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Investigation the relationship between internet dependence with anxiety and educational performance of high school students

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Abstract:

BACKGROUND: Internet is one of the most advanced modern communication technologies. Despite the positive uses of internet, the existence of extreme behaviors and its harmful consequences has attracted the attention of all. The aim of this study was to determine the relationship between internet addiction with anxiety and educational performance.

MATERIALS AND METHODS: This research is a descriptive correlative study. The statistical population of the study includes a total number of 4401 female students in the high school in the city of Ilam-Iran in the academic year of 2017–2018. The sample size includes 353 students estimated using Cochran's formula. They were selected by random cluster sampling. For data collection, the Young's Internet Dependency Questionnaire, Academic Performance Inventory, and Marc *et al.*, anxiety Scale were used. Data were analyzed at the significant level of $\alpha = 0.05$.

RESULTS: The results showed a positive and significant correlation between internet dependency and students' anxiety ($P < 0.01$). There is also a negative and significant correlation between internet dependency and academic performance of students ($P < 0.01$), and also a negative and significant correlation between anxiety and educational performance of students ($P < 0.01$).

CONCLUSION: On the one hand, the results indicate a high prevalence of internet dependency and its significant relationship with anxiety and academic performance in students, and on the other hand, the negative effect of internet dependency on the students' educational performance. Therefore, it is necessary to design some intervention programs to prevent harm to students who are increasingly interacting with internet. In addition, raising the level of the students' awareness on the complications of internet addiction and the proper use of the internet seems to be necessary.

Keywords:

Anxiety, educational performance, internet addiction, students

Introduction

Modern communication technologies which allow simultaneous and unlimited access to individuals regardless their location, has created a new world as the virtual world.^[1] Internet as one of the most recent achievements of humankind and also as the world's leading media and the most advanced of modern communication

technologies provides access to a wide variety of information sources.^[2-4] In contrast to the positive uses of internet, as mentioned, the existence of extreme behaviors and its harmful consequences, especially internet dependency among some users has attracted the attention of all including the case of the Iranian society. One of the most important problems that the internet has brought with itself is the issue of dependence on

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its uses.^[3,5,6] In recent years, the internet has become the most important scientific and entertainment tool for teenagers and adults around the world.^[7] Internet provides a quick and easy way to search for information and communicate with others, and because of its multimedia and interactive nature, it has affected a big part of today's human life. However, what emerged as the negative effects of internet on the normal daily life of human beings and also on family relationships and emotional health of individuals, is the lack of control over the use of this emerging technology.^[8,9] This phenomenon is described as internet dependence and is considered as one of the forms of behavioral addiction.^[10,11] Internet dependency is a physical and psychological disorder which has symptoms of endurance, separation, emotional disturbances, and social disruption,^[12] In fact, internet dependency is considered as a maladaptive behavioral pattern which results in considerable discomfort or clinical disorder and causes psychological, educational, and occupational problems in the individual's life, with a multiple outbreak in the age group of 15–19 years compared to other age groups.^[13,14] It should be noted that prolonged use of internet cannot be called addiction, but it creates a situations which causes anxiety and distress in individual's performance which is of harmful effects on physical, psychological, economic, social, family, and personal relationships.^[15] Studies have shown that the prevalence of internet dependency among teenagers varies widely between 1.6% and 30%, in different societies and cultures. It should be noted that with the rapid increase in the number of internet users, we would have the prevalence of internet dependency.^[16-18] The results of different studies have shown that internet dependency can cause harmful psychological and behavioral effects among teenagers, and anxiety, depression, sleep disorders, and psychiatric illnesses such as attention deficit hyperactivity disorder, bipolar disorder, decreased social relationships, and avoidance of activity in life are among the known complications of internet dependency.^[19-21] Today, anxiety disorders have become one of the most important issues for psychologists, psychiatrists, and behavioral science experts. According to the World Health Organization, mood disorders such as depression and anxiety constitute 35% of all mental disorders, most of them originate from childhood and adolescence.^[22,23] The results of the study by Ozturk *et al.* on 303 Turkish high school students showed that 6.6% of students had severe internet dependency and the prevalence of anxiety disorders in internet addicts was higher; also, in this study, depressed mood, irritability, anxiety, emotional disturbances, behavioral problems, and hyperactivity had a positive and significant correlation with Internet dependency scores.^[2] Internet dependency in students is associated with problems such as interpersonal communication, anger, aggression, and excitement,^[24,25] In addition, internet dependency

