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STUDY ON GAMING APP OBSESSION AMONG COLLEGE STUDENTS

Dr. Daisland Thattil

Associate Professor
P.G & Research Department of Commerce
St. Thomas college (Autonomous) Thrissur
MOBILE: 9496361122
EMAIL: daislandjoshy@gmail.com

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ABSTRACT

The ubiquity of smartphones and ubiquitous high-speed internet access have made mobile gaming a dominant leisure activity among college students. While gaming serves as a venue for entertainment and stress relief, excessive engagement can develop into behavioral obsession, compromising academic performance and holistic well-being. This study investigates the impact of gaming app obsession on academic performance, examining the mediating roles of physical and mental health. Primary data were gathered from 200 college students across Thrissur district using a purposive sampling strategy and a structured five-point Likert scale instrument. The data were evaluated through Partial Least Squares Structural Equation Modeling (PLS-SEM). Rigorous reliability and validity assessments verified the structural soundness of the measurement model. The findings indicate that mobile gaming obsession severely hampers concentration, classroom participation, and overall academic achievement. Respondents reported notable physical ailments—specifically eye strain and disrupted sleep patterns—alongside psychological distress, including elevated stress, anxiety, and mood volatility. The empirical findings confirm that mobile gaming obsession exerts both direct and indirect negative influences on academic outcomes via compromised physical and mental health. Consequently, the study highlights the urgent necessity for educational institutions and families to promote balanced digital habits and responsible gaming practices.

KEYWORDS: Gaming app obsession, mobile gaming addiction, academic performance, physical health, mental health.

I. INTRODUCTION

Gaming app obsession refers to an intense, persistent compulsion to engage with mobile games, often to the detriment of routine responsibilities and daily functioning. Individuals experiencing this form of behavioral compulsion frequently exhibit irritability when unable to play and consistently prioritize gaming over essential daily tasks. Terminology such as mobile gaming addiction, electronic gaming

compulsion, and electronic gaming mania are frequently used interchangeably to describe this phenomenon.

The proliferation of affordable smartphones and high-speed mobile data has fundamentally reshaped student lifestyles. While handheld devices facilitate communication, learning, and social networking, mobile gaming has emerged as one of the most time-consuming digital activities. Immersive titles such as PUBG/BGMI, Free Fire, and eFootball leverage competitive dynamics and social integration, drawing students into prolonged play sessions.

Although moderate gaming can offer relaxation and cognitive benefits, uncontrolled usage carries behavioral risks. The World Health Organization classifies Gaming Disorder as a recognized condition marked by impaired control over gaming habits, increasing priority given to play over other life interests, and continued engagement despite adverse outcomes. For undergraduate and postgraduate students, this disruption occurs at a critical developmental stage when academic focus, physical vitality, and psychological stability lay the foundation for future career trajectories.

Excessive gaming directly conflicts with academic demands, leading to curtailed study hours, weakened concentration, delayed assignment submission, and passive classroom engagement. The physical toll of prolonged screen exposure typically manifests as ocular fatigue, tension headaches, cervical and lumbar discomfort, chronic fatigue, and disrupted sleep architecture. Psychologically, compulsive play is linked to heightened stress levels, social withdrawal, emotional volatility, and anxiety.

Nevertheless, gaming is not inherently harmful. Controlled, recreational play can foster strategic thinking, spatial awareness, and problem-solving skills. The primary concern is therefore not the activity itself, but the lack of self-regulation and excessive consumption. This study analyzes how gaming app obsession affects academic performance among college students, explicitly measuring the indirect pathways through physical and mental health. By clarifying these relationships, the research provides actionable insights for educators, counselors, and policymakers working to foster healthy digital environments in higher education.

II. REVIEW OF LITERATURE & THEORETICAL FRAMEWORK

Prior research highlights the multifaceted consequences of excessive digital gaming on student populations. Aswathy et al. (2019) observed that compulsive gaming among youth in Kerala correlates strongly with somatic complaints, particularly sleep disruptions, ocular strain, and musculoskeletal pain. Bendo (2025) demonstrated that mobile gaming distraction directly impairs academic focus, leading to a measurable decline in cumulative academic performance. Similarly, Kim and Park (2025)

identified a strong association between mobile gaming compulsion, poor sleep quality, and heightened academic stress.

