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# The Relationship between Internet Addiction and General Health and Its Socio-Economic Factors in Internship Students of Zanzan University of Medical Sciences in 2018



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### ABSTRACT

**Background:** The internet is a new achievement, which could be beneficial or harmful to the general health of the users. The present study aimed to investigate the association of internet addiction and the general health and influential socioeconomic factors in the internship students at Zanzan, Iran in 2018.

**Methods:** This cross-sectional study was conducted on 137 internship students, who were selected via census sampling. Data were collected using Young's internet addiction and general health questionnaire. Data analysis was performed in SPSS version 23 at the significance level of  $P < 0.05$ .

**Results:** Among the students, 87 cases (63.5%) were regular internet users, and 50 cases (36.5%) were at the risk of internet addiction. A significant association was observed between internet addiction and general health ( $r = 0.43$ ;  $P = 0.001$ ). Internet addiction was lower in married participants than the single students ( $P = 0.001$ ). However, no significant correlations were observed between age, gender, and education level, occupation status of the parents, parental income, and nativity with the risk of internet addiction.

**Conclusion:** According to the results, internet use was correlated with general health and marital status. Moreover, less than half of the medical internship students were at the risk of internet addiction.

## 1. Introduction

Today, the cyberspace and internet have become a major influence on the human life, undeniably affecting the social connections, scientific issues, economics, and other dimensions of human life. The internet and virtual environment are a suitable platform for progress and development, while they could also cause problems such as the excessive use of the internet and the subsequent issues.

Within the past decade, various phrases have been used to describe this behavioral problem, including the obsessive-compulsive use of computers, internet dependency, and internet addiction, as well as more specific terms, such as 'internet gambling' and cybercrime [1, 2]. Addiction is often used alongside the abused material [3].

The excessive use of the internet is also considered to be an addiction since its symptoms greatly resemble the symptoms of nicotine, alcohol or medication addictions [4].

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There are different views regarding the definition of internet addiction, and various models have been proposed based on the circumstances and perceptions of individuals in order to assess the disorder and its complications [5].

According to statistics, approximately 40% of the world's population is online simultaneously. Furthermore, the overall use of the internet within the past decade has increased six-fold [6]. The American psychological articles have shown that internet addiction is a common disorder, which should be incorporated into the Diagnostic and Statistical Manual of Mental Disorders (DSM) as a division [7]. Health is a prerequisite for playing social roles, and humans could complete their activities if they are healthy and regarded as healthy by the community [8].

According to the World Health Organization (WHO; 1948), health is defined as a state of complete physical, mental, and social wellbeing rather than the mere absence of diseases or infirmity [9]. The study period causes significant tension in medical students. In addition to problems with other students, medical students are faced with the difficulties that are uniquely associated with their field of study; such examples are the mental and emotional stress caused by the hospital environment and emergency department, management of the problems of patients, and length of the education period. Consequently, medical students are at a higher risk of poor health compared to other students [10]. Moreover, medical students are constantly exposed to stressors, and the continuation of these factors could lead to burnout [11].

Students are closely involved with the cyberspace due to their age and educational status, which poses the risk of internet addiction its consequences. Internet addiction may overlap with various psychiatric disorders, such as depression, impulse control disorders, and attention deficit [12]. Individuals spend substantial time on networking and cannot disconnect and quit their computers, which in turn deteriorates their sleep, disrupts their social and family life and other routine activities [13]. Internet addiction leads to excessive physical fatigue, adversely affecting their educational and occupational function and immune system, making the individual more susceptible to diseases. Among the other consequences of internet addiction are the lack of activity and mobility in students, which could cause general health problems [14].

Several domestic studies have been focused on internet addiction in medical students, reporting the prevalence to be 9.5-34% in this population. Moreover, internet addiction has been reported to have a direct correlation with general health [15, 16]. Despite the lack of comprehensive studies regarding the association of socioeconomic factors and state of addiction, it is well established that these factors could significantly affect internet addiction. The present study aimed to investigate the association of internet addiction and the general health and influential socioeconomic factors in the internship students at Zanjan University of Medical Sciences, Iran.

