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Research Paper

The Role of Internet Addiction in Academic Procrastination and Insomnia Among College Students

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ABSTRACT

Internet is an indispensable and widely used tool for college students, enabling them to explore enhanced opportunities for information, communication, and social interactions. However, a high internet dependency possesses certain negative effects among students. Our objective was to investigate the relationship between internet addiction and the tendencies of academic procrastination and insomnia among college students. A cohort of 72 college students, including undergraduates and postgraduates were selected through convenience sampling from three academic institutes in Kerala. The study used Chen Internet Addiction Scale (CIAS), Procrastination Assessment Scale for Students (PASS) and Insomnia Severity Index (ISI) for the quantitative assessment of internet addiction, procrastination and insomnia, respectively. A Pearson correlation analysis was conducted to examine the relationship between variables. The analysis of data was conducted using SPSS v.27. The results indicated that internet addiction was significantly correlated with procrastination, $r = 0.262$, $p = 0.026$, and with insomnia, $r = 0.506$, $p > 0.05$. The study emphasizes that students with tendencies towards Internet addiction exhibit a more pronounced inclination towards academic procrastination and are also reported to have insomnia. This sheds light on the complex interplay between technological involvement and behavioral propensities, highlighting the need for targeted interventions to address both internet addiction and its associated impacts on student behavior and well-being.

Keywords: *Internet addiction, Procrastination, Insomnia, Psychological wellbeing*

In the ever-evolving digital landscape, characterized by the rapid proliferation of technology and the ubiquity of online connectivity, the global population's engagement with the Internet has witnessed a remarkable surge. There are 5.46 billion internet users worldwide which is approximately 67% of the world's population. The number of internet users has increased by 47% since 2018, with 1.8 billion people estimated to have come online during that period (World Internet Users Statistics and 2024 World Population Stats, n.d.). In terms of internet penetration rate by region, Asia has the highest number of internet users with 3.1 billion, followed by Europe with 750 million, and Latin America/Caribbean with 550 million. (Internet Usage Worldwide - Statistics & Facts | Statista, n.d.) As of January 2024, there were 750 million internet users in India, with an internet penetration rate

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of 55.1% (Digital 2024: India — DataReportal – Global Digital Insights, n.d.). The number of smartphone users in India has also increased significantly, from 100.6 million in 2018 to 150 million in 2024(Internet Usage Worldwide - Statistics & Facts | Statista, n.d.)

In the modern digital age, the internet stands as an indispensable tool for college students, offering a gateway to a world of information, communication, and social connectivity. Among college students, the allure of the online sphere frequently surpasses mere utility, giving rise to a compulsive dependency with extensive implications. This addiction, characterized by uncontrollable internet use, acts as a catalyst for procrastination. Its reverberations extend to both academic performance and mental well-being, underscoring the critical need for a comprehensive exploration of this pressing concern. Faced with the rigors of academic challenges and the stresses of university life, students sometimes find refuge in the digital realm, inadvertently falling prey to internet addiction (Nwosu et al., 2020) The consequences are profound, as academic pursuits take a backseat to the allure of endless scrolling, online gaming, and social media interactions.

Studies have unveiled a significant prevalence of depression among internet addicts, highlighting the intricate interplay between the virtual world and emotional well-being. (Cheung & Wong, 2011). Many individuals often find themselves on the internet when they should be working or studying, leading to the postponement of their work or academic-related responsibilities (Solomon & Rothblum, 1984) and spend an excessive amount of time on the internet. Studies have shown that both internet addiction and procrastination are common among college students (Solomon & Rothblum, 1984). Students experiencing high levels of internet dependency often report difficulty initiating and maintaining sleep, leading to chronic sleep deprivation (Tokiya et al., 2020). The sleep onset difficulties, sleep maintenance issues, and early morning awakenings are commonly reported among individuals with high internet dependency (Lemola et al., 2015). Internet addiction recognized as a significant predictor of insomnia, as prolonged screen exposure, late-night usage, and psychological overstimulation interfere with sleep regulation (Younes et al., 2016)

