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# Prevalence and Psychosocial Correlates of Gaming Usage Behaviour among Indian Adolescents

PD Biju, Baboo Smitha\*, Rajeev Aswin

Christ University, Bangalore, India

## ABSTRACT

Digital gaming has emerged as a form of recreation among adolescents, combining entertainment with interactive learning opportunities. While gaming can foster entertainment and cognitive engagement, excessive use has been linked to academic disruption, emotional dysregulation, and behavioural dependence. The present study aimed to examine the prevalence, patterns, and psychosocial correlates of gaming usage behaviour among Indian adolescents. A cross-sectional survey was conducted among 2,632 adolescents (aged 13-19 years) from schools across India using the Gaming Usage Questionnaire. Descriptive statistics and chi-square analyses were performed to assess associations between gaming duration, gamer typology, interference with daily activities, and emotional experiences. The majority of adolescents identified as casual gamers (61.6%), with 60.9% reporting less than one hour of gaming per day. However, approximately 26.3% indicated interference of gaming with daily life, and 58.4% reported emotional changes associated with gaming. Longer gaming durations and higher gamer typologies (professional/expert) were significantly associated with interference and emotional fluctuation. The findings highlight that while gaming is largely recreational for most adolescents, a subset exhibits patterns suggestive of emerging problematic use. Preventive measures through school-based digital wellness and self-regulation programs are essential to foster balanced and healthy gaming behaviours among adolescents.

*Key words:* Gaming Usage Behaviour, India, Survey, Adolescents.

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## Novelty and Significance

*What is already known about the topic?*

- Digital gaming is widely practiced among adolescents and has become a common leisure activity.
- Excessive gaming has been linked to emotional, behavioural, and academic difficulties.
- Previous studies in India are often limited in scope, focusing mainly on prevalence within regional or smaller samples.

*What this paper adds?*

- Provides one of the largest school-based assessments of gaming behaviour among Indian adolescents, offering updated national-level insights.
- Examines multiple dimensions of gaming, including gamer typology, duration of play, emotional experiences, and interference with daily functioning.
- Identifies patterns of higher engagement, highlighting behavioural and emotional markers relevant for digital wellness and preventive efforts.

Adolescence is a crucial developmental stage characterized by significant changes in cognitive, social, and emotional development (Mastorci, Lazzeri, Vassalle, & Pingitore, 2024). During this period, leisure activities play a vital role in shaping well-being and lifestyle patterns (Sawyer, Azzopardi, Wickremarathne, & Patton 2018; Wanka *et alii*, 2025). Among these activities, digital gaming has become one of the most common forms of leisure for adolescents (Boer *et alii*, 2020; Canale *et alii*, 2025). With increasing internet access, affordable smartphones, and the growing popularity of esports, adolescent engagement with gaming platforms has increased (Ayaz-Alkaya & Köse-Kabakcioğlu, 2025). Research indicates that early adolescents spend more time playing games than late adolescents and are more likely to express a desire to become

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gamers in the future (Olsen, André, Delfin, Håkansson, & Claesdotter-Knutsson, 2024; Skripkauskaite & Fazel, 2022).

Recent reports indicate that India has one of the fastest-growing gaming populations in the world (J. Gurjar *et alii*, 2024). Research suggests that a significant proportion of Indian gamers are adolescents and young adults, with increased engagement observed in both urban and semi-urban regions (Gurjar *et alii*, 2024; Undavalli, Rani, & Kumar, 2020). A study conducted among girls aged 12-19 years in Bangalore, India, found that 45% reported gaming at least once per week; of these, 34% played 1-3 times weekly, while 6.5% reported daily gaming (Thakur *et alii*, 2023). Another study reported that approximately two-thirds of adolescents limited their gaming to two hours or less on weekdays, whereas longer gaming sessions were more common on weekends, with 23% playing for 2-3 hours on those days (Saravanan, 2017). Recent evidence indicates that the majority of Indian adolescents engage in mobile-based gaming, with a 2023 survey reporting that 98.9% used mobile phones for gaming activities (John, Pokale, Chutke, Narula, & Shinde, 2023). In contrast, only about 22–25% of Indian adolescents own a gaming console (Thakur *et alii*, 2023).

