





Exploring the Association Between Internet Addiction, Gender Differences, and Academic Performance Among Business Students


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ABSTRACT

Background of the study: The extensive use of the internet has improved many parts of everyday life, but it has also resulted in digital addiction, particularly among young adults, including business students. The purpose of this study is to look at the incidence of internet addiction among business students and uncover any relevant trends or demographic characteristics.

Methodology: A cross-sectional study was conducted with 384 randomly selected business students from different studies during period of six month. Internet addiction levels were assessed using the Internet Addiction Test (IAT) by Kimberly Young, with addiction categorized as mild, moderate, and severe based on IAT scores. Data was analyzed using descriptive and inferential statistics, with chi-square tests to examine gender-based differences.

Results: Among the 384 participants, 57.3 % male and 42.7% female distribution]. Internet addiction prevalence was as follows: 39.1% mild, 27.1% moderate, and 10.4% severe addiction, with males showing higher addiction levels compared to females P value <0.05. Students with internet addiction exhibited lower academic performance on average than non-addicted peers, revealing a statistically significant association p value < 0.05.

Conclusions: Internet addiction is prevalent among business students, highlighting the need for preventive and therapeutic interventions. Promoting awareness and controlled internet use may help mitigate negative academic impacts.

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Introduction

The internet, a technological marvel of the modern era, has transformed communication, learning, and social interaction, especially among younger generations the internet has become an integral part of students' daily lives (Teodorescu, Durnoi and Vargas, 2023). For business students, the internet serves as a vital resource for academic research, networking, and keeping up with business trends. However, this near-constant connectivity has a downside: a growing phenomenon known as internet

addiction, where excessive internet use leads to compulsive behaviors (such as excessive use of social media, online gaming addiction, compulsive online shopping, binge-watching

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streaming content, information overload, and an over-reliance on cyber relationships) and negative impacts on daily functioning (Stanković and Nešić, 2022).

Internet addiction, first defined by Dr. Ivan Goldberg in 1995, refers to an excessive, uncontrollable use of the internet that interferes with personal, social, and academic life. Internet addiction is sometimes called "problematic internet use" and encompasses behaviors that can disrupt normal life patterns, such as neglecting daily responsibilities, struggling with academic or professional performance, and experiencing psychological stress when offline (Goel, Subramanyam and Kamath, 2013). This behavioral addiction shares similarities with other addictive disorders, including withdrawal symptoms, and compulsive behavior, leading experts to consider it a significant mental health (Teodorescu, Durnoi and Vargas, 2023). Business students, a group often under significant academic and professional pressure, may be particularly vulnerable to internet addiction. Their course work often requires continuous access to online resources, business news, and professional networks, which makes disengagement from digital platforms challenging (Javaeed et al., 2019).

Beyond academics, the allure of social media, online gaming, and entertainment can drive students towards excessive internet use as a way of coping with stress, escaping reality, or even fostering social connections (Demirdöğen et al., 2024). The behavior can escalate into addiction, albeit over time; in this regard, students place online engagement above real-world responsibilities. The academic pressures on business students can heighten their proclivity for Internet addiction (Öztekin, 2024). Business student under high-stress levels have shown a tendency to self-medicate through the use of the internet as a form of distraction or comfort; unfortunately, this could form an addictive path that is extremely difficult to break free from (Li et al., 2022). In particular, domains such as marketing, finance, and management are susceptible to internet dependence on account of their academic and professional demands.

For instance, marketing students very frequently utilize digital devices, social platforms, and data analysis such that the boundaries between academic usage and leisure browsing become difficult to distinguish (Nazari et al., 2023c). Similarly, the finance students need constant access to financial markets, real-time data, and analytical tools that allow for overuse. Other students of business management engage in group work and virtual collaborations, thus encouraging a dependency on computerized communication modes (Barroso & Laborda, 2022). Such peculiar academic demands may, however, be indirectly responsible for the propensity toward excessive internet use. Young minds in this metropolis experience challenges dissimilar to their Western counterparts owing to cultural and economic diversities. Whereas their counterparts in the West boast stable high-speed Internet access such as wireless broadband, their peers in Karachi, on the other hand, spend hours connected to unreliable shared broadband or dial-up connections (Geng et al., 2023).

These circumstances have further increased the burden on the students, already stressed with juggling academic commitments and technology dependency. In addition to this, the socio-economic

setting of Karachi might induce an overuse of the already-limited online time for academic activities and escapism, creating potential online addiction (Saeed et al., 2020). Studies suggest that almost 40% of university students across the globe exhibit signs of internet addiction. Yet localized data in Karachi provide a more differentiated picture (Khan et al., 2022). Through recent surveys, nearly 60% of university students in Karachi seem to be supported by internet connectivity variables since they do not have regular access to the internet due to frequent power breaks or glitches combined with financial factors (Mufti et al., 2021), while 25% claimed to surpass a coverage of healthy internet use when the service is available. The figures thereby become suggestive of compounded pressure faced by students to balance academic and personal life under resource-constrained settings (Nawaz, 2021). The unique properties of business-related programs compound this risk-at the risk of being behind on the global market, economic trends, and innovations-which by their natures heavily rely on digital information sources (Dwivedi et al., 2020).

