Gezgin, 2016) and the feeling of mobile phone habituation. It will be beneficial for the literature to investigate the effects of this variable on academic achievement by conducting qualitative studies and revealing its dimensions.

In our study, as the LGS scores of the students increased, the scores they got from the sub-factor of losing connectedness decreased. This result can be interpreted that students with high academic success are less committed to their online identities in social media and other networks. It can also be interpreted that being too attached to online identities reduces academic success by shortening the time allocated to classes, causing anxiety and restlessness by thinking about notifications or messages sent to social media accounts while studying. Similar results are available in the literature stating that nomophobia has effects on academic achievement (Lepp, Barkley & Karpinski, 2014; Aman et al., 2015; Prasad et al.,

2017). In this study, while the students' academic achievements are discussed through the LGS scores, the studies in the literature are generally handled over the General Grade Point Average (GANO) of the students. Öz (2018), working on high school students, stated that the factor of losing connectedness directly affects school success (GANO). In another study conducted with 541 secondary and high school students in Kenitra, Morocco, the effect of nomophobia on academic performance and the measures taken against nomophobia were examined. There was a negative relationship between the sub-factors of nomophobia and the students' academic performance. Students with good academic performance were not very dependent on their smartphones and social media (Louragli, Ahami, Khadmaoui, Mamad & Lamrani, 2018). In one of the studies conducted with university students, Erdem, Kalkın, Türen, and Deniz (2016) stated that students' nomophobia levels negatively affect their academic achievement. Hoşgör (2020) examined the factors affecting the nomophobia levels of university students and the effects of nomophobia on their course performance. It was concluded that the nomophobia levels of 258 students studying in different health departments were above the average and that nomophobia had a negative and significant effect on the students' focus, learning, and class participation levels. The anxiety and fear of being without a smartphone can also cause students to be unable to focus on the lessons due to sleep and health problems caused by constantly spending time on the phone. Likewise, the desire to follow social media and messages makes students check their phones while studying and reading a book. When Jacobsen and Forste (2011) investigated the academic and social effects of university students' use of electronic media, they found that the majority of students entered social media while studying, watched videos, and spent time looking at photographs. Kardefelt-Winther (2014) stated that students with low academic success might take shelter in their smartphones to escape from school responsibilities, negative feelings caused by academic failure, and real-life responsibilities, so there may be a bidirectional relationship between nomophobia and academic success. On the contrary, there are studies that argue that nomophobia does not affect academic achievement (Akman, 2019). Karakuyu and Ata (2019) stated no relationship between students' academic averages and nomophobia levels. Working with high school students, Yildirim (2019) concluded no statistically significant relationship between students' academic achievement and nomophobia. However, these studies are in the minority in the literature.

It is seen that the average age of nomophobia gradually decreases, and it reaches the age of primary education and affects academic achievement. Awareness-raising seminars should be organized for students on nomophobia and its effects. Students with high nomophobia levels should be identified and directed to sports and artistic activities by teachers, parents, and psychological counselors. Students should be informed about activities that will reduce their use of smartphones when they are alone. Since the gender of the students is thought to affect their nomophobia attitudes, the purposes of using smartphones can be differentiated according to gender with qualitative research, and information seminars should be prepared considering the gender variable. Students should be informed about insomnia problems, physical and psychosocial health problems caused by constantly carrying a phone and sleeping with a phone. Parent seminars should be held by examining the effects of parental attitudes and parental education status on students' academic life, nomophobia, and other technological addictions. Parental awareness seminars on where the smartphone is used the most, and the purposes of use can be organized to ensure that students' smartphone use is supervised and controlled by the parents. This research was carried out with 8th-grade students studying at secondary school. The small sample size of the study prevents the generalization of the results. Studies can be conducted on larger samples that will include secondary school and even primary school students on the subject. Qualitative research on students' nomophobia attitudes can be conducted to examine in-depth why students need to use smartphones. By conducting experimental studies, seminars and training programs can be organized to increase students'

awareness of nomophobia, and the effects of these programs on students can be determined. Studies can be conducted comparing the parents' nomophobia levels and the students' nomophobia levels. Living with parents was excluded from the analysis due to the limited sample size. Whether the parents are married or divorced, dead or far away is a factor that will reveal children and adolescents' behaviors, orientations, weaknesses, and strengths. For this reason, it is thought that it would be beneficial to investigate the relationship of this variable with nomophobia in larger samples.

Acknowledgment: This research has the ethical board approval granted by Bursa Uludag University Human Research Ethics Committee on 31 May 2019 with no: 2019-4. This study is produced from Esra Yıldız's masters' thesis entitled "Investigation of the relationship between nomophobia levels of secondary school 8th-grade students and their high school entrance exam (LGS) scores in terms of sociodemographic variables" conducted under the consultancy of Assoc. Prof. Dr. Şehnaz BALTACI.

References

Akdemir, T. N. (2013). İlköğretim öğrencilerinin Facebook tutumları ile akademik erteleme davranışları ve akademik başarıları arasındaki ilişkilerin incelenmesi. (Unpublished Masters' thesis).

