



Internet Addiction, Academic Performance And Coping Strategies Among Undergraduate Students: A Cross-Sectional Study

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Abstract:

Background: Internet Addiction (IA) is an important behavioural problem among undergraduate students in India, and evidence on the association of IA with impaired academic performance and inappropriate coping strategies has been increasing. But integrative studies dealing with academic performance indices in conjugation to coping mechanisms are scarce in the area of Indian higher education institutions.

Objective: The study aimed to assess the Internet Addiction (IA) prevalence and its association with academic performance by CGPA (Cumulative Grade Point Average) and perceived academic performance along with Coping strategies among undergraduate students of the medical sector.

Methods: A descriptive cross-sectional correlational research design was conducted with 200 Undergraduate students (41% males, 59% females; Mean age = 21.4 years, SD = 2.1). Internet Addiction was measured by Young's Internet Addiction Test (IAT). Self-reported CGPA and a perceived academic performance scale were used to assess academic achievement. A standardized coping inventory that assesses avoidance coping and problem-solving coping was used. Data were analysed through descriptive statistics and then tested using Pearson's correlations and independent samples t-tests.

Results: The prevalence of Internet Addiction was 28% ($n = 56$). Internet Addiction was negatively associated with CGPA ($r = -0.01$), and perceived academic achievement ($r = -0.001$). CGPA results indicated that internet-addicted students obtained significantly lower marks ($M = 7.14$, $SD = 0.91$) compared to the nonaddicts ($M = 7.82$, $SD = 0.84$), $t(198) = -4.12$; $p < .001$, Cohen's $d = 0.78$. They in addition indicated that they used more avoidance coping ($M = 18.6$ versus 14.2) and less problem-solving coping ($M = 15.1$ versus 19.4).

Conclusion: The results indicate a significant prevalence of Internet Addiction in undergraduate students, along with harmful correlations with academic performance and coping strategies, which suggests that digital self-regulation and the development of adaptive ways to cope are crucial interventions among university populations.

Keywords: Internet Addiction, Academic Performance, CGPA, Perceived Academic Performance, Coping Strategies, Undergraduate Students.

Introduction:

The high rate of growth of digital technologies has radically changed higher learning in the global sphere. Platforms using the internet have become part of teaching, learning, assessment, and academic communication in university institutions (Bond et al., 2021; Selwyn, 2019). The use of the internet by students in undergraduate studies has become a vital aspect in academic activities and daily operations. As much as the use of the internet under control helps to reap the benefits of learning materials and academic flexibility, emerging evidence suggests that high and uncontrolled use of the internet can adversely impact academic performance and mental health (Montag & Elhai, 2020).

These issues are especially relevant to the Indian higher education environment. Indian undergraduate students are also facing a growing online availability in the form of content and affordable smartphones, high-speed internet, along with a stiff academic competition, high-class volumes, and growing hostel accommodation with heightened expectations to match academic and career demands. Depending on these situational variables, the underlying factors might increase susceptibility to maladaptive internet use as a coping strategy in response to academic stress, and thus, Indian undergraduates are a highly important population to study empirically (Rasheed Sm et al., 2024).

Dysfunctional habits of overuse of the internet are often theorised as Internet Addiction (IA) or problematic internet usage. The Addiction to the internet is defined as a loss of control over the use of the internet, an obsession with online activity, and engagement with the internet despite negative effects (Young, 1998). The modern understanding of the conceptualisation broadens the idea to include online exposure duration, but instead focuses more on the shortfalls in self-regulation, affective control, and executive functioning (Brand et al., 2019; Kardefelt-Winther et al., 2017). Although it has been referred to using different terms, Internet Addiction continues to be extensively utilized in student-based studies because of its non-ambiguous conceptualization and the existing and validated measuring instruments (Fineberg et al., 2018).

