

Internet Addiction and Depression among Students Based on Health and Demographic Characteristics

—Student's Internet Addiction and Depression

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Abstract

An ongoing demand for excessive internet use is accompanied by a decline in time devoted to offline activities, which is often referred to as internet addiction. In recent years, a significant number of Bangladeshi students have shown evidence of internet addiction, frequently associated with depressive symptoms. This study aims to assess the level of depression and internet addiction among Bangladeshi students. An investigation on internet addiction, depression risk, and demographic traits was filled out anonymously by 315 university students, who had a mean age of 21.99 years and comprised 51.75% males and 48.25% females. The Mann-Whitney U-test, Kruskal-Wallis test, and Spearman's correlation analysis were applied for statistical analysis. Regarding the duration of time devoted to the internet on a daily basis, there were notable variations found in this study. Notably, compared to those without such worries, those who expressed suspicions of depression showed noticeably greater levels of internet addiction. Additionally, an unexpected finding was made, showing a substantial positive correlation between the Kutcher Adolescent Depression Scale scores and the Internet Addiction Scale scores. This indicates that there could potentially be an association between the participants' depressive symptoms and internet addiction. These findings demonstrate that a variety of factors, including

time, may influence a university student's propensity to depression and internet addiction. This emphasizes the significance of providing ongoing psychological assessments and support in educational environments.

Keywords

Internet Addiction, Depression, Student, Psychological Health

1. Introduction

The essence of "healthy internet use" involves using it to accomplish a goal in the right span of time without enduring discomfort in thought or behavior (Davis, 2001). Although certain people can only utilize the internet as frequently as they need, others are unwilling to define use restrictions. Difficulties in work and social life stem from excessive internet use, often referred to as pathological internet use, excessive internet use, net dependency, or internet addiction (Whang et al., 2003; Gackebach, 2011). The standard definition of internet addiction is a constant desire for excessive consumption of the internet, an erosion of the time spent offline, severe stress and hostility when confronted with deprivation, and a gradually decreasing standard of social and domestic life (Young, 1999, 2004). Through the internet, people may develop connections with others that are tough to maintain in today's urban surroundings, form simple and risk-free connections with strangers, express their thoughts and feelings without inhibitions, and underline features that they wish to emphasize. The internet's availability, the possibility of accessing illegal content, and the possibility of playing games and taking chances are other components that might result in an increase in use of the internet (Young, 1999; Teo & Lim, 2000; Buckingham, 2002). Due to their volatile dispositions, young people have an elevated rate of internet addiction, which has been found to range from 1.5% to 24.2% (Whang et al., 2003; Petersen et al., 2009; Tsai et al., 2009; Uneri & Tanidir, 2011). The occurrence of internet addiction in adolescents fluctuates between 1.1% and 18.9% (Akış et al., 2003; Vaizoglu et al., 2004; Bayraktar & Gün, 2006; Ceyhan, 2008; Batıgün & Hasta, 2010; Durak Batıgün & Kilic, 2011). Especially young adults without psychological disorders report developing an internet addiction and mental health concerns as a result of consuming countless hours on chat rooms, pornographic websites, online shops, video games, gambling sites, and hobby sites (Young, 1996). There have been findings connecting internet addiction to disorders of anxiety (Shepherd & Edelman, 2005; Kratzer & Hegerl, 2007), shyness (Saunders & Chester, 2008), introversion (Ebeling-Witte et al., 2007), personality disorders (Bernardi & Pallanti, 2009), and psychological disorders include social anxiety, bipolar disorder, disorders related to gaming and gambling, paraphilia, attention-deficit hyperactivity disorder (ADHD), and depression in young people (Yen et al., 2007). The rate of depression in internet users and dependence on the internet in people with depression is comparable (Yen et al., 2007). Deep sadness or grief, sleeplessness, diminished appetite, a dull mood, hopeless-

ness, impatience, self-dislikeness, and thoughts of suicide are some of the indications of depression (American Psychiatric Association, 2000). People who struggle with depression often have a lack of self-worth, a lack of drive, a fear of rejection, and a need for approval from others. These characteristics can lead to excessive internet use, and the social aspects of the internet may trigger internet addiction in those who exhibit them (Yang et al., 2005). Additionally, research suggests that social detachment carried on by an internet addiction can lead to depression (Tsai & Lin, 2003). The research argues that depression and internet addiction constitute the primary disorders in the current scenario. This study seeks to assess the occurrence of depression and internet addiction among Bangladeshi students at Rajshahi University.

