

INTERNET ADDICTION AND EXCESSIVE DAYTIME SLEEPINESS AND QUALITY OF LIFE AMONG MEDICAL FACULTY STUDENTS

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ABSTRACT

Objective: Considering the increasing use of the internet among university students, medical faculty students are thought to be particularly sensitive because of the time they spend on the internet and because of intensive practical and theoretical course schedules. In this study, we aimed to examine the prevalence of internet addiction and also relationship between internet addiction and excessive daytime sleepiness and quality of life among the medicine faculty students. We aimed to examine the prevalence of internet addiction and also relationship between internet addiction and excessive daytime sleepiness and quality of life among medical faculty students.

Method: This study was carried out among the students of Erzurum Atatürk University Medical Faculty. In this cross-sectional study, sociodemographic data form created by researchers, Young Internet Addiction Scale, SF-36 and Epworth Sleepiness Scale were applied after the signing of the voluntary affirmation document to the medical faculty students.

Results: A total of 274 medical faculty students from various classes were included in the study. 61,32% of the students were found to have internet addiction. 53,28% of them were at mild level, 8,04% of them were at moderate level. There was a positive correlation between internet addiction scale total score and epworth sleepiness scale total score. There was negative correlation between internet addiction and each subscale of SF 36.

Conclusion: This study is the first study to evaluate internet addiction, excessive daytime sleepiness and quality of life among medical faculty students. In our study group internet addiction was determined as one of the reasons for excessive daytime sleepiness. That's why we must focus on the treatment of internet addiction which is a serious problem in social context in recent years.

Keywords: Internet addiction, medical faculty, quality of life, excessive daytime sleepiness

ÖZET

Amaç: Üniversite öğrencileri arasında giderek yaygınlaşan internet kullanımı göz önüne alındığında, tıp fakültesi öğrencilerinin hem internette geçirdikleri zaman dolayısıyla hem de gün içi yoğun pratik ve teorik ders programlarının olması dolayısıyla özellikle duyarlı bir grup olduğu düşünülmüştür. Bu çalışma ile tıp fakültesi öğrencileri arasında internet bağımlılığı yaygınlığı ve internet bağımlılığı ile gündüz aşırı uykuçululuğu ve yaşam kalitesi ilişkisine bakılması amaçlanmaktadır.

Yöntem: Bu çalışma Erzurum Atatürk Üniversitesi Tıp Fakültesi öğrencileri arasında yürütülmüştür. Kesitsel nitelikte olan bu çalışmada tıp fakültesi öğrencilerine gönüllü onam belgesi imzalatılması sonrasında araştırmacılar tarafından oluşturulan sosyodemografik veri formu, Young İnternet Bağımlılığı Ölçeği, SF-36 ve Epworth Uykuçululuk Ölçeği uygulanmıştır.

Bulgular: Çalışmaya çeşitli sınıflardan toplam 274 tıp fakültesi öğrencisi dahil edilmiştir. Öğrencilerin %61,32'sinde internet bağımlılığı olduğu tespit edildi. Öğrencilerin %53,28'inde hafif düzeyde, %8,04'ünde orta/ılımlı düzeyde internet bağımlılığı tespit edilmiştir. İnternet bağımlılığı ölçeği toplam puanı ile epworth ölçeği toplam puanı arasında ise pozitif korelasyon mevcuttu. İnternet bağımlılığı ölçeği toplam puanı ile SF 36 ölçeği alt ölçek puanlarının ilişkisine bakıldığında her alt ölçekle negatif korelasyon olduğu görülmüştür.

Sonuç: Bu çalışma literatürde tıp fakültesi öğrencilerinde internet bağımlılığı, gündüz aşırı uykuçululuk ve yaşam kalitesinin değerlendirildiği ilk çalışma olma özelliğini taşımaktadır. Çalışma grubumuzda gündüz aşırı uykuçululuğun nedenlerinden biri olarak internet bağımlılığı belirlendi. Böylelikle bu açıdan riskli olabilecek grubun belirlenmesi ve buna yönelik müdahale stratejilerinin belirlenmesi uygun olacaktır.

Anahtar Kelimeler: İnternet bağımlılığı, tıp fakültesi, yaşam kalitesi, gündüz aşırı uykuçululuğu

INTRODUCTION

Problematic internet use or internet addiction can be defined as inability to prevent the excessive use of the internet, loss of importance of the time spent without being connected to the internet, appearance of excessive tension and aggression in the absence of it and the gradual deterioration of the individual's professional, school, social and family life (1).