This is because the Interaction of Person Affect Cognition Execution (I-PACE) model is a model that offers a detailed theory to interpret Internet Addiction. Problematic use of the internet. This model is a conceptualization of problematic behaviour as the result of dynamical interaction between personal predispositions, emotional self-regulation, implausible cognitive processes, and disrupted executive control (Brand et al., 2016, 2019). In academia, excessive internet usage could be an avoidance-focused coping mechanism to academic stress, performance pressure, academic anxiety, and workload demands (Billieux et al., 2015; Montag & Elhai, 2020). Internet Addiction poses a very risky threat to undergraduate students because of their stage of development, growing academic independence, and unlimited access to digital technologies. The reports on problematic internet use in international studies reveal its mid to high prevalence among university students (Cheng & Lin, 2023; Kuss & Lopez-Fernandez, 2016). The data presented by Indian undergraduate populations in recent years also allow saying that there is an increasing prevalence of Internet Addiction, which adds to its increased topicality in the context of higher education institutions (Arayici et al., 2025; Rasheed Sm et al., 2024).

The most important result in higher education is academic performance, which is usually measured in objective measures like cumulative grade point average (CGPA). Empirical studies are still showing that Internet Addiction has a negative relationship with academic achievement, and high internet use might be associated with replacing good study time with more time and with academic procrastination and poor ability to focus (Samaha & Hawi, 2016). These academic challenges are further compounded by sleep disturbances that are caused by extended screen time (Alimoradi et al., 2019).

In addition to objective indicators, perceived academic performance can also be regarded as a significant subjective aspect of academic functioning. It is a measurement of how students believe they can concentrate, achieve in their studies, and their contentment with learning results (Richardson et al., 2012). It has also been

shown that subjective academic problems are often followed by objective decreases in grades and are strongly connected with academic self-efficacy and engagement (Doménech-Betoret et al., 2017; Richardson et al., 2012). Because recent research among academic cohorts has reported that problematic internet use is highly linked with less positive perceived academic functioning, even when individual downgrades in CGPA are not observed (Doménech-Betoret et al., 2017).

The strategies of coping are very pivotal in comprehending Internet Addiction amongst undergraduate students. Better academic adaptation and mental health have been linked to adaptive coping strategies, including problem-solving coping, and hence maladaptive strategies, especially avoidance coping, have been repeatedly linked to excessive internet use and digital addiction (Li et al., 2025; Servidio et al., 2018).

There are still significant gaps, even with the growing literature. Most researchers work on prevalence or academic performance separately, omitting objective and subjective academic scales with coping measures in the same empirical framework, especially in non-Western cultures. The more recent reviews have stressed the importance of integrative, theory-based methods, attaching academic, psychological, and behavioural variables in research on student internet-use (Chen et al., 2025; Montag & Elhai, 2020).

The concept map of the study is provided in Figure 1. The IA is defined as a mediating variable, linking with direct arrows the PGs and the AR to AP. Performance is described by two proxies: CGPA and perceived academic performance. The coping strategies are presented as avoidance coping and problem-solving coping. Solid directional arrows represent hypothesized direct relationships between Internet Addiction and academic achievement, as well as coping mechanisms. Dotted arrows also illustrate correlations between coping strategies and academic achievement, which is assumed to be interdependent as speculated before and was empirically validated within the current study. This model includes behavioural, academic, and psychological dimensions based on a unified theoretical framework, in line with the I-PACE model.