2. Materials and Methods

2.1. Participants

Participants in this descriptive study were Rajshahi University (RU) students. The three faculties chosen for the study were randomly selected from the twelve at Rajshahi University. It was not achievable to cover every faculty due to the length of time and challenges with acquiring data. We were able to maintain the study's efficiency while focusing on a manageable number due to random selection. The students were brought together in classrooms and briefed about the purpose of the research and topic of study after approval for acquiring data from the department of psychology. Students participated under supervision to fill out already prepared survey forms. About ten to fifteen minutes were required for the procedure. The survey included participation from 93 students (29.52%) in the Faculty of Arts, 110 students (34.92%) in the Faculty of Sciences, and 112 students (35.56%) in the Faculty of Biological Sciences.

2.2. Instruments

Based on the available literature, a questionnaire was developed with the goals of the research in mind (Ceyhan, 2008; Douglas et al., 2008; Bernardi & Pallanti, 2009; Batigün & Hasta, 2010; Durak Batigün & Kihc, 2011). The questionnaire included questions about the student's sociodemographic traits (gender, age, faculty, family type, family income level, parental employment status, current residence, presence of chronic diseases, and suspicion of depression); it also requested information concerning the student's internet usage habits (age at which they first used the internet, ease of access from anywhere, frequency of use, amount of time spent online each day); and it comprised a 6-item short version of Young's Internet Addiction Scale and the Kutcher Adolescent Depression Scale.

The study group's depth of internet dependency was evaluated using *Young's Internet Addiction Scale*. Young and associates established Young's Internet Addiction Scale in 1996. There are six Likert-type questions on the scale. Five options, varying in score from 0 (never) to 4 (always), are presented for each question. A greater degree of internet addiction can be detected by greater marks on

the scale.

The study group's depression was evaluated using the *Kutcher Adolescent Depression Scale*. The six items on KADS, a self-report scale and diagnostic instrument, are used to assess the risk of depression in young people. Every person who has a score of six or higher on this test is considered to be at risk for depression (LeBlanc et al., 2002). Cronbach's α indicated that KADS had an internal reliability of 0.84. The students classified the family income level as low, moderate, or high based on their views. Students were categorized as "employed" if their parents were actively employed in any role that brought in money.

2.3. Statistical Analyses

The evaluation of the data was performed with GraphPad Prism 8.0.1. The Mann-Whitney U-test, Kruskal-Wallis test, and Spearman's correlation analysis were used for statistical analysis. The acceptable level for statistical significance has been established at $p < 0.05$.

3. Results

There were 152 (48.25%) female students and 163 (51.75%) male students in the study's group. Additionally, there was a 20 - 24-year age range among them, with a mean age of 21.99 years and $SD = 1.23$. There was a total of 224 (71.11%) students from nuclear families. Of those in attendance, 234 (74.29%) reported an average family income level. Of the students, 253 (82.86%) were employed as fathers, and 54 (17.14%) had mothers who worked. Among the students, 189 (60%) lived in dorms, whereas 126 (40%) resided in homes. Each student's scores regarding the Internet Addiction Scale varied from 0 to 24, with an average of 12 and a standard deviation of 4.27. The Internet Addiction Scale means score distributions summed up by socioeconomic factors are included in **Table 1**.

We observed that 48 students, or 15.24% of the total, started using the internet when they were just younger than ten years old. Of the students, 266 (84.44%) indicated they have access to the internet at home. A total of 276 students (87.62%) reported using the internet a few times a day, including 139 students (44.13%) who reported using it for four to six hours per day. **Table 2** illustrates the distribution of students' mean Internet Addiction Scale scores according to multiple facets of their online behavior.

Of the students who participated in this research, 135 (42.86%) had an approximate diagnosis of depression, and 49 (15.56%) had previous evidence of chronic illness. **Table 3** presents the distribution of the participants' mean Internet Addiction Scale scores, sorted by their personal health concerns.

