Introduction

Social interactions resulting from access to the World Wide Web have expanded significantly with the advent of globalization. The internet is omnipresent: at home, at school, at university, and in fact everywhere, and the number of internet users is surprisingly increasing. The number of internet users was 665 million worldwide up to the December 2002 though the statistics varies slightly in Iran. During 2000-2006, the number of internet users increased by more than 3100% in Iran, touching about 11 million people (1).

With a population of 76932300 in 2010, and 43.2% penetration coefficient, Iran accounts for the highest Internet penetration (52.5%) in the Middle East (2).

Before its publicity, internet was mostly regarded as a means of secret correspondence to achieve relationships, but in a short period of time, it developed widely and became an essential tool in human life (3). Following
this development, and with the internet globalization in the early 1990s, the psychologists focused on the issue of excessive and pathological use of this technology (4).

The concept of internet addiction was put into consideration since 1995 (5). A psychiatrist at Columbia University, Ivan Goldberg, first coined the term internet addiction and recorded its diagnostic criteria. With this action, attention turned to a non-adaptive behavior, a behavior that is called “dependence” according to psychological literature and “addiction” in legal literature (6).

Addiction refers to a situation where people become physically and psychologically dependent on a particular substance, especially drugs. Many researchers also use the concept of addiction to justify certain types of suspicious behavior, because the findings and symptoms of addiction are also seen in this case. Non-substance types of addiction are classified as behavior-oriented addictions, to which internet addiction belongs as an example.

According to Young, internet addicts have certain symptoms, for example, experiencing consequences that are exactly the same as those of alcoholism, betting, gambling, shopping, and other obsessive-compulsive behaviors. In this addiction, the individual becomes addicted not to the substance but to what he does on the computer, or to the feeling he gets when working with it (1, 7).

Based on the American Psychiatric Association, internet addiction is defined as a pattern of internet use that disrupts the performance and is associated with unpleasant internal conditions over a two-month period, and proposes seven criteria to identify it, and that having at least three criteria over the course of two months is considered a symptom of internet addiction:

1. Tolerance
2. Quitting symptoms
3. Using internet lasts longer than the person initially intended
4. Having continuous desire to control behavior
5. Spending significant time on internet-related issues
6. Reducing social, occupational, and recreational activities for using internet
7. Continuing its use despite being aware of its negative effects (6).

Numerous studies have shown that 5%-10% of the world's online population were addicted during their study. In terms of age, young people account for the highest number of internet addiction (1, 7). Students are not exempt from this rule, because internet is an important resource for students to access scientific literature at universities of medical sciences, and students use it in the best way to meet their professional and personal goals.

Based on the studies conducted, internet addiction in students ranges from 9.5% to over 30% (1, 3, 8, 9).

Internet addiction is referred to as the leading addiction to all behavioral addictions because of its increasing growth and adverse effects (10).

It can be said the term “pathological internet use” is more appropriate than other terms. He believes that using the internet is not an addictive behavior by itself, but there are a set of cognitive and behavioral factors in the internet use that negatively affect a person’s life (6).

Despite the advantages of the internet for human life nowadays, as a double-edged sword, this new communication technology can cause problems such as internet addiction, especially for the young adults and students (10). Excessive and addictive use of the internet can be associated with reduced mental health and disability (1, 11, 12).

Thus, identifying its dimensions can help university planners to create the possibility of effective intervention, ultimately leading to the health and development of society, and obviously, if the subject of such identification is newly arrived students, becoming important in terms of possibility and opportunity of intervention. Therefore, the present study aimed at determining the extent of internet addiction and the correlations in newly arrived students of Hormozgan University of Medical Sciences.

Materials and Methods
This descriptive-analytical cross-sectional study was conducted in the academic year 2012-2013 on newly arrived students entering Hormozgan University of Medical Sciences. Based on the statistics reported by the Director General for Education at the university, totally 735 students enrolled to the university for this academic year.