decreases educational performance in this group.^[26] Internet dependency has a significant negative effect on the problems in the process of life, on the educational performance and also on the parents' relationship.^[27] According to the United States of America, magazine poll conducted in 1997, 86% of teachers believed that using the internet has prevented students from doing their homework.^[20] Salehi Omran *et al.*^[7] investigated the prevalence of internet dependency and its relationship with demographic characteristics among students. The results of their study showed that the prevalence of internet dependence in girls is higher than that of boys.

Since high school students in Iran are showing different shortcomings in their educational performance the researchers of this study thought that internet dependency of the students can be one of the possible causes to be investigated so, this study is trying to investigate the harmful effects of internet dependency on the educational performance and anxiety of female high school students to provide some solutions considering this big problem. This study aims to determine the relationship between internet dependency with anxiety and educational performance of female secondary school students in the city of Ilam in 2018.

Materials and Methods

The present research is a descriptive correlative study. The statistical population of the study includes a total number of 4401 female students in the high school in the city of Ilam in the academic year of 2017–2018. The sample size includes 353 students which was estimated by using Cochran's formula. They were selected by random cluster sampling. At the first stage, five high schools were selected randomly from all the high schools in the city of Ilam. Then, the researchers distributed the questionnaires by referring to these high schools and classrooms. For data collection, the Young's Internet Dependency Questionnaire (IAT), Academic Performance Inventory (EPT), and Marc *et al.* Anxiety Scale (MASC) were used. Young's IAT (1996) included 20 questions which is developed and validated by Yang and his colleagues. In this research, individuals expressed their consent to each of the questions by selecting "always," "often," "usually," "sometimes," "rarely" and "never" options. Considering the scoring method, number 1 represents the lowest value, equivalent to the word "never," and number 6 represents the highest value which is equivalent to the option "always." And for the options of "often," "usually," "sometimes," and "rarely," the numerical values of 5, 4, 3, and 2, are assigned, respectively. In the Yang IAT, if the score of the questionnaire ranges from 20 to 45, it indicates no dependence on internet, if it ranges from 46 to 70, it indicates an

exposure to internet dependency, and finally, if the score of the questionnaire is above 70, it represents internet dependency. In the study of Alavi *et al.*,^[28] the validity of the questionnaire by means of simultaneous narrative method was estimated which was equal to ($r = 0.81, 0.78$), differential validity ($r = 0.62$), and three types of reliability ($\alpha = 0.70$), split-half ($r = 0.64$), and retest ($r = 0.47$). Ramezani *et al.*^[29] reported the coefficient of 0.93 to determine the reliability of the questionnaire using Cronbach's alpha. The educational performance of participants was assessed by a 48-item educational performance questionnaire adapted from Pham and Taylor (1999), which was validated for the Iranian society. The reliability of the questionnaire has been evaluated in several studies.^[30,31] These studies have reported Cronbach's alpha coefficient ranging from 0.74 to 0.84. Scoring in this questionnaire is based on a 5-point Likert scale. A score of <120 indicates a poor educational performance, a score of over 175 indicates a strong educational performance, and a score of 121–174 indicates a moderate educational performance.

To measure the students' anxiety, MASC was used. This scale is designed as a self-assessment criterion for evaluating a range of anxiety dimensions in groups of 8–19 years old. This questionnaire quickly and easily provides information about the nature and severity of anxiety-related syndrome and is complementary to clinical interviews. This scale consists of 39 items that are based on a 4-point Likert Score which measures four dimensions of anxiety: physical symptoms, social phobia, separation anxiety, and avoidance. This test has internal consistency, convergent validity, and satisfactory reliability (0.79).^[32] In the research of Mashadi *et al.*, the reliability of the retest and internal consistency of the multidimensional anxiety scale of children are 0.48 and 0.79, respectively. The correlation of this scale with the revealed anxiety scale and the depression scale of children was 0.38 and 0.02, respectively, which indicates the convergent and reciprocal validity of the scale. The procedures and also the needed time to fill out the questionnaire were described for the participants. The participants were free to leave the study at any time if they want to. Moreover, finally, the students' names were kept as confidential.

