

## PREVALENCE OF DIGITAL MEDIA EXPOSURE AND EXCESSIVE SCREEN TIME IN SCHOOL GOING CHILDREN: A CROSS-SECTIONAL STUDY

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### Abstract

**Background:** Over the past decade, the use of digital media has rapidly evolved among children, especially in the post-COVID-19 era. While television was the primary form of media exposure in earlier times, the proliferation of handheld devices, such as smartphones and tablets, has expanded the scope of digital media. Despite the beneficial role of digital media in education, early and excessive exposure to digital media can have deleterious effects. The aim of this study was to estimate the prevalence and impact of digital media exposure among school-going children. **Method:** This was a school-based cross-sectional study conducted in three different schools in the Shivpuri district of Madhya Pradesh. The participants' media exposure was thoroughly evaluated through the use of a pre- many hours of their free time do you usually spend in front of the TV? This question has been broken into separate categories for weekdays and weekends. Similarly, to assess smartphone usage, participants were asked the question. The available responses for each question included none, approximately 0.5 h, 1 h, 2 h, or 3 h or more. Total screen time was calculated by adding up the answers to all questions. **Results:** The study found that the average daily screen time was 3.52 hours, (3.52±1.43), 95% CI. In our study 482 children (76.5%) had co-viewing of media with their parents or primary caregiver either at all times or partly. Most of our children started viewing television and mobile phone within 1

year of their life, ie, 57% had started viewing television before first birthday and 55% of children had started viewing mobile phone before one year of age.

**Conclusion:** The prevalence of digital media exposure among school-going children is alarmingly high. Parents and guardians should regularly monitor their children's digital media exposure to avoid unhealthy digital practices and prevent negative consequences.

**Keyword:** Digital media exposure, school going children, screen time, media addiction

## Introduction

The impact of digital media on children and adolescents is an area of growing concern. In today's society, young people are exposed to various forms of media, including television, video games, and social media, at increasingly younger ages and for longer periods of time [1, 2]. This shift in media usage habits have led to significant changes in the way children and adolescents learn, interact-and behave. This paper aims to investigate the prevalence of digital media exposure and excessive screen time among schoolchildren through a cross-sectional study [3].

The World Health Organization (WHO) defines "screen time" as the amount of sedentary time spent passively on screen-based devices without active physical activity [4]. Excessive use of digital media can lead to addiction, which can negatively influence academic performance and mental health [5]. Children who spend too much time using digital media are more likely to reduced attention spans, poor academic achievement, and increased anxiety and depression [6]. Additionally, studies have shown that excessive screen time can lead to various emotional and behavioral problems, such as depression, anxiety, behavioral problems, social problems, thought problems, and hyperactivity problems [7]. These issues can have a significant impact on the overall well-being of the child and can even lead to long-term negative effects.

Moreover, children who spend too much time in front of screens tend to experience poor sleep quality and disrupted family time [8]. The lack of physical activity and outdoor games can also lead to health problems, such as obesity and other related diseases [8]. Therefore, it is essential for parents and caregivers to monitor and regulate their children's use of digital media to prevent the development of negative health consequences.

The American Academy of Pediatrics (AAP) recently published a report showing that children spend an average of 7 hours a day using digital media [9]. This is a significant increase from

previous years and has raised concerns about the impact of excessive screen time on children's health and development. The report also highlights the need for parents and caregivers to take an active role in monitoring their children's use of digital media [10].

Therefore, the aim of this cross-sectional study is to investigate the prevalence of digital media exposure and excessive screen time among school-going children. The study will examine the patterns of digital media use in children, including the types of media consumed and the duration of use. Additionally, the study will explore the relationship between excessive screen time and various health outcomes, such as emotional and behavioral problems, poor sleep quality, and disrupted family time.

## **MATERIALS AND METHODS:**

**Study design:** Cross sectional observational study

**Locus of the study:** Various school in the Shivpuri district in collaboration with department of Paediatrics.

**Study period:** The study was done in a span of 3 months form November 2022 to January 2023.

**Sampling Methods:** A convenient sampling method was used in the current study to carefully consider the implications of this sampling technique and take steps to address potential sources of bias in data collection and analysis.

**Sample size:** 630 school going children from 3<sup>rd</sup> grade to 8<sup>th</sup> grade from three different schools in Shivpuri.

**Ethical approval:** The research study was approved by the institution's review board. To gain access to participants for this study, the researchers obtained explicit permission from the parents of the children involved. The study details, outcomes, and potential benefits were explained to parents during parent-teacher meetings, and only those who expressed a willingness to participate and gave informed consent were included in the study.

