



## ASSOCIATION BETWEEN INTERNET ADDICTION AND DEPRESSION AMONG SCHOOL GOING ADOLESCENTS IN URBAN AREA OF ROHTAK, HARYANA

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### ABSTRACT

**Background:** Internet Addiction is relatively a newer kind of addiction that is developing in the youth of today. Internet Addiction has been reported to be comorbid with insomnia, suicidal ideation, attention-deficit hyperactivity disorder, social phobia, hostility, schizophrenia, obsessive-compulsive disorder, aggression, anxiety, stress, depression, drug use or problematic alcohol use. **Objectives:** To study the association between internet addiction and depression among school going adolescents in urban area of Rohtak. **Methods:** A cross-sectional study was conducted in an urban area of Rohtak, among school going adolescents studying in class 8th-12th of the government and private schools in the study area using Young's Internet Addiction Test (IAT) and Depression Anxiety Stress Scale (DASS-42). **Results:** Out of 600 participants, 44.17% were females, and the average age of the study subjects was 14.8 (SD=1.55) years. The study showed widespread Internet use among adolescents (86%), out of which only 33.14% were normal users and rest (66.86%) were internet addicts. Of these 345 internet addicts, 26.38% were suffering from depression, either mild (42.86%), moderate (35.16%), severe (15.38%) or very severe (6.6%) depression, determined with the help of DASS-42 questionnaire. **Conclusion:** Internet use has increased rapidly all over the world. Students with high internet addiction are more vulnerable to the psychosocial impacts. Internet addiction among adolescents is a major public health problem and shows positive correlation with stress, anxiety or depression.

**KEYWORDS :** Internet addiction, depression, school-going adolescents, Rohtak

### INTRODUCTION:

Internet has profoundly changed the way people work, communicate and live, but it may also lead to addiction. The Internet has revolutionized the computer and communications world.

Research and clinical practices suggest that the concept of Internet Addiction should not to be taken lightly, as there are negative consequences of excessive Internet use in adolescents. Also, this may negatively affect cognitive functioning, leading to poor academic performance, engagement in risky activities, poor dietary habits, low quality of interpersonal relations and self-injurious behaviour in adolescents.<sup>(1)</sup>

The term "Internet addiction" was proposed by Dr. Ivan Goldberg in 1995.<sup>(2)</sup> It is defined as one's inability to control his/her use of the internet, which could lead up to physical, psychological and social difficulties.<sup>(1)</sup> He suggested Internet Addiction Disorder to be a psychiatric disorder based on pathological gambling as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).<sup>(3)</sup>

Many people may initially use the Internet casually and subsequently develop an addiction for a variety of reasons, including the desire to relieve unpleasant feelings, such as anxiety, depression or loneliness.<sup>(4)</sup>

Students with high internet addiction are more vulnerable to the psychosocial impacts. Internet addiction among adolescents is a major public health problem and shows positive correlation with stress, anxiety or depression.

Internet use has increased rapidly all over the world. Internet addiction among adolescents is a major public health

problem and shows association with psychosocial factors like stress, anxiety or depression.

Internet addiction is an upcoming but less researched entity, especially in low and middle-income countries. In India, there is paucity of data regarding internet addiction among school going adolescents and in our study area no such study has been conducted. Hence, this study was planned with the objectives to find out the prevalence and determinants of internet users and to study psychosocial risk factors of internet addiction among school going adolescents in urban area of Rohtak, Haryana.

### MATERIAL AND METHODS:

A cross-sectional study was carried out among school going adolescents studying in class 8<sup>th</sup> to 12<sup>th</sup> of the government and private schools in the urban area of Rohtak, Haryana, over a period of 12 months using a pre-tested semi-structured interview schedule.

**Sample Size Calculation:** Sample size was calculated using the formula  $4PQ/L^2$  where P was the prevalence of internet users (according to a study done by Goel. D et al in 2013, prevalence of internet users was 74.5%),<sup>(5)</sup> Q was 1-P and L was allowable error which was taken as 5% of the prevalence. By using this formula, the calculated sample size was 548. So, the total sample of 600 students were included in the study.

Students who gave verbal consent to participate in the study were included. Students who were absent from the school on the days of the visit and those who were not willing to participate in the study were excluded from the study.