## 2. Materials and Methods

### 2.1. Study Design

This descriptive, cross-sectional study was conducted on 137 medical internship at Zanjan University of Medical Sciences in during June to August 2018.

### 2.2. Sample Population and Sampling Method

The target population was internship medical students, who were selected via census sampling.

### 2.3. Research Instruments

Data were collected using a socio-demographic checklist, Young's internet addiction diagnostic questionnaire (IADQ), and the general health questionnaire (GHQ-28). The first part addressed socio-demographic variables (age, gender, marital status, parental employment and education status, family income, and nativity). The second part was a IADQ that was developed by Young in 1998 in order to evaluate internet addiction [14]. The questionnaire was translated and used by Nastiezaie in Persian in 2009 [15-17]. IADQ has 20 items, which scored based on a five-point Likert scale. The minimum and maximum scores of the questionnaire are 20 and 100, respectively. Based on the obtained scores in this scale, the respondents are categorized as regular internet users (scores 20-49), high-risk for internet addiction (scores 50-79), and internet addicts (scores 80-100). The third part was a GHQ-28 that was developed by Goldberg and Hiller in 1979 with 28 items, which were extracted based on the factor analysis of the original questionnaire out of 60 items. GHQ-28 consists of four subscales, including physical state, anxiety, social functional impairment, and depression. The questionnaire has been translated into 38 languages and used in 70 countries [18]. In addition, all the items in GHQ-28 have been confirmed in terms of credibility, sensitivity, and specificity. In Iran, the validity and reliability of GHQ-28 have been assessed and confirmed by Taghavi [19]. The items in GHQ-28 are scored based on a four-point Likert scale, with the higher scores indicating poor general health.

### 2.4. Ethical Considerations

After explaining the goals of the study to the participants and obtaining informed consent, the data was collected by anonymous questionnaires.

### 2.5. Statistical Analysis

Data analysis was performed in SPSS version 23. Based on the normal distribution of data, descriptive statistics were used for the quantitative variables, and mean, standard deviation, percentage, and frequency were used for the qualitative variables. In addition, independent sample t-test, correlation-coefficients, and linear regression were used in the statistical analyses at the significance level of 0.05.

### 3. Results and Discussion

In total, 137 internship medical students at Zanjan University of Medical Sciences were enrolled in the study.

The participants completed the IADQ, GHQ-28, and socioeconomic checklist. The mean age of the students was  $25.29 \pm 1.23$  years, with the maximum and minimum age of 28 and 23 years, respectively. The mean household income was  $35,380 \pm 17,360$  million Rials per month, with the maximum and minimum income of 120 and 15 million Rials, respectively. The other socio-demographic factors of the subjects are presented in Table 1.

In terms of the state of internet addiction in the students of Zanjan University of Medical Sciences, the obtained results indicated that 87 students (63.5%) were regular internet users, while 50 students (36.5%) were at a high risk of internet addiction. However, no case of internet addiction was observed in the medical students of Zanjan University of Medical Sciences.

The mean score of internet addiction was  $45.10 \pm 12.25$ , with the maximum and minimum scores of 73 and 20, respectively. The mean score of general health was  $45.48 \pm 8.8$ , with the maximum and minimum scores of 85 and 31, respectively. According to the information in Table 2, the mean score of general health dimensions was compared with the level of internet addiction, indicating a significant association between general health and internet addiction.

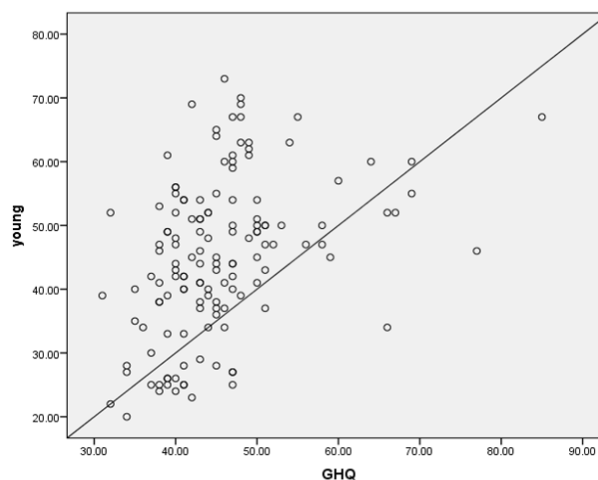
Figure 1 shows the findings regarding the correlation of general health and internet addiction. As can be seen, a moderate correlation was observed between these variables ( $r = 0.43$ ;  $P = 0.001$ ). In other words, general health was higher in the students who were less frequent internet users.

