

A Descriptive Study to Assess the Negative Effects of Online Gaming Among Adolescents in Selected Schools of Abohar, Punjab

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Abstract—

Background: Online gaming has grown rapidly among adolescents and may have negative consequences for physical health, mental well-being, academic performance, and social functioning. The present descriptive study aims to assess the prevalence and patterns of negative effects associated with online gaming among adolescents in selected schools of Abohar, Punjab.

Methods: A school-based descriptive study was designed. Three co-educational high schools in Abohar were selected purposively. A sample of 300 adolescents (aged 13–18 years) was recruited using systematic random sampling from class rosters. Data were collected with a structured questionnaire covering sociodemographics, gaming patterns, the Internet Gaming Disorder Scale–Short Form (IGDS9-SF) for problematic gaming tendencies, and standardized screening items for sleep disturbance, concentration problems, academic decline, and interpersonal difficulties. Descriptive statistics (frequencies, proportions, means, SD) summarized findings.

Results: Of 300 participants, 62% were male and mean age was 15.4 (SD 1.6) years. Ninety percent reported playing online games at least once in the past month; mean gaming time was 2.9 hours/day (SD 1.7). Using IGDS9-SF cut-offs, 28% met criteria suggestive of problematic gaming behavior. Reported negative effects included sleep disturbance (34%), decline in academic performance perceived by students/parents (29%), irritability or mood swings related to gaming (31%), and reduced face-to-face social activities (27%). Higher daily gaming hours were associated with greater frequency of reported negative effects in descriptive comparisons.

Conclusions: A substantial proportion of adolescents reported negative effects related to online gaming. School-based awareness, parental guidance, structured leisure alternatives, and screening for problematic gaming are recommended.

Keywords— Online gaming, Adolescents, Internet Gaming Disorder (IGD), Sleep disturbance, Academic performance, Social functioning

I. INTRODUCTION

Over the past decade, online gaming has emerged as a dominant form of entertainment among adolescents worldwide. Rapid advancements in digital technology, widespread availability of smartphones, affordable internet services, and the integration of online platforms into daily life have significantly increased adolescents' exposure to online gaming. While moderate gaming may offer certain benefits such as entertainment, stress relief, improved hand–eye coordination, problem-solving skills, and social interaction, excessive or uncontrolled gaming has been increasingly associated with a range of negative physical, psychological, social, and academic consequences.

Adolescence is a critical developmental phase marked by rapid physical growth, emotional changes, identity formation, and increasing academic and social demands. During this vulnerable period, excessive engagement in online gaming can disrupt healthy routines and coping mechanisms. Studies have reported that prolonged gaming hours are associated with sleep disturbances, fatigue, reduced physical activity, eye strain, headaches, poor dietary habits, and musculoskeletal problems. Psychologically, problematic gaming has been linked to irritability, anxiety, depression, aggression, emotional instability, low self-esteem, and symptoms resembling behavioral addiction. Social consequences include reduced face-to-face interactions, social withdrawal, poor peer relationships, family conflicts, and decreased participation in outdoor and extracurricular activities.

Academic performance is also adversely affected, as excessive online gaming may lead to poor concentration, reduced study time, absenteeism, procrastination, and declining grades. The World Health Organization (WHO) has recognized “Gaming Disorder” as a mental health condition, highlighting the growing concern regarding uncontrolled gaming behavior and its potential harm to adolescents’ overall well-being.

In India, the rapid digital transformation has significantly changed adolescents’ lifestyle patterns. With initiatives promoting digital learning and increasing internet penetration, adolescents in both urban and semi-urban areas have greater access to online gaming platforms. Punjab, including cities such as Abohar, has witnessed a steady rise in smartphone usage among school-going adolescents. Parents and teachers increasingly report concerns related to excessive screen time, gaming addiction, behavioral changes, academic decline, and social isolation among students.

Despite the rising prevalence of online gaming, there is limited region-specific data assessing its negative effects among adolescents, particularly in semi-urban settings like Abohar, Punjab. Most existing studies are conducted in metropolitan areas or focus on generalized internet addiction rather than the specific impact of online gaming. Understanding local patterns of gaming behavior and associated negative effects is essential for early identification, prevention, and development of school- and community-based interventions.

Therefore, this descriptive study aims to assess the negative effects of online gaming among adolescents studying in selected schools of Abohar, Punjab. The findings of the study will help educators, parents, school health nurses, and policymakers to gain insight into the magnitude of the problem and to plan appropriate awareness programs, counseling strategies, and preventive measures to promote healthy digital habits among adolescents.

