

# Problematic Internet Use and Co-Morbid Psychiatric Symptoms among College Students

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## ABSTRACT

Excessive internet use is defined when internet use has become excessive, uncontrolled, time-consuming leading to severely disrupting people's lives causing impairment or distress. It creates a heightened level of psychological arousal, resulting in naps, starvation, and limited physical activity, leading to physical and mental health problems like depression, OCD, low family relationships and anxiety. Studies have been conducted among college students as they are vulnerable to Internet addiction than other groups. A quantitative research approach with descriptive research design was adopted among 100 students by purposive sampling technique via Google forms which includes demographic variables, Internet Addiction Test and Perceived Stress Scale by semi-structured questionnaires and serotonin level was assessed. Among 100 sample, the level of internet addiction among college students shows that 63(64.3%) had moderate level of internet addiction and 35(35.7%) had mild level of internet addiction among college students. The level of perceived stress among college students shows that 73(74.5%) had moderate stress and 25(25.5%) had high perceived stress among college students. Serotonin among college students shows that 87(88.8) had normal serotonin level and 11(11.2%) had low serotonin level which is an indicator of depression. As a result of the study the correlation shows the mean score of internet addiction was  $51.42 \pm 5.74$  and the mean score of perceived stress was  $23.42 \pm 4.29$ . The calculated Karl Pearson's Correlation Value of  $r = 0.407$  shows a moderate positive correlation between internet addiction and perceived stress which was found to be statistically significant at  $p < 0.001$  level. This clearly infers that when the internet addiction among college students increases their perceived stress also increases.

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**KEYWORDS:** Internet addiction test, perceived stress scale, serotonin, depression

## INTRODUCTION

More over 2.5 billion people use the internet regularly around the world, with children and teenagers making up the majority of these users. An individual's inability to control their use of the Internet, which has detrimental effects on the affected people's day-to-day lives, is a broad definition of problematic Internet use, which has emerged as a global and social problem. Excessive internet use is also defined as when use of the internet is out of control, time-consuming, and excessive to the point of becoming timeless and seriously interfering with people's lives. Another characteristic of internet addiction is a pattern of usage that causes clinically substantial

impairment or suffering in those who use it. Due to the fact that the Internet is becoming a necessary component of daily life, it is. As the Internet has become an important part of day to day life, it is used for entertainment and communication as well as education especially during the covid-19 lockdown. studies have been conducted among college students because they are more vulnerable to be addicted to the internet than other groups. Despite its extended advantages, the negative impacts of Internet use have emerged, in particular, excessive internet use. There is an increasing evidence that problematic internet use among high school students is emerging due to easy

access to the Internet especially during the covid-19 pandemic situations where the students had to take up their online classes. Thus, high school students, like college students, are vulnerable to problematic internet use that will lead to other psychiatric symptoms like depression, sleeplessness, attention deficit, anxiety, etc.

#### METHODS AND MATERIALS:

This study is a quantitative research study with a descriptive research design which was used to conduct the study in Saveetha College of Allied Health Sciences, SIMATS, Thandalam, where the selection of 100 samples were chosen from 2nd year Allied Health Sciences Department that is in SIMATS Thandalam, by the use of purposive sampling technique. The inclusion criteria for sample selection are 2nd year Students from Saveetha College of Allied Health Sciences who are willing to participate in the study, Students of both male and female gender and the students who are available at the time of data collection. The exclusion criteria includes Allied Health Sciences students who do not know english or Tamil and the students who do not use basic model phones. The data collection was done with formal permission. The purpose of the study was explained and informed consent was obtained. The google forms was created and circulated to the samples who met the inclusion criteria wherein demographic variables and Internet Addition Test, Perceived Stress Scale that includes Semi-structured questionnaire and the serotonin level of the students were assessed. Analysis was done resulting in sample characteristics which were described using frequency and percentage

#### RESULTS AND DISCUSSION:

##### ➤ Demographic variables:

In this study, with regards to the demographic characteristics, most of the college students 62(62%) were aged between 15 – 20 years, 62(62%) were male, 100(100%) were studying in Saveetha College of Allied Health Sciences, 30(30.6%) were doing B.Sc. Dialysis Technology, 100(100%) were using

mobile phones and 29(29.8%) were using internet for 4 hours.