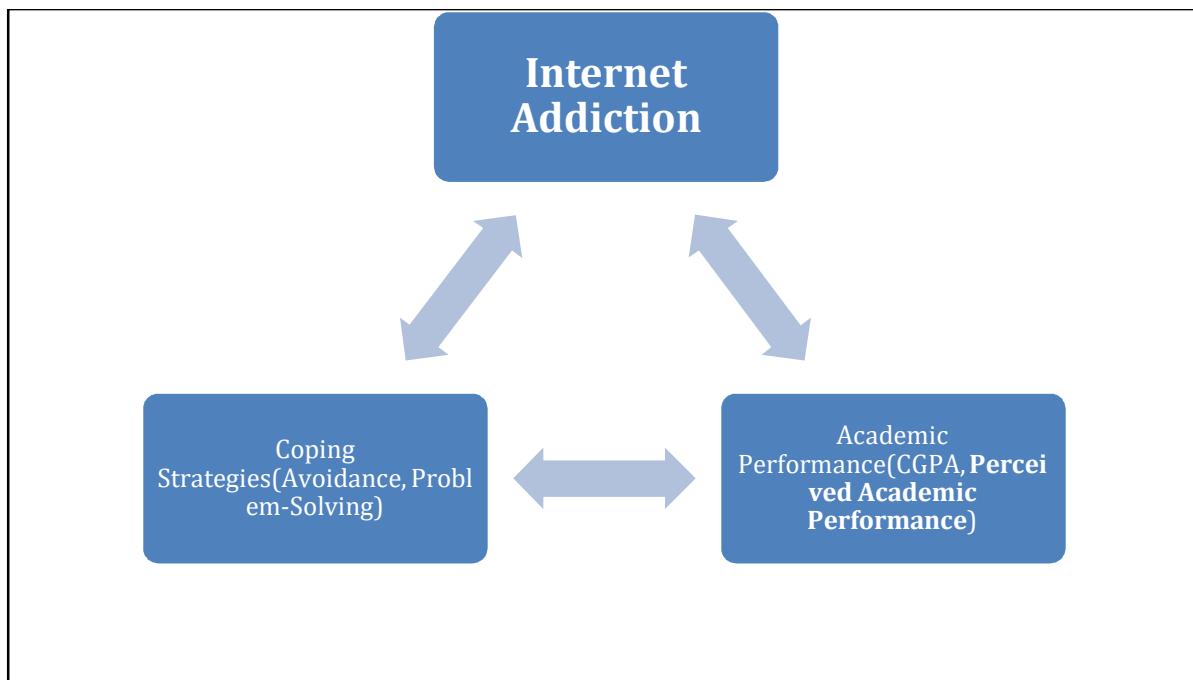


Figure 1. A conceptual model to elucidate the hypothesized relationships between Internet Addiction, academic performance (CGPA and perceived academic performance), along with coping strategies (avoidance coping and problem-solving coping) among undergraduate students. Solid lines indicate proposed direct effects; the arrows reflect correlational relationships between coping strategies and academic success.

Objectives:

The objective of the present study was to determine the prevalence of Internet Addiction among undergraduate students and its association with academic performance (CGPA) and perceived academic performance. Furthermore, the relationship between avoidance and problem-solving coping strategies in having an effect on internet addiction in addicted students was to be compared with non-addicted students, and an examination of the interplay among Internet Addiction, academic Performance, and coping strategies.

Hypotheses:

- H₁: Internet Addiction will be negatively associated with cumulative grade point average (CGPA).
- H₂: Internet Addiction will be negatively associated with perceived academic performance.
- H₃: Internet Addiction will be positively associated with avoidance coping strategies.
- H₄: Internet Addiction will be negatively associated with problem-solving coping strategies.

Justification for the Study:

Internet Addiction (IA) is especially common in undergraduate students and has been associated with poor academic performance and maladaptive coping strategies. Although previous studies have focused on academic achievement and coping separately, few studies have combined objective and subjective measures of academic performance with coping in a single model in the context of Indian higher education. To fill in these gaps, the present study explores the prevalence of Internet Addiction and its relation with students' academic performance and use of coping strategies among university students.

Research Methodology:

Research Design:

The present study employed a descriptive, cross-sectional correlational research design to examine the prevalence of Internet Addiction among undergraduate students and its association with academic performance and coping strategies. This design was appropriate for assessing naturally occurring relationships among behavioural, academic, and psychological variables at a single point in time without experimental manipulation.