Although internet addiction can be seen at almost any age, young internet users, especially those between 18 and 24 years of age, are at greater risk of internet addiction (2). The prevalence rate among adolescents was found to be 4.4% in a wide range of studies in European countries (3). This rate was increased with the increase of internet accessibility (4). In studies conducted in Turkey, internet addiction among university students was reported between 7.2% and 12.2% (5, 6). Spending more time on the internet can negatively affect young people's daily life. In some cross-sectional studies, it has been stated that internet addiction have negative effects on many lifestyle-related factors such as management and deterioration of time, physical dysfunction and shortening of the sleep period in adolescents (7, 8, 9). In addition, internet use until late at night significantly disturbs the quality and duration of sleep especially in the adolescents (7). Recently, a limited number of studies have found an important relationship between problematic internet and computer use and sleep problems in adolescents (10, 11).

In a study conducted by Lund, Reider, Whiting and Prichard, primary sleep problems in early adulthood were defined as lack of sleep and excessive daytime sleepiness (12). Excessive daytime sleepiness (EDS) is defined as difficulty to remain fully alert or awake during the wakefulness portion of the sleep wake cycle (13). Although this phenomenon, which can disrupt the quality of daily life and cause work and home accidents, is very common, can often be overlooked (14). The most common cause of EDS is sleep deprivation. In particular, during the adolescence period while the need for sleep is high; less sleeping than needed can lead to EDS, leading to decrease in academic performance and deterioration in functioning (15). As changes in everyday life and the requirements of work and school life, spending a long time on the internet can also cause insufficient sleep. During the university period, students are awake late at night because of the increase of academic duties and social activities. The use of electronic devices such as computers and habits such as caffeine intake can lead deterioration of duration and quality in sleep at night and deterioration and can cause EDS (16). Strong association between EDS, that is an indicator of poor sleep quality, and internet addiction in a study conducted in Korea (7).

Considering the increasing use of the internet among university students, medical faculty students are thought to be particularly sensitive because of the time they spend on the internet and intensive practical and theoretical

course schedules. In this study, we aimed to examine the prevalence of internet addiction and also relationship between internet addiction and excessive daytime sleepiness and quality of life among the medical faculty students

METHOD

This study was carried out among the students of Erzurum Atatürk University Medical Faculty. Ethical committee approval was obtained from Erzurum Regional Training and Research Hospital for the study. With the approval of the ethics committee, the necessary permissions were obtained by applying to the dean of Erzurum Atatürk University Medical Faculty. In this cross-sectional study, sociodemographic data form created by researchers, Young Internet Addiction Scale, SF-36 and Epworth Sleepiness Scale were applied after the signing of the voluntary affirmation document to the medical faculty students.

Young Internet Addiction Scale

The Young's Internet Addiction questionnaire consists of 20 items ranked on a 6 options likert scale from never =0 to always =5, with the minimum and maximum score from zero to 100, respectively (17). The validity and reliability study in Turkey was carried out by Bayraktar et al (18). The higher the score, the greater is the level of addiction and creation of problems resulting from such internet use. The severity impairment index is determined as follows: None: 0–30 points, Mild: 31–49 points, Moderate: 50–79 points, Severe: 80–100 points.

SF-36 Questionnaire

This questionnaire was developed by Ware in 1987 (19) and the validity and reliability study Turkey was carried out in 1999 by Koçyiğit et al. (20). SF-36 Questionnaire involves the parts of Physical functioning (restriction of physical activity due to health problems), role limitations due to physical problems (restriction of daily living activities due to health problems), Bodily Pain, general health perceptions, vitality/energy or fatigue, General Mental Health, Social functioning and role limitations due to emotional (restriction of daily living activities due to mental problems). SF-36 questionnaire is scored by 100 points. High scores on this scale indicate a better level of health, while low scores indicate health deterioration (20).

Epworth Sleepiness Scale (ESS):

The Epworth Sleepiness Scale is used to measure the overall sleepiness of people during the day. The ESS was first proposed by Johns in 1991 as a simple questionnaire and the ESS score was found to be higher in patients with obstructive sleep apnea (21). The scale has validity and reliability in Turkish (22). Suspicion of sleepiness is questioned during eight daily activities in the ESS.

Analysis of the data

Data analysis was done using SPSS version 17 (Statistical

Package for Social Science). The variables were investigated using visual (histograms, probability plots) and analytical methods (Kolmogorov Smirnov test) to determine whether or not they are normally distributed. Comparisons of non-parametric variables between groups were performed by using Mann-Whitney U test. The Chi-square test or Fisher's exact test, where appropriate, was used to compare proportions in different groups. Correlations were determined by using the Spearman test. $P < 0,05$ was considered to indicate a significant difference.

