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Online Gaming Addiction and Its Effects on Adolescents' Health and Academic Performance

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Abstract

This study explored the impact of online gaming addiction on adolescents aged 13 to 18, focusing on money spent, sleep problems, academic performance, and physical health. A total of 110 students were chosen using purposive sampling and surveyed with a structured questionnaire. The research followed a quantitative design, and the data were analyzed using tests such as the Kruskal–Wallis, correlation analysis, and reliability checks. Results showed that spending more time on gaming was linked to higher financial costs, sleep disturbance, and physical health issues, while the effect on academics was weaker but still present. Family income influenced sleep and academic outcomes, while age differences had little impact. The reliability of the tool was strong (Cronbach's $\alpha = 0.838$). The study suggests that parental

mediation, including setting limits and encouraging healthy alternatives, is important to reduce the negative effects of gaming. Overall, the findings highlight the need for awareness among parents, schools, and policymakers to help adolescents manage gaming responsibly.

Keywords: Online games, Adolescents, Gaming addiction, Academic performance, physical health

1. Introduction

Online gaming has evolved from a niche pastime to a mainstream global phenomenon, particularly among adolescents, driven by technological advancements, the rapid expansion of

high-speed internet, and the widespread availability of smartphones and affordable data plans. Popular multiplayer games such as PUBG, Free Fire, and Call of Duty have transformed gaming into a highly interactive and immersive activity, offering players not only entertainment but also opportunities for social interaction, competition, and skill mastery. While such games can provide positive experiences, concerns have been raised about excessive gaming, which can lead to what researchers refer to as online video game addiction. This condition is characterized by excessive preoccupation with gaming, loss of control over playing time, and continued play despite experiencing negative academic, social, physical, or psychological consequences.

Adolescents represent a particularly vulnerable group for developing gaming addiction due to developmental factors. At this stage of life, they are navigating identity formation, peer influence, emotional regulation, and increased independence, while still developing self-control and time management skills. This developmental profile, combined with the highly engaging design of modern online games, creates conditions conducive to compulsive or excessive use.

2. Literature Reviews

Online gaming addiction has been widely studied, with researchers highlighting its negative effects on adolescents' academic, physical, and psychological well-being. Excessive gaming has been linked to reduced concentration, poor study habits, and declining academic performance as adolescents spend more time playing than engaging in schoolwork. Studies also show that long gaming hours are associated with health issues such as sleep disturbance, eye strain, and fatigue, which can further affect daily functioning. In addition, financial aspects

such as in-game purchases or excessive spending on gaming platforms have been observed, indicating how gaming addiction can influence both personal and family resources.

Numerous studies have reported adverse outcomes associated with prolonged gaming among adolescents. For instance, excessive play has been linked to disrupted sleep cycles and insomnia (Higuchi et al., 2005), physical strain such as headaches, eye fatigue, and musculoskeletal pain (King et al., 2014), reduced concentration and academic performance (Chiu et al., 2004), and financial expenditure on in-game purchases and upgrades (Király et al., 2014). These consequences suggest that adolescent gaming behavior is a multifaceted issue requiring a holistic approach to research and intervention.

One critical factor influencing adolescent gaming behavior is parental mediation. Parental mediation theory, as described by Clark (2011), identifies three principal strategies parents employ to manage their children's media use. Active mediation involves discussing game content, sharing perspectives, and fostering critical thinking about gaming experiences. Restrictive mediation entails setting clear rules regarding the type of games played, the amount of time spent, and permissible gaming hours. Co-playing refers to parents engaging directly in gaming activities with their children, creating shared experiences and potentially guiding behavior through participation. Evidence suggests that these strategies, particularly active and restrictive mediation, can mitigate the negative impacts of gaming by encouraging balance, limiting exposure to harmful content, and supporting healthier lifestyle choices (Nikken & Jansz, 2014).

Although parental mediation has been studied extensively in Western contexts, research in the Indian setting remains limited. Cultural norms, joint family structures, educational priorities, and parental attitudes toward technology use in India differ markedly from those in other regions, potentially influencing both the prevalence of gaming addiction and the effectiveness of mediation strategies. Moreover, much of the existing literature treats gaming as a homogeneous activity without distinguishing between variables such as preferred gaming platforms (e.g., mobile, PC, console), genres (e.g., shooting, action, racing, sports), or the amount of time spent playing. Similarly, limited research has examined multiple outcome variables such as monetary spending, sleep disturbance, academic disruption, and physical health within a single integrated framework.

