# PREVALENCE OF INTERNET ADDICTION AMONG MEDICAL STUDENTS: A STUDY FROM SOUTHWESTERN IRAN

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**SUMMARY**

*Objective:* In today's world, despite the numerous benefits, increasing demand for computer technology and the influence of widespread internet technology, many people, especially students, have faced impaired mental health and social relationships resulting from internet addiction; therefore, with regard to the contradictory results of preceding studies in the field of internet addiction, this study was designed to determine the prevalence of internet addiction in students of Ahvaz Jundishapur University of Medical Sciences.

*Methods:* This descriptive study was conducted on all students of Ahvaz Jundishapur University of Medical Sciences. For data collection questionnaire and demographic profile of internet addiction test was used.

*Results:* The results showed that internet addiction is common among university students ($t = 23.286$, $p < 0.001$). Internet addiction is significantly different between males and females and more prevalent in the male users ($t = 4.351$, $p = 0.001$). The prevalence of internet addiction in various categories was 1.6% normal, 47.4% mild, 38.1% moderate, and 12.9% severe. Our analysis also showed a significantly higher proportion of senior students with severe internet addiction (16.4%) compared to junior students ($\chi^2 = 30.964$; $p < 0.001$).

*Conclusion:* Based on the findings of this study it can be concluded that there is a considerable internet addiction in medical students, and to prevent risks and complications, health considerations and proper treatments seem to be necessary.

*Key words:* mental health, addiction to Internet, university students

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## INTRODUCTION

Nowadays, internet addiction has been proposed to be included among psychological disorders in psychology and medicine; the fact that clinicians have reported cases of the disorder as a new form of addiction in recent years has attracted researchers in the field of psychology, psychiatry, sociology, and other scientific fields. Internet addiction is emerging in different cultures and societies. The prevalence of this problem has led to the identification of the causes, consequences and complications were followed up and investigated by experts and researchers (1).

For the first time the term internet addiction disorder was proposed by Goldberg to introduce and recognize people who show problems following the Internet use. He was the first person who formed a group to support internet addicts (2). Internet and computer addiction as a health problem has to be taken into consideration and it is classified as mental disorder (3). Internet is everywhere, at home, school, work and so on, and with the advent of the Internet and expanding its scope to all parts of the world, its technology formerly used only in the research centres until 1991, has found new and diverse applications (4). The growing demand for internet technology has become associated with mental health problems and unhealthy social relationships in many people (5, 6). Problematic excessive use of this technology and internet addiction have attracted increasing attention in the psychologists and other researchers (7).

Some researchers noted that excessive use of the Internet (overuse of the Internet for no specific purpose or pathological internet use or the overuse of certain online applications, and generalized pathological internet use) has negative impact on mental health, while students who pathologically and excessively use the Internet showed more mental problems compared with students who did not have such experience (8–11). In fact, levels of experience on the Internet is associated with the deterioration of mental health, and internet addiction affects a wide range of people directly and indirectly (12–14). Internet addiction is a global phenomenon with different prevalence levels ranging from 5 to 25% in the student populations of the United States, China, Korea, the UK, Australia, Taiwan, Japan, Eastern and Western Europe (11). Also in terms of gender, some studies have shown that up to two times less women have shown internet addiction than men (9, 13, 15). Studies show that students, who suffer from internet addiction, feel lonely in terms of mental health, do not have the necessary skills in social relations, and have high vulnerability and low mental health (3, 4).

Considering contradictory reports in the field of internet addiction (8–10), as well as the fact that students entering university become familiar with the technology and computer science and get more chance to excessively use the Internet, this study was designed to determine the prevalence of internet addiction in students of Ahvaz Jundishapur University of Medical Sciences.

## MATERIALS AND METHODS

### Study Design and Population

This is a descriptive study. The study population included all students of Ahvaz Jundishapur University of Medical Sciences. According to the latest information and statistics a total number of students were 6,342 individuals, 302 students were stratified by random sampling. The study was conducted in the 2015–2016 academic year.

### Data Collection

Two questionnaires were used to collect the data, including demographic characteristics, such as age and gender, and internet addiction test. Internet addiction test questionnaire was developed by Young (16). This is the 20 questions self-assessment based on the Likert scale for measuring addiction to the Internet. Its ranking includes always (score 5), often (score 4), usually (score 3), sometimes (score 2), rarely (score 1), and never (score 0). The range of valid test scores is from 0 to 100. Higher scores show more internet addiction. The level of internet addiction scores according to four categories include scores of 0 to 19 considered as normal, 20 to 49 considered as mild, 50 to 79 considered as moderate, and 80 to 100 considered as severe. Young confirmed its content and construct validity with the reliability test using Cronbach's alpha (0.91) that was calculated for the total sample (16).

