

**ORIGINAL ARTICLE**DOI: <https://doi.org/10.3329/mediscope.v11i2.76388>**Assessment of Screen Time with its Effect on Health among Secondary School Students*****MS Rahman¹, BK Roy², N Nazneen³, MS Molla⁴, SR Suvo⁵****Abstract**

Background: Secondary school students are more and more immersed in a world dominated by screens in the modern digital era. Screens, ranging from laptops to tablets, televisions to smartphones, have embedded themselves into daily life and significantly impact how youngsters communicate, learn, and pass the time. **Objective:** The study's objective was to find out the assessment of screen time and its effect on health among rural secondary school students in Bangladesh. **Methods:** This cross-sectional descriptive type of study was carried out in Govt. Jalma Chakrakhali Secondary School in Batiaghata Upazilla under Khulna district. A total of 460 students were selected using a convenient sampling technique from a selected school in Khulna district. Face-to-face interviews with a semi-structured questionnaire were used to collect data. Data were analyzed following the study's objectives. Before data collection, informed consent was taken, and ethical concerns were addressed at different stages of the study. **Results:** Among 460 respondents, a large number 52% (241) were between 14-16 years of age group. Only 38% had a personal mobile phone, while where a maximum (72%) used their parents' phones. Male students (76%) had a greater tendency to operate mobile phones in comparison to females (64%). Among the parents, most of them (82%) had a smartphone. Most of the respondents [395 (86%)] had a TV at their house and 304 (66%) watched TV regularly. Almost half of the respondents [223(48%)] suffered from various health issues, where headaches and blurring of vision were the main features. **Conclusion:** This study painted a clear picture of the effect of screen time on Bangladeshi rural school-going youngsters, and it may be able to assist the relevant authorities in developing policies and formulating plans to address the issue.

Keywords: Screen time, Health effect, Secondary school students.

Introduction

Secondary school students are at a crossroads of unparalleled screen exposure in the age of digital proliferation and technical advancement. Their daily lives now have a new dimension because of the pervasiveness of electronic devices like mobile phones and televisions. While this evolution offers many opportunities for education and delight, it additionally raises concern about the effects of excessive screen usage on teenagers' health. An increase in sedentary habits like watching television or other forms of media on the internet and a decrease in physical activity are associated with growing urbanization and rapid lifestyle changes.¹ Even though children and adolescents

regularly engage in screen-related leisure activities, one of the main strategic goals of the World Health Organization's Global Action Plan for Sustainable Development 2030 is to lessen the prevalence of these behaviors.²

The study aims to explore the complex connections between screen time and students' physical health in this area. The study area offers an intriguing setting for this research because of its distinctive blending of urban and rural lives, which offers a varied sample population for the study. Thus, the primary objective of the current study is to estimate the association between the use of different types of screen-based devices (TV, cell phone), and patterns of screen time use, and

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evaluate its effects on students' physical and mental health in a secondary school environment.³ The secondary objective is to determine whether daily screen time duration has a moderating effect on the association.⁴

The effects of prolonged screen time on physical health, and mental well-being continue to be crucial questions that demand thorough investigation in a world where students' access to information, communication, and engagement with educational content are constantly evolving.⁵ Students in secondary schools represent a unique group that is going through a period involving major challenges, limitations, and social developmental transitions. Previous research has indicated that schoolchildren all over the world experience high levels of mental stress generally manifested as depression and anxiety.⁶ Youth who experience anxiety and depression have a significantly increased risk of negative physical and psychosocial outcomes, such as academic difficulties, poor interpersonal relationships, low self-esteem and suicide.⁷

Furthermore, this population had a significant prevalence of insomnia. Living quality and psychological well-being are all negatively impacted by lack of sleep.⁸ So, in this demographic, improving sleep quality and reducing stress may have numerous advantages.

