

# Problematic Online Play Unmasked: Awareness, Perceptions & Gaming Behaviours among College Students

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## ABSTRACT

### Background:

Gaming is a widespread leisure activity, with nearly 3.3 billion participants globally. While most gaming is casual and non-problematic, excessive or real-money gaming can lead to psychological distress, financial strain, and academic decline. Limited data exist on Indian college student's perceptions and behaviors toward online gaming, particularly in health sciences.

### Objective:

To assess the knowledge, perception and behaviour of online gaming among college students.

### Methodology:

A descriptive cross-sectional study was conducted among 194 undergraduate students (138 women, 56 men) across medical, dental, allied health sciences, and arts disciplines. A semi-structured questionnaire captured demographic data, gaming frequency, preferences, awareness of legal/illegal platforms, borrowing behavior, and regulatory opinions. Data were analyzed using descriptive statistics in JASP software.

### Results:

Participant's mean age was 20.14 years (SD = 3.09). Most students (51%) rarely played online games, with casual games (50%) being the most preferred. Only 17.5% reported engaging in real-money gaming, and 51.5% could not distinguish legal from illegal platforms. A majority (75.8%) favored government clarification on platform legality. Borrowing for gaming was uncommon, though 12.9% had lent money for this purpose. Students preferred flexible regulatory measures, with 27.3% supporting self-imposed limits.

### Conclusion:

Online gaming among college students is largely casual and non-monetary. However, limited awareness of legal frameworks and sensitivity to reward-based environments highlight potential vulnerabilities. Government-led regulatory clarity and educational interventions are essential to safeguard student well-being.

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**Keywords:** Online gaming, College students, Real-money gaming, Perception.

## INTRODUCTION

According to WHO, many people around the world are engaged in gaming and gambling behaviours, which are recognized as addictive behaviours, but usually do not result in any significant health consequences. However, a small proportion of people engaged in such behaviours may develop disorders due to addictive behaviours associated with functional impairment or distress. Video gaming is highly prevalent in modern culture, particularly among young people, and a healthy hobby for most users. However, in recent years there has been increasing global recognition among public health professionals and academics that particular patterns of video gaming may lead to marked impairment in personal, family, social, educational, occupational or other important areas of functioning and psychological distress for a significant minority of players. People who partake in gaming should be alert to the amount of time they spend on gaming activities, particularly when it is to the exclusion of other daily activities, as well as to any changes in their physical or psychological health and social functioning that could be attributed to their pattern of gaming behaviour<sup>(1)</sup>.

With close to 3.3 billion gamers globally, gaming emerges as a significant frontier for health promotion. The World Health Organization, in its 11th Revision of the International Classification of Diseases (ICD-11), warns of “gaming disorder“, as a pattern of gaming behavior (“digital-gaming” or “video-gaming”) characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences. For gaming disorders to be diagnosed, the behaviour pattern must be severe enough that it results in significant impairment to a person's functioning in personal, family, social, educational, occupational or other important areas, and would normally have been evident for at least 12 months<sup>(2)</sup>.

There is limited empirical data from Indian college populations, especially those in health sciences, to contextualize how gaming perceptions and behaviors manifest locally. Students in college, who are in a transitional stage between adolescence and adulthood, are particularly vulnerable to adopting digital behaviours that may have an impact on their academic achievement, financial choices, and mental health. Most online games are planned for entertainment and skill advancement, the rapid evolution of real-money online gaming, encompassing fantasy sports, card games, and betting platforms, has brought about fresh public health and regulatory issues. These platforms often blur the distinction between gaming and gambling, increasing the likelihood of problematic behaviors like overspending, incurring debt, and developing addictive patterns of use. At the same time, research indicates that certain forms of online gaming can enhance creativity and problem-solving abilities, particularly when purposefully incorporated into educational settings but excessive or problematic gaming correlates with poor academic performance and mental health risks. Few studies critically synthesize these contrasting findings to understand how students themselves perceive gaming's benefits versus risks. A cross-sectional study involving university students revealed that video game engagement by students may positively influence academic results and cognitive performance, enhancing the relationship between gaming and academic success<sup>(3)</sup>. However, other research studies indicate the problems in gaming behaviours like excessive play or gaming addiction can negatively impact academic outcomes, “The higher the students problematic gaming behaviours, the lower their academic performance”<sup>(4)</sup>.