While gaming can provide benefits such as entertainment, social connections, and cognitive stimulation, evidence suggests that excessive or unregulated gaming may pose significant risks (Lérida Ayala *et alii*, 2022; Tang, Ebrahimi, & Cheng, 2023). Prolonged gaming has been associated with academic disruption, reduced physical activity, sleep disturbances, and increased emotional reactivity (Karaoglan Yilmaz & Yilmaz, 2024; Kaya & Sarpkaya, 2025; Kwok, Leung, Poon, & Fung, 2021; Sun, Sun, & Ye, 2023; Zaman *et alii*, 2022). Also, excessive gaming may progress to gaming disorder, defined by impaired control over gaming, prioritization of gaming over other activities, and continued use despite negative consequences (ICD11, World Health Organization 2019). In a cross-sectional study, Yarasani *et alii*. (2018) found that 73.9% of 575 adolescents showed symptoms of online video game addiction. Those identified as addicted reported an average of seven hours of gameplay per day, equating to approximately 20 hours of mobile gaming each week. Another study by Kwok *et alii* (2021) revealed that Internet Gaming Disorder (IGD) was prevalent among 11th-grade students who played for more than three hours per day, and it was linked to higher levels of perceived stress, insomnia severity, and symptoms of anxiety and depression.

The displacement hypothesis (Kraut *et alii*, 1998) proposes that increased engagement in screen-based activities may replace time spent on beneficial activities such as studying, physical activity, and face-to-face social interaction, which are more conducive to psychological well-being (Kraut *et alii*, 1998; Matthews *et alii*, 2025). The theory suggests that time spent using digital technologies may replace opportunities for face-to-face social interaction, which is generally considered more beneficial for psychological well-being than superficial online engagement (Matthews *et alii*, 2025). From this perspective, longer gaming duration may contribute to interference with daily activities, as extended gameplay reduces the time available for academic, social, and health-related routines (Hartanto, Lua, Quek, Yong, & Ng, 2021). Complementing this perspective, the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand *et alii*, 2019) provides a comprehensive framework for understanding the development and maintenance of problematic online behaviours, including gaming. The model proposes that such behaviours emerge through interactions among individual predispositions, affective responses, cognitive processes, and executive control, influencing how individuals respond to online cues and rewards (Brand *et alii*, 2016, 2019). Within gaming environments, repeated exposure to reward systems, competitive elements, and social interactions may intensify emotional reactions and reinforce continued engagement. In this context, different levels of engagement or gamer typology (e.g., novice, casual,

expert, or professional gamers) may reflect varying degrees of behavioural involvement and motivational investment in gaming. These engagement patterns may influence both the duration of gameplay and the intensity of emotional responses during gaming, thereby increasing the likelihood of interference with everyday functioning.

As a result, there is a growing need for continual monitoring and a systematic understanding of how gaming influences the behavioral, cognitive, and emotional development of adolescents. Emerging evidence suggests that there are measurable links between intensive gaming and mental health outcomes (Gao, Wang, & Dong, 2022; Olsen, André, Delfin, Håkansson, & Claesdotter-Knutsson, 2024). Due to their developmental stage, adolescents are particularly susceptible to the reinforcing mechanisms of gaming, such as instant rewards and social validation, which can influence habits, attention patterns, and emotional regulation (Schettler, Thomasius, & Paschke 2024; Wang & Wang, 2025). Therefore, it is crucial to examine gaming behaviour among Indian adolescents in order to inform digital well-being policies, preventive education, and early interventions targeting at-risk youth.

