

The Relationship between Depression and Internet Addiction among Paramedical Students in Larestan, Iran

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ABSTRACT

Introduction: Depression is the fourth leading cause of disease burden in both sexes and it is the first cause of disease burden among women in Iran. Depression in college students is more common than the general population and they are considered as high risk group for internet addiction.

Aim: The purpose of this study was to determine the relationship between internet addiction and depression in the students in Iran.

Materials and Methods: A descriptive-correlative study was carried out in two medical sciences faculties in Fars Province, Iran. The participants were selected through convenient sampling among the students, interested in participation. Total 150 questionnaires were distributed out of which 119 questionnaires were returned and used in data analyses. Questionnaires included Beck Depression Inventory (BDI-II) and Internet Addiction Scale (IAS). The relationships between variables (among Depression, Internet dependence and duration of using the internet) were examined by using t-test and Pearson's correlation coefficient and analysed by SPSS 20 version.

Results: There was a significant correlation between internet addiction and depression ($p < 0.001$; $r = 0.222$). A total of 21% of subjects had trivial, 18.5% mediocre and 17.6% had severe depression. A total of 9.6% of samples had mild internet addiction. There was a significant correlation between average number of hours of Internet usage and BDI-II and IAS scores of students. Independent sample t-test revealed that there were no significant differences in BDI-II and IAS scores in both sexes and also marriage status of samples.

Conclusion: According to the results of this study, it can be stated that internet addiction can be considered as a predictor of depression in medical students who are now a days increasingly dealing with internet. Therefore, planning and attention of the authorities is essential for developing methods to prevent the harm of these students who play a major role in the health care of a community; such as Positive Psychology Interventions (PIs) which denotes individual/group-based treatment methods that lead to positive emotions and can augment social relationships of individual.

Keywords: Excessive internet use, Internet dependence, Mental disorder

INTRODUCTION

Depression is the fourth top cause of burden of disease in Iran [1]. It is a prevalent health condition that afflicts 15% of adult population, once in their lifetime [2]. Depression rate among students, according to different studies, is in 10-85% range (mean=30.6%) [3]. A study by Poorkiani M et al., in Larestan University of Medical Sciences, Iran showed that 49.7% of students were prone health problems and 46.5% of them were suspected depression cases [4]. The society incurs higher costs due to depression in the youth comparing with depression in other age groups as the former group is supposed to be future of the society [5]. Depression leads to lower performance in college [6], attempting suicide, unstable interpersonal relationships [7], and lower productivity at work [8]. Factors like life in dormitory, experiencing unpleasant life events, having fewer friends and less social activity, and the effects of other students all increase risk of depression [9]; while religion is a protective variable against depression [10].

For many, the internet is a key element in their lives. They use the internet to do shopping, seek information, and share their ideas with others. Studies on the internet dependence were started by Kimberly Young's (1998) in the USA and soon the topic became part of the mainstream of research works all around the world. This trend of studies spread in to education field and attempts to examine the effect of internet dependence on educational performance of students were made [11]. Internet addiction disorder is a multidisciplinary phenomenon and challenges different fields of science such as medicine, computer, sociology, laws, ethics, and

psychology and each one of these disciplines approaches the problem from different aspect [12]. Internet addiction is a mental dependence on the internet that is characterised with spending time and money on internet-related activities in an excessive manner; unpleasant feeling when not connected to the internet (e.g., anger); high tolerance to the effects of internet connection; and denying the problematic behaviour [13].

To carry out class assignment, communicate with friends, and spend leisure time, the youth need to learn and use the internet. The problem appears when internet addiction causes negative effects on educational performance, social relationships, and emotions on the youth [14]. Juveniles who develop internet dependence tend to show more aggressive behaviour [15]; and internet dependence results in negative physical, psychological, and social outcomes [16]. Students are highly vulnerability to Internet dependence, which expresses itself in the form of withdrawal from social activity, loneliness, and depression. Excessive use of the Internet negatively affects educational performance in college and it has to do with drug abuse as well [17]. Some factors increase the risk of Internet addiction such as psychological and growth factors at the late adolescence, easy access to the internet, and expectations about using computers and the internet [14].

