Evaluation of Internet Addiction and Mental Health Among Medical Sciences Students in the Southeast of Iran

Enam Alhagh Charkhat Gorgich,[1,*] Leila Moftakhar,[2] Sanam Barfroshan,[1] and Azizollah Arbabisarjou[3]

[1]Student Research Committee, Zahedan University of Medical Sciences, Zahedan, IR Iran
[2]Department of Epidemiology, School of Health, Iran University of Medical Sciences, Tehran, IR Iran
[3]Health Promotion Research center, Zahedan University of Medical Sciences, Zahedan, IR Iran

[*] *Corresponding author*: Enam Alhagh Charkhat Gorgich, Student Research Committee, Zahedan University of Medical Sciences, Zahedan, IR Iran. Tel: +98 9158474229, E-mail: enam.gorgich@yahoo.com

Abstract

Background: Today, the prevalence of Internet Addiction (IA) is increasing among college students and the mental health of students is reduced with the increasing severity of IA. Objectives: The aim of this study was to evaluate IA and mental health among medical sciences students in the southeast of Iran.

Materials and Methods: This cross-sectional study was carried out on 417 students of Zahedan University of Medical Sciences, Zahedan, Southeast of Iran, during year 2016. The participants were recruited through a two-stage stratified sampling method. The data collection was done using Young Internet Addiction Test (YIAT) and Goldberg General Health (GHQ) standard questionnaires. Data analysis were performed by ANOVA, Pearson correlation, chi-square, and logistic regression tests using SPSS software for Windows version 16.

Results: The overall prevalence of IA in students was 27.56% (95% CI: 21.3 to 30.8). The prevalence of IA was 15.82% (95% CI: 11.3 to 19.7) in male and 11.74% (95% CI: 8.5 to 14.6) in female students. Mean mental health was 39.90 ± 1.34 and 48.17 ± 2.56 in normal and addicted users, respectively. There was a significant difference between IA and male gender (P = 0.001), major (P = 0.019), GPA (P = 0.001), college year (P = 0.013), time of using the Internet (P = 0.003), residency (P = 0.013), time (P = 0.011), location, and reason for using the Internet (P = 0.023). In addition, there was a positive correlation between IA and mental health (P = 0.02, r = 0.36).

Conclusions: The overall prevalence of IA was high and effects the mental health of medical sciences students in the southeast Iran. Overuse of the Internet by students may cause depression, and decreased mental health and academic performance. Creating psychological support and the provision of various fun programs could reduce the willingness to overuse the Internet and may prevent from IA complications among students.

Keywords: Internet Addiction, Mental Health, Medical Students, General Health

1. Background

Today, the Internet is one of the widest available media around the worldwide (1) furthermore it is becoming a major influential device on people's lives (2). The Internet is one of the modern technologies with exclusive features like that, availability, low cost and cost-effectiveness, which is used extensively worldwide (3). The Internet is an important social and communication tool in daily life, the workplace and at home (4). Using the Internet has grown significantly in the recent years (5) and in Iran, it has increased significantly, like other parts of the world (3). It should be noted that excessive use of the Internet could create problems for humans (6). There are different terms to describe the behavior of excessive use of the Internet, including Internet Addiction (IA), pathological Internet use and problematic Internet use (4). Today, IA disorder is very important (7).

Internet Addiction is a disorder of impulse control in using the Internet, that has negative effects on the performance of daily life, family relationships, and emotional stability (8). For the first time, IA disorder was defined as a behavioral addiction by Goldberg which was taken from drug dependency (2). Today, everyone is at risk of IA and youth and university students are at high risk of over-use of the Internet (9).

There are various estimates of the prevalence of IA. Its prevalence is estimated 8% in Italy, 0.9% in Jordan, 2.8% in Iran, 5.6% in China, 9.8% in the USA, 15% in Taiwan, and 18.3% in Great Britain (10). The prevalence of IA is different among university students. Studies have shown that

the prevalence of IA is in the range of 5% to 25% among university students in the United States, China, Korea, Australia, Taiwan, Japan, South Korea, and Europe (3). In some studies, the prevalence of IA was reported as 25% to 30%. The overall prevalence of IA is 62% in 6 Asian countries and among the peoples of Europe and America, it is between 1.5% to 8.2% (6). The occurrence of IA is 5.9% among university students of Taiwan (5) and 10.65% among Chinese students (3).