This study aimed to examine the prevalence and patterns of gaming behaviour among Indian adolescents, focusing on engagement levels (gamer typology), duration of play, interference with daily activities, and emotional experiences. Beyond prevalence, the study explores how these dimensions reflect psychosocial dynamics. By examining behavioural engagement, emotional responses, and functional interference, the study provides insight into how gaming is integrated into adolescents' daily lives. It also highlights how varying levels of involvement relate to patterns of gaming behaviour. Drawing on a large and diverse sample, the study contributes evidence on the psychosocial correlates of gaming among Indian adolescents and offers implications for digital well-being initiatives.

## METHOD

### *Participants*

The sample comprised 2,632 adolescents recruited from schools across multiple regions of India. Participants were aged between 13 and 19 years, with detailed characteristics presented in Table 1. The gender distribution was relatively balanced, with 51.1% female. Participants were predominantly enrolled in private schools (99.4%), and participants belonging to other types of schools are indicated in Table 1. Participants were recruited using a school-based convenience sampling approach, with participation coordinated through institutional authorities rather than individual self-selection. Schools were formally contacted, and permissions were obtained prior to data collection. A total of 224 schools granted approval to participate in the study.

*Table 1.* Demographic data of participants.

		<i>n</i>	%
Gender	Female	1346	51.1%
	Male	1286	48.8%
School type	Public schools	5	0.2%
	Private schools	2615	99.4%
	Others	12	0.5%
Family type	Nuclear	1608	61.1%
	Joint	888	33.8%
	Single parenting	81	3.1%
	Extended	32	1.2%
	Other	21	0.8%

Data were collected by a trained team of four research assistants who were briefed on study objectives, administration procedures, and ethical protocols. The research team supervised all stages of data collection to ensure procedural consistency and adherence to ethical standards. Inclusion criteria required participants to be adolescents aged 13-19 years and currently enrolled in school. Adolescents with self-reported chronic medical conditions or developmental disorders that could influence gaming behaviour were excluded. Participation was voluntary, with informed assent obtained from participants and parental consent secured where required. No monetary or material incentives were provided. The study received Institutional Review Board (IRB) approval, and all procedures adhered to established ethical guidelines.

### *Measures*

*Sociodemographic Data.* The sociodemographic data were obtained through a through a questionnaire that collected demographic information of participants (i.e., age, sex, marital status, level of education, occupation, hometown, etc.).

*Gaming Usage Questionnaire (GUC).* The GUQ is a survey-based questionnaire developed by the National Institute of Mental Health and Neurosciences, used to assess adolescents' gaming behaviour, frequency, and usage patterns. In the present study, it was administered as an auxiliary measure to obtain demographic and behavioural information related to gaming practices rather than as a standardised psychometric scale. The questionnaire includes structured items covering gamer typology, gaming frequency, duration of gameplay, preferred game genres, and patterns of gaming engagement. It also includes items related to perceived interference with academic, social, and daily functioning, along with subjective experiences during gameplay. Responses were obtained using categorical and nominal response formats, including predefined categories for gaming frequency, duration bands, genre preferences, and gamer classifications. An example item is: "In a single sitting, what is the maximum duration you have played online games?" The questionnaire classifies respondents into gamer typologies such as novice, casual, and expert gamers based on self-reported involvement. Content validity of the questionnaire was established through expert review involving researchers in the field, clinical psychologists, and psychiatrists, with a Scale-Level Content Validity Index ( $\geq 0.80$ ), indicating acceptable content relevance and representativeness of the items. As the instrument primarily consists of descriptive categorical items, internal consistency coefficients such as Cronbach's alpha were not considered applicable. The questionnaire has been used in Indian clinical and research settings (Ajith, Narayanan, Sharma, Anand, & Vishwakarma, 2024), supporting its contextual relevance for assessing gaming usage patterns.

### *Procedure*

The study employed a cross-sectional survey design. The study received ethical approval from the Institutional Review Board (IRB No. RCEC/00347/10/24) prior to data collection. Schools were contacted through formal institutional communication, and permission was obtained from school authorities. Parental consent was secured through school-facilitated communication (e.g., meetings or consent forms), and only students with documented parental approval were included. Data collection was conducted in classroom settings during regular school hours. On the day of administration, participants were seated in their respective classrooms, and standardized instructions were delivered by trained research assistants. Participants were informed about the purpose of the study, assured of anonymity and confidentiality, and instructed that participation was voluntary, with the option to withdraw at any point without penalty.