Participants and Sampling:

The sample comprised 200 undergraduate students studying in Shoolini University, Solan, Himachal Pradesh, India. Participants were recruited from different disciplines of arts, sciences, and management to cover a stand-alone academic exposure and internet habits. For the university population, a convenience sampling was performed for feasibility and access reasons. Although this facilitated data collection, the findings may not be transferable to other groups. Inclusion criteria were as follows: (1) all the student-participants were undergraduates and aged over 18 years; and (2) nine hundred participants reported being online for at least 6 months. Postgraduate students, those with severe psychiatric disorders, and incomplete responses were excluded for the sake of data quality.

Socio-Demographic Information:

The information on the age, gender, year of study, academic discipline, and the mean time spent on the internet per day of the study was gathered by means of a self-developed socio-demographic questionnaire. These were added to indicate the sample characteristics and put patterns of internet use and academic functioning in perspective.

Measures:

Internet Addiction:

A test was used to measure Internet Addiction through the help of an Internet Addiction Test (IAT) created by Young (1998). The IAT will include 20 self-report items rated using a five-point Likert scale, and the total scores are between 20 and 100. A cut-off of 50 and above was taken to determine the participants as internet-addicted, as per the previous study. The internal consistency of the IAT in the current study showed high levels (Cronbach's $\alpha > .80$).

Academic Performance:

Self-reported cumulative grade point average (CGPA) and perceived academic performance were used as measures of academic performance. CGPA was indicated on a 10-point scale of grading, which is common to the Indian institutions of higher learning. The self-reported CGPA was believed to be suitable because of the privacy guarantees and has proven to display reasonable validity in scholarly research.

The perceived academic performance was measured on a scale that covers the self-assessment by students about their concentration, academic performance, and satisfaction with learning outcomes. In the current sample, the scale showed a sufficient level of internal reliability (Cronbach's $\alpha > .80$).

Coping Strategies:

The Brief COPE Inventory (Carver, 1997) was used to assess the coping strategies. To attain the establishment of the current research, two dimensions of coping were investigated, i.e., avoidance coping and problem-solving coping, i.e., Maladaptive and adaptive coping styles that are commonly measured in academic stress situations. The chosen subscales showed satisfactory internal consistency in the current sample (Cronbach's $\alpha > .75$).

Procedure:

Before the research, the participants were notified of the study's aim, and informed consent was taken in writing. The Institutional Ethics Committee of Shoolini University, Himachal Pradesh, India, approved the study. Self-administered questionnaires were used to collect data, which was in either form in printed form or an online survey facility (where available). Participants were promised confidentiality and anonymity, and no data potentially identifying them was gathered. Questionnaires that had a large proportion of missing data were omitted from the ultimate analysis.

Data Analysis:

An analysis of the data was performed using Statistical Package of the Social Sciences (SPSS-V27. Mean, standard deviations, frequencies, and percentages are descriptive measures that were calculated to summarise socio-demographic characteristics and variables of the study. The correlation analysis of Pearson was performed to investigate the relationships between Internet Addiction and the academic performance indicators and techniques of coping strategies. The t-tests were run on independent samples, whereby academic performance and coping mechanisms were compared between internet-addicted and non-addicted students. Cohen's d was used to compute the effect sizes, and the significance level was $p < .05$.

Results:

Socio-Demographic Characteristics of Participants:

A final sample of 200 (undergraduate) students was analysed. The participants' mean age was 21.4 years ($SD = 2.1$). The sample included 82 males (41.0%) and 118 females (59.0%). Participants were not only

restricted to all years of undergraduate study, but also well distributed according to the academic year. Regarding the use of the Internet on a day-to-day basis, most students reported using it even after two hours daily, representing high-frequency digital engagement. Detailed sociodemographic characteristics are shown in Table 1.

Table 1. Socio-Demographic Characteristics of the Participants (N = 200)

Variable	Category	n	%
Gender	Male	82	41.0
	Female	118	59.0
Age (years)	18–20	74	37.0
	21–23	96	48.0
	24–26	30	15.0
Year of Study	First year	46	23.0
	Second year	48	24.0
	Third year	52	26.0
	Final year	54	27.0
Daily Internet Use	≤ 2 hours	38	19.0
	2–5 hours	94	47.0
	> 5 hours	68	34.0

Prevalence of Internet Addiction:

Internet addiction was measured by Internet Addiction (IA). The score of IA was 54.6 ± 11.2 . Participants were divided into internet-addicted and non-addicted based on a threshold of 50.