Internet addiction has been increasingly prominent in psychological and medical research, with analyses confirming numerous incidences of internet addiction among college and university students (Chern and Huang, 2018). Nevertheless, the bulk of the studies has mainly been concentrated on medical and engineering students, who always record high internet usage. Business students, whose dreams, coupled with academic pressures, also lead to high online engagement, have not yet received comparative research attention (Rouvinen et al., 2021). Thus, a substantive perspective on its prevalence and patterns is crucial as it gives business students a subset of professionals working and will likely add to their high reliance on online resources in their careers (Kumar et al., 2023). Although the previous research broadly studies excessive internet use and its impact on academic accomplishments, this study takes a much more targeted approach by looking at the clinically recognized behavioral issue of internet addiction and its peculiar relationship with gender differences and academic performance. This study will examine the so far neglected area of prevalence, which concerns internet addiction among business students, and then relate it to academic performance and gender.

Literature Review

Internet addiction has presented as a challenge for students, especially regarding their academic attainments. It is characterized by the compulsion or excessive use of the internet, leading to harmful effects in areas such as well-being and school performance/academic achievements. Many studies have clearly linked internet addiction to academic failure, particularly among medical and business students. Such a relationship has psychological, behavioral, and social delimitations. Research shows that internet addiction creates a myriad of negative situations accordingly: lack of sleep, decreased concentration, increased loneliness. Bhandari et al. noted that excessive time on social networking sites detracts from education time, resulting in poorer academic performance (Bhandari et al., 2017). This is supported by another study who stated that internet overuse was associated with poor academic performance and negative psychological states such as anxiety and depression (Upadhayay & Guragain, 2017). These findings imply that students with internet addictions may not be paying much attention to their studies because it hampers their ability to perform better academically.

Moreover, the contributing psychological factors left behind on internet addiction in students are of considerable interest in understanding the impact it could create. According to Anastasya et al., the presence of FOMO is drastically correlated with internet addiction amongst students, in their attempt to look for social interaction and instant gratification through online platforms (Anastasya et al., 2022). All of which support the claims made by Li et al., who reported that students indulge more in internet activities due to boredom and social isolation, thereby further reinforcing their addiction (Li et al., 2015). The interplay between the psychological needs and internet utilization creates a circuit that most students find very hard to break, culminating in strong academic weaknesses. The consequences of internet addiction stretch beyond academics to more general mental health troubles. Studies show that students exhibiting signs of internet addiction are characterized by an increase in a highly anxious or depressed state that further disorients their academic capacity. For example, while mentioning their investigations, Lebni et al. (2020) reported a possible positive relationship between internet addiction and mental health problems among college students, thus concluding that excessive use of the Internet would cause substantial distress to the pupils.

A study by Mohamed investigates medical students, who happen to be one of the most vulnerable categories of internet addicts, reporting detrimental impacts upon their wider functioning and academic performance. The implications underscore the need to integrate mental health considerations with internet use so as to enhance academic outcomes. In addition to psychological factors, social contexts whereby students use the internet also shape their experiences. Chaudhari et al. (2015) posited that the investments, both financial and temporal, by internet addicts serve as distractions from academic achievement. This is especially the case for business students who may prefer networking and socializing online to paying attention to their academic duties. Besides this, research by Hossain et al. (2017) demonstrates that internet-addicted students tend to report unfavorable academic performance and mental health concerns, alluding to the adverse consequences that the dynamic nature of social engagement via the internet can impose on their academic success. The demographic factor, including gender and age, also affected the dynamics between internet addiction and academic performance. Studies have indicated that the male student population appears to be more vulnerable to the claws of internet addiction than female students, which might lead to differences in socialization and technology engagement (Kumar et al., 2017).

Also, younger students seem to be more prone to internet addiction since they are less likely to have developed appropriate self-regulatory skills to manage their online lives (MBBS, 2018). The nexus of these demographic trends may facilitate devising interventions capable of lessening internet addiction and its associated academic consequences. Such interventions should broadly address behavioral and psychological aspects of the issue at hand. Educational institutions can play a pivotal role by developing and implementing programs promoting digital literacy and responsible internet use. For instance, workshops focusing on time management and the importance of balancing online and offline activities could help students foster healthier habits. Alongside this, mental health and counseling services may help in addressing psychological factors that arise in relation to internet addiction among students. Thus, students' internet addiction vis-a-vis its academic performance range more widely from these underlying

psychological, social, and behavioral aspects. Thus, it is evident that excessive use of the internet can pose severe challenges to academics due to mental health problems and demographic issues. Therefore, this calls for the urgent need for educational institutions to realize an intervention mechanism to combat internet addiction through the promotion of better online behaviors while ensuring the students' mental well-being.

