



The Mobile Phone Use Status and Its Relationship with Students' Demographic Characteristics of Yazd University of Medical Sciences

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ABSTRACT

Aims Mobile phone use has become increasingly popular among university students. Therefore, the present study aimed to investigate the status of mobile phone use among university students and its relationship with demographic characteristics.

Instruments & Methods In this cross-sectional study conducted in 2016, 272 students of Yazd University of Medical Sciences were selected using a stratified random sampling method. The data collection tools included demographic information and excessive mobile phone use questionnaire. The data were analyzed by SPSS 16 software using Mann-Whitney and Kruskal-Wallis tests.

Findings There was no significant relationship between students' age, gender, education level, and residence place with mobile phone use total score ($p > 0.05$). However, there was a significant relationship between the variables of cigarette smoking, coffee consumption, and listening to music before bedtime with the mobile phone use total score among university students ($p < 0.05$). Moreover, there was a significant relationship between the education level of university students' parents and mobile phone use score ($p < 0.05$).

Conclusion High value of adequate and correct education of students towards Internet and social media addiction, in addition to increase the level of media literacy are critical issues to consider in this regard.

Keywords Mobile Phone Use; Iran; Medical Students; Psychology; Cross-Sectional Study

CITATION LINKS

[1] Perceived connections between information and communication ... [2] Exposure to cell phone radiation up-regulates apoptosis genes in primary ... [3] Symptoms, personality traits, and stress in people with mobile phone-related ... [4] Adolescent use of mobile phones for calling and for sending text messages after lights ... [5] Psychological predictors of problem mobile phone ... [6] Health risks from the use of mobile ... [7] Problematic internet and cell-phone use: Psychological ... [8] Relationship between dependence to mobile phone with loneliness and social ... [9] Today's mobile phone users: Current and ... [10] The role of impulsivity in actual and problematic ... [11] Neurological effects of radiofrequency ... [12] A comparative study of the biological effects of various ... [13] Comparative investigation of self-concept between the freshman and senior ... [14] Youth and mobile telephones: More than ... [15] Social patterns in mobile technology mediated collaboration ... [16] Relationships of personality and lifestyle with mobile phone ... [17] Normalization, validity and reliability of Cell-phone Over-use Scale ... [18] The prevalence of smart phone addiction among students in medical sciences ... [19] Smartphone addiction among university students in the light ... [20] The presence of altered craniocervical posture and ... [21] Effects of smartphone addiction level on social and educational life in health... [22] Depression, anxiety, and smartphone addiction in university ... [23] The relationship of depression, distress tolerance and ... [24] A model of the relationship between psychological ... [25] Over-use and type of mobile phone users in high school ... [26] Prevalence of mobile dependency and adolescence ... [27] The study of the relationship between cell-phone use and general ... [28] An Explanatory Analysis of Mobile Phone Usage Pattern among ... [29] Gender differences in mobile phone use: What communication ... [30] Investigating motivation, type and rate of mobile use in ... [31] Predicting the relationship between students addiction ... [32] The effect of information and communication ... [33] Mobile phone dependence ... [34] Investigating the relationship between mobile ... [35] Correlation between distress tolerance and emotional regulation ... [36] The relationship between emotions' control, distress tolerance and harmful use ... [37] Mobile phone ownership and use among ... [38] The association between socioeconomic status and exposure to ...