The student's outcomes on the Kutcher Adolescent Depression Scale spanned the range of 0 to 18, with a mean score of 5.49 and $SD = 3.54$. The results showed a significant positive association among the outcomes on the Internet Addiction Scale and the scores on the Kutcher Adolescent Depression Scale ($r_s = 0.1113$; $p \leq 0.0001$).

Table 1. The distributions of scores on the Internet Addiction Scale by socio-demographics status.

Socio-demographics Status	n	Percentage	Scale Score Mean (min - max)	Statistical Analyses (Kruskal-Wallis Test)	Multiple Comparison	p-value
Gender						
Male	163	51.75	12.12 (2 - 22)	-	-	0.8265
Female	152	48.25	11.88 (1 - 24)	-	-	
Current Residence						
Dorm	189	60	12.19 (3 - 24)	-	-	0.5181
Home	126	40	11.73 (1 - 22)	-	-	
Respondents Faculty						
Faculty of Arts (a)	93	29.52	12.15 (2 - 24)	0.3647	a vs. b	0.6652
Faculty of Sciences (b)	110	34.92	12.41 (1 - 22)		a vs. c	0.3498
Faculty of Biological Sciences (c)	112	35.56	11.48 (2 - 20)		b vs. c	0.1711
Family Type						
Nuclear Family	224	71.11	12.10 (1 - 22)	-	-	0.4954
Joint Family	91	28.89	11.78 (1 - 24)	-	-	
Family Income Level						
Low (a)	65	20.63	12 (3 - 22)	0.3679	a vs. b	0.8810
Moderate (b)	234	74.29	12.11 (1 - 24)		a vs. c	0.1892
High (c)	16	5.08	10.5 (1 - 20)		b vs. c	0.1672
Employment Status of Mother						
Unemployed	261	82.86	12.03 (1 - 24)	-	-	0.7610
Employed	54	17.14	11.89 (1 - 22)	-	-	
Employment Status of Father						
Unemployed	62	19.68	12.34 (3 - 24)	-	-	0.3813
Employed	253	80.32	11.92 (1 - 22)	-	-	

Table 2. The distribution of the scores of the students on the Internet Addiction Scale according to some of the characteristics of their internet usage.

Characteristics of Internet Usage	n	Percentage	Scale Score Mean (min - max)	Statistical Analyses (Kruskal-Wallis Test)	Multiple Comparison	p-value
Age at First Internet Use						
Below 10 Years	48	15.24	12.06 (4 - 24)	-	-	0.9352
Above 10 Years	267	84.76	11.99 (1 - 22)	-	-	

Continued

Accessibility of the Internet at the Residence						
Available	266	84.44	12.21 (1 - 24)	-	-	0.0524
Unavailable	49	15.56	10.88 (1 - 19)	-	-	
Frequency of Internet Usage						
A Few Times a Day (a)	276	87.62	12.20 (1 - 24)		a vs. b	0.0145
A Few Times a Week (b)	35	11.11	10.34 (3 - 18)	0.0509	a vs. c	0.8789
A Few Times a Month (c)	04	1.27	12.75 (7 - 19)		b vs. c	0.4226
Time Spent on the Internet Daily (Hours)						
Below 3 Hours (a)	87	27.62	10.40 (1 - 22)		a vs. b	0.0245
4 - 6 Hours (b)	139	44.13	11.71 (2 - 21)		a vs. c	<0.0001
7 - 10 Hours (c)	57	18.10	13.28 (2 - 22)	<0.0001	a vs. d	<0.0001
Above 10 Hours (d)	32	10.16	15.38 (3 - 24)		b vs. c	0.0071
	-	-	-		b vs. d	<0.0001
	-	-	-		c vs. d	0.0102

Table 3. The distribution of the scores of the students on the Internet Addiction Scale according to health problems.

