

Gaming Addiction and Sleep Quality among Early Adolescents: A Comparative Study of Urban and Rural School Students – Dindigul District

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ABSTRACT

We live in the era of online games; they are a necessary evil of this decade. But the most common problem we face is the misuse of the internet, particularly for playing games. In particular, addiction to games is more prevalent among adolescents. Early adolescence, especially school students, are more vulnerable to this game addiction, and it reflects on their change in biological cycle. The sleep cycle is primarily affected, which indirectly leads to faulty lifestyle modifications. Their learning ability decreases, poor focus on studies, lack of concentration, and mental and social consequences are most commonly observed among these early adolescents. This paper presents a cross-sectional study of selected schools in the urban and rural areas of Dindigul District. The sample comprises 80 students selected via convenience sampling. Data analysis was carried out using SPSS. Common statistical tests used were Descriptive Statistics, Independent t-test, correlation analysis, and Regression Analysis. Descriptive statistics highlight that high mean values (above 4.00) on a 5-point Likert scale indicate that most students agree or strongly agree with the gaming addiction behaviors listed. The mean scores range from 3.80 to 4.05 on a 5-point scale, and the standard deviations range from 1.10 to 1.26, indicating that most students agree that they experience sleep-related problems. Pearson correlation, $r = 0.461$, which shows there is a moderate positive correlation between gaming addiction and sleep quality problems among the selected students. The t-test shows urban school students show higher levels of gaming addiction and slightly poorer sleep quality compared to rural school students. An independent sample T-test shows a significant difference in gaming addiction between urban and rural school students. Suggestions can be provided on balanced digital use. Parents can be advised to encourage family time without screens. Positive reinforcement and awareness campaigns in school can be arranged more frequently. Meditation sessions can be integrated into the school curriculum.

Keywords: Early Adolescence, Gaming Addiction, Sleep disorders, positive reinforcement, Mental consequences

INTRODUCTION

WHO defines Gaming disorder as, “Gaming disorder is defined in the 11th Revision of the International Classification of Diseases (ICD-11) 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” (WHO, 2020). We live in the age of technology, where internet use is inevitable. Adolescence is an important stage of growth and development in which adequate sleep and healthy habits are essential for physical and mental well-being. There has been an increase in online game use among early adolescents, particularly among school students. Though it's entertaining, excessive use can lead to gaming addiction, which paves the way to unhealthy lifestyle habits. Most adolescents spend hours playing games, especially at night, which may affect their sleep quality and lead to sleep disruption. Poor sleep impacts their concentration and lowers their academic performance. In addition, it also affects their social behavior, and therefore, it is important to study the relationship between gaming addiction and sleep quality among adolescents.

Objectives

1. To assess the level of gaming addiction among Early adolescents in the selected schools of Dindigul District.
2. To assess the level of sleep quality among Early adolescents in the selected schools of Dindigul District.
3. To compare the gaming addiction levels between urban and rural school students of Dindigul district.
4. To compare sleep quality levels between urban and rural school students of Dindigul district.
5. To examine the relationship between gaming addiction and sleep quality among early adolescents in the selected schools of Dindigul district.

REVIEW OF LITERATURE

Hale and Guan (2015) studied the relationship between screen time and sleep among children and early adolescents and concluded that children and adolescents should reduce screen use, especially before bedtime, to improve their sleep and overall well-being (Lauren Hale, 2014)

Rababa et al. (2025) studied the relationship between internet gaming addiction and academic performance among adolescents and pre-teens in Jordan and found that adolescents exhibited higher levels of problematic gaming than pre-teens, which impacted their concentration and focus in the classroom. (Suzie Rababa'h, 2026)

Dalumpay et al. (2026) conducted a study in the Philippines among 279 college students on the effect of online gaming addiction on students' socialization, highlighted a positive relationship between the two, and concluded that online gaming, when done in moderation, will help students socialize better. (etal, 2026)

Sundah et al. (2026) examined the relationship between online gaming addiction and sleep quality among 90 students in Indonesia and found that students who spent more time playing online games had poorer sleep quality (Sundah, 2026)