Introduction

The use of mobile phones and other information and communication technologies has become an essential part of people's lifestyles, and people can connect to global networks through internet access to cellphones anywhere, even in their beds [1, 2]. Due to the rapid development and widespread use of mobile phones, as well as their increasing impact on communications and human interactions, studying the possible adverse effects of mobile phone use on the users' health is critical [3, 4]. The growth of various communication and technology has accelerated processes and reduced distances which is considered as an opportunity. However, its excessive use can be a threat to its users, causing problems in their lives and health [5, 6]. Excessive use of mobile phones is a situation in which mobile phones are used excessively, and this use has created numerous mental employment for its users. Moreover, it can lead to inappropriate behavioral habits, such as staying up late at night to make calls and text messages, psychological distress [7], disturbed sleep patterns, feelings of inadequacy and a constant preoccupation, inability to respond all calls and messages [2], as well as addiction and revealing dependency [2, 8]. The results of a study showed that young people who use text messages in an extreme and addictive way experience a high level of impulsivity, loneliness, and social anxiety [9]. Also, the reduction of social relationships and social isolation are some of the excessive mobile phone use consequences [10]. The literature reveals that mobile phone waves, even with lower than allowed energy density, can cause some symptoms, such as headaches, warmth in the ears, poor memory, and fatigue [11, 12]. Today, most students use different mobile devices, and one of the entertainments of students is engaging with mobile phones and communicating with each other [13]. The results of a study have shown that mobile phones have significant effects on the evolution of young people's religious identity so that by separating young people from their families and weakening the influence of the family, it has formed a new identity in young people [14]. Decreased social security and the superiority of superficial social relations over face-to-face relationships are also consequences of mobile phones [15]. The results of a study on female students depicted that there was a positive relationship between mobile phone dependency and poor life quality [16]. Nowadays, most students use mobile phones in various ways, and one of the entertainments of students is engaging with mobile phones and communicating with each other. Another problem that may arise for students, as the most talented and intelligent group of the society resulting from their mental busyness, is poor academic performance [13]. Due to the growing number of mobile phones in Iran, and considering that Yazd

Province with a penetration rate of 80.5% is the leader in the penetration rate of mobile phones in the country. Moreover, given that young people, especially students, are always influenced by novel technologies, this study aimed to investigate the status of mobile phone use in medical students in Yazd and its relationship with the demographic social characteristics.

Instruments and Methods

The present study is a descriptive cross-sectional study conducted on 300 students of Yazd University of Medical Sciences. Based on the pilot study on the students (30 individuals), the percentage of mobile phone overuse was 15-20%. Using the following formula for the sample size, with a prevalence of 20%, first type error of 5%, power of 80%, and an estimated error of 1%, the final sample size was calculated to be 300 students.

$$n = \frac{z^2 pq^2}{d^2}$$

The samples were selected using a stratified random sampling method from Yazd University of Medical Sciences students. For sampling, the educational levels available in the first semester of the academic year 2016-2017 in Yazd University of Medical Sciences were considered as a stratum. Then, using the attendance list of each academic level and the proportion of the population of each class, samples were randomly selected. After providing the necessary explanations to the students and obtaining their informed consent, the questionnaires were completed in the self-report form. The samples were assured that their information would remain confidential to the researcher. Data collection tools in this study included a population-cognitive information questionnaire and a mobile phone use questionnaire (COS) developed by Gennaro *et al.* in 2007 [7]. This scale consists of ten psychological indicators from the guideline to the diagnosis and classification of mental disorders. The questionnaire has 23 items and does not have a subscale, and is graded based on a 6-point Likert scale (1- never, 2- almost never, 3- sometimes, 4- often, 5- almost always, and 6- always). The validity and reliability of the questionnaire were examined in the study of Golmohammadian and Yaseminejad and its Cronbach's alpha rate was reported to be 0.90, indicating the acceptable reliability of the instrument [17]. The validity of the current study instrument was obtained using the content validity, and its reliability by a retest and correlation ($r = 0.85$). To determine the status of mobile phone use, obtaining a score of 25 and below was considered as low use, 26 to 75 normal use, and above 75 excessive use.

The collected data were analyzed using SPSS 16 software and descriptive statistics. To study the absolute and relative frequency of students'

demographic characteristics descriptive statistics (mean, standard deviation, and percentage) were utilized. To examine the relationship between demographic variables (age, sex, education, place of residence, smoking status, coffee consumption, and listening to music before bed) and parents' occupation and education level with the overall score of mobile phone use, Mann-Whitney and Kruskal-Wallis tests were used, respectively.

Findings

A total of 300 questionnaires were filled in, 272 of which were filled in completely (90.66% of the questionnaires were returned).

The mean age of the studied students was 21 ± 2.70 years. The majority of the participants were females in master of science and doctorate degrees. Besides, the score of mobile phone use was determined 58.73 ± 1.53 . The education level of most of the students' parents was academic, and most of whom were governmental employees and housekeepers, respectively. 57% of the students lived in dormitories. Smoking was reported in only 4.4% of them. Among the subjects, 53.3% listened to music before bed, and 39.7% drank coffee or caffeine during the day (Table 1).

