

# Evaluate Mobile Phone Usage and its Impact on Student Health at Murarji Desai College of Residential Sciences, Bagalkot

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## ABSTRACT

**Background:** Mobile phone addiction is very harmful to all populations, especially children and students. They had symptoms like headaches, eye irritation, restlessness, and stress. This study aimed to assess the addiction to smartphone and their health impacts among students.

**Methods:** A school-based cross-sectional study was conducted from March 13 to April 8, 2023. A total of 80 students were selected using the stratified random sampling technique. The study was conducted at Murarji Desai Residential Science College, Bagalkot. A structured and prepared questionnaire was used to collect baseline data. Addiction to mobile phones was assessed using a questionnaire and their health impacts.

**Result:** Assessment of Smartphone Addiction and its Health Impacts on Students. The range value is 0–15, the mean value is 9.46, the minimum value is 0, the maximum value is 15, the standard deviation is 0.48, and the mean percentage is 31.95%. The calculated chi-square value of 4.14 ( $p=0.04$ ) suggests there is a significant association between Smartphone addiction and education among students. The calculated chi-square value of 4.13 ( $p=0.04$ ) suggests there is a significant association between addiction to smartphone and their health impacts (burning sensation of the eyes) among students.

**Conclusion:** The findings of this study showed that there is an association between Smartphone addiction and their health impacts and the need to improve their health among students.

**Key-words:** Health impacts, High school, PU students, Smartphone addiction

## INTRODUCTION

Mobile phones, often known as handphones, are potent communication tools that were originally shown off by Motorola in 1973 and were on sale in 1984.<sup>[1]</sup> Handphones have become an essential part of our lives in the past several years. Every year, the number of mobile phone subscriptions rises steadily. Globally, there were about seven billion users as of 2016.

Between 2000 and 2015, the percentage of people using the internet climbed seven times, from 6.5% to 43% worldwide. Additionally, the proportion of homes having internet connection grew from 18% in 2005 to 46% in 2015.<sup>[2]</sup> Parlay, there is a growing trend of smartphone addiction. 84% of respondents to a 2012 Time Mobility Poll said they could not go a single day without their mobile devices.<sup>[3]</sup> It has been reported in over 206 published survey findings that 27% of parents and 50% of teenagers believe they are addicted to their phones.<sup>[4]</sup> According to recent studies, there is a rise in dependence on mobile phones, which may lead to an increase in internet addiction.<sup>[5]</sup>

Targeting the lack of growth and unfair life period in youth, Aftensh Adolematuity uses his films for many purposes

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es. They will experience everything, from the latest developments in mobile health to the use of mobile in advertising, directly on mobile. Nowadays, children under the age of 10 are attracted to mobile games, entertainment, cinema, etc. is interested. However, this may negatively affect both the youth and the child's physical and mental health.<sup>[6]</sup>

Connectivity has become more important than smartphones, with 53% of Americans using smartphones during an unprecedented time in public health history, according to information from the Pew Research Center. The use of mobile devices also enables children to participate in distance learning; nearly 29% of parents said their children should use a smartphone to complete their education. These include anxiety, depression, behavioural problems, and social problems. For example, a drug addict can easily become angry when he cannot place a bet. Smartphone addicts may feel anxious or irritable when they are away from their phones.<sup>[7]</sup>

Smartphone, although a computer, tablet, or smartphone can be an incredibly useful tool, excessive usage of these gadgets can negatively impact relationships, employment, and education. It might be time to reevaluate your use of technology if you find yourself spending more time on social media or playing games than you do interact with actual people or if you find yourself constantly checking your emails, texts, or apps—even when doing so has detrimental effects on your life.<sup>[8]</sup>

Smartphones for Seniors Electronic devices have become popular, and smartphones are considered the most used electronic devices among young people, especially teenagers. Smartphone use is a major problem among young people. Phone addiction is a type of technology addiction. It is defined as a control disorder in which a person is under the influence of technology through excessive use of the internet, video games and mobile devices.<sup>[9]</sup>

Smartphones, particularly, aim Using a smartphone has become a necessity for daily living. Widespread smartphone use is linked to several conveniences, but for the past ten years, there have also been growing public health concerns about problematic smartphone use, or PSU. In particular, investigations on the developmental outcomes of children and adolescents have highlighted additional concerns because of the lack of evidence regarding the long-term effects of PSU.<sup>[10]</sup>

## MATERIALS AND METHODS

**Research design-** A descriptive research design was used in the study. A simple random technique was used to obtain 80 samples from the high school urban area of Bagalkot, India. Data were collected using a structured questionnaire to assess the addiction to smartphone and their health impacts among students. The collected data were analyzed using descriptive and inferential statistics.