Akıllı, K. G. & Gezgin, D. M.(2016). Üniversite Öğrencilerinin Nomofobi Düzeyleri ile Farklı Davranış Örüntülerinin Arasındaki İlişkilerin İncelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 40, 51-69.

Akman, E. (2019). Akıllı Telefonsuz Kalma Korkusunun (Nomofobi) Akademik Başarıya Etkisi: Süleyman Demirel Üniversitesi Siyaset Bilimi Ve Kamu Yönetimi Öğrencileri Üzerinden Bir Değerlendirme. *Avrasya Uluslararası Araştırmalar Dergisi*, 7,(16), 256-275.

Aktaş, Y. & Yılmaz, N. (2017).Üniversite Gençlerinin Yalnızlık Ve Utangaçlık Unsurları Açısından Akıllı Telefon Bağımlılığı. *International Journal of Social Sciences and Education Research*, 3(1),85-100.

Aktaş, Y.(2019). *Nomofobi düzeylerinin yaşam doyumu ve iş performansı üzerindeki etkisi: Kütahya kent merkezinde bir uygulama*. (Unpublished Masters' thesis). Kütahya Dumlupınar Üniversitesi Sosyal Bilimler Enstitüsü, Kütahya.

Altan, B.(2019). *Nomofobi ile aleksitimi arasındaki ilişkide bilinçli farkındalık ve üst bilişin aracı rolünün incelenmesi*. (Unpublished masters' thesis). İstanbul Aydın Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Aman, T., Shah, N., Hussain, A., Khan, A., Asif, S. & Qazi, A. (2015). Effects of mobile phone use on the social and academic performance of students of a public sector medical college in Khyberpakhtunkhwa Pakistan. *The Kaohsiung Journal of Medical Sciences*, 8(1), 99-103.

Anlayışlı, C. & Serin, N. B. (2019). Lise Öğrencilerinde İnternet Bağımlılığı ve Depresyonun Cinsiyet, Akademik Başarı ve İnternete Giriş Süreleri Açısından İncelenmesi. Folklor/Edebiyat, 25(97), 730-743. DOI NO: https://doi.org/10.22559/folklor.977

Apak, E. & Yaman, Ö. M.(2019). Üniversite Öğrencilerinde Nomofobi Yaygınlığı ve Nomofobi ile Sosyal Fobi Arasındaki İlişki: Bingöl Üniversitesi Örneklemi. *Addicta:The Turkish Journal On Addictions*, 6(3), 609–627, DOI NO: 10.15805/addicta.2019.6.3.0078

Arcan, K.(2006). *Özel okullara giden lise düzeyindeki ergenlerin, akademik başarıları ile algıladıkları anne-baba tutumları arasındaki ilişkilerin incelenmesi*. (Unpublished Masters' thesis). Maltepe Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Arıcı, İ. (2007). *İlköğretim Din Kültürü ve Ahlak Bilgisi Dersinde Öğrenci Başarısını Etkileyen Faktörler(Ankara Örneği)*. (Unpublished doctoral thesis). Ankara Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Aslanargun, E., Bozkurt, S. & Sarıoğlu, S. (2016). Sosyo Ekonomik Değişkenlerin Öğrencilerin Akademik Başarısı Üzerine Etkileri. *Uşak Üniversitesi Sosyal Bilimler Dergisi*, 9(3), 214-234.

Ateş, M. (2008). *İlköğretim İkinci Kademe Öğrencilerinin Okuduğunu Anlama Düzeyleri İle Türkçe Dersine Karşı Tutumları Ve Akademik Başarıları Arasındaki İlişki.* (Unpublished doctoral thesis).

Atıcı, Ö. B.(2017). Ergenlerin akıllı telefon bağımlılığı ve kontrol hissi düzeyleri arasında ilişkinin incelenmesi. (Unpublished doctoral thesis). İstanbul Gelişim Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Augner, C. & Hacker, G. W. (2012). Associations Between Problematic Mobile Phone Use And Psychological Parameters İn Young Adults. *International Journal of Public Health*, 57(2), 437–441. DOI NO: https://doi.org/10.1007/s00038- 011-0234-z

Ayar, D., Özalp, G., Özdemir, E.Z. & Bektaş, M. (2018). The Effect of Problematic Internet Use, Social Appearance Anxiety, and Social Media Use on Nursing Students' Nomophobia Levels. *CIN Comput. Inform. Nurs.*, 36, 589–595. DOI: 10.1097/CIN.0000000000000458

Bae, S. M. (2015). The Relationships Between Perceived Parenting Style, Learning Motivation, Friendship Satisfaction and The Addictive Use of Smartphones With Elementary School Students of South Korea: Using Multivariate Latent Growth Modeling. *School Psychology International*, 36(5), 513–531.

DOI NO: https://doi.org/10.1177/0143034315604017

Bal, E. & Balcı, Ş.(2020). Akıllı Cep Telefonu Bağımlılığı: Kişilik Özellikleri ve Kullanım Örüntülerinin Etkinliği Üzerine Bir İnceleme. *Erciyes İletişim Dergisi*, 7 ,(1), 369-394. DOI NO: 10.17680/erciyesiletisim.654569

Bekar, T. (2018). *Üniversite Öğrencilerinde Teknoloji İle İlgili Bağımlılıklar ve İlişkili Faktörler.* (Unpublished Masters' thesis).