Many studies have examined factors associated with IA. Including demographic variables, such as age, gender, unemployment, parental educational level, marital status and social factors and special features, such as a history of psychiatric disorders, anxiety, obsession, depression and social phobia (3).

It is noteworthy that, IA causes many problems, including mental disorders such as anxiety, depression, isolation and loss of self-esteem (6), less sleep, not eating for long periods of time, and constraints in physical activity (2). The excessive use of the Internet reduces social interactions. Also, it has a great social effect on people's lives. Notably, IA has several effects on mental health; previous studies have referred to the use of the Internet as a drug and despite this, there is little research on the impact of IA on mental health and it needs to improve quantitatively and qualitatively (4).

One of the groups that, little research has been done on them is university students (9), also they are at risk of IA and factors such as gender, Internet usage time (often at night), the primary use of the Internet to communicate with friends, family are related to their level of Internet use (11). Medical students have more specific features because they have to study for long hours (9). Given that medical students are at greater risk of IA, which has large effects on mental health of students, this study was performed to evaluate Internet addiction and mental health among medical sciences collegians in southeast of Iran.

2. Materials and Methods

2.1. Study Design and Sampling

This cross-sectional study was conducted on 417 medical sciences students of Zahedan University of Medical Sciences (ZAUMS), Zahedan, Iran, from August to December, 2016. The participants were selected through the two-stage stratified random sampling method. For this purpose, in the first step from the total students studying (3744) at 6 schools (medicine, dentistry, nursing and midwifery, health, rehabilitation, and paramedics) at different levels, students were selected based on school and level through the stratified proportional sampling method. Then students were selected according to the sample framework via

the simple random sampling method for each school (stratum).

2.2. Inclusion and Exclusion Criteria

The inclusion criteria for the participant's selection was as follows: studying in ZAUMS, willingness to participate in the study, and completion of the questionnaires. All junior students because of a lack of Grade Point Average (GPA) and adaptation to the University environment were excluded from the study.

2.3. Internet Addiction and Mental Health Measurement

Data collection was performed via two standard structural questionnaires. The first section included demographic data and factors related to Internet use of subjects, such as age, gender, Grade Point Average (GPA), major, the level of study, college year, the main location of using the Internet, main time of using the Internet, the most important reason for using the Internet and so on. The second part was related to Internet overuse and mental health questionnaire that was described as below:

1. Young Internet Addiction Test (YIAT), 1998: This questionnaire has 20 questions to measure the Internet Addiction (IA) and influences various aspects of the users' life. All of the questions were designed based on a 5-point Likert scale as follows: always (5), often (4), frequently (3), occasionally (2), and rarely (1). The minimum and maximum range of potential scores of the questionnaire was between 20 and 100. According to these scores, Internet users were classified in 3 groups: normal (common) users (20 to 49), at risk users (50 to 79), and addicted users (80 to 100). It must be mentioned that higher scores represent greater tendency towards IA. According to recently conducted studies, a score of $\geq$ 50 was considered as IA. The validity of the questionnaire was confirmed by Content Validity Index (CVI = 0.78) for each item by 3 experts, and its reliability was approved using test-re-test (r = 0.88) in a 2-week interval by 20 medical sciences students and Cronbach's alpha (α = 0.87). Also, the reliability and validity of this instrument have been demonstrated in previous studies (12-14).