Table 1) Absolute and relative frequency distribution of the studied student's demographic characteristics

Variable	Number	Percentage
Age		
≤20	140	51.7
≥21	132	48.3
Sex		
Male	91	33.5
Female	181	66.5
Education level		
Bachelor degree	122	44.9
Higher	150	55.1
Father's education level		
High school	58	21.4
Diploma	65	23.6
Academic	143	52.8
Missing	6	2.2
Mother's education level		
High school	96	35.2
Diploma	73	26.8
Academic	98	36.2
Missing	5	1.8
Father's occupation		
Government job	85	31.4
Self-employed	106	38.9
Retiree or pensioner	78	28.6
Missing	3	1.1
Mother's occupation		
Government job	61	22.4
Self-employed	15	5.5
Retiree or pensioner	18	6.7
Housewife	176	64.7
Missing	2	0.7
Place of residence		
Living on campus	155	57
Living off campus	117	43
Smoking		
Yes	12	4.4
No	260	95.6
Consuming coffee		
Yes	108	39.7
No	164	60.3
Listening to music before sleeping		
Yes	145	53.3
No	127	46.7

Among the students, 11.2% (30 students) had excessive use of mobile phones (Table 2). A significant relationship was observed between the variables of smoking ($p= 0.04$), coffee consumption ($p= 0.02$), and before-bed music listening ($p<0.001$) with the total score of mobile phone use in the students. There was no significant relationship between age, gender, educational level, and place of residence of the students with the total score of mobile phone use ($p>0.05$). Moreover, the education level of the father ($p= 0.05$) and the mother of the students ($p<0.01$) had a significant relationship with the score of mobile phone use. There was no significant relationship between the parent's occupation and the student's score of mobile phone use ($p>0.05$; Table 3).

Table 2) Status of mobile phone use in the studied students based on the COS

Variable	Number	Percentage
Mobile phone overuse		
Normal use	223	82.2
Overuse	30	11.2
Missing	19	6.6
Total	272	100

Table 3) The relationship between demographic variables and the total score of mobile phone use in the students

Variable	Number	Mean rank	p-value
Age			
≥20	140	122.07	0.31
≤21	132	131.22	
Sex			
Male	91	128.91	0.70
Female	181	125.27	
Education level			
Bachelor degree	122	119.62	0.18
Higher	150	131.91	
Place of residence			
Living on campus	155	125.28	0.55
Living off campus	117	119.85	
Smoking			
Yes	12	169.77	0.04
No	260	124.52	
Consuming coffee			
Yes	108	138.89	0.02
No	164	117.94	
Listening to music before sleeping			
Yes	145	138.72	<00.1
No	127	111.46	
Father's education level			
High school	58	122.98	0.05
Diploma	65	117.52	
Academic	143	127.16	
Mother's education level			
High school	96	106.09	<00.1
Diploma	73	139.46	
Academic	98	130.42	
Father's occupation			
Government job	85	130.93	0.47
Self-employed	106	127.25	
Retiree or pensioner	78	117.04	
Mother's occupation			
Government job	61	138.38	0.30
Self-employed	15	136.85	
Retiree or pensioner	18	135.25	
Housewife	176	119.43	

Discussion

This study aimed to investigate the status of mobile phone usage in students and its relationship with socio-demographical characteristics. Among 272 students included in this study, 66.5 and 33.5% were

female and male, respectively. Based on the results of this study, 30 (11.2%) students had excessive use of mobile phone. In a study by Yahyazadeh *et al.*, 14 (9.3%) nursing students had excessive use of mobile phone [18]. In a study by Aljomma *et al.* on Saudi students, the prevalence of mobile phone addiction was 48% [19]. This prevalence in a study on Korean students was reported 8.4% [20]. It was also reported in Indian students from 39 to 44% [21]. The difference in the prevalence of excessive use of mobile phone in the present study and the mentioned studies could be due to using different investigation tools. Frequent mobile phone use is associated with stress, sleep disturbances, and symptoms of depression among young adult men and women. Prospective analysis indicated that high frequency of mobile phone use could be a risk factor (or marker) for developing sleep disturbances in men, and symptoms of depression in both men and women [22, 23]. Hong *et al.* indicated that social extraversion and anxiety have positive effects on mobile phone addiction, and self-esteem has negative effects on it [24]. Zanjani *et al.* stated that difficulty in regulating emotion, depression, and tolerance for anticipation were associated with mobile phone addiction, and difficulty in regulating emotion played a stronger role in this prediction. Based on these results, it was found that there is a significant positive relationship between difficulty in emotion regulation and mobile phone addiction in the students of Kashan University [23]. It can be concluded that the more difficulty a person has in regulating emotion, the more likely he is to become addicted to mobile phones. Excessive use of mobile phones causes headaches, fatigue, dizziness, difficulty concentrating, and sleep disturbances. According to the results of this study, there was no significant relationship between students' age and mobile phone use. The finding of the present study is in line with the results of other studies [25, 26].