Academic procrastination is influenced by multiple factors, including psychological beliefs, distractions, social influences, poor time management, and lack of motivation (Karimi Moonaghi & Baloochi Beydokhti, 2017). At the university level, chronic procrastination has been found to contribute to academic underperformance, dropout rates, and failure to achieve academic goals (Aznar-Díaz et al., 2020). Undergraduate students, in particular, experience higher levels of procrastination compared to graduate students, as they are often away from their families and struggle with new self-regulated learning behaviors (Kachgal et al., 2001). Additionally, neuropsychological research suggests that excessive screen exposure disrupts circadian rhythms, while cognitive arousal from procrastination and unmet academic demands exacerbates sleep difficulties (Younes et al., 2016). Insomnia is a well-documented public health concern, negatively impacting overall well-being, academic performance, work productivity, and social interactions (Seow et al., 2018). It has also been associated with mood disorders, decreased self-esteem, and reduced sleep quality (Cain & Gradisar, 2010), further linking it to excessive internet use and procrastination (Editor et al., 2020).

Need and significance of the study

The increasing prevalence of internet addiction among college students has raised concerns about its impact on academic procrastination and sleep disturbances, emphasizing the need

for further empirical investigation. While prior research has established associations between these variables, the specific nature of their interaction among college students remains unclear. This study aims to address this gap by providing empirical insights into these relationships, which may inform strategies to enhance students' academic performance, regulate digital usage, and improve sleep quality. Additionally, the findings may contribute to broader discussions on digital dependency and its psychological implications in academic settings

***Statement of problem*:** The present study focuses on the relationship among three variables, Internet addiction, procrastination and insomnia.

Objectives of the study

- To investigate the relationship between Internet addiction and procrastination
- To investigate the relationship between Internet addiction and insomnia

Null Hypotheses

- H1: There is no significant relation between internet addiction and procrastination
- H2: There is no significant relation between internet addiction and insomnia

Operational definitions of variables

- **Internet addiction:** Internet addiction is characterized by excessive or poorly controlled preoccupations, urges or behaviors regarding computer use and internet access that lead to impairment or distress. (Shaw & Black, 2008)
- **Academic Procrastination:** Academic procrastination is the intentional delay of academic tasks, such as writing term papers, studying for examinations, and keeping up with weekly reading assignments, despite knowing that this delay may lead to negative consequences (Solomon & Rothblum, 2012)
- **Insomnia:** Insomnia defined as a persistent difficulty with sleep initiation, duration, or consolidation that occurs despite adequate opportunity and circumstances for sleep and results in concern, dissatisfaction, or perceived daytime impairment, such as fatigue, decreased mood or irritability, general malaise, or cognitive impairment (International Classification of Sleep Disorders – Third Edition (ICSD-3) (Online), n.d.).

LITERATURE REVIEW

Nadarajan et al. (2023), Hayat et al. (2020)) conducted a cross-sectional study to explores the relationship between internet addiction (IA) and academic procrastination (AP) among medical students. The study involved 233 students from Shiraz University of Medical Sciences and revealed that 3.43% of participants were severely addicted to internet, while 28.85% reported high levels of academic procrastination. A positive and significant correlation was found between IA and AP, with dimensions of AP showing similar correlations. Male students and dormitory residents exhibited higher levels of Internet addiction and procrastination compared to female ones and those living at home.

Zhang et al. (2020) conducted a study to examine the link between academic procrastination and internet addiction in 306 college students, considering the mediating effects of intrusive thinking and Depression-Anxiety-Stress. It found that procrastination was positively correlated with internet addiction, influenced by gender and traumatic experiences. Girls displayed more intrusive thinking, while those with traumatic experiences had higher rates

of internet addiction, depression, anxiety, and stress. The study revealed positive correlations between academic procrastination, intrusive thinking, DASS, and internet addiction. It also demonstrated impact of academic procrastination on internet addiction through multiple mediating pathways, including intrusive thinking, DASS, and a chain mediation involving both intrusive thinking and DASS.