The sample size in this study based on the Cochran formula was 253 students, taking into account the maximum possible value (p = 0.5 and q = 0.5). The students were selected through convenience sampling.

The data collection tool was a two-part questionnaire containing students’ demographic characteristics, as well as questions for internet addiction measurement.

The Kimberly Young’s internet addiction test (IAT), developed in 1998, was used to measure internet addiction. This questionnaire consisted 20 items, with a 5-point Likert scale. This test was designed based on the criteria of internet gambling and alcohol dependence. The scores obtained for a person could place them in one of the three categories: a normal internet user, a user who suffers problems through overusing internet, and an addicted user who has become dependent and needs treatment.

Several studies have verified the validity and reliability of this questionnaire. Vidianto and McMurran, (as cited in Alavi 2009) for example, mentioned a strong face validity for this questionnaire. Moreover, they obtained the effect on performance by analyzing the six factors of prominence, excessive use, neglecting job duties, lack of control, social problems and effect on performance, all of which indicate its validity. In their study based
on the Persian version of the questionnaire, Alavi et al obtained three types of reliability (retest $r = 0.79$, internal consistency $\alpha = 0.88$ and bisection $r = 0.82$, and validity 0.5) (1, 13).

In this study, a score below or equal to 49 was considered non-pathological internet addiction and a score above 49 was considered internet addiction. For data collection, after explaining the research purpose and its benefits for the units under study, the researchers obtained the verbal consent from the respondents as part of the study. The research units were assured that the respondents' personal information and the contents of the questionnaires would be kept confidential. After removing the distorted questionnaires, 300 questionnaires were finally analyzed. Descriptive statistical methods including frequency, percentage, mean, and standard deviation were used to analyze the data. Analytical statistical methods including chi-square, Mann-Whitney U test, Kruskal-Wallis, and Spearman's correlation coefficient were also used.

The analyses were performed using SPSS statistical software version 16.0. The significance level of 0.05 was considered for all the above tests.

**Results**

After excluding the incomplete or distorted questionnaires, 204 completed questionnaires were analyzed.

Among the respondents to the sex option, the girls accounted for 62.1% (118) of respondents and the rest (72 students) were boys. Additionally, among the respondents to the marital status option 172 of respondents (93.%) were single and the rest (n = 13) were married. The youngest respondent was 17 and the oldest was 40. The mean and standard deviation of age was 19.75 ± 2.909. The academic field of the most newly arrived students was medicine (n=63, 28.4%) and the least number of students (n=8, 4%) were accepted in the field of health.

The occupation of fathers of most respondents (n = 112, 53.8%) was employee and that of mothers (n = 180, 84.9%) was homemaker. In terms of parental education, the highest frequency was related to high school education and lower [70 fathers (36.5%), and 86 mothers (50.3%)] (Table 1).

The lowest score obtained for internet addiction was 20 and the highest was 56. The mean score of the participants in this study was 26.53 ± 6.9, which seems to be a low score.

Based on the results of this study, 196 (96%) respondents were with non-pathological internet addiction and 8 respondents (4%) had pathological internet addiction.

Using the Fisherexact test, the relationship between sex and the level of internet addiction was examined in this study, which did not indicate a significant relationship ($P = 0.055$) (Table 2). Moreover, in this study, the mean scores of internet addiction in females and males were 26.15 ± 6.68 and 27.24 ± 7.99, respectively, which was not significant based on Mann–Whitney test (test statistics $P = 0.131$).

The comparison of the median scores of students in different fields based on the Kruskal–Wallis test ($P = 0.89$) and the comparison of the level of internet addiction in students of different fields did not show any significant difference based on the chi-square test ($P = 0.131$).

Investigating the relationship between marital status and the level of internet addiction using the chi-square test did not demonstrate a significant relationship ($P = 0.0552$) (Table 3). Furthermore, in this study, in order to compare the scores of internet addiction between single and married groups, the mean scores of the two groups were examined using Mann-Whitney test; no statistically significant difference was obtained in this regard ($P = 0.668$).