56 students (28.0%) of the whole sample fulfilled criteria for Internet Addiction, in which 144 students (72.0%) were non-addicted. These results show that problematic use of the Internet was found in more than a quarter of undergraduates. The distribution of Internet Addiction sub-groups is shown in Table 2.

Table 2. Prevalence of Internet Addiction Based on IAT Scores

Category	IAT Score Range	n	%
Normal / Mild Internet Use	< 50	144	72.0
Internet Addicted	≥ 50	56	28.0
Total		200	100.0

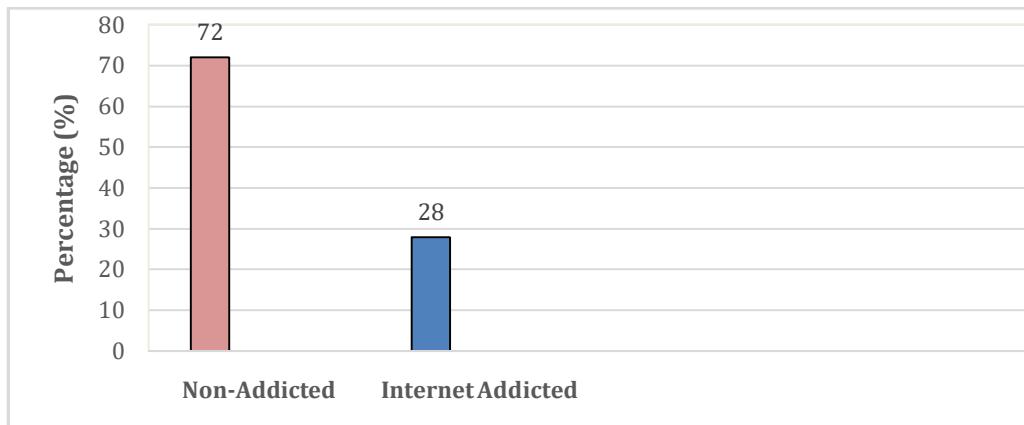


Figure 2. Distribution of undergraduate students classified as internet-addicted and non-addicted based on Internet Addiction Test (IAT) cut-off scores (≥ 50), expressed as percentages of the total sample ($N = 200$).

Internet Addiction and Academic Performance:

Association between Internet Addiction and CGPA:

Results of the t-test revealed that there was a significant mean difference in CGPA between internet-addicted and non-addicted students, $t(198) = 4.12$, $p < .001$. To see group differences, an independent sample t-test was also performed. Students who were addicted to the Internet had a lower mean CGPA ($M = 7.14$, $SD = 0.91$) when compared with non-addicted students ($M = 7.82$, $SD = 0.84$), $t(198)=4.12$, $p < 0.001$. These are shown in Table 3.

Table 3. Comparison of CGPA Between Internet-Addicted and Non-Addicted Students

Group	Mean	SD
Non-Addicted (n = 144)	7.82	0.84
Internet Addicted (n = 56)	7.14	0.91
$t(198) = 4.12$, $p < .001$, Cohen's $d = 0.78$		

Note. An independent samples t-test was used. Cohen's d indicates a medium-to-large effect size.