Bekaroğlu, E. & Yılmaz, T. (2020). Nomofobi: Ayırıcı Tanı ve Tedavisi. *Psikiyatride Güncel Yaklaşımlar*, 12(1),131-142. DOI NO: 10.18863/pgy.528897

Betoncu, O. & Ozdamli, F. (2019). The disease of 21st Century: Digital disease. *TEM J.*, 8, 598–603. DOI: 10.18421/TEM82-37.

Bianchi, A. & Phillips, J. G. (2005). Psychological Predictors Of Problem Mobile Phone Use. *CyberPsychology & Behavior*, 8,(1), 39-51. DOI NO: https://doi.org/10.1089/cpb.2005.8.39

Bilkay, S.(2020). *Pozitif psikolojik sermayenin çalışanların ilişki ağı kurma yeteneği üzerindeki etkisinde nomofobinin düzenleyici rolü: Havacılık sektöründe bir araştırma*. (Unpublished doctoral thesis).

Binali, R. (2015). *Lise öğrencilerinin kişilik özellikleri ile internet bağımlılığı ve akademik başarı durumu arasındaki ilişkinin incelenmesi*. (Unpublished Masters'' thesis). Üsküdar Üniversitesi/Sosyal Bilimler Enstitüsü, İstanbul.

Buctot, D. B, Kim, N. & Kim, S. H. (2020). The Role of Nomophobia and Smartphone Addiction in the Lifestyle Profiles of Junior and Senior High School Students in the Philippines. *Social Sciences & Humanities Open*,1-14.

Buldur, S. & Acar, M. (2018). Ortaokul Öğretmenlerinin Merkezi Sınavlara Yönelik Görüşleri. *Kastamonu Eğitim Dergisi*, 27(1), 321-330. DOI NO: 10.24106/kefdergi.2546

Burucuoğlu, M. (2017). Meslek Yüksek Okulu Öğrencilerinin Nomofobi Düzeyleri Üzerinde Bir Araştırma. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 7(2),482-489.

Büyükçolpan, H. (2019). *Üniversite öğrencilerinde nomofobi, bağlanma biçimleri, depresyon ve algılanan sosyal destek.* (Unpublished Masters' thesis). Hacettepe Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Büyüköztürk, Ş. (2011). *Sosyal Bilimler İçin Veri Analizi El Kitabı* (14. Baskı).Ankara: PEGEM Akademi.

Büyüköztürk, Ş. (2016). Sınavlar Üzerine Düşünceler. *Kalem Eğitim ve İnsan Bilimleri Dergisi*, 2016, 6 (2), 345-356.

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz Ş. & Demirel F. (2017). *Bilimsel Araştırma Yöntemleri*. Ankara: Pegem Akademi.

Can, A. (2017). *SPSS ile Bilimsel Araştırma Sürecinde Nicel Veri Analizi*. Ankara: Pegem Akademi.

Can, E. (2019). *Nomofobi ile online satın alma davranışı ilişkisinde mobil ticaret kullanımının rolü*. (Unpublished Masters' thesis). Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Enstitüsü, Eskişehir.

Choi, S. W., Kim, D. J., Choi, J. S., Ahn, H., Choi, E. J., Song, W. Y., & Youn, H. (2015). Comparison of risk and protective factors associated with smartphone addiction and Internet addiction. *Journal of Behavioral Addictions*, 4(4), 308–314.

Cho, K. S. & Lee, J. M. (2017). Influence of smartphone addiction proneness of young children on problematic behaviors and emotional intelligence: Mediating self-assessment effects of parents using smartphones. *Computers in Human Behavior*, 66, 303–311.

Çağan, Ö. (2019). *Lisede Öğrenim Gören Öğrencilerde Nomofobinin Algılanan Destekle İlişkisinin araştırılması*. 3. Uluslararası 21. Ulusal Halk Sağlığı Kongresi (pp. 526-540). Antalya.

Çalış-Duman, M., & Aksoğan, M. (2018). Sosyal Medya Ve Akademik Başarı: İnönü Üniversitesi Öğrencileri Üzerinde Bir Alan Araştırması. *Social Sciences Studies Journal*, 4(18), 1624- 1638.

Çelik, Y. & Atilla, G.(2018). Üniversite Öğrencilerinin Nomofobi, Duygu Düzenleme Güçlüğü Ve Akademik Başarıları Arasındaki İlişkinin İncelenmesi: Manavgat MYO Örneği. *Journal of Social And Humanities Sciences Research (JSHSR)*, 5(26), 2628-2639.

Çetinkaya, S.(2019). *Algılanan anne baba tutumlarının ergenlerde akıllı telefon bağımlılığı ile ilişkisinin incelenmesi*. (Unpublished Masters' thesis). İstanbul Sabahattin Zaim Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Çetinkaya, M. (2013). *İlköğretim Öğrencilerinde İnternet Bağımlılığının İncelenmesi*. (Unpublished Masters' thesis). Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü, İzmir.

