Annals of Clinical Pharmacology and Physiology
Review Article

The Relationship between Internet Gaming Addiction, Sleep Quality, and Academic Performance among Young Adults: A Gender-Based Analysis

Georgekutty Kochuchakkalackal Kuriala[1,2*], Abigail Biju[1,2], Devanandana S[1,2], Kavitha Charles[1,2]

[1]Mahathma Gandhi University

[2]Department of Psychology Newman College

Citation: Georgekutty Kochuchakkalackal Kuriala, Abigail Biju, Devanandana S, Kavitha Charles. The Relationship between Internet Gaming Addiction, Sleep Quality, and Academic Performance among Young Adults: A Gender-Based Analysis. Annal Clin Pharm Phys. 2026;1(1):1-6.

Received Date: 09 January 2026; **Accepted Date:** 07 February 2026; **Published Date:** 09 February 2026

***Corresponding author:** Georgekutty Kochuchakkalackal Kuriala, Mahathma Gandhi University, Department of Psychology Newman College

ABSTRACT

This study investigates the interrelationships between Internet Gaming Addiction (IGA), sleep quality, and academic performance among 301 young adults (aged 17–23) in Kerala, India, while examining gender-based variations. Utilizing a quantitative, correlational design, data were collected via validated self-report scales: the Internet Gaming Disorder Scale–Short Form (IGDS9-SF), the Sleep Quality Scale (SQS), and an Academic Performance Scale (APS). Results indicated significant negative correlations between IGA and sleep quality ($r = –0.471$, $p < .01$) and between IGA and academic performance ($r = –0.262$, $p < .01$). Sleep quality and academic performance were positively correlated ($r = 0.308$, $p < .01$). A notable gender difference emerged, with females reporting significantly higher IGA levels than males ($p = .001$). No significant gender differences were found for sleep quality or academic performance. The findings underscore the detrimental impact of disordered gaming on critical developmental domains and highlight the necessity for gender-sensitive, multi-systemic interventions promoting digital wellness, sleep hygiene, and academic support for young adults.

Keywords: Internet gaming addiction; Sleep quality; Academic performance; Young adults; Gender differences

INTRODUCTION

The ubiquitous integration of digital technology into daily life has reconfigured leisure and communication, with young adults representing the most digitally engaged demographic globally. While offering connectivity and informational access, this immersion has precipitated significant public health concerns, particularly regarding problematic internet gaming. Internet Gaming Disorder (IGD), formally recognized by the World Health Organization (2018), is characterized by persistent and recurrent gaming behavior that leads to clinically significant impairment. This disorder is frequently comorbid with sleep disturbances, cognitive deficits,

academic underachievement, and adverse mental health outcomes. For young adults navigating academic transitions, the interplay between gaming, sleep, and scholastic performance is critically consequential. Theoretical models, including Time Displacement and Sleep Deprivation Theories, provide a framework for understanding this nexus, proposing that gaming displaces essential activities and directly impairs restorative sleep, thereby eroding cognitive capacity. Despite international evidence, a paucity of research within the Indian context concurrently examines these variables and their potential variation by gender. This study aims to address this gap by empirically exploring the relationships between IGA, sleep quality, and academic performance, and by analyzing gender differences within this dynamic, thereby informing targeted psychoeducational and public health strategies.

LITERATURE REVIEW

Internet Gaming Disorder: Prevalence, Correlates, and Theoretical Underpinnings

Epidemiological data on IGD prevalence show considerable cross-cultural variability, typically ranging from 0.7% to 27.5%, with higher rates consistently observed among males and adolescents. Preliminary Indian studies suggest a lower but clinically significant prevalence among students, with notable gender disparities traditionally favoring males. The sequelae of IGD are well-established, encompassing sleep architecture disruption, elevated anxiety and depression, and diminished academic motivation and achievement. These outcomes are conceptually grounded in several theoretical frameworks. Uses and Gratifications Theory explains the initial engagement, positing gaming as a means to fulfill psychological needs such as escapism or social affiliation. The resultant academic and cognitive impairments are elucidated by Cognitive Load Theory, which highlights the depletion of finite attentional resources, and Time Displacement Theory, which frames gaming as a direct behavioral substitute for studying and sleeping. Concurrently, Sleep Deprivation Theory details the physiological pathway, wherein prolonged gaming, especially nocturnally, delays sleep onset and reduces sleep quality, directly compromising next-day cognitive functioning.