The questionnaires were administered in a paper-and-pencil format (adjust if digital) and completed individually without discussion. The order of administration was

consistent across participants, with the GUQ included as part of a structured survey booklet. Participants were instructed to respond honestly based on their typical behaviour and experiences. The average completion time ranged from 15 to 20 minutes. Research assistants remained present throughout the session to address procedural queries while avoiding any influence on responses. No rest breaks were required due to the brief duration of the session.

To minimize potential bias, standardized administration procedures were maintained across all schools, and no identifying information was collected. Although blinding was not applicable due to the survey design, efforts were made to reduce social desirability bias by emphasizing confidentiality and the non-evaluative nature of the study. No monetary or material incentives were provided. All data were collected exclusively for research purposes, securely stored, and handled in accordance with established ethical guidelines.

### Data Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS-26). Prior to analysis, data were screened for completeness and consistency. Cases with substantial missing data (if applicable, specify criteria) were excluded, and categorical variables were coded according to predefined response categories. Descriptive statistics, including frequencies and percentages, were computed to summarize gaming patterns, gamer typology, and related behavioural characteristics. Cross-tabulations were conducted to examine the distribution of key variables across categories.

Inferential analyses were performed using chi-square tests of independence to examine associations between categorical variables, including gaming duration, gamer typology, interference with daily activities, and reported emotional experiences during gameplay. Assumptions for chi-square analysis, including minimum expected cell frequencies, were evaluated prior to interpretation. Effect sizes were calculated using  $\phi$  for 2x2 tables and Cramer's  $V$  for larger contingency tables to assess the strength of associations. Statistical significance was determined using a threshold of  $p < .05$ .

## RESULTS

As illustrated in Table 2, most participants engaged in both online and offline gaming, whereas smaller proportions played exclusively online or offline, and a negligible minority reported no gaming activity. Most participants identified as casual gamers, followed by smaller groups of expert and professional gamers, with relatively few reporting minimal or no engagement. Participants also reported varied use of sound and music during gameplay, with most indicating at least occasional use.

Table 2. Gaming Medium, Gamer Category, and Sound/Music Preferences ( $N=2632$ ).

	Stats	<i>n</i> (%)
Medium of playing	Both	1470 (55.9%)
	Offline	465 (17.7%)
	Online	687 (26.1%)
	Not Playing	10 (0.4%)
Gamer	Professional Gamer	284 (10.8%)
	Expert	496 (18.9%)
	Casual Gamer	1620 (61.6%)
	Novice	216 (8.2%)
	Not a Gamer	15 (0.6%)
Sound and music	Sometimes	1129 (42.9%)
	No	595 (22.6%)
	Yes	893 (33.9%)
	Not Playing	15 (0.6%)

Table 3 shows that daily gaming durations were predominantly low, with most participants playing for less than one hour per day and fewer reporting extended play. A similar pattern was observed for single-session durations, where most participants reported shorter gaming sessions, and only a small proportion engaged in prolonged play. Weekday gaming patterns also reflected generally moderate engagement, with limited participation in longer-duration gaming sessions.

Table 3. Daily, Single-Sitting, and Weekday Gaming Duration (N= 2632).

Stats	n (%)	
Duration/per day	Less than 1 hour	1604 (60.9%)
	1-2 hours	622 (23.6%)
	2-3 hours	202 (7.7%)
	3-4 hours	89 (3.4%)
	4-5 hours	33 (1.3%)
	5-6 hours	33 (1.3%)
	More than 6 hours	34 (1.3%)
	Not known	15 (0.6%)
Duration/single sitting	Less than 1 hour	1387 (52.7%)
	1-3 hours	766 (29.1%)
	3-5 hours	230 (8.7%)
	5-7 hours	114 (4.3%)
	7-10 hours	55 (2.1%)
	10-15 hours	39 (1.5%)
	More than 15 hours	26 (1%)
	Not known	15 (0.6%)
Duration/weekdays	Less than 1 hour	1161 (44.1%)
	1-2 hours	580 (22%)
	2-3 hours	287 (10.9%)
	3-4 hours	180 (6.8%)
	4-5 hours	138 (5.2%)
	5-6 hours	127 (4.8%)
	More than 6 hours	144 (5.5%)
Not playing	15 (0.6%)	