**Inclusion criteria:** School-age children between the 3<sup>rd</sup> grade and the 8<sup>th</sup> grade at three different schools in Shivpuri, whose parents consented, were included in the study.

### **Study Population:**

School-going children between third standard and eighth standard in three different schools in Shivpuri district of Madhya Pradesh.

**Exclusion criteria:** Children whose parents were not willing to give consent were excluded from the study. Children with previously diagnosed Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorders and children living away from parents.

### **Methodology:**

The participants' media exposure was thoroughly evaluated through the use of a pre-designed and comprehensive questionnaire. To estimate TV time, participants were asked how many hours of their free time do you usually spend in front of the TV? This question has been broken into separate categories for weekdays and weekends. Similarly, to assess smartphone usage, participants were asked the question: how many hours of your free time do you typically spend using electronic devices such as tablets or smartphones to surf the internet or play games. This question was also divided into weekday and weekend categories. The available responses for each question included none, approximately 0.5 h, 1 h, 2 h, or 3 h or more. Total screen time was calculated by adding up the answers to all questions. According to the Canadian 24-hour motion guidelines, compliance with screen time requires a total daily screen time of less than 2 hours per day [11, 12].

## **RESULTS**

**Table 1: Socio-demographics of study population**

	Male	Female
Age wise distribution of gender (in years)		
8-10	130	96
11-13	206	198
Socioeconomic status		
Upper	22	18
Upper middle	45	46
Lower middle	125	118
Upper lower	94	88
Lower	30	24

In the present study, children between the 3rd grade and the 8th grade from 3 different schools at the study site were analyzed for the study. There were 226 children aged 8 to 10 years and 404

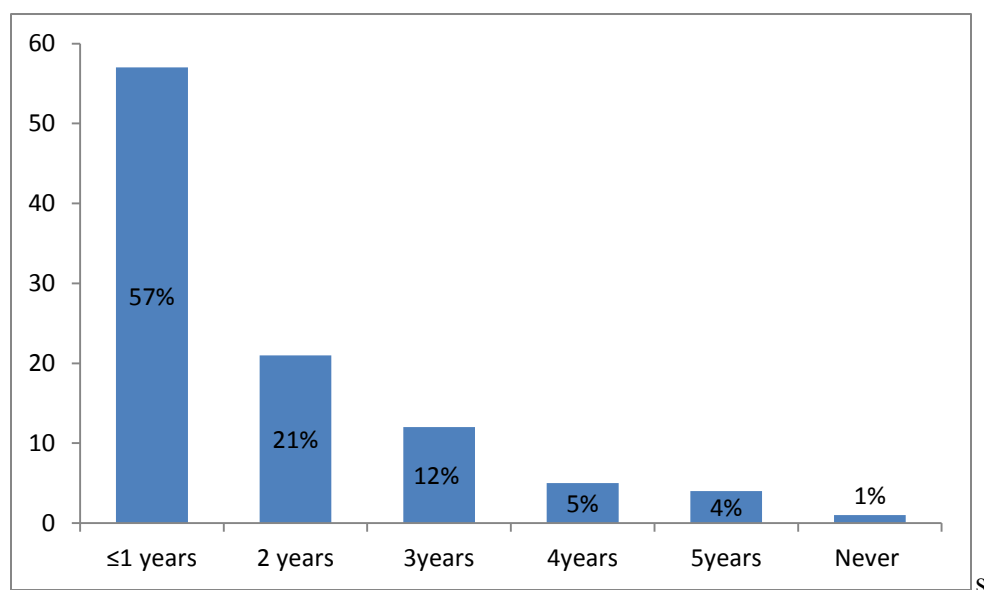
children aged 11 to 13 years. 336 children were male and 294 females. Most of the children belonged to the lower-middle class according to the modified Kuppuswami classification [13] (Table 1).