In the present study, there was no significant relationship between students' gender and mobile phone use. In the study by Yaseminejad *et al.*, there was a significant difference between male and female students in terms of excessive use of mobile phone [27]. However, in the study by Baghiyani Moghadam and Shahbazi, there was no statistically significant difference between males and females in using mobile phone [28]. The results of Iqbal's study on 200 students from Islamabad University in Pakistan showed that there was no significant difference between male and female students in terms of mobile phone use [29]. The findings also did not show a statistically significant relationship in terms of academic degree and mobile phone use among students. The findings of the study by Abedini and Zamani are consistent with the findings of the present study [30].

The present study also found that there was no significant relationship between the place of

residence and the use of the mobile phone by students. This finding is consistent with the findings of Zamani *et al.* [31]. Recent advances in the computer and information industry, appearance of local, national, regional and international information networks, especially the Internet, new communication technologies, have improved tools and methods of designers and creators. The influence of new information technologies on research centers and science production (from technology research institutes to universities) and even homes has transformed the relationships of inventors and innovators around the world [32]. Therefore, the lack of correlation between the place of residence and mobile phone use in this study seems obvious, which has not been studied in previous literature.

In the present study, a significant relationship between smoking in students and mobile phone use was observed. Toda *et al.* stated that there is a relationship between mobile phone use and unhealthy lifestyle [33]. There was a positive relationship between mobile phone use and the rate of smoking in the study of Ejazi and Zolfaghari. The results of the present study are in line with previous studies [34]. It seems that people who have more difficulty regulating their emotions are more likely to engage in abnormal behaviors, such as mobile phone addiction. Excessive use of the Internet and mobile phones has been suggested to be a possible way to escape reality and a mechanism for dealing with negative emotions, such as depression, stress, and anxiety. People with mobile phone and Internet addiction have stopped or regressed in the process of developing emotions. On the other hand, mobile phone addiction and all addictions in general are considered as part of impulsive control disorders, meaning that the addicted person does not have the necessary self-management and cannot manage his consumption [22, 35]. Students, due to the critical period of development (according to Erickson, the period of independence and the search for intimacy and marriage), barriers for marriage, and difficulties for future careers, as well as pressures during students' lives (living in a dormitory, feelings of loneliness, and separation from family), experience more negative emotions, such as depression, anxiety, and anger [35, 36]. Therefore, they use fun and less stressful activities, such as mobile phones and music to temporarily reduce their stress and divert their attention from their perceived stress and thus experience less distress. Moreover, this can extend to smoking behaviors which is similar to the findings of the present study.

The findings of the present study showed that there was a significant statistical relationship between students' socioeconomic status (parents' education level) and mobile phone use. According to these findings, the higher and better the parents' education (father's education), the higher the use of their mobile phones. It should be noted that there was no

significant relationship between the occupation of students' parents and their use of mobile phones. These findings are consistent with the results of Mezei *et al.* [37] but are not in line with the results of Thomas *et al.* [38]. However, the results of the previous studies on the relationship between socioeconomic status and the use of mobile phone are ambiguous and heterogeneous. It is probably one of the reasons for considering different indicators to measure the socio-economic status of subjects in the study. Moreover, this difference is probably due to differences in samples and study sizes. In addition, it should be noticed that difference in cultures by different geographical and regional study locations can lead to different results. Based on the findings of the present study, it can be concluded that cultural and economic issues are among the most important determinants of the pattern of mobile phone use among young people in the country, indicating the need for further research studies.

