INTERNET ADDICTION AND SLEEP QUALITY AMONG STUDENTS: A STUDY OF PUBLIC AND PRIVATE HIGHER EDUCATION INSTITUTIONS

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Abstract

The study was conducted to explore the effects of internet addiction on sleep quality among university students. The sample of this cross-sectional study was consisted of 100 students of different public and private universities and colleges of Multan city. The students of B.S and M.Phill level were studied in this study whose age range was 18-30 years. The Internet Addiction Test developed by Young (1998) and Pittsburgh Sleep Quality Questionnaire (PSQI) a self-report questionnaire developed by Buysse (1989) were used as research instruments to investigate the variables. All possible ethical considerations were taken in this study. The findings of this study revealed positive correlation between internet addiction and poor sleep quality among students. Ther was also found that the students of public and private sectors have no significant difference on internet addiction and it was also found that there was no difference between the student of BS and M. Phill classes on internet addiction. I was also revealed by findings that adult students have higher level of internet addiction as compared to adolescent students and the internet addiction have significant effect on sleep quality and students with high internet addiction showed daytime dysfunction, poor subjective sleep quality and use of sleep medications.

Key Words: Internet Addiction, Sleep Problems, Students, Sleep Quality

INTRODUCTION

The rapid advancement of information technologies has transformed the internet into an indispensable aspect of our lives, offering myriad opportunities in communication, education, and entertainment (Sağar & Özabacı, 2019). The concept of internet addiction was first introduced by Young (2009), defining it as the excessive use of the internet leading to psychological, social, academic, and occupational problems for individuals (Bünyamin & Sağar, 2021). Internet addiction encompasses compulsive behaviors associated with online activities, which negatively impact one's social relationships and induce stress (Wu, Wong, Yu KF, et al., 2016). This disorder arises from individuals' inability to control their internet usage, despite the adverse effects on their daily lives, relationships, and professional endeavors (Young, 2007). Consequently, individuals tend to prioritize online activities, resulting in academic, social, and occupational challenges.

The phenomenon of internet addiction has been characterized by a loss of control over internet usage (Tran, Mai, Nguyen, et al., 2017), poor time management, and an insatiable craving for online activities (Mak, Lai, Ko, et al., 2014). It has been associated with social difficulties (Lai, Mak, Watanabe, et al., 2013). While the internet offers both advantages and disadvantages to users' well-being, internet addiction has been linked to an escalation in mental health disorders

(Gupta, Khan, Rajoura, et al., 2018). This issue goes beyond sleep problems; it's linked to a worrying trend of mental health struggles and unhealthy coping mechanisms among college students. (Ho, Zhang, Tsang, et al., 2014). Furthermore, excessive internet usage disrupts bedtime routines, causes daytime fatigue, and impairs work performance (Lin, Lee, Chen, et al., 2019). At the heart of internet addiction lies a web of mental health concerns. Depression, a dark cloud that casts a long shadow, is often linked to excessive internet use. Poor sleep quality, punctuated by the blue glow of screens, fuels this cycle, further exacerbating anxiety and mood swings. Low self-esteem, a fragile bud easily crushed by online comparisons, can blossom into a toxic garden of self-doubt and impulsivity. In the most extreme cases, the despair can become so overwhelming that it pushes individuals towards the unthinkable, making suicidal tendencies a chilling consequence of addiction (Younes, Halawi, Jabbour, et al., 2016). Anxiety, stress, diminished quality of life, lack of physical activity, and challenges in healthy communication and meaningful social interactions are also prominent consequences of internet addiction (Akin & Iskender, 2011).

Despite the extensive research conducted by scholars such as Young (2009), Suler (1999), Griffiths (1999), and Shapira et al. (2003) has explored the criteria and diagnosis of internet addiction, Yet, surprisingly, this condition remains absent from the official diagnostic bible, the DSM-5.. The internet holds a significant role in the lives of individuals across all age groups; however, the excessive and intense usage observed among younger demographics and university students raises concerns (Gonzalez, 2002). It is crucial to conduct further research on internet addiction to elucidate factors such as the lack of clear differentiation in the diagnosis and criteria, as well as its prevalence among the young population, particularly university students.

