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Internet Addiction among Undergraduate Medical Students and its Association with Sensation-Seeking Traits

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ABSTRACT

Introduction
Easy access to the internet has raised concerns about internet addiction among medical students. This study aimed to assess the prevalence of internet addiction and its relationship with sensation-seeking traits.

Methods
A cross-sectional study was conducted at National Medical College, Birgunj, Nepal, from January to June 2023. Ethical approval was obtained from the Institutional Review Committee (Ref. No: F-NMC/620/079-080). Undergraduate medical students were selected through convenience sampling. The Internet Addiction Test (IAT) and Arnett Sensation Seeking Scale were used for data collection, and data were analyzed using SPSS 21 with descriptive statistics, t-test, and Pearson correlation.

Results
The study included 155 undergraduate medical students (Mean age: 21.22 ± 1.649 years). Most were fourth-year (n=58, 37.4%), followed by first-year (n=42, 27.1%), second-year (n=29, 18.7%), and third-year (n=26, 16.8%) students. Internet addiction was found in 86 students (55.5%), with 84 (54.2%) showing problematic and 2 (1.3%) severe use. High sensation-seeking traits were observed in 47 (30.3%). Weak negative correlations were found between internet addiction and sensation-seeking ($r = -0.143$ to -0.126, $p > 0.05$). Gender differences were observed in sensation-seeking ($p = 0.022$) and intensity ($p < 0.001$), but not in internet addiction or novelty ($p > 0.05$).

Conclusion
The study found a high prevalence of internet addiction, with weak negative correlations to sensation-seeking traits, highlighting the need for awareness and interventions on healthy internet use.

Keywords
Intensity; internet addiction; medical students; novelty; sensation seeking

INTRODUCTION

The Internet plays a crucial role in modern life, but its overuse has led to internet addiction, a growing concern resembling other behavioral addictions.[1] Experts debate whether it should be considered a separate disorder due to its similarities with other addictions.[2] Global studies show internet addiction is widespread, with a prevalence of 26.99% in the general population and a higher rate of 52.63% among medical undergraduate students.[3-5]

Excessive internet use negatively impacts academic performance, social interactions, and well-being, causing sleep issues, emotional challenges, and impaired clinical decision-making.[6] It is also linked to mental health issues like depression and anxiety, highlighting the need for targeted interventions.[7] Personality traits, particularly sensation-seeking, increase vulnerability to addictive behaviors.[8] Sensation-seeking drives individuals to pursue novel, intense experiences, often with impulsivity and risk-taking, raising addiction risks.[9] Research consistently connects sensation-seeking to various addictions, including substance abuse and gambling.[10]

This study aimed to investigate the prevalence of internet addiction among students and explore its relationship with sensation-seeking traits.

METHODS

A cross-sectional study was conducted at the National Medical College & Teaching Hospital, Birgunj, Nepal, over six months from January 2023 to June 2023. The target population comprised undergraduate medical students from first to fourth year. Ethical approval was obtained from the Institutional Review Committee of National Medical College (Ref. No: F-NMC/620/079-080). A sample size of 245 was calculated using the Cochran formula; it was adjusted to 155 considering a finite population of 400 students. A convenience sampling method was used. The inclusion criteria were undergraduate medical students currently enrolled from the first to fourth year, willing to provide informed consent. Students who were unwilling to participate were excluded.

Self-administered questionnaire method was used. Informed consent was obtained from all students. Participation was voluntary, with the assurance of confidentiality, and students were free to withdraw from the study at any point.

Internet addiction was assessed using the Internet Addiction Test (IAT), a 20-item standardised scale with Cronbach's alpha 0.896.[11] Sensation-seeking traits were evaluated using the Arnett Sensation Seeking Scale, a 20-item instrument designed to assess the desire for novel and stimulating experiences, with a reliability coefficient for the Intensity and Novelty subscales of 0.621 and 0.567, and the overall scale had a reliability coefficient of 0.646.[12] Both tools were used in their standard English versions. Questionnaires were distributed to students after the end of the regular classes those who showed willingness to participate. Students who wished to participate returned the completed questionnaires anonymously to the data collector.

Data were analysed using the Statistical Package for Social Sciences (SPSS)21. Descriptive statistics were used to summarise the data, while inferential statistics (t-tests) and Pearson correlation were applied to examine relationships between variables.