2. Goldberg General Health Questionnaire (GHQ-28), 1978: This has 28 questions and is categorized to 4 subsets: somatic symptoms (questions 1 to 7), anxiety/insomnia (questions 8 to 14), social dysfunction (questions 15 to 21), and severe depression (questions 22 to 28). Each subset contained 7 questions that evaluated different dimensions of mental health from somatic to psychiatric disorders. Scoring of each question was done by a 4-point Likert scale that ranged from 0 to 3. The range of Minimum and Maximum scores was 0 to 84 and were classified into 4 levels

of mental health as follows: normal (0 to 22), weak (23 to 40), moderate (41 to 60), and severe (61 to 84). The remarkable point regarding the interpretation of questionnaire scores was to note that higher scores indicated lower levels of mental health. The validity of the questionnaire was confirmed by the Content Validity Index (CVI = 0.80) for each item by 3 experts, and the reliability in this study was approved using test-re-test (r = 0.87) in a 2-week interval by 20 medical sciences students and Cronbach's alpha (α = 0.93). In addition, the validity and reliability of the GHQ-28 questionnaire was approved through previous studies around the world (15-18).

2.4. Ethical Consideration

This study was confirmed by the Medical Ethics Committee of ZAUMS (IR.ZAUMS.REC.1395.85). Written informed consent was obtained from all students.

2.5. Statistical Analysis

Descriptive statistics are represented as mean ± Standard Deviation (SD). The obtained data were analyzed by ANOVA, Pearson correlation, and chi-square tests. To determine associated variables of IA, logistic regression was performed using the SPSS software for Windows (version 16, Chicago, IL, USA). Statistical significance was considered as P of less than 0.05.

3. Results

3.1. Participants Characteristics

Among a total of 450 distributed questionnaires, 417 were included in the final analysis and response rate was 92.66%. Thirty-three questionnaires were excluded from statistical analysis causing incomplete responses by students. The mean age of the participants was 22.63 ± 1.61 in the range of 18 to 28. The majority of the subjects were female (248; 59.47%), single (330; 79.13%), live in a dormitory (237; 56.83%), in the medical major (93; 22.30%). The results showed that the students used the Internet more at the dormitory (203; 48.68%), during night to morning hours and aimed to chat (119; 28.53%). More demographic details are presented in Table 1.

The normality of continuous variables were assessed by Shapiro-Wilk test and the P-value was calculated for age (P = 0.558), GPA (P = 0.428), time of Internet use (P = 0.19), IA scores (P = 0.68), mental health scores (P = 0.21), and college year (P = 0.81).

3.2. Prevalence of Internet Addiction

Internet Addiction prevalence in students was 50 ≥ as IA was 27.56% (95% CI: 21.3 to 30.8). Prevalence of IA was 15.82% (95% CI: 11.3 to 19.7) and 11.74% (95% CI: 8.5 to 14.6) in male and female students, respectively. The IA prevalence was significantly higher in male than female students (P = 0.003) (Table 2). The total mean scores of IA questionnaire was 42.60 ± 14.56. The mean of IA in males and females was 47.70 ± 17.66 and 44.50 ± 10.26, respectively. As noted in Table 1, IA was higher amongst males with lower GPA, residence of dormitories and higher college year. The GPA in normal, at risk, and addicted users was 17.01 ± 1.34, 16.52 ± 2.16, and 15.73 ± 2.17 respectively. Also, GPA in normal users was significantly higher compared to at risk and addicted users (P = 0.001).

3.3. Internet Addiction and Socio-educational Features

The current findings showed that, there were significant difference between IA and gender (P = 0.001), major (P = 0.019), GPA (P = 0.001), college year (P = 0.013), time of using the Internet (P = 0.003), residency (P = 0.013), time (P = 0.011), location, and cause of using the Internet (P = 0.023). However, there was no significant difference between IA and age (P = 0.23), marital status (P = 0.43), the college year (P = 0.21), smoking (P = 0.78), and background of psychiatric disorders (P = 0.61).

3.4. Internet Addiction and Mental Health

Findings regarding mental health revealed that total mean of students mental health was 46.31 ± 2.67 and significantly correlated with gender (P = 0.019). Mean mental health was 39.90 ± 1.34 in normal and 48.17 ± 2.56 in addicted users and there were significant differences between the 2 users of the Internet (P = 0.011). Also, there was a positive correlation between IA and mental health (P = 0.02, r = 0.36). Based on these results, as IA scores increased, mental health scores also increased (decreased of mental health).