Chen, B., Liu, F., Ding, S., Ying, X., Wang, L., & Wen, Y. (2017). Gender Differences İn Factors Associated With Smartphone Addiction: A Cross-Sectional Study Among Medical College Students. *BMC Psychiatry*, 17(1), 1–9. DOI NO: https://doi.org/10.1186/s12888-017-1503-z

Çubuk, A.(2019). *Ortaokul Öğrencilerinin İnternet Bağımlılığı, Fiziksel Aktivite Düzeyleri ve Akademik Başarı Durumları Arasındaki İlişkinin İncelenmesi.* (Unpublished Masters' thesis). Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul.

Dam, H. (2008). Öğrencinin Okul Başarısında Aile Faktörü. *Hitit Üniversitesi İlahiyat Fakültesi Dergisi,* 7(14), 75-99.

Deloitte (2017). Dijitalleşen Hayatımızda Mobil Teknolojilerin Yeri, Deloitte Global Mobil Kullanıcı Anketi,

https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/technology media-telecommunications/deloitte_gmcs_2017.pdf (Retreived on 25.12.2019)

Deloitte (2019). Hayatımızın Merkezindeki Mobil Teknolojiler, Deloitte Global Mobil Kullanıcı Anketi, https://www2.deloitte.com/tr/tr/pages/technology-media-and telecommunications/articles/TR-GMCS-2019.html (Retreived on 25.01.2020)

Dirik, K.(2016). *Ergenlerde akıllı telefon bağımlılığı ile öz-güven arasındaki ilişkilerin çeşitli değişkenler açısından incelenmesi*. (Unpublished Masters' thesis). İstanbul Gelişim Üniversitesi Sağlık Bilimleri Enstitüsü, İstanbul.

Dixit, S., Shukla, H., Bhagwat, A., Bindal, A., Goyal, A., Zaidi, A., & Shrivastava, A. (2010). A Study To Evaluate Mobile Phone Dependence Among Students Of A Medical College And Associated Hospital Of Central India. *Indian Journal of Community Medicine*, 35(2), 339-341. DOI NO: 10.4103/0970-0218.66878

Durak, H.Y. (2018). What Would You Do Without Your Smartphone? Adolescents' Social Media Usage, Locus Of Control, And Loneliness As A Predictor Of Nomophobia. *ADDICTA: The Turkish Journal on Addictions*, 5(2), 1-15.

Durak, H.Y. (2019) Investigation of nomophobia and smartphone addiction predictors among adolescents in Turkey: Demographic variables and academic performance. *The Social Science Journal*, 56:4, 492-517, DOI: 10.1016/j.soscij.2018.09.003.

Durak, H. Y. & Seferoğlu, S. (2018). Ortaokul Öğrencilerinin Akıllı Telefon Kullanımları Ve Bağımlılık Düzeyleriyle İlgili Bir İnceleme. *Educational Technology Theory and Practice*, 8(1), 1-23.

Ercan, Ö. & Tekin, N.(2019). Beden Eğitimi Öğretmenlerinin Nomofobi Düzeylerinin İncelenmesi. *Journal of Global Sport and Education Research*, 2(1),24-34.

Erdem, H., Kalkın, G., Türen, U. & Deniz, M. (2016). Üniversite Öğrencilerinde Mobil Telefon Yoksunluğu Korkusunun (Nomofobi) Akademik Başarıya Etkisi. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 21 (3), 923-936.

Eren, B., Kılıç, Z. N., Günal, S. E., Kırcalı, M. F., Özcanar, B. B., Topuzoğlu, A.(2020). Lise Öğrencilerinde Nomofobinin Ve İlişkili Etkenlerin Değerlendirilmesi. *Anadolu Psikiyatri Dergisi*, 21(2), 133-140.

Elmas, O., Kete, S., Hızlısoy, S.S. & Kumral, H.N., (2015). Teknolojik Cihaz Kullanım Alışkanlıklarının Okul Başarısı Üzerine Etkisi. *SDÜ Sağlık Bilimleri Enstitüsü Dergisi*, 6(2), 49-54.

Ertan, G. (2019). *Mobil Telefonsuz Kalma Korkusunun (Nomofobi) İş Tatmini, İşe Bağlılık ve Sosyal İzolasyon Üzerine Etkisi*. (Unpublished Masters' thesis). Marmara Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Ertemel, A. V. (2017). *The importance of unconscious mind for consumer engagement in the digital age: A model proposal*. In 22. Ulusal Pazarlama Kongresi (pp. 945–950). Trabzon.

Ertemel, A. V. & Aydın, G. (2018). Dijital Ekonomide Teknoloji Bağımlılığı ve Çözüm Önerileri. *ADDICTA: The Turıish Journal On Addictions*, 5(4), 665-690. DOI NO: 10.15805/addicta.2018.5.4.0038.

Eşitti Ş, (2015). Bilgi Çağında Problemli İnternet Kullanımı ve Enformasyon Obezitesi: Problemli İnternet Kullanımı Ölçeğinin Üniversite Öğrencilerine Uygulanması, *İstanbul Üniversitesi İletişim Fakültesi Dergisi*, 2 (49), 75-97.

Gazioğlu, E. İ. & Ergin, T., (2007). *Duygusal Zeka Bilişsel İşlevler ve İnternet Kullanımı*. II. Uluslararası Duygusal Zeka ve İletişim Sempozyumu (pp.206-217). İzmir, Turkey.