Improper use of the internet and surfing the net for the sake curiosity not only distract students from the main usage of the internet for academic purposes, but also may negatively affect students' educational performance. Gradually, a student starts spending a large portion of his leisure time on the internet [18].

Akin A et al., argued that, although, the relationship between internet addiction and social, educational, and physical variables has been thoroughly surveyed, the strong relationship between internet addiction and emotional variables (e.g., anger, depression, and stress) has been barely examined [19]. Researches in Iran have focused on the relationship between depression and internet addiction [20,21]; however, there has been no study specifically on depression and internet addiction. The purpose of this study was to determine the correlation between internet addiction and depression among the students.

MATERIALS AND METHODS

A descriptive-correlative study was carried out in two medical colleges from October 2014 to April 2015 in Fars Province, Iran. The participants were selected through convenient sampling among the students interested in participation. Total 150 questionnaires were distributed out of which 119 questionnaires were returned. All students, using internet and consenting to participate were including the study. This research has an ethical code number (IR.GERUMS.REC.1393.1008).

Data Gathering Tools

- Internet Addiction Scale (IAS) (Young 1998): The scale was developed by Dr. Kimberly Young in 1998 with 20-item scales. This scale measures the severity of self-reported compulsive use of the internet for adults and adolescents. Results from the IAS should be interpreted with caution among clinical populations that suffer from psychiatric conditions concurrent with compulsive syndromes. The IAS was created to measure symptoms of internet addiction which are commonly shared with other established compulsions, such as to gambling, food, and sex; and to also assess specific symptoms unique to this client population. Different aspects of internet addiction such as the presence and severity of internet dependency among adults are measured by the scale.

Questions were randomised and each statement was objectively analysed along a Likert-scale range that arrays from 0=less extreme behaviour to 5=most extreme behaviour for each item. Maximum possible score was 100. Scores from 0 to 39 were interpreted as no dependence or normal user; scores from 40 to 69 were interpreted as probable or trivial dependence, and scores from 70 to 100 were interpreted as internet addict [22].

- Beck Depression Inventory (BDI-II) was designed to complement

the criteria as delineated in the Diagnostic and Statistical Manual for Mental Disorders-IV (DSM-IV). This questionnaire includes 21 questions with each one having four alternatives measures depression level (0-3). Its maximum possible score is 63. Based on the score, subjects are categorised in four groups of no depression (score range: <13), trivial depression (score range: 14-19), mediocre depression (score range: 20-28), and severe depression (score range: 29-63) [23].

At first, face validity of the questionnaire was examined by five faculty board members of Shiraz University of Medical Sciences. To examine reliability of the questionnaire, a pilot study and Cronbach's alpha were used; α -values for IAS and BDI-II were 0.93 and 0.91, respectively.

STATISTICAL ANALYSIS

The correlation between variables of depression, internet dependence and duration of using the internet (hours/week) were examined by SPSS 20 using t-test and Pearson's correlation coefficient. We also used Chi-square test to compare different categories of subjects in terms of internet addiction and depression.

RESULTS

The average age of the subjects was 21 years. As listed in [Table/Fig-1], the majority of subjects were female [71 (59.66%)], single [104 (88.9%)]. Also most of them were in bachelor's degree, [113 (94.95%)] and studied nursing [69 (61.6%)].

As listed in [Table/Fig-2], Pearson's correlation shows that there is a significant positive correlation between internet addition and depression ($r=0.222$, $p<0.05$). There are also significant positive correlation between using the internet and score of depression ($r=0.366$, $p<0.01$) and between duration of using the internet and level of dependence on the internet ($r=0.590$, $p<0.01$).

As listed in [Table/Fig-3], 9.6% of the subjects were at the edge so that they had trivial dependence on the internet. In addition, 89.6% of the subjects were normal internet users and there was only one subject in the addicted group.