II. OBJECTIVES

1. To quantify sleep disturbance, academic decline, behavioral/emotional symptoms, and social withdrawal associated with online gaming among adolescents aged 13–

18 years studying in selected schools of Abohar, Punjab.

2. To describe online gaming patterns among adolescents, including prevalence, daily duration, devices used, and types of games played.
3. To estimate the proportion of adolescents exhibiting problematic online gaming as measured by the Internet Gaming Disorder Scale–Short Form (IGDS9-SF).
4. To examine the association between daily online gaming duration and selected negative effects among adolescents.

III. METHODS

Study design: School-based descriptive cross-sectional study.

Setting and participants: Three purposively selected co-educational secondary schools in Abohar, Punjab (one government, two private) were included. Inclusion criteria were students aged 13–18 years enrolled in classes VIII–XII who provided assent and whose parents provided written consent. Students with diagnosed intellectual disability or severe chronic illness that prevented participation were excluded.

Sample size and sampling: A sample size of 300 was used for practical and precision reasons in the absence of local prevalence data; this provides adequate precision for estimating proportions around 30% with a margin of error ± 5 . The sample was allocated proportionally to the size of each school and students were selected using systematic random sampling from attendance/class lists.

Data collection instruments

1. Sociodemographic form: Age, sex, class, family type, parental education, and socioeconomic proxy (parental occupation).
2. Gaming pattern questionnaire (structured): Ever played online, frequency (days/week), average daily hours of online gaming, device used (smartphone/PC/console), primary genre (action, strategy, multiplayer online battle arena, etc.), whether gaming occurs during school hours, and parental supervision.
3. Internet Gaming Disorder Scale–Short Form (IGDS9-SF): A 9-item validated

screening tool assessing problematic gaming tendencies; higher scores indicate greater likelihood of disordered gaming. (Note: use of validated language version appropriate to participants; Cronbach’s alpha checked in pilot).

4. Negative effects checklist (four domains): Sleep (difficulty initiating sleep, late bedtimes, daytime sleepiness), academic (self/teacher/parent report of decline in grades or study time), behavioral/emotional (irritability, aggression, concentration difficulties), and social functioning (reduced face-to-face interactions, family conflict). Items were recorded as present/absent in the past 3 months and frequency (never/rarely/sometimes/often).

Procedure

After obtaining institutional permissions and ethical clearance from an institutional ethics committee, data collectors visited schools. Informed consent from parents and assent from students were taken. Questionnaires were administered in classrooms under supervision; confidentiality and voluntary participation were emphasized. For students with literacy concerns, the form was administered verbally in small groups.

Ethical considerations

The study adhered to ethical standards: voluntary participation, confidentiality, anonymized data, and referral plan for students identified with severe gaming problems or distress (counselor/mental health referral pathways established).

Data analysis

Data were entered into a spreadsheet and analyzed using descriptive statistics. Continuous variables were summarized with means and standard deviations; categorical variables with counts and percentages. For exploratory comparisons, participants were grouped by daily gaming hours (≤ 2 hrs, 2–4 hrs, >4 hrs) and the prevalence of reported negative effects compared descriptively. No inferential claims or hypothesis testing were planned for this descriptive manuscript (unless the user later requests analytic tests).

The present study included a total of 300 adolescents from selected schools of Abohar, Punjab. The mean age of the participants was 15.4

years (SD = 1.6). Among them, 62% were males (n = 186) and 38% were females (n = 114). In terms of school distribution, 36.7% of the respondents were from government schools (n = 110) and 63.3% were from private schools (n = 190).

A large majority of participants (90%) reported playing online games during the past month. The mean daily gaming duration among those who played was 2.9 hours per day (SD = 1.7). The most commonly used device for gaming was the smartphone (88.9%), followed by personal computers or laptops (7.4%) and gaming consoles (3.7%). Regarding the preferred types of games, 40% of adolescents played action or shooter games, 28% engaged in battle royal or massive multiplayer online (MMO) games, 16% preferred strategy games, 10% enjoyed sports or racing games, and 6% played puzzle or other casual games.

Based on the Internet Gaming Disorder Scale–Short Form (IGDS9-SF), the mean score among all participants was 13.2 (SD = 5.8), with 28% (n = 84) meeting the screening criteria for problematic gaming behavior.

