

Impact of Addiction to Internet on a Number of Psychiatric Symptoms in Students of Isfahan Universities, Iran, 2010

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ABSTRACT

Background: This study aimed to investigate the impact of internet addiction on some psychiatric symptoms among university students.

Methods: This cross-sectional study was conducted among 250 students selected via quota sampling from universities in Isfahan, Iran. Participants completed demographic questionnaire, Young Diagnostic Questionnaire, Internet Addiction Test and Symptom Checklist-90-Revision (SCL-90-R). Finally, the means of psychiatric symptoms of internet addicted and non-addicted subjects were compared. Also, *t*-test and multivariate analysis of covariance were used through SPSS₁₆ software for data analysis.

Results: The mean±standard deviation (SD) of psychiatric symptoms such as somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, aggression (hostility), phobic anxiety, paranoid ideation and psychoticism in the addicted group were 11.27 ± 6.66, 14.05 ± 7.91, 10.5 ± 6.20, 15.61 ± 8.88, 10.77 ± 5.52, 6.77 ± 4.88, 6.05 ± 4.47, 7.61 ± 4.28, and 9.66 ± 6.87, respectively, and in the non-addicted group were 6.99 ± 6.42, 7.49 ± 5.23, 5.46 ± 4.95, 9.27 ± 7.92, 6.35 ± 6.69, 3.57 ± 3.35, 2.41 ± 2.79, 5.47 ± 4.1, and 5.29 ± 4.95, respectively. There were significant differences between the means of psychiatric symptoms in all SCL-90-R subscales and Global Severity Index, Positive Symptom Distress Index, Positive Symptom Total in the addicted and non-addicted individuals (*P*<0.05). Also, internet addiction (with controlling sex variable) seemed to affect psychiatric symptoms.

Conclusion: Psychiatrists and psychologists involved in the field of mental health need to be well informed about mental problems due to internet addiction, such as anxiety, depression, aggression, and job and educational dissatisfaction.

Keywords: Addictive behavior, internet, symptoms, students

INTRODUCTION

In Iran, adolescents use the internet more than any other age

group. For this age group, the internet is not only the most common activity of daily life but also a major recreational activity. By 2009, some 98% of Iranian adults between the age of 20 and 30 years had used the internet.^[1]

In recent years, with the greater availability of the internet, internet addiction has become an increasing mental problem among adolescents.^[2] It is a problem of modern societies and many studies have considered this issue.

Several countries in Asia, particularly China, South Korea, and Taiwan, have been reported to have the highest incidence of computer or internet addiction among young people.^[3]

The prevalence of internet addiction among Iranian college students has increased markedly. In recent years, the incidence of it has been estimated to vary from 3.8% to 30% among the Iranian youth.^[4-7]

Adolescents are more vulnerable to pathologic internet use as they have less ability to control their enthusiasm for something that awakens their interests, such as internet or computer games. The continuous escape from real life into virtual space is often associated with serious problems in daily life for adolescents.^[8]

Psychologists and educators are aware of the potential negative impact of the excessive use of internet and related physical and psychological problems.^[9,10] Many studies have reported associations between internet addiction, psychiatric symptoms, and depression among adolescents.^[11-13] Some studies have focused on the impact of addiction to internet at a descriptive level of psychopathology with psychological variables such as loneliness and self-esteem.^[14,15]

Jeon (2005) investigated the effect of the extent of internet use, depression and self-esteem in 800 adolescents, and concluded that large extent of internet use increases depression and decreases self-esteem.^[16]

You (2007) analyzed the effect of internet addiction on 400 elementary school students' self-esteem and depression. The relationship between internet addiction and self-esteem indicates a statistically significant negative slope ($r=-0.284$, $P<0.01$). In other words, the higher the internet addiction, the lower the self-esteem.^[17]

In spite of the fact that many researchers have investigated the effect of internet addiction on

psychiatric symptoms such as depression and anxiety, there are very few studies focusing on the impact of compulsive internet use on other psychiatric symptoms such as somatization and psychosis. Also, past studies have achieved contradictory results and the observed findings are quite limited.

Therefore, it is necessary to identify the pattern of internet use and examine the effect of internet addiction on other psychiatric symptoms such as phobia, psychosis, and somatization, and moreover, to explore the psychological features of pathological internet use. In the future, we will be confronted with problems arising from internet addiction and overuse in Iran which can impact on youth mental health. Thus, the aim of this study was to evaluate the impact of internet addiction on psychiatric symptoms by controlling for the effects of demographic variables such as age, gender, marital status, amount of hours of internet use, etc. It is hypothesized that high levels of internet addiction have effects on psychiatric symptoms.