Elsokkary et al. (2026) examined the association between longer gaming time and poorer sleep quality among university students in Saudi Arabia and found that higher levels of internet gaming disorder were associated with both gaming time and sleep quality (Emadeldin M. Elsokkary, 2026)

RESEARCH METHODOLOGY

This study uses a comparative cross-sectional study research design. The study area includes selected schools in urban and rural areas of Dindigul District. The population includes adolescents aged 12-19 years; the sample comprises 80 students selected via convenience sampling. Primary data were collected using a structured questionnaire administered to the selected students. Data analysis was carried out using SPSS. Common statistical tests used were Descriptive Statistics, Independent t-test, correlation analysis, and Reliability Analysis. To test the internal consistency of the questionnaire.

Data Analysis and Interpretation

Structured questionnaires were administered, and data were collected and interpreted. The findings are described in the table below.

Table 1: Assessment of the level of gaming addiction among Early adolescents in the selected schools of Dindigul District

	Descriptive Statistics
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	Minimum	Maximum	Mean	Standard Deviation
I feel restless or irritated when I cannot play games	2.00	5.00	4.2500	1.04941
I often play games longer than I planned	2.00	5.00	4.2500	1.04941
I find it difficult to reduce my gaming time	2.00	5.00	4.2000	1.03606
I think about gaming even when I am not playing	2.00	5.00	4.2500	1.04941
I play games late at night.	2.00	5.00	4.2500	1.04941
Gaming sometimes affects my schoolwork	2.00	5.00	4.3000	1.06021
I prefer gaming over other activities like sports or hobbies	2.00	5.00	4.2500	1.04941
My family members complain about the time I spend gaming	2.00	5.00	4.1500	1.02005

The Table highlights that high mean values (above 4.00) on a 5-point Likert scale indicate that most students agree or strongly agree with the gaming addiction behaviors listed. This suggests a high level of gaming involvement or addiction tendencies among the respondents. Students show strong tendencies toward gaming addiction behaviors, including difficulty controlling gaming time, late-night gaming, and negative impacts on academic activities. The findings suggest a potential risk of gaming addiction among the respondents, highlighting the need for awareness and balanced digital habits among students.

Table 2 assesses the level of sleep quality among Early adolescents in the selected schools of Dindigul District

	minimum	maximum	mean	Standard deviation
I find it difficult to fall asleep at night.	2.00	5.00	4.0000	1.10236
I wake up during the night	2.00	5.00	3.8000	1.25688
I feel tired when I wake up in the morning	2.00	5.00	4.0500	1.12396
I feel sleepy during school hours	2.00	5.00	4.0500	1.12396
I do not feel refreshed after sleeping	2.00	5.00	4.0500	1.12396
I sleep less than 7–8 hours per night	2.00	5.00	4.0500	1.12396
I feel that my sleep quality is poor	2.00	5.00	4.0500	1.12396
I feel that using my phone or gaming affects my sleep	2.00	5.00	4.0500	1.12396
I struggle to wake up early for school	2.00	5.00	3.8000	1.25688
I experience headaches or fatigue due to lack of sleep	2.00	5.00	3.8000	1.25688

The table shows that **mean scores range from 3.80 to 4.05 on a 5-point scale**, and the standard deviations range from 1.10 to 1.26, indicating that most students agree that **they experience sleep-related problems**. This suggests that **the respondents' sleep quality is relatively poor**. Many students experience symptoms such as tiredness, daytime sleepiness, and insufficient sleep. A large proportion of students report **poor sleep quality**, including **difficulty sleeping, daytime tiredness, insufficient sleep duration, and health**

symptoms. The findings also indicate that **mobile phone usage and gaming may contribute to sleep disturbances among students.**

Correlation Analysis

Table 3: Comparison between the gaming addiction levels of urban and rural school students of Dindigul district

correlations	Sleep quality_Total	
Gaming_Total	Pearsons corelation	Sig . (2-tailed)
	.461**	.000

The table highlights the Pearson correlation, $r = 0.461$, which shows there is a moderate positive correlation between gaming addiction and sleep quality problems. P value is less than 0.01, so the relationship between gaming addiction and sleep quality problems are statically significant. In other words, students who spend more time on gaming or show higher gaming addiction tendencies are **more likely to experience sleep disturbances**, such as difficulty falling asleep, tiredness during the day, and insufficient sleep.

