# Knowledge, attitude, and self-efficacy regarding internet addiction among female students

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**Abstract**
Use of the internet has regarded as an advantageous breakthrough which sometimes has led to over usage so-called "internet addiction". Increased prevalence of internet addiction among students and the necessity of acquiring information to design interventions have compelled us to design the present study on knowledge, attitudes and self-efficacy of students regarding the Internet addiction. This study was two-stage cluster sampling consisted of 160 girl participants who were residing in selected dormitories of Tehran University of Medical Sciences. Data was collected through a structured questionnaire including demographic, knowledge, attitude and self-efficacy questions regarding the Internet addiction and. 49 participants (30.6 %) were at risk of the Internet addiction. Majority of the students were on the average national levels of knowledge (48.1%), attitude (49.1%), and self-efficacy (61.2%). We also found a statistically significant association between mean score of attitude with educational degree (p<0.003), and between the average daily hours of the Internet use with user type (p<0.001). Given the importance of knowledge, attitude and self-efficacy on the adaptation of healthy behaviors, the findings of this study revealed that extra educational interventions aiming to increase knowledge, improve attitudes and self-efficacy regarding internet use has a paramount importance.

**Keywords:** Addictive Behavior, Attitude, Knowledge, Students

## Introduction

The internet has already become the most common media in the world with unique characteristics including introduction to the global village, ease of access, and confidentiality [1,2]. There is also a great contribution of it in nowadays-academic breakthroughs through easy and swift access to the information [1]. Access to the Internet has scaled up 44.5% during 2000-2010 worldwide and Iran has also witnessed the incremental number of users to 36 million, which constitutes 46% of the total national population [3]. Integrating internet in every aspects of daily life has made online learning and utilization inevitable which is quite a benefit. However, excessive usage of it has been called a "disorder" or "misbehavior" by Fallah Mahneh -an expert in the field of internet addiction- or "virtual addiction" by others [4,5].

The internet addiction dates back to 1993

where some psychologists noticed a series of newspaper reports on psychological, social, and occupational disorders in internet users [6]. The first cross-sectional study on the concept of "internet addiction" done by Kehberly young in 1994 showed that the word "addiction" indeed can be used for people who misused the Internet [7]. Among the users of internet, university students constitute a large proportion due to their academic and vocational needs [8].

Concomitant to increased use of the Internet worldwide [9,10], the prevalence of internet addiction has also scaled up from 3 to 22% [1]. Health consequences of the Internet addiction in college students has been investigated sporadically such as one study on students of Tehran University of Medical Sciences (TUMS) reporting a negative association between the Internet addiction and health-promoting life style behaviors [1].

Other consequences of internet addiction reported by literature include lower score on emotional growth, irresponsibility, lack of social interactions, lack of stress management, physical inactivity, nutritional deficits, general ill-health especially in anxiety and depression aspects [3,5], and academic regressions [11,12]. Accordingly, provision of health education programs to enhance the knowledge, and attitude regarding safe usage of internet is imperative [13]. Ong et al., in their study entitled "internet addiction in young people," showed that, public knowledge of internet addiction is pertinent factor in prevention efforts [14]. Maheri et al., in their study, showed that, increasing the knowledge and attitude of college students about the addictive nature of the internet and side effects of internet addiction are necessary for the prevention of internet addiction [15]. Based on the findings of various studies, improving people's attitude is one of the predictors in healthy behaviors adaptation [16,17]. Self-efficacy can also be regarded as an effective factor in healthy behaviors adaptation, which its improvement is a milestone in more efficient healthy behaviors [18,19]. In a study concluded by Craparo et al., entitled "identify the relationship between

self-efficacy and internet addiction," study results showed that, there was a negative correlative relationship between self-efficacy and internet addiction [20]. Efficient health promotion programs compel rightful implementation planning and rectification of further programs. To do so, investigation on prior knowledge and attitudes of individuals is a prerequisite to find the strengths and limitations of any specific educational program [21,22]. Therefore, according to high prevalence of internet addiction among college students, and given the correlation between internet addiction and knowledge, attitude, and self-efficacy, the present study aimed to assess the knowledge, attitude, and self-efficacy of college students regarding internet addiction, to form a scientific basis for design, implement and evaluate the variety of interventions, including health education and promotion interventions, in order to prevent and reduce the prevalence of internet addiction among college students.