3.5. Predictors of Internet Addiction

The findings of regression analyses revealed that male gender, low-grade point average, online gaming, online chatting, downloading as the main purpose of using the Internet, studying in nursing, anesthesia, environmental health majors, and mental health scores were all significantly related to IA. It should be noted that the chance of Internet overuse between male students was more common compared to females. In addition, the eventuality of IA between students with low-grade point average and high mental health scores was greater compared to other students (Table 3).

4. Discussion

This study was conducted with the aim of evaluation of Internet addiction and mental health among students of ZAUMS. In accordance with the findings of this study, the prevalence of IA was 27.5% among students with points higher than 50. Also, the prevalence of IA was significantly higher among male students. In this study, it was shown that male gender, low school grade point average, online gaming, online chatting, download and academic discipline of nursing, anesthesia, and sanitation were predictors of IA. Also, a significant association was found between the higher point of IA and lower level of mental health. As mentioned in this study, the prevalence of IA was estimated as 27.5% among students. Globally, 5% to 10% of Internet users have IA. Also, in a study that was conducted among Turkish university students, the prevalence of IA was 7.9% [1] and in another study, the prevalence was estimated as 3.8% among male students and 20% of female students [19]. According to the study conducted in Iran, the prevalence of IA was reported as 10.8% among medical students [20]. This prevalence was 1.6% in Korean adolescents. It is noteworthy that the high prevalence IA is indicative of the growing use of the Internet. The prevalence of IA has increased due to high Internet access to the Internet, advanced Internet devices, mobile, virtual spaces, and young and student's high tendency to use the Internet.

In the current study, it was shown that male gender was a predictor of IA. Thus, IA among male students was about 1.5 times more than female students. Similar results were seen in a study conducted in Turkey [1]. In addition, a significant association was found between male gender and IA in a study conducted among medical students at a medical school in Santiago [21]. Moreover, in another study on students of medical sciences, male gender was a predictor of IA [5]. Also, in a few studies, different results to that of the current study have been reported. In a study conducted among adult Koreans, no differences were observed between different genders [4]. Also, in a study done by Chien chou et al., this rate among females was more than males [22]. Higher prevalence of IA in males compared with females could be due to differences in access to the Internet and also, male's favorite activities and performance, including the desire for online gaming, chatting, using information technology and awareness of the news.

The results of the present study showed a statistically significant relationship between lower GPA and IA. Similarly, such significant relationship was reported by a study conducted among students of Guilan University of Medical Sciences. In this study, the average GPA of students at risk of high dependence on the Internet was less than students, who showed normal use of the Internet [5]. In a study con-

ducted by Frangs, similar results were seen to that of the current study [23]. The results reported by Yen's study was different from the current study [24]. These results showed that IA could have negative effects on student academic performance, and that consequently students' use of the Internet should be limited.

In terms of academic disciplines in this study, nursing, anesthesia, psychotherapy, and environmental health were known as a predictor of IA. While the study was conducted among medical students of Guilan, IA was lower among nursing students [5]. In another study, a significant relationship was not found between major and IA [20].

Regarding other known factors, in the present study, there was a significant association between IA and online chatting, gaming, and download. These results are consistent with a similar study conducted among adults from Taiwan [25] and students of Guilan [5]. While in the study done by Ansari et al., there were no statistically significant relationships [19]. Given that students are away from home, they often use online chatting to communicate with family members, friends, and acquaintances, also to fill their loneliness and compensation for mental support. It could be concluded that a lack of psychological support could cause students to overuse the Internet.