[Table/Fig-4] lists independent t-test results about the level of depression based on gender and as listed, there is no significant difference in this regard (p -value=0.08, $t=1.76$). In addition, there is no significant difference between the two genders in terms of Internet dependence (p -value=0.537, $t=-0.619$). Results of independent t-test also shows that there is no significant difference

Demographical variables		BDI-II				Total number (%)
		Minimum depression (no depression)	Trivial depression	Mediocre depression	Severe depression	
Gender	Male	22 (45.8%)	11 (22.9%)	6 (12.5%)	9 (18.8%)	48 (40.34%)
	Female	29 (40.84%)	14 (19.71%)	16 (22.53%)	12 (16.92%)	71 (59.66%)
						119 (100%)
Educational level	Associates	5 (83.3%)	0 (0.0%)	1 (16.7%)	0 (0.0%)	6 (5.04%)
	Bachelors	46 (40.7%)	25 (22.1%)	21 (18.6%)	21 (18.6%)	113 (94.96%)
						119 (100%)
Marital status	Married	5 (41.7%)	1 (8.3%)	3 (25.0%)	3 (25.0%)	12 (10.08%)
	Unmarried	45 (43.2%)	24 (23.1%)	19 (18.3%)	16 (15.4%)	104 (87.40%)
	Divorced	0 (0%)	0 (0%)	0 (0%)	3 (100%)	3 (2.52%)
						119 (100%)
Field of study	Nursing	31 (44.93%)	17 (24.64%)	11 (15.94%)	10 (14.49%)	69 (57.98%)
	Surgery	5 (62.5%)	1 (12.5%)	2 (25.0%)	0 (0.0%)	8 (6.72%)
	Anesthesia	3 (33.33%)	1 (11.11%)	2 (22.23%)	3 (33.33%)	9 (7.56%)
	Medical emergencies	5 (55.56%)	2 (22.22%)	2 (22.22%)	0 (0%)	9 (7.56%)
	Laboratory sciences	8 (33.34%)	5 (20.83%)	5 (20.83%)	6 (25.0%)	24 (20.18%)
						119 (100%)

[Table/Fig-1]: Demographics of the participants.

Variable			Depression	Internet dependence	Duration of using the internet
Depression	Mean score (SD)	17.23 (1.2)			
	Actual range	0-60			
	Pearson's correlation (R)		1	0.222*	0.366**
Internet dependence	Mean score (SD)	16.48 (1.16)			
	Actual range	0-57			
	Pearson's correlation (R)		0.222*	1	0.590**
Duration of using the internet (hours/week)	Mean score (SD)	1.5 (1.2)			
	Actual range	0.24			
	Pearson's correlation (R)		0.366**	0.590**	1

[Table/Fig-2]: Results obtained from IAS and BDI-II.

* $(p < 0.05)$, ** $(p < 0.01)$

Variable		Frequency (%)
Internet addiction	Normal users (no dependence) (score: 0-39)	107 (89.9%)
	Marginal users (trivial dependence) (score: 40-69)	11 (9.24%)
	Dependent users (addicted) (score:70-100)	1 (0.8%)
Depression	No depression (score <13)	51 (42.9%)
	Trivial depression (score: 14-18)	25 (21.0%)
	Mediocre depression (score: 20-28)	22 (18.5%)
	Severe depression (score: 29-63)	21 (17.6%)
$X^2=10.866$	d.f=6	p-value =0.093

[Table/Fig-3]: Frequency of Internet addiction, depression and both in the subjects.

between married and unmarried participants in terms of depression score (p -value=0.127, t =1.53). Moreover, there is no significant difference between married and unmarried subjects in terms of internet addiction. (p -value=0.107, t =1.62).