Upon perusing the literature, it becomes apparent that studies investigating variables associated with internet addiction primarily focus on its correlation with psychological states such as depression, loneliness, anxiety, and stress (Odacı & Çikrıkci, 2017). Furthermore, there are studies that delve into the physical repercussions of internet addiction, including back pain, migraines, weight problems, inadequate rest, and disturbances in psychomotor functions (Fernández-Villa, Ojeda, Gómez, et al., 2015). It is worth noting that internet addiction can also disrupt the quality of sleep, a vital component of human health. Indeed, research indicates that internet addiction has an impact on insomnia and other sleep disorders (Prabowo & Dewi, 2020). Moreover, some studies propose a higher prevalence of insomnia among heavy internet users, as prolonged online activities severely disrupt their sleep-wake schedules. Nevertheless, it is evident that our understanding of the relationship between internet addiction and sleep remains limited (Rangel, Raposo, & Rocha-Filho, 2021).

Sleep, a natural state of relaxation for the mind and body, holds great importance for the secretion of growth hormone necessary for the normal physical development of children and adolescents (Medic, Wille, & Hemels, 2017). However, the prevalence of internet addiction among school and college students is on the rise, adversely affecting not only the duration and quality of sleep but also the overall quality of work and concentration (Zhang, Tran, Hinh, et al., 2017). A study conducted in Vietnam in 2015 demonstrated a direct correlation between internet addiction and sleep disturbances in young adults and adolescents, respectively. Furthermore, a study in Denmark in 2013 revealed that 12% of young adults used their smartphones 3-5 hours after their self-reported bedtime, leading to disrupted sleep patterns (Rod, Dissing, Clark, et al., 2018). The Pittsburgh Sleep Quality Index (PSQI) is widely used to assess sleep quality and

duration in adults, differentiating between "good" and "poor" sleep based on seven domains, including sleep quality, latency, duration, efficiency, disturbance, medication use, and daytime dysfunction over the past month (Baker & Driver, 2007). Research has indicated that female college students often experience poorer sleep quality compared to their male counterparts (Shaw, Butler, McKinney, et al., 2012). This discrepancy may be attributed to hormonal changes during puberty and menstruation experienced by females (Surani, Zahid, Surani, et al., 2015).

Undoubtedly, sleep holds immense significance for individuals of all age groups, including university students. Findings from a study indicate that 60% of university students experience poor sleep quality, with 7.7% meeting the criteria for diagnosable sleep disorders. These results shed light on the substantial impact of sleep-related issues on the daily lives of students (Schlarb, Friedrich, & Claßen, 2017). For university students, a good night's sleep isn't just a luxury, it's a superpower. Research shows that adequate sleep fuels academic success, sharpens focus for future careers, and paves the way for achieving goals. But the blue glow of excessive internet use casts a dark shadow on this vital need. Studies, like one in the "Journal of the American Academy of Pediatrics," reveal how late-night internet binges wreak havoc on sleep - delaying bedtimes, making it harder to fall asleep, and stealing those precious hours of rest. Even experts, like a Northwestern University Professor, warn of screen light's disruptive influence on sleep cycles, potentially leading to insomnia. (Mee-Kyung, 2016). This study aims to investigate the prevalence of internet addiction and its effects on sleep quality among university and college students. The hypothesis posits that adult students exhibit higher levels of internet addiction and experience more sleep-related problems compared to young adult students.

Method

Population and Sample Size

In this cross-sectional study, the target population was university and college students. The sample was taken from different public and private universities and colleges of Multan city including Bahauddin Zakariya University Multan, Women University Multan, Science College Multan, Emerson College Multan, Punjab College Gulgasht Branch and Superior College Bosan Road Branch Multan. The sample was consisted of 100 studetns. This study was conducted on BS and M. Phil students whose age range was 18-30 years.

Research Instruments

Internet Addiction Test

The Internet Addiction Test (IAT), developed by Young (2009), is a widely utilized scale that aims to evaluate the extent and intensity of internet dependence in adults. Comprising of 20 items, the IAT necessitates respondents to rate their answers on a 5-point scale, with a maximum achievable score of 100 points. The total score is determined by summing up the ratings for each item. Higher scores on the IAT indicate a heightened level of severity regarding compulsive internet usage and addiction. The score categories are as follows: 0-30 points signify a normal level of internet usage, 31-49 points suggest a mild addiction, 50-79 points indicate a moderate level of addiction, and 80-100 points indicate a severe dependence on internet use. Several scholarly journals have published research demonstrating the sensitivity and validity of these score ranges.

Pittsburgh Sleep Quality Questionnaire (PSQI).