RESULTS

A total of 274 medical faculty students from various classes were included in the study. The mean age of the participants was 22 ± 2 years (min=17, max=27), and the mean academic achievement was 69 ± 9 (min=32, max=92). Of the 274 medical faculty students included in the study, 52.2% were female (n = 143) and 47.8% were male (n = 131). 23% of the students (n = 63) were at first class; 24.1% (n = 66) were at 2nd class, 7.7% (n = 21) were at 3rd class, 3.3% (n = 9) were at 4th class, 25.9 % (n = 71) were at 5th class and 16.1% (n = 44) were at 6th class. 22.3% (n = 61) of the students were staying with their families, 33% (n = 90) were staying at student's house and 44.7% (n = 122) were staying at student hostel. 11.3% (n = 31) of the students were using internet under 30 minutes, 36.5% (n = 100) were using internet between 30 minutes and 2 hours, 24.8% (n = 68) were using internet between 2 and 3 hours; 9.5% (n = 26) were using internet between 3 and 4 hours; 17.9% (n = 49) were using internet over 4 hours. 21.5% (n = 59) of participants were smoking. 11.3% (n = 31) of the participants were using alcohol. 1.1% (n = 3) of the participants had substance use. The demographic data of the study group are presented in Table 1. Participants' mean scores of the scales are presented in Table 2. Spearman correlation test was applied to Young internet addiction scale score and other variables, and the results are presented in table 3. There was a positive correlation between Young Internet addiction scale and the Epworth Sleepiness Scale. There was a negative correlation between Young Internet addiction scale total score and each of SF 36 scale subscales. The relationship between the Internet addiction level and the Epworth Sleepiness Scale total score is presented in Table 4. The mean of Epworth Sleepiness Scale score was 5.58 ± 3.15 in the group without internet addiction, while it was 6.55 ± 3.31 in the group with mild internet addiction and 8.64 ± 4.28 in the moderate addicted group.

DISCUSSION

In this study, we examined the prevalence of internet addiction; relationship between internet addiction and excessive daytime sleepiness and quality of life among Erzurum Atatürk University Medical faculty students.

61,32% of the students were found to have internet

addiction. Internet addiction was found at a mild level in 53.28% of the students and moderate level in 8,04%. This finding of our study is in accordance with literature (23, 24, 25). Similarly, in Chaudhari et al study, in an attempt to determine the prevalence of internet addiction in medical faculty students in western Maharashtra, India, internet addiction rate is 58,87%, and it is reported that 51,42% had mild and 7.45% had moderate internet addiction (23). However, in some studies the prevalence of internet addiction is lower (26, 27, 28, 29, 30). There is also a study in the literature that internet addiction is at a higher rate than our study (31). This difference in prevalence may be related to the heterogeneity of the sample groups, sample size, sociocultural differences, access to internet, different diagnostic tools used in the studies.

There is a positive correlation between the total score of Young internet addiction scale and the total score of Epworth Sleepiness Scale. The mean score of the Epworth Sleepiness Scale of the students is $6,34 \pm 3,42$, which is not related to EDS. However, there is a positive correlation between Epworth Sleepiness Scale total score and Young internet addiction scale total score. Thus, it would not be wrong to say that students with internet addiction are at risk for EDS. Sleep problems may cause fatigue, attention and concentration problems that leads falling of academic success. Thus, sleep is important (32). In this study, we have focused on the EDS from sleep problems in our adolescent sample group. Because EDS is relatively more common in adolescents, it negatively affects school activities, especially academic performance (33).

In a study, it was determined that EDS was 5,2 times higher among students with internet addiction than non-internet addicted students. This finding suggests that internet addicts tend to have worse sleep quality and EDS (7). Another study found a significant correlation between sleep quality, insomnia, EDS and internet addiction. In this study increasing in internet addiction scale total score was found to related with worsening of sleep quality, and aggravation of EDS, and also internet addiction was found to be an important factor in insomnia and EDS (34). Too much light exposure because of the internet use during the night, can shorten the duration of sleep and may lead to poor sleep quality (insomnia) or insomnia (35).

Unlike other studies, we evaluated the rate of internet addiction and also the effects of internet addiction on the quality of life. We found a negative correlation between internet addiction and each subscale of SF 36. In a study conducted in Iran, the quality of life in medical faculty students who were internet addicted was found to be lower in the fields of physical, psychological and social relations (31).

Negative correlation between internet addiction scale total score and bodily pain, physical functioning and

role limitation due to physical problems subscales can be explained by some factors. As a result of sitting in the same position for a long time in front of the computer, waist, back and shoulder pain as well as carpal tunnel syndrome can be seen. The lack of exercise in individuals with internet use at addictive level causes sedentary life. This negatively affects the quality of life (36, 37).