DISCUSSION

The term addiction refers to psychological and physical dependence and emergence of withdrawal syndrome when the individual does not have access to the drug or item to which he/she is addicted. Clinically speaking, addiction might refer to one's attempt to control

	Men		Women		t	p-value
	Mean score	SD	Mean score	SD		
Depression	16.39	11.8	17.87	12.58	1.76	0.08
Internet dependence	21.72	14.34	16.82	15	-0.619	0.537
	Unmarried		Married		t	p-value
	Mean score	SD	Mean score	SD		
Depression	16.6	11.46	22.25	17	1.53	0.127
Internet dependence	19	15	12	7.9	1.62	0.107

[Table/Fig-4]: Independent t-test on the variables gender and marital status in terms of total depression and internet dependence scores.

depression and anxiety and an indicator of deep sense of inner insecurity or sense of emptiness [24]. In light of this, one of the objectives of the present study was to determine depression level in the students. The results showed that the prevalence of depression was 57.1%. Mean BDI-II score of the subjects was 17.23 ± 1.2 . The results of Ibrahim AK et al., study indicate that the prevalence of depression among students is 30.6% higher than other populations [3]. Poorkiani M et al., showed that 46.5% of health problems of the students was related to depression disorder [4]. The level of depression in the students was higher than that of the public (9%) [3]; this means that students are a depression vulnerable group and need special attention.

No significant difference was found between men and women in terms of internet addiction (t-test) [Table/Fig-4]. Alavi SS et al., reported that 10% of their respondents were internet addicts and

Kim K et al., studied 1537 high school students in South Korea and found that 1.6% were internet addicts and 38% were suspected for internet dependence [12,24]. Hawi NS in Lebanon reported that internet dependence rate was equal to 4.2% [11].

Consistently, Fortson BLP et al., studied students in Virginia University and showed that there was no significant difference between men and women as to mean time duration of internet use [25]. Yen JY et al., on the other hand, argued that there was a significant difference between men and women in terms of internet addiction so that it was more prevalent in the former group [26]. Alavi SS et al., in Iran showed that risk of internet addiction in men was 1.8 times higher than that of women [12]. This might be because of the difference between men and women with regard to internet access; however, our subjects were identical in this regard.

Mean score of IAS of the subjects in this study was 16.48 ± 1.16 . Kim K et al., studied high school juveniles and reported mean score of IAS of the subject equal to 37.58 [24]. Mohamad Beigi A et al., studied subjects with average age of 20.95 ± 1.41 years (students of Arak University of Medical Sciences) and reported mean score of IAS of the subjects equal to 32.74 ± 14.52 [18]. Results of the present study showed that there was a significant relationship between internet addiction and depression ($p < 0.01$, $r = 0.999$). Larose R et al., found that there was a positive correlation between duration of using the internet and depression [27]. Young KS et al., studied the relationship between depression and internet dependence and found that the relationship was significant [13].

The relationship between depression and internet dependence is a function of the purpose of using the internet. For instance, Selfhout MH et al., studied 307 adolescents in terms of using the internet for communicational and non-communicational purposes and its relationship with depression, social anxiety, and quality of friendship relationships. They reported that the subjects who used the Internet for communicational purposes experienced less depression comparing with those who used the internet for non-communicational purposes. That is, depression and social anxiety were higher in the subjects who used the internet for non-communicational purposes [28].

It is notable that the internet, in some cases, is used for decreasing depression. In short, prevalence of depression in the subjects was higher than internet dependence, which means depression could a reason for higher tendency to use the internet in the students. Using the internet leads to dependence when it is not purposeful. Although, the cross-sectional nature of the study makes it unsuitable to make a definite conclusion that using the internet leads to depression, the relationship between the two variables indicates that the two issues can be correlative. Therefore, it would be more helpful to check internet dependence in the students with depression and vice versa.

LIMITATION

The study was carried out as a descriptive correlative work and it is not possible to explain the relationship between the variables

based on cause-effect relationships. It is suggested that the impact of workshops such as Positive PIs on the appropriate use of the internet be investigated among students. Finally, future researchers are recommended to study comorbid disorders of internet addiction. Moreover, since addiction is a disorder emanating from distressed life style, treatments based on changing lifestyle can be the subject of future studies.

CONCLUSION

The study results show a significant positive correlation between internet addiction and depression among medical students. Positive psychology interventions can help the achievement of these goals in the treatment of internet addiction. The assignment of positive psychology is to increase human abilities so that they live a happy and well life. As such, the features of enhanced social adjustment have been taken into account with an emphasis on improving health and compatibility.

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