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Smartphone Addiction of High School Students in West Bengal

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Abstract

Smartphones have become an indispensable component of modern life, providing advanced computing capabilities such as internet connectivity, multimedia access, and a wide range of application-based services. While these devices offer significant educational, informational, and communicative benefits, the rapid increase in smartphone usage has raised growing concerns about potential addiction, particularly among school students. Adolescents, who are in a crucial stage of psychological and social development, are especially vulnerable to excessive smartphone use, which may affect their academic performance, mental well-being, and interpersonal relationships.

The present study aimed to examine the differences in smartphone addiction among secondary school students with respect to gender (boys and girls), locality (rural and urban), and the interactional effect between gender and locality. A descriptive survey method was employed for the investigation. A sample of 200 Higher Secondary School students was randomly selected from various high schools in the West Bengal district to ensure adequate representation of both genders and residential backgrounds. Data were collected using the Smartphone Addiction Scale developed by Dr. Vijayshri and Dr. Masaud Ansari, a standardized and reliable instrument designed to assess the level of smartphone dependency among adolescents. The collected data were analyzed using appropriate statistical techniques to determine whether significant differences existed across the selected variables.

The results of the statistical analysis indicated that there was no significant difference in smartphone addiction between boys and girls. Similarly, no significant difference was found between students from rural and urban localities. Furthermore, the interactional effect of gender and locality on smartphone addiction was also found to be statistically insignificant.

The findings indicate that smartphone addiction among secondary school students is widespread and not significantly influenced by gender or residential background. This suggests a uniform pattern of smartphone dependency among adolescents and highlights the need for awareness programs, digital well-being education, and guidance from parents and schools to encourage responsible use.

Keywords: Smart Phone Addiction, Adolescents, Secondary School Students, Smartphone Dependency, Digital Well-being Education.

1. Introduction

A smartphone is a modern mobile device that offers internet connectivity, built-in GPS and camera functions, and the ability to use a wide range of third-party applications such as games, communication software, and weather or traffic apps. Today, smartphones have become an indispensable part of human life. However, alongside their diverse benefits, excessive use can have negative effects on everyday life. Smartphones easily capture users' attention and create distractions, which has led to particularly high levels of overuse among students. Such distractions reduce students' productivity and the quality of their work, while also wasting valuable time.

In the present era, high-speed internet connectivity has greatly enhanced the functionality of smart phones. Their small size and portability allow them to be used anywhere, making it easy to access vast amounts of information. Within the limited time available in formal education systems, it is not always possible to address all students' questions; in this context, smartphones can serve as supplementary educational tools. However, several studies have shown that many online information sources lack reliability due to insufficient regulation. At the same time, access to numerous reputable journals and databases is often restricted for commercial or security reasons, creating barriers to students' access to reliable information.

Frequent smart phone use affects individuals' physiological, psychological, and social behavior. Although not all researchers agree with the concept of "smartphone addiction," the behavioral problems resulting from excessive and uncontrolled use cannot be ignored. Addiction is generally characterized by uncontrollable urges and a loss of control over usage. Excessive smartphone use has been associated with various psychological issues, including depression, loneliness, and social anxiety. In essence, the impact of smartphone addiction can be viewed as a complex combination of psychological, interpersonal, physical, occupational, and behavioral problems.

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1.1. Background

The rapid advancement of technology has brought about profound transformations in nearly every sphere of human civilization. Particularly in the twenty-first century, the widespread expansion of information and communication technology has redefined the nature of daily life. Among the most significant manifestations of this technological evolution is the mobile phone, which has transcended its original function as a mere communication device to become a multifunctional platform facilitating information access, education, entertainment, social interaction, and a wide range of digital services. In a developing nation like India, characterized by a predominantly young population, mobile phones have emerged as an indispensable technological tool.

Notably, India's youth population aged 18–25 plays a pivotal role in the adoption and use of mobile internet, contributing to the country's position as one of the fastest-growing mobile phone markets globally. Within the educational domain, mobile phones have expanded learning opportunities by enabling access to online education, digital libraries, e-learning platforms, and instant information. These developments have enhanced the flexibility and dynamism of the teaching–learning process, allowing students to engage with academic content beyond the confines of traditional classrooms.