METHODS

The samples of this study consisted of 250 students who were randomly selected from four universities in the city of Isfahan including Isfahan university ($n=72$), Isfahan University of Medical Sciences ($n=38$), Islamic Azad University ($n=58$) and Isfahan University of Technology ($n=82$). They had an age range of 20–30 years (mean=20, $SD=2.1$), and had used the internet at least once a month in the previous 6 months. The students were selected using a quota sampling method. The inclusion criteria were: 1) being a student during the study period, 2) aged between 18 and 30 years, 3) using internet at least once a day for the past 6 months. The exclusion criteria were 1) severe physical problems or apparent disability and 2) the persons who were under treatment due to a specific psychiatric disorder during the past year.

Measurement

To measure the level of internet addiction, we used a valid and reliable Persian version of Young Diagnostic Questionnaire (YDQ) and Young Internet Addiction test (IAT) and also conducted a semi-structured interview based on DSM-IV-TR criteria for impulse control disorder not otherwise specified (ICD-NOS).

YDQ, which consists of eight “yes” or “no” questions, was translated into Farsi. It includes questions that incorporate aspects of addiction. Subjects who answered “yes” to five or more of the questions over a 6-month period were considered “addicted”. Later, Beard and Wolf modified the YDQ criteria. Respondents who answered “yes” to questions 1–5 and at least one of the remaining three questions were classified as suffering from internet addiction. In previous publications about YDQ, the split-half reliability was 0.729 and the Cronbach’s alpha was 0.713.^[18] In our study, we chose the modified YDQ, which had a good reliability and a test–retest of 0.82 after 2 weeks.^[19]

IAT is a 20-item self-report and 5-point scale based on the DSM-IV diagnostic criteria for compulsive gambling and alcoholism. In the present study, we used the Persian version of IAT, which had a good reliability with a Cronbach’s alpha of 0.89 and test–retest of 0.68 after 2 weeks.^[20]

Symptom Checklist-90-Revision (SCL-90-R) is a multidimensional self-report symptom inventory developed by Derogatis *et al.*, and its derived Iranian standard version^[21] was used in this study. The SCL-90-R consists of 90 questions in total, which are divided into nine symptom dimensions: Somatization, obsessive–compulsive disorder (OCD), interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. The nine symptom dimensions were divided into three global indexes, namely, the Global Severity Index (GSI) representing the extent or depth of the present psychiatric disturbance, Positive Symptom Total (PST) representing the number of questions rated above 1 point, and Positive Symptom Distress Index (PSDI) representing the intensity of the symptoms. In this study, the Iranian version of SCL-90-R had an acceptable reliability with a Cronbach’s alpha of 0.95 and split-half reliability of 0.88.

Semi-structured interview based on DSM-IV-TR criteria for ICD-NOS was performed by a psychiatrist trained for the diagnosis and treatment of ICD in general and internet addiction disorder in particular.

Data analysis

We used *t*-test and multivariate analysis of covariance (MANCOVA) for the analyses of research questions by SPSS₁₆ software.

RESULTS

Among the 250 university students, the majority of internet users were males (61.7% males, 38.3% females). According to the IAT, modified YDQ criteria by Beard and clinical interview, 15% of the samples were suffering from internet addiction and 85% of the participants were identified as normal users.

Regarding the educational level, most of the internet users were undergraduate students. In total, the participants were matched by gender, age, educational levels and other socio-demographic variables.

Results demonstrated that adolescents with internet addiction had higher scores of GSI, PST, PSDI and all dimensions of SCL-90 questionnaire. The *t*-test results indicated that the two groups differed significantly in all dimensions of psychiatric symptoms [somatization, OCD, interpersonal sensitivity, depression, anxiety, aggression (hostility), phobia, paranoia, psychosis and GSI, PST, PSDI] ($P < 0.01$).

Also, MANCOVA model with auxiliary variables, such as marital status, age, education, and length of internet usage, was utilized to analyze the relationship between internet addiction and psychiatric symptoms. After omitting non-influential variables in the final model, gender was considered as a moderator variable. The results showed that internet addiction affected psychiatric symptoms by controlling sex [Wilk’s lambda value=0.79, $F(9,107)=3.03$, $P < 0.01$] [Table 1].

DISCUSSION

The purpose of this study was to analyze the consequences of internet addiction among a sample of youths and to find the psychiatric effects resulting from excessive internet use.

The results of this study provide fundamental information that can contribute to the prevention, diagnosis and treatment of internet addiction among the youth.

Based on our goal and hypothesis, the means of psychiatric symptoms in the addicted group and non-addicts were compared. The difference of scores of psychiatric symptoms in the two groups is statistically significant. This means that normal users are better in terms of mental health in comparison with the addicted group. In addition,