The present study seek to address these gaps by systematically examining adolescents' online gaming behaviors, including preferred genres, platforms, and time commitments, and their relationships with four key dependent variables: money spent on gaming, sleep disturbance, academic disturbance, and physical effects. Importantly, the study investigates the moderating role of parental mediation across these relationships, thereby offering insights into how parental strategies can shape the impact of gaming. By focusing on an Indian adolescent population, this research aims to provide culturally relevant findings that can inform educational interventions, parental guidance practices, and policy recommendations to promote healthier gaming habits while minimizing harmful consequences.

3. Research Methods

This study used to quantitative, descriptive, and correlational research design to explore the relationship between adolescents' online gaming behaviors and their effects on money spent, sleep disturbance, academic disturbance, and physical effects, with parental mediation as a moderating factor. The sample included 110 adolescents from different types of schools and colleges, selected through purposive sampling to represent varied ages, genders, education levels, and income groups. Data were collected using a structured questionnaire with three sections: demographic details, gaming behaviors, and nine Likert-scale items measuring the dependent variables. The tool's validity was confirmed by expert review, and reliability testing produced a Cronbach's alpha of 0.838, indicating high internal consistency. Data were gathered in classroom settings with prior permission and participant consent. Analysis was conducted in SPSS, using descriptive statistics to summarize profiles and the Kruskal Wallis H test to compare groups, as normality tests showed several variables were not normally distributed.

4. Analysis and Discussion

The sample characteristics of the quantitative analysis of 110 samples included in the study are presented below.

4.1. Frequency Analysis

Table 4.1.1 Showing the Age of the respondents

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13 -14	8	7.3	7.3	7.3
	15 -16	64	58.2	58.2	65.5
	17 - 18	28	25.5	25.5	90.9

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	Above 18	10	9.1	9.1	100.0
	Total	110	100.0	100.0	

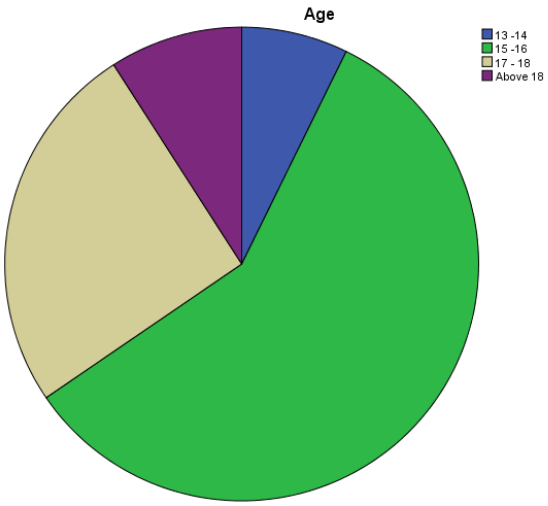

Table 4.1.1 and *Fig. 4.1* The participants in the study ranged in age from 13 years to above 18 years. The largest age group was 15–16 years, comprising 64 participants (58.2%), representing more than half of the total sample. The second largest group was 17–18 years, with 28 participants (25.5%). Participants aged above 18 years accounted for 10 individuals (9.1%), while the smallest group was those aged 13–14 years, with 8 participants (7.3%). The cumulative percentage shows that 65.5% of participants were aged 16 years or below, while the remaining 34.5% were older than 16 years.

Table 4.1.2 Showing the Educational level of the respondents

Educational Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8 - 9th	8	7.3	7.3	7.3
	10 - 11th	64	58.2	58.2	65.5
	12 and above	38	34.5	34.5	100.0
	Total	110	100.0	100.0	

Table 4.1.2 The educational level of the participants ranged from 8th grade to 12th grade and above. The majority were in 10th–11th grade, comprising 64 participants (58.2%), representing over half of the sample. 12th grade and above was the second largest group, with 38 participants (34.5%), while the smallest group was 8th–9th grade, with 8 participants (7.3%). The cumulative percentage indicates that 65.5% of the participants were studying in 11th grade or below, while 34.5% were in 12th grade or higher.