Materials and methods

Study design and study population

This descriptive type of cross-sectional study was conducted from 16 to 25 September 2023 in Govt. Jalma Chakrakhali Secondary School, Bathiaghata, Khulna. In this study, students of class six to class ten who were willing to participate in the study were selected as the study population. Students who were not interested in participation were excluded from the study.

Sample size and sampling

A total of 460 respondents from class six to class ten were included in the study. Participants were selected by convenient type of non-probability sampling.

Data collection

The data were collected through face-to-face interviews with the students. The interview was conducted in their school. Before proceeding with the data collection, the detail of the study was explained properly to each respondent and written consents were taken from them. Collected data was checked and verified at the end of each workday.

The questionnaire was developed by using the selected variables according to the specific objectives and was developed from a review of qualitative and quantitative literature for relevant items.

Data analysis

SPSS (version 21 for Microsoft Windows) was used as the tool for data analysis. Frequency tables and pie charts were employed for the descriptive statistics. For categorical variables, the proportion was shown in the tables, whereas for continuous variables, the mean \pm SD was presented.

Ethical considerations

For conducting the study, formal ethical approval was obtained from the Institutional Review Board (IRB) of Gazi Medical College, Khulna to review the scientific and ethical issues related to the research. Privacy and confidentiality were maintained strictly and study subjects were interviewed in a separate place with care. They were told once again that the information gathered during the study would not be shared with anyone other than the research team and would be used in such a way that the participant's name or identity would not be revealed.

Results

Age of the respondents

The age of the respondents ranged from 11 to 18 years. The mean age of the respondents was 14.1 ± 1.56 years. Among 460 respondents 52% (241) were between 14-16 years of age group [Table 01].

Table 01: Distribution of the respondents by their age

Age (years)	Frequency	Percentage
11- 13	188	41
14-16	241	52
>16	31	6.7
Total	460	100

Sex of the respondents

Among the 460 respondents, 242 were female and the rest 218 were male [Figure 01].

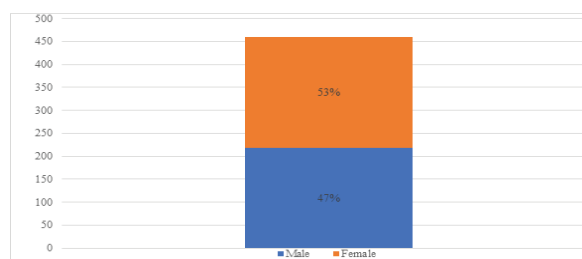


Figure 01: Distribution of the respondents by their sex

Educational qualification of the respondents

Among the respondents, 90 students were from class six, 105 from class seven, 105 from class eight, 95 from class nine, and 65 from class ten.

Occupation of the respondent’s parents

Distribution of the fathers by occupation, the main occupation of a large number of 172 (37%) of them was business. Among the respondents’ mothers, 384 (83%) were homemakers and only 4 (0.87%) of them were businesswomen [Table 02].

Table 02: Distribution of the respondents by their parents’ occupation

Traits		Frequency	Percentage
Fathers’ occupation	Service holder	73	16
	Business	172	37
	Farmer	89	19
	Others	126	27
	Total	460	100
Mothers’ occupation	Homemaker	384	83
	Service holder	72	16
	Business	4	0.87
	Total	460	100

The family type of the respondents

Most of the respondents 325 (71%) belonged to a nuclear family. Only 135 (29%) lived in a joint family [Figure 02].

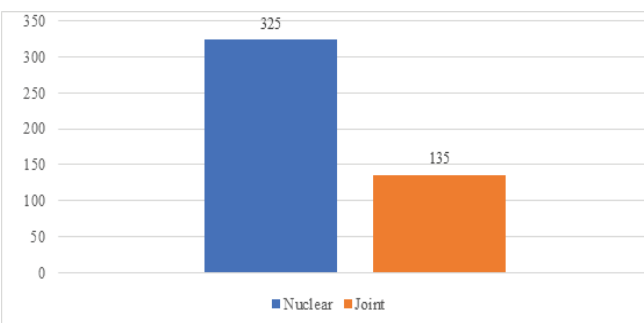


Figure 02: Distribution of the respondents by their family type

Owning & operating a mobile phone

Among the respondents, 38% had a mobile phone. In relation, 54% of boys had mobile phones whereas only 23% of girls did. Among the respondents, 321 operated mobile phones regularly. Male students (76%) had a greater tendency to operate mobile phones in comparison to females (64%) [Table 03].