Table 1: The group descriptive statistics results

	Diagnosis of IAD	Mean	Standard deviation	Significant level
Scores of SCL-90	Yes	101	49.64	$P<0.01$
	No	56.97	42.46	
Somatization	Yes	11.27	6.66	$P<0.01$
	No	6.99	6.42	
OCD	Yes	14.05	7.91	$P<0.01$
	No	7.49	5.23	
Interpersonal sensitivity	Yes	10.5	6.20	$P<0.01$
	No	5.46	4.95	
Depression	Yes	15.61	8.88	$P<0.01$
	No	9.27	7.92	
Anxiety	Yes	10.77	5.52	$P<0.01$
	No	6.35	6.69	
Aggression (hostility)	Yes	6.77	4.88	$P<0.01$
	No	3.57	3.53	
Phobias	Yes	6.05	4.47	$P<0.01$
	No	2.41	2.79	
Paranoia	Yes	7.61	4.28	$P<0.01$
	No	5.47	4.10	
Psychosis	Yes	9.66	6.87	$P<0.01$
	No	5.29	4.95	
GSI	Yes	101.10	49.67	$P<0.01$
	No	57.03	42.51	
PST	Yes	58.09	10.74	$P<0.01$
	No	48.56	9.192	
PSDI	Yes	1.64	.564	$P<0.01$
	No	1.06	.615	

IAD: Internet addiction disorder; OCD: Obsessive-compulsive disorder; GSI: Global severity index; PST: Positive symptom total; PSDI: Positive symptom distress index

internet addicts had various comorbid psychiatric disorders when compared to non-addicted individuals. This means that the group with severe internet addiction had higher scores in all dimensions of psychiatric symptoms, which suggests that addiction could have a negative effect on the mental health status of youth. These findings are consistent with other studies and support previous findings.

Previous reports demonstrate that 8–13% of undergraduates are addicted to the internet, which has impaired individual psychological well-being or mental health, peer and family interactions, and academic performance among them. Moreover, the internet addict group had the lowest score in Health Promotion Lifestyle Profile and Perceived Health Status, which suggests that the addiction

could have a negative effect on the health status of adolescents.^[22-27]

Furthermore, findings also demonstrate that the addict group generally displays higher levels of psychiatric disorders such as depressive mood, anxiety, phobic anxiety, compulsiveness, somatization, etc.^[11,13,28,29]

Internet addiction is also detrimental to physical health. Research on patients who were addicted to the internet, particularly to the massively multiplayer online role-playing games (MMORPGs), demonstrated that these games induced seizures in 10 patients.^[30]

Yen *et al.* reported that adolescents with internet addiction as well as those with substance drug use problems had significantly higher scores in the global pathology indices of the (BSI) Brief Symptom Inventory GSI, PST, PSDI and in other dimensions, such as hostility, depression, phobic anxiety and additional symptoms.^[31]

This indicates that internet addiction would lead to serious mental problems in youths. It can be concluded that the longer the hours of internet use, the higher the score of psychiatric symptoms. Also, it is expected that the increase in psychiatric symptoms leads to a deterioration of mental health.^[32]

The mentioned finding highly suggests that the symptoms in individuals with internet addiction are an indication of their compulsive thinking and behavior, especially as addiction is defined as uncontrollable compulsive dependence on a substance (drug), behavior, etc. that leads to severe emotional, mental and physical problems.^[33]

These findings suggest that the internet may provide an environment to escape from stress in the real world for individuals, who seem to be more vulnerable to aggressive behavior and interpersonal dangers than others. But the causal relationship between hostility (aggression) and internet addiction needs to be further evaluated in prospective and longitudinal studies.

Despite these findings, there are studies that show no relationship between the psychiatric symptoms, such as depression, social anxiety, frustration, and internet addiction.^[34-36] This may be due to methodological problems or the definitions and criteria used to diagnose internet addiction disorder in different societies and various studies.

Based on the aforementioned studies, it is

difficult to draw the conclusion that heavy use of the internet results in an overall negative impact on addicts' lives. Just one negative impact can conclusively lead to interference with subjects' activities such as academic work, professional performance, daily routines, and mental health. Also, it is not clear whether excessive use of internet is the cause or the consequence of mental problems.

Findings on the impacts of heavy internet use on mental health of addicts are inconclusive. However, the general health of internet addicts is more at risk than that of normal users.

Limitation

Although this study shows some significant differences of scores of psychiatric symptoms between the internet addicted and non-addicted college students, it does have some limitations which should be addressed. First, the cross-sectional research design limited the possibility of drawing conclusions regarding causal relationships. Second, the data were collected over a very short period of time and the questionnaires (YDQ, IAT and SCL-90) had their own restrictions.

Another limitation of this study is that the procedure for selecting the sample did not allow us to generalize the results to the non-college population.

Most importantly, we were unable to control or measure the length of time the individuals had been using the internet excessively, therefore the effect of excessive internet usage over an extended period of time on an individual's psychological and physical well-being could not be assessed.

Longitudinal studies on the long-term effects of excessive internet use would be useful to discover the causal relationship between addiction and depression or other symptoms.

CONCLUSION

Finally, it should be noted that internet is not an enemy, but people become dependent upon it for various reasons and they might ultimately become detached from the real world. As prevention is better than treatment, and considering the results of this study, this phenomenon should be considered as a psychological problem that has gripped the younger generation who are expected to develop the future society. The correct use of internet can

be substituted for wrong ways through appropriate education at home, schools and the university.

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