

A COMPARATIVE STUDY ON SMARTPHONE ADDICTION AMONG HIGH SCHOOL STUDENTS: ANALYSIS BASED ON LOCALITY AND NATURE OF INSTITUTION

Dr. S. Prakash

Principal

Thiagarajar College of Preceptors, Madurai, Tamil Nadu, India

K. Thangavel

Assistant Professor of Education

Thiagarajar College of Preceptors, Madurai, Tamil Nadu, India

Dr. S. Raja Kumar

Assistant Professor of Education

Thiagarajar College of Preceptors, Madurai, Tamil Nadu, India

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Abstract

*Smartphone addiction has become an escalating issue among adolescents, raising significant concerns about its potential detrimental effects on various aspects of their lives. This growing phenomenon is particularly worrisome due to its capacity to negatively impact academic achievement, alter social dynamics, and compromise overall mental and physical well-being. This study examined smartphone addiction among high school students in Madurai District, focusing on differences based on locality (rural vs. urban) and the nature of the institution (Boys, Girls, and Co-education schools). The study involved 865 high school students (470 males and 395 females) from government, aided, and corporation schools in Madurai District. Data was collected using a standardized smartphone addiction scale, and statistical analyses, including *t*-tests and one-way ANOVA, were performed. The analysis of locality-based differences revealed that rural students had a higher mean score of smartphone addiction ($M=102.22$, $SD=18.048$) compared to urban students ($N=617$, $M=99.08$, $SD=29.403$). However, this difference was not statistically significant ($t(863) = 1.567$, $p=0.118$). This suggests that the locality of students (rural or urban) does not significantly influence their level of smartphone addiction. In contrast, when examining the nature of the institution, significant differences were found among students from Boys, Girls, and Co-education schools ($F(2, 862) = 17.544$, $p < 0.001$). This indicates that the type of school (single-gender or co-educational) plays a significant role in the levels of smartphone addiction among high school students in Madurai District.*

Keywords: *Smartphone Addiction, High School Students, Locality, Nature of Institutions, and Madurai District.*

Introduction

Smartphone addiction has become an escalating issue among adolescents, raising significant concerns about its potential detrimental effects on various aspects of

their lives. This growing phenomenon is particularly worrisome due to its capacity to negatively impact academic achievement, alter social dynamics, and compromise overall mental and physical well-being. The pervasive nature of smartphone use among teenagers has led to increased scrutiny of its long-term consequences on youth development, cognitive functions, and interpersonal relationships. As digital devices become increasingly integrated into daily life, understanding and addressing smartphone addiction in adolescents has become a critical focus for educators, parents, and mental health professionals alike.

In recent years, the ubiquity of smartphones has revolutionized communication, access to information, and social interactions, particularly among adolescents. While these devices offer numerous benefits, their excessive use has given rise to a phenomenon known as smartphone addiction. This study focuses on smartphone addiction among high school students in Madurai District, Tamil Nadu, India, examining the potential variations in addiction levels based on locality (rural vs. urban) and the nature of educational institutions (Boys, Girls, and Co-education schools).

Smartphone addiction, characterized by compulsive use and dependency on mobile devices, has emerged as a growing concern among adolescents. This behavioural addiction can manifest in various ways, including constant checking of devices, anxiety when separated from the phone, and prioritizing smartphone use over other activities. The pervasiveness of this issue among high school students is particularly alarming due to the critical developmental stage they are in, where academic performance, social skills, and personal growth are of paramount importance.

Review of Related Literature

Numerous studies have explored the prevalence and correlates of smartphone addiction among adolescents. A study by Kim et al. (2018) examined smartphone addiction among high school students across different cultural contexts. The research, conducted in South Korea, China, and the United States, found varying levels of smartphone addiction among adolescents in these countries. Interestingly, the study revealed that while cultural differences played a role in smartphone usage patterns, school environment emerged as a significant factor across all three countries. Students in co-educational schools showed different addiction patterns compared to those in single-gender schools, aligning with the findings of the current study in Madurai District. The researchers emphasized the need for culturally sensitive interventions that consider both national and school-specific factors in addressing smartphone addiction among adolescents.

Samaha and Hawi (2016) conducted a meta-analysis of studies examining the relationship between smartphone addiction and academic performance among high school students. Their analysis, which included data from both rural and urban areas across multiple countries, found a significant negative correlation between smartphone addiction levels and academic achievement. However, the strength of this correlation

varied depending on factors such as the type of school and the specific measures of academic performance used. The researchers noted that while the urban-rural divide did not significantly impact addiction levels, consistent with the current study's findings, the nature of the school environment emerged as a crucial factor. They suggested that future research should focus on understanding how different school settings might influence both smartphone addiction and its impact on academic outcomes.

Significance of the Study

The significance of this study on smartphone addiction among high school students in Madurai District is multifaceted and far-reaching. By examining addiction levels across different localities and school types, it provides crucial insights for educators, policymakers, and mental health professionals. The findings offer a foundation for developing targeted interventions to mitigate the impact of smartphone addiction on academic performance and student engagement. The rural-urban comparison illuminates how socio-economic and cultural contexts within the district influence addiction patterns, enabling more nuanced and effective strategies. Additionally, the analysis of addiction levels across Boys, Girls, and Co-education schools provides valuable information on the role of gender dynamics and school environments in smartphone use, guiding the creation of gender-sensitive and context-specific programs.