Sleep, Academics, and the Role of Gender

Sleep quality, a multidimensional construct, is a foundational pillar of cognitive health and academic success. Research robustly demonstrates that insufficient or poor-quality sleep impairs executive functions, memory consolidation, and sustained attention—processes indispensable for learning. Consequently, students with poor sleep hygiene consistently report lower grade point averages and reduced academic self-efficacy. The investigation of gender differences introduces complexity. Historically, gaming has been a male-dominated activity, yet female participation is rising, with emerging evidence suggesting divergent motivational profiles (e.g., stress relief, social connection) that may influence patterns of addictive use. Gender differences in sleep patterns are also documented, often attributed to biological, psychological, and sociocultural factors, though findings are inconsistent across populations. This review underscores the interconnectedness of IGD, sleep, and academic performance while identifying gender as a salient, yet underexplored, moderating variable in this relationship, particularly within non-Western contexts like India.

METHODOLOGY

A quantitative, cross-sectional, correlational design was employed to examine the relationships between variables without inferring causation. Participants comprised a convenience sample of 301 undergraduate students (154 male, 147 female) aged 17 to 23 years from Kerala, India. Incomplete responses (n=16) were excluded from analysis.

Instruments and Procedure

Data were collected online using standardized instruments. IGA was measured with the 9-item Internet Gaming Disorder Scale–Short Form (IGDS9-SF; $\alpha = 0.88$). Sleep quality was assessed using the 28-item Sleep Quality Scale (SQS; $\alpha = 0.92$), where higher scores indicate poorer sleep. Academic performance was evaluated via a 10-item Academic Performance Scale (APS; $\alpha = 0.85$) measuring self-perceived efficacy and outcomes. A demographic questionnaire captured age and gender. Following ethical approval and electronic informed consent, surveys were distributed via institutional and social media networks. Data were anonymized and securely stored.

Data Analysis

Analyses were conducted using SPSS v.27. Descriptive statistics summarized the data. Pearson's correlation coefficients assessed bivariate relationships between IGA, sleep quality, and academic performance. Independent samples t-tests examined gender differences across these variables. An alpha level of .05 determined statistical significance.

RESULTS

Means, standard deviations, and ranges for key variables are presented in Table 1. The sample demonstrated moderate levels of IGA symptoms, a trend toward suboptimal sleep quality, and moderate self-reported academic performance.

Table 1: *Descriptive Statistics for Study Variables (N = 301)*

Variable	M	SD	Range
Internet Gaming Addiction	38.21	6.89	9–45
Sleep Quality	10.92	1.31	4–16
Academic Performance	10.08	1.12	0–20

Correlation Analysis

As shown in Table 2, IGA was significantly negatively correlated with both sleep quality ($r = –0.471$, $p < .01$) and academic performance ($r = –0.262$, $p < .01$). Sleep quality and academic performance were positively correlated ($r = 0.308$, $p < .01$).

Table 2: *Pearson Correlations Between Study Variables*

	IGA	Sleep Quality	Academic Performance
IGA	1		
Sleep Quality	–0.471**	1	
Academic Performance	–0.262**	0.308**	1

Gender Differences

Independent samples t-tests revealed a significant gender difference for IGA, with females (M=39.51, SD=5.65) scoring higher than males (M=36.95, SD=7.71), t(299) = -3.274, p = .001. A small but significant difference was found for academic performance, favoring males (p = .029). No significant gender difference was observed for sleep quality (p = .154). Results are detailed in Table 3.

Table 3: *Gender Differences in Key Variables*

Variable	Male (n=154)	Female (n=147)	t-value	p-value
IGA	36.95 (7.71)	39.51 (5.65)	–3.274	.001*
Sleep Quality	11.03 (1.34)	10.82 (1.29)	1.428	0.154
Academic Performance	10.22 (0.98)	9.94 (1.25)	2.19	.029*

DISCUSSION

The present findings corroborate and extend existing literature on the deleterious effects of Internet Gaming Addiction. The strong negative correlation between IGA and sleep quality empirically validates Sleep Deprivation Theory, indicating that compulsive gaming significantly compromises sleep restorative value, likely through mechanisms of delayed sleep onset, circadian disruption, and pre-sleep cognitive arousal. The negative association between IGA and academic performance supports the pathways outlined by Time Displacement and Cognitive Load Theories, wherein gaming behavior directly encroaches upon study time and depletes mental resources necessary for academic engagement. The positive correlation between sleep and academic performance reaffirms the foundational role of sleep in cognitive efficacy.

A pivotal finding was the reversal of the traditional gender gap in IGA, with female participants reporting higher addiction levels than their male counterparts. This suggests a shifting demographic landscape, potentially driven by increased smartphone accessibility, the social and stress-relief functions of gaming for young women, and the normalization of digital leisure across genders. The small but statistically significant gender difference in academic performance warrants cautious interpretation and further investigation into potential confounding factors such as academic discipline or self-reporting bias. The absence of a gender difference in sleep quality implies that the adverse impact of IGA on sleep may be a universal effect within this student population, operating irrespective of gender despite differences in addiction severity.