Data were collected and analyzed using descriptive statistics (mean, standard deviation.), Pearson correlation coefficient, and multivariate regression test; the analysis of results was performed by SPSS Inc., version 21, Chicago, Ill., USA, at the significant level of ($\alpha = 0.05$).

For the collection of data, the researchers explained the purpose of research for participants to obtain informed consent. The researchers promised the participants that their data will be considered as confidential.

Results

Participants in this study were 353 high school female students in the city of Ilam, whose mean age was 16.73 ± 0.89 years. 119 (32.7%) of the students were in the first grade, 145 (41.1%) were in the second grade, and 86 (24.4%) were enrolled in the preuniversity period. Considering the field of study, 182 (51.6%) students were experimental sciences and 167 (47.3%) were human sciences. In terms of parental education, most of the fathers (31.2%) had a high school diploma, and most of the mothers (32.9%) were illiterate or had elementary education. Considering jobs, most of the fathers (58.6%) self-employed and most of the mothers (85.6%) were homemakers. The mean for internet dependency in the sample was 51.98 ± 21.44 and the highest internet dependency score was 107. In terms of the prevalence of internet dependency, 20.24% of students did not have internet dependency, 34% were exposed to internet, and 18.41% had internet dependency. Among the students, the overall mean of the anxiety score was 46.93 ± 16.29 and the educational performance score was 152.95 ± 24.26 and 18.41% of the students had high anxiety and 74.9% had moderate educational performance.

Because of the followings, the researchers of the present study used parametric test: first, the normality of the data, second the independent nature of the variables, and finally, the random selection of the participants.

In Table 1, Pearson correlation coefficients for internet dependency, educational performance, and anxiety variables of students ($n = 353$) were presented. The results showed a significant negative correlation between the level of anxiety and educational performance of students ($P = 0.000 = r = -0.221$). There is a reverse and significant correlation between internet dependency and

Table 1: Correlation coefficient between internet dependency, educational performance, and anxiety using Pearson correlation coefficient in research sample

Variable	Academic performance	Anxiety	Internet dependency
Educational performance			
Correlation coefficient	1		
<i>P</i>	-		
<i>n</i>	353		
Anxiety			
Correlation coefficient	-0.221**	1	
<i>P</i>	0.000	-	
<i>n</i>	353	353	
Internet dependency			
Correlation coefficient	-0.489**	0.173	1
<i>P</i>	0.000	0.001	-
<i>n</i>	353	353	353

**Correlation is significant at the 0.01 level

the educational performance of the students ($r = -0.489$, $P = 0.000$). There is also a positive and significant correlation between internet dependency and student anxiety ($r = 0.173$, $P = 0.001$).

In Table 2, internet dependency, anxiety, and educational performance prediction were done using regression analysis method. Accordingly, the standardized regression coefficient between Internet dependency variable with anxiety variable is equal to (0.184) and significant level ($p < 0.01$), which indicates that anxiety significantly predicts internet dependency, And with an increase in a standard deviation in the anxiety score, the Internet dependency score of 0.18 standard deviations has increased. Considering variance regression coefficient of educational performance with internet dependency (-0.302) at the significant level of ($P < 0.01$), if we increase standard deviation in the educational performance by 1 score, we will have a situation in which internet addiction scores of -0.30 standard deviations is decreased.

Discussion

The results of this study showed an average amount of internet dependency among the high school students. These results are in consistent with the results of research by Sasmaz *et al.*,^[33] Nasiri *et al.*,^[34] Yao *et al.*,^[35] and Schoenfeld and Yan,^[36] who reported a moderate level of internet dependency. To explain the reasons for the high level of internet dependency among female high school students in the city of Ilam are listed as: the lack of recreational facilities, sports, etc., to fill the students' leisure time, and on the other hand, students may have some exaggeration in their report on the time they devoted to the use of internet because they may think use of internet is considered as an educational value.