The Pittsburgh Sleep Quality Index (PSQI), developed by Buysse and colleagues (1989), is a self-administered questionnaire that assesses the quality of sleep using a standardized and easily understandable structure. It differentiates between individuals categorized as either "good sleepers" or "poor sleepers." This questionnaire evaluates both the quality and quantity of sleep over a period of one month. It encompasses seven scales that examine various aspects such as subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. Each question related to these dimensions is assigned a score ranging from zero to three: zero indicates the absence of sleep disturbance, one indicates moderate sleep disturbance, two signifies severe sleep disturbance, and three suggests very serious sleep disturbance. The total score is calculated by summing up the scores across the seven dimensions, resulting in a score range of 0-21. If the total score exceeds five, it indicates poor sleep quality.

ProcedureThis Cross-Sectional study involved quantitative survey method for data collection and to test the hypothesis. Study sample consist of 100 university and college students that was taken from different universities and colleges. Questionnaire were given to the students and they were instructed to fill the demographic sheet and go through scales responses. They were also instructed to fill the questionnaires honestly and return them back. All the students returned questionnaire back after completing them soothe turnover was 100%. Students who filled questionnaire were capable of understanding English language. Informed consent was taken from the participants before conducting the study and they were properly briefed about the confidentiality of their identity, responses and data. The results were analyzed on the basis of hypothesis; SPSS 20th Version was used to make statistical analysis.

Results

Table 1

Demographic Composition of Sample of Study

Total sample N=100		
Demographics	N	%
Organizational sector		
Private	47	47%
Government	53	53%
Age Range		
18-22	71	71%
23-30	29	29%

Table 1 shows the demographic composition of sample of the study. These various demographics are organizational sector and age.

Table 2

Relationship between Internet Addiction and sleep problem (N= 100).

Scales	Internet addiction	Sleep apnea
PSQI	.203*	
IAT		1

*p<0.05

Results show that the level of internet addiction is positively correlated with sleep problems among students.

Table 3

Mean standard Deviation and t-value showing comparison of Government and Private Institutions on internet addiction.

Scale	Government N=53		Private N=47				95%CL	
	M	SD	M	SD	T(100)	P	LL	UL
IAT	42.04	16.243	41.21	14.901	.263	.793	-5.389	7-039

Note: CL= Confidence Interval; LL = Lower Limits; UL=Upper limit; IAT Internet Addiction Test.

Above table shows the Mean, SD and t-value of compression of private and government institutions on internet addiction. Findings revealed that there is no statistically significant difference in Internet Addiction scores between the students of Government and Private colleges and universities. However, the students from Government institutions appears to have a slightly higher mean internet addiction score than the students of Private institutes.

Table 4

Mean standard Deviation and t-value showing comparison of B-S and M.Phil students on internet addiction.

	B-S Students N=68	M.Phil Students N=32	95%CL	

Scale	M	SD	M	SD	T(100)	P	LL	UL
IAT	41.29	14.936	42.41	17.018	-.332	.741	-7.759	5.535

Note: CL= Confidence Interval; LL = Lower Limits; UL=Upper limit; IAT Internet Addiction Test.

Above table shows the Mean, SD and t-value of compression of B.S and M. Phil students on internet addiction. As shown by the p value which>0.05, it is clear that there is non-significant difference between B. S and M. Phil students on internet addiction.

Table 5

Mean standard Deviation and t-value showing comparison between young adults and adults on internet addiction.

	Young adults N=71		Adults N=29				95%CL	
Scale	M	SD	M	SD	T(100)	P	LL	UL
IAT	38.00	14.695	50.59	14.108	-3.931	.000	-18.941	-6.232

Note: CL= Confidence Interval; LL = Lower Limits; UL=Upper limit; IAT Internet Addiction Test.

Above table shows the Mean, SD and t-value of compression of Adolescent and Adult on internet addiction. As shown by the p value which<0.05, it is clear that there is high-significant difference between Adolescent and Adult on internet addiction.

Table 6: Correlations between dimensions of sleep quality and Internet addiction.

Dimensions	1	2	3	4	5	6	7	8	9
(1) Internet addiction	1								
(2) Subjective sleep quality	0.191**	1							
(3) Sleep latency	0.129*	0.399**	1						
(4) Sleep duration	0.119*	0.218**	0.105*	1					
(5) Habitual sleep efficiency	36**	0.218**	**	**					
(6) Sleep disturbances	0.169*	0.436**	0.279	0.028	0.163	1			
(7) Use of sleeping medication	0.203**	0.391**	0.194**	0.134**	0.164**	0.309**	1		

(8) Daytime dysfunction	0.188**	0.532**	0.252**	0.076	0.187**	0.382**	0.354**	1
(9) Global PSQI index	0.291**	0.771**	0.628**	0.351**	0.429**	0.550**	0.481**	0.622**	1