Implications and Future Directions

The results advocate for a multi-tiered intervention approach. Educational institutions should integrate digital literacy and sleep hygiene modules into curricula. Mental health practitioners must incorporate IGA screening into assessments for young adults presenting with sleep or academic concerns. Public health initiatives require gender-sensitive messaging that acknowledges the evolving profile of at-risk users. Crucially, these recommendations are tempered by the study's limitations, including its cross-sectional design, reliance on self-report, and homogenous convenience sample, which preclude causal inference and limit generalizability. Future research must employ longitudinal methodologies, incorporate objective measures (e.g., actigraphy, institutional grades), and utilize diverse, representative samples to elucidate causal pathways and identify robust moderating and mediating variables.[1-17]

CONCLUSION

This study establishes significant interrelationships between internet gaming addiction, poor sleep quality, and diminished academic performance among Indian young adults. It further documents a contemporary shift, with females reporting higher levels of gaming addiction than males, challenging historical epidemiological trends. These findings highlight the urgent need for proactive, evidence-based, and gender-informed strategies to promote balanced digital engagement, protect sleep health, and support academic achievement in an increasingly connected generation.

REFERENCES

1. Faisal Ahmed Dakheel-Allah Alghamdi, Faisal Ahmed Ghanim Alghamdi, Abdullah Abusulaiman, Abdulaziz Jabr Alsulami, Mohammed Bamotref, Albraa Alosaimi, et al. Video Game Addiction and its Relationship with Sleep Quality among Medical Students. J Epidemiol Glob Health. 2024;14(3):1122-1129.
2. Alhola P, Polo-Kantola, P. Sleep deprivation: Impact on cognitive performance. Neuropsychiatr Dis Treat. 2007;3(5):553–567.
3. Alzahrani AKD, Griffiths MD. Problematic Gaming and Students' Academic Performance: A Systematic Review. International Journal of Mental Health and Addiction. 2024.
4. Blue light has a dark side. (2012). Harvard Health Publishing.
5. Gihwan Byeon, Sun-Jin Jo, Jong-Ik Park, Hyunsuk Jeong, Hae Kook Lee, Hyeon Woo Yim. Risk factors and outcomes of internet gaming disorder identified in Korean prospective adolescent cohort study. J Behav Addict. 2022;11(4):1035-1043.
6. Prajakta Chavan, Anil Ankola, Roopali Sankeshwari, Atrey Pai Khot, Anu Sara Varghese, Varkey Nadakkavukaran Santhosh, et al. Prevalence of Internet Gaming Disorder and Its Impact on Routine Activities Among Dental Students in Belagavi, India. Cureus. 2024;16(7):e65315.
7. Curcio G, Ferrara M, De Gennaro L. Sleep loss, learning capacity and academic performance. Sleep Med Rev. 2006;10(5):323-37.
8. Facts and Figures 2023—Youth Internet use. (n.d.). International Telecommunication Union.

9. Hammad MA, Alyami MHF, Awed H S. (2024). The association between internet addiction and sleep quality among medical students in Saudi Arabia. Ann Med. 2024;56(1):2307502.
10. Hawi NS, Samaha M, Griffiths MD. (2018). Internet gaming disorder in Lebanon: Relationships with age, sleep habits, and academic achievement. J Behav Addict. 2018;7(1):70-78.
11. Shohel Mahmud, Md Abdullah A Jobayer, Nahid Salma, Anis Mahmud, Tanzila Tamanna. Online gaming and its effect on academic performance of Bangladeshi university students. Health Sci Rep. 2023;6(12):e1774.
12. Mihara S, Higuchi S. Cross-sectional and longitudinal epidemiological studies of Internet gaming disorder. Psychiatry Clin Neurosci. 2017;71(7):425-444.
13. Sun RQ, Sun GF, Ye JH. The effects of online game addiction on reduced academic achievement motivation among Chinese college students. Frontiers in Psychology. 2023;14:1185353.
14. María Dolores Toscano-Hermoso, Félix Arbinaga, Eduardo J Fernández-Ozcorta, Juan Gómez-Salgado, Carlos Ruiz-Frutos. Influence of Sleeping Patterns in Health and Academic Performance Among University Students. Int J Environ Res Public Health. 2020;17(8):2760.
15. Ming Yu Claudia Wong, Guangzhe Frank Yuan, Caimeng Liu, Stanley Kam Ki Lam, Hong Wang Fung. The relationship between internet gaming disorder, sleeping quality, self-compassion, physical activity and psychological distress. Glob Ment Health (Camb). 2024;11:e67.
16. World Health Organization. (2018). International classification of diseases for mortality and morbidity statistics *(11th ed.).*
17. Musharaf Zaman, Muhammad Saad Babar, Maryam Babar, Faheem Sabir, Farzana Ashraf, Muhammad Junaid Tahir, et al. Prevalence of gaming addiction and its impact on sleep quality: A cross-sectional study from Pakistan. Ann Med Surg (Lond) . 2022;78:103641.