Gelir. E.(2009). *Ana baba tutumları, aile sosyal atomu ve cinsiyete göre ilköğretim altıncı sınıf öğrencilerinin öğrenilmiş çaresizlik ve akademik başarılarının incelenmesi.* (Unpublished Masters' thesis). Çukurova Üniversitesi Sosyal Bilimler Enstitüsü, Adana.

Genç, E. (2005). *Development and validation of an instrument to evaluate science teachers' assessment beliefs and practice*. (Unpublished doctoral thesis). Florida State University, Florida.

Gezgin, D. M. & Çakır, Ö. (2016). Analysis Of Nomofobic Behaviors Of Adolescents Regarding Various Factors. *Journal of Human Sciences*,13(2), 2504-2519. DOI NO: https://doi.org/10.14687/jhs.v13i2.3797

Gezgin, D. M., Şahin, Y. L. & Yildirim, S. (2017). Sosyal Ağ Kullanıcılarının Nomofobi Düzeylerinin Çeşitli Faktörler Açısından İncelenmesi. *Eğitim Teknolojisi Kuram ve Uygulama*, 7,(1), 1-15.

Gökçedağ, S. (2001). *Lise Öğrencilerinin Okul Başarısı ve Kaygı Düzeyi Üzerinde Anne Baba Tutumlarının Etkilerinin Belirlenip Karsılaştırılması.* (Unpublished Masters' thesis). Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü, İzmir.

Gökler, M. E., Aydın, R., Ünal, E. & Metintaş, S. (2016). Sosyal Ortamlarda Gelişmeleri Kaçırma Korkusu Ölçeğinin Türkçe Sürümünün Geçerlilik ve Güvenilirliği. *Anadolu Psikiyatri Dergisi*, 17(1), 53-59. DOI NO: 10.5455/apd.195843

Göktaş, H.(2019). *Lise öğrencilerinin akıllı telefon bağımlılığı, mobil telefon yoksunluğu korkusu (nomofobi) ve akademik başarıları arasındaki ilişki.* (Unpublished Masters' thesis). Süleyman Demirel Üniversitesi Eğitim Bilimleri Enstitüsü, Isparta.

Griffiths, M. D. (1996). Gambling On The İnternet: A Brief Note. *Journal of Gambling Studies*, 12, 471–473.

Güler, E. Ö. & Veysikarani, D.(2019). Nomofobi Üzerine Bir Araştırma: Üniversite Öğrencileri Örneği. *Beykoz Akademi Dergisi*,7(1),75-88. DOI NO: https://doi.org/10.14514/BYK.m.26515393.2019.7/1.75-88

Güllüce, A. Ç., Kaygın E. & Börekçi, N. E.(2019). Üniversite Öğrencilerinin Nomofobi Düzeyi İle Öznel İyi Olma Durumları Arasındaki İlişkinin Belirlenmesi: Ardahan Örneği. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*,37(4),651 673. DOI NO: https://doi.org/10.17065/huniibf.482061

Güneş, N. A & Gücük, S. (2020). The Relationship Between Nomophobia Levels and Academic Successes in Medical Faculty Students. *Turkish Journal of Family Medicine and Primary Care*, 14(3), 396 - 402. DOI NO: 10.21763/tjfmpc.691384.

Gündüver, A. & Gökdaş, İ.(2011). İlköğretim Öğrencilerinin Seviye Belirleme Sınav Başarılarının Bazı Değişkenlere Göre İncelenmesi. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 2 (2), 30-47.

Hakkari, F.(2018).Meslek Yüksekokulu Öğrencilerinin Nomofobi Düzeylerinin Belirlenmesi: Kırıkhan MYO Örneği. *Atlas Journal Dergisi*, 4(10), 786-797.

Haug, S., Castro, R. P., Kwon, M., Filler, A., Kowatschve, T., & Schaub, M. P. (2015). Smartphone Use and Smartphone Addiction Among Young People in Switzerland. *Journal of behavioral Addictions*, 4(4), 299-307.

Hayırcı, B. & Sarı, E.(2019). Lise Öğrencilerinin Akıllı Telefon Bağımlılık Düzeyleri ile Sosyal Kaygı ve Yalnızlık Düzeyleri Arasındaki İlişkinin İncelenmesi. *Eğitim ve Toplum Araştırmaları Dergisi*, 7(1), 61-79.

Hoşgör, H., Tandoğan, Ö. & Hoşgör, D. G. (2017). Nomofobinin Günlük Akıllı Telefon Kullanım Süresi Ve Okul Başarısı Üzerindeki Etkisi: Sağlık Personeli Adayları Örneği. *Akademik Sosyal Araştırmalar Dergisi*, 5(46),573-595.

Hoşgör, H. (2020). Üniversite Öğrencilerinin Nomofobi Düzeyini Etkileyen Faktörler ve Ders Performansları Üzerinde Nomofobinin Etkisi. *Uluslararası Toplum Araştırmaları Dergisi*,15(25),145-175.

Jacobsen, W.C. & Forste, R. (2010). The Wired Generation: Academic and Social Outcomes of Electronic Media Use Among University Students. *Cyberpsychology, Behavior, and Social Networking*, 14(5),275-280. DOI NO:10.1089/cyber.2010.0135.