**Sources of Data-** The present study data were collected from adolescents.

**Descriptive survey approach-** A descriptive survey approach is designed when the purpose of the study is to describe the prevalence or incidence of phenomena or to estimate the value of phenomena for a population. In the present study, the main aim is to assess the addiction to smartphone and their health impacts on students.

**Research design-** A descriptive study is research in which a one-time evaluation of students' knowledge regarding smartphone addiction is made. The research design defines the population, sample, size, variables, data collection tools and methods, and data analysis plan.

### Variables

**Dependent variable-** In this study, the Smartphone addiction of students is the dependent variable.

**Independent variable-** In this study, independent variables are the health impacts of students.

**Socio-variables-** It consists of 11 items: age, gender, education status, education status of mother, education status of father, monthly income, religion, occupation of father, do you have a Smartphone, and how many hours per day you use a Smartphone?.

**Population-** PUC 1<sup>st</sup> and 2<sup>nd</sup> students at Murarji Desai Residential Science PU College, Bagalkot, India.

**Sample and sample technique-** We chose 80 students and used stratified random sampling techniques conducted at Murarji Desai Residential Science PU College Bagalkot, India.

**Data Collection Tool-** Data collection tools are the procedures or instruments used by the researcher to observe or measure the key variable in the research

problem. A semi-structured questionnaire was used to collect the data in the present study.

**Procedure for data collection-** Data collected from 13/03/2023 to 08/04/2023. Data collection was carried out in 3 phases: the first phase was data collection regarding socio-demographic factors and the Smartphone addiction of students. Second phase: data collection regarding Smartphone addiction according to the severity of the students. Third phase: data collection regarding the health impacts of students.

Data collected from all students based on their socio-demographic factors and measurements of height and weight by using instruments like a measuring scale for height and a weighing machine for weight determines the health impact of students.

**Statistical Analysis-** Data analysis is the systematic organization and synthesis of research data and the testing of research hypotheses by using the collected data. The data was analyzed using both descriptive and inferential statistics. A chi-square test was used to find an association between the physical activity level and its relationship with body image among students.

**Ethical Approval-** Ethical approval was obtained from B.V.V.S. Institute of Nursing Sciences and Institutional Ethics Committee, Bagalkot. Written informed consent was obtained from all participants.

## RESULTS

**Assessment of smartphone addiction and its health impacts on students-** The range value is 0–15, the mean value is 9.46, the minimum value is 0, the maximum value is 15, the standard deviation is 0.48, and the mean percentage is 31.95%. The calculated chi-square value of 4.14 (p-value 0.04) suggests there is a significant association between Smartphone addiction and education among students. The calculated chi-square value of 4.13 (p-value 0.04) suggests there is a significant association between addiction to smartphones and their health impacts (burning sensation of the eyes) among students.

Among all samples, 11 (13.75%) students have mild addiction, 35 (43.75%) students have moderate addiction, and 34 (42.5%) students have severe addiction. So many students have had health impacts

and need to avoid using smartphones for a long time, which helps improve their health (Table 1).

**Table 1:** Distribution and descriptions of socio-demographic variables

Variables	Categories	Frequency	Percentage (%)
Age	15-16 years	20	25
	16–17 years	21	26.25
	18 and above	39	48.75
Sex	Male	39	48
	Female	41	51.25
Education status	1 <sup>st</sup> year	37	46.25
	2 <sup>nd</sup> year	43	53.75
Education of the father	Primary	38	47.5
	High school	24	30
	PUC	04	05
Education of the mother	Degree	14	17.5
	Primary	50	62.5
	High school	22	27.5
Monthly Income	PUC	05	06.25
	Degree	03	3.75
	<10,000	42	51.21
Religion	10,000 to 20,000	15	18.75
	>20,000	23	28.75
	Hindu	65	81.25
Occupation of the father	Muslim	12	15
	Christian	03	03.75
	Government employee	12	15
Occupation of the mother	Private employee	29	36.25
	Business	25	31.25
	Farmer	14	17.5
Occupation of the mother	Government employee	17	21.25
	Private	11	13.75