Table 03: Distribution of the respondents by owning & operating a mobile phone

Traits		Yes	No
Having a mobile phone	Male (n = 218)	118 (54%)	100 (46%)
	Female (n = 242)	56 (23%)	186 (77%)
Operating mobile phone	Male (n = 218)	166 (76%)	52 (24%)
	Female (n = 242)	155 (64%)	87 (36%)

Parents having a smartphone

Among the parents, most of them (82%) had a smartphone. Among the users, a maximum (72%) used their parents' phones. As it was a rural area from where data were obtained, a small portion didn't have smartphones due to their low socio-economic condition.

Duration of phone use

Among the students, the majority 320 (70%) used phones for two or, fewer hours, and only 34 (7.4%) used phones for six or, more hours a day [Figure 03].

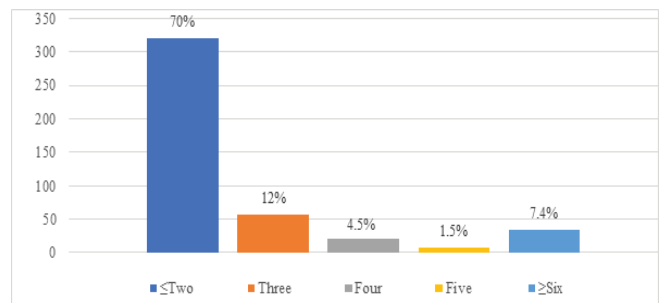


Figure 03: Distribution of the respondents by duration of phone use

Having TV set

Most of the respondents 395 (86%) had a TV at their house. Only 65 (14%) didn't have a TV [Figure 04].

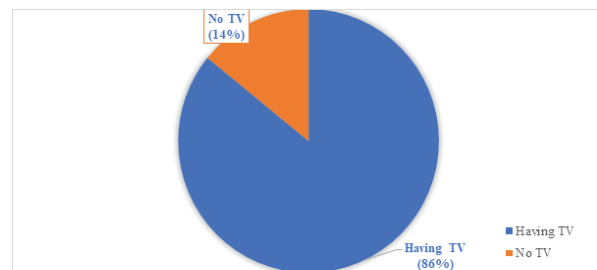


Figure 04: Distribution of the respondents by having a TV set

Duration of TV watching

Among the respondents, 304 (66%) watched TV regularly. Overall, 328 students watched for no more than two hours daily. A significant portion 57 (12%), watched no TV at all [Table 04].

Table 04: Distribution of the respondents by duration of TV watching

Duration of TV watching	Frequency	Percentage
≤ Two	328	71
Three	37	8
Four	14	3
Five	6	1.3
≥ Six	18	3.9
Don't watch	57	12
Total	460	100

Health problems due to screen time

Almost half of the 223(48%) respondents suffered from various health issues, while others did not. A variety of health issues were reported by the respondents, where 157 (34%) suffered from headaches, 125 (27%) from blurring of vision, 9 (2%) from insomnia and 14 (3%) from drowsiness [Table 05].

Table 05: Distribution of the respondents by types of health problems

Types of health problems	Frequency	Percentage
Headache	157	70.4
Blurring of vision	125	56
Insomnia	9	4
Drowsiness	14	6.3

Opinion to reduce screen time

According to the survey, 204 (44%) respondents believed that self-motivation and 172 (37%) respondents believed that parental involvement is essential for reducing screen time [Table 06].