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Table 4.1.3 Showing the Annual Income of the respondents

Annual Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 1L	18	16.4	16.4	16.4
	1 - 2 L	16	14.5	14.5	30.9
	2 - 3 L	26	23.6	23.6	54.5
	Above 3 L	50	45.5	45.5	100.0
	Total	110	100.0	100.0	

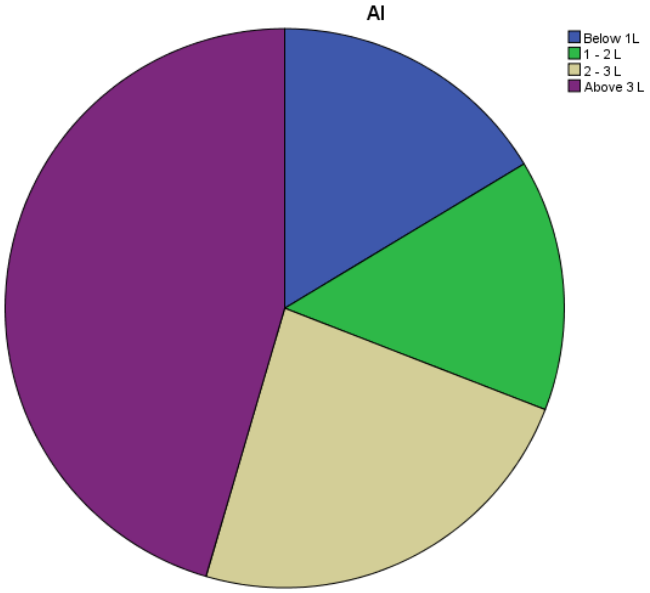

Table 4.1.3 and *Fig. 4.2* The annual income distribution of participants' families shows that the largest proportion, 50 participants (45.5%), reported a family income above ₹3 lakhs per year. This was followed by 26 participants (23.6%) with an income between ₹2–3 lakhs, 18 participants (16.4%) earning below ₹1 lakh, and 16 participants (14.5%) in the ₹1–2 lakh range. The cumulative percentage indicates that just over half of the participants' families (54.5%) had an annual income of ₹3 lakhs or less, while nearly half (45.5%) earned above ₹3 lakhs.

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Table 4.1.4 Showing the Types of School of the respondents

Types of School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Govt. School	11	10.0	10.0	10.0
	Govt. aided School	42	38.2	38.2	48.2
	Matric School	49	44.5	44.5	92.7
	CBSE	1	.9	.9	93.6
	College	7	6.4	6.4	100.0
	Total	110	100.0	100.0	

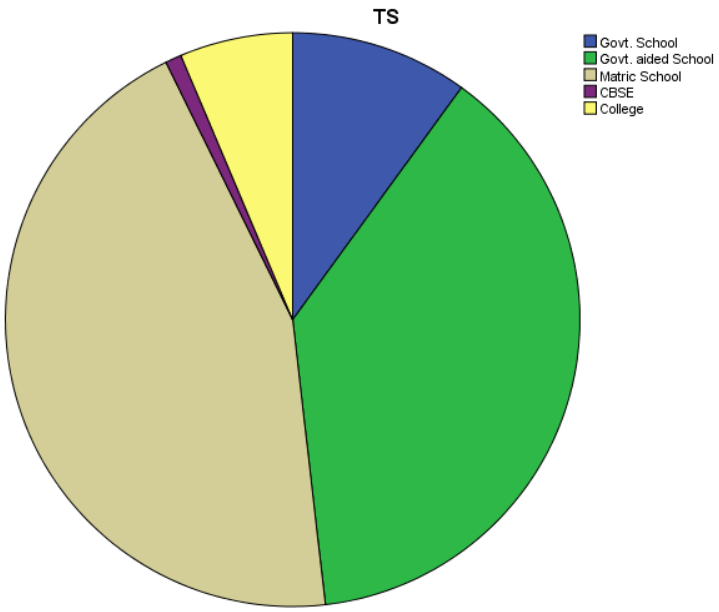

Table 4.1.4 and *Fig. 4.3* The participants were drawn from various types of educational institutions. The largest share attended Matriculation schools, with 49 participants (44.5%), followed by Government-aided schools with 42 participants (38.2%). Government schools accounted for 11 participants (10.0%), while colleges contributed 7 participants (6.4%). Only 1 participant (0.9%) was from a CBSE school. The cumulative percentage shows that 92.7% of participants were from Matriculation, Government-aided, or Government schools, indicating that the sample was predominantly from the state-run or state-affiliated education system.