In the current study, statistically significant differences were seen between the mean score of mental health in the 2 groups of students, who had normal use of the Internet and those with IA. Thus, mental health problems were less common among the normal group. Similar results were seen in other studies. In a study conducted by Fatahi et al., people in the IA group were more susceptible to mental disorders, depression, anxiety, and paranoia [1] and in another study, the IA group compared to the control group had more psychological disorders [7]. In other studies, personality disorders and behavior were observed among people addicted to the Internet [7, 13, 19] whereas in a study of adult Koreans, there was no significant correlation [2]. Furthermore, in another study, it was shown that 75% and 57% of Internet addicts had depression and anxiety, respectively. Internet Addiction is an important factor threatening the mental health of people, especially students. It could lead to increased depression and social isolation, also weakening social ties and decreasing the quality of the relationship with family and friends. Although the exact cause of the relationship between depression and IA is not known, yet it seems that students have excessive use of the Internet to fill their loneliness, which could be because of psychological problems.

The main limitation of the present study was its cross-sectional design. Therefore, prospective studies are recommended to perform further research for clarifying the conclusions and to reach a precise association between vari-

Table 1. Demographic characteristics and Related Factors to the Internet Use Among Participant Students at ZAUMS

Characteristics		P-value
Age	22.63 ± 1.61	0.23
GPA	17.23 ± 1.34	0.001
Gender		0.001
Male	169 (40.52)	
Female	248 (59.47)	
Major		0.019
Medical	93 (22.30)	
Dentistry	54 (12.94)	
Nursing	47 (11.27)	
Anesthesia	49 (11.75)	
Physiotherapy	38 (9.11)	
Radiology	35 (8.39)	
Public health	36 (8.63)	
Environmental health	32 (7.67)	
Operating room	33 (7.91)	
Level of study		0.21
Bachelor's	257 (61.63)	
Master of science	13 (3.11)	
Doctorate	147 (35.25)	
Marital status		0.43
Bachelor	330 (79.13)	
Married	87 (20.86)	
Location of residence		0.013
Home (with parent)	115 (27.57)	
Dormitory	237 (56.83)	
Other	65 (15.58)	
Smoking		0.78
Yes	13 (3.11)	
No	404 (96.88)	
A history of psychiatric diagnosis		0.61
Yes	8 (1.91)	
No	409 (98.08)	
Main location of using the Internet		0.023
Home	73 (17.50)	
University	99 (23.74)	
Dormitory	203 (48.68)	
Internet bar	42 (10.07)	
Main time of using the Internet		0.011
Morning to evening	96 (23.02)	
Evening to night	103 (24.70)	
Night to morning	218 (52.27)	
Time of internet use (daily), mean		0.003
Not addicted user	1.03 ± 0.78	
Addicted user	3.33 ± 1.23	
Most important reason for using the Internet		0.001
Scientific topics	40 (9.59)	
Research	36 (8.63)	
Web browsing	48 (11.51)	
Online gaming	61 (14.62)	
Online chatting	119 (28.53)	
Downloading (film, music, picture)	97 (23.26)	
Use of without target	16 (3.83)	
College year		0.013
Second	86 (20.62)	
Third	54 (12.94)	
Fourth	130 (31.17)	
Fifth	83 (19.90)	
Sixth of higher	64 (15.34)	

Data are presented as No(%) or Mean ± SD

ables, which effect on Internet addiction in students.

Regarding generalizability of the results to other populations, except for the target population, their culture, rate of access, speed, and cost of using the Internet must be considered.

4.1. Conclusion

In conclusion, the overall prevalence of IA was high and effected the mental health of medical sciences students in southeast of Iran. Overuse of the Internet by students may cause depression, decreased mental health, and academic performance. Creating psychological support and the provision of various fun programs could reduce the willingness for overuse of the Internet and may prevent from IA complications among students.

References

1. Canan F, Ataoglu A, Ozcetin A, Icmeli C. The association between Internet addiction and dissociation among Turkish college students. *Compr Psychiatry.* 2012;**53**(5):422–6. doi: 10.1016/j.comppsych.2011.08.006. [PubMed: 22000475].
2. Kim K, Ryu E, Chon MY, Yeun EJ, Choi SY, Seo JS, et al. Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. *Int J Nurs Stud.* 2006;**43**(2):185–92. doi: 10.1016/j.ijnurstu.2005.02.005. [PubMed: 16427966].
3. Asiri S, Fallahi F, Ghanbari A, Kazemnejad-Leili E. Internet addiction and its predictors in guilan medical sciences students, 2012. *Nurs Midwifery Stud.* 2013;**2**(2):234–9. [PubMed: 25414864].
4. Yellowlees PM, Marks S. Problematic Internet use or Internet addiction? *Comput Human Behav.* 2007;**23**(3):1447–53.