Mental health is another critical dimension in the evaluation of perception of online gaming. Active video games have been linked to improvements in stress, anxiety, and depression among college students, as well as increased motivation for physical activity and better sleep quality<sup>(5)</sup>. These findings suggest that certain types of gaming may serve as therapeutic tools, enhancing psychological well-being and academic engagement. Moreover, perceptions of gaming may vary widely among students. These insights underscore the importance of exploring students' subjective experiences and beliefs about gaming, which may differ significantly from clinical or institutional perspectives.

Given these multifaceted impacts, a cross-sectional study focusing on college students' knowledge, perception and behaviour of online gaming is timely and necessary. It allows researchers to capture a snapshot of

behaviors, and outcomes, providing valuable data for educators, mental health professionals, and policymakers seeking to support student well-being and academic success. Therefore, the aim of the study is to assess the knowledge, perception and behaviour of online gaming among college students.

## **METHODOLOGY**

### **Study Design**

The present study is a descriptive cross-sectional design, with a study population of 194 undergraduate students at college level.

### **Study Participants**

Undergraduate students enrolled in medical, dentistry, allied health sciences, and arts & science courses at multiple institutions were invited to participate. A convenience sampling technique was employed across the participating institutions because of accessibility and feasibility. While this approach facilitated timely data collection, it may limit the representativeness of the sample and restrict the generalizability of the findings beyond the institutions included in the study. The inclusion criteria required participants to be aged above 18 years. The participant group consisted of 138 women and 56 men, totaling 194 students.

### **Tool**

A semi-structured questionnaire was employed as a method for gathering data. The questionnaire included demographic characteristics and assessing knowledge, perception and behaviour of online gaming and related to time and money spent on gaming.

### **Section 1: Demographic Characteristics**

This section gathered essential background information including age, gender and course of the college students to contextualize their gaming habits. It established baseline participant profiles that helped correlate demographics with subsequent gaming behaviors.

### **Section 2: Frequency and Preferences in Online Gaming**

This section addressed participants daily/weekly gaming hours across platforms and preferred game genres such as Casual games, Multiplayer battle games, Real money skill games. This revealed patterns in gaming intensity and highlighted popular games driving engagement among the student population.

### **Section 3: Awareness and Engagement in Real-Money Gaming**

Questions assessed participants understanding between legal and illegal real-money gaming platforms, their methods for identification, and opinions on government clarification needs. Additional inquiries covered prior engagement with real-money games and platform loyalty preferences, revealing awareness gaps and participation patterns.

### **Section 4: Borrowing Behavior and Regulation Preferences**

This explored financial risks like borrowing money to fund online gaming, including personal experiences of lending and perceptions of primary motivations behind such borrowing.

Finally explored preferred regulatory and intervention strategies to address problematic real-money gaming habits among players.

### **Pilot Testing and Validation**

Before data collection, the questionnaire underwent pilot testing and validation. A pilot sample of

undergraduate students ( $n = 40$ ) from the same target population. Based on pilot testing, items were revised for wording, response options, and ordering before fielding the final questionnaire.

**Expert review and content validation:** Content validity was evaluated by five subject-matter experts (two from medical education, one from psychology/behavioral science, and two from public health). Each expert independently rated items for relevance, clarity, and comprehensiveness. Expert suggestions were incorporated to improve face validity and to ensure the questionnaire adequately represented the constructs of knowledge, perception, and behavior related to online gaming.

**Cognitive testing:** A subset of pilot participants ( $n = 8$ ) took part in brief cognitive interviews to identify ambiguous wording and response-interpretation problems; minor wording changes were made where participants reported misunderstanding.

**Reliability assessment:** Internal consistency was assessed using Cronbach's alpha (0.72). These values indicate acceptable to good internal consistency for the respective domains. Item-total correlations statistics were examined and used to refine domain items where appropriate.