However, alongside these benefits, the excessive and unregulated use of mobile phones has introduced a range of challenges, particularly among students. Numerous studies indicate that prolonged and uncontrolled engagement with mobile phones—especially for social networking, online gaming, and entertainment applications—can adversely affect students' concentration, study habits, and overall academic performance. Issues such as disruption of regular study routines, sleep deprivation, psychological stress, and behavioral addiction are increasingly prevalent, raising concerns about students' holistic educational development.

Against this backdrop, the present study aims to examine the patterns and extent of mobile phone usage among students and to assess its impact on their academic performance. Specifically, the study seeks to explore both the positive and negative dimensions of mobile phone use and to determine the extent to which excessive usage acts as a barrier to academic success. The findings of this research are expected to provide valuable insights for educators, policymakers, and parents in formulating strategies that promote conscious, responsible, and balanced mobile phone usage among students.

1.2. Rationale of the Study

Previous studies have reported mixed and sometimes conflicting findings regarding the impact of smartphone addiction on students' academic performance and mental health. While several studies have established a significant negative relationship between the intensity of smartphone use and academic achievement, this adverse effect has been found to be more pronounced among female students compared to their male counterparts. Conversely, other studies have suggested that the relationship between smart phone use and academic outcomes is partial, indirect, or highly dependent on contextual factors.

Notably, the majority of existing research has been conducted outside the geographical boundaries of West Bengal or has failed to adequately consider region-specific socio-cultural contexts. Consequently, there remains a substantial research gap concerning the actual effects of smart phone addiction within the lived realities of students in West Bengal, particularly at the secondary level.

In response to this gap, the present study seeks to examine the relationship between smartphone addiction and academic performance among secondary school students in the North 24 Parganas district of West Bengal. Specifically, the study aims to bridge the existing research gap by analyzing how excessive smartphone use may diminish students' curiosity, attention, and engagement in the learning process. The findings are expected to contribute contextually grounded insights that may inform educators, policymakers, and stakeholders in developing more effective interventions and awareness strategies.

1.3. Statement of the Problem

The present study is designed to explore the "Smartphone Addiction of High School Students in West Bengal." The increasing use of smartphones among high school students has raised concerns about smart phone addiction and its potential impact on academic performance. Excessive smart phone use may disrupt students' concentration, study habits, and academic achievement. The present study seeks to investigate the extent of smartphone addiction among these students and to analyze its effect on their academic performance.

1.4. Objectives of the Study

Objectives are the attainable goals for the attainment of which whole of the research work is directed. Following will be the objectives of this proposed study:

i). To assess the level of smartphone addiction among high school students.
ii). To find the significant difference in smartphone addiction of high school students gender-wise (i.e. boys and girls).
iii). To find the significant difference in the smartphone addiction of high school students locality-wise (i.e. rural and urban).
iv). To find the interactional effect of significant difference in the smartphone addiction of High School students under the joint influence of gender (boy and girl) and locality (rural and urban) when smartphone addiction scores are taken as dependent variable.

1.5. Hypotheses

Hypotheses is a supposed and the most probable answer to the proposed problem. The following hypotheses have been formulated for the purpose of the present study:

H_1: There is no significant difference in smartphone addiction levels of high school students.

H_2: There is no significant difference in smartphone addiction of high school students gender-wise (i.e. boys and girls).

H_3: There is no significant difference in the smartphone addiction of high school students locality-wise (i.e. rural and urban).

1.6. Operational Definitions

i). **Smart phone Addiction:** Smartphone addiction refers to excessive, compulsive use of smartphones that interferes with daily life, productivity, mental health, and social relationships. While smartphones are essential tools for communication and learning, uncontrolled use can lead to behavioral dependence.
ii). **High School:** High school is the stage of education that comes after primary school and before higher education (college or university). It generally includes Classes 5 to

12 and prepares students for higher studies, professional courses, and careers. This study focuses only on Class 9 students.

1.7. Delimitations

i). The study was delimited to the secondary students in the district of North 24 Parganas only.
ii). Only 10 Secondary Schools were included in the present study.
iii). The study was delimited to the sample of 200 (100 boys and 100 girls) secondary school students.
iv). The study was delimited to the usage of smartphone among 9th class students.