## Method
The present study was a cross-sectional study on 160 girl students who were residing in dormitories of Tehran University of Medical Sciences (TUMS) in 2014. Study population was girl students who were residing in dormitories of TUMS. In this study, two-stage cluster sampling method was used. All dormitories of female students of Tehran University of Medical Sciences were selected and each dormitory was identified as a cluster. After that, four dormitories were randomly selected and the required samples were selected randomly within in each cluster. Inclusion criteria were willingness to participate, girl student, and living in university dormitories affiliated to TUMS; while those who were not willing to participate or had any other misshapes during study were excluded. Data collection was done by using a structured questionnaire with four sections including demographics (9 questions), knowledge (7 questions, scores of 0-14), attitude (20 questions, scores of 20-

100), and self-efficacy (6 questions, scores of 6-30). Options for questions of attitude and self-efficacy sections were on Likert scale (highly agree/ agree/ no comment/ disagree/ highly disagree). the questionnaire was given to eight health education professionals to determine the validity of qualitative content.. Cronbach`s alpha was used to measure the constructs reliability which yielded 0.83 on a pilot study (n=10 students). Test-retest analysis was also used to measure the method of indirect construct reliability within two weeks lag time, and yielded Pearson correlation of 0.75 (Prob.=0.012) for the whole questionnaire. Informed consent was sought for study's participants and dormitories' managers prior to data collection. Collected data were analyzed

by using SPSS-16 and level of 0.05 was considered as statistically significant.

## Results

Mean age of students was 21.81 (+2.93; range 18-28), and 11.9% of them were married. About half of the participants (47.5%) were in bachelor degrees, while 17% were in master, and 36% were in doctorate degrees. Most of the students (42%) were online for 1-2 hours per day, while minorities of them (12%) were online for more than 5 hours per day. By defining a criterion for internet addiction as being online for three or more hours per day, we identified 49 students (30.6%) with internet addiction in our study [23,24]. Table 1 demonstrates demographic characteristics of the participants.

**Table 1** *Demographic description of the study's participants*

| Variable | Items | Number | Percent |
|---|---|---|---|
| Marital status | Single | 141 | 88.1 |
| | Married | 19 | 11.9 |
| Vocational status | Employed | 24 | 15 |
| | Unemployed | 136 | 85 |
| Educational degree | Bachelor | 76 | 47.5 |
| | Master | 27 | 16.8 |
| | PhD | 57 | 35.7 |
| Internet use (Hours per day) | ≤1 | 44 | 27.5 |
| | 1-2 | 67 | 41.9 |
| | 3-5 | 30 | 18.8 |
| | ≥ 5 | 19 | 11.8 |

Mean scores for knowledge, attitudes, and self-efficacy domains were 9.60±2.87, 66.96±14.81, 19.85±6.76 respectively. The mean time for the Internet use was 2.3±1.58 hours per day. Half of the participants had average levels of knowledge and attitude about individual characteristics of being at risk and consequences of the Internet addiction. We further summed up the three scores of knowledge, attitude, and self-efficacy and categorized the result into

three-level outcome variable with following cut points: those participants who gained less that 33.3 score in all study domains assigned "weak", those with scores between 33.4-66.6 assigned "average", and those with scores of above 66.7-100 assigned "good" [25,26]. Accordingly, most of the participants (61.2%) gained average score on self-efficacy behaviors preventing the Internet addiction (Table 2).

**Table 2** *Distribution of knowledge, attitude, and self-efficacy of students of TUMS towards the Internet addiction*

| Variable | Low | | Moderate | | High | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Knowledge | 40 | 25 | 77 | 48.1 | 43 | 26.9 |
| Attitude | 5 | 3.6 | 79 | 49.1 | 76 | 47.3 |
| Self-efficacy | 31 | 19.4 | 89 | 61.2 | 31 | 19.4 |

Based on the study results, there was no statistically significant relationship between mean scores of knowledge and self-efficacy with user type, marital status,

vocational status, and educational degree. The only statistically significant relationship were between mean score of attitude with educational degree (p<0.003) (such that scores of attitude was higher in bachelor degree students compared to higher degrees), and between the average daily hours of Internet use with user type (p<0.001) (Table 3).

**Table 3** *Mean scores of knowledge attitude, and self-efficacy regarding the Internet addiction according to selected demographic variables*

| Item / Response | User type | | | Marital status | | | Vocational status | | | Educational degree | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Regular | At risk | sig.* | Single | Married | sig.* | Employed | Unemployed | sig.* | Bachelor | Master | Doctorate | sig.** |
| Knowledge | 9.66 ± 2.90 | 9.46 ± 2.82 | 0.69 | 9.68 ± 2.96 | 9.05 ± 2.04 | 0.37 | 10.25 ± 2.23 | 9.49 ± 2.96 | 0.23 | 9.67 ± 2.90 | 9.03 ± 2.66 | 9.78 ± 2.93 | 0.51 |
| Attitude | 66.49 ± 13.80 | 68.02 ± 16.97 | 0.55 | 67.68 ± 14.78 | 61.57 ± 14.29 | 0.92 | 68.75 ± 13.43 | 66.64 ± 15.06 | 0.52 | 71.01 ± 14.95 | 61.92 ± 13.13 | 63.94 ± 14.13 | 0.003 |
| Self-efficacy | 20.18 ± 6.11 | 19.08 ± 8.05 | 0.34 | 19.95 ± 7.04 | 19.05 ± 4.15 | 0.58 | 19.66 ± 3.39 | 19.88 ± 7.20 | 0.88 | 20.88 ± 8.56 | 19.59 ± 3.84 | 18.59 ± 4.65 | 0.15 |
| Daily use (hours) | 1.72 ± 1.6 | 3.38 ± 0.49 | 0.001 | 2.31 ± 1.66 | 1.68 ± 0.67 | 0.1 | 2.04 ± 0.85 | 2.27 ± 1.68 | 0.41 | 2.10 ± 1.02 | 2.07 ± 0.82 | 2.49 ± 2.30 | 0.32 |