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Table 4.1.5 Showing the Gaming Platform of the respondents

Gaming Platform

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PC	15	13.6	13.6	13.6
	Play Station	2	1.8	1.8	15.5
	Mobile Phones	93	84.5	84.5	100.0
	Total	110	100.0	100.0	

Table 4.1.5 The majority of respondents (93; 84.5%) reported using mobile phones as their primary gaming platform. A smaller portion (15; 13.6%) played on personal computers (PCs), while only 2 participants (1.8%) used a PlayStation. The cumulative percentage shows the by including mobile phone users, the total reaches 100%, indicating that mobile gaming overwhelmingly dominates among participants, with console gaming being rare.

Table 4.1.6 Showing the Spending time of the respondents

Spending Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 5 Hours	30	27.3	27.3	27.3
	6 - 20 Hours	45	40.9	40.9	68.2
	21 - 40 Hours	25	22.7	22.7	90.9
	More thann 40 Hours	10	9.1	9.1	100.0
	Total	110	100.0	100.0	

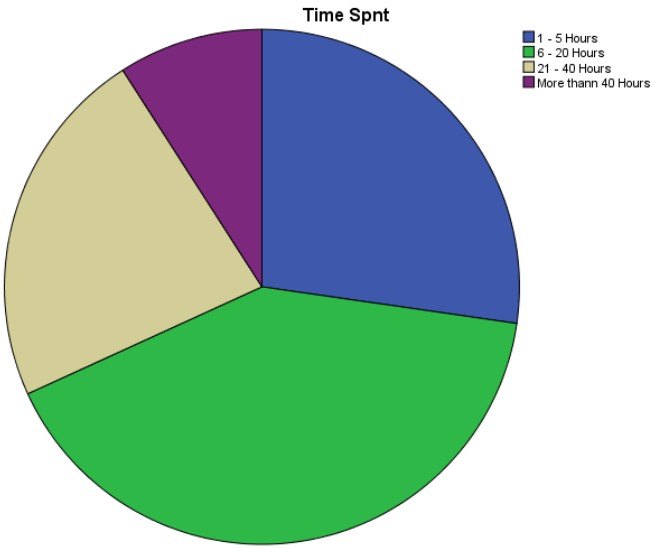

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Table 4.1.6 and *Fig. 4.4* The analysis of gaming time revealed that the largest proportion of participants (45; 40.9%) spent 6–20 hours per week playing games. This was followed by 30 participants (27.3%) who played 1–5 hours per week, 25 participants (22.7%) who played 21–40 hours per week, and 10 participants (9.1%) who reported spending more than 40 hours per week gaming. The cumulative percentage shows that more than two-thirds of participants (68.2%) played for 20 hours or less per week, while nearly one-third engaged in heavy gaming of more than 20 hours per week.

Table 4.1.7 Showing the Games Genre of the respondents

Games Genre

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Shooting Games	51	46.4	46.4	46.4
	Action Games	22	20.0	20.0	66.4
	Racing Games	16	14.5	14.5	80.9
	Sports Games	14	12.7	12.7	93.6
	Role Playing Games	5	4.5	4.5	98.2
	Strategic Games	2	1.8	1.8	100.0
	Total	110	100.0	100.0	

From the *Table 4.1.7* The majority of participants (51; 46.4%) reported playing shooting games, making it the most popular genre. Action games were the second most common choice (22 participants; 20.0%), followed by racing games (16; 14.5%) and sports games (14; 12.7%). A smaller portion engaged in role-playing games (5; 4.5%) and strategic games (2; 1.8%). The cumulative percentage shows that shooting and action games together accounted for 66.4% of participants' preferences, indicating a strong inclination toward fast-paced, competitive game types.

Table 4.1.8 Showing the Spent Money of the respondents

Spent Money

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	60	54.5	54.5	54.5
	No	50	45.5	45.5	100.0
	Total	110	100.0	100.0	

From the above *Table 4.1.8* The results show that 60 participants (54.5%) reported spending money on gaming, while 50 participants (45.5%) indicated they had not spent any money. This

suggests that more than half of the respondents engage in monetary transactions related to gaming, indicating a notable level of financial investment among players.