T-Test Group Statistics

Table 4 Comparison between the sleep quality levels of urban and rural school students of Dindigul district

		Mean	Standard deviation	Standard error
Gaming Addiction_Total	Urban	35.8000	4.93652	.78053
	Rural	32.0000	8.55750	1.35306
Sleep quality_Total	Urban	41.4000	10.08884	1.59519
	Rural	38.0000	9.70329	1.53422

The above table depicts the group statistics, which indicate that **urban school students show higher levels of gaming addiction and slightly poorer sleep quality compared to rural school students.** This may be due to **greater access to smartphones, internet connectivity, and digital entertainment in urban areas.**

Table 5, Independent sample t-test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									Confidence Interval	
		F	Sig	t	df	Sig. (2-	Mean	Std. error	lower	upper

						tailed)	difference	difference		
Gaming Addiction_ Total	Equal variances assumed	5.163	.026	2.433	78	.017	3.80000	1.56205	.69020	6.90980
	Equal variances not assumed			2.433	62.369	.018	3.80000	1.56205	.67787	6.92213
Sleep quality_Total	Equal variances assumed	.008	.928	1.536	78	.129	3.40000	2.21325	- 1.00624	7.80624
	Equal variances not assumed			1.536	77.882	.129	3.40000	2.21325	- 1.00634	7.80634

The above table shows that there is a significant difference in gaming addiction between urban and rural school students. The mean difference is 3.80, indicating that urban students have higher gaming addiction scores compared to rural students. The 95% confidence interval (0.677 to 6.922) does not include zero, which further confirms that the difference is statistically significant.

Since $p = 0.129 > 0.05$, the result is not statistically significant. There is no significant difference in sleep quality between urban and rural school students. Although urban students show a slightly higher mean sleep disturbance score, the difference is not statistically significant. The confidence interval (-1.006 to 7.806) includes zero, indicating that the difference is not significant.

Reliability Analysis

The Cronbach's alpha was 0.950 for the gaming addiction scale, indicating that the questionnaire used in the study is highly reliable. The Cronbach's alpha was 0.960 for the sleep quality scale, indicating that the questionnaire used in the study is highly reliable. The items are appropriate and dependable for measuring sleep quality among respondents and are suitable for further statistical analysis.

RECOMMENDATIONS

Encouraging balanced digital usage patterns among these students, and then parents must be advised to restrict internet use for unnecessary activities. Parents and students must be motivated to spend quality family time without screens to reduce dependence on online games. Traditional board games, such as Snakes and Ladders, Ludo, and Bingo, can be encouraged in schools and at home. This will help the respondents shift their attention towards healthy gaming habits rather than online games. Encourage Outdoor and Physical Activities to avoid excess dependence on online games. Insisting on the importance of maintaining a Regular Sleep Schedule to avoid sleep disruption. Conducting frequent Awareness Programs and campaigns, and role-plays in Schools, to highlight the adverse effects of excessive dependence on online games. Positive reinforcement and rewards can be given to students who reduce their screen time and gradually stop playing online games. Most importantly, the purpose is to strengthen their willpower, focus, and concentration, enhance their moral values, and improve clarity in decision-making through meditation classes. Integrating meditation sessions into the school curriculum is the most needed remedy to divert students from excessive online gaming.

CONCLUSION

The study concludes that the students who spend more time playing online games face sleep quality disorders and sleep disruption, leading to gaming addiction. Urban school students show higher levels of gaming addiction and slightly poorer sleep quality compared to rural school students. There is no significant difference in sleep quality between urban and rural school students. Overall, sticking to healthy habits like limiting time spent on online games, encouraging traditional games, and promoting family time with children can help reduce screen time. Integrating meditation sessions into the school curriculum imparts moral values and enhances overall well-being and healthy lifestyle practices.

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