**Data collection:** Two government and two private senior secondary schools were selected randomly by lottery method

from the list provided by District Education Officer and total 600 students were selected from these schools. Prior permission was sought from the principals of the selected schools before initiating the study. Written valid consent was obtained from their parents/guardians. One hundred & fifty students from each school were selected. Thirty students from each class 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> were selected randomly.

The questionnaires included were:

1) For internet addiction: **Young's Internet Addiction Test (IAT)**<sup>(6)</sup>.

Internet Addiction Test (IAT) is a reliable and valid measure. The scale will be used to determine the presence or absence of internet addiction in the adolescents. It was developed by Dr. Kimberly Young and consists of 20 items that measures mild, moderate and severe level of Internet Addiction. Total score will conclude the level of addiction.

- < 19 points: Normal users
- 20 – 49 points: Mild addict
- 50 – 79 points: Moderate addicts

80 100 points: Severe addicts

2) For depression: **Depression, Anxiety and Stress Scales-42 (DASS-42)**<sup>(7)</sup>. Lower scores are better.

	Normal	Mild	Moderate	Severe	Very severe
Depression	0-9	10-13	14-20	21-27	28+
Anxiety	0-7	8-9	10-14	15-19	20+
Stress	0-14	15-18	19-25	26-33	34+

**Data Analysis:** The data was entered in the MS-EXEL sheet and analysed using SPSS-version-20.0 (Statistical package for the social sciences) software.

**RESULTS:**

In the present study, out of 600 students, 265 (44.17%) were females and 335 (55.83%) were males. Subjects had more boys than girls as the data was collected during routine lectures and the attendance of boys might have been more. The mean age of adolescents was 14.8 (SD=1.55). The study showed that 86% of the enrolled subjects were using internet. Table-1 shows the distribution of study subjects according to the Young's IAT score. Table-2 shows the distribution of study subjects according to the DASS-Depression score. Gender-wise, males were more depressed as compared to females which was found to be statistically significant (p<0.01, X 2 = 17.59). This association between level of depression and IAT Score was highly significant (p<0.01, X 2= 194.303) (Table-3).

**Table.1. Distribution of study subjects according to the internet addiction test (IAT) score (N=516)**

IAT Score	Type of user	Male (n=297)	Female (n=219)	Total (n=516)
≤19	Normal user	72 (24.24)	99 (45.21)	171 (33.14)
20-49	Mild internet addiction	154 (51.85)	80 (36.53)	234 (45.35)
50-79	Moderate internet addiction	69 (23.23)	39 (17.81)	108 (20.93)
80-100	Severe internet addiction	2 (0.67)	1 (0.45)	3 (0.58)

(Figures in parentheses indicate percentage- %)

**Table 2. Distribution of study subjects according to the Depression DASS-D score (N=516)**

Gender	Depression score					X <sup>2</sup> = 17.59 p value < 0.01
	No depression	Mild depression	Moderate depression	Severe depression	Very severe depression	

<b>Male (n=297)</b>	233 (78.45)	24 (8.08)	24 (8.08)	14 (4.72)	2 (0.67)	
<b>Female (n=219)</b>	188 (85.84)	17 (7.76)	9 (4.11)	1 (0.46)	4 (1.83)	
<b>Total (n=516)</b>	421 (81.58)	41 (7.95)	33 (6.40)	15 (2.91)	6 (1.16)	

(Figures in parentheses indicate percentage- %)

**Table.3. Association between level of depression according to DASS-D score and IAT score (N=516)**

IAT Score	Depression (DASS-D) score					Total n (%)
	No depression n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Very severe n (%)	
<b>Normal users/ no addiction</b>	167 (97.7)	2 (1.2)	1 (0.6)	1 (0.6)	0 (0)	171 (100)
<b>Mild addiction</b>	190 (81.2)	24 (10.3)	16 (6.8)	3 (1.3)	1 (0.4)	234 (100)
<b>Moderate addiction</b>	64 (59.3)	14 (13.0)	16 (14.8)	11 (10.2)	3 (2.8)	108 (100)
<b>Severe addiction</b>	0 (0)	1 (33.3)	0 (0)	0 (0)	2 (66.7)	3 (100)
<b>Total</b>	421 (81.59)	41 (7.95)	33 (6.39)	15 (2.91)	6 (1.16)	516 (100)