RESULTS

Out of 155 student participants, the majority, 79 (51.0%), were aged between 21 and 23 years, followed by 60 (38.7%) aged 18 to 20 years, and 16 (10.3%) aged 24 to 26 years (Mean ± SD = 21.22 ± 1.649). There was an almost equal gender distribution, with 78 (50.3%) females and 77 (49.7%) males. In terms of academic year, the largest group of participants were from the fourth year with 58 (37.4%), followed by the first year with 42 (27.1%), second year with 29 (18.7%), and third year with 26 (16.8%) (Table 1).

Internet addiction was found in 86 (55.5%) students. Among them, the majority, 84 (54.2%),

Table 1. *Socio-bio-demographic information of the Participants (n=155)*

Characteristics	Number
Age (year)	
Mean (SD)	21.22 (±1.65)
Minimum (years	18
Maximum	26
Age group (year)	
18-20	60 (38.7)
21-23	79 (51.0)
24-26	16 (10.3)
Sex	
Male	77 (49.7)
Female	78 (50.3)
Academic Year	
1st year	42 (27.1)
2nd year	29 (18.7)
3rd year	26 (16.8)
4rth year	58 (37.4)

Table 2. Pattern of Internet use among undergraduate Medical Students (n=155)

Level of Internet usage	Reference score range	Frequency	Obtain score range	Mean ± SD
Average	0-39	69 (44.5)	20–39	28.4 ± 6.3
Problematic	40-69	84 (54.2)	40–69	52.7 ± 7.5
Severely Problematic	>=70	2 (1.3)	70–85	72.5 ± 1.1

fell within the problematic usage category (mean ± SD = 52.7 ± 7.5), while 2 students (1.3%) were classified under the severely problematic usage category (Mean ± SD = 72.5 ± 1.1). In contrast, 69 students (44.5%) exhibited average internet usage (Mean ± SD = 28.4 ± 6.3). The total internet usage scores ranged from 20 to 73, with an overall Mean ± SD of 44.6 ± 12.8, suggesting that most students used the internet at a moderate to high level (Table 2).

Sensation-seeking traits were found high in 47 (30.3%) participants (Mean ± SD = 62.4 ± 6.8), while 54 (34.8%) exhibited average levels (Mean ± SD = 50.1 ± 2.0), and an equal number, 54 (34.8%), demonstrated low sensation-seeking levels (Mean ± SD = 38.6 ± 5.2). The total sensation-seeking scores ranged from 20 to 78, with an overall Mean ± SD of 49.7 ± 11.3 (Table 3).

Regarding the novelty subscale, 41 (26.5%) students scored high (Mean ± SD = 31.9 ± 2.7), 54 (34.8%) scored average (Mean ± SD = 25.2 ± 1.4), and 60 (38.7%) scored low (Mean ± SD = 18.7 ± 2.9), with total scores ranging from 10 to 38 and an overall mean ± SD of 24.5 ± 5.9 (Table 3).

Similarly, for the intensity subscale, 40 (25.8%) participants had high levels (score range: 27–40; mean ± SD = 31.3 ± 3.5), 54 (34.8%) had average levels (score range: 24–26; mean ± SD = 25.1 ± 0.8), and 61 (39.4%) scored low (score range: 10–23; mean ± SD = 19.5 ± 2.8), with a total score range of 10–40 and a mean ± SD of 24.7 ± 5.3 (Table 3).

Correlation analysis showed weak negative relationships between internet addiction and overall sensation-seeking (r = -0.143, p = 0.16), sensation-seeking intensity (r = -0.108, p = 0.29),

Table 3. Level of Sensation Seeking traits among undergraduate Medical Students (n=155)

Traits	Reference score range	Frequency	Obtain score range	Mean ± SD
Sensation Seeking				
Low	20-46	54 (34.8)	20-46	38.6 ± 5.2
Average	47-53	54 (34.8)	47-53	50.1 ± 2.0
High	54-80	47 (30.3)	54-78	62.4 ± 6.8
Total	20-80	155 (100)	20-78	49.7 ± 11.3
Novelty Subscale				
Low	10-22	60 (38.7)	10-22	18.7 ± 2.9
Average	23-27	54 (34.8)	23-27	25.2 ± 1.4
High	28-40	41 (26.5)	28-38	31.9 ± 2.7
Total	10-40	155 (100)	10-38	24.5 ± 5.9
Intensity Subscale				
Low	10-23	61 (39.4)	10-23	19.5 ± 2.8
Average	24-26	54 (34.8)	24-26	25.1 ± 0.8
High	27-40	40 (25.8)	27-40	31.3 ± 3.5
Total	10-40	155 (100)	10-40	24.7 ± 5.3

