

# A Study on Problematic Internet Use and Sleepiness amongst Students of a Medical College in Sikkim

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## ABSTRACT

**Background:** Problematic Internet use (PIU) has become a global social issue and can be regarded as an individual's inability to control Internet usage which results in negative impact in daily life. Individuals who spent more time on surfing the Internet are likely to sleep late night and this further increases the level of tiredness. The present study was commenced to determine relationship between Internet uses and sleep patterns among medical college students.

**Methods:** The present study was commenced among 149 undergraduate students studying at Sikkim Manipal Medical College. The severity of addiction to Internet was measured using Young's Internet addiction test. Epworth Sleepiness Scale (ESS) which consists of subjective sleepiness scale comprising of eight items was used to measure daytime sleepiness. Significance of association of Internet addiction and sleep disturbance was done by Fisher's 2 sample t- test and a value of less than 0.05 was considered as significant value.

**Results:** The proportions of boys who were pathological Internet addicts (moderate to severe) were 9.5%. For girls, the corresponding proportions were 7.5%. The prevalence of Excessive daytime sleepiness (EDS) was 20.1%. This study estimated the prevalence of pathological Internet using was 8.05%. Present study found an association between problematic Internet use and excessive daytime sleepiness. The association was statistically significant ( $p = 0.016$ ).

**Conclusion:** The present study shows that Internet overuse was strongly associated with EDS and other sleep problems in adolescents. Because the number of Internet addicts will continue to grow, clinicians should consider examining Internet addiction in adolescent cases of EDS.

**Keywords:** Depression; Mental Disorders, Sleep problem.

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## INTRODUCTION

Problematic Internet use (PIU) has become a global social issue and can be regarded as an individual's inability to control Internet usage which results in negative impact in daily life. In view of the fact that Internet usage has become more and more extensive and common among people, the problematic Internet use (PIU) has become a matter of great concern.<sup>[1]</sup>

The present world is being shaped by Internet's connectivity, interactivity and accessibility. People can now easily access alluring online-based material such as games, shopping, gambling and pornography, and their unnecessary and extreme use has become a considerable hitch. This

unnecessary and excessive Internet usage in relation to the aforementioned data negatively influences family relationships, academic outcomes and occupational success.<sup>[2]</sup> Problematic Internet use results in marked distress and/or functional impairment<sup>[3]</sup> and moreover, it has not been yet considered in any Internet classification like Diagnostic and Statistical Manual for Mental Disorders-5 (DSM-5) or currently proposed as a formal diagnostic criteria in the International Classification of Diseases (ICD)-10. Internet gaming disorder a related disorder has been included in DSM-5.<sup>[4]</sup>

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Frequent use of technology at bedtime leads to sleep disturbances.<sup>[5]</sup> Use of Internet and computer games leads to lack of sleep.<sup>[6]</sup> Individuals who spent more time on surfing the Internet are likely to sleep late night and this further increases the level of tiredness.<sup>[7]</sup> Excessive Internet use causes shorter sleep duration and is associated with psychiatric problems like depression.<sup>[8]</sup> The present study was commenced to determine relationship between Internet use and sleep patterns among medical college students.

## METHODS

The present study was planned and commenced among 149 undergraduate students of (both male and female) aged 18 years or above studying at Sikkim Manipal Medical College. Voluntary subjects of each year at medical college providing consent were included in the study. Informed written consent was taken before the commencement of the study. The severity of addiction to Internet was measured using Young's Internet addiction test.<sup>[9]</sup> This scale is used to assess the degree of preoccupation, behavioral problems, compulsive use, emotional changes and impact of usage of Internet on life. The addiction scale of 20 items of the Internet are standardized with scores which range from 1 to 5 with total score ranging from 20 to 100, with a greater score reflecting a higher tendency towards addiction. In accordance with the original scheme of Young, three types of Internet user groups were identified: Internet addicted, possibly addicted, and non-addicted, whose scores on the Internet addiction scale were 70, 40–69, and 39, respectively.