**X<sup>2</sup> = 194.303, p < 0.01**

(Figures in parentheses indicate percentage- %)

**DISCUSSION:**

The present study demonstrated that after applying Young's Internet Addiction Test (IAT), more than two-third of the internet users were categorised as addicts and less than one-third were normal internet users/ non-addicts. Similar prevalence rate of internet addiction, i.e. more than 60% was found in the studies conducted by **Bhatia et al (2016)**<sup>(8)</sup> and **Ataee et al (2014)**<sup>(9)</sup>. While, **Balhara et al (2015)**<sup>(10)</sup>, **Sharma et al (2014)**<sup>(11)</sup>, **Bahrainian et al (2014)**<sup>(12)</sup> and **Azher et al (2014)**<sup>(13)</sup> reported nearly 40% prevalence of internet addiction among the study participants. Prevalence of internet addiction is increasing day by day it could be due to social or psychological factors such as loneliness, lower self-esteem or life satisfaction which might lead to internet addiction in adolescents.

It is observed that out of total internet users 18.42% were depressed, having mild (7.95%), moderate (6.40%), severe (2.91%) or very severe depression (1.16%). **Chou et al (2018)**<sup>(14)</sup> and **Tan et al (2016)**<sup>(15)</sup> noted depressive symptoms among 27.5% and 54.4% of the study subjects, respectively. On the contrary, **SharmaP et al (2016)**<sup>(16)</sup> found that girls had high scores on the depression scale of the DASS-questionnaire.

Most of the normal users were not having any sort of depression (97.7%). Nearly 20% mild addicts and 40% moderate addicts were suffering from one or the other form of depression. Very severe depression was observed among the subjects who were severely addicted to internet. Hence, it was observed that the level of depression is increasing with the increase of internet addiction scores and this was statistically significant (p < 0.05).

These findings were consistent with other studies acquitted by **Younes et al (2016)**<sup>(17)</sup>, **Nassehi et al (2016)**<sup>(18)</sup>, **Akin et al (2011)**<sup>(19)</sup>, **Gholamian et al (2017)**<sup>(20)</sup>, **Yadav et al (2013)**<sup>(21)</sup> and **Ostovar et al (2016)**<sup>(22)</sup> and found significant relationship between internet addiction and depression. Similarly, studies by **Malviya et al (2014)**<sup>(23)</sup>, **Bahrainian et al (2014)**<sup>(12)</sup>, **Joseph et al (2018)**<sup>(24)</sup>, **Hyun et al (2007)**<sup>(25)</sup>, **Liang et al (2016)**<sup>(26)</sup>, **Whang et al (2004)**<sup>(27)</sup>, **Hsieh et al (2018)**<sup>(28)</sup>, **Lai et al (2015)**<sup>(29)</sup>, **Tan et al**

(2016)<sup>(15)</sup>, Young et al (2009)<sup>(60)</sup> and WuXS et al (2016)<sup>(31)</sup> also established statistically significant relationship between depression and internet addiction. Goel et al (2013)<sup>(5)</sup> and Kaess et al (2014)<sup>(62)</sup> also stated that Internet Addicts had high depression scores and was statistically significant.

### CONCLUSION:

While, more than two-third (66.86%) of adolescents who were apparently healthy suffered from internet addiction which is worrisome. Those who were addicted to the use of internet had depression. Students with high internet addiction are more vulnerable to these psychosocial impacts. This had also been emphasized in other similar studies as well. It is relatively a newer kind of addiction that is developing in the youth of today and becoming a major public health concern. Hence, parents and schools are requested to counsel their adolescent children regarding appropriate use of internet and balancing the time between internet surfing, studies and outdoor physical activities.

### LIMITATIONS:

Participants were school going adolescents and generalization of the results is somewhat limited. Owing to the cross-sectional study design, the study is unable to decipher the direction of associations or long-term outcomes of internet addiction as it need more accurate and longer studies to determine the relationship among the variables under study more accurately.

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Nil.

### CONFLICTS OF INTEREST:

There are no conflicts of interest.

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