The comparison of median level of internet addiction between students whose parents (fathers and mothers) were employee and those having self-employed parents was also examined using the Mann-Whitney test, and found that there was no significant difference between two groups in this

| Variable | Frequency | Valid Percentage |
|----------|-----------|------------------|
| Sex | | |
| Female | 118 | 62.1 |
| Male | 72 | 37.9 |
| Marital status | | |
| Single | 172 | 93 |
| Married | 13 | 7 |
| Nursing | 34 | 15.3 |
| Radiology | 10 | 4.5 |
| Radiology | 9 | 4.1 |
| Laboratory sciences | 20 | 9.0 |
| Midwifery | 17 | 7.7 |
| Major | | |
| Anesthesia | 18 | 8.1 |
| Dentistry | 13 | 5.9 |
| Medicine | 63 | 28.4 |
| Surgery room | 18 | 8.1 |
| Health information technology | 11 | 5.0 |
| Hygiene | 8 | 4 |
| High school and lower | 70 | 36.5 |
| Diploma | 66 | 34.4 |
| Associate | 17 | 8.9 |
| Bachelor | 27 | 14.1 |
| Master | 9 | 4.7 |
| Doctorate | 3 | 1.6 |
| High school and lower | 86 | 50.3 |
| Diploma | 56 | 32.7 |
| Associate | 6 | 3.5 |
| Bachelor | 18 | 10.5 |
| Master | 3 | 1.8 |
| Doctorate | 2 | 1.2 |
| Father's occupation | | |
| Self-employed | 96 | 46.2 |
| Employee | 112 | 53.8 |
| Mother's occupation | | |
| Homemaker | 180 | 84.9 |
| Employee | 32 | 15.1 |
Table 2. Relationship Between Sex and the Level of Internet Addiction

| Level of Internet Addiction | Non-pathological | Pathological | Total | Pearson"s correlation, Chi-square | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
|-----------------------------|------------------|--------------|-------|-------------------------------|----|----------------------|---------------------|
| Sex                         | Female           | 116          | 2     | 118                           | 4.886 | 1                    | 0.027               |
|                             | Male             | 66           | 6     | 72                            | 3.378 | 1                    | 0.066               |
|                             | Total            | 182          | 8     | 190                           | 4.759 | 1                    | 0.029               |

Table 3. Relationship Between Sex and the Level of Internet Addiction

| Level of Internet Addiction | Non-pathological | Pathological | Total | Pearson"s correlation, Chi-square | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) |
|-----------------------------|------------------|--------------|-------|-------------------------------|----|----------------------|---------------------|
| Marital status              | Single           | 164          | 8     | 172                           | 0.632 | 1                    | 0.427               |
|                             | Married          | 13           | 0     | 13                            | 1.193 | 1                    | 0.275               |
|                             | Total            | 177          | 8     | 185                           | Fisher"s exact test | 1.000               |

The sampling method of the study as well as the study population referring to the internet cafe were another reasons for this difference. Obviously, these students showed a higher rate of internet addiction than normal students.

The findings of a study by Khajeh Mougahi and Alas showed a rate of 86% for internet addiction (9). Regarding this significant difference, the difference in scoring criteria and the point of intersection of internet addiction level is important. In this study, the score 0 - 20 indicates a lack of internet addiction, 21 - 49 a mild addiction, 50 - 79 a pathological addiction, and 80 - 100 a severe addiction, based on which 56% had a mild addiction, 28% had a pathological addiction, and 2% had a severe addiction.
Informed consent was verbally obtained from all the participants.

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Authors’ Contribution

PR and NK conceived of the presented idea. PR developed the theory. MM and FM collected the data and verified the analytical methods. PR supervised the findings of this work. All authors contributed to this research.