2. Review of Related Literature

2.1. Introduction

A literature review is a written summary of books, articles of journal and other published and non-published documents that describes the past and current state of information on the particular subject of research. It may form part of a research thesis or may stand alone as a separate document. Although the second of these types of literature review is less extensive that the expected for a thesis, the skill required are identical. Its goal is to bring the reader up-to-date with current literature on a topic and form the basis for another goal, such as the subject of research. It may form part of a research thesis or may stand alone as a separate document. Although the second of these types of literature review is less extensive that expected for a thesis, the skill required are identical. Its goal is to bring the reader up-to-date with current literature on a topic and form the basis for another goal, such as the justification for further research in the particular area.

A good review might also contain other information drawn from conference papers, books, workshop activities and government documents. This term review of related literature also used to describe the written component of a research plan or report that discusses the revised documents. These documents can include abstracts, review, monographs, dissertations, other research reports and electronic media.

2.2. Reviews

For this present study, the reviews of related literature are listed below:

- **National Studies**

Patel and Rathod (2011) studied the mobile phone use habits of students coming from rural area to the town and found that the most used features of mobile phone use was SMS because it was cheaper and the students with limited financial resources could communicate effectively. The study also showed that the male students sent more SMS than female student.

Hayat, Arshad, and Hussain (2014) conducted a study on the impact of mobile phone on academic achievement. The sample size of the study was 120, i.e. 60 male and 60 female. The samples were drawn from two departments, Sociology and Chemistry Department of Government College, Faisalabad by using Simple random sampling technique. An interviewing schedule was prepared to get the required information. In this study, the subjects revealed that usage of mobile phone was satisfactory technology as mobile phone gave more information regarding their study and duration of exams. Majority of the subjects also stated that the usage of mobile phone did not affect much on the academic performance as they turned off their mobile phone during the examination period.

Kumari (2016), Studied mobile phone addiction and its impact on mental health in adolescents. Found only a mild effect of phone addiction on mental health.

Tran, D. (2016) examined the effect of nomophobia i,e. the anxiety caused by the loss of a Smartphone and its resulting behavioural disorder. The researcher used descriptive research method to establish the relation between nomophobia and resulting behavioural inconsistencies.

Dasgupta P., Bhattacharjee S., Dasgupta S., Roy J.K., Mukherjee A., Biswas R. (2017) examined how growing use of smartphone among Indian college students has resulted in considerable issues of "nomophobia" (NMP) or feelings of discomfort or anxiety experienced by individuals whenever unable to use their smart phones. The researcher found that NMP has emerged as a significant cause of concern among both the groups. Standardized measures for identification and appropriate psycho-behavioural therapy for those seeking help might alleviate the problem.

Himashree, (2020) Studied emotional maturity and phone addiction among emerging adults in Guwahati. Highlighted connections with impulsivity, peer relationships, and excessive phone use.

Rajesh & Santhi, (2020), Examined smartphone usage and academic achievement among medical students. Found that excessive usage led to poor academic performance.

- **International Studies**

Nowreen & Ahed (2018), Investigated smartphone usage and its impact on sleep quality among medical students. Found a positive relationship between smartphone use and poor sleep quality.

Ergun *et al.* (2022), Studied smartphone addiction among health science students, finding that female students had higher addiction scores than male students.

Huckins F.J., Campbell T.A, (2020) Studied how mental health got affected at the onset of COVID 19 pandemic. The research was carried out by combining mobile phone sensing and self-reported mental health data among college students. Behaviours such as the number of locations visited, distance travelled, duration of phone usage, number of phones unlocks, sleep duration, and sedentary time were measured using the Student's Life Smartphone sensing app. During the first academic term impacted by COVID-19 (Winter 2020), individuals were more sedentary and reported increased anxiety and depression symptoms relative to previous academic terms and subsequent academic breaks.

Danilo *et al.* (2021), Studied personal profiles, family environments, and smartphone addiction in relation to academic performance. Found that smartphone addiction is associated with lower academic performance in Filipino high school students.

2.3. Critical Observation

The reviewed literature shows that mobile phone and smartphone usage among students affects communication, academic performance, mental health, and behaviour. Early studies focused mainly on usage patterns and affordability, which limits their relevance in the current smartphone-driven context. Findings related to academic achievement are inconsistent, with some studies reporting minimal impact and others highlighting negative effects due to excessive use, indicating a lack of uniform measurement and definition of problematic usage.