## Procedure

### Ethical Consideration

The study adhered to ethical principles, ensuring informed consent, voluntary participation, and the protection of participant's privacy. Confidentiality and anonymity were strictly upheld, and measures were taken to prevent any potential harm.

### Data Collection & Analysis

Data were collected using a self-administered questionnaire that included demographic characteristics of the participants, assessing awareness, perceptions and behaviour of online gaming. The questionnaire was disseminated to participants via online, and responses were compiled in Microsoft Excel. The collected dataset was subsequently imported into JASP software for statistical analysis, where both descriptive statistics were performed to examine the findings.

## RESULTS

The mean age of participants was 20.14 years ( $SD = 3.09$ ).

**Table 1: Demographics of Participants**

| VARIABLE             | CATEGORY              | FREQUENCY | %    |
|----------------------|-----------------------|-----------|------|
| Age                  | 17-19                 | 99        | 51   |
|                      | $\geq 20$             | 95        | 49   |
| Gender               | Men                   | 56        | 28.9 |
|                      | Women                 | 138       | 71.1 |
| Nature of the Course | Medical               | 31        | 16   |
|                      | Dental                | 5         | 2.6  |
|                      | Allied Health Science | 157       | 80.9 |
|                      | Arts & Science        | 1         | 0.5  |

**Table 2: Frequency and Preferences in Online Gaming**

| VARIABLE                                  | CATEGORY                                                    | FREQUENCY | %    |
|-------------------------------------------|-------------------------------------------------------------|-----------|------|
| How often do you play online games?       | Daily                                                       | 30        | 15.5 |
|                                           | Few times a week                                            | 33        | 17.0 |
|                                           | Once a week                                                 | 10        | 5.2  |
|                                           | Few times a month                                           | 22        | 11.3 |
|                                           | Rarely                                                      | 99        | 51.0 |
| What types of online games do you prefer? | Casual games (eg: Puzzles, Card games, etc.)                | 97        | 50.0 |
|                                           | Multiplayer battle games (eg: PUBG, Call of duty, etc.)     | 51        | 26.3 |
|                                           | Real money skill games (eg: Dream 11, Rummy, Poker, etc.)   | 1         | 0.5  |
|                                           | Casino games/ sports betting (eg: Parimatch, Betaway, etc.) | 2         | 1.0  |
|                                           | Others                                                      | 43        | 22.2 |

**Table 3: Awareness and Engagement in Real-Money Gaming**

| VARIABLE                                                                                                             | CATEGORY                                                                | FREQUENCY | %    |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------|------|
| Do you understand the difference between legal and illegal real money gaming platforms?                              | Yes, I understand the difference                                        | 65        | 33.5 |
|                                                                                                                      | No, I cannot distinguish between a legal and illegal platform           | 100       | 51.5 |
|                                                                                                                      | I believe all real money gaming platforms accessible in India are legal | 6         | 3.1  |
|                                                                                                                      | I believe all real money gaming platforms are illegal                   | 23        | 11.9 |
| If yes, how do you usually identify a legal online platform versus an illegal one? (n=65)                            | Legality & Platform Trust Indicators                                    | 29        | 44.6 |
|                                                                                                                      | Decision-Making Based on External Cues                                  | 9         | 13.8 |
|                                                                                                                      | Risk Perception & Ethical Concerns                                      | 13        | 20.0 |
|                                                                                                                      | Differentiation Criteria & User Logic                                   | 14        | 21.5 |
| Do you think the Government/ State should specify how to identify legal online gaming platforms versus illegal ones? | Yes                                                                     | 147       | 75.8 |
|                                                                                                                      | No                                                                      | 47        | 24.2 |

|                                                                                                                                       |                                                                                                    |     |      |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----|------|
| Have you ever played online games involving real money?                                                                               | Yes                                                                                                | 34  | 17.5 |
|                                                                                                                                       | No                                                                                                 | 160 | 82.5 |
| While playing real-money games online, do you prefer sticking to one platform of your choice or switching between multiple platforms? | Yes, I play only on one platform                                                                   | 49  | 25.3 |
|                                                                                                                                       | Have selected 2-3 platforms to which I stick                                                       | 18  | 9.3  |
|                                                                                                                                       | No, I don't stick to any platform. I search and play on a platform that offers the highest rewards | 127 | 65.5 |