4.2 Cronbach Alpha:

Case Processing Summary

		N	%
Cases	Valid	110	100.0
	Excluded[a]	0	.0
	Total	110	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.838	9

From the above *Table 4.2.1* The reliability of the instrument was assessed using Cronbach's alpha. As shown in the case processing summary, all 110 cases (100%) ware valid and included in the analysis, with no missing data, ensuring that the reliability estimate was based on the complete dataset. The reliability statistics indicated that the nine items used to measure the impact of online gaming produced a Cronbach's alpha value of 0.838. According to the commonly accepted threshold of 0.70 (Nunnally, 1978), this value demonstrates a high level of internal consistency, confirming that the items are closely related and measure the same underlying construct. Therefore, the instrument can be considered statistically reliable for further analysis in this study.

4.3 Test of Normality:

Table 4.3.1 Test of Normality in Age

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Age	Statistic	Df	Sig.	Statistic	df	Sig.
Money	13 -14	.284	8	.057	.773	8	.015
	15 -16	.162	64	.000	.871	64	.000
	17 - 18	.156	28	.080	.909	28	.018

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	Above 18	.272	10	.035	.814	10	.021
Sleep Disturbance	13 -14	.210	8	.200*	.956	8	.767
	15 -16	.158	64	.000	.938	64	.003
	17 - 18	.227	28	.001	.896	28	.009
	Above 18	.230	10	.145	.917	10	.337
Academic Disturbance	13 -14	.196	8	.200*	.962	8	.828
	15 -16	.158	64	.000	.950	64	.012
	17 - 18	.133	28	.200*	.952	28	.218
	Above 18	.228	10	.150	.877	10	.122
Physical Effect	13 -14	.159	8	.200*	.939	8	.600
	15 -16	.209	64	.000	.933	64	.002
	17 - 18	.169	28	.040	.932	28	.071
	Above 18	.178	10	.200*	.907	10	.258

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the above *Table 4.3.1* Tests of normality using the Kolmogorov Smirnov and Shapiro Wilk statistics indicated that the distribution of scores varied across age groups and variables. For the Money variable, data were non-normal across all age groups. Sleep Disturbance was normally distributed only in the 13–14 and above-18 age groups, while the 15–16 and 17–18 groups showed significant deviations from normality. For Academic Disturbance, non-normality was observed only in the 15–16 age group, with other age groups meeting the normality assumption. Physical Effect scores were generally normal, except in the 15–16 group, which showed significant deviation, and the 17–18 group, which exhibited borderline results. Overall, the 15–16 age group consistently violated the normality assumption across variables, suggesting that non-parametric methods may be more appropriate for analyses involving this group.

Table 4.3.2 Test of Normality in Educational Level

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	EL	Statistic	df	Sig.	Statistic	df	Sig.
Money	8 - 9th	.284	8	.057	.773	8	.015
	10 - 11th	.159	64	.000	.872	64	.000
	12 and above	.176	38	.004	.906	38	.004
Sleep Disturbance	8 - 9th	.210	8	.200*	.956	8	.767
	10 - 11th	.159	64	.000	.931	64	.001

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	12 and above	.201	38	.001	.925	38	.014
Academic Disturbance	8 - 9th	.196	8	.200*	.962	8	.828
	10 - 11th	.151	64	.001	.953	64	.016
	12 and above	.121	38	.173	.954	38	.118
Physical Effect	8 - 9th	.159	8	.200*	.939	8	.600
	10 - 11th	.207	64	.000	.934	64	.002
	12 and above	.176	38	.005	.925	38	.014

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the above *Table 4.3.2* Normality testing using Kolmogorov–Smirnov and Shapiro Wilk tests showed that the Money variable was non-normally distributed across all class groups. Sleep Disturbance scores were normally distributed only in the 8–9th class group, with the 10–11th and 12th and above groups showing significant deviations. For Academic Disturbance, the 10–11th group displayed non-normality, while the 8–9th and 12th and above groups met the normality assumption. Physical Effect scores were normal in the 8–9th group but non-normal in both the 10–11th and 12th and above groups. Overall, the 10–11th class group consistently violated the normality assumption across variables, suggesting the potential need for non-parametric tests in analyses involving this group.