Research on mobile phone addiction and nomophobia reveals

growing psychological concerns, though most studies rely on self-reported data, reducing reliability and causal clarity. International studies broaden the perspective by linking smartphone use with poor sleep quality, gender differences, and pandemic-related mental health issues, but their context-specific nature limits generalization. Overall, the literature lacks longitudinal and integrated approaches, highlighting the need for more comprehensive and methodologically robust studies.

3. Methodology

Research methodology is the specific procedures or techniques used to identify select, process and analyze information about a topic. In a research paper, the methodology section allows the reader to critically evaluate a study's overall validity and reliability.

In this chapter, an attempt has been made to present the technique that will be used for the selection of the sample for the study, the variables and the procedures that will be followed for collecting pertinent data for the study.

i). **Research Design:** Each and every works has needed a specific methodology for structure formulation and done the work in a well manner. In this study researcher used Quantitative research technique and descriptive survey method as per the nature of this study.

ii). **Population:** The present study was related to smartphone addiction of secondary school students. For this reason, the population was selected from the Secondary School students of West Bengal under academic control of West Bengal Board of Secondary Education (W.B.B.S.E.).

iii). **Sample and Sampling Procedure:** In the present study, the sample represents a small proportion of the target population. 200 secondary school students were taken as samples from the population through random sampling technique. At first ten schools were randomly selected from the district of North 24 Parganas in the state of West Bengal. Out of the selected schools, five schools were from urban areas and five schools were from rural areas.

iv). **Variables:** In this present study one major variable was taken which is smart phone addiction. In the comparison study the major variable was treated as dependent variables and categorical variables (Gender and locality) were treated as independent variables.

Table 1: Major and Categorical Variables

Major Variables	Categorical Variables
Smartphone addiction	Gender (Male/female)
	Locality (Rural/Urban)

v). **Tools:** As per nature of the study, the researcher will use A standardized tool Smart Phone addiction scale constructed by Dr. Vijayshri and Dr. Masud Ansari will be utilized to measure the addiction related to smart phone. It consists of 23 statements rated on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5), systematically assessing daily-life disturbance, withdrawal symptoms, tolerance, and overuse related to smartphone use. Higher scores on the scale indicate higher levels of smartphone addiction. In the present study, the SAS-V was utilized to assess smartphone addiction among senior secondary students to explore the influence of gender and institutional type on addiction levels.

vi). **Procedure of Data Collection:** The researcher obtained a list of secondary schools in North 24 Parganas district from SAMS west Bengal. After selecting the sample schools, the researcher approached the Principals with an official letter to seek permission for data collection. Upon approval, the researcher visited the selected classes, explained the study's purpose, provided instructions for completing the questionnaire, and assured students of confidentiality. The test was then administered with the assistance of teaching staff, and all responses were collected upon completion.

4. Presentation, Analysis of Data and Interpretation of the Results

- **Objective-I:** To assess the level of smartphone addiction among high school students.

Table 2

Sl. No.	Range	Number of students	Mean	SD	Level of smart phone addiction
1.	88 and above	17	95.41	6.78	Very High
2.	81 to 87	10	82.2	1.57	High
3.	66 to 80	45	72.24	3.41	Above Average
4.	51 to 65	56	57.52	4.93	Average
5.	40 to 50	39	45.93	2.99	Below Average
6.	29 to 39	27	34.93	3.36	Low
7.	28 and below	6	26.58	1.50	Very Low
Total		200	58.64	19.05	-

Interpretation: The mean score of total smart phone addiction of secondary students came out to be 58.64 along with standard deviation 18.41 from the total number of students 200. Where six (6) students come under in the very low level of smart phone addiction and their mean is 26.58 with the standard deviation of 1.50. Twenty seven (27) students come under in the low level of smart phone addiction and their mean is 34.93 with the standard deviation of 3.36. Thirty nine (39) students come under in the below average level of smart phone addiction and their mean is 45.93 with the standard deviation of 2.99. Fifty six (56) students come under in the average level of smart phone addiction and their mean is 57.52 with the standard deviation of 4.93. Forty five (45) students come under in the above average level of smart phone addiction and their mean is 72.24 with the standard deviation of 3.41. Ten (10) students come under in the high level of smart phone addiction and their mean is 82.2 with the standard deviation of 1.57. Seventeen (17) students come under in the very high level of smart phone addiction and their mean is 95.41 with the standard deviation of 6.78.

