



Prevalence of Mobile Phone Addiction and Its Relationship with Sleep Quality and Social Anxiety in High School Students in Divandareh City in 2018

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Abstract

Background and purpose: Given the rapid development and widespread use of mobile phones and their various effects on interactions and communications, it is important to study the negative effects of mobile phones on users' health. The aim of this study was to determine the prevalence of mobile phone addiction and its relationship with sleep quality and social anxiety among high school students in Divandareh city in 2018.

Methods: This study is a cross-sectional study. The statistical population included all high school students (16-18 years) in Divandareh city (Kurdistan-Iran province) in 2018. Sampling method was stratified and the sample size was estimated to be 386 according to Cochran formula. The instruments of this study included mobile phone addiction questionnaire, Pittsburgh Sleep Quality Questionnaire, and Puklek Adolescent Social Anxiety Questionnaire. Descriptive statistics were analyzed using descriptive statistics and Chi-square, Fisher and Mann-Whitney tests.

Results: 370 students responded to the questionnaires. Their average and standard deviation of age were $037/0 \pm 8/16$. On average, 36% of students had moderate to severe cellphone addiction. Also, there was a significant relationship between mobile phone addiction with sleep quality ($P=0.045$), gender ($P=0.004$) and educational status ($P=0.017$). But there was no statistically significant relationship between mobile phone addiction and social anxiety ($P=0.549$) and family economic status ($P=0.13$).

Conclusion: Given the significant prevalence of mobile phone addiction in students and its significant relationship with sleep quality, educational status, planning for interventional measures to prevent injury to adolescents increasingly dealing with cell phones, it seems.

Keywords: Mobile Phone Addiction; Sleep Quality; Social Anxiety; Students

Introduction

New technologies can have useful uses, or misleading and destructive uses. The attractiveness and development of mobile innovations, especially in the areas of applications, messaging and social networking, have made people, especially young people and teenagers, increasingly interested in the technology, and despite the short history of their work, Some have been attracted [1]. Unreasonable and excessive use of mobile phones has led to the

emergence of a phenomenon called mobile phone addiction [2]. Mobile phone addiction is a non-drug and behavioral addiction that is sometimes overused and unknowingly used; it has been used in the present century as an obsessive-compulsive disorder [3]. Symptoms of cellphone addiction and addiction, overuse, inability to control its use, family conflicts, prolonged and hiding conversations from family and friends, disruption of personal and

social activities, distraction, feeling the need to Telephone or text messaging also indicated the feeling of absurdity and anxiety of not having a mobile phone [4].

A study conducted by Khazaie et al. [5] on 637 students showed 3.4% severe dependence and 95.3% moderate dependence on mobile phone. The results of the study by Hosseini Pakdhy and Haj Mohammadi [6] show that factors such as adherence to religion, gender, family emotional space, and grade point average influence adolescents' tendency to favorable or unfavorable cell phone functions. On the other hand, addiction to mobile phones and the Internet affect different mental health constructs, and researches have shown that mobile addiction can have detrimental psychological and behavioral effects such as depression, sleep disorders and social anxiety. Teens [7-9] anxiety, stress and depression have become one of the most important issues studied by psychologists, psychiatrists and behavioral scientists today. And according to WHO statistics, mood disorders (such as depression and anxiety) make up 35% of the total mental disorders, most of which originate in childhood and adolescence [10]. A study by Servatyari et al. [11] found that cell phone addiction had a significant relationship with depression and hopelessness. Also, the results of a study by Ng et al. [12] on 686 Hong Kong high school students showed that the prevalence of depression, physical pain and drowsiness during the day was higher among mobile users. Sleep is an important factor in maintaining mental health and balance [13]. Sleep is a dynamic and highly organized biological process that is an important part of life [14]. During sleep, hormones such as norepinephrine, serotonin and growth hormone are released and chemical changes and increased cellular nutrition occur to prepare the body for the following day's activities [15]. Sleep deprivation and related problems do not belong to a specific category, but people with smartphones are more vulnerable to this disorder because of the specific situation. Anxiety and stress are almost always associated with sleep disorders. Physical anxiety and mental stress are also harmful as common phenomena among mobile phone users and play an important role in the onset of psychosomatic diseases such as hypertension, angina, coronary heart disease as well as psychiatric disorders such as depression and sleep disorder [16].