Table 4.3.3 Test of Normality in Annual Income

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	AI	Statistic	Df	Sig.	Statistic	df	Sig.
Money	Below 1L	.152	18	.200*	.940	18	.287
	1 - 2 L	.188	16	.133	.866	16	.024
	2 - 3 L	.184	26	.023	.851	26	.001
	Above 3 L	.156	50	.004	.880	50	.000
Sleep Disturbance	Below 1L	.196	18	.066	.919	18	.126
	1 - 2 L	.166	16	.200*	.957	16	.612
	2 - 3 L	.139	26	.200*	.923	26	.053
	Above 3 L	.205	50	.000	.912	50	.001
Academic Disturbance	Below 1L	.141	18	.200*	.944	18	.333
	1 - 2 L	.176	16	.200	.896	16	.071
	2 - 3 L	.157	26	.098	.963	26	.457
	Above 3 L	.198	50	.000	.912	50	.001

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Physical Effect	Below 1L	.212	18	.031	.870	18	.018
	1 - 2 L	.162	16	.200*	.916	16	.144
	2 - 3 L	.236	26	.001	.908	26	.024
	Above 3 L	.191	50	.000	.913	50	.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4.3.3 Normality testing using the Kolmogorov Smirnov and Shapiro Wilk statistics revealed mixed results across annual income groups. For the Money variable, the distribution was normal only in the below 1 lakh group, while all higher income groups showed significant deviations. Sleep Disturbance was normally distributed in the below 1 lakh, 1–2 lakhs, and 2–3 lakhs groups, but not in the above 3 lakhs group. Similarly, Academic Disturbance was normal in all groups except the above 3 lakhs category, which violated the normality assumption. In the case of Physical Effect, only the 1–2 lakhs group met the normality requirement, while the other income groups did not. Taken together, these results indicate that the assumption of normality is not consistently met, particularly among higher income groups, suggesting the use of non-parametric tests such as the Kruskal Wallis test for further analysis.

4.4 Inferential statistics:

Table 4.4.1 Relationship between Time Spent and Dependent Variables

Ranks

	Time Spnt	N	Mean Rank
Money	1 - 5 Hours	30	32.75
	6 - 20 Hours	45	55.27
	21 - 40 Hours	25	69.76
	More thann 40 Hours	10	89.15
	Total	110	
Sleep_Disturbance	1 - 5 Hours	30	37.90
	6 - 20 Hours	45	59.87
	21 - 40 Hours	25	61.22
	More thann 40 Hours	10	74.35
	Total	110	
Academic_Disturbance	1 - 5 Hours	30	44.07
	6 - 20 Hours	45	57.29
	21 - 40 Hours	25	58.26
	More thann 40 Hours	10	74.85
	Total	110	

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Physical_Effect	1 - 5 Hours	30	41.40
	6 - 20 Hours	45	54.84
	21 - 40 Hours	25	64.04
	More thann 40 Hours	10	79.40
	Total	110	

Test Statistics[a,b]

	Money	Sleep_Disturbance	Academic_Disturbance	Physical_Effect
Chi-Square	31.927	14.485	8.079	13.825
df	3	3	3	3
Asymp. Sig.	.000	.002	.044	.003

a. Kruskal Wallis Test

b. Grouping Variable: Time Spnt

From the above *Table 4.4.1* The Kruskal Wallis test indicated significant differences across time spent categories for money spent ($\chi^2 = 31.93$, $p < .001$), sleep disturbance ($\chi^2 = 14.49$, $p = .002$), and physical effects ($\chi^2 = 13.83$, $p = .003$), showing that adolescents who spent more time gaming reported higher spending, greater sleep-related problems, and stronger physical health impacts. For instance, those playing more than 40 hours per week had the highest mean ranks for money (89.15), sleep disturbance (74.35), and physical effects (79.40) compared to those who played only 1–5 hours per week. Academic disturbance also showed a statistically significant difference ($\chi^2 = 8.08$, $p = .044$), with higher mean ranks among heavy gamers, but the effect was weaker compared to the other outcomes. These findings suggest that time spent gaming is strongly linked with financial, physical, and sleep related consequences, while its association with academic disturbance is less pronounced.