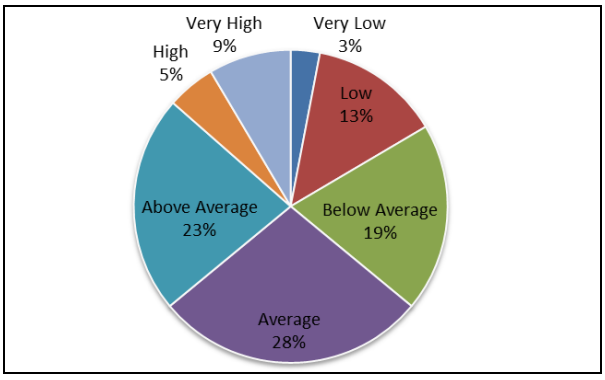

Fig 1: Graphical representation of smart phone addiction of secondary school students

Objective-II

- To find the significant difference in smartphone addiction of high school students gender-wise (i.e. boys and girls).

Table 3:

Sl. No.	Range	Number of students		Mean		SD		Level of smart phone addiction
		Male	Female	Male	Female	Male	Female	
1.	88 and above	8	9	91.94	98.15	4.42	07.15	Very High
2.	81 to 87	6	4	81.75	82.87	0.96	2.10	High
3.	66 to 80	23	22	72.11	72.38	3.86	2.90	Above Average
4.	51 to 65	24	32	57.27	57.71	5.22	4.74	Average
5.	40 to 50	21	18	45.64	46.27	3.26	2.65	Below Average
6.	29 to 39	16	11	34.65	35.33	3.80	2.55	Low
7.	28 and below	2	4	26.25	26.75	2.36	1.03	Very Low
Total		100	100	58.42	59.01	18.03	17.66	-

Interpretation: The total mean score of secondary school's male students of addiction of smart phone is 58.42 with the standard deviation of 18.03 from the total no of male students is 100 where, the total mean score of secondary school's female students of addiction of smart phone is 59.01 with the standard deviation of 17.66 from the total no of female students is 100. Two (02) male students come under very low level of smart phone addiction and their mean is 26.25 with the standard deviation of 2.36. Four (04) female students come under very low level of smart phone addiction and their mean is 26.75 with the standard deviation of 1.03. Sixteen (16) male students come under low level of smart phone addiction and their mean is 34.65 with the standard deviation of 3.80. Eleven (11) female students come under low level of smart phone addiction and their mean is 35.33 with the standard deviation of 2.55. Twenty one (21) male students come under below average level of smart phone addiction and their mean is 45.64 with the standard deviation of 3.26. Eighteen (18) female students come under below average level of smart phone addiction and their mean is 46.27 with the standard deviation of 2.65. Twenty four (24) male students come under average level of smart phone addiction and their mean is 57.27 with the standard deviation of 5.22. Thirty two (32) female students come under average level of smart phone addiction and their mean is 57.71 with the standard deviation of 4.74. Twenty three (23) male students come under above average level of smart phone addiction and their mean is 72.11 with the standard deviation of 3.86. Twenty two (22) female students come under above average level of smart phone addiction and their mean is 72.38 with the standard deviation of 2.90. Six (6) male students come under high level of smart phone addiction and their mean is 81.75 with the standard deviation of 0.96. Four (04) female students come under high level of smart phone addiction and their mean is 82.87 with the standard deviation of 2.10. Eight (8) male students come under high level of smart phone addiction and their mean is 91.94 with the standard deviation of 4.42. Nine (9) female students come under high level of smart phone addiction and their mean is 98.15 with the standard deviation of 07.15.