Table 4. *Correlation between internet addiction score and sensation-seeking traits of undergraduate Medical Students (n=155)*

Factors	Correlation coefficient	p-value
Internet Addiction and Sensation Seeking	-0.143	0.16
Internet Addiction and Sensation Seeking intensity	-0.108	0.29
Internet Addiction and Sensation Seeking Novelty	-0.126	0.21

Table 5. *Gender difference in Internet addiction and sensation seeking traits among undergraduate Medical students (n=155)*

Factors	p-value
Internet Addiction and Gender	0.41
Sensation Seeking and Gender	0.02
Sensation Seeking- novelty and Gender	0.61
Sensation Seeking-intensity and Gender	<0.001

and sensation-seeking novelty (r = -0.126, p = 0.21) (Table 4).

t-tests indicated significant gender differences in overall sensation-seeking (p = 0.022) and sensation-seeking intensity (p < 0.001). However, no gender differences were found in internet addiction (p = 0.41) and sensation-seeking novelty (p = 0.61) (Table 5).

DISCUSSION

This study investigated internet addiction among undergraduate medical students and its relationship with sensation-seeking traits, revealing a prevalence of 55.5%. The findings from this study aligns closely with earlier findings of 52.63% in medical students and is notably higher than the 26.99% prevalence observed in the general population, highlighting the increased susceptibility of medical students to digital dependency .[4,5] A key finding was a weak negative correlation between sensation-seeking and internet addiction, challenging the assumption that high sensation-seeking predisposes individuals to addictive behaviors.[9,10] This unexpected negative correlation may stem from sensation-seekers' preference for active, physical stimulation over passive internet use.[9] In contrast, other studies have found impulsive sensation-seeking to be significantly associated with internet addiction, suggesting that impulsivity, a subtype of sensation-seeking, may drive digital dependency in less structured settings.[8,13] This discrepancy highlights the multifaceted nature of sensation-seeking, where thrill-seeking may not align with internet addiction, but impulsivity could increase susceptibility when digital access is high.[1] The structured demands of medical education likely limit excessive internet use among sensation-seekers, moderating addiction tendencies.[3,5]

Gender differences revealed males scoring higher on sensation-seeking, particularly intensity-seeking, than females, yet no significant gender difference in internet addiction was observed.[14,15] The finding aligns with other studies, suggesting that academic constraints may mitigate addiction risk despite males' higher sensation-seeking tendencies.[3] Conversely, the global prevalence of internet addiction has been noted to vary, potentially influenced by cultural or contextual factors, which may further explain these findings.[2]

Internet addiction's link to mental health issues, such as depression and anxiety, emphasizes the urgent need for targeted interventions to promote healthy digital habits among medical students.[6,7] Compared to studies linking sensation-seeking to substance abuse or gambling, the variable association with internet addiction suggests distinct mechanisms, possibly driven by social connectivity or accessibility rather than thrill-seeking.[1,10,16,17] The genetic predisposition to sensation-seeking may also play a context-dependent role.[18] However, some limitations should be considered such as self-reported data may introduce bias, and the sample's restriction to medical students limits broader applicability. The cross-sectional design also prevents causal interpretation, and the study did not explore other personality dimensions such as impulsivity in specific sensation-seeking subtypes.

To address these gaps, future research should implement longitudinal methods and examine different facets of sensation-seeking across varied populations.[13,19] Practically, medical institutions could implement early screening and educational workshops to encourage balanced internet use and support students' mental health.[6,7]

CONCLUSION

The study reveals a high prevalence of internet addiction, with no significant gender differences in the pattern of internet use. Sensation-seeking traits among medical students showed a weak correlation with internet addiction, indicating no substantial association. Males exhibited higher levels of the intensity aspect of sensation-seeking, while no differences were observed in the novelty aspect.

Based on these findings, awareness programs on healthy internet use should be provided to all medical students, with additional support targeted at those with higher sensation-seeking traits to reduce behavioral risks.

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CONFLICT OF INTEREST

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AUTHOR CONTRIBUTIONS

The principal author, Mr. Sandesh Sawant, was responsible for the conceptualisation, methodology, data analysis, and overall manuscript writing. Mr. Amit Chand Thakuri contributed to data collection, scoring, and interpretation. Mr. Parmanand Prasad Gupta supported the literature review and data collection. Ms. Isha Karki and Ms. Pratika Mahaseth were involved in data collection. Ms. Manisha Chapagain contributed to the review and editing of the manuscript.

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