Conclusion

This study indicated that a significant relationship was observed between smoking behaviors, coffee consumption, and before-sleep music listening behavior with the total score of mobile phone use in students. Considering these correlations as predictors of psychological awareness issues, creating culture and environment for students to release stress and anxiety, as well as determining crucial role of students' consultants are necessary. High value of adequate and correct education of students towards Internet and social media addiction, also to increase the level of media literacy are critical issues to consider in this regard.

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References

- 1- Thomée S, Dellve L, Härenstam A, Hagberg M. Perceived connections between information and communication technology use and mental symptoms among young adults-a qualitative study. *BMC Public Health*. 2010;10(1):66.
- 2- Zhao TY, Zou SP, Knapp PE. Exposure to cell phone radiation up-regulates apoptosis genes in primary cultures

- of neurons and astrocytes. *Neurosci Lett*. 2007;412(1):34-8.
- 3- Johansson A, Nordin S, Heiden M, Sandström M. Symptoms, personality traits, and stress in people with mobile phone-related symptoms and electromagnetic hypersensitivity. *J Psychosom Res*. 2010;68(1):37-45.
- 4- Van Den Bulck J. Adolescent use of mobile phones for calling and for sending text messages after lights out: Results from a prospective cohort study with a one-year follow-up. *Sleep*. 2007;30(9):1220-3.
- 5- Bianchi A, Phillips JG. Psychological predictors of problem mobile phone use. *CyberPsychol Behav*. 2005;8(1):39-51.
- 6- Repacholi MH. Health risks from the use of mobile phones. *Toxicol Lett*. 2001;120(1-3):323-31.
- 7- Jenaro C, Flores N, Gómez-Vela M, González-Gil F, Caballo C. Problematic internet and cell-phone use: Psychological, behavioral, and health correlates. *Addict Res Theory*. 2007;15(3):309-20.
- 8- Mansourian M, Solhi M, Adab Z, Latifi M. Relationship between dependence to mobile phone with loneliness and social support in University students. *Razi J Med Sci*. 2014;21(120):1-8. [Persian]
- 9- Azuki T. Today's mobile phone users: Current and emerging trends. *Cyber Psych Behav*. 2008;12(2):334-50.
- 10- Billieux J, Van Der Linden M, Rochat L. The role of impulsivity in actual and problematic use of the mobile phone. *Appl Cogn Psychol Off J Soc Appl Res Mem Cogn*. 2008;22(9):1195-210.
- 11- Hocking B, Westerman R. Neurological effects of radiofrequency radiation. *Occup Med*. 2003;53(2):123-7.
- 12- Yioultsis TV, Kosmanis TI, Kosmidou EP, Zygidis TT, Kantartzis NV, Xenos TD, et al. A comparative study of the biological effects of various mobile phone and wireless LAN antennas. *IEEE Trans Magn*. 2002;38(2):777-80.
- 13- Dibajnia P. Comparative investigation of self-concept between the freshman and senior students. *Res Med*. 2005;29(3):231-4. [Persian]
- 14- Lorente S. Youth and mobile telephones: More than a fashion. *Revista de Estudios de Juventud*. 2002;57(2):9-24.
- 15- Laru J, Järvelä S. Social patterns in mobile technology mediated collaboration among members of the professional distance education community. *Educ Media Int*. 2008;45(1):17-32.
- 16- Ezoe S, Toda M, Yoshimura K, Naritomi A, Den R, Morimoto K. Relationships of personality and lifestyle with mobile phone dependence among female nursing students. *Soc Behav Personal Int J*. 2009;37(2):231-8.
- 17- Golmohammadian M, Yaseminejad P. Normalization, validity and reliability of Cell-phone Over-use Scale (COS) among university students. *J Soc Psychol*. 2011;6(19):37-52. [Persian]
- 18- Yahyazadeh S, Fallahi-Khoshknab M, Norouzi K, Dalvandi A. The prevalence of smart phone addiction among students in medical sciences universities in Tehran 2016. *Adv Nurs Midwifery*. 2017;26(94):1-10.
- 19- Aljomaa SS, Qudah MF, Albursan IS, Bakhiet SF, Abduljabbar AS. Smartphone addiction among university students in the light of some variables. *Comput Hum Behav*. 2016;61:155-64.
- 20- Kee IK, Byun JS, Jung JK, Choi JK. The presence of altered craniocervical posture and mobility in smartphone-addicted teenagers with temporomandibular disorders. *J Phys Ther Sci*. 2016;28(2):339-46.
- 21- Kahyaoglu-Süt H, Kurt S, Uzal Ö, Özdilek S. Effects of smartphone addiction level on social and educational life in

health sciences students. *Avrasya Aile Hekimliği Dergisi*. 2016;5(1):13-9.