Table 4 shows that only a minority of participants engaged in online tournaments or social interaction during gameplay, indicating limited involvement in competitive and collaborative activities. In contrast, a greater proportion experienced gaming-related emotional changes, whereas fewer reported interference with daily functioning.

Table 4. Participation in Online Gaming Tournaments, Game Interference, Online Interactions, and Emotional Changes (N= 2632).

Stats	n (%)
Online Gaming Tournament	634 (24.1%)
Game Interferes	692 (26.3%)
Online Interaction and Playing Games	639 (24.3%)
Emotional Changes	1537 (58.4%)

Table 5 shows the result of a  $\chi^2$  test to examine whether online gaming interferes with daily activities in relation to gaming duration and gamer typology. The results revealed a significant association between gaming duration and interference with daily activities ( $\chi^2= 86.4, p <.001$ ). Specifically, individuals who reported interference with daily activities were more likely to spend longer hours per day on gaming compared to those who did not report interference. Similarly, a significant association was observed between gamer typology and interference with daily activities ( $\chi^2$  with daily activities compared to casual gamers, novices, or those not interested in gaming. However, the effect sizes (Cramer's  $V= 0.181$ , and  $0.176$ ) indicate small to moderate associations.

Table 5. Association Between Online Game Duration, Gamer Type, and Interference with Daily Activities.

Interference with Daily Activities	Duration/day								Total	$\chi^2$	<i>p</i>	<i>V</i>
	Not playing	Less than 1 hour	1-2 hours	2-3 hours	3-4 hours	4-5 hours	5-6 hours	More than 6 hours				
No	15	1271	420	128	51	21	17	17	1940	86.4	<.001	0.181
Yes	0	333	202	74	38	12	16	17	692			
Interference with Daily Activities	Gamer status						Total	$\chi^2$	<i>p</i>	<i>V</i>		
	Professional gamer	Expert	Casual Gamer	Novice	Not interested							
No	167	322	1254	182	15	1940	81.6	<.001	0.176			
Yes	117	174	366	34	0	691						

The  $\chi^2$  analysis indicated a significant association between gaming duration and emotional changes while playing online games ( $\chi^2= 194, p < .001$ ), shown in table 6. Players who reported emotional changes were more likely to engage in longer daily gaming sessions compared to those who did not report such changes. Notably, higher proportions of emotional change were observed among individuals gaming for two or more hours per day. Similarly, gamer typology was significantly associated with emotional changes ( $\chi^2= 191, p < .001$ ). Professional gamers, experts, and casual gamers reported a greater tendency for emotional changes while gaming than novices or those not interested in gaming. The effect sizes (Cramer's  $V= 0.271$  and  $0.269$ ) reflect moderate associations.

Table 6. Association of Online Gaming Duration and Gamer Typology with Emotional Changes During Gameplay.

Change of emotion while playing online games	Duration/day								Total	$\chi^2$	<i>p</i>	<i>V</i>
	Not playing	Less than 1 hour	1-2 hours	2-3 hours	3-4 hours	4-5 hours	5-6 hours	More than 6 hours				
No	0	782	458	154	71	21	26	25	1537	194	<.001	0.271
Yes	15	821	164	48	18	12	7	9	1094			
Change of emotion while playing online games	Gamer status						Total	$\chi^2$	<i>p</i>	<i>V</i>		
	Professional gamer	Expert	Casual Gamer	Novice	Not interested							
No	217	377	869	73	0	1536	191	<.001	0.269			
Yes	67	119	750	143	15	1094						

## DISCUSSION

This study explored the prevalence and associations of gaming behaviour among Indian adolescents, focusing on gamer' typology, duration and frequency, interference with daily activities, and emotional experiences. The findings provide insight into patterns of engagement and their relevance to adolescents' daily functioning and emotional well-being.