Investigating psychological outcomes, Rahman et al. (2025) reported that electronic app obsession significantly elevates the risk of depressive symptoms, mood instability, and lower educational attainment. Sun et al. (2024) further observed that electronic gaming mania diminishes academic motivation and engagement while fostering heightened anxiety. In the Indian context, Rani and Yadav (2024) documented widespread health complaints among gaming-addicted youth—including chronic headaches, visual fatigue, and cervical pain—noting that these physical symptoms directly compound academic distraction.

This study is grounded in Behavioral Addiction Theory, which explains how short-term neurochemical rewards from repetitive behaviors can reinforce compulsive usage patterns. Mobile games are engineered with immediate reward loops, social connectivity, and competitive mechanics that encourage sustained engagement. When self-regulation wanes, students progressively sacrifice academic responsibilities and health maintenance to sustain play schedules.

The theoretical model conceptualizes Mobile Gaming Obsession as the independent variable, Academic Performance as the primary dependent variable, and Physical Health and Mental Health as parallel mediating constructs.

III. OBJECTIVES OF THE STUDY

- To evaluate the impact of gaming app obsession on the academic performance of college students.
- To examine the effect of gaming app obsession on students' physical health.
- To assess the influence of gaming app obsession on students' mental health.
- To analyze the mediating role of physical and mental health in the relationship between gaming app obsession and academic performance.

IV. HYPOTHESES

- **H1:** Gaming app obsession has a significant negative impact on academic performance.
- **H2:** Gaming app obsession significantly affects physical health.

- **H3:** Gaming app obsession significantly affects mental health.
- **H4:** Physical and mental health significantly mediate the relationship between gaming app obsession and academic performance.

V. RESEARCH METHODOLOGY

This study utilized a descriptive and analytical research design to investigate mobile gaming behaviors among higher education students. Primary data were collected from a sample of 200 college students in Thrissur district using a structured questionnaire structured around a five-point Likert scale (ranging from Strongly Agree to Strongly Disagree). A purposive sampling technique was used to select respondents who actively engaged with mobile gaming applications and expressed willingness to participate. Secondary information was compiled from peer-reviewed journals, academic texts, and institutional reports.

Statistical analyses were conducted using SPSS and SmartPLS. The analytical framework incorporated descriptive statistics (percentages, means, and standard deviations) along with variance-based structural equation modeling (PLS-SEM). Measurement reliability and validity were established using Cronbach's Alpha, the Heterotrait- Monotrait (HTMT) ratio, and the Fornell-Larcker criterion.

VI. ANALYSIS AND DISCUSSIONS

(i) MEASUREMENT MODEL ASSESSMENT

Table 1

Construct	Indicator loading	Cronbach's alpha	AVE Interpretation
Mobile Gaming Addiction	> 0.70	0.916–0.940	>0.50 Reliable and valid Measurement
Physical Health	> 0.70	0.916–0.940	>0.50 Reliable and valid Measurement
Mental Health	> 0.70	0.916–0.940	>0.50 Reliable and valid Measurement
Academic Performance	> 0.70	0.916–0.940	>0.50 Reliable and valid Measurement