Epworth Sleepiness Scale (ESS)<sup>[10]</sup> which consists of subjective sleepiness scale comprising of eight items was used to measure daytime sleepiness. A greater score on the ESS represents a higher propensity for sleepiness with possible ESS scores range from 0 to 24. In the present study Excessive daytime sleepiness (EDS) was defined as ESS >10. Snorers were considered as students who snored 3 days/week. Students were categorized as having apnea, teeth grinding, or nightmares if they encountered each of these respective hitch 3 times a week. Questions addressing insomnia during the last month comprised of: (i) 'Do you have any trouble in falling asleep at night?' (Difficulty in initiating sleep); (ii) 'Do you wake up during the night after falling asleep and have trouble in going back to sleep?' (Difficulty in maintaining sleep); and (iii) 'Do you get up too early in the morning?' (Early morning awakening). The presence of trouble in initiating sleep, trouble in sleep maintenance at night, and early morning awakening was considered as occurrence 3 times a week. The presence of insomnia was described as occurrence of insomnia subtypes.

Obtained data was tabulated and Internet addiction test scale score and Epworth sleepiness scale score were expressed in Mean  $\pm$  SD. Significance of association of Internet addiction and sleep disturbance was done by Fisher's 2 sample t- test and a value of less than 0.05 was considered as significant value.

## RESULTS

A total of 42 boys (28.18%) and 107 girls (71.82%) completed the questionnaire. The mean age of the study subjects was  $21.9 \pm 4.6$  years. Table 1 shows data related to pathological Internet addicts.

The proportions of boys who were pathological Internet

addicts (moderate to severe) were 9.5%. For girls, the corresponding proportions were 7.5%. The prevalence of EDS was 20.1%. This study estimated the prevalence of pathological Internet using was 8.05%.

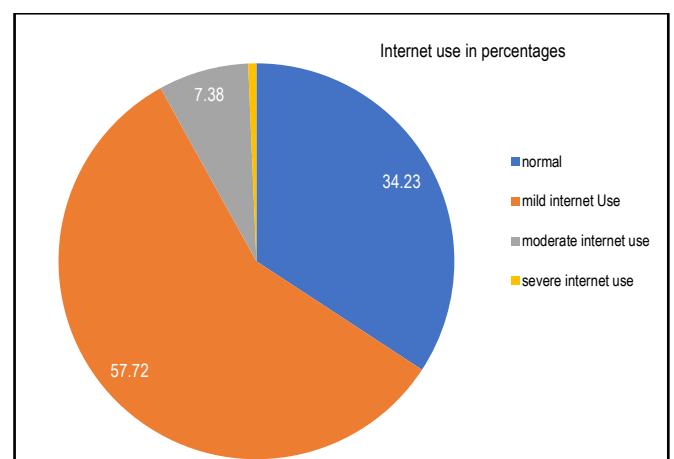
Present study found an association between problematic Internet use and excessive daytime sleepiness. The association was statistically significant ( $p = 0.016$ ). Total Internet usage among study subjects. 34.23% students reported normal Internet usage, 57.72% students reported mild Internet usage, 7.38% students reported moderate Internet usage and 0.67% students reported severe Internet usage and shows determination of excessive daytime sleepiness among study subjects. 79.9 subjects were found normal in relation to excessive daytime sleepiness whereas 18.8% subjects were reported mild to moderate daytime sleepiness and 1.3% subjects reported severe daytime sleepiness.

**Table 1: Study parameters**

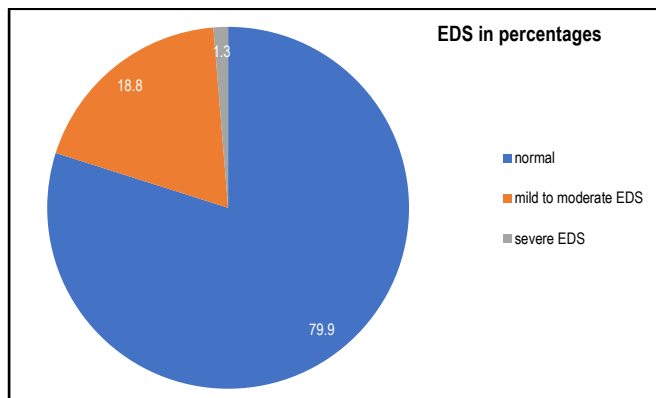
Parameters	Obtained data
Mean age	21.9 $\pm$ 4.6 years
Pathological Internet addicts	Boys 9.5% Girls 7.5% $p > 0.05$
Prevalence of pathological Internet addicts	8.05%.
Association between problematic Internet use and excessive daytime sleepiness (p value)	$P = 0.016$