Nadarajan et al. (2023), conducted a cross-sectional study aimed to investigate the relationship between academic procrastination and internet addiction in Thai university students. The research involves 470 participants selected through multi-stage cluster random sampling from an eastern Thai university. Findings indicate moderate levels of academic procrastination and internet addiction, with a significant positive correlation between the two. Academic procrastination emerges as a predictor of internet addiction, underscoring its role in this phenomenon.

Geng et al. (2018) conducted a study to explore the relationship between Internet addiction and procrastination among Chinese young adults. The research involves 405 Chinese college students with an age range of 17–22 years. Findings indicate a positive link between Internet addiction and procrastination among college students. Both Internet addiction and procrastination were associated with lower core self-evaluations and self-control. Social adjustment was found to moderate the relationship, mitigating the impact of Internet addiction on procrastination via core self-evaluations.

Albursan et al. (2022) investigates smartphone addiction, academic procrastination, and quality of life among university students in Saudi Arabia. The research is based on a non-random sample of students aged 18-52, using electronic surveys through platforms like WhatsApp and Twitter. Results reveal a high prevalence of smartphone addiction (37.4%) and academic procrastination (62.8%) among participants. While no significant gender differences are found in smartphone addiction, males show a statistically significant inclination toward academic procrastination. Academic procrastination emerges as a strong predictor of smartphone addiction, with quality of life enhancing predictive power.

Chen, Y. L., & Gau, S. S. F. (2016) conducted a longitudinal study among 1,253 children and adolescents from grades 3, 5, and 8 over four time points. The Sleep Habit Questionnaire was used to measure sleep disturbances, including early insomnia, middle insomnia, and disturbed circadian rhythm, while the Chen Internet Addiction Scale assessed the severity of internet addiction. The findings revealed that early and middle insomnia significantly predicted internet addiction over time and was also associated with disturbances in circadian rhythm. The study highlighted the temporal relationship between sleep problems and internet use, suggesting the need for interventions tailored to their sequential development.

Lam (2014) conducted a systematic review on the relationship between internet gaming addiction, problematic internet use, and sleep disturbances. The review analyzed seven studies, including three on addictive gaming and four on problematic internet use and sleep problems. Findings indicated that excessive gaming, particularly in MMORPGs, was linked to poor sleep quality, while problematic internet use was associated with subjective insomnia and sleep disturbances. The study proposed a model suggesting that sleep problems may mediate the relationship between internet gaming addiction and depression.

Lin et al. (2016) conducted a cross-sectional study examining the associations between internet addiction, insomnia, depression, anxiety, stress, and self-esteem among university medical students. A sample of 600 students from medicine, dentistry, and pharmacy faculties participated, with data collected using validated scales, including the Young Internet Addiction Test, Insomnia Severity Index, Depression Anxiety Stress Scales (DASS-21), and Rosenberg Self-Esteem Scale. Findings indicated that 16.8% of students exhibited potential internet addiction, with higher prevalence in males. Significant correlations were observed between internet addiction and insomnia, stress, anxiety, depression, and lower self-esteem.

METHODOLOGY

The study followed a cross-sectional study design from three academic institutes in Kerala, India. The sample includes both undergraduate and postgraduate college students aged over 18 years, recruited through convenience sampling. Web based Questionnaires through google forms were used to collect information on demographics and parameters to study scales for internet addiction, procrastination and insomnia. Scores from each of the scales were quantitatively accessed and the variables were statistically analyzed using Pearson correlation. The data analysis was performed using SPSS v.27

Tools for the study

Scales utilized to study internet addiction, procrastination and insomnia were Chen Internet Addiction Scale (CIAS), the Procrastination Assessment Scale for Students (PASS; Solomon & Rothblum, 1984), and the Insomnia Severity Index (ISI), respectively.