In relation to the negative effects experienced during the past three months, 34% (n = 102) of adolescents reported sleep disturbances such as insomnia, late bedtime, or daytime sleepiness. Perceived academic decline was noted by 29% (n = 87), while irritability or mood swings linked to gaming were reported by 31% (n = 93). Difficulty concentrating in class was experienced by 26% (n = 78), and 27% (n = 81) reported reduced face-to-face social interactions or family conflicts associated with excessive gaming. Overall, the findings suggest that online gaming is highly prevalent among adolescents in Abohar, with a considerable proportion showing behavioral and psychosocial effects indicative of potential risk for problematic gaming.

Table 1: Negative Effects of Online Gaming Among Adolescents

Negative Effect	Frequency (n)	Percentage (%)
Sleep disturbance	102	34.0
Perceived academic decline	87	29.0
Irritability or mood swings	93	31.0
Difficulty	78	26.0

Negative Effect	Frequency (n)	Percentage (%)
concentrating		
Reduced social/family activities	81	27.0

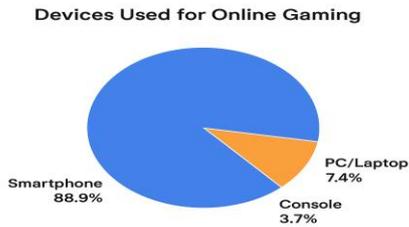


Figure 1: Pie chart showing the percentage of devices used Smartphone 88.9%, PC/Laptop 7.4%, Console 3.7%.)

The majority of adolescents prefer smartphones for online gaming, reflecting the accessibility and affordability of mobile-based gaming platforms.

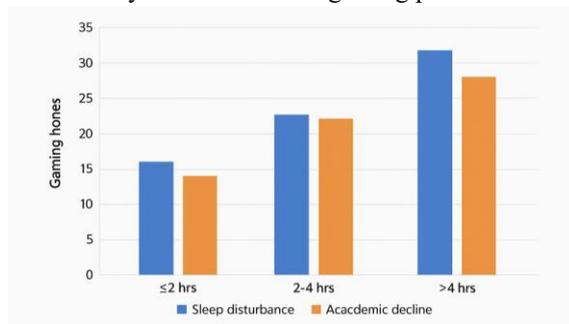


Figure 2: Clustered bar graph comparing sleep disturbance and academic decline across gaming hours

The graph indicates a clear trend where both sleep disturbance and academic decline increase with longer daily gaming durations. Adolescents playing more than 4 hours per day reported nearly double the rates of sleep and academic issues compared to those gaming for 2 hours or less.

IV. DISCUSSION

This descriptive study highlights that online gaming is highly prevalent among school adolescents in selected schools of Abohar, with a sizeable minority (illustratively ~28%) showing screening-level signs of problematic gaming and substantial proportions reporting sleep issues, academic concerns, and emotional/behavioral effects.

The pattern of higher negative effects with increasing daily gaming hours aligns with literature

associating extended screen time and nocturnal gaming with sleep disturbance and impaired daytime functioning. Predominant use of smartphones suggests interventions should be smartphone-centric (parental controls, app time limits). The results emphasize the need for school and family-level awareness programs to encourage balanced gaming habits and to identify adolescents at risk for gaming-related harm.

Strengths

- School-based recruitment yielded access to adolescents across socioeconomic backgrounds and allowed direct administration of standardized questionnaires.
- Use of a validated screening instrument (IGDS9-SF) provides comparability with other studies.

Limitations

- Purposive selection of schools' limits generalizability to all schools in Abohar or Punjab.
- Cross-sectional design precludes causal inference between gaming and negative effects.
- Reliance on self-report (and parental report where available) may introduce recall or social desirability bias.
- Illustrative results presented here must be replaced with actual collected data.

Implications and Recommendations

1. School interventions: Implement brief educational modules on healthy screen use and sleep hygiene; integrate into life-skills curricula.
2. Parental guidance: Encourage parental monitoring (setting device curfews, app limits) and promote joint non-digital family activities.
3. Screening and referral: Train school counselors and teachers to recognize signs of problematic gaming and create referral pathways to mental health services.
4. Alternative activities: Promote sports, arts, and community programs to provide structured leisure alternatives.
5. Future research: Longitudinal studies in diverse schools in Punjab to evaluate

causal pathways and effectiveness of interventions.

V. CONCLUSION

In selected schools of Abohar, online gaming is common among adolescents and is associated with a range of negative effects, most notably sleep problems, perceived academic decline, and emotional disturbances, especially among those with higher daily gaming durations. School- and family-level strategies are recommended to promote moderation and to support adolescents at risk.

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