The present study was supported by **Ju-Yu Yen, Cheng-Shend Chen etc., (2019)** to study the Association between Adult ADHD Symptoms and Internet Addiction among College Students A total of 2,793 students were recruited. Of them, 2,619 participants completed all scales entering the final analysis. Their ages ranged from 18 to 48 years. The results show that 12.9% of college students (20% male, 9.4% female) were classified as having Internet addiction. Additionally, 9.9% of participants were screened positive for adult ADHD. Chi-square analysis revealed that college students with Internet addiction were more likely to be male and to be screened positive for adult ADHD. Logistic regression revealed that college students screening positive for adult ADHD had higher odds ratio (OR 2.84, 95% CI 2.09–3.88) of having Internet addiction under control of gender and age. According to t test results, those with Internet addiction had higher severity on attention deficit, hyperactivity, and impulsivity

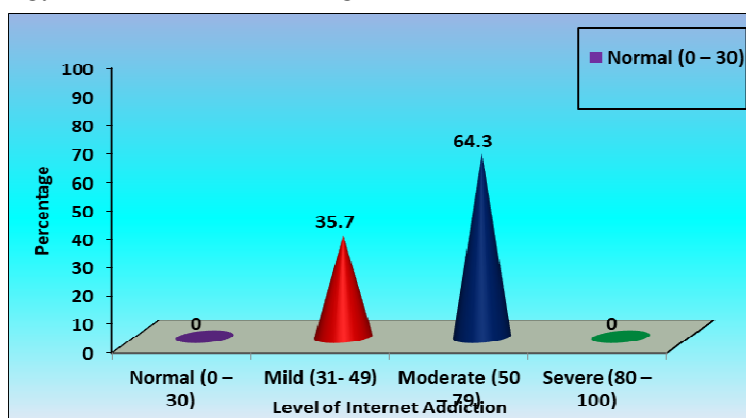
##### ➤ Analysing the level of internet addiction, perceived stress scale and serotonin level among college students:

##### • INTERNET ADDICTION

The estimation level of internet addiction, perceived stress scale and serotonin levels among college students shows that 63(64.3%) had moderate level of internet addiction and 35(35.7%) had mild level of internet addiction among college students.

Level of Internet Addiction	Frequency (F)	Percentage (%)
Normal (0 – 30)	-	-
Mild (31- 49)	35	35.7
Moderate (50 – 79)	63	64.3
Severe (80 – 100)	-	-

**Table 2: Frequency and percentage distribution of level of internet addiction among college students.**



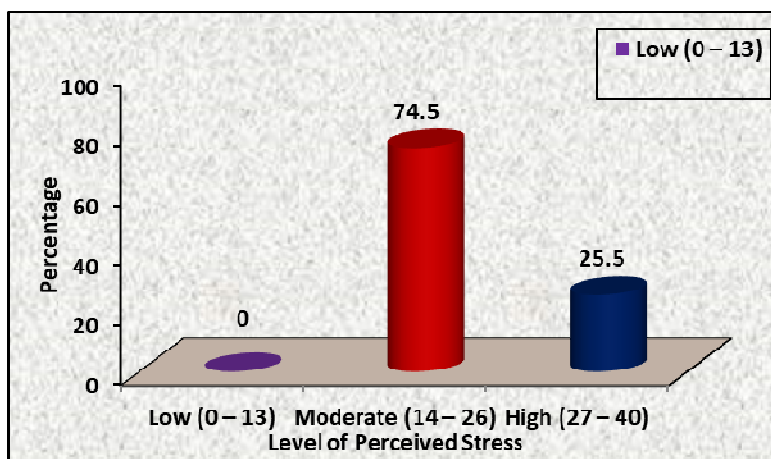
**(Fig 1) Percentage distribution of level of internet addiction among college students**

**• PERCEIVED STRESS SCALE:**

The analysis of the level of perceived stress scale shows that 73(74.5%) had moderate stress and 25(25.5%) had high perceived stress among college students.