Methodology

The current study used a cross-sectional design to investigate the association between internet addiction and academic performance among business undergraduates \ The research was conducted within six months, between January 2024 and June 2024, at the Institute of Business Administration (IBA), Karachi School of Business and Leadership (KSBL), Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, and Institute of Business Management (IoBM). The study population comprised undergraduate business students selected by convenience sampling. To ensure statistical validity, the sample size was set at 384 students according to Cochran's formula for sample size estimation, maximally variable with a prevalence rate of 50%, and with a 5% margin of error and a confidence level of 95% by open epi software. The inclusion criteria were that students should have been in an undergraduate business program and, at the time of the study, had on-going internet access for the last one year and should use internet minimum 8 hrs/day were willing to participate in the study. The exclusion criteria consisted of students that were not fulfilling the aforementioned criteria or refused to participate.

Data Collection Tool

Kimberly Young's Internet Addiction Test (IAT) is the primary measuring tool for internet addiction. It was established as a recognised and validated instrument for assessing the degree of online addiction in adolescents and adults. The measure includes 20 items assessed on a 5-point Likert scale ranging from 0 (never) to 5 (always), with a maximum achievable score of 100. The scores are divided into four categories: 0–19 (normal internet use), 20–49 (mild internet addiction), 50–79 (moderate addiction), and 80–100 (severe addiction). It measures the compulsive use of the internet, withdrawal symptoms, neglect of personal obligations, and impact on academic performance and social life. The IAT's internal consistency and construct validity were appropriate for measuring internet addiction in college students.

Data Collection Procedure

The data was collected using a structured questionnaire that included a set of demographic questions such as age, gender, and academic year information of academic performance, and the IAT itself. Students themselves self-reported their most recent cumulative GPA (CGPA) or equivalent grades along with ranges classified high (3.5 and above), medium (2.5 to 3.49), and low (below 2.5). Research assistants were trained to administer the questionnaire at scheduled class times, which ensured a high level of response and allowed clarification of any questions on the survey items. All participants provided

informed consent before data collection after being informed of the study’s goals, confidentiality concerns, and voluntary nature.

Data Analysis

After completion, datasets were input into and analysed with SPSS version 30.0. Descriptive statistical methods, such as frequency distributions, percentages, and were used to summarise demographic data and internet addiction rates. Chi-square tests were employed to assess the link between internet addiction and exam performance, and a level of significance of 0.05 was utilised to determine the degree of statistical significance.

Results

Among 384 business students who participated, 220 (57.3%) were male, and 164 (42.7%) were female. The following tables present detailed findings on internet addiction levels, gender differences, and the association between addiction of internet and performance in the academia. Internet addiction levels among students were categorized as normal use, mild addiction, moderate addiction, and severe addiction using Kimberly Young’s Internet Addiction Test (IAT). Table 1 shows the distribution of students across these categories. In total, 76.6% of students exhibited some level of internet addiction, with mild addiction being the most prevalent category, followed by moderate and severe levels of addiction.

H₁: Internet addiction is prevalent among medical students.

Internet Addiction Level	IAT Score Range	Frequency (n)	Percentage (%)
Normal Use	0-19	90	23.4%
Mild Addiction	20-49	150	39.1%
Moderate Addiction	50-79	104	27.1%
Severe Addiction	80-100	40	10.4%
Total		384	100%

Table 01: Internet Addiction Levels Among Business Students (N=384)

Analysis revealed significant gender differences in internet addiction levels, with males showing higher addiction scores on average than females. The chi-square test confirmed statistically significant differences in addiction levels between males and females, with a chi-square value of 10.78 and a p-value < 0.01. Males had a higher proportion of moderate to severe addiction levels than females.

H₂: There is a significant difference in internet addiction levels between male and female medical students.

Internet Addiction Level	Male (n=220)	Female (n=164)	Chi-square (χ^2)	p-value
Normal Use	36 (16.4%)	54 (32.9%)	$\chi^2 = 10.78$	P value <0.05
Mild Addiction	85 (38.6%)	65 (39.6%)		
Moderate Addiction	72 (32.7%)	32 (19.5%)		
Severe Addiction	27 (12.3%)	13 (7.9%)		
Total	220	164		

Table 02: Internet Addiction Levels by Gender

Academic performance, categorized as high, medium, or low based on GPA, was compared across internet addiction levels. Table 3 summarizes the distribution of academic performance by addiction category. The chi-square test showed a statistically significant association between higher levels of internet addiction and lower academic performance ($p < 0.01$). Students with moderate to severe addiction were more likely to report low academic performance.