### Functional Health Status Assessments

Self-reported functional health status was described quantitatively using the Duke Health Profile (DUKE), which is a 17-item generic questionnaire instrument appropriate for both patient and non-patient adult populations, designed to measure during a 1-week time window (17). It comprises 11 scales with maximum score for each scale being 100 and minimum being 0; six scales, including physical health, mental health, social health, general health, perceived health, and self-esteem measure health function of which higher scores indicate better health. The remaining five scales, including anxiety, depression, anxiety-depression, and pain and disability, measure dysfunction with higher scores showing greater dysfunction. Both internal consistency (Cronbach's alpha) and temporal stability (test-retest) testing have supported reliability of the DUKE.

### Statistical Analysis

For data analysis, descriptive statistics include percentage, mean, standard deviation, drafting tables and figures, and inferential statistics such as analysis of variance was used. Data was analyzed by the statistical package for social science, SPSS version 19.0 (SPSS Inc., Chicago, Ill., USA). Means, standard deviations, percentages, and the Student t-test and Chi-square test were performed to find relationships between variables. The $p<0.05$ was considered significant. The Kruskal-Wallis test was applied to compare Duke Health Profile values at different internet addiction.

## RESULTS

The age range is 18–26 years (mean age = 19.2 years. SD = 1.4). Most of the respondents are within the age range of 18–20 years. Gender distribution showed that a vast majority (74.2%) were females. Also, the majority of student (64.3%) were in senior medical school (Table 1).

The prevalence of internet addiction in various categories was 1.6% normal, 47.4% mild, 38.1% moderate and 12.9% severe (Table 2).

The results showed that internet addiction is common among university students ($t=23.286$, $p<0.001$). Our analysis also showed a significantly higher proportion of senior students with severe internet addiction (16.4%) compared to junior students ($\chi^2=30.964$; $p<0.001$) (Table 3).

The results also showed that internet addiction differs significantly between students who use the Internet 0–5 hours per week and others (Fig. 1). The findings showed that internet addiction is different in males and females and more prevalent in the male users ($t=4.351$, $p=0.001$).

Considering the Duke Health Profile, results showed that internet addicts have poor mental and physical health score (Table 4). Our analysis showed no significant correlation between social health score, perceived health score, self-esteem score, pain and disability scores with internet addiction. Addicts had high anxiety, depression, and anxiety-depression scores (Table 4).

***Table 1.*** *Demographic distribution of respondents (N = 302)*

| Variables | Frequency | Percentage |
|---|---|---|
| Age (years) | | |
| 18–20 | 265 | 87.8 |
| More than 20 | 37 | 12.2 |
| Gender | | |
| Male | 78 | 25.8 |
| Female | 224 | 74.2 |
| Year of medical studies | | |
| Junior | 108 | 35.7 |
| Senior | 194 | 64.3 |

***Table 2.*** *Overall frequency distribution and prevalence of internet addiction among students (N = 302)*

| Internet addiction categories | Scores | n (%) | Overall n (%) |
|---|---|---|---|
| Normal | 0–19 | 5 (1.6) | 5 (1.6) |
| Mild | 20–49 | 143 (47.4) | 297 (98.4) |
| Moderate | 50–79 | 115 (38.1) | |
| Severe | 80–100 | 39 (12.9) | |

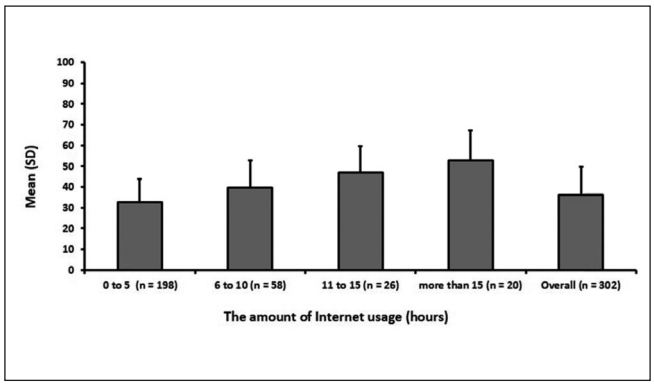


***Fig. 1.*** *Distribution of internet addiction in students based on the Internet use.*

## DISCUSSION

This study that aimed to assess the prevalence of internet addiction along with psychopathological factors in medical students showed that 76.5%, 21.2%, and 0.7% of university students suffer from mild, moderate, and severe internet addiction, respectively. The results of this study were in line with the results of other researchers that noted a considerable deterioration in mental health of students following excessive and pathological use of the Internet (6, 8, 10, 11, 18–20). They found that students who use the Internet pathologically when compared with students who did not have such experience show more mental problems.