Level of Perceived Stress	Frequency (F)	Percentage (%)
Low (0 – 13)	-	-
Moderate (14 – 26)	73	74.5
High (27 – 40)	25	25.5

**Table 3: Frequency and percentage distribution of level of perceived stress among college students.**



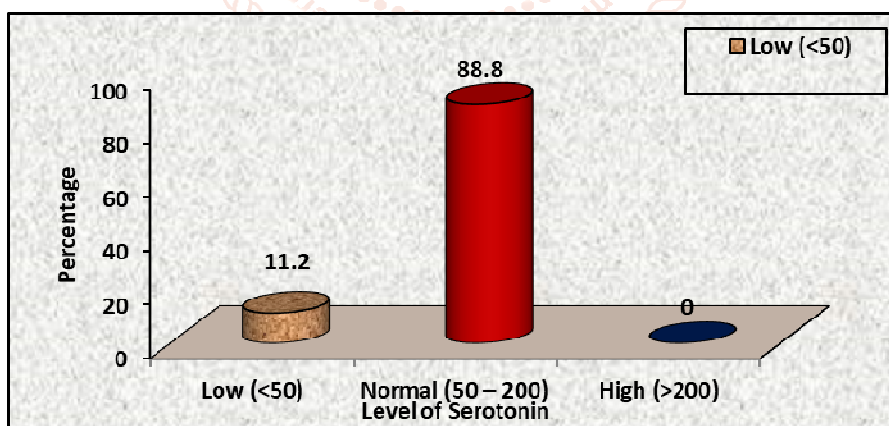
**(Fig 2) Percentage distribution of level of perceived stress among college students**

**• SEROTONIN:**

The analysis of the level of serotonin shows that 87(88.8%) had normal serotonin level and 13(13%) had low serotonin level which is an indicator of depression among college students.

Level of Serotonin	Frequency (F)	Percentage (%)
Low (<50)	13	13
Normal (50 – 200)	87	88.8
High (>200)	-	-

**Table 4: Frequency and percentage distribution of level of serotonin among college students.**



**(Fig 3) Percentage distribution of level of serotonin among college students**

**ASSOCIATION OF LEVEL OF INTERNET ADDICTION, PERCEIVED STRESS AND SEROTONIN LEVEL WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES.**

Demographic Variables	Mild		Moderate		Chi-Square
	F	%	F	%	
<b>Age</b>					$\chi^2=2.538$ d.f=1 p=0.111 N.S
15 – 20	17	17.3	41	41.8	
20 – 25	18	18.4	22	22.4	
25 – 30	-	-	-	-	
30 – 35	-	-	-	-	

<b>Gender</b>					$\chi^2=3.964$ d.f=1 p=0.046 S*
Male	7	7.1	25	25.5	
Female	28	28.6	38	38.8	
<b>Course</b>					$\chi^2=4.889$ d.f=3 p=0.180 N.S
B.Sc. Cardio Vascular Technology	3	3.1	14	14.3	
B.Sc. Dialysis Technology	12	12.2	18	18.4	
B.Sc. Respiratory Technology	9	9.2	20	20.4	
B.Sc. Biomedical Science	11	11.2	11	11.2	
<b>Year of study</b>					-
1 <sup>st</sup> year	-	-	-	-	
2 <sup>nd</sup> year	35	35.7	63	64.3	
3 <sup>rd</sup> year	-	-	-	-	
4 <sup>th</sup> year	-	-	-	-	
<b>Usage of mobile phones</b>					-
Yes	35	35.7	63	64.3	
No	-	-	-	-	
<b>No. of hours usage of internet</b>					$\chi^2=1.156$ d.f=4 p=0.885 N.S
2 hours	2	2.0	7	7.1	
3 hours	5	5.1	11	11.2	
4 hours	11	11.2	18	18.4	
5 hours	10	10.2	17	17.3	
More than 5 hours	7	7.1	10	10.2	

**Table 6: Association of level of internet addiction among college students with their selected demographic variables.**

The table 6 shows that the demographic variable gender had shown statistically significant association with level of internet addiction among college students at  $p < 0.05$  level and the other demographic variables had not shown statistically significant association with level of internet addiction among college students.