The results indicate that while most adolescents engage in casual gaming, only a small minority report no involvement. This pattern aligns with global evidence indicating that gaming has become a normative component of adolescent leisure (Boer *et alii*, 2020; Canale *et alii*, 2025; Van Den Eijnden, Van den Koning, Doornwaard, Gorp, & Bogt, 2018). The predominance of casual gamers suggests that adolescents commonly integrate gaming into their daily routines progressing to higher levels of involvement. Concurrently, the presence of expert and professional gamers highlights the increasing influence of competitive and skill-based gaming among Indian youth (Singh, Ali, Choudhury, & Gujar, 2020). In terms of duration, most adolescents reported relatively short gaming periods per day and per session, while a smaller group engaged in extended play. Although less common, longer gaming durations are consistent with prior research linking intensive gaming with academic difficulties, sleep disruption, and psychosocial strain (Cowlshaw, Nespoli, Jebadurai, Smith, & Bowden-Jones, 2018; Marmet *et alii*, 2023; Tse *et alii*, 2025). These findings suggest that while moderate gaming is typical, a subset of adolescents exhibit patterns of higher engagement that may be associated

with increased vulnerability to problematic gaming behaviours. Such patterns may also relate to reduced self-regulation or the use of gaming as a coping strategy for emotional distress or boredom (Blasi *et alii*, 2019; Schettler, Thomasius, & Paschke, 2024; Wang & Wang, 2025). Prior studies have associated similar patterns to academic challenges, social difficulties, and reduced well-being (Kwok *et alii*, 2021; Sun *et alii*, 2023; Zaman *et alii*, 2022). These observations highlight the relevance of early monitoring and the potential value of interventions that promote balanced digital habits and self-regulation among adolescents.

One key finding was the association between gaming duration and interference with daily life. Adolescents who reported interference tended to spend more time gaming, particularly those identified as professional or expert gamers (Skripkauskaitė & Fazel, 2022). This pattern aligns with prior research suggesting that intensive gaming may coincide with reduced engagement in academic, physical, and social activities (Anderson, Steen, & Stavropoulos, 2017; Stavropoulos *et alii*, 2017, 2019). Extended gaming durations have also been linked to poorer sleep quality, delayed bedtime, and daytime fatigue, which may affect concentration and academic performance (Altintas, Karaca, Hullaert, & Tassi, 2019; Peracchia & Curcio, 2018). Similarly, higher levels of gaming involvement have been associated with lower academic motivation and increased procrastination (Karaoglan Yilmaz & Yilmaz, 2024; Kaya & Sarpkaya, 2025). In the present study, these relationships appear limited in strength, suggesting that gaming-related factors represent only one of several influences on adolescents' daily functioning.

The observed interference may reflect behavioural displacement and greater engagement with gaming, where increased gaming time coincides with reduced involvement in other activities (Kwok *et alii*, 2021). This interpretation is consistent with the displacement hypothesis, which proposes that greater engagement in screen-based activities may occur alongside reduced participation in academically, socially, and physically beneficial behaviours (Neuman, 1988). It also aligns with the Interaction of Person-Affect-Cognition-Execution (I-PACE) model (Brand *et alii*, 2016), which conceptualizes gaming behaviour as emerging from interactions between individual predispositions, emotional responses, and self-regulatory processes.

A substantial proportion of adolescents reported experiencing emotional changes during gaming, which were associated with both gaming duration and gamer typology. Greater engagement, reflected in longer sessions and higher levels of involvement, corresponded with increased emotional fluctuation during or after gameplay. These findings align with prior research indicating that gaming elicits a range of emotional responses, including both positive (e.g., excitement, enjoyment) and negative (e.g., frustration, anger) experiences (Grizzard & Francemone, 2018; Hemenover & Bowman, 2018; Porter & Goolkasian, 2019). Such variability reflects a characteristic feature of interactive gaming rather than indicating adverse outcomes exclusively.