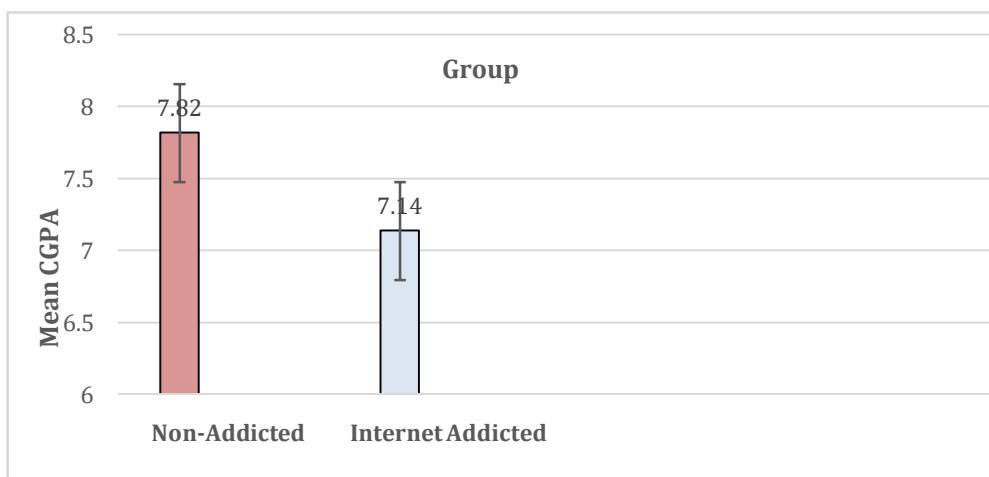


Figure 3a. Mean cumulative grade point average (CGPA) scores of internet-addicted ($n = 56$) and non-addicted ($n = 144$) undergraduate students. Error bars represent standard deviations.

Association between Internet Addiction and Perceived Academic Performance:

Internet Addiction use was significantly related to CGPA ($r = -0.34, p < .001$). This relationship was more noticeable than that with CGPA. A group difference analysis also showed that the internet-addicted students had significantly lower perceived academic performance scores ($M = 27.9, SD = 5.1$) than those who did not have this addiction ($M = 32.6, SD = 4.8$), $t(198) = 5.37, p < 0.001$. Results are presented in Table 4.

Table 4. Comparison of Perceived Academic Performance Scores Between Groups

Group	Mean Score	SD
Non-Addicted (n = 144)	32.6	4.8
Internet Addicted (n = 56)	27.9	5.1
$t(198) = 5.37, p < .001$, Cohen's d = 0.97		

Note. Higher scores reflect better perceived academic performance. An independent samples t-test was used.

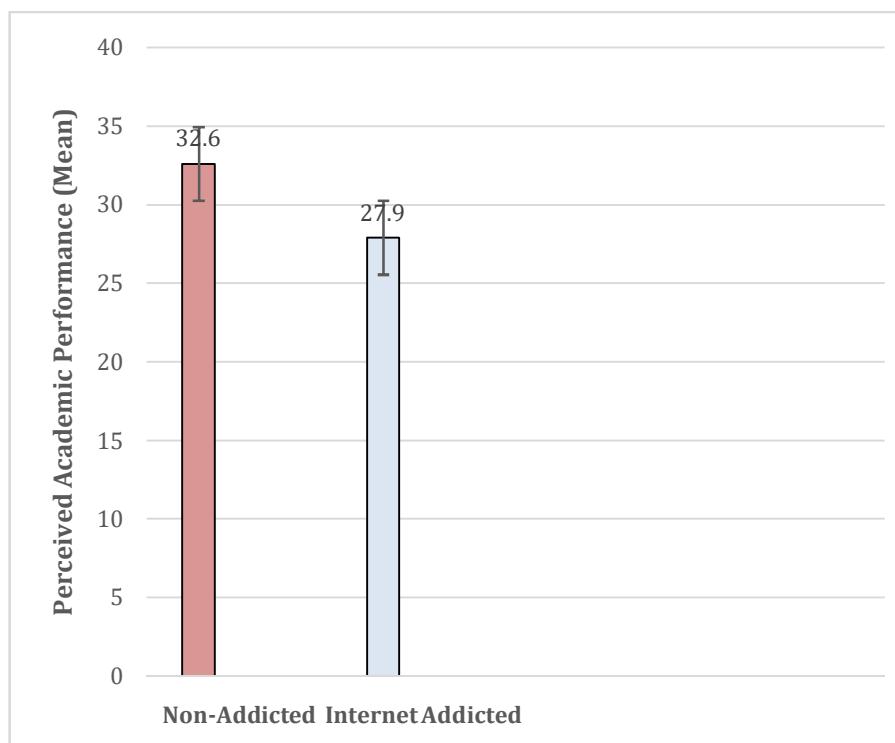


Figure 3b. Mean perceived academic performance scores of internet-addicted ($n = 56$) and non-addicted ($n = 144$) undergraduate students. Error bars represent standard deviations.