**Table 1:** Socio-economic factors in medical internships participating in the study

Variable		Frequency	Relative Frequency
Gender	Female	70	51.1
	Male	67	48.9
Marital status	Single	118	86.1
	Married	19	13.9
Native	Native	43	31.4
	Non-native	94	68.6
Father's job	Employed	95	69.3
	Unemployed	5	3.6
	Retired	37	27
Mother's job	Housekeeper	92	67.2
	Employed	37	27
	Retired	8	5.8
Father's education	illiterate	0	0
	Under the diploma	18	13.2
	Diploma	61	44.5
	Associate Degree	43	31.4
Mother's education	illiterate	2	1.5
	Under the diploma	10	7.3
	Diploma	59	43.1
	Associate Degree	42	30.7
	Bachelor and higher	24	17.4

**Table 2:** Mean and standard deviation of young and GHQ-28 questionnaire scores in medical internships

GHQ-28 questionnaire	Young questionnaire		P value
	Regular Internet user	High risk of Internet addiction	
physical state	$10.5 \pm 1.99$	$12 \pm 3.12$	0.001
anxiety	$11.75 \pm 2.40$	$13.14 \pm 3.19$	0.005
Social functional impairment	$12.72 \pm 2.35$	$14.36 \pm 2.26$	< 0.001
depression	$10.67 \pm 3.51$	$11.98 \pm 4$	0.049
Overall scores	$43.44 \pm 6.99$	$49.04 \pm 9.62$	< 0.001



**Figure 1:** Correlation between young questionnaire score and GHQ-28 questionnaire score in medical internships

With regard to the correlations of socioeconomic factors and internet addiction, the obtained results indicated a significant association between the risk of internet addiction and marital status ( $P = 0.001$ ). The odds ratio (OR) index was also used to determine the severity of the correlation between these variables, which was calculated to be 0.57 at 95% confidence interval (CI) of 0.49-0.67. Therefore, it could be concluded that marriage reduced the risk of internet addiction by 43%. In addition to marital status and its association with internet addiction, our findings demonstrated that maternal occupation ( $P = 0.017$ ) and maternal education ( $P = 0.034$ ) were associated with the risk of internet addiction. However, no correlations were observed between the risk of internet addiction and the other socioeconomic variables, including age ( $P = 0.5$ ), income status ( $P = 0.67$ ), gender ( $P = 0.86$ ), paternal occupation status ( $P = 0.66$ ), nativity ( $P = 0.18$ ), and paternal education level ( $P = 0.15$ ).

Linear regression was used to determine the effects of significant variables on internet addiction. The significant variables were marital status, general health, maternal occupation, and maternal education, which were analyzed using the regression model and significant correlation was denoted between the score of general health ( $\beta = 0.34$ ;  $P = 0.001$ ) and marital status ( $\beta = -0.21$ ;  $P = 0.009$ ) and score of internet addiction. Therefore, it could be inferred that the increase of the general health score by one, the internet addiction scores increased by approximately 0.5 points (0.34).

In addition, the risk score of internet addiction was observed to decrease by 0.2 points in the married participants.

The present study aimed to investigate the associations of internet addiction, general health, and socioeconomic components in the internship students at Zanjan University of Medical Sciences. According to the findings, 87 students (63.5%) were regular internet users, and 50 students (36.5%) were at a high risk of internet addiction. Furthermore, none of the internship medical students at Zanjan University of Medical Sciences had internet addiction.

Various statistics have been published on the prevalence of internet addiction in different communities. On average, the proportion of internet addicts has been estimated to be 2-5 million per 50 million ordinary users. In other words, approximately 0.1-0.5% of internet users have internet addiction [20, 21]. In a study conducted on the medical students of Isfahan University of Medical Sciences in 2016, 86.6% of the participants were normal internet users, 13% were at the risk of internet addiction, and only 0.4% had internet addiction [22].