	employee		
	Business	04	05
	Housewife	48	60
Do you have smartphone ?	Yes	75	93.75
	No	05	06.25
Do you use your smartphone for how many hours per day?	1 to 2 hours	14	17.5
	3 to 4 hours	22	27.5
	5 to 6 hours	44	55

**Description of students based on their categories-**

Distribution of the sample according to age total of 80 students 20 (25%) were 15–16 years old, 21 (26.25%) were 16–17 years old, and 39 (48.75%) were 18 and above students. 39 (48%) were male, and 41 (51.25%) were female students. 37 (46.25%) were studying in the 1<sup>st</sup> year of PUC, and 43 (53.75%) were studying in the 2<sup>nd</sup> year of PUC. 38 (47.5%) were primary, 24 (30%) studied up to high school, 4 (05%) studied PUC, and 14 (17.5%) had education status up to a degree. Distribution of subjects according to the mother’s education status 50 (62.5%) mothers had received only primary education, 22 (27.5%) mothers studied up to high school, 05 (06.25%) studied PUC, and 03 (03.75%) had education status up to degree.

Distribution of subjects according to their family's monthly income 42 (51.21%) had a family monthly income below Rs 10,000, 15 (18.75%) between Rs 10,000 and 20,000, and 23 (28.75%) had more than Rs 20,000 family monthly income. 65 (81.25%) students were from the Hindu population, 12 (15%) were from Muslim families, and 3 (03.75%) were from Christian families. 12 (15%) were government-employed, 29 (36.25%) were privately employed, 25 (31.25%) were doing business, and 14 (17.5%) were doing farming. Distribution of subjects according to the mother occupation: 17 (21.25%) were government-employed, 11 (13.75%) were privately employed, 04 (05%) were doing business, and 48 (60%) were staying at home as housewives.

Distribution of students according to who has a smartphone 75 (93.75%) had a Smartphone, while the remaining 05 (6.25%) did not. Distribution of the sample according to their time, hours, and days of Smartphone

use 14 (17.5%) students used for 1 to 2 hours, 22 (27.5%) used for 3 to 4 hours, and 44 (55%) students were used for 5 to 6 hours (Table 2).

**Table 2:** Students according to mobile addiction and its severity

Level of mobile addiction	Frequency	Percentage (%)
Mild addiction	11	13.75
Moderate addiction	35	43.75
Severe addiction	34	42.5

According to the above table, out of 80 students, 13.75% have mild addiction, 43.75% have moderate addiction, and 42.5% have severe addiction (Table 3).

**Table 3:** Student's Mean, range, and standard deviation of smartphone addiction among students

Range	Mean	Min	Max	SD	Mean (%)
0-15	9.46	0	15	0.48	31.95

SD=Standard deviation

The above table assess smartphone addiction and its health impacts on students. The range value is 20, the mean value is 9.46, the minimum value is 15, the maximum value is 30, the standard deviation is 0.48, and the mean percentage is 31.95% (Table 4).

**Table 4:** Chi-square test shows an association between smartphone addictions and socio-demographic variables

Socio-demographic variables	Chi-square value	p-value
Age	0.3	0.86*
Sex	0.45	0.50*
Education status	0.18	0.67*
Education of the father	3.86	0.04**
Education of the mother	4.14	0.04**
Monthly income	0.4	0.52*
Religion	0.24	0.63*

Occupation of the father	0.02	0.88*
Occupation of the mother	0.91	0.34*
Do you have a Smartphone?	0.9	0.76*
Do you use a Smartphone for how many hours per day?	0.02	0.88*

p<0.05;  $\alpha$  =0.05; \*All the values are statistically non-significant; \*\*All the values are statistically significant

**Assessing the addiction to smartphone and their health impacts among students-** The calculated chi-square value is 3.86 (p-value 0.04), indicating that there is a significant relationship between mobile phone use and the education level of the student's father. The calculated chi-square value is 4.14 (p-value 0.04), which shows that there is a significant relationship between students' mobile phone use and parents' education (Table 5).