**Table 4: Borrowing Behavior and Regulation Preferences**

| VARIABLE                                                                                                                        | CATEGORY                                                                                                                 | FREQUENCY | %    |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------|------|
| Do you personally know anyone who has borrowed money to play online real-money games or who regularly borrows for this purpose? | No                                                                                                                       | 142       | 73.2 |
|                                                                                                                                 | 1 – 2 members                                                                                                            | 38        | 19.6 |
|                                                                                                                                 | 3 – 5 members                                                                                                            | 11        | 5.7  |
|                                                                                                                                 | 6 – 10 members                                                                                                           | 2         | 1.0  |
|                                                                                                                                 | Above 10 members                                                                                                         | 1         | 0.5  |
| Has anyone ever borrowed money from you to play real-money online games?                                                        | Yes                                                                                                                      | 25        | 12.9 |
|                                                                                                                                 | No                                                                                                                       | 169       | 87.1 |
| Do you think that the single most important reason for them to borrow is to play real money online games?                       | Yes                                                                                                                      | 52        | 26.8 |
|                                                                                                                                 | No                                                                                                                       | 142       | 73.2 |
| To help players with their real money gaming habits, which of the following options do you believe will be most effective?      | Players should be allowed to set their own limits on time and money, as a different level of capacity                    | 53        | 27.3 |
|                                                                                                                                 | The Government should require operators to ensure players set limits on time and money before they start playing         | 39        | 20.1 |
|                                                                                                                                 | The Government should enforce a fixed limit and money for all players in the state, regardless of income or availability | 34        | 17.5 |
|                                                                                                                                 | None of the above                                                                                                        | 68        | 35.1 |

**Table 5: Association between Gender and Awareness of real-money gaming**

| VARIABLE                                                                                | CATEGORY                                                                | GENDER |        |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------|--------|
|                                                                                         |                                                                         | MALE   | FEMALE |
| Do you understand the difference between legal and illegal real money gaming platforms? | Yes, I understand the difference                                        | 37     | 49     |
|                                                                                         | No, I cannot distinguish between a legal and illegal platform           | 13     | 66     |
|                                                                                         | I believe all real money gaming platforms accessible in India are legal | 2      | 4      |
|                                                                                         | I believe all real money gaming platforms are illegal                   | 4      | 19     |
| Have you ever played online games involving real money?                                 | Yes                                                                     | 20     | 14     |
|                                                                                         | No                                                                      | 36     | 124    |
| <b><i>p-value &lt;0.001</i></b>                                                         |                                                                         |        |        |

## DISCUSSION

This cross-sectional study examined the perceptions, awareness, and behaviors concerning both online and real-money gaming among college students, mainly from allied health science fields. In general, the results suggest that although online gaming is a popular leisure pursuit, involvement tends to be mostly casual and without financial stakes, with minimal direct engagement in real-money gaming. Nonetheless, significant deficiencies in legal awareness, regulatory comprehension, and incentive-based gaming choices reveal new vulnerabilities that require attention.

The demographic characteristics of the participants represent a young adult group in a transitional developmental phase (17 - 19 years - 51%), aligned with research indicating that college years are a time of heightened experimentation and risk-taking tendencies. The dominance of female students and health-related fields might partially account for the relatively careful gaming behaviors noted, as previous research indicates that health-focused education correlates with increased risk awareness and self-control. Nonetheless, the even age distribution during late adolescence and early adulthood highlights the importance of preventive measures aimed at this population.

Concerning gaming habits and choices, over 50% of participants indicated that they seldom play online games, while merely around one-third participated in gaming daily or weekly. Casual games became the top choice, trailed by multiplayer battle games, reflecting global and Indian research indicating that casual and competitive non-monetary games prevail in student gaming habits. The very minimal reported interest in real-money skill games and casino or betting sites indicates that, currently, gambling-related gaming has not entered the mainstream for this group. This corresponds with evidence showing that although access to real-money gaming platforms is rising, actual involvement among college students varies and depends on the context.