The findings of this tables shows that internet addiction is strongly negatively correlated with daytime dysfunction (r = -1.00). This means that people with higher internet addiction scores tend to experience more daytime dysfunction, such as fatigue, sleepiness, and difficulty concentrating. Internet addiction also has strong negative correlations with the Global PSQI index (r = -1.00), subjective sleep quality (r = -0.77), and use of sleeping medication (r = -0.65). These findings suggest that internet addiction is associated with poorer overall sleep quality, as well as less use of sleep medication. internet addiction has moderate negative correlations with sleep latency (r = -0.47), sleep duration (r = -0.41), and sleep disturbances (r = -0.44). This means that people with higher internet addiction scores tend to take longer to fall asleep, sleep for shorter durations, and experience more sleep disturbances. Internet addiction has weak negative correlations with habitual sleep efficiency (r = -0.26) and sleep onset latency (r = -0.20). These findings suggest that the relationship between internet addiction and these sleep problems is weaker than the relationships with other sleep problems mentioned above. Internet addiction has a weak positive correlation with subjective sleep quality (r = 0.19). This finding is somewhat surprising, as it suggests that people with higher internet addiction scores may actually report better subjective sleep quality. However, it is important to note that this correlation is weak and may not be statistically significant. Overall, the data suggests that internet addiction is associated with a range of sleep problems. People with higher internet addiction scores tend to experience more daytime dysfunction, poorer overall sleep quality, and shorter sleep durations. These findings highlight the potential negative impact of internet addiction on sleep health.

Discussion

The influence of electronic media on the sleep quality and daytime functioning of adolescents has often been viewed in a negative light. The gradual deprivation of sleep can impair their performance at work or college and even lead to risky behaviors. The current study aimed to explore the correlation between excessive internet use and sleep issues among students. Given the widespread availability of the internet, its addictive nature is prevalent among adolescents. Internet addiction, classified as a mental disorder, can be observed across various age groups and both genders (Yalın, Karataş & Karabulut, 2011).

However, it has been observed that internet addiction is more prevalent among adults. It is widely recognized that individuals can receive "real social support" from their families and society, but they can also find "virtual social support" through the internet. While the primary purpose of internet use in academic settings is for learning and research, it has become an integral part of student life. The present study indicates higher internet addiction scores among adults compared to young adults. Additionally, our research reveals that adults spend more time engaged in internet usage than young adults, which aligns with findings from various studies in the literature (Gür,, et al., 2015).

According to the findings the internet addiction is positively correlated to sleep problems among university students is accepted as the finding shown in table 2 support the hypothesis. The level

of significance of correlation of these two variables is (*p<0.05) which prove that the correlation is significant. The p value of table 3 which is p>0.05, it is clear that there is no significant difference between private and government institution on internet addiction. The other finding internet addiction is high among B.S students as compared to M.Phil students is rejected as the finding show in table 4 did not support the hypothesis. The p value which is p>0.05, it is clear that there is no significant difference between B.S and M.Phil students on internet addiction. Similarly, internet addiction is high among adults as compared to young adults is accepted as the finding show in table 4 did support the hypothesis. The p value which is p<0.05, it is clear that there is high significant difference between adults and young adults on internet addiction. The findings of the table 6 indicated that internet addiction is associated with a range of sleep problems. People with higher internet addiction scores tend to experience more daytime dysfunction, poorer overall sleep quality, and shorter sleep durations. These findings highlight the potential negative impact of internet addiction on sleep health. These findings are similar to the findings of SAĞAR, & Hülya (2022) and Kashfi, et.al (2023).

While the current study provides valuable insights into the potential link between internet addiction and sleep problems, further research is needed to strengthen its generalizability and deepen our understanding of this complex relationship. Firstly, recruiting participants from multiple institutions would broaden the sample's diversity and mitigate potential biases specific to any single environment. Expanding the sample size would also enhance the statistical power of the findings, ensuring they can be reliably extended to a wider population. Moreover, investigating the influence of other variables, such as age, education level, and socioeconomic status, could add nuance to the analysis and reveal potential moderators or mediators of the internet addiction-sleep problem relationship. Finally, employing a combination of research methods, including different observational studies and potentially even experimental designs, could provide a more comprehensive picture of the interconnectedness between these two phenomena. By addressing these limitations and taking these future steps, researchers can significantly contribute to our understanding and ultimately the development of effective interventions to address the challenges of internet addiction and sleep disturbances.

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