Coping Strategies among Internet-Addicted and Non-Addicted Students:

Differences in coping strategies between internet-addicted and non-internet-addicted students were investigated using independent samples t-tests. Avoidance coping and problem-solving coping were significantly different between the two groups according to independent samples t-tests. Internet-addicted students demonstrated significantly higher scores of avoidance coping ($M = 18.6, SD = 3.8$) than non-addicted students did ($M = 14.2, SD = 3.1$), $t(198) = 5.21, p < .01$. Non-addict students scored significantly higher in problem-solving coping ($M = 19.4, SD = 3.6$) than internet addicts ($M = 15.1, SD = 3.9$), $t(198) = 4.08, p < .05$. There was no significant difference between the 2 groups for optimistic coping, $t(198) = 1.62, p > .05$. A summary of the results is given in Table 5.

Table 5. Comparison of Coping Strategies Between Internet-Addicted and Non-Addicted Students

Coping Strategy	Group	Mean	SD
Avoidance Coping	Non-Addicted (n = 144)	14.2	3.1
	Internet Addicted (n = 56)	18.6	3.8
	$t(198) = 5.21, p < .01, \text{ Cohen's } d = 1.15$		
Problem-Solving Coping	Non-Addicted (n = 144)	19.4	3.6
	Internet Addicted (n = 56)	15.1	3.9
	$t(198) = 4.08, p < .05, \text{ Cohen's } d = 0.91$		
Optimistic Coping	Non-Addicted (n = 144)	17.8	3.2
	Internet Addicted (n = 56)	16.2	3.4
	$t(198) = 1.62, p > .05, \text{ Cohen's } d = 0.48$		

Note. Independent samples *t*-tests were used. Cohen's *d* values represent effect sizes.

Relationships between Internet Addiction (IA), Academic Performance and Coping Strategies:

Pearson correlation analysis was used to investigate the relationships between Internet Addiction, academic performance indices, and coping strategies. Attachment pattern was significantly positively correlated with Internet Addiction and avoidance coping, while problem-solving factor showed a significant negative correlation. In addition, it was found that avoidance coping had negative relationships with both CGPA and perceived academic performance, whereas problem-focused coping was positively related to these academic outcomes. The full correlation matrix is provided in Table 6.

Table 6. Correlation Matrix of Internet Addiction (IA), Academic Performance, and Coping Strategies

Variable	IA	CGPA	PAP	Avoidance	Problem-Solving
Internet Addiction (IA)	1				
CGPA	-0.21**	1			
Perceived Academic Performance (PAP)	-0.34**	0.42**	1		
Avoidance Coping	0.38**	-0.29**	-0.33**	1	
Problem-Solving Coping	-0.26**	0.31**	0.35**	-0.22*	1

* $p < 0.05$ ** $p < 0.01$

*Note. Pearson's correlation coefficients are reported.

Hypothesis Summary:

Correlation and group comparison analyses provided support for all proposed hypotheses. H1 was supported ($r = -0.21, p < .01$), H2 was supported ($r = -0.34, p < .001$), H3 was supported ($r = 0.38, p < .01$), and H4 was supported ($r = -0.26, p < .01$).

Discussion:

The current research investigated the occurrence rate of Internet Addiction among undergraduates and the relationship between Internet Addiction and academic performance and coping mechanisms in an Indian higher educational setting. The results show that the Internet Addiction is rather widespread, which is consistent with the recent data showing that problematic internet use is gaining more and more popularity among college students worldwide and in India (Chung et al., 2019; Rasheed Sm et al., 2024). Such prevalence is indicative of the more general shifts in the scholastic landscape marked by the constant connectivity and growing academic pressures.