Table 2. Internet Addiction Prevalence and Mental Health Scores, by Sex, Among Participant Students at ZAUMS

Internet Addiction	Male	Female	Total	P-value
Non-addicted user	103 (24.70)	199 (47.72)	302 (72.42)	
At risk user	42 (10.07)	29 (6.95)	71 (17.02)	0.003
Addicted user	24 (5.75)	20 (4.79)	44 (10.55)	
Mental Health	44.25 ± 3.18	41.13 ± 2.78	46.31 ± 2.67	0.019

Data are presented as No(%) or Mean ± SD

Table 3. Regression Analyses of Associated Factors for Internet Addiction Among Participant Students at ZAUMS

Predictor Factors	OR	95 % CI	P-value
Gender (male, female)	1.48	1.12 - 1.89	0.004
GPA (academic achievements), higher score	1.36	1.23 - 2.43	0.0001
Major			
Medical	1.86	0.88 - 2.93	0.11
Dentistry	0.73	0.68 - 1.02	0.32
Nursing	0.65	0.62 - 0.87	0.001
Anesthesia	1.27	1.10 - 2.36	0.009
Physiotherapy	1.52	1.23 - 3.02	0.001
Radiology	1.48	0.54 - 2.92	0.05
Public health	0.82	0.71 - 2.13	0.23
Environmental health	2.58	1.87 - 4.56	0.001
Operating room	1.17	0.52 - 2.33	0.62
Main purpose of using the Internet			
Scientific topics	0.98	0.92 - 1.68	0.45
Research	1.86	0.82 - 3.12	0.23
Web browsing	1.32	1.20 - 1.54	0.04
Online gaming	2.45	1.63 - 4.49	0.005
Online chatting	2.63	1.78 - 3.86	< 0.0001
Downloading (film, music, picture)	2.78	2.36 - 5.48	< 0.0001
Use of without target	1.13	0.75 - 2.33	0.71
Mental health score	1.38	1.16 - 4.78	0.005

5. Cao F, Su L. Internet addiction among Chinese adolescents: prevalence and psychological features. *Child Care Health Dev.* 2007;**33**(3):275–81. doi: 10.1111/j.1365-2214.2006.00715.x. [PubMed: 17439441].

6. Esmaeilivand M, Jalalvandi F, Mohammadi MM, Parandin S, Taghizadeh P, Arasteh P. A Cross Cultural Study of Mental Health among Internet Addicted and Non-Internet Addicted: Iranian and Indian Students. *Glob J Health Sci.* 2016;**9**(1):58269.

7. Kheirkhah F, Gouran A. Internet Addiction, Prevalence and Epidemiological Fea-tures in Mazandaran Province, Northern Iran. *Iran Red Cres Med J.* 2010;**2010**(2):133–7.

8. Wang Y, Wu AMS, Lau JTF. The health belief model and number of peers with internet addiction as inter-related factors of Internet addiction among secondary school students in Hong Kong. *BMC Public Health.* 2016;**16**:272. doi: 10.1186/s12889-016-2947-7. [PubMed: 26983882].

9. Tsimtsiou Z, Haidich AB, Spachos D, Kokkali S, Bamidis P, Dardavesis T, et al. Internet addiction in Greek medical students: an online survey. *Acad Psychiatry.* 2015;**39**(3):300–4. doi: 10.1007/s40596-014-0273-x. [PubMed: 25669634].

10. Kuss DJ, Griffiths MD, Binder JF. Internet addiction in students: Prevalence and risk factors. *Comput Human Behav.* 2013;**29**(3):959–66.