Besides, the results of the present study showed that internet addiction follows different pattern in male and female students. Many other researchers also confirmed the gender differences in this context (7–12, 20). Other studies have shown that the prevalence of internet addiction in women was lower than in men (13, 21, 22). It seems that internet addiction is more marked in male students compared to female students; however, the present study like other studies conducted around the world shows that students suffering from internet addiction have poorer mental health and social relationships. They feel fear, anxiety, depression, violence, loneliness, lack of identity, social anxiety, and other symptoms, and their social skills and coping are lower. Such people prefer

***Table 3.*** *Internet addiction among various age groups, gender and year of medical studies (N = 297)*

| Variables | Internet addiction categories | | |
|---|---|---|---|
| | Mild n (%) | Moderate n (%) | Severe n (%) |
| Age (years) | | | |
| 18–20 (n = 260) | 128 (49.2) | 101 (38.8) | 31 (11.9) |
| More than 20 (n = 37) | 15 (40.5) | 14 (37.9) | 8 (21.6) |
| Gender | | | |
| Male (n = 78) | 35 (44.9) | 29 (37.2) | 14 (17.9) |
| Female (n = 219) | 108 (49.3) | 86 (39.3) | 25 (11.4) |
| Year of medical studies | | | |
| Junior (n = 108) | 54 (50.0) | 46 (42.6) | 8 (7.4) |
| Senior (n = 189) | 89 (47.1) | 69 (36.5) | 31 (16.4) |
| Total (n = 297) | 143 (48.2) | 115 (38.7) | 39 (13.1) |

***Table 4.*** *Internet use and psychopathology using Duke Health Profile (N = 297)*

| Duke Health Profile | Mild* (n = 143) | Moderate* (n = 115) | Severe* (n = 39) | Kruskal-Wallis test | |
|---|---|---|---|---|---|
| | | | | Chi-square | p-value |
| Physical health score | 60 | 90 | 40 | 42.285 | < 0.001 |
| Mental health score | 70 | 70 | 60 | 22.874 | <0.001 |
| Social health score | 80 | 80 | 50 | 5.623 | 0.145 |
| General health score | 20 | 25 | 16 | 38.251 | < 0.001 |
| Perceived health score | 40 | 40 | 40 | 3.987 | 0.079 |
| Self-esteem score | 80 | 80 | 70 | 4.251 | 0.120 |
| Anxiety score | 65 | 75 | 50 | 31.457 | < 0.001 |
| Depression score | 60 | 70 | 40 | 38.541 | < 0.001 |
| Anxiety-depression score | 70 | 65 | 55 | 30.675 | < 0.001 |
| Pain score | 45 | 45 | 50 | 2.853 | 0.998 |
| Disability score | 90 | 90 | 90 | 1.635 | 0.972 |

*Median scores

computer and internet to social communication, consequently, they have fewer social relations with their friends, peers, family, spouses, and other people. Moreover, the results of the present study showed that the students that were more involved with the Internet were at a greater risk of addiction. In agreement with this finding, the other studies showed that increased work experience with the Internet is associated with poorer mental health and higher internet addiction (7, 9).

## CONCLUSION

In today's world, internet technology is regarded as an effective tool, as long as it is used after an appropriate training to its full potential, but not to the extent that disrupts physical and mental health of individuals. Internet addiction as a new form of addiction in recent years has attracted researchers in the field of psychology, psychiatry, sociology, and fields of other sciences, it exists in various societies and cultures, and had an impact on all users of different gender and age. Based on the findings of this study it can be concluded that in the university students exists a considerable internet addiction, and to prevent health and social risks, health considerations and proper treatment seem to be necessary. In spite of the accounted unpleasant consequences of internet addiction, it is important to include media and internet literacy in general education at early ages such as children aged about 10 years and older. Comprehensive treatment may not be available or may be stigmatising. More useful and less expensive help would be free distribution of simple self-help tools. They might be sufficient especially in mild and moderate forms of addiction which clearly prevail. The number of severe cases of internet addiction was almost negligible in this population.

**Conflict of Interests**

None declared

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