Table 06: Distribution of the respondents by opinion to reduce screen time

Opinion to reduce screen time	Frequency	Percentage
Building awareness	67	15
Parental involvement	172	37
Increase teachers monitoring	17	3.7
Self-motivation	204	44
Total	460	100

Discussion

A descriptive type of cross-sectional study was conducted on the "Assessment of Screen Time with its Effect on Health and Study among the Secondary

School Students in Bathiaghata Upazilla, Khulna, Bangladesh" to know the screen time awareness and its effect on students.

Among the total 460 respondents, 242(53%) were female and the rest 218(47%) were male. There were 53% Muslims, 46% Hindus, and 1% Christians. The respondents' ages ranged from 11 to 18 years old. The mean age of the respondents was 14.1 ± 1.56 years. Another study reported that respondents were between 7 to 12 years old from a public school. Nuclear families made up the majority of the 325 respondents (71%) who took part.

Of those surveyed, 38% own a mobile phone. Comparatively, only 23% of girls and 54% of boys own mobile phones. Of the participants, 321 routinely use mobile phones. Comparatively speaking, male students (76%) are more likely than female students (64%), to use mobile phones. According to one study, over 30% of teenagers utilize their smartphones and other gadgets for social media.⁹ The majority of users (72%) use the phone of their parents. The results indicated that, in 2019, cell phones (98.6%) were the most often used screens for information and entertainment, followed by computers (46.2%), TV (31.9%), and tablets (10.9%).¹⁰

The majority of responders, 395 (86%) have a TV in their home. As per the National Household Sample Survey (PNAD) in the Northeast, 81.4% of homes own a television.¹⁰ The percentage of people without TV is just 14%, or 65. 304 respondents, or 66%, reported regularly watching TV. 328 students (71%) watch TV every day for no more than two hours. Of them, 57 (12%) watch no television at all.

Health problems due to screen time:

About half of the respondents (48%), have various health difficulties, whereas the remaining do not. The respondents reported a range of health problems, including headaches 157 (34%), blurred vision 125 (27%), insomnia 9 (2%), and drowsiness 14 (3%) among others. The results of the current and previous studies showing associations between using smartphones at night and depression and sleep disturbances indicate that excessive smartphone use may have negative effects on several indicators of mental and physical health, even though the mutual influences of excessive smartphone use, stress, and physical activity need further investigation.¹¹ High utilization of screens was linked to anxiety and symptoms of depression in a sample of Chinese high school students.¹² A higher prevalence of depression was linked to every extra hour spent watching television or using a screen each day in a population-based cohort study of Danish teenagers.¹³ Long-term TV

watching and total screen time during adolescence were linked to more depressive symptoms and increased chances of mild, moderate, or severe depression in early adulthood, according to a population-based, prospective study.¹³ Extensive research has been conducted on the correlation between unhealthy food intake and TV watching. This influence is frequently linked to the way that TV programming promotes the consumption of processed meals.¹⁴

Conclusion

This study reveals important insight into the significant issue of screen usage and its effects on secondary school students' health and academic performance in a particular area. The results of this study highlight the growing significance of tackling adolescent screen addiction and awareness of sensible screen time management in schools and at home. Policymakers, educators, and parents will find this study to be a priceless resource as it provides perspectives on the unique challenges faced by respondents about their socioeconomic origins and access to technology.

Recommendations

The current study, despite its smaller size, uncovered several significant facts about screen use and its impact on secondary school students' health and academic performance. The following suggestions can be made based on the research findings:

- 1) Develop and execute educational campaigns in communities and schools to increase knowledge of the adverse effects of excessive screen time.
- 2) Schools should consider adopting screen time policies and the use of mobile phones in schools should be restricted.
- 3) Parents should be informed of the study's results and advised to play a proactive role in controlling their children's screen time.
- 4) Together with national and local education authorities, promote rules and regulations that address the problems associated with screen usage and its effects.

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