Jan, S. R., Ullah, F., Ali, H. & Khan, F. (2016). Enhanced and effective learning through mobile learning an insight into students perception of mobile learning at university level. *International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET)*, 2(2), 674-681.

Kahraman, İ. (2014). Merkezi Ortak Sınav Uygulamasının Etkilerine İlişkin Öğretmen Görüşleri. *Tunceli Üniversitesi Sosyal Bilimler Dergisi*, 2(4), 53-74.

Kanmani, A., Bhavani, U. & Maragatham, R.S. (2017). Nomophobia–An İnsight İnto İts Psychological Aspects İn İndia. *The International Journal of Indian Psychology*, 4(2), 5-15. DOI NO: 18.01.041/20170402

Karakuyu, A. & Ata, F.(2019). Ön Lisans Öğrencilerinin Nomofobilerinin Bazı Değişkenlerce İncelenmesi. *Uluslararası Sosyal Araştırmalar Dergisi*,12(67), 908-915.

Kardefelt-Winther, D. (2014). A Conceptual And Methodological Critique Of İnternet Addiction Research: Towards A Model Of Compensatory İnternet Use. *Comput in Human Behav*, 31,351-354.

Kıraç, R. (2019). Nomofobinin Dikkat Eksikliğine Etkisi. *Uluslararası Toplum Araştırmaları Dergisi*, 14,(20), 1095-1114. DOI NO: DOI: 10.26466/opus.605294

Kim, J. H., Seo, M. & David, P. (2015). Alleviating Depression Only To Become Problematic Mobile Phone Users: Can Face-To-Face Communication Be The Antidote. *Computers in Human Behavior*, 51, 440-447.

Kuyucu,M. (2017). Gençlerde Akıllı Telefon Kullanımı Ve Akıllı Telefon Bağımlılığı Sorunsalı: "Akıllı Telefon(Kolik)" Üniversite Gençliği. *Global Media Journal TR Edition*, 7(14), 328-359.

Küçükvardar, M. & Tıngöy, Ö. (2018). Teknoloji Bağımlılığının Semptomlar Temelinde İncelenmesi. *İletişim ve Bilişim Teknolojileri*, 9(35), 111-123. DOI NO: 10.5824/1309-1581.2018.5.008.x

Kwon, M., Kim, D. J., Cho, H. & Yang, S. (2013). The Smartphone Addiction Scale: Development and Validation of a Short Version for Adolescents. *PLoS ONE*, 8(12), e83558. DOI NO: https://doi.org/10.1371/journal.pone.0083558

Lee, Y. K., Chang, C. T., Lin, Y. & Cheng, Z. H. (2014). The Dark Side Of Smartphone Usage: Psychological Traits, Compulsive Behavior And Technostress. *Computers in Human Behavior*, 31, 373-383. DOI NO: https://doi.org/10.1016/j.chb.2013.10.047

Lepp, A., Barkley, J. E. & Karpinski, A. C.(2014). The Relationship Between Cell Phone Use, Academic Performance, Anxiety, and Satisfaction with Life in College Students. *Computers in Human Behavior*,31,343-350. DOI NO: https://doi.org/10.1016/j.chb.2013.10.049

Louragli, I., Ahami, A., Khadmaoui, A., Mammad, K. ve Lamrani, A. C. (2018). Evaluation of the nomophobia's prevalence and its impact on schools performance among adolescents in Morocco. *Problems of Psychology in the 21st Century*, 12(2), 84-94.

Jilisha, G., Venkatachalam, J., Menon V. & Olickal J.J. (2019). Nomophobia: A Mixed Methods Study On Prevalence, Associated Factors, And Perception Among College Students İn Puducherry, India. *Indian J Psychol Med*, 41(6), 541-8.

Matoza-Báez, C. M. & Carballo-Ramírez M. S.(2016). Nomophobıa Levels On Medıcal Students From Paraguay, Year 2015, *CIMEL*, 21(1),28-30.

Mendoza, J. S., Pody, B. C., Lee, S., Kim, M. & McDonough, I. M. (2018). The effect of cellphones on attention and learning: The influences of time, distraction, and nomophobia. *Computers in Human Behavior*, 86, 52–60.

Minaz, A. & Bozkurt, Ö. Ç. (2017). Üniversite Öğrencilerinin Akilli Telefon Bağımlılık Düzeylerinin Ve Kullanim Amaçlarinin Farklı Değişkenler Açısından İncelenmesi. *Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 9(21), 268-286.

Mythily, S., Qiu, S. & Winslow, M.(2008). Prevalence and Correlates of Excessive Internet Use among Youth in Singapore. *Annals Academy of Medicine*,37(1),9-14.

Öksüzler, O. & Sürekçi, D. (2010). İlköğretimde Başarıyı Etkileyen Faktörler: Bir Sıralı Lojit Yaklaşımı. *Finans Politik & Ekonomik Yorumlar*, 47 (543), 93-103.