Demographic Variables	Moderate		High		Chi-Square
	F	%	F	%	
<b>Age</b>					$\chi^2=0.009$ d.f=1 p=0.923 N.S
15 – 20	43	43.9	15	15.3	
20 – 25	30	30.6	10	10.2	
25 – 30	-	-	-	-	
30 – 35	-	-	-	-	
<b>Gender</b>					$\chi^2=0.824$ d.f=1 p=0.364 N.S
Male	22	22.4	10	10.2	
Female	51	52.0	15	15.3	
<b>Course</b>					$\chi^2=1.960$ d.f=3 p=0.581 N.S
B.Sc. Cardio Vascular Technology	13	13.3	4	4.1	
B.Sc. Dialysis Technology	23	23.5	7	7.1	
B.Sc. Respiratory Technology	19	19.4	10	10.2	
B.Sc. Biomedical Science	18	18.4	4	4.1	
<b>Year of study</b>					-
1 <sup>st</sup> year	-	-	-	-	
2 <sup>nd</sup> year	73	74.5	25	25.5	
3 <sup>rd</sup> year	-	-	-	-	
4 <sup>th</sup> year	-	-	-	-	

Usage of mobile phones					
Yes	73	74.5	25	25.5	-
No	-	-	-	-	-
No. of hours usage of internet					
2 hours	8	8.2	1	1.0	$\chi^2=10.914$ d.f=4 p=0.028 S*
3 hours	12	12.2	4	4.1	
4 hours	25	25.5	4	4.1	
5 hours	14	14.3	13	13.3	
More than 5 hours	14	14.3	3	3.1	

**Table 7: Association of level of internet addiction among college students with their selected demographic variables**

The table 7 shows that the demographic variable no. of hours usage of internet had shown statistically significant association with level of perceived stress among college students at  $p < 0.05$  level and the other demographic variables had not shown statistically significant association with level of perceived stress among college students.

Demographic Variables	Low		Normal		Chi-Square
	F	%	F	%	
<b>Age</b>					
15 – 20	5	5.1	53	54.1	$\chi^2=0.967$ d.f=1 p=0.325 N.S
20 – 25	6	6.1	34	34.7	
25 – 30	-	-	-	-	
30 – 35	-	-	-	-	
<b>Gender</b>					
Male	6	6.1	60	61.2	$\chi^2=0.923$ d.f=1 p=0.337 N.S
Female	5	5.1	27	27.6	
<b>Course</b>					
B.Sc. Cardio Vascular Technology	5	5.1	12	12.2	$\chi^2=7.218$ d.f=3 p=0.065 N.S
B.Sc. Dialysis Technology	3	3.1	27	27.6	
B.Sc. Respiratory Technology	2	2.0	27	27.6	
B.Sc. Biomedical Science	1	1.0	21	21.4	
<b>Year of study</b>					
1 <sup>st</sup> year	-	-	-	-	-
2 <sup>nd</sup> year	11	11.2	87	88.8	
3 <sup>rd</sup> year	-	-	-	-	
4 <sup>th</sup> year	-	-	-	-	
<b>Usage of mobile phones</b>					
Yes	11	11.2	87	88.8	-
No	-	-	-	-	
<b>No. of hours usage of internet</b>					
2 hours	0	0	9	9.2	$\chi^2=47.013$ d.f=4 p=0.0001 S***
3 hours	0	0	16	16.3	
4 hours	0	0	29	29.6	
5 hours	1	1.0	26	26.5	
More than 5 hours	10	10.2	7	7.1	

**Table 8: Association of level of serotonin among college students with their selected demographic variables.**

The table 8 shows that the demographic variable no. of hours usage of internet had shown statistically significant association with serotonin level among college students at  $p < 0.001$  level and the other demographic variables had not shown statistically significant association with serotonin level among college students.