**Table 2: Meta-analysis of various studies regarding problematic Internet use**

Studies	% of Problematic Internet use
USA (Derbyshire KL et al) <sup>[13]</sup>	5.3%
Norwegian (Bakken IJ et al) <sup>[17]</sup>	1%
India (Grover et al) <sup>[18]</sup>	3.8%
India (Nalwa et al) <sup>[19]</sup>	18%
Iran (Gholamian B et al) <sup>[15]</sup>	2.9%
Japan (Mihara S et al) <sup>[16]</sup>	7.9%
Global review (Cho K et al) <sup>[20]</sup>	6%
Current Study	8.05%



**Graph 1: Total Internet usage among study subjects.**



**Graph 2: Determination of Excessive Daytime Sleepiness (EDS) among study subjects**

## DISCUSSION

Over the last 15 years, the number of Internet users has increased by 1000%, and at the same time, research on addictive Internet use has proliferated.<sup>[11]</sup> For the majority of Internet users, the World Wide Web represents a tremendous wellspring of opportunity that enhances well-being. For others, however, it can lead to a state that appears to meet the DSM definition of a mental disorder, described as a clinically significant behavioral or psychological syndrome that is associated with present distress.<sup>12</sup> Internet addiction has not yet been understood very well, and research on its etiology and natural history is still in its infancy.<sup>[11]</sup>

The present study estimated the prevalence of pathological Internet using was 8.05%. In consensus with global and national prevalence rates 3.8 % - 18%. Gender differences were not significant (M=9.5% and F=7.5%) in our study. EDS in current study (20.1%) found to be having consensus with international study (20%). The present study found an association between problematic Internet use and excessive daytime sleepiness. The association was statistically significant ( $p=0.016$ ). Derbyshire KL et al<sup>[13]</sup> reported the prevalence of pathological Internet using was 5.3% and revealed that variables were significantly associated with greater frequency of Internet use included lower Grade Point Average ( $p=.006$ ), less frequent exercise ( $p=.018$ ), higher PHQ-9 scores ( $p<.0001$ ) (indicative of greater depression symptoms) and higher perceived Stress Scores ( $p<.0001$ ). Hoare E et al<sup>[14]</sup> evaluated the relationship between duration of time spent using Internet for leisure, depressive symptoms, and psychological distress among Australian adolescents and the study revealed that the greatest time spent using Internet ( $\geq 7$  h a day) was significantly associated with experiencing depressive symptoms among females, and high/very high levels of psychological distress for male and female adolescents. Gholamian B et al<sup>[15]</sup> carried out a study to determine the prevalence of Internet addiction and its relationship to anxiety, stress, and depression among Iranian high-school students and reported that 2.9% were severely addicted to the Internet. Mihara S et al<sup>[16]</sup> studied prevalence of problematic Internet use and associated Internet use in adolescents in Japan and found prevalence of PIU was 6.2% in males, 9.8% in females, and 7.9% in total which correlated

with female gender, school grades, and number of Internet hours.

The present study had a limitation of low sample size ( $n=149$ ) because this study done on medical college & hospital only. Results cannot be generalized as sample was restricted to late adolescent medical students. Confounding factors such as substance use, psychiatric illness, duration of Internet use, sleep duration was not taken into consideration and the cause effect relationship cannot be ascertained due to cross-sectional nature of study design.

## CONCLUSION

The present study shows that Internet overuse was strongly associated with EDS and other sleep problems in adolescents. Because the number of Internet addicts will continue to grow, clinicians should consider examining Internet addiction in adolescent cases of EDS.

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