1. **Chen Internet Addiction Scale (CIAS):** The Chen Internet Addiction Scale (CIAS), developed by Chou et al. (2005), is a 26-item tool measuring compulsive internet use, withdrawal, and tolerance. It uses a 4-point Likert scale and has a reported Cronbach's alpha > 0.90, indicating high reliability. The scale demonstrates strong construct validity and follows a multidimensional model assessing core symptoms and related impairments. (Chou et al., 2005)
2. **Procrastination Assessment Scale for Students (PASS):** The Procrastination Assessment Scale-Students (PASS), developed by Solomon and Rothblum (1984), is a 44-item tool measuring academic procrastination. The scale follows a two-factor model, assessing the frequency of procrastination in academic tasks and the reasons behind it. It has demonstrated high internal consistency, with Cronbach's alpha ranging from 0.84 to 0.90, indicating strong reliability. Construct validity has been supported through correlations with related psychological measures. (Solomon & Rothblum, 1984)
3. **Insomnia Severity Index (ISI):** The Insomnia Severity Index (ISI), developed by Morin (1993), is a 7-item self-report scale that assesses the severity of insomnia symptoms and their impact on daily functioning. The ISI follows a two-factor model, measuring nighttime symptoms (sleep onset, maintenance, and early awakening) and daytime impairment (distress, functioning, and noticeability of sleep problems). Each item is rated on a 5-point Likert scale, with total scores ranging from 0 to 28. The ISI has demonstrated high reliability, with Cronbach's alpha = 0.90, and strong construct validity through correlations with related sleep measures. (Morin, 1993)

RESULTS

The study comprised 72 participants with a mean age of 19.2 years (range: 17–26 years), of which 32 (44.4%) were male and 40 (55.5%) were female. The majority were undergraduate students (UG), accounting for 66 participants (91.6%), while 6 participants (8.3%) were

pursuing postgraduate (PG) studies. In terms of residence status, 20 participants (27.7%) were hostellers, and 52 participants (72.2%) were day scholars.

***H1**: There is no significant relation between internet addiction and procrastination*

A total of 72 students were assessed for the tendencies for internet addiction and procrastination. Mean (SD) scores for internet addiction and procrastination were 57.5 (15.23) and 133.8 (21.44). Pearson's correlation study using the variables indicated a significant relationship between internet addiction and procrastination, with an r-value of 0.262 at p =0.026. The coefficient of determination (r^2) is 0.069 (Table 1), indicating a positive relationship between internet addiction and procrastination. The null hypothesis, "there is no significant relation between internet addiction and procrastination" was hence rejected.

Table 1: Relation between internet addiction and procrastination

Variable	M	SD	r	r^2	p value
Internet Addiction	57.25	15.234	0.262	0.069	0.026*
Procrastination	133.82	21.437			

***H2**: There is no significant relation between internet addiction and insomnia*

A total of 72 students were assessed for the tendencies for internet addiction and insomnia. Mean (SD) scores for internet addiction and insomnia were 57.5 (15.23) and 6.94 (5.42). Pearson's correlation study using the variables indicated a significant relationship between internet addiction and insomnia, with an r-value of 0.506 at p <0.05. The coefficient of determination (r^2) is 0.256 (Table 2), indicating a positive relationship between internet addiction and insomnia. The null hypothesis, "there is no significant relation between internet addiction and insomnia" was hence rejected.