Conclusion

The results of this study did not show any unusual or high rate of internet addiction in newly arrived students. However, considering the general results of studies in this field, the phenomenon of internet addiction should be considered as an issue that affects a significant number of young people.

Conflict of Interest Disclosure

Not applicable.

Ethical Statement

The Ethics Committee of Hormozgan University of Medical Sciences approved the study (Ethical code: HUMS.REC.1394.196).

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References

1. Alavi SS. Psychometric properties of Young internet addiction test in university students. Journal of Knowledge and Research in Applied Psychology. 2009;11(4):38-50.
2. Fayaz-Bakhshe A, Khajeh-Kazemi R, Soleymaninejad M, Rahimi F, Jahanmiri L, Heydari S, et al. The internet using and health: students’ knowledge, attitude and lifestyle related to the internet. Hakim Research Journal. 2011;14(2):96-105. [Persian].
3. Dargahi H, Razavi SM. Internet addiction and its related factors: a study of an Iranian population. Payesh. 2007;6(3):265-72. [Persian].
4. Ghassemzadeh L, Shahrray M, Moradi A. Prevalence of internet addiction in girls and a comparison of addicted and non-addicted girls in loneliness’, self-esteem and social skills. Contemporary Psychology, Biannual Journal of the Iranian Psychological Association. 2007;2(1):32-40. [Persian].
5. Vizeshfar F. Assessment of the internet addiction between Larian net users. Journal of Fundamentals of Mental Health. 2005;7(25-26):27-33. [Persian].
6. Shayegh S, Azad H, Bahrami H. On the relationship between internet addiction and personality traits in adolescents in Tehran. Journal of Fundamentals of Mental Health. 2009;11(42):149-58. [Persian].
7. Mohammadbeigi A, Mohammadzadeh J. Prevalence of internet addiction and related risk factors in students. Journal of Guilan University of Medical Sciences. 2011;20(78):41-8. [Persian].
8. Bahri N, SadeghMoghadam L, Khodadost L, Mohammadzadeh J, Banafsheh E. Internet addiction status and its relation with students’ general health at Gonabad Medical University. Modern Care Journal. 2011;8(3):166-73. [Persian].
9. Khajeh Mougahi N, Alasvand M. The studying of predictor personality variables of internet addiction. Jundishapur Scientific Medical Journal. 2010;9(4):339-66. [Persian].
10. Jafari N, Fatehizade M. Prediction of internet addiction, based on emotional intelligence among Isfahan University students. Knowledge & Research in Applied Psychology. 2011;12(45):79-86. [Persian].
11. Pizadeh A. The relation between general health and internet addiction in medical students, Isfahan, Iran. Zahedan Journal of Research in Medical Sciences. 2009;13(10):63-3.
12. Nastizaei N. The relationship between general health and internet addiction. Zahedan Journal of Research in Medical Sciences. 2009;11(1):57-63. [Persian].
13. Alavi SS. Psychometric properties of Young internet addiction test. International Journal of Behavioral Sciences. 2010;4(3):183-9. [Persian].
14. Vahabi A, Vahabi B, Rajabi N, Taifuri s, Ahmadian M. Evaluation of internet addiction and its related factors in the students of Kurdistan University of Medical Sciences, 2015. Journal of Medical Education Development. 2015;8(19):99-110. [Persian].
15. Khosrowjerdi M, Mirzaei SA. The study of internet addiction among the adolescents: surveying the variables of gender, level of education and size of educational organization. Rahbord. 2010;18(53):213-25. [Persian].
16. Hasanzadeh R, Salehi M, Rezaei Kiyasari A. Relationship between the use of extreme from technology (internet and sms addiction) and educational and psychological state high school students. Journal of Educational Psychology. 2010;1(3):69-81. [Persian].
17. Fayaz-M, Razavie A. Investigating the effect of internet on educational and research information seeking behavior of Shiraz University students. New Approaches in Educational Administration. 2009;3(4):38-52. [Persian].