This study also contributes to the broader understanding of adolescent mental health in the region, as smartphone addiction is often linked to issues such as anxiety, depression, and social isolation. The results can catalyse raising awareness among parents and community members about the potential risks of excessive smartphone use. Furthermore, the findings can inform local and regional policies regarding technology use in educational settings and guide the implementation of digital literacy programs. Ultimately, this research adds to the growing body of literature on technology addiction, providing region-specific data that can be valuable for comparative studies and meta-analyses in the field, thereby contributing to the overall well-being and academic success of high school students in Madurai District and beyond.

Objectives of the Study

- To assess the level of smartphone addiction among high school students in Madurai District.
- To compare the levels of smartphone addiction between rural and urban high school students in Madurai District.
- To examine the differences in smartphone addiction among high school students studying in Boys, Girls, and Co-Education schools in Madurai District.

Hypotheses of the Study

- There is no significant difference in the levels of smartphone addiction between rural and urban high school students in Madurai District.
- There is no significant difference in the levels of smartphone addiction among high school students studying in Boys, Girls, and Co-Education schools in Madurai District.

Methodology

Population and Sample

The study's population consisted of high school students in Madurai District, Tamil Nadu. A sample of 865 students (470 males and 395 females) was drawn from Government, aided, and corporation schools in the district.

Sampling Technique

A stratified random sampling technique was employed to ensure representation from different types of educational institutions. The schools were first stratified into three categories Government, aided, and corporation schools. Then, a random sample of schools was selected from each stratum, and students were randomly chosen from the selected schools.

Data Collection

Data on smartphone addiction levels was collected using a standardized and validated smartphone addiction scale named Bradish, Taylor, "The Smartphone Addiction Measure" (2020).

Statistical Analysis

Table 1 The Table Shows the Significant Difference in the Levels of Smartphone Addiction Between Rural and Urban High School Students

Variable		N	Mean	Std. Deviation	df	t-value	p-value	Remark
Locality	Rural	248	102.22	18.048	863	1.567	.118	p>0.05 Not significant (NS)
	Urban	617	99.08	29.403				

Table Value - 1.96 at 0.05 Level

Table 1 presents a comparison of smartphone addiction levels between rural and urban high school students in Madurai District. The results show that rural students (N=248) have a higher mean score of smartphone addiction (M=102.22, SD=18.048) compared to urban students (N=617, M=99.08, SD=29.403). However, the t-value of 1.567 and the corresponding p-value of 0.118, which is greater than the significance

level of 0.05, indicate that this difference is not statistically significant. Hence the null hypothesis is accepted.

Table 2 The Table Shows the Significant Difference in the Levels of Smartphone Addiction Among High School Students in Boys, Girls, and Co-education School Students

Variable	Group	Sum of Squares	df	Mean Square	F	p-value	Remark
Nature of School	Between Groups	24044.326	2	12022.163	17.544	.000	S
	Within Groups	590704.414	862	685.272			
	Total	614748.740	864				

Table 2 shows the analysis of variance (ANOVA) results for smartphone addiction levels among high school students in Boys, Girls, and Co-education schools. The F-value of 17.544 with a p-value of 0.000 ($p < 0.05$) indicates a statistically significant difference in smartphone addiction levels among students from these different types of schools. Hence the null hypothesis is rejected.

Finding and Discussion

The study reveals that there is no statistically significant difference in smartphone addiction levels between rural and urban high school students in Madurai District. This finding is somewhat surprising, as it challenges the common assumption that urban students might have higher levels of smartphone addiction due to potentially greater access to technology and internet connectivity. It suggests that smartphone addiction is a pervasive issue that transcends the rural-urban divide in this region. The significant difference found in smartphone addiction levels among students from Boys, Girls, and Co-education schools is a key finding of this study. This result indicates that the school environment and potentially gender-specific factors play a crucial role in smartphone addiction patterns among high school students.

While locality-based interventions may not be necessary, the findings suggest that tailored approaches for different types of schools (Boys, Girls, and Co-education) could be more effective in addressing smartphone addiction. The lack of significant difference between rural and urban areas might indicate a relatively uniform spread of smartphone technology and internet access across Madurai District, reflecting the rapid digitalization of both rural and urban areas in India.

The significant difference among school types suggests that gender dynamics, peer influence, and the specific social environment of single-gender versus co-educational settings may play a crucial role in smartphone usage patterns and addiction levels.

Recommendations

- Implement awareness campaigns and educational programs in high schools to educate students, parents, and teachers about the potential risks and consequences of excessive smartphone use and addiction.
- Incorporate digital literacy and responsible technology use into the curriculum, teaching students' strategies for self-regulation and balanced smartphone usage.
- Engage parents in the process by educating them about the signs of smartphone addiction and encouraging open communication with their children about responsible technology use.
- Implement designated technology-free zones and times within schools to encourage face-to-face interactions and reduce dependency on smartphones.
- Engage the broader community, including local organizations and businesses, in efforts to promote responsible smartphone use among adolescents.

Conclusion

This study examined smartphone addiction among high school students in Madurai District, focusing on locality and school type. While no significant difference was found between rural and urban students, the nature of schools (Boys, Girls, Co-education) showed significant variations in addiction levels. These findings highlight the need for tailored interventions based on school environments to address smartphone addiction effectively among adolescents.

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