22- Matar Boumosleh J, Jaalouk D. Depression, anxiety, and smartphone addiction in university students-A cross sectional study. *PLoS One*. 2017;12(8):e0182239.

23- Zanjani Z, Moghbeli Hanzaii M, Mohsenabadi H. The relationship of depression, distress tolerance and difficulty in emotional regulation with addiction to cell-phone use in students of Kashan University. *Feyz J Kashan Univ Med Sci*. 2018;22(4):411-20. [Persian]

24- Hong FY, Chiu SI, Huang DH. A model of the relationship between psychological characteristics, mobile phone addiction and use of mobile phones by Taiwanese university female students. *Comput Hum Behav*. 2012;28(6):2152-9.

25- Atadokht A, Hamidifar V, Mohammadi I. Over-use and type of mobile phone users in high school students and its relationship with academic performance and achievement motivation. *J School Psychol*. 2014;3(2):122-36. [Persian]

26- Khazaie T, Saadatjoo A, Dormohamadi S, Soleimani M, Toosinia M, Mullah Hassan Zadeh F. Prevalence of mobile dependency and adolescence aggression. *J Birjand Univ Med Sci*. 2013;19(4):430-8. [Persian]

27- Yaseminejad P, Golmohammadian M, Yoosefi N. The study of the relationship between cell-phone use and general health in students. *Knowl Res Appl Psychol*. 2012;13(1):60-72. [Persian]

28- Baghiyani Moghadam MH, Shahbazi H. An Explanatory Analysis of Mobile Phone Usage Pattern among Medical Students of Yazd Shahid Sadoghi University of Medical Sciences, 2010 Cohorts. *Glob Media J*. 2011;6(1):1-17. [Persian]

29- Iqbal Z. Gender differences in mobile phone use: What

communication motives does it gratify. *Eur J Sci Res*. 2010;46(4):510-22. [Persian]

30- Abedini Y, Zamani BE. Investigating motivation, type and rate of mobile use in university students. *Contemp Psychol*. 2013;7(2):73-86. [Persian]

31- Zamani BE, Babadi Akashe Z, Abedini Y. Predicting the relationship between students addiction behaviors to cellular phones and their demographic and psychological characteristics of Shahrkord universities. *J Appl Sociol*. 2016;27(2):81-92. [Persian]

32- Karimzadegan S, Salatin P. The effect of information and communication technology on health economics. *Econ Model*. 2017;11(1):129-46. [Persian]

33- Toda M, Monden K, Kubo K, Morimoto K. Mobile phone dependence and health-related lifestyle of university students. *Soc Behav Personal Int J*. 2006;34(10):1277-84.

34- Ejazi F, Zolfaghari A. Investigating the relationship between mobile usage and smoking. *Appl Stud Soc Sci Sociol*. 2019;2(3):1-14. [Persian]

35- Azizi A, Mirzaei A, Shams J. Correlation between distress tolerance and emotional regulation with students smoking dependence. *Hakim Health Syst Res*. 2010;13(1):11-8. [Persian]

36- Ayadi N, Abbasi M, Pirani Z, Taghvayi D, Pirani A. The relationship between emotions' control, distress tolerance and harmful use of cell phones among students. *Inf Comun Technol Educ Sci*. 2016;7(1):145-62. [Persian]

37- Mezei G, Benyi M, Muller A. Mobile phone ownership and use among school children in three Hungarian cities. *Bioelectromagnetics*. 2007;28(4):309-15.

38- Thomas S, Heinrich S, Kühnlein A, Radon K. The association between socioeconomic status and exposure to mobile telecommunication networks in children and adolescents. *Bioelectromagnetics*. 2010;31(1):20-7.