### Students' Perceived Stress and Internet Addiction during the Lockdown in India

Bhupendra Singh, Priti Singh, Upendra Singh, Purushottam Jangid, Rajiv Gupta

**Table 1: Relationship between perceived stress, Internet addiction, and pattern of use**

VARIABLE	PATTERN OF USE	INTERNET ADDICTION	PERCEIVED STRESS
Pattern of use	1	0.581**	0.360**
Internet addiction		1	0.171**
Perceived stress scale			1

Correlation is significant at 0.01 level

This explains the correlation between the pattern of use Internet addiction and perceived stress. Table 5 shows a highly significant positive correlation that explains if the score of one increases, the rest two will be increased or vice versa.

Study of Internet Use Characteristics, Perceived Stress, and

### Internet Addiction among First-year Medical Students of Jamnagar, Gujarat, India

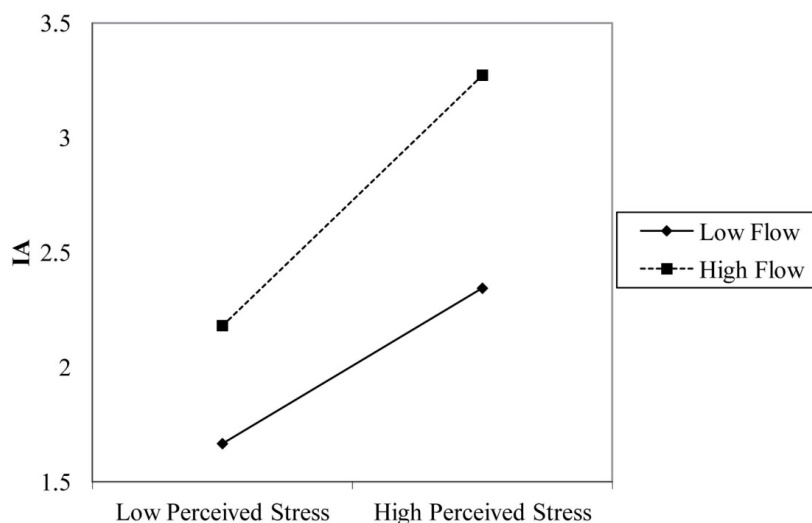
Vishal K Patel

VARIABLES		INTERNET ADDICTION	ODDS RATIO	P VALUE	LOWER	UPPER
Total duration of internet use	<5 years	11(36.66)	1	0.018	1.59	14.13
	>5 years	19(63.33)	1.492			
Time spent/day	<2 hours	4(13.33)	1	0.001	5.34	42.85
	>2 hours	26(86.66)	4.763			
Gadgets used	Mobile	10(33.33)	1	0.001	4.44	40.251
	Mobile and other	20(66.66)	4.261			
Perceived stress	No/mild	4(13.33)	1	0.002	3.77	28.23
	high	26(86.66)	3.217			
Money spent	<300rs	14(46.66)	1	0.120	0.72	8.89
	>300rs	16(53.33)	2.54			
Place of prominent use	Home/ hostel	11(36.66)	1	0.601	0.16	21.88
	everywhere	19(63.33)	1.915			

More than 85% of the addicted students did not perform any daily exercise/sports, spending more than 2 hours in a day, and perceived high level of stress. The distribution of total duration of internet use, time and money spent on internet, gadgets used for internet, perceived stress, and internet addiction was statistically significant using binary logistic regression analysis

### Perceived Stress and Internet Addiction among Chinese College Students:

Zhun Gong, Liyun Wang and Haijiao Wang



A simple slope test was performed in order to explain more clearly the interaction between the perceived stress and the flow. The effect analysis diagram found that perceived stress has a significant positive predictive effect on Internet addiction, regardless of low and high flow. While, the positive predictive effect of high flow is more obvious

### CONCLUSION:

From this study it clearly signifies that when the Internet addiction among college students increases their perceived stress also increases.

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### AUTHOR'S CONTRIBUTION:

All the authors actively participated in the work of the study. All authors read and approved the final manuscript

### CONFLICT OF INTEREST:

The authors declare no conflicts of interest

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