Table 4.4.2 Relationship between Age group and Dependent Variables

Ranks

	Age	N	Mean Rank
Money	13 -14	8	55.31
	15 -16	64	60.09
	17 - 18	28	51.14
	Above 18	10	38.50
	Total	110	
Sleep_Disturbance	13 -14	8	63.25
	15 -16	64	61.14

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	17 - 18	28	39.00
	Above 18	10	59.40
	Total	110	
Academic_Disturbance	13 -14	8	64.56
	15 -16	64	59.60
	17 - 18	28	44.59
	Above 18	10	52.55
	Total	110	
Physical_Effect	13 -14	8	63.50
	15 -16	64	57.27
	17 - 18	28	47.98
	Above 18	10	58.85
	Total	110	

Test Statistics[a,b]

	Money	Sleep_Disturbance	Academic_Disturbance	Physical_Effect
Chi-Square	4.767	10.265	5.204	2.461
df	3	3	3	3
Asymp. Sig.	.190	.016	.157	.482

a. Kruskal Wallis Test

b. Grouping Variable: Age

Table 4.4.2 The Kruskal Wallis test results showed that age group did not have a significant effect on money spent (p = .190), academic disturbance (p = .157), or physical effects (p = .482), indicating that these outcomes were relatively consistent across different age categories. However, a significant difference was observed for sleep disturbance (p = .016), with younger adolescents (13–14 and 15–16 years) reporting higher levels of sleep-related problems compared to the 17–18 age group. Overall, age group was not strongly related to most dependent variables, though sleep disturbance appeared to vary among adolescents of different ages.

Table 4.4.3 Relationship between Annual Income and Dependent Variables

Ranks

	AI	N	Mean Rank
Money	Below 1L	18	53.31
	1 - 2 L	16	49.97

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	2 - 3 L	26	55.42
	Above 3 L	50	58.10
	Total	110	
Sleep_Disturbance	Below 1L	18	33.67
	1 - 2 L	16	49.78
	2 - 3 L	26	65.13
	Above 3 L	50	60.18
	Total	110	
Academic_Disturbance	Below 1L	18	33.67
	1 - 2 L	16	61.03
	2 - 3 L	26	57.21
	Above 3 L	50	60.70
	Total	110	
Physical_Effect	Below 1L	18	39.83
	1 - 2 L	16	57.47
	2 - 3 L	26	58.23
	Above 3 L	50	59.09
	Total	110	

Test Statistics[a,b]

	Money	Sleep_Disturbance	Academic_Disturbance	Physical_Effect
Chi-Square	.914	12.580	10.601	5.439
df	3	3	3	3
Asymp. Sig.	.822	.006	.014	.142

a. Kruskal Wallis Test

b. Grouping Variable: AI

Table 4.4.3 The Kruskal Wallis test showed that annual income did not significantly influence money spent on gaming (p = .822) or physical effects (p = .142), suggesting that these factors were similar across income groups. However, significant differences were found for sleep disturbance (p = .006) and academic disturbance (p = .014). Adolescents from higher-income families, particularly those in the 2–3 lakh and above 3 lakh categories, reported greater levels of sleep disturbance and academic disturbance compared to those from lower-income groups.

5. Findings and Conclusion

The study revealed that adolescents' online gaming behaviors are strongly linked to negative outcomes such as money spent, sleep disturbance, academic disruption, and physical effects. Time spent gaming emerged as the most critical factor, with those who played more than 40 hours per week reporting the highest financial costs, greater sleep problems, and more physical health issues compared to those who played fewer hours. Although academic disturbance also increased with gaming time, its effect was weaker. Age group showed little influence on most variables, but younger adolescents (13–16 years) reported higher levels of sleep disturbance than older players. Annual income was not related to money spent or physical effects but was significantly associated with greater sleep and academic disturbance, especially among higher-income groups. Overall, the findings highlight that excessive gaming leads to significant challenges in adolescents' daily lives, particularly affecting sleep, health, and financial habits. The study also emphasizes the moderating role of parental mediation, suggesting that strategies like setting restrictions, active guidance, and co-playing can reduce harmful consequences. In conclusion, while online gaming provides entertainment and social connection, uncontrolled play poses risks to adolescents' well-being, making balanced use and parental involvement essential for healthier gaming habits.

5.1 Conclusion and Suggestions

The study shows that excessive online gaming among adolescents leads to problems such as overspending, sleep loss, academic disturbance, and physical health issues, with the strongest effects seen in those who play for more than 40 hours a week. While academic disturbance was less affected, time spent on gaming clearly influenced most negative outcomes. Family income was linked to sleep and academic issues, while age had little impact. To reduce these problems, parents should guide and limit gaming time, schools should raise awareness and encourage healthy activities, and policymakers and health professionals should provide support programs. Together, these efforts can help adolescents enjoy gaming in moderation without facing harmful consequences.

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