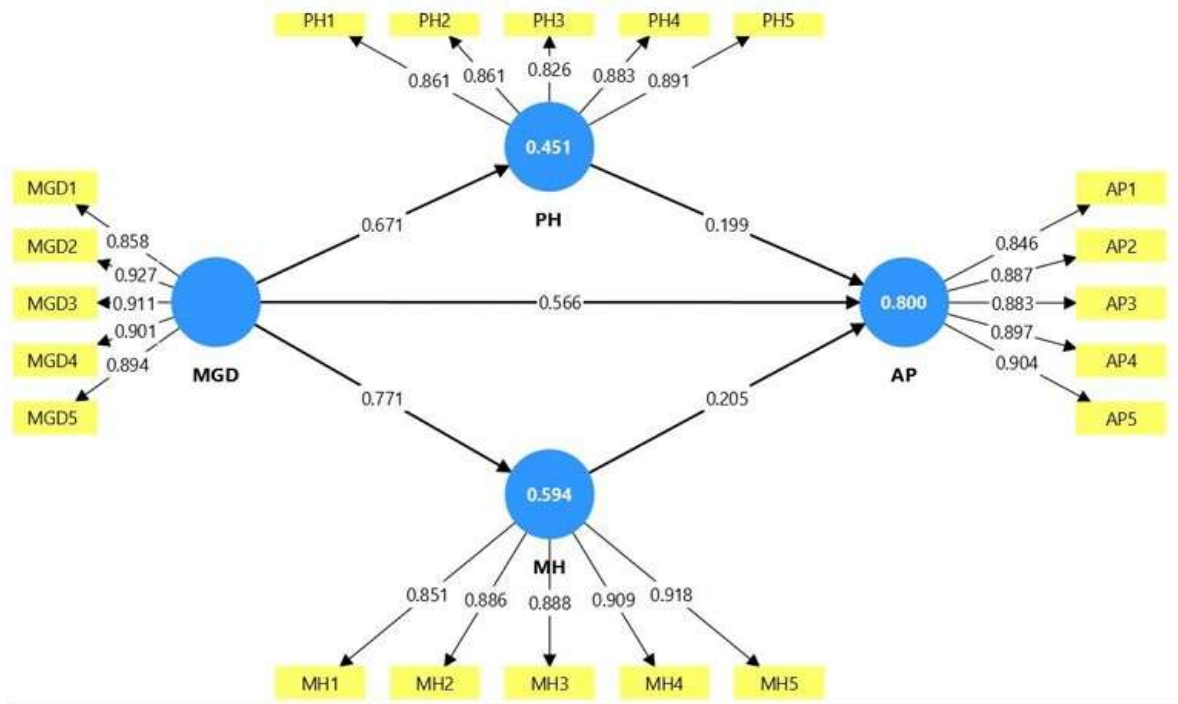
(ii) VALIDITY ASSESSMENT OF THE MEASUREMENT MODEL

Table 2

Validity Measure	Criterion	Result	Interpretation
Indicator Loadings	> 0.70	Achieved	Strong indicator reliability
Cronbach's Alpha	> 0.70	0.916– 0.940	Excellent internal consistency
Average Variance Extracted (AVE)	> 0.50	Achieved	Convergent validity established
HTMT Ratio	< 0.90	Achieved	Discriminant validity confirmed
Fornell–Larcker Criterion	Square root of AVE $>$ inter construct correlations	Achieved	Discriminant validity confirmed

Note. AVE = Average Variance Extracted; HTMT = Heterotrait–Monotrait Ratio. All constructs demonstrated satisfactory reliability, convergent validity, and discriminant validity, indicating that the measurement model was statistically acceptable.

STRUCTURAL MODEL



INTERPRETATION FOR DIRECT EFFECT

Table 3

Hypothesis Relationship	β	R^2	Interpretation
H1 Gaming App Obsession → Academic Performance	0.566	0.800	Moderate positive direct effect
H2 Gaming App Obsession → Physical Health	0.671	0.451	Strong positive effect
H3 Gaming App Obsession → Mental Health	0.771	0.594	Strong positive effect
H4 (i) Gaming App Obsession → Physical Health → Academic Performance	0.134	0.061	Significant positive effect

H4 (ii) Gaming App Obsession →MentalHealth →Academic Performance	0.158	0.157	Significant positive effect
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From the table, it is clear that β = standardized path coefficient; R^2 = coefficient of determination. Gaming App Obsession explained 45.1% of the variance in Physical Health, 59.4% of the variance in Mental Health, and 80.0% of the variance in Academic Performance. The positive effects of Physical Health and Mental Health on Academic Performance indicate that both variables act as mediators in the model.