H₃: There is a significant correlation between internet addiction levels and academic performance among medical students.

Academic Performance	Normal Use	Mild Addiction	Moderate Addiction	Severe Addiction	P value
High (GPA ≥ 3.5)	40 (44.4%)	48 (32.0%)	18 (17.3%)	6 (15.0%)	P value <0.05
Medium (GPA 2.5-3.49)	35 (38.9%)	72 (48.0%)	45 (43.3%)	12 (30.0%)	
Low (GPA < 2.5)	15 (16.7%)	30 (20.0%)	41 (39.4%)	22 (55.0%)	
Total	90	150	104	40	

Table 3: Academic Performance by Internet Addiction Level

Discussion

The purpose of this study was to determine the incidence and severity of online addiction among business students, as well as to investigate gender variations in addiction levels and the influence of internet addiction on academic achievement. The statistics show that 76.6% of business students have some form of internet addiction. Mild addiction was the most common, while a smaller but significant percentage of students displayed moderate to severe addiction levels. In another same study in China, an incidence of 16.2% was found. (Liu, Bao & Wang, 2009). Naffise Mashaei et al. reported that the frequency of internet addiction in students at Rafsanjan University of Medical Sciences in Iran was 51.3% mild, 5.4% moderate, and 0.9% severe, with 42.4% of students not attached to the internet (Naffise et al., 2013). The data revealed that men were much more engaged to internet usage than female respondents. This gender difference can be explained in terms of differences in the extent to which each sex indulges in different online activities like gaming, socializing, and entertainment, with the male students, perhaps, indulging more in these activities, in addition to their differing ways of coping with stress. A similar study conducted by Arvind Sharma et al confirmed the findings as well, putting forth that there was more internet addiction in male students than in female ($\chi^2=22.673$, $P=0.0001$) (Sharma et al., 2014). This study also found that there is a significant negative correlation between internet addiction and academic performance; students reporting higher scores on the Internet Addiction Test tended to be associated with lower academic performance. This suggests that internet addiction can result in impairment of students focus on their studies and assignments which might further result in poor academic performance. Internally moderate and severe addiction levels had also noticed a sufficient negative relationship with poor academic performance, which reveals that the further compulsion that an individual develops towards Internet usage, the higher, he becomes more lethargic about his daily works, responsibilities, and academic performance in further contrast to their prior interests. This correlation provides further justification early on addressing the challenges posed by internet addiction, as academic performance is crucial to furthering students' career opportunities and prospects later in life.

The above-mentioned study possesses one of the greatest strengths of having 384 participants; therefore, the findings could be determined with higher reliability and generalizability to the whole population of business students. Also, the validated, widely used Kimberly Young's Internet Addiction Test (IAT) provides greater validity and deserves comparison with other studies in a wider student population. Therefore, we were able to take stock of the prevalence of internet addiction and its relationship with academic performance and gender through a cross-sectional study within a relatively short time frame. Taken together, it provides a good picture of an issue on the minds of business students.

Although the study expresses strengths, it has many limitations. Firstly, it captures information about internet addiction and its effects at just one time point because of its cross-sectional nature, thus limiting its ability to ascertain causality. Longitudinal studies will however lay out a basis for making inferences about internet addiction's development over time and its long-term effects on academic performance. Secondly, the academic outcome was self-reported therefore, students may either err on the side of over- or underreporting their performances within their claim. Thirdly, using record data of performance would have made for more effective results. Last but not least, IAT-mere as a reliable measure-may just not profile all the intricacies related to the internet addiction as was experienced by social media usages or the digital habits of business students, which most probably make a different use of the internet when compared to traditional student population. Future studies may explore specially targeted measures for internet addiction that address the peculiar online behaviors of business students, such as online networking and research habits.

Conclusion

Internet addiction is prevalent among business students, highlighting the need for preventive and therapeutic interventions. Promoting awareness and controlled internet use may help mitigate negative academic impacts. This study also found that there is a significant negative correlation between internet addiction and academic performance; students reporting higher scores on the Internet Addiction Test tended to be associated with lower academic performance. This suggests that internet addiction can result in impairment of students focus on their studies and assignments which might further result in poor academic performance. Internally moderate and severe addiction levels had also noticed a sufficient negative relationship with poor academic performance, which reveals that the further compulsion that an individual develops towards Internet usage, the higher, he becomes more lethargic about his daily works, responsibilities, and academic performance in further contrast to their prior interests. This correlation provides further justification early on addressing the challenges posed by internet addiction, as academic performance is crucial to furthering students' career opportunities and prospects later in life.

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