**Table 5:** Distribution of students according to their health impact

Items	Frequency	Percentage (%)
Blurred vision	49	61.25
Water eyes	30	37.5
Dryness in the eyes	45	56.25
Burning sensation in the eyes	40	50
Eye pain	45	56.25
Neck pain	43	53.75
Irritation	55	68.75
Restlessness	45	56.25
Stress	30	37.5
Aggressiveness	45	56.25

**Assessing the addiction to smartphone and their health impacts among students-** The calculated chi-square value of 4.13 (p-value 0.04) suggests there is a significant association between the addiction to smartphone and their health impacts (burning sensation of the eyes) among students (Table 6).

**Table 6:** Chi-Square test showing assessment of smartphone addiction and its health impacts

Items	Chi-square Value	p<0.05
Blurred vision	1.55	0.21
Water eyes	0.12	0.72
Dryness in the eyes	0.22	0.63
Burning sensation in the eyes	4.13	0.04
Eye pain	1.88	0.17
Neck pain	0.68	0.40
Irritation	0.02	0.88
Restlessness	0.03	0.86
Stress	0.06	0.80
Aggressiveness	0.04	0.84

DF= 1;  $\alpha$ =0.05; \*All the values are statistically non-significant

\*\*All the values are statistically significant

## DISCUSSION

To assess the addiction to smartphones and their health impacts among students, a cross-sectional descriptive design was used. The study was conducted at Murarji Desai Residential Science PU College, Bagalkote Sector (44 Opposite). The study found a positive difference between misbehaviour and poor academic performance based on the total PUMP score, which could be attributed to smartphone use. Due to smartphone use, at least 43% of respondents felt they slept less and had less energy since they started using smartphones.<sup>[11]</sup>

The current study shows that only 16% of the participants are not addicted to their mobile phones, 28% are minor, 35% are moderate, and 21% are heavily addicted. Of the participants. Similar results were obtained in a study where researchers examined cell phone usage patterns; 58% of the sample reported not going a day without their phone.<sup>[12]</sup>

This study examined smartphone use among young adults and found four key findings. First of all, the German version of SASSV may be a suitable mechanism to measure smartphone protection. Second, long-term smartphone use is associated with addiction. Third, users who pick up their smartphones early in the morning are more likely to become addicted. Finally, users' social media addiction is the strongest indicator of smartphone use.<sup>[13]</sup>

The research found that smartphone protection is more common among young adults and parents born outside Switzerland; this suggests that prevention plans should be considered, especially for this group of young people.

<sup>[14]</sup> A total of 540 participants were included in this study for analysis, and the last ten questions were selected based on their validity as determined by experts. The validity and effectiveness of these 10 questions were evaluated with internal reliability, concurrent validity, and ROC analysis. <sup>[15]</sup>

Research shows that young people who experience parental neglect have problems controlling their smartphone use. According to stress theory, our findings are consistent with previous research suggesting that adolescents engage in antisocial behaviour to avoid or reduce stress or stress resulting from parental neglect. Smartphone addiction can be considered a crime. <sup>[16]</sup>

This study concluded that mobile phone use is associated with young age and poor development and that recommending good internet use may be a protective factor. Early intervention through early detection can prevent problems related to smartphone use among children and adolescents. We hope that future research will focus on increasing the number of observers and validating the results with findings and conclusions. <sup>[17]</sup>

## CONCLUSIONS

In this longitudinal study, overuse of Smartphones was observed for health impact. The results showed that most of the students had eye health impacts, and many students were at risk of health impacts from overuse of Smartphones. They need to improve their health, provide awareness, and avoid excessive use of Smartphones. Students had the same health impacts, like blurred vision, watery eyes, and eye pain. The study shows most students overuse Smartphones by giving health education, providing health tips on how to maintain good health, raising awareness regarding health impacts, explaining the importance and limited use of Smartphones, and explaining healthy lifestyles.

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## CONTRIBUTION OF AUTHORS

**Research concept:** Jayashree Itti

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