Table 2: Relation between internet addiction and insomnia

Variable	M	SD	r	r^2	p value
Internet Addiction	57.25	15.234	0.506	0.256	<0.05*
Insomnia	6.94	5.42			

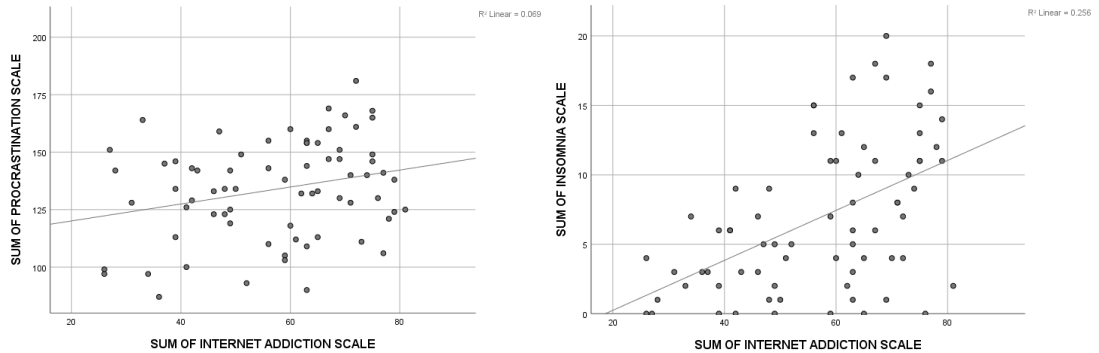

Figure 1: Simple scatter plot of sum of procrastination scale (A) and sum of insomnia scale (B) by sum of internet addiction scale

DISCUSSION

The study identifies a significant positive association between internet addiction, academic procrastination, and insomnia among college students. The findings suggest that students with higher levels of internet addiction are more likely to procrastinate on academic tasks, possibly due to excessive engagement in non-essential online activities, leading to delays in

completing academic responsibilities. This aligns with previous research indicating that internet addiction significantly predicts academic procrastination (Geng et al., 2018)

The results also indicate a significant association between internet addiction and sleep disturbances, suggesting that prolonged screen exposure and compulsive internet use may contribute to disruptions in sleep patterns. This is consistent with findings that higher internet addiction scores are associated with greater sleep disturbances (Chen & Gau, 2016) .Additionally, students who procrastinate on academic tasks may also engage in bedtime procrastination, delaying sleep to complete pending assignments, thereby exacerbating sleep difficulties. Prior research has demonstrated that bedtime procrastination serves as a mediating factor between rumination and poor sleep quality, ultimately contributing to significant sleep disturbances (Kadzikowska-Wrzosek, 2018)

Implications

The study provides significant implications for educational institutions, mental health professionals, and policymakers by highlighting the association of internet addiction, academic procrastination, and insomnia among college students. The findings underscore the necessity of implementing structured interventions, such as digital literacy programs, time management workshops, and sleep hygiene awareness campaigns, to mitigate the adverse effects of excessive internet use and procrastination on academic performance and well-being. Furthermore, integrating psychological counseling services focused on behavioral regulation and coping strategies may assist students in developing healthier study habits and reducing sleep disturbances. Future research should explore longitudinal and experimental approaches to establish causal pathways, enabling the development of evidence-based policies that foster academic success and mental health in higher education settings.

Limitations

Some participants reported difficulty in completing the questionnaire due to its length and discontinued participation before submission. Since the survey was administered via Google Forms, incomplete responses were not recorded due to its mandatory submission feature. This likely contributed to a lower final response rate, potentially affecting the sample size and generalizability. A relatively small sample may also limit the reliability and broader applicability of results.

The study relied on self-reported data, which may have been influenced by social desirability bias and individual differences in self-perception, potentially affecting data accuracy. Since the sample consisted of undergraduate and postgraduate students from a specific academic setting, variations in institution type, geographic location, and field of study may influence the findings, restricting their applicability to the broader college student population. Additionally, the standardized psychological scales used may not fully capture all aspects of the variables across different cultural and educational contexts.

The study's cross-sectional design limits the ability to establish causal relationships as data were collected at a single point in time. Future studies accessing causality with sufficient sample size reflect a better picture on the research question. Additionally, a more diverse sample across different educational contexts enable better generalizability and actionable evidence.

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Conflict of Interest

The authors declare that they have no conflicts of interest or financial affiliations with any organizations or entities relevant to this research.

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