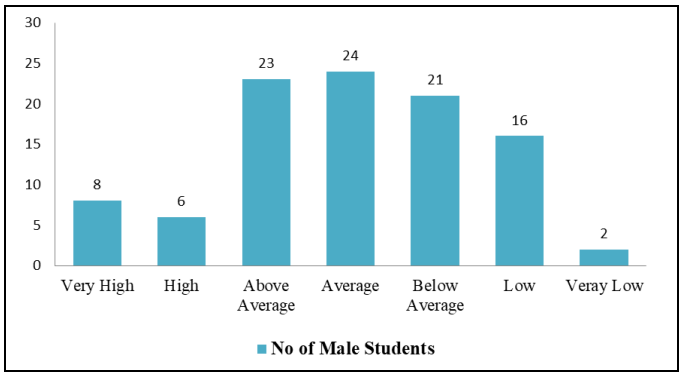

Fig 2: Graphical representation of smart phone addiction of secondary school male students

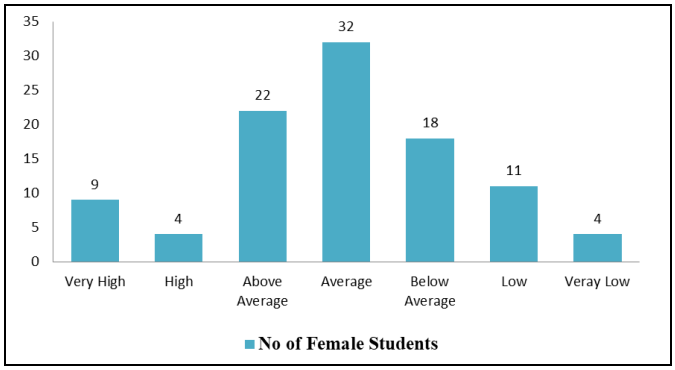

Fig 3: Graphical representation of smart phone addiction of secondary school female students

Hypotheses-I

- There is no significant difference in smartphone addiction levels of high school students.

Table 4:

Sl. No	Sub Variables	N	Mean	SD
1.	Entire Sample	200	58.64	19.05

Interpretation: The computed mean score of the smartphone addiction among the secondary school students for the total sample is found to be 58.64 and the SD is 19.05 respectively. From the table the mean value laid between 26.58 to 95.41. Hence the respective null hypotheses is rejected and concluded that the smartphone addition of secondary school students is average.

Hypotheses-II

- There is no significant difference in smartphone addiction of high school students gender-wise (i.e. boys and girls).

Table 5:

Sl. No	Category	N	Mean	SD	df	't' value	Level of Significance
1.	Male	100	58.42	18.3	198	-0.23	0.05
2.	Female	100	59.01	17.66			Not Significant

Interpretation: From the above table no.5 it was observed that the mean value obtained by the group of male students is 58.42 and corresponding SD is 18.3 and the mean of female students is 59.01 and correspondence SD is 17.66 It is found

that the calculated t-value is -0.23 which is Smaller than the critical value ± 1.97 at 0.05 level of significance for the degree of freedom 198. So, this is taken as statistically significance at the level of 0.05 and therefore our null hypothesis is rejected.

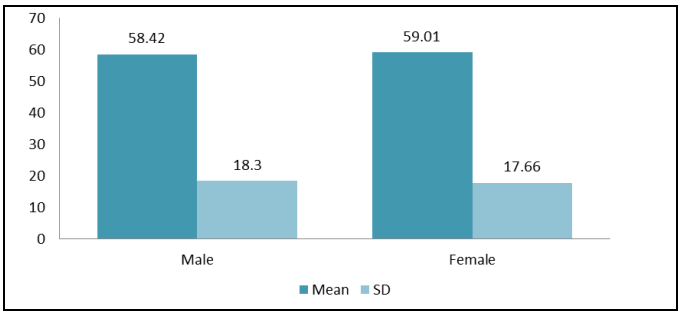

Fig 4: Graphical representation of smart phone addiction of secondary school male and female students.

Hypotheses-III

- There is no significant difference in the smartphone addiction of high school students locality-wise (i.e. rural and urban).

Table 6:

Sl. No	Category	N	Mean	SD	df	't' value	Level of Significance
1.	Rural	100	56.91	17.70	198	-1.29	0.05
2.	Urban	100	60.19	18.23			Not Significant

Interpretation: From the above table no.6 it was observed that the mean value obtained by the group of rural area students is 56.91 and corresponding SD is 17.70 and the mean of urban area students is 60.19 and correspondence SD is 18.23 It is found that the calculated t-value is -1.29 which is Smaller than the critical value ± 1.97 at 0.05 level of significance for the degree of freedom 198. So, this is taken as statistically significance at the level of 0.05 and therefore our null hypothesis is rejected.

