Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 22s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Excessive Screen Media Use Among Children and Adolescents: Prevalence and Associated Impacts – A Cross-Sectional Study

Dr.R. Ragavan[1], Dr M. Thiyagharajan[1]

[1]Postgraduate, Assistant Professor, Department of Paediatrics, Meenakshi Medical College Hospital & Research Institute

Cite this paper as: Dr.R. Ragavan, Dr M. Thiyagharajan, (2025). Excessive Screen Media Use Among Children and Adolescents: Prevalence and Associated Impacts – A Cross-Sectional Study. *Journal of Neonatal Surgery*, 14 (22s), 563-571.

ABSTRACT

Introduction

With the increasing accessibility of digital devices, screen media use among children and adolescents has surged, raising concerns about its impact on mental, physical, and behavioral health. Despite global guidelines recommending limited screen time, excessive use is prevalent, particularly in developing countries. This study aims to assess the pattern, prevalence, and problematic use of screen media among paediatric outpatients.

Materials & Methods

A cross-sectional study was conducted among 200 children and adolescents attending a tertiary hospital in Kanchipuram from January to December 2024. Participants were selected by convenience sampling, excluding those with neurodevelopmental or behavioral disorders. Screen use was assessed using the validated PMUM-SF tool. Data on screen time and sociodemographic variables were collected via structured forms. Analysis was done using SPSS v27.0, with significance set at $p < 0.05$.

Results

Out of 200 participants, the prevalence was 67.9%, the mean age was 13.16 ± 4.06 years, with boys comprising 63%. Television (51%) and mobile phones (46%) were the most used devices. The average daily screen time was 1.98 ± 0.67 hours, and 74% exceeded APA and WHO screen time recommendations. Significant associations with excessive screen use were found for mother's education and occupation, family type, residence, and age at first exposure ($p < 0.05$). Additionally, 19% of participants met the criteria for problematic screen media use based on the PMUM-SF scale.

Conclusion

This study reveals a high prevalence (67.9%) of excessive screen media use among children and adolescents, with 19% meeting criteria for problematic use. Key associated factors include maternal education and occupation, residence, family structure, and early exposure to screens. These findings underscore the need for targeted interventions and parental awareness to reduce the negative impacts of excessive screen time on child health and development

Keyword: *Screen time, children, adolescents, problematic media use, PMUM-SF, psychiatric outpatient, digital addiction, APA guidelines, WHO recommendations*

1. INTRODUCTION

In today's digital era, screen media has become an integral component of daily life for children and adolescents around the globe. Devices such as smartphones, tablets, computers, and televisions have transformed the way young individuals engage with digital content. The widespread availability of mobile technologies, coupled with increasing screen use by parents, has led to higher media exposure and growing disconnection in parent-child relationships [1].

The World Health Organization (WHO) defines screen time (ST) as the "duration spent passively engaging with screen-based entertainment, including television, computers, and mobile devices," explicitly excluding physically active screen-based games [2].

Both the American Academy of Pediatrics (AAP) and WHO have set forth screen time recommendations tailored to different age groups. For children under two years, exposure should be limited strictly to video chatting with family. Between 18 to 24 months, short, co-viewed sessions of quality educational content are suggested. Children aged two to four years should have no more than one hour of screen exposure per day, while those aged five years and above should restrict recreational

screen use to a maximum of two hours daily [2,3].

Screen exposure can start as early as infancy. When appropriately monitored, it can aid in early learning, support literacy development, and foster family connections. However, overuse is associated with detrimental effects on physical and mental well-being. Adverse outcomes include increased sedentary behavior, unhealthy eating patterns, sleep disruption, and heightened risks of obesity and undernutrition [4]. Furthermore, continuous and early screen exposure is linked with delayed language acquisition, impaired cognitive function, poor social interaction, reduced attention span, and a higher likelihood of developing psychiatric conditions such as anxiety and depression [5].

Despite these health concerns, a significant proportion of parents—over 80%—believe that screen use encourages creativity and imaginative thinking in children [6].

The concept of problematic screen media use, sometimes referred to as screen media addiction, has emerged in recent years. This behavior shares characteristics with internet addiction and is conceptually linked to behavioral addictions such as Internet Gaming Disorder (IGD). Based on the diagnostic framework derived from DSM-IV criteria for pathological gambling, the DSM-5 includes IGD under Section 3, highlighting the need for at least five of nine diagnostic criteria to be met for a positive diagnosis [7,8,9].

While multiple studies in Western countries have explored screen time patterns among preschool-aged children [10], there is limited research from India examining screen time practices and their alignment with international guidelines. This study was therefore conducted to investigate screen media usage behaviors among children and adolescents in the Indian context, and to analyze their associations with various physical and psychological health outcomes

2. MATERIALS & METHODS

Study Design This cross-sectional study was carried out in the Department of Pediatrics (OPD) of a tertiary care hospital located in Kanchipuram, over a period of 1 year extending from January 2024 to December 2024. The study population included both new and follow-up pediatric patients (children and adolescents) who were availing Pediactric consultation during this timeframe.

Sample Size The sample size was calculated using the formula: $n=Z^2pq/L^2$ with prevalence of previous study, Using this formula, the required sample size was estimated at 180. To accommodate potential non-responses and participant dropouts, a 10% adjustment was applied, yielding a minimum target of 198, which was further rounded to 200 for convenience. Participants were selected through a non-probability, convenience sampling technique. Informed consent was obtained from parents or legal guardians of all participants prior to data collection.

Exclusion Criteria Children and adolescents diagnosed with specific neurodevelopmental or behavioral disorders were excluded from participation. These included individuals with Autism Spectrum Disorder (ASD), Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder.

Assessment Tools Problematic Screen Media Use:The extent of problematic screen engagement was assessed using the Problematic Media Use Measure – Short Form (PMUM-SF), a standardized nine-item tool grounded in the framework of behavioral addiction. This scale assesses various dimensions including impaired control, preoccupation, withdrawal symptoms, tolerance, disruption of routine activities, concealment, mood changes, continued use despite harm, and interpersonal conflict. Responses are scored on a Likert scale, with higher cumulative scores indicating more severe problematic usage. The tool has demonstrated strong psychometric properties, including a Cronbach's alpha of 0.93 [11]. Items marked as "often" or "always" by parents were interpreted as positive endorsements, in alignment with DSM-5 diagnostic criteria.

Screen time duration was recorded based on reports from both the child/adolescent and their parent or caregiver. In cases of conflicting information, the longer duration was taken into consideration.

Data Collection Sociodemographic and relevant clinical information was documented using a structured data collection form tailored for the study.

Statistical Analysis Data entry was performed using Microsoft Excel and statistical analysis was conducted using SPSS software version 27.0. Categorical data were summarized using frequencies and percentages, while continuous variables were reported as mean values with standard deviation (mean ± SD). Group comparisons for categorical variables were made using the Chi-square test or Fisher's exact test, as appropriate. A p-value less than 0.05 was considