# Smartphone Addiction Level among a Group of University Students

## Bir Grup Üniversite Öğrencisinin Akıllı Telefon Bağımlılık Düzeyleri

Gül Dikeç[1], Ayda Kebapçı[2]

1. Istinye University, Faculty of Health Sciences, Department of Nursing, İstanbul, Turkey
2. Koc University, School of Nursing, Istanbul, Turkey

ABSTRACT

**Objective:** The objective of this study was to identify the level of smartphone addiction among students from various departments at a foundation university.

**Method:** The sample group consists of 148 female and 117 male students enrolled at a foundation university adding up to a total of 265 students. The data were collected via Qualtrics online survey website by means of Information Form and Smartphone Addiction Scale established after relevant literature review by the researchers.

**Results:** The average age of the participating students was 21.04±2.63, including 55.8% female and 44.2% male students. There were 233 undergraduates, 20 graduates and 12 doctoral students. The average Smartphone Addiction Scale score among students was found to be 84.883 ± 22.96. Accordingly, 136 (51.3%) of the participants were found to be at low risk level, whereas 129 (48.7%) were in the high-risk level.. A significant difference was detected between the average Smartphone Addiction Scale scores among samples pursuant to education levels. Negative relation was put forth between the average Smartphone Addiction Scale scores and the academic GPA, whereas positive significant relation was found between the average scale score and the daily smartphone usage time. **Conclusion:** The risk of smartphone addiction was found to be greater in comparison with previous studies carried out in Turkey..

**Keywords:** smartphone addiction, university, student.

ÖZET

**Amaç:** Bu çalışmanın amacı İstanbul'da bulunan bir diğer vakıf üniversitesinde öğrenim gören farklı bölümlerdeki öğrencilerin akıllı telefon bağımlılık düzeylerini belirlemektir.

**Yöntem:** Araştırmanın örneklemini ise çalışmaya katılmayı kabul eden 148 kadın, 117 erkek olmak üzere toplam 265 öğrenci oluşturdu. Veriler araştırmacılar tarafından hazırlanan Bilgi Formu ve Akıllı Telefon Bağımlılığı Ölçeği ile Qualitrics on-line anket sitesi üzerinden dolduruldu.

**Bulgular:** Çalışmaya katılan örneklemin yaş ortalaması ise 21,04±2,63 bulundu. Katılımcıların %55,8'i kadın, %44,2'si erkektir. Katılımcıların eğitim gördükleri bölümler incelendiğinde sırasıyla Mühendislik Fakültesi, İktisadi ve İdari Bilimler Fakültesi, İnsani Bilimler ve Edebiyat Fakültesi, Hemşirelik Yüksek Okulu, Hukuk Fakültesi, Tıp Fakültesi ve Fen Fakültesi öğrencileridir. Öğrencilerin eğitim düzeyi değişkenine göre %87,9 lisans, %7,5 yüksek lisans, %4,5 doktora öğrencisidir. Araştırmaya katılan öğrencilerin Akıllı Telefon Bağımlılığı Ölçeği puan ortalaması 84.88±22.96 saptandı. Yaş, eğitim düzeyi, akademik not ortalaması ve günlük akıllı telefon kullanma süresi ile Akıllı Telefon Bağımlılığı Ölçeği arasındaki ilişki belirlemek üzere yapılan regresyon analizi istatistiksel olarak anlamlı bulundu

**Sonuç:** Mevcut çalışmada üniversite öğrencilerinin akıllı telefon bağımlılığı ölçek puan ortalaması yüksek bulundu. Ülkemizde akıllı telefon bağımlılığının yaygınlığı, risk faktörleri, önleme çalışmaları ve tedavi protokollerinin geliştirilmesi amacıyla farklı popülasyonlarla daha geniş örneklemli çalışmalara ihtiyaç vardır.

**Anahtar kelimeler:** akıllı telefon bağımlılığı, üniversite, öğrenci.

**Correspondence / Yazışma Adresi:** Gül Dikeç, Istinye University, Maltepe Neighbourdhood, Road of Edirne Cirpici. 34010, Zeytinburnu, Istanbul, Turkey
E-mail: guloban@hotmail.com
Received /Gönderilme tarihi: 27.2.2018 Accepted /Kabul tarihi: 19.3.2018

# INTRODUCTION

The use of mobile phones has gradually become widespread all over the world, consequently leading to many communicational facilities thus they are becoming a part of our daily life (1). In the beginning, mobile phones stood out for their mobility as they provided the ability to communication in every aspect of daily life; today, however, the development in information technologies has brought forth various other features of this device (2). Smartphones are now capable of fulfilling functions of both computers and telephones and thus providing opportunities such as instant access to desired information, ensuring information sharing, games, shopping, video chat and short messages, e-mail, music, video or films particularly for young people (3). As smartphones can be intensely used almost anywhere, this growing habit is now mentioned together with the concept of addiction (4). Although the smartphone addiction has not yet been defined, the smartphone addiction is an overuse of the device that affects individuals' mental well-being, interpersonal relationships and physical health, shortly, their daily lives (5). Smartphone addiction is also one of the behavioural addictions such as internet addiction (6). Like all other kinds of addictionssuch as alcohol or drugs , internet and smartphone addiction also has symptoms and indicators such as repetition of pleasing behaviours, loss of control, damage on daily activities, tolerance, craving and withdrawal (1, 4, 6). According to a study carried out on 10,191 adolescents in Taiwan, 30% of the participants developed such tolerances, 36% suffered from indicators of withdraw, 27% used their phones for periods longer than planned, 18% had unsuccessful attempts to give up while 10% suffered problems with close relations (7).

In 2013, DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) published by the American Psychiatric Association (8). Among non-substance related disorders, only the gambling disorder has been defined (9). There are no diagnosed categories about internet and smartphone addictions. Nevertheless, In future DSM revisions virtual addictions such as internet and smart phone addictions will most likely be included as obsession with technology causes increasing problems with individuals (1, 8, 10, 11).

Smartphones have brought many conveniences to our lives. Among these conveniences are, for example, instantly accessing and sharing information or providing social support. However, the use of mobile phones for messaging and chatting purposes to provide social support reduces face-to-face communication (5). The success that couldn't be attained by especially those who have loneliness or timid behavioural characteristics in face-to-face communication can be achieved in social sharing and virtual communication with finger touches. In communication established using the internet and social media, a fast and worry-free communication is ensured at long distances and this reduces loneliness (12). The use of smartphones in school, bus, supermarket etc. through compulsive use allows them to suffer less from the loneliness (13). In his study conducted in Korea, Park (2005) found a positive correlation between the mobile phone use and loneliness in college students (14).

Most studies on the youth are carried out in Central Asia, in the region encompassing Taiwan, China and Korea. According to the data from South Korea, smartphone addiction level is 8.4% which is greater than internet addiction of 7.7%. The survey reveals that smartphone addiction level among 10 to 20-year-old individuals is 11.4%, and that the figure is 10.4% for those between 20 and 30 years of age (15). Similar studies are rare in Turkey. In one such study performed on students enrolled at the faculty of medicine, Demirci et al. (2014) determined a high level of smartphone addiction (6). In another research carried out by Tekin et al. (2014) again on students enrolled at the faculty of medicine, it was concluded that 48.7% of the participants had a problematic way of mobile phone use (16). A similar survey was also carried out on students from other departments at a foundation university in Istanbul. Accordingly, it was put forth that 23% of the participants had high scores on the scale (1).

The objective of this study was to identify the level of smartphone addiction among students enrolled in various departments of a foundation university in Istanbul, Turkey thus contributing to the relevant literature with regard to this growing problem.

# MATERIAL AND METHODS

## Survey Objective and Design

The study was planned in a cross-sectional and descriptive manner so as to determine smartphone addiction level among all students enrolled at a foundation university in Istanbul during the spring term of the academic year 2014-2015. The dependent variable of the study was Smartphone Addiction Scale (SAS), with independent variables such as age, gender, department, level of education, average daily smartphone usage, general point average (GPA), and areas of smartphone use. The research was conducted at a foundation university, Istanbul, from March 2015 to June 2015.

Research Results

1. What is the smartphone addiction level among students?
2. Is there any difference between smartphone addiction levels of female and male students?
3. Is there any difference between smartphone addiction levels of students from different departments?
4. Does educational level play a part in smartphone addiction levels?
5. Is there any relation between smartphone addiction level and GPA?
6. Is there any relation between smartphone addiction level and daily average usage time?

## Survey Population and Sample

The population consisted of all undergraduate, postgraduate and doctorate students (N=6555) enrolled at a foundation university in Istanbul during the spring semester of the academic year 2014-2015. The research sample group consisted of a total of 265 students, including 148 female and 117 male students who accepted to participate in the survey. The sample selection criteria were enrolment at the university during 2014-2015 spring semester, being a smartphone user, filling thoroughly the survey questions in from March to June, being literate in Turkish and being voluntary for participation.

## Measuring Instruments in the Survey

**Information Form:** The demographic data-based information form prepared by the researchers following a literature review was comprised of age, gender, department, GPA, applications in smartphones of students, average daily hours of smartphone use and smartphone usage areas (4, 6).

**Smartphone Addiction Scale (SAS)**: The scale, developed by Kwon et al. (2013) (4) was tested for validity and reliability in Turkish by Demirci et al. in 2014 (6). The scale is a six-point Likert-type scale with 33 items (1-definitely no, 6-definitely yes). The lowest and highest scores are 33 and 178, respectively. The higher score means higher level of smartphone addiction. No cut-off score is applied in the scale. Cronbach alpha coefficient for validity and reliability of the scale was found to be 0.94. The Cronbach alpha coefficient for this study was calculated as 0.92 which is relatively high.

## Survey Process

The survey was announced in the daily event calendar of the university; in addition, the survey link was also e-mailed to the students. The Information form and Smartphone Addiction Scale were filled on Qualtrics online survey site. We applied to University Committee of Human Research for necessary approval which was obtained on 24.02.2015 under protocol number 2015.033.IRB3.014. The application for institutional approval was made to the Rector's Office as a result of which proper consent was obtained under the code 2015022713260997. A button was placed for the participants in Qualtrics online software about whether they want to participate or not prior to beginning to fill the relevant form, and thus written approvals were acquired.

Survey Limitedness

The survey bears certain restrictions. It covers only a single foundation university as the population, and small sample size and lack of randomization are limitations. In addition, no interview has been held with a mental health expert and study results exclusively ground on self-statement. As another

restriction of this study, there were no questions about psychical problems because of excessive smartphone usage.

### Data Analysis

The survey data were analysed by means of SPSS (Statistical Package for Social Sciences) (IBM, Chicago, Illinois, USA) 22.0 software. The number, percentage, average and standard deviation were used as the descriptive statistical methods during data assessment such as age, daily smartphone usage and GPA. The student t-test was applied for the comparison of quantitative continuous data between two independent groups such as gender, and one-way ANOVA was also used for the comparison of quantitative continuous data between more than two independent groups such as education level and department. The Complementary Scheffe test was applied as post-hoc analysis so as to determine the differences in the wake of the ANOVA test. The Pearson correlation and regression analysis were employed between continuous variables of the survey. The findings were evaluated with a confidence interval of 95% at a significance level of 5%.

## RESULTS

41 (90.9%) participants of the sample group were between the ages of 18 to 24, whereas 24 (9.1%) were older than 24; the average age of the participants was 21.04±2.63. 55.8% of the participants were female and 44.2% were male. The departments of the participants were as follows: 60 (22.6%) from Faculty of Engineering, 57 (21.5%) from Faculty of Economics and Administrative Sciences, 52 (19.6%) from Faculty of Humanities and Letters, 38 (14.3%) from School of Nursing, 20 (7.5%) from Faculty of Law, 19 (7.2%) from Medical Faculty and 19 (7.2%) from Faculty of Science. The educational levels were as follows: 233 (87.9%) undergraduates, 20 (7.5%) postgraduates and 12 (4.5%) doctorate students. The average GPA of the participants was 3.19 and the daily average smartphone usage time was 4.77 hours (Table-1).

Table-1. General characteristics of university students

| | Groups | n | % |
|---|---|---|---|
| Age | 18 to 24 years old | 241 | 90.9 |
| | Older than 24 | 24 | 9.1 |
| Gender | Female | 148 | 55.8 |
| | Male | 117 | 44.2 |
| Departments | Faculty of Science | 19 | 7.2 |
| | School of Law | 20 | 7.5 |
| | Medical School | 19 | 7.2 |
| | School of Nursing | 38 | 14.3 |
| | Faculty of Engineering | 60 | 22.6 |
| | Faculty of Economics and Administrative Sciences | 57 | 21.5 |
| | Faculty of Human Sciences | 52 | 19.6 |
| Educational levels | Undergraduates | 233 | 87.9 |
| | Postgraduates | 20 | 7.5 |
| | Doctorate students | 12 | 4.5 |
| | | Mean | SD |
| Age | | 21.04 | 2.63 |
| GPA | | 3.19 | 0.57 |
| Daily Average Time on Smartphone | | 4.77 | 3.31 |

Average Smartphone Addiction Scale score of the participants was found to be 84.883 ± 22.96 (Table-2). According to smartphone use and the median value of SAS scores in this study (median=84) (6, 17, 18), the participants were divided into two different groups as follows: a low smartphone addiction risk level (SAS score < the median value of 84), and a high risk level (SAS score ≥ the median value of 84). Accordingly, 136 students (51.3%) were at low risk level, while 129 (48.7%) were included in the high risk zone (Table-2). It was concluded that smartphone addiction level does not differentiate significantly with respect to the gender or department ($p>0.05$).

A significant difference was detected between SAS scores of groups when it comes to the educational level ($p<0.05$). A complementary post-hoc analysis was carried out in order to detect from which groups the difference originates; as a result of which the scale average

scores of undergraduate students (86.22 ± 23.41) were found to be higher than those of the postgraduates (75.85± 18.46) at a statistically significant level. SAS average scores of undergraduates (86.22 ± 23.41) were also found to be higher than those of the doctorate students at a statistically significant level (73.91±13.66) (Table-3).

Table 2. Smartphone addiction scale scores according to departments and educational level

| | Group | N | Mean | SD | F | p |
|---|---|---|---|---|---|---|
| Departments | Faculty of Science | 19 | 75.79 | 17.593 | 1.149 | 0.334 |
| | Faculty of Law | 20 | 88.80 | 15.440 | | |
| | Medical School | 19 | 84.94 | 21.768 | | |
| | School of Nursing | 38 | 89.55 | 19.820 | | |
| | Faculty of Engineering | 60 | 81.76 | 21.878 | | |
| | Faculty of Economics and Administrative Sciences | 57 | 87.22 | 27.953 | | |
| | Faculty of Human Sciences | 52 | 84.28 | 24.409 | | |
| Educational Level | Undergraduate[1] | 233 | 86.22 | 23.41 | 3.373 | 0.036 1>2 1>3 |
| | Postgraduate[2] | 20 | 75.85 | 18.46 | | |
| | Doctorate [3] | 12 | 73.91 | 13.66 | | |

As for the relation between SAS average score and certain variables, a weak negative relation was observed with age (r=-0.144; p=0.02<0.05), a weak negative relation was determined for GPA (r=-0.146; p=0.02<0.05) and a weak positive relation was detected between daily smartphone usage time and average scale score (r=0.322; p=0.000<0.05). The regression analysis conducted to determine the relation between SAS and age, educational level, GPA and daily smartphone usage time was found to be statistically significant (F=7.246; p=0.000<0.05). A weak relation was determined between age, educational level, GPA and daily smartphone usage time ($R^2$=0.107) as a determinant of SAS average score. It was determined that the age, educational level and GPA of the students do not affect their smartphone addiction levels (p>0.05) and that the smartphone addiction level (ß=2.145, Table-3) increases only with an increase in daily smartphone usage time.

Tablo-3. Effect of Smartphone Addiction Scale independent variables

| Dependent Variable | Independent Variables | ß | t | p | F | Model (p) | $R^2$ |
|---|---|---|---|---|---|---|---|
| Smartphone Addiction Scale | Fixed | 94.758 | 5.629 | 0.000 | 7.246 | 0.000 | 0.107 |
| | Age | -0.199 | -0.249 | 0.803 | | | |
| | Educational Level | -4.673 | -0.947 | 0.345 | | | |
| | GPA | -3.457 | -1.273 | 0.205 | | | |
| | Daily smartphone usage time | 2.145 | 4.572 | 0.000 | | | |

# DISCUSSION

According to the data provided by the Turkish Institute of Statistics, the rate of household mobile phone/smartphone possession was 53.7% in 2004 which then soared up to 96.2% in 2014 (19). Such a proliferation of smartphones brought along addiction thus paving the way for a growing number of studies on the issue.

The objective of this study was to analyse smartphone addiction levels among students enrolled at a foundation university in Istanbul. Consequently, high average scale scores were determined among students. The students were classified in the risk and non-risk group according to the median score. This analysis method was employed since it would not be appropriate to define the students as addict or nonaddict due to the fact that the mental health expert did not have a face-to-face interview with the students. Likewise, Demirci et al. (2015) found high average scores (75.68 ± 22.46) in their study using the same SAS (6). The results of this study point out to an even higher average scale score; however, since SAS and information form was released as part of the university bulletin and sent to the students via e-mail, they might have been filled by students who use internet and smartphone more often.

The present survey revealed no statistically significant difference between SAS scores per gender. The relevant literature is comprised of studies with similar results. Tekin et al. (2014) detected no statistically significant difference between genders with respect to the generality of smartphone use (16). Noyan et al. (2015) also could not find a gender-based difference regarding the average scores from smartphone addiction scale. Some studies, however, produced contrary results (1). According to Şar (2012), the problematic use of mobile phones is more common among male students than females (20). Demirci et al. (2015) also detected a greater level of addiction among males (21). Even though substance and internet addiction is higher among males (22), another study carried out by Demirci et al. (2014) put forth that SAS average scores among female students were higher among males at a statistically significant level. The difference between data from such studies may depend on changes in the number of participants from each gender and the equality of number of female and male participants. In our study, the numbers of female and male students are close.

A weak, negative significant relation was found between average age of students and SAS. Younger students use smartphones more in comparison with older students; while Demirci et al. (2014) determined a negative, insignificant relation between age and scale score pursuant to the SAS (6). According to a relevant survey carried out in China, the problematic smartphone use was found among 12% of samples, most of which consist of students (23). Higher scores obtained in this study for undergraduates in comparison with postgraduate and doctorate students hint at a higher generality of smartphone use among younger individuals.

An assessment on scale scores per department shows that the students in the School of Nursing have the highest scores, even though no significant difference was detected between departments with respect to SAS average scores. Interestingly enough, nurses, who are to assume a role of health promotion and maintenance, use smartphones more than other university students. According to Noyan et al. (2015), there is a significant relation between the average scale scores and departments of students; thereupon, the Department of Social Services is ranked highest followed by the Departments of English and Child Development, respectively (1). Promotions by smartphone companies and GSM operators in Turkey favour the youth which may be one of the reasons for high level of smartphone use among university students; in addition, the levels are similar in all departments probably because the mentioned facts pave way for a rise in demand among all students (24). Another factor might be the fact that our survey was conducted at a foundation university.

Since addiction, by nature, leads to the repetition of the pleasing behaviour and affects the daily life, business life, relations and school success of individuals, the GPA of students was also incorporated in the survey and an analysis was made between GPA and average scale scores. Consequently, it was put forth that smartphone addiction risk does not have a negative effect on the academic success of students. Social media or game reminders, messages and e-mails via smartphones during lessons or studying hours may break the concentration of the students, thus distracting them. In Taiwan, Chiu (2014) examined the relation between stress and smartphone addiction among university students, whereupon, the academic stress had a negative effect on social self-sufficiency and interpersonal relations (25). Thus, it was put forth that social self-sufficiency increases smartphone addiction.

Due to their mobile nature and web access from almost anywhere, smartphones have an important place and take a great amount of time during the daily lives of individuals. The relation between daily smartphone usage time and SAS scores is important since the time spent using smartphones is a crucial factor for developing tolerance. According to Demirci et al. (2014) (6), users who spent more than 16 hours using smartphones yield highest average scale scores which are significantly higher than those who use the device for less than 4 hours. Noyan et al. (2015) detected a significant relation between daily time on smartphone and scale scores (1). Wu et al. (2013) found out a correlation between smartphone addiction risk and time spent on smartphone (23). Our study manifests a positive relation between daily smartphone usage and average scale score. Therefore, the daily time spent using smartphones enhances the addiction level.

As of early 2012, 1.08 billion people reportedly use smartphones for web-based communication, applications, business, education, banking and entertainment; thanks to such functions and ease of use, smartphone addiction affects not only mental, but also physical health (26). Smartphone addicts suffer musculoskeletal system disorders, particularly wrong cervical posture and ligament injuries; besides, cervical position may cause degeneration on lumbar vertebrae (27). İnal et al. (2015) analysed the relation between smartphone addiction and hand functions among university students as a result of which it was a statistically significant relation was determined between high risk of smartphone addiction and pain in the thumb, reduction in grasping strength, as well as decadence of hand functions (28). Our study can be evaluated as a limited study due to the lack of questions or scales about physical health in the survey.

Cognitive behaviour therapy, motivational interviewing, musicotherapy, art therapy and exercises may be employed for the treatment of smartphone addiction. Exercise is already used for treating anxiety and depression; its employment against smartphone addiction does not only enhance self-confidence and satisfaction of individuals, but it can also treat physical health of patients who suffer from irregular posture or carpal tunnel syndrome due to addiction (5).

Recent studies focus not only on addictive features of smartphones, but also on their therapeutic employment for patients diagnosed with other addictions. An application is installed in the smartphones of alcohol addicts during a study carried out by David et al. (2014) in Northeast America which provides consultancy and follow-up on patients during risky drinking days (less than 4 and 3 hard drinks per week for men and women, respectively) following their discharge (29). The evaluations on fourth, eighth and twelfth months revealed a significant difference between the experimental control groups. Another study shows that the follow-up and support through smartphone applications can help patients with addiction problems in terms of changing their behaviour and preventing relapses (30). This method, based on smartphone application, enables monitoring the patients diagnosed with an addiction, following their discharge. Nevertheless, one wonders if such practices bring along new compulsive behaviours, namely, smartphone addiction, instead of another.

This study yielded a higher risk of smartphone addiction compared to previous similar studies (6) in Turkey. New surveys on mental and physical effects of smartphone addiction with larger sample groups with various populations are required for determining the generality of addictions, risk factors and development of treatment protocols. Teamwork is crucial in preventing and healing addiction, and nurses play a decisive part in the process. Nurses, who are working in this field, should know all addictive issues, especially the prevention attempts for the behavioural addictions which constitute a new type of addiction, the effects of addictive substances and facts, deprival indicators and the basic principles for their treatment; thus, they can become good observers (31). Addiction nurses should benefit from protective measures for prevention and effects of addiction not only in clinic but also in schools and centres of adolescents wherever they can access. In consideration of data from future studies, they should develop prevention programmes for university students and help raising awareness with regard to the behavioural addictions and their adverse effects. The possibility of smartphone addiction should also be added to the new care plans.

# REFERENCES

1. Noyan C, Enez Darçin A, Nurmedov S, Yilmaz O And Dilbaz N. Akıllı Telefon Bağımlılığı Ölçeğinin Kısa Formunun üniversite öğrencilerinde Türkçe geçerlilik ve güvenilirlik çalışması. Anatolian Journal of Psychiatry/Anadolu Psikiyatri Dergisi. 2015; 16.
2. Karaaslan İA and Budak L. Üniversite Öğrencilerinin Cep Telefonu Özelliklerini Kullanımlarının ve Gündelik İletişimlerine Etkisinin Araştırılması. Journal of Yasar University. 2012; 7: 4548-4525.
3. Şar A and Işıklar A. Problemli mobil telefon kullanım ölçeğinin Türkçeye uyarlaması. International Journal of Human Sciences. 2012; 9: 264-75.

4. Kwon M, Kim D-J, Cho H and Yang S. The smartphone addiction scale: development and validation of a short version for adolescents. PloS one. 2013; 8: e83558.
5. Kim H. Exercise rehabilitation for smartphone addiction. Journal of exercise rehabilitation. 2013; 9: 500-505.
6. Demirci K, Orhan H, Demirdas A, Akpinar A and Sert H. Validity and reliability of the Turkish Version of the Smartphone Addiction Scale in a younger population. Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology. 2014; 24: 226-34.
7. Yen C-F, Tang T-C, Yen J-Y, et al. Symptoms of problematic cellular phone use, functional impairment and its association with depression among adolescents in Southern Taiwan. Journal of adolescence. 2009; 32: 863-73.
8. (American Psychological Association. Diagnostic and statistical manual of mental disorders. Am Psychiatric Assoc, 2013.
9. Torun-Yazıhan, N. (2016). DSM-V Sınıflandırılması: Tanısal Ölçütler-Kategoriler ve Kodlar. In C.T. Özhan and N. Gürhan (Ed.), Ruh Sağlığı Ve Psikiyatri Hemşireliği Temelleri, Kanıta Dayalı Uygulama Bakım Kavramları. (p.838-871). Ankara; Akademisyen Tıp Kitapevi.
10. Grant JE, Potenza MN, Weinstein A and Gorelick DA. Introduction to behavioral addictions. The American journal of drug and alcohol abuse. 2010; 36: 233-41.
11. Holden C. Behavioral addictions debut in proposed DSM-V. American Association for the Advancement of Science, 2010; 327: 935-935.
12. Bian M and Leung L. Linking loneliness, shyness, smartphone addiction symptoms, and patterns of smartphone use to social capital. Social Science Computer Review. 2015; 33: 61-79.
13. Doğan U And Karakaş Y. Lise öğrencilerinin sosyal ağ sitleri kullanımının yordayıcısı olarak yalnızlık. Sakarya University Journal of Education. 2016; 6: 57-71.
14. Park, W.K. (2005). Mobile phone addiction. In: R. Ling, P.E. Pedersen (Eds.), Mobile communications: Re-negotiation of the social sphere. London: Springer. p. 253–272.
15. National Information Society Agency, (2011). National Information Society Agency Internet Addiction Survey (NISAIAS), 118-9, South Korea; Seoul. 2012.
16. Tekin Ç. Cep telefonu problemli kullanım (PU) ölçeğinin Türkçe'ye uyarlanması: Geçerlik ve güvenirlik çalışması. İnönü Üniversitesi, 2012.
17. Altman DG and Royston P. The cost of dichotomising continuous variables. Bmj. 2006; 332: 1080.
18. MacCallum RC, Zhang S, Preacher KJ and Rucker DD. On the practice of dichotomization of quantitative variables. Psychological methods. 2002; 7: 19.
19. Turkey Statistics Institute Household ICT Usage Survey (TÜİK), 2004-2014. Access: 20.07.2015. http://www.tuik.gov.tr/PreTablo.do?alt_id=1028.
20. Şar A. Examination of loneliness and mobile phone addiction problem observed in teenagers from the some variables. The Journal of Academic Social Science Studies. 2013; 6: 1207-20.
21. Demirci K, Akgönül M and Akpinar A. Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. Journal of behavioral addictions. 2015; 4: 85-92.
22. Lin Y-H, Chang L-R, Lee Y-H, Tseng H-W, Kuo TB and Chen S-H. Development and validation of the Smartphone Addiction Inventory (SPAI). PloS one. 2014; 9: e98312.
23. Wu AM, Cheung VI, Ku L and Hung EP. Psychological risk factors of addiction to social networking sites among Chinese smartphone users. Journal of behavioral addictions. 2013; 2: 160-6.
24. Kadi F And Öztunç H. Üniversite Öğrencilerinin Aylik Harcamalari Ile Cep Telefonu Kullanimlari Arasindaki Ilişki Üzerine Ampirik Bir Çalişma. Dumlupinar University Journal of Social Science/Dumlupinar Üniversitesi Soysyal Bilimler Dergisi. 2015.
25. Chiu S-I. The relationship between life stress and smartphone addiction on Taiwanese university student: A mediation model of learning self-efficacy and social self-efficacy. Computers in Human Behavior. 2014; 34: 49-57.
26. Mok J-Y, Choi S-W, Kim D-J, et al. Latent class analysis on internet and smartphone addiction in college students. Neuropsychiatric disease and treatment. 2014; 10: 817.
27. Lee J and Seo K. The comparison of cervical repositioning errors according to smartphone addiction grades. Journal of physical therapy science. 2014; 26: 595-8.
28. İnal EE, Çetİntürk A, Akgönül M and Savaş S. Effects of smartphone overuse on hand function, pinch strength, and the median nerve. Muscle & nerve. 2015; 52: 183-8.
29. David A, Duran B, Dulmus CN and Manning AR. Alcohol screening and brief intervention as standard practice: Working with the American Indian/Native Alaskan populations. Journal of human behavior in the social environment. 2014; 24: 399-407.
30. Savic M, Best D, Rodda S and Lubman DI. Exploring the focus and experiences of smartphone applications for addiction recovery. Journal of addictive diseases. 2013; 32: 310-9.

31. Çoşkun, S. Bağımlılık Tedavisinde Hemşirelik In. K. Ogel. (Ed.), Sigara, Alkol ve Madde Kullanım Bozukları: Tanı, tedavi ve Önleme. (2010) (p:1-14). İstanbul: Yeniden Yayınları.