Health Problems	n	Percentage	Scale Score Mean (min - max)	p-value
History of Chronic Disease				
Yes	49	15.56	11.49 (2 - 22)	0.3910
No	266	84.44	12.10 (1 - 24)	
Suspicion of Depression				
Yes	135	42.86	13.13 (2 - 24)	<0.0001
No	180	57.14	11.16 (1 - 22)	

4. Discussion

It ought to come as no surprise that internet addiction is widespread among undergraduates, considering how frequently they utilize the internet to complete assignments, conduct research, and compose articles. The Internet Addiction Scale average score of the students in this study was 12. Multiple studies have offered diverse findings regarding the degree of internet addiction (Uneri & Tanidir, 2011). Variation in internet addiction all over studies is caused by variations in methodology, demographic information, and cultural contexts. These differences are caused by a variety of factors, including internet access, sample characteristics, and meth-

ods of diagnostics. These discrepancies suggest that the findings we reached might not be universally applicable and should be considered in view of the specific facts of the study.

The absence of social influence over online behaviors, including gaming, engaging in gambling, virtual sex, talking, and contacting unfamiliar individuals, has contributed to claims that internet addiction is more widespread in males than in females for reasons related to culture and society (Morahan-Martin & Schumacher, 2000; Wang, 2001; Kim et al., 2006; Yang & Tung, 2007; Ko et al., 2008; Durak Batıgün & Kilic, 2011). However, in our study group, there were no gender variations in the level of internet addiction (p -value = 0.826). Other studies have reported identical results (Chou & Hsiao, 2000; Miller, 2001; Kim et al., 2006; Fortson et al., 2007; Dogan et al., 2008; Lam et al., 2009). Due to social developments in Bangladesh, where both genders use the internet in similar ways for educational purposes, there may not be any apparent differences between genders in internet addiction. The lack of gender disparities could also be caused by the focus on overall addiction levels rather than specific behaviors (such as gaming or social media), as well as comparable academic and economic challenges for both genders. These are a few of the possibilities that are distinctive to students from Bangladesh.

All age groups are believed to be influenced by internet addiction, which is classified as an emotional disorder. It is expected that students across faculties will have various levels of internet addiction owing to variations in the field of application, content, and density of education. Our research identified no statistically significant differences in internet addiction among students enrolled in the Faculty of Arts, Sciences, and Biological Sciences (p -value = 0.364). On the other hand, Niemz and associates discovered that students in the Faculty of Sciences exhibited a greater incidence of internet addiction (Niemz et al., 2005). No significant relationships emerged between internet addiction and depression, with our study investigating factors such as family income for possible mediation impacts. However, such factors should be investigated in future research; we were unable to include social relationships and academic achievement in our study. The primary conclusion was still that internet addiction and depression were significantly positively correlated. In order to fully understand this association, further research is required to examine these other factors, such as peer pressure, cultural consequences, and psychological facilities.

Students whose parents work might experience a greater risk of internet addiction due to simpler access to the internet and an absence of control over their usage. These students may also come from families with greater incomes. In spite of this, our research discovered that young people with parents who worked and those with high family incomes (p -value = 0.3679) did not show significantly greater degrees of internet addiction. Many additional investigations have produced results that are different from ours (Jackson et al., 2003; Durak Batıgün & Kilic, 2011). It's well known that individuals may get "virtual social support" from online resources, along with "real social support" from family members and the community

(Yeh et al., 2008). People who lack family support frequently turn to the internet as a means to develop fresh social networks and satisfy their desire for human contact. There has been proof that increasing use of the internet is correlated with growing rates of internet addiction (Papacharissi & Rubin, 2000). According to our study, there might be a variety of reasons for the differences in internet addiction rates between students who have parents who work and those whose family assets are high. These contain uncontrollable variables such as personal psychological characteristics, familial dynamics, peer pressure, and academic demands. In addition, how parental employment and family income intersect with the dynamics of internet addiction among the student population may have been influenced by cultural attitudes toward technology and socioeconomic concerns within the context of our study.

Individuals who live at home or in dorms with a connection to the internet are more likely to be extremely dependent on the internet because it is readily available to access (Young, 1999; Douglas et al., 2008). The incidence of internet addiction among students residing at home and in dorms was not of statistical significance in our study (p -value = 0.518). A variety of results have been provided by Young, Douglas, and colleagues (Young, 1999; Douglas et al., 2008).