Öz, H.(2018). *Üniversite okuyan genç yetişkinlerin mobil telefon yoksunluğu korkusu (nomofobi) ile kişilik tipleri arasındaki ilişkinin incelenmesi*. (Unpublished Masters' thesis). İstanbul Aydın Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Özer, Y. & Anıl, D. (2011). Öğrencilerin fen ve matematik başarılarını etkileyen faktörlerin yapısal eşitlik modeli ile incelenmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 41, 313-324.

Özkan, E., & Yildirim, S. (2013). Geometri başarısı, geometri öz-yeterliği, ebeveyn eğitim durumu ve cinsiyet arasındaki ilişkiler. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 46(2), 249-261.

Öztunç, M. (2013). Analysis Of Problematic Mobile Phone Use, Feelings Of Shyness And Loneliness in Accordance With Several Variables. *Procedia-Social and Behavioral Sciences*, 106, 456-466.

Öztürk, D. (2007). Bilgisayar oyunlarının çocukların bilişsel ve duyuşsal gelişimleri üzerindeki etkisinin incelenmesi. (Unpublished masters'' thesis). Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.

Öztürk, U. C. (2015). Bağlantıda Kalmak Ya Da Kalmamak İşte Tüm Korku Bu: İnternetsiz Kalma Korkusu Ve Örgütsel Yansımaları. *Uluslararası Sosyal Aratırmalar Dergisi*, 8,(37), 629-638.

Pavithra M. B., Madhukumar S. ve Murthy M. (2015). A Study On Nomophobıa – Mobile Phone Dependence, Among Students of a Medıcal College In Bangalore. *National Journal of Community Medicine*, 6(2), 340-344.

Polat, R. (2017). Dijital Hastalık Olarak Nomofobi. E-Journal of New Media,1(2),164-172.

Prasad, M., Patthi, B., Singla, A., Gupta, R., Saha, S., Kumar, J. K., Malhi, R. & Pandita, V.(2017). Nomophobia: A Cross-sectional Study to Assess Mobile Phone Usage Among Dental Students. *Journal of Clinical and Diagnostic Research:JCDR*, 11(2), ZC34–ZC39.

Randler, C., Lucia, W., Katharina, M., Demirhan, E., Horzum, M. B. & Beşoluk, Ş. (2016). Smartphone Addiction Proneness İn Relation To Sleep And Morningness Eveningness İn German Adolescents. *Journal of Behavioral Addictions*, 5,(3), 465-473. DOI NO: 10.1556/2006.5.2016.056

Rashid, T. & Asghar, H. M. (2016). Technology use, self-directed learning: student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, 63, 604–612.

Rosen, L., Carrier, L. M., Miller, A., Rokkum, J. & Ruiz, A. (2016). Sleeping With Technology: Cognitive, Affective, And Technology Usage Predictors Of Sleep Problems Among College Students. *Sleep Health*, 2(1), 49-56.

Sarıer, Y. (2016). The Factors That Affects Students' Academic Achievement in Turkey: A Meta-Analysis Study. *Hacettepe University Journal of Education*, 31 (3), 1-19. DOI:10.16986/HUJE.2016015868.

Semerci, A.(2019). Nomophobia as the Predictor of Secondary School Students' Smartphone Addiction. *Bartın University Journal of Faculty of Education*, 8(3), 947-965.

Senormanci O, Konkan R & Sungur M. Z. (2010). Internet Addiction And İts Cognitive Behavioral Therapy. *Anadolu Psikiyatri Dergisi*, 11(3), 261-268.

Seyis, S., Yazıcı, H. & Altun, F. (2013).Ortaöğretim Öğrencilerinin Motivasyonları Ve Duygusal Zekaları İle Akademik Başarıları Arasındaki İlişki. *Milli Eğitim Dergisi*, 43(197), 51-63.

Shan, Z., Deng, G., Li, J., Li, Y., Zhang, Y.,& Zhao, Q. (2013). Correlational analysis of neck/shoulder pain and low back pain with the use of digital products, physical activity and psychological status among adolescents in Shanghai. *Plos One*, 8(10): e78109.

Sharma, N., Sharma, P., Sharma, N. & Wavare, R. R.(2015). Rising Concern Of Nomophobia Amongst Indian Medical Students. *International Journal of Research in Medical Sciences*, 3(3), 705-707. DOI NO:10.5455/2320-6012.ijrms20150333

Sharma, P., Kumar, A., Lamba, R. & Awasthi, A. (2021). Internet addiction and academic performance among high school urban students. *International Journal of Health and Clinical Research*, 4(6), 237–240.

Sırakaya, M. (2018). Ön Lisans Öğrencilerinin Nomofobi Düzeylerinin Akıllı Telefon Kullanım Durumlarına Göre İncelenmesi. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 14(2), 714-727.

Singh, J. D. & Yadav, R. A. (2015). Health complications caused by excessive use of smartphones. *Global Journal of Multidisciplinary Studies*, 4(2).

Son, H. & Johnson, D.D. (2020). A Path Model of the Effects of Attitudes to the Internet, Depression, Anxiety, Stress, Gender, And Study Time on Internet Addiction and Academic Performance of Undergraduate Students in Kachin Region of Myanmar. *Scholar : Human Sciences*, 12(1), 69-92.