We found a negative correlation between the total score of the internet addiction scale and the SF 36 vitality, energy and fatigue subscale in our study. This may be related to EDS found in our study group. Fatigue can be seen due to the sleep problems experienced in individuals who have internet use at addictive level (7). In a study conducted by Pramanik et al it was stated that surfing the internet late at night leads to sleep deprivation in the 31,53% of participants (31). Sleep deprivation at night can cause fatigue and energy loss by causing both sleep quality deterioration and EDS (32).

There was a negative correlation between the total score of internet addiction scale and SF 36 social functioning subscale. One of the most common negative consequences of internet overuse or problematic internet use is an isolation from the community and family members (37). Virtual environments and friendships established via social media take the place of social relations. This increasingly damages the real friendship, social and family relationships (38).

There was a negative correlation between internet addiction scale total score and SF 36 subscales of role limitations due to emotional and general mental health. In the literature, internet addiction is associated with depressive symptoms (39), obsessive compulsive symptoms (40), social phobia (41), attention deficit hyperactivity disorder (42), anxiety

symptoms (43), eating disorders (44), alcohol use disorder (45), impulsivity (46), alexithymia (47), feelings of loneliness (48), low self esteem (49), aggression and empathy (50).

This study is the first study to evaluate internet addiction, EDS and quality of life among the medical faculty students. One of the strengths of the research is that participants are elected at all stages of medical education and assessing other factors related to internet addiction. Another reason for choosing medical faculty student group as a research group is that in medical students EDS may increase the likelihood of medical malpractice. Internet addiction was identified as one of the reasons for sleepiness in this group. In this context, it will be appropriate to identify the groups that may be at risk and to determine the intervention strategies for this

However, there are some limitations of the study. First, only the self-report scale was used to determine internet addiction in the participants. We didn't interview with the participants. Also, since there are a group of students who refuse to participate, this can reduce the power of the study. Because of the cross-sectional design of the study, it may be difficult to establish causal relationship.

The academic stress faced by medical faculty students may also increase internet addiction. It is an important finding that more than half of our participants have internet addiction. Because of the fact that internet addiction and EDS are correlated and the quality of life in the addicted group is worse, we have to focus on the treatment of internet addiction which is a serious problem in social context in recent years.

Table 1: Sociodemographic Data

	N (%)
Gender	
Female	143 (52,2)
Male	131 (47,8)
Class	
1 st class	63 (23)
2 nd class	66 (24,1)
3 rd class	21 (7,7)
4 th class	9 (3,3)
5 th class	71 (25,9)
6 th class	44 (16,1)
Students' Living Place	
With Family	61 (22,3)
Student House	90 (33)
Student Hostel	122 (44,7)
Daily Internet Usage Time	
<30 minutes	31 (11,3)
30 minutes-2 hours	100 (36,5)*
2-3 hours	68 (24,8)
3-4 hours	26 (9,5)
≥ 4 hours	49 (17,9)
Smoking	
Yes	59 (21,5)
No	215 (78,5)*
Alcohol	
Yes	31 (11,3)
No	243 (88,7)*
Substance	
Yes	3 (1,1)
No	271 (98,9)*

Table 2: Mean Scores of the Scales

Epworth Sleepiness Scale	6,34±3,42
Internet Addiction Scale	26,16±15,34
SF 36 Subscales	
Physical functioning	85,75±17,55
Social functioning	71,39±22,14
Role Limitations due to Physical	52,78±36,63
Role Limitations due to Emotional	56,81±32,86
General Mental Health	61,34±17,89
General Health Perceptions	66,04±19,38
Bodily Pain	70,32±23,64
Vitality, Energy or Fatigue	51,59±19,45

Table 3: The Correlation of Internet Addiction Scale and Other Variables

	Correlation Coefficient
Age	-0,147*
Class	-0,214**
Academic Success	-0,099***
Epworth Sleepiness Scale Score	0,238**
SF 36 Subscale Scores	
Physical functioning	-0,187**
Social functioning	-0,268**
Role Limitations due to Physical	-0,159**
Role Limitations due to Emotional	-0,308**
General Mental Health	-0,318**
General Health Perceptions	-0,162**
Bodily Pain	-0,206**
Vitality, Energy or Fatigue	-0,270**

*p<0,05 **p<0,01 ***p>0,05; Speermann correlation test

Table 4: Distribution of internet addiction level according to Epworth scale point

	Level Of Internet Addiction (n/%)			
	Normal	Mild	Moderate	Severe
Epworth Sleepiness Scale Score	5,58±3,15	6,55±3,31	8,64±4,28	0

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