Results showed that there is a significant relationship between internet dependency with students' anxiety and educational performance, and there is also a significant and inverse relationship between the level of anxiety and educational performance of students. According to the results of research of Do *et al.*,^[37] there is a significant relationship between depression, anxiety, gender, and personality traits with internet dependency. In the study of Prasanna *et al.*,^[38] there were increased educational

problems and lack of participation in people with overuse of internet. According to the findings of Azizi *et al.*^[39] in a research on the relationship between internet addiction with anxiety and depression in high school students in Jolfa city in 2013, anxiety and depression are associated with internet addiction. The results of this study are important implications for educating students with internet addiction and therapeutic interventions to control their anxiety and depression. In justifying these findings, it can be said that on one hand, people with anxiety disorders often seek refuge in internet and the virtual environment to escape from these disorders and find alternatives for their living which in turn may lead to their greater dependence on internet, and on the other hand, it is likely that these disorders would result in complications of internet addiction, so that addicts of the internet, because of this dependence and change in their lifestyle are susceptible to psychiatric disorders, or if they have no access to the internet, they may become anxious,^[21] and students who are addicted to internet are more likely to be more circulated on the internet than the rest of the students. Hence, this will make them put internet at the top of the list and delay the educational activities including their assignments and their preparation for the examination. Education department should strive to prevent the waste of useful opportunities by futile search for entertainment, computer games, and internet dating by providing appropriate backgrounds to meet cultural needs and appropriately fill the students' leisure time, especially in high school.

In order to explain the issue of internet dependency based on anxiety and educational performance; anxiety and educational performance as predictive variable and internet dependency index as a criterion variable were entered into the regression equation. The results showed that anxiety and educational performance significantly predict internet dependency. In this study, the researchers investigated the issue of internet dependency, and in this investigation, they understood that the students who have a high amount of internet dependency are experiencing more anxiety. The findings of this study are consistent with some studies in this field. For example, according to Young's study, about 10% of the world's online population has internet dependency, and about a quarter of them have

Table 2: The results of multivariate regression analysis to predict internet dependency based on anxiety and educational performance

Model	Unstandardized coefficients		Standardized coefficients	t	P	95% CI	
	B	SE	B			Lower bound	Upper bound
Constant	68.75	6.40		10.73	0.000	56.16	81.34
Anxiety	5.81	1.59	0.184	3.64	0.000	2.67	8.96
Educational performance	-13.80	2.31	-0.302	-5.97	0.000	-18.34	-9.25

Dependent variable=Internet dependency. CI=Confidence interval, SE=Standard error

anxiety history.^[40] According to the results of Jafari and Fatehizadeh,^[41] it can be said that strong dependence on internet is associated with the elimination of the individual from the real world and the lack of mobility, which in turn reduces happiness and social interactions, and the user's mind engages in ineffective imaginations which would have no outcome but anxiety, stress, and depression. The findings of Durkee *et al.*'s study^[25] showed that as the relationships among individuals, especially students, increase in the virtual universe, their relationship in the real world may decrease, and the possibility of a bad educational performance may increase too. In the present study, there was a significant relationship between the degree of internet dependency and the level of educational performance. To explain, it can be said that internet dependency can disturb students' educational situation and reduce their educational performance and also, in addition to educational effects, internet dependency can create destructive and threatening harms such as anxiety in social and psychological areas for the students.

Limitations

One of the most important limitations of this research is its cross-sectional nature, the probability of selection bias due to the lack of cooperation of some students and the possibility of unrealistic responses due to the use of self-report questionnaires. The limitations of this study include lack of reporting of the same articles using the same questionnaire to assess the prevalence of internet addiction, different criteria to define Internet addiction and refer to people at risk of internet addiction.

Conclusion

Overall, the results of this study indicate a significant outbreak of Internet dependence in female students and its significant relationship with anxiety and academic performance. Due to the increasing internet users, especially in adolescents and the undesirable side effects of Internet dependency increasing anxiety level and decreasing level of academic performance, as well as results of this study, showed that there is a significant and inverse relation between the level of anxiety and academic performance of students. This means that the degree to which anxiety increases leads to a reduction in the level of academic performance in students.

Suggestions

Considering the fact that internet dependency is common in students, so it is necessary to pay attention to health and safety considerations to prevent the risks and complications of it in students. It is also suggested to carry out some workshops in which the students be familiar with the advantages and disadvantages of using internet.

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Conflicts of interest

There are no conflicts of interest.

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