**Table 2: Screen time of study population and viewing pattern**

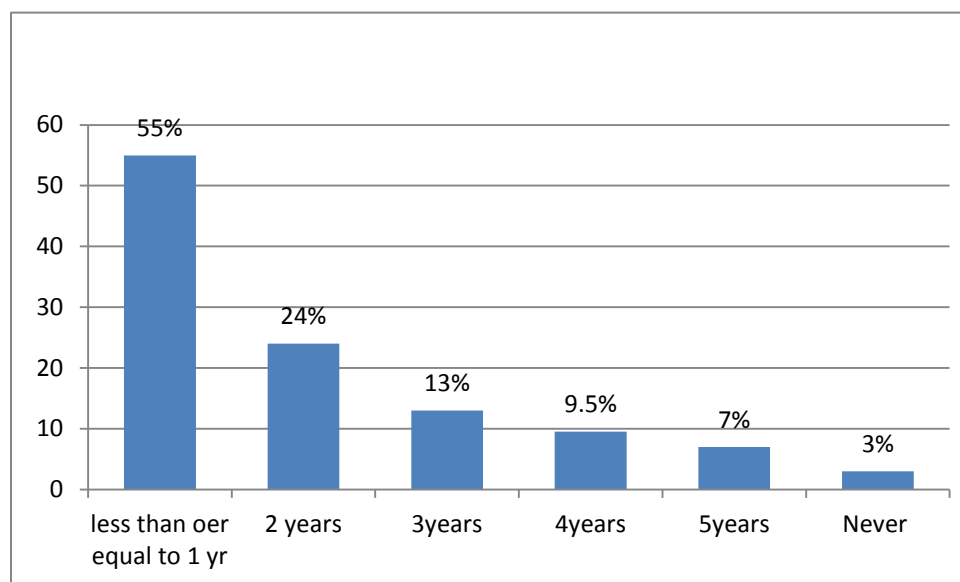
	Mean	95 % CI
<b>Screen time of study population</b>		
Week days	12.81±6.84	7.87-13.43
Weekend	10.05±4.75	6.45-9.85
Average	3.52±1.43	3.13-2.19
<b>Distribution of average screen time</b>	<2 hrs.	>2 hrs,
N[%]	278(44.12)	352(55.8)
<b>Other media variables</b>	Present	Absent
Co viewing	482 (76.5)	142 (22.23)
Television use in background	98 (15.55)	532 (84.44)
Media multitasking	128 (20.31)	502 (79.68)

Average daily screen time was 3.52 hours, (Mean+SD=3.52±1.43) 95% CI. The average screen time was more than 2 hours in 55.8% of the children which was much higher than expected.

In our study 482 children (76.5%) had co-viewing of media with their parents or primary caregiver. Background TV viewing and media multitasking were absent in the majority of our children at 84.4% and 79.68%, respectively (Table 2).



**Figure 1: Column chart showing age at the first use of television by children**



**Figure 2: Column chart showing age at the first use of smartphone by children**

Most of our children started watching TV and mobile phones within a year of life, ie 57% had started watching TV before the age of one and 55% of the children started watching TV before the age of one. 21% of children started watching TV between the ages of 2 and 1 year and 12% of children between 2 and 3 years. In this study, 24% of children between the ages of 1 and 2 started looking at cell phones (Fig 1&2)

## DISCUSSION

We have studied school going children from 3<sup>rd</sup> grade to 8<sup>th</sup> grade. Among them, it was found that boys use more digital media use compared to girls. More than 50% of children had started viewing television and using smartphones even before first year of life. Screen time of 55.8% children less than 5 years old are more than 2 hours view screen time. Digital media use by children has been linked to a range of health issues, including obesity; poor sleep quality, reduced attention span, and anxiety and depression. In addition, excessive screen time has been associated with declines in academic performance and social skills [14].

According to a recent report by Common Sense Media, children aged 8-12 spend an average of 4 hours a day on digital media, while teenagers aged 13-18 spend an average of 7.5 hours a day [15]. In addition, prolonged screen time has been linked to behavioral and emotional problems such as anxiety, depression, and attention-deficit/hyperactivity disorder (ADHD) [16].

The results of this study are consistent with previous research suggesting that children spend a lot of time using digital media. The American Academy of Pediatrics recommends that children ages 2 to 5 should have no more than one hour of screen time per day, and children ages 6 and older should consistently limit daily screen time [17]. However, this study found that children spend an average of 7 hours a day using digital media. This underscores the need for parents and cares to monitor and regulate their children's use of digital media to prevent the development of negative health outcomes.

In addition to the above, this study also highlights the need for further research on the effects of digital media use and excessive screen time on children's health outcomes. Longitudinal studies racking children over time could shed light on the long-term consequences of excessive screen time on children's development and well-being. Furthermore, exploring effective strategies to reduce screen time and prompt healthy media habits in children could help inform public health interventions and guidelines.

## CONCLUSION

Based on the findings of the present study, it is apparent that the prevalence of excessive digital media exposure and addiction is higher than anticipated among school-aged children. In order to prevent the development of unhealthy digital practices and mitigate the potential detrimental

effects of excessive screen time, parents should make it a routine practice to regularly inquire about their children's digital media exposure and act appropriately to regulate and monitor their children's usage. This can include setting reasonable limits on screen time, encouraging physical activity and outdoor play, and promoting alternative activities such as reading or engaging in creative hobbies.

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