The results of the foreign studies in this regard are consistent with the domestic findings. In a study conducted on medical students in India, the prevalence of internet addiction was reported to be 0.4%, and in a research on the students in Guangzhou (Hong Kong), this rate was reported to be 0.6% [23, 24]. According to the results of the present study, general health and its dimensions (depression, anxiety, physical state, and social function impairment) were significantly correlated with internet addiction. Evidently, the participants who were at a high risk of internet addiction obtained higher scores in the GHQ-28 compared to the regular internet users.

In a study by Bahri et al. (2011), regarding the status of internet addiction and its association with the general health of students at Gonabad University of Medical Sciences (Iran) during 2010-2011, 9.5% of the students were reported to have internet addiction, and 21.5% were at an increased risk of internet addiction. Furthermore, the students with internet addiction had an unfavorable general health status [16]. Another study in this regard was conducted on the students at Lorestan University of Medical Sciences (Iran) in 2013, and the findings indicated a significant correlation between the scores of internet addiction and general health. In the mentioned research, 85% of the subjects were normal internet users, and 15% were at the risk of internet addiction [15].

In this regard, a study was performed by Nastizai et al. on 375 participants (189 females and 196 males) at Sistan-and-Baluchestan University during 2007-2008. The findings indicated a significant, negative correlation between internet addiction and general health, which is consistent with the results of the present study [24]. Moreover, the study by Abolhassani et al., which was conducted on 187 nursing students at Shahrood University of Medical Sciences (Iran) during

2014-2015, GHQ-28 and Young's IADQ demonstrated a significant correlation between internet addiction and general health, and higher exposure to the internet was associated with poor general health [25].

A research conducted on 426 medical students in Tehran (Iran) showed that the individuals with internet addiction manifested variable psychosocial behaviors, such as alienation, mental weakness, inability to perform tasks, abnormal social behaviors, escapism, introversion, and emotional reactions [26]. This could be due to the fact that the individuals who are addicted to the internet do not pay attention to their health and spend most of their time on using the internet instead. Consequently, they are faced with numerous problems, including reduced physical, social, and occupational activity, poor sleep patterns or changes in the sleep-wake cycle, and inadequate nutrition, which ultimately affect their mood and personality traits. On the other hand, Nodoshen et al. reported no significant association between internet addiction and general health, which could be due to the research population in the mentioned study (nursing students in Qom, Iran) [27].

Regarding the socioeconomic components, our findings indicated no significant differences in terms of gender, which is in line with the results obtained by Atashpoor et al. (2005). The mentioned study was conducted on 400 high school students in Sabzevar (Iran) in 2005 [28]. In contrast, a research performed by Salehi et al. (2014) on 383 medical science students at Mashhad University of Medical Sciences (Iran) showed a significant correlation between gender and internet addiction, and the prevalence of internet addiction was reported to be higher in men compared to women [29]. With the growing number of women admitted to universities, their use of technology has increased.

The findings of the current research indicated a significant association between marital status and internet addiction; as such, the married participants had less frequent internet use compared to the single participants. This is in congruence with the study by Salehi et al. (2014) [29].

Assessment of the correlation between the employment status and education level of the father with internet addiction in the present study demonstrated no significant association in this regard, which is consistent with the study by Ghamari et al. (2011). The mentioned research was performed on 426 medical students in Iran [30]. Our findings indicated significant correlations between internet addiction, general health, and marital status.

#### 4. Conclusion

According to the results, the risk of internet addiction had a significant, negative correlation with general health. Therefore, it could be concluded that general health decreased with the increased risk of internet addiction. Moreover, married individuals were less likely to become internet

addicts, while no such association was observed between internet addiction and variables of gender, nativity, parental education level and occupation status, and family income. Considering the increasing use of the internet and the need to use this medium, it is recommended that proper education and cultural requirements be enhanced in this regard. Attention should be paid to the possible role of socioeconomic components (e.g., marital status) in this regard.

### Authors' Contributions

A.R.Sh., and F.K., study design; F.K. and A.S., field work; data analysis, and drafting of the manuscript.

### Conflict of Interest

The author report no conflict of interest.

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