Statista (2021). *Statistics and market data on smartphones*. Retrieved from https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

TDK. (2019). Retrieved from tarihinde http://tdk.gov.tr

Townsend, Anthony M. (2000). Life in the Real Time City: Mobile Telephones and Urban Metabolism. *Journal of Urban Technology*, 7(2), 85-104. DOI NO: https://doi.org/10.1080/713684114

Takao, M., Takahashi, S., & Kitamura, M. (2009). Addictive Personality And Problematic Mobile Phone Use. *CyberPsychology & Behavior*, 12(5), 501-507

Tanır, H. (2014). *İlköğretim 8. sınıf öğrencilerinin fen ve teknoloji dersi başarılarının bazı değişkenler açısından incelenmesi*. (Unpublished Masters' thesis). Necmettin Erbakan Üniversitesi Eğitim Bilimleri Enstitüsü, Konya.

Turan, E. Z. & İşçitürk, G. B. (2018). İlahiyat Fakültesi Öğrencilerinin Nomofobi Düzeylerinin Çeşitli Faktörler Açısından İncelenmesi. *Uluslararası Toplum Araştırmaları Dergisi*, 9(16), 1930-1950. DOI NO: 10.26466/opus.461523

Türkiye Bağımlılıkla Mücadele Eğitim Programı (TBMEP), (2019). Teknoloji Bağımlılığı, Retrieved from http://tbm.org.tr/media/kitaplar/TBM_ortaokul_teknoloji_icerik_web.pdf

Uğuz, G.(2019). *Kişilik özellikleri ve nomofobi ilişkisi: Kamu hastanelerinde çalışan hemşireler ile bir araştırma*. (Unpublished Masters' thesis). İstanbul Üniversitesi Lisansüstü Eğitim Enstitüsü, İstanbul.

Uysal, Ş., Özen, H. Ve Madenoğlu, C. (2016). Social Phobia in Higher Education: The Influence of Nomophobia on Social Phobia. *The Global Elearnıng Journal*, 5(2),1-8.

Uza, C. D.(2019). *Üniversite Öğrencilerinde Akıllı Telefon Bağımlılığı ve Nomofobi İle Mizaç Karakter Arasındaki İlişkinin İncelenmesi.* (Unpublished Masters' thesis). Hatay Mustafa Kemal Üniversitesi, Hatay.

Yang, S. C. & Tung, C. J. (2007). Comparison Of Internet Addicts And Non-Addicts in Taiwanese High School. *Computers in Human Behavior*, 23(1),79-96.

Yeşilay,(2019). Teknoloji Bağımlılığı Nedir?, Retrieved from https://www.yesilay.org.tr/tr/bagimlilik/teknoloji-bagimliligi

Yılmaz, M., Köse, A. & Doğru, Y. B.(2018). Akıllı Telefondan Yoksun Kalmak: Nomofobi Üzerine Bir Araştırma. *Online Academic Journal of Information Technology*, 9(35), 31-47. DOI NO: 10.5824/1309-1581.2018.5.003.x

Yildirim, C., & Correia, A. P. (2015). Exploring the dimensions of nomophobia: Development and validation of a self-reported questionnaire. *Computers in Human Behavior*, 49, 130–137.

Yildirim, Ç., Sumuer, E., Adnan M. & Yildirim, S. (2016). A Growing Fear: Prevalence Of Nomophobia Among Turkish College Students. *Information Development*, 32(5), 1322-1331. DOI: 10.1177/0266666915599025.

Yıldırım, O. (2019). *Ergenlerde akıllı telefondan yoksun kalma korkusu (Nomofobi) ile sosyodemografik değişkenler, temel psikolojik ihtiyaçlar, sürekli kaygı ve mutluluk arasındaki ilişkinin incelenmesi*. (Unpublished Masters' thesis). İnönü Üniversitesi Eğitim Bilimleri Enstitüsü, Malatya.

Yılmaz, A.(2000). Anne -Baba Tutum Ölçeğinin Güvenirlik ve Geçerlik Çalışması. *Çocuk ve Gençlik Ruh Sağlığı Dergisi*, 7(3),160-172.

Yildiz Durak, H. (2019). Investigation of nomophobia and smartphone addiction predictors among adolescents in Turkey: Demographic variables and academic performance. *The Social Science Journal*, 56:4, 492-517.

Yogesh, S., Abha, S., & Priyanka, S. (2014). Short Communication Mobile usage and sleep patterns among medical students. *Indian Journal of Physiology and Pharmacology*, 58(1), 100–103.

Yoğurtçu, D. D. (2018). *The Relationshıp Between Five Factor Personality Traits and Nomophobia Levels among Unıversity Students*. (Unpublished Masters' thesis).

Yücelten, E.(2016). *Üniversite Öğrencilerinde İnternet Bağımlılığı Ve Akıllı Telefon Bağımlılığının Bağlanma Stilleri İle İlişkisinin İncelenmesi*. (Unpublished Masters' thesis). Üsküdar Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Walsh, S. P., & White, K. M. (2007). Me, my mobile, and I: The role of self and prototypical identity influences in the prediction of mobile phone behavior. *Journal of Applied Social Psychology*, 37(10), 2405–2434.

Wei, R.,& Lo, V. H. (2006). Staying connected while on the move: Cell phone use and social connectedness. *New Media & Society*, 8(1), 53–72.