VII. FINDINGS

- **Direct Impact on Academic Outcomes:** The structural model demonstrates a significant direct link between gaming app obsession and academic performance ($\beta = 0.566$). This indicates that elevated levels of mobile gaming compulsion directly compromise students' academic focus, assignment completion, and classroom engagement.
- **Somatic and Physical Health Strain:** Mobile gaming obsession exerts a strong positive effect on physical health problems ($\beta = 0.671$), accounting for 45.1% of the total variance in reported physical ailments ($R^2 = 0.451$). Higher levels of gaming compulsion directly correlate with increased physical distress, including eye strain, sleep disruption, and musculoskeletal discomfort.
- **Psychological Distress and Mental Health:** The strongest direct effect in the model lies between gaming app obsession and mental health issues ($\beta = 0.771$). Gaming obsession explains 59.4% of the variance in psychological strain ($R^2 = 0.594$), confirming that compulsive gaming heavily drives elevated stress, anxiety, and mood volatility among college students.
- **Overall Explanatory Power (R^2):** Combined with mediating factors, the overall model accounts for 80.0% of the variance in academic performance ($R^2 = 0.800$). This demonstrates that mobile gaming obsession, both directly and through health-related pathways, is a primary driver of academic outcomes among the surveyed students.
- **Mediating Role of Physical Health:** Physical health statistically mediates the relationship between gaming app obsession and academic performance ($\beta = 0.134, R^2 = 0.061$). The

physical degradation resulting from excessive screen time indirectly compounds a student's inability to maintain academic standards.

- **Mediating Role of Mental Health:** Mental health similarly acts as a key mediator in the model ($\beta = 0.158, R^2 = 0.157$). The psychological strain induced by compulsive gaming serves as an indirect pathway through which academic performance is further diminished.
- **Empirical Support for Hypotheses:** All proposed directional hypotheses (H1, H2, H3, and H4) were supported by the empirical data, confirming that mobile gaming obsession damages academic achievement both directly and indirectly through physical and psychological fatigue.

VIII. SUGGESTIONS

- **Implementing Structured Time-Management Strategies:** Students should adopt structured daily routines that establish clear boundaries between academic responsibilities and leisure activities. Utilizing built-in digital wellbeing tools—such as app timers, daily usage caps, and scheduled screen-free windows—can help students regulate gaming duration and prevent excessive play from encroaching on study hours and rest.
- **Institutionalizing Campus Digital Wellness Programs:** Educational institutions should integrate digital wellbeing initiatives into orientation schedules and student welfare programs. Organizing targeted workshops on healthy screen habits, sleep hygiene, and the early signs of behavioral obsession will raise awareness and equip students with self-regulation techniques.
- **Strengthening Campus Counseling and Health Services:** Higher education institutions ought to equip campus counseling centers to address behavioral compulsions. Counselors should offer guidance specifically tailored to digital addiction, helping students develop coping mechanisms for stress, anxiety, and emotional volatility without relying on compulsive gaming as an escape.
- **Fostering Active Peer and Extracurricular Engagement:** Colleges and universities should promote diverse physical, cultural, and social activities to provide fulfilling offline alternatives to mobile gaming. Encouraging participation in intramural sports, student clubs, and campus events offers healthy avenues for stress relief, social interaction, and team building.
- **Enhancing Parental Awareness and Domestic Support:** Parents should maintain open communication regarding healthy technology usage rather than imposing punitive restrictions. Encouraging balanced routines at home—such as keeping devices out of bedrooms during sleeping hours and supporting offline hobbies—can significantly reduce physical fatigue and sleep disruptions among students.
- **Promoting Ergonomic and Ocular Awareness:** Given the high incidence of physical discomfort (such as eye strain, headaches, and posture-related pain), student wellness campaigns should

emphasize basic ergonomic practices. Simple measures, including taking regular visual breaks, adjusting device brightness, and maintaining proper posture during screen use, can mitigate the physical strain that indirectly compromises academic focus.

IX. CONCLUSION

This study demonstrates that mobile gaming obsession among college students poses a significant threat to academic performance, operating both through direct cognitive distraction and indirect pathways of physical and mental fatigue. The structural model confirms that excessive screen time degrades academic outcomes while simultaneously driving sleep disruption, physical discomfort, stress, and anxiety. Because moderate gaming carries valid recreational and cognitive benefits, the challenge facing higher education lies in prevention rather than absolute restriction. Addressing this issue requires a collaborative approach from students, educators, campus counselors, and families to foster self-regulation, promote digital wellness, and establish balanced daily routines that safeguard student academic success and well-being.

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