A key contributor to addiction is the amount of time spent online. The minimum requirement for being admitted to a hospital for internet addiction may be 40 - 80 hours a week or up to 20 hours at a time (Brenner, 1997; Young, 2004). Students who relied on the internet for over ten hours a day had a higher degree of internet addiction (p -value \leq 0.0001). The daily time spent on the internet is significant across all sections, each intricately interconnected with one another. Based on several pieces of research, the degree of internet addiction increases as internet use expands in duration (Chou & Hsiao, 2000; Morahan-Martin & Schumacher, 2000; Beard & Wolf, 2001; Treuer et al., 2001; Davis et al., 2002; Özcan & Buzlu, 2005; Ceyhan et al., 2007; Uneri & Tanidir, 2011). Due to challenges associated with acquiring information, the precise types of internet usage (such as social media, gaming, and academic use) associated with higher addiction scores were not examined. Further research in Bangladesh ought to investigate the ways that different online activities can lead to addiction, particularly in regard to students' expanding use of social media and online gaming, which may have diverse impacts on psychological wellness.

Patients with long-term medical conditions may experience a sense of helplessness about their bodies as a consequence of therapeutic adverse reactions, physical symptoms imposed on them by their illness, and distress. This loss of control might give rise to a decrease in self-esteem, which might speed up the growth of internet addiction (Jacobs & Baker, 2002; Sharp & Lipsky, 2002; Chuang, 2006; Fasano et al., 2006; Moussavi et al., 2007). The amount of internet addiction among research group participants was not statistically different between students with and without chronic illnesses (p -value = 0.391). Prior research showed that those with a history of chronic illness had higher rates of internet addiction (Jacobs & Baker,

2002; Sharp & Lipsky, 2002; Chuang, 2006; Fasano et al., 2006; Moussavi et al., 2007).

Among the study group's subjects, the degree of internet addiction was significantly greater in those who suspected depression than in those who did not (p -value ≤ 0.0001). The notable distinction in internet addiction levels between students with and without suspected depression may be explained by the propensity of those experiencing depressive symptoms to turn to the internet for comfort or diversion, which may lead to an increase in internet usage. There was no previous research on this particular characteristic.

Students might experience depression or develop an addiction to the internet as a result of a difficult and undesirable educational process, the stress of studying, the uncertainty put on by living far from home, and financial and psychological problems. The severity of internet addiction and depression may be compounded by issues related to time management, health, family, and education. When it comes to relieving stress brought on by these issues, the internet can come to the rescue. Students can use the internet to establish safe, positive connections with others. Excessive use of this constructive tool for communication, however, can result in internet addiction, which is a progression of depression. Depression and internet addiction may combine to worsen both clinical conditions. Internet addiction develops in those who are depressed as well as those who have a susceptibility to depression (Facer et al., 2001; Wang, 2001; Tsai & Lin, 2003).

In our study, we observed an important positive association between the levels of internet addiction and depression (p -value ≤ 0.0001). Similar results have been found in additional studies concerning the relationship between internet addiction and depression (Young & Rodgers, 1998; Teo & Lim, 2000; Davis et al., 2002; Kraut et al., 2002; Whang et al., 2003; Özcan & Buzlu, 2005; Ha et al., 2006; Kim et al., 2006; Yang & Tung, 2007; Ko et al., 2008; Uneri & Tanidir, 2011). However, research by Sanders and colleagues, as well as Niemz and colleagues, failed to identify an association between internet addiction and depression (Sanders et al., 2000; Niemz et al., 2005). According to the correlation we observed in our study, student's levels of depression tend to increase in rhythm with their internet addiction. This does not imply that depression and internet addiction are directly related, as both may be driven by other factors as well. This relationship may be influenced by a variety of cultural and societal factors in the context of Bangladeshi students.

5. Conclusion

One of the biggest health issues confronting RU students is internet addiction and depression. Internet addiction and depression levels are significantly associated with each other. Awareness campaigns ought to inform students about the potential risks of excessive internet use and its adverse impact on mental health in order to address internet addiction and depression among Bangladeshi students. In order to provide students who are dealing with depression with psychological support and strategies for coping, counseling services must be available in institutions.

Workshops on time management may assist students in establishing a balance between their academic and recreational internet use. For optimal effectiveness, these interventions should be integrated into everyday curricular activities and made available by experts and resources. This study's cross-sectional design and the fact that it was carried out at a single university with just three faculty members are among the study's drawbacks. To figure out the connection between internet addiction and depression, more thorough research is necessary.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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