*Independent-Samples t-test;

**One-Way ANOVA

## Discussion

Increased media utilization especially the Internet is one of the most important characteristics of the modern societies. Undoubted benefits of internet shall not mislead us from the increasing trend of internet addicts. Young believes that due to the similarity of symptoms, the word "addict" can be used not only for alcohol and cigarette indulgers but also for the Internet indulgers [27]. Therefore considering of the addiction mechanism is the first step in prevention process. Describing the patterns of internet utilization and knowledge and attitudes of students regarding this issue makes a high importance due to the high prevalence of internet addiction in universities" students [9,10]. This description could help us to develop and implement proper interventional and educational programs.

Therefore, we designed this study to assess the insight, attitude, and self-efficacy of girl students who were living in TUMS dormitories. We defined the Internet addiction as being online for 3 hours or more per day [23,24]. Accordingly, we found that 30.6% of girl students of TUMS were internet addicts that comparing to Solhi et.al who reported a prevalence of 18% in college students is a tremendous increment [24]. This finding highlights the urgent need for designation and implementation of interventional programs to prevent and control of internet addiction in students as the future work force of the country. Noteworthy, we found several literatures on the Internet addiction in students such as one that Young used; however, because of different definition of the Internet addiction we were not able to provide proper comparisons [1,3].

According to findings of our study, half of the participants had average knowledge on risk factors and consequences of the Internet addiction. Furthermore, compared to previous studies, knowledge of students in this area has increased [24] and this increasing is because of the impact of studies in this field and possibly could bring about positive changes in high risk behaviors including internet addiction [13]. So, making the provision of proper educational

packages to students emphasize on the detrimental effects of the Internet addiction especially in dormitories imperative. Our study also revealed that compared to conducted studies [24], attitudes toward the Internet addiction has been improved which could be a good sign of healthy behaviors adaptation [16]. Given that increasing the knowledge and attitude of university students about the addictive nature of the internet and side effects of internet addiction are necessary for the prevention of the Internet addiction so it is suggested that promotion of knowledge and attitude of college students about the internet addiction, integrated into health education and promotion interventions to prevent and reduce the prevalence of internet addiction among college students. Self-efficacy is another effective measure in healthy behaviors which we found to be average for almost half of the participants. Kesler et.al also reported that increased self-efficacy would increase screening-behaviors adaptation in Hindu women [18]. Therefore, designing and implementing educational programs focusing on self-efficacy would lead to prevention of internet addiction following control of anxiety and depression in students. Based on results of this study, the knowledge, attitude and self-efficacy regarding internet addiction among the participants were moderate, however this result is not very comprehensive so it is necessary to design and implement a variety of health interventions to improve this situation. We found a statistically significant difference between mean hours of the Internet use among regular users and at risk users which is consistent with Pirzad et.al study [28]. Hence, we consider mean hours of the Internet use as a good criteria for the Internet addiction and will use it in further planning steps. One of the strength of the study was to form a basis for developing necessary data to design and implement prevention programs. However, this study suffered from the cross-sectional nature of study design and self-reporting misclassifications.

## Conclusion

Based on results of this study, the level of knowledge, attitude and self-efficacy of university students in the field of the Internet addiction was moderate. Given the importance of knowledge, attitude and self-efficacy on the adaptation of healthy behaviors, the findings of this study revealed that extra educational interventions could be aimed to increase knowledge, improve attitudes and self-efficacy regarding internet use has a paramount importance. Therefore, it could be suggested that due to the lack of intervention studies based on health education models in the field of internet addiction [15], educational interventions based on health education and promotion models such as Health Belief Model, Theory of Planned Behavior, Trans-theoretical model and PRECEDE-PROCEED model are designed and implemented in the field of internet addiction among college students.

## Contribution

Study design: AM, MM.
Data collection and Analysis: SN, FD, MNB
Manuscript preparation and Edition: AM, MM, SN

## Conflict of Interest

"The authors declared that they have no competing interests".

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