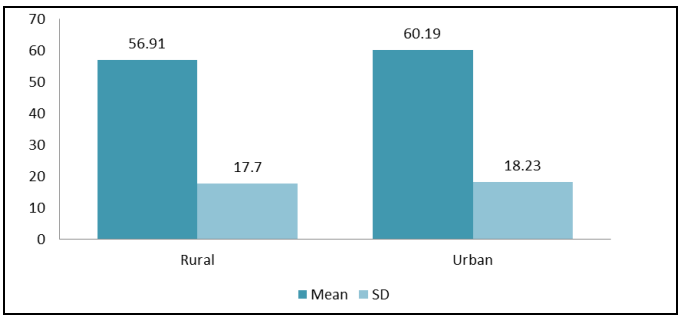

Fig 5: Graphical representation of smart phone addiction of secondary school students in rural and urban area.

5. Findings

The most important contribution of the present study is that it brings into focus the impact of smart phone addiction of secondary school students. The outcomes of this study have been found beneficial to school system. The present study tried to measure smart phone addiction of secondary school students with respect to certain categorical variables and the effect of smart phone addiction of secondary school students. The overall findings of the study generate clean idea about smart phone addiction of secondary school students to researchers and stakeholders of educational field. This finding will have some contribution in education by means of searching whether students should be kept away from using smartphones. Findings show that smart phone addiction negatively impacts study habits. Therefore, awareness should be spread among the students regarding its' harmful consequences.

6. Conclusion

Today, a small glowing device rests in the hands of young people, offering instant connection, knowledge, and opportunity. It has become a symbol of independence and communication, reshaping daily life as conversations pause for notifications and the boundary between the digital and real world grows increasingly blurred. Psychologists note that constant connectivity can sometimes hide quiet loneliness. While smartphones support learning and creativity, they can also distract students and strain relationships when attention shifts away from real-life interactions.

Ultimately, the mobile phone is neither good nor bad. Its impact depends on how it is used. With awareness and balance, it becomes a powerful tool for growth; without them, it can quietly take time, focus, and meaningful connection.

References

1. Aggarwal JC. *Essentials of educational psychology*. New Delhi: Vikas Publishing House Pvt.Ltd; 1994.
2. Ansaria MS, Chamarb ZA, Syed A. Mobile phone adoption and appropriation among the young generation. *Procedia-Social and Behavioral Science*. 2012;2(41):265-27.
3. Appiah MK. Influence of WhatsApp on study habit of university students in Ghana. *International Journal of Research in Economics and Social Sciences*. 2016;6(3):280-292.
4. Bhardwaj M, Ashok SJ. Mobile phone addiction and loneliness among teenagers. *The International Journal of Indian Psychology*. 2015;2(3):27-34.
5. Bianchi A, Phillips JG. Psychological predictors of problem mobile phone use. *CyberPsychology & Behavior*. 2005;8(1):39-51. doi: 10.1089/cpb.2005.8.39.
6. Dasgupta P, Bhattacherjee S, Dasgupta S, Roy JK, Mukherjee A, Biswas R. Nomophobic behaviours among smartphone using medical and engineering students in two colleges of West Bengal. *Indian Journal of Public Health*. 2017;61(3):199.
7. Kapoor H, Kaur P. Smartphone use and sleep disturbances among school children. *Indian Journal of Behavioral Sciences*. 2022;10(1):11-19.
8. Koul L. *Methodology of educational research*. New Delhi: Vikas Publishing House Pvt. Ltd; 1999.
9. Nayak JK. Relationship among smartphone usage, addiction, academic performance and the moderating role of gender: A study of higher education students in India. *Computers & Education*. 2018;123:164-173.
10. Raza SA, Yousu SQ, Ra SMT, Javaid ST. Impact of Smart-phone Addiction on Students' Academic Achievement in 81 Higher Education Institute of Pakistan. *Journal of Education & Social Sciences*. 2020;8(1):1-14.
11. Vijayshri, Ansari M. *Manual of Smartphone Addiction Scale – SAS-V*; 2020.
12. Kulachai W, *et al*. A study on the impact of smart phone addiction. *Advances in social science; Education and Humanities Research*. 2018;186.