11. Balhara YP, Gupta R, Atilola O, Knez R, Mohorovic T, Gajdhar W,

et al. Problematic Internet Use and Its Correlates Among Students from Three Medical Schools Across Three Countries. *Acad Psychiatry.* 2015;**39**(6):634–8. doi: 10.1007/s40596-015-0379-9. [PubMed: 26130501].

12. Arbabisarjou A, Gorgich EAC, Barfroshan S, Ghoreishinia G. The Association of Internet Addiction with Academic Achievement, Emotional Intelligence and Strategies to Prevention of them from Student's Perspectives. *Int J Human Cult Stud.* 2016;**3**(1):1656–66.

13. Mohammadsalehi N, Mohammadbeigi A, Jadidi R, Anbari Z, Ghaderi E, Akbari M. Psychometric Properties of the Persian Language Version of Yang Internet Addiction Questionnaire: An Explanatory Factor Analysis. *Int J High Risk Behav Addict.* 2015;**4**(3):e21560. doi: 10.5812/ijhrba.21560. [PubMed: 26495253].

14. Mohammadbeigi A, Mohammadsalehi N. Prevalence of internet addiction and related risk factors in students. *J Guilan U Med Sci.* 2011;**20**(78):41–8.

15. Gorgich EAC, Barfroshan S, Ghoreishi G, Balouchi A, Nastizaie N, Arbabisarjou A. The Association of Self-Assessed Emotional Intelligence with Academic Achievement and General Health among Students of Medical Sciences. *Glob J Healt Sci.* 2016;**8**(12):27.

16. Bashiri Z, Aghajani M, Masoudi Alavi N. Effects of Psychoeducation on Mental Health in Patients With Coronary Heart Disease. *Iran Red Crescent Med J.* 2016;**18**(5):e25089. doi: 10.5812/ircmj.25089. [PubMed:

27437125].

17. Jackson C. The general health questionnaire. *Occupat Med.* 2007;**57**(1):79.

18. Gorgich EAC, Zare S, Ghoreishinia G, Barfroshan S, Arbabisarjou A, Yoosefian N. Job Stress and Mental Health Among Nursing Staff of Educational Hospitals in South East Iran. *Thrita.* 2017;**6**(1).

19. Ansari H, Ansari-Moghaddam A, Mohammadi MM, Peyvand M, Amani Z, Arbabisarjou A. Internet addiction and happiness among medical sciences students in southeastern iran. *Healt Scop.* 2016;**5**(2).

20. Ghamari F, Mohammadbeigi A, Mohammadsalehi N, Hashiani AA. Internet addiction and modeling its risk factors in medical students, iran. *Indian J Psychol Med.* 2011;**33**(2):158–62. doi: 10.4103/0253-7176.92068. [PubMed: 22345841].

21. Berner JE, Santander J, Contreras AM, Gomez T. Description of internet addiction among Chilean medical students: a cross-sectional study. *Acad Psychiatry.* 2014;**38**(1):11–4. doi: 10.1007/s40596-013-0022-6.

[PubMed: 24430588].

22. Chou C, Condron L, Belland JC. A review of the research on Internet addiction. *Educat Psychol Rev.* 2005;**17**(4):363–88.

23. Frangos CC, Fragkos KC, Kiohos A. Internet addiction among Greek university students: Demographic associations with the phenomenon, using the Greek version of Young's Internet Addiction Test. *Int J Econ Scie Appl Res.* 2010;**3**(1):49–74.

24. Yen JY, Ko CH, Yen CF, Wu HY, Yang MJ. The comorbid psychiatric symptoms of Internet addiction: attention deficit and hyperactivity disorder (ADHD), depression, social phobia, and hostility. *J Adolesc Health.* 2007;**41**(1):93–8. doi: 10.1016/j.jadohealth.2007.02.002. [PubMed: 17577539].

25. Ko CH, Yen JY, Chen CS, Yeh YC, Yen CF. Predictive values of psychiatric symptoms for internet addiction in adolescents: a 2-year prospective study. *Arch Pediatr Adolesc Med.* 2009;**163**(10):937–43. doi: 10.1001/archpediatrics.2009.159. [PubMed: 19805713].