Internet Addiction showed negative relationships of considerable significance with cumulative grade point average and perceived academic performance. These results are consistent with previous studies that observed that uncontrollable and heavy internet consumption has a negative correlation with both academic performance and academic attention (Richardson et al., 2012; Wu et al., 2024). It is interesting to note that the correlation was more with perceived academic performance than with CGPA, indicating that the subjective academic difficulties may be identified earlier than the grade declines. This trend fits the previous research that stated that perceived academic functioning is a delicate indicator of academic strain and diminished self-efficacy in students with problematic internet use (Buzzai et al., 2021).

The present study revealed that coping strategies are a major psychological correlate of Internet Addiction. Internet Addiction has been found to be positively correlated with avoidance coping and negatively with problem-solving coping. Such a tendency can be explained by theoretical orientations that treat problematic internet use as a maladaptive coping style to stress and negative affect (Senol-Durak & Durak, 2017; Wang et al., 2024). Avoidance-based coping in students might make them more susceptible to turning off to academic stressors with excessive amounts of online activities, though problem-solving coping is shown to act as a buffer against maladaptive internet use.

The results support the Interaction of Person Affect Cognition Execution(I-PACE) model since the authors have shown that coping strategies are proximal self-regulatory processes that mediate between Internet Addiction and academic functioning. Less adaptive coping and more avoidance behaviour can lead to the students being incapable of responding to academic demands efficiently, which adds to their poor academic results. The inclusion of both objective and subjective academic performance indicators, including coping strategies, makes the present study an extension of the previous studies that primarily have focused on the variables separately.

Contribution to the Indian Context:

Crucially, this study contributes to the Indian literature on Internet Addiction by employing an integrative model and taking into account both academic performance and coping strategies. Previous Indian studies have generally concentrated on prevalence or aspects of mental health; the present findings show that IAT may be related not just to academic achievement but also to coping processes in an Indian sample of undergraduates. The unique academic-related stressors, hostel-based living arrangements, and easy accessibility of smartphone which are common to Indian universities, these findings contribute context-specific empirical evidence highlighting coping styles as an important factor in determining academic functioning along with problematic internet use.

Practical Implications:

Crucially, this study contributes to the Indian literature on Internet Addiction by employing an integrative model and taking into account both academic performance and coping strategies. Previous Indian studies have generally concentrated on prevalence or aspects of mental health; the present findings show that IAT may be related not just to academic achievement but also to coping processes in an Indian sample of undergraduates. The unique academic-related stressors, hostel-based living arrangements, and easy accessibility of smartphone which are common to Indian universities, these findings contribute context-specific empirical evidence highlighting coping styles as an important factor in determining academic functioning along with problematic internet use.

Conclusion:

This study is an attempt to integrate a rich picture of Internet Addiction with academic achievement and coping strategies in one empirical model among undergraduate students. The results of this study reveal that the higher levels of Internet Addiction are negatively related to students' CGPA and perceived academic performance, with detrimental influences on both objective and subjective components of academic achievement. Moreover, Internet Addiction was also correlated with increased use of avoidance and decreased problem-solving coping strategies, which supports the hypothesis that problematic internet use serves as a dysfunctional response to academic stress.

By including coping processes with academic measures, the study extends current theoretical views of Internet Addiction, such as the Interaction of Person–Affect–Cognition–Execution (I-PACE) model, by showing how self-regulatory coping factors underlie academic information in accessibility-tech users. This multivariate strategy leads to a better understanding of problem internet use among university-going students in the Indian higher education scenario.

From policy and institutional perspectives, the findings highlight the necessity for UGC-aligned digital well-being guidelines and enhanced university counselling cells to incorporate coping-skills training (e.g., problem solving) along with academic stress management and responsible internet-use interventions in routine student support services. These efforts might support reducing academic and psychological consequences of internet-overuse, as well as a healthier use of students' digital practices at the tertiary level.

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