Emotional reactivity during gameplay has been linked to both adaptive outcomes, such as engagement and stress relief, and to challenges in emotional regulation (Blasi *et alii*, 2019; Garakani, Zhai, Hoff, Krishnan-Sarin, & Potenza, 2021). In some contexts, higher gaming involvement has also been associated with increased emotional distress and reduced self-regulatory capacity (Estupiñá, Bernaldo de Quirós, Vallejo Achón, Fernández Arias, & Labrador, 2024). Longitudinal research further indicates that problematic gaming behaviours may relate to elevated symptoms of anxiety, depression, and loneliness, particularly among individuals who use gaming to cope with negative affect (Gao, Wang, & Dong, 2022; Wang, Sheng, & Wang, 2019).

The I-PACE model (Brand *et alii*, 2016) conceptualizes problematic gaming as the result of interactions among individual predispositions, affective responses, cognitive processes, and executive functioning. Within this framework, individuals with lower

self-regulatory capacity may be more likely to use gaming as a coping strategy for negative emotions. The present findings suggest that emotional responses to gaming reflect multiple interacting influences rather than gaming behaviour alone.

Taken together, these findings offer insight into the psychosocial dynamics of gaming behaviour among Indian adolescents. The associations between gamer typology, gaming duration, emotional responses, and interference with daily activities suggest that gaming engagement may vary along a continuum from recreational participation to patterns associated with increased risk. Examining these dimensions together highlights the interplay between behavioural involvement and emotional experiences in shaping gaming habits and daily functioning. These findings extend beyond prevalence estimates by providing insight into the psychosocial processes underlying gaming engagement. They also provide direction for future research and may inform efforts to promote balanced gaming habits and self-regulation among adolescents (Amalia & Lutfatulatifah, 2025; Lukka & Palva, 2023).

The present study provides insight into the patterns and psychosocial correlates of gaming behaviour among Indian adolescents. While gaming was a common leisure activity, most participants identified as casual gamers and engaged for relatively short durations, whereas a subset of adolescents demonstrated prolonged engagement associated with emotional fluctuations and interference with daily functioning. These findings suggest that gaming behaviour among adolescents may exist along a continuum ranging from recreational use to patterns that may be associated with increased risk of problematic engagement. By examining gamer typology, gaming duration, emotional responses, and functional interference simultaneously, the study contributes to understanding the psychosocial processes related to gaming involvement. The findings offer useful insights for identifying potential risk patterns and informing future research and intervention efforts to promote balanced digital habits and emotional regulation among adolescents.

The study has several limitations that should be acknowledged. First, the cross-sectional survey design restricts our ability to draw causal conclusions about the relationship between gaming behaviour and psychosocial outcomes. As a result, the findings indicate associations rather than causal relationships. Second, the study relies on self-reported data, which may introduce biases such as recall and social desirability biases, affecting the accuracy of reported gaming behaviours and emotional experiences. In addition, the GUQ was used as an unpublished descriptive measure comprising nominal and categorical items; therefore, reliability indices such as Cronbach's alpha were not applicable. Also, the study does not include a clinical or diagnostic assessment of gaming disorder; therefore, the findings do not reflect clinically significant or pathological gaming behaviour. Furthermore, the predominance of participants from private schools limits the generalizability of the findings to adolescents from other socioeconomic backgrounds.

Future studies should adopt longitudinal or mixed-method designs to explore the temporal dynamics of gaming behaviour and its psychological impact. Incorporating objective measures, such as screen-time logs or sleep tracking, could further improve the accuracy of behavioural assessments. Additionally, examining factors such as gender differences, family environment, and personality traits may provide a deeper understanding of vulnerability and resilience related to gaming engagement. Developing culturally sensitive school-based interventions that promote self-regulation, emotional awareness, and balanced digital use remains an important direction for prevention.

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