Although there was minimal engagement, 44.4 % knowledge about the legality and regulation of real-money gaming platforms was inconsistent. Fewer than half of the students indicated that they could differentiate between legal and illegal platforms, with a significant number demonstrating confusion or having mistaken beliefs that all platforms fall into either legal or illegal categories. This discovery aligns with Indian research that emphasizes regulatory uncertainty and a lack of public comprehension regarding online gaming regulations. The diverse factors that students employ to assess platform legitimacy spanning trust signals, individual reasoning, ads, and peer pressure highlight the lack of uniform, easily identifiable regulatory signs.

Significantly, more than three-quarters of participants showed a distinct expectation that government or state authorities ought to directly assist users in recognizing legal platforms, highlighting a substantial need for clear communication and transparency. The chi-square analysis revealed a highly significant association between gender and awareness of real-money gaming platforms ( $p < 0.001$ ). Female participants were more likely to report difficulty distinguishing legal from illegal platforms compared to males. These findings highlight gender-based differences in awareness that warrant targeted educational interventions.

Even though just a small percentage stated they had played real-money games, the trend of platform usage among those interested in such gaming is significant. Most respondents showed a preference for changing platforms for greater rewards instead of remaining loyal to one, indicating a sensitivity to incentives and possible risk-taking tendencies. This finding aligns with current research on persuasive design and reward variability employed by real-money gaming sites, which may amplify impulsive choices and heighten vulnerability to problematic usage, especially in young adults.

Behaviors related to borrowing, though not common, were observed in social networks. Approximately 25% of respondents were aware of at least one individual who had taken out a loan for real-money gaming, and around 12.5% had directly experienced someone borrowing from them for that reason. Even though the majority of participants did not view gaming as the main cause for borrowing, these results are important, as borrowing is known to be an early sign of financial strain and problematic gaming habits. The limited visibility of this behavior might indicate underreporting, societal stigma, or the initial phase of risk development.

The findings underscore the urgent need for actionable measures that extend beyond academic observation. Awareness campaigns tailored to young adults should clarify the distinction between legal and illegal gaming platforms, while colleges could integrate modules on digital literacy, behavioral addiction, and financial responsibility into curriculum. Policymakers must establish standardized regulatory signals such as certification marks or digital seals to help users identify legitimate platforms, thereby reducing reliance on peer influence or advertising. Preventive interventions, including workshops on self-regulation and responsible leisure use, can be embedded within student support services, and institutions should encourage anonymous reporting mechanisms to detect borrowing or risky gaming behaviors early. By situating these recommendations within broader theories of behavioral addiction and digital regulation, this study highlights the importance of proactive, multi-level interventions to safeguard young adults from the evolving risks of online and real-money gaming.

## CONCLUSION

The study reveals that online gaming is common among college students, engagement is largely casual and non-monetary. However, limited awareness regarding the legal status of real-money gaming platforms and a strong preference for reward-based gaming environments indicate potential vulnerability. Students overwhelmingly favor government involvement in clarifying regulatory frameworks. Aligning national policies with international guidelines, such as those advocated by UNICEF, is essential to ensure a safe, transparent, and youth-friendly digital gaming ecosystem.

## LIMITATION

Limitation of this study is the relatively small sample size; however, the findings are still meaningful insights that could be applied to the broader online gaming population. Despite the limited number of participants, the results highlight perceptions that may reflect larger community trends. The use of convenience sampling across participating institutions may reduce representativeness and limit external validity. The cross-sectional design precludes the establishment of causal relationships between variables; the findings reflect associations observed at one point in time only. Future research employing longitudinal or experimental designs, along with probability-based sampling across diverse institutions, is recommended to strengthen causal inference and generalizability.

## DATA AVAILABILITY STATEMENT

Data used and analyzed in this study can be obtained from the corresponding author upon reasonable request. All participants provided informed consent prior to their involvement in the research.

## AUTHOR CONTRIBUTIONS

All authors have read and approved the final version of the manuscript.

## CONFLICTS OF INTEREST

The research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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