Hawi and Samaha [17] an online survey of 381 adolescents and student users concluded that adolescents with mobile phone addiction were more likely to have high anxiety than those who were not addicted. Despite the widespread use of mobile phones in Iran and the increasing number of mobile phone users and, consequently, internet use among adolescents, few studies have investigated the potential use of emergency or addictive drugs; although the safety and health risks of mobile phones have been studied, the psychological consequences and behavioral disorders associated with it have been less studied. Measuring addictive personality symptoms can be useful for screening and potential interventions for problematic mobile users. On the other hand, most of the research population includes students, and as the age of mobile phone use and addiction has decreased among users of this system, as reported by Shen et al. [18] on Chinese adolescents,

the minimum age of internet users was 12 years or younger, and On the other hand, because students are more vulnerable to this phenomenon than students, depending on their age (adolescence), the variables were evaluated at the age of 15 to 18 years. On the other hand, given the high prevalence of mental disorders such as anxiety and depression in dementia students and their effects on sleep quality and adolescents' tendency to substance abuse, aggression, reduced academic achievement and delinquency in society [19-21], therefore, the need to determine the prevalence of mobile phone addiction is related to the quality of sleep and social anxiety for future planning in this area. The aim of this study was to investigate the prevalence of mobile phone addiction and its relationship with sleep quality and social anxiety in high school students.

Material and Method

This is a cross-sectional analytical study. The statistical population of the study consisted of high school students in Divandareh city in Kurdistan province. The sampling method was classified and randomized within each class. According to Cochran's formula, the p value was considered 0.05 to determine the sample size and with a confidence level of 95%, the sample size was 386 persons. Inclusion criteria included students aged 16-19 years as well as informed consent to enter the study. Exclusion criteria were: inability to complete the questionnaire, incorrect completion of the questionnaires. After obtaining permission from the General Education Department of the Kurdistan Province and with the agreement of the school principals, they are selected and presented to the students of each selected school on research objectives, and after obtaining informed consent from all students to complete the information contained in the questionnaire, they were invited to participate in the study to obtain their consent to participate in the study and also to retain all information related to them. Questionnaires included demographic information (including age, sex, grade, grade point average and educational status, family economic status). The questionnaires used included the following 3 questionnaires.

Pittsburgh sleep quality questionnaire

This questionnaire examines people's attitudes about the quality of sleep in the past four weeks. The questionnaire has 7 scales, each of which scores from zero to three. The components of the questionnaire include; overall description of sleep quality - sleep delay - useful sleep duration - sleep adequacy (It is calculated based on the ratio of useful sleep duration to total time spent in bed) - Sleep disorders (It is measured as a person's waking up at night) - The amount of hypnotic drug used - morning function (It is defined as problems with insomnia experienced by a person during the day).

In PSQL scoring, one component must be considered. The minimum and maximum score for each component is from 0 (no problem) to 3 (very serious problem). Finally, the scores of each component are aggregated and converted to an overall score (0-21). An overall score of 6 or more means poor sleep quality. To investigate the psychometric properties of this questionnaire,

Farrahi et al conducted a study that resulted in a sensitivity of 77% and a Cronbach's alpha of 98 for the Persian version of the questionnaire [22].

Mobile addiction questionnaire

The phone addiction questionnaire consisted of three areas of creativity, desire and loneliness and 13 questions. The questionnaire was scored on a 5-point Likert scale (0 to 4), with the highest score being 52 and the lowest being zero. The questionnaire was scored as follows. A score of less than 13 for each of the 13 items indicated low addiction (cohesion), a score of 26-13 indicated moderate addiction, and a score greater than 26 indicated high addiction. The Cronbach's alpha coefficient of this questionnaire, which was localized by Karim Sevari, was 78% and its validity was also confirmed [23].

Puklek adolescent social anxiety questionnaire

The questionnaire consists of 28 questions that measure adolescents' anxiety, fears, and avoidance behaviors in different social situations, such as interacting with friends at school. The questionnaire consisted of two subscales of perception and fear of negative assessment (Cognitive Dimension) which included 15 questions and the scale for stress and inhibition on social attitude (Behavioral Dimension) which included 13 questions. The Likert range of answering questions ranges from 5 (strongly disagree) to 5 (strongly agree). For statistical analysis, the scores of each question were aggregated and ranged from 28 to 140. For the scoring, a score of 28 to 46, a low social anxiety score, a score of 46 to 93, a moderate social anxiety score and a score above 93, a high social anxiety score were considered. The questions were divided into two subscales: fear of negative evaluation (cognitive dimension), 15 questions and stress and inhibition in social behavior (behavioral dimension), 13 items. In the study of Khodaei et al. [24], the validity and reliability of the questionnaire was confirmed, and its reliability was obtained by Cronbach's alpha method above 0.83. Finally, the data were analyzed by SPSS software version 16 for statistical analysis. To analyze the descriptive data from descriptive statistics (mean, standard deviation) and to analyze the analytical data in case of normality of data by chi-square and t-test and in case of abnormal data, Mann-Whitney and Kruskal-Wallis test used.

Table 2: Mobile phone addiction based on age, gender, economic status and grade point average in high school students in Divandareh city in 2018.

		Mobile Phone Addiction			Total	P value
		Low	Moderate	High		
Sex	Male	42 (40.8%)	86 (62.3%)	70 (54.7%)	198 (53.7%)	P=0.004
	Female	61 (59.2%)	52 (37.7%)	58 (45.3%)		
Total		103 (100%)	138 (100%)	128 (100%)	369 (100%)	
Economic status	low	64 (62.1%)	69 (50%)	67 (52.3%)	200 (54.2%)	P=0.13
	Moderate	33 (32%)	51 (37%)	52 (40.6%)	136 (36.9%)	
	High	6 (5.8%)	18 (13%)	9 (7%)	33 (8.9%)	
Total		103 (100%)	138 (100%)	128 (100%)	369 (100%)	
Grade point average	Bad	31 (30.1%)	44 (31.9%)	59 (46.1%)	134 (36.3%)	P=0.017
	Good	72 (69.9%)	94 (68.1%)	69 (53.9%)	235 (63.7%)	
Total		103 (100%)	138 (100%)	128 (100%)	369 (100%)	

Results

After reviewing the questionnaires out of 386 questionnaires, 16 of them were incomplete and excluded. The mean and standard deviation of the students' age were 16.8 ± 0.037 . 198 (53.5%) were male and 172 (46.5%) were female. 140 students (37.8%) were in tenth grade and 177 (47.8%) were in 11th grade. 134 people were in poor condition (36.2%) on average (less than 14).

Only 33 (8.9%) of the students were in good economic condition and 136 (36.8%) were in medium economic condition. The status of students' demographic information is outlined in Table 1.

Table 1: Demographic information for high school [1] students in Divandareh city in 2018.

		Frequency	Percent
Sex	Male	198	53.5
	female	172	46.5
age	16	139	37.6
	17	166	44.9
	18	65	17.6
Grade Point Average (GPA)	bad	134	36.2
	good	236	63.8
Economic status	low	201	54.3
	moderate	136	36.8
	high	33	8.9
Grade	10	140	37.8
	11	177	47.8
	12	53	14.3
Mobile Phone Addiction	Low	103	28
	Moderate	138	37.3
	High	128	34.7

On the other hand, 103 (28%) of students had low tendency to mobile phone, 138 (37.3%) of students had moderate level of mobile phone addiction and 128 (34.7%) of students they showed high cellphone-to-cellphone addiction.

In Table 2, mobile phone addiction was evaluated based on demographic variables and according to Chi-square test, mobile phone addiction by gender ($P=0.004$) and educational status ($P=0.017$) of students. There was a significant relationship. But there was no statistically significant relationship with economic status of families ($P=0.13$).

Table 3: Relationship between Mobile Phone Addiction and Sleep quality in high school students in Divandareh city in 2018.

		Sleep Quality			P Value
		Good	Not Good	Total	
Mobile Phone Addiction	Low	29 (38.2%)	74 (25.3%)	103 (27.9%)	P=0.045
	Moderate	27 (35.5%)	111 (37.9%)	138 (37.4%)	
	High	20 (26.3%)	108 (36.9%)	128 (34.7%)	
Total		76 (100%)	293 (100%)	369 (100%)	

Table 4: Relationship between Mobile Phone Addiction and Social Anxiety in high school students in Divandareh city in 2018.

		Social Anxiety				P value
		Low	Moderate	High	Total	
Mobile phone addiction	Low	9 (29%)	76 (30.3%)	18 (20.7%)	103 (27.9%)	P=0.549
	Moderate	12 (38.7%)	90 (35.9%)	36 (41.4%)	138 (37.4%)	
	High	10 (32.3%)	85 (33.9%)	33 (37.9%)	128 (34.7%)	
Total		31 (100%)	251 (100%)	87 (100%)	369 (100%)	

Discussion

The present study showed that the prevalence of mobile phone addiction in Divandareh city students is significant as a non-clinical population. According to the results of this study, 28% of students showed low tendency, 37.3% of students had moderate tendency and 34.7% of students showed severe addiction to cellphone. The rate of severe mobile phone addiction (34.7%) compared to the results of some studies in Iran including Khazaei et al (5) in Birjand with 3.4%, Turi et al. [25] in Birjand city with 5.8%, Shahroudi et al. [26] in Khash city with 2%, as well as overseas studies such as Ha et al. [27] on 548 Korean adolescents with 8.4% and Shek study results and Yu [28], is 26.7% more in Hong Kong. In explaining the reason for this finding, it can be said that there is no suitable recreational and sporting facilities for the young and impoverished youth of Divandareh area and on the other hand there are attractions, capacities, facilities and easy and fast access to mobile and internet for filling. Leisure and replacement for casual living have made the region's teens and students more interested in the technology.

Based on the results of (Table 2), there was a significant relationship between mobile phone addiction and gender ($P=0.004$). The mean score of mobile phone addiction was 53.7% in boys and 46.3% in girls. A study by Chen et al. [29], which examined gender differences in mobile phone addiction among Chinese students, showed that male students had more dependency, and this result is consistent with the present study. However, the results of other studies such as Mansourian et al. [30] as well as Fazl Ali and Farshidi's study in this area are not in line with the results of this study. In explaining the higher level of male attachment to student girls in Divandareh area, it can be said that in Iranian indigenous cultures, men and boys enjoy greater freedom of action than women and girls, and cultural expectations are higher for women

In accordance with the chi-square test and as seen in Table 3, there was a significant relationship between mobile phone addiction and sleep quality ($P=0.045$); However, according to Table 4, there was no significant relationship between mobile phone addiction and social anxiety ($P=0.549$).

and girls. On the other hand, there was no statistically significant relationship between mobile phone addiction and household economic status and also social anxiety ($P=0.13$). These results are in contradiction with the findings of the Sahabai et al. [31] study as well as the Pourmaveddat and Kajbaf [32] research. Perhaps the reason for these results can be attributed to the family and cultural context of the city as there was no specific difference between their socio-cultural and economic levels. According to the results of Chi-square test, there was a significant relationship between sleep disordered mobile phone addiction ($P=0.045$) as well as between students' educational attainment ($P=0.017$). In other words, with the increase in the number of uses of the telephone, along with the increase in the number of bed bills, it is reduced by the level of academic performance. The results of the study by Fazlali and Farshidi [33] on the study of mobile phone addiction and sleep quality of students showed that by increasing the number of telephone use along with the quality of students' sleep. Also, in the research of Jafari and Bahrami [34] between internet addiction (social problems, lack of control, overuse of chat rooms, disregard for work and academic duties) and mental health (physical, anxiety, anxious and depression). There was a significant and significant relationship with students' spiritual well-being. In a study of 319 adolescents and students in Turkey by Demirci et al. [35], results showed a positive relationship between smartphone addiction scores and depression, anxiety level and some sleep quality score. On the other hand, the results of Atadokht et al. [36] study indicated that students with high mobile phone use had lower scores. The findings of both studies are consistent with the results of this study. Explaining these findings, it can be said that low academic performance indicates lack of student purpose and lack of purpose increases student leisure time. When leisure time increases, one of the filling options is the use of cell phones, which are often extreme.

That excessive use of mobile phones can be a risk factor for sleep quality and poor sleep quality due to educational disruption and loss of adolescent interest in education and learning.

Conclusion

Therefore, in order to reduce the negative effects of cell phone use on Youth sleep hygiene, interventional strategies such as setting goals when using a cell phone, avoiding a specific application, using reminders, preparing a personalized list of What the user should discard or discard is family therapy, educational workshops and school information, parental supervision of mobile phones, and replacement of actual activities instead of virtual activities to reduce excessive use of mobile phones and modify and modify your usage patterns. The findings of this study highlight the need for planners and administrators to pay attention to the increasing use of cell phones and their harms. The present study has some limitations that future researchers can consider and eliminate in their studies. One of the limitations of the present study was to collect information through a self-report questionnaire which may cause non-obligatory students to complete the questionnaires. It is therefore suggested that future research will gather information through methods such as interviews Also, according to the results, it is suggested that educational intervention studies be done to reduce extreme dependence on mobile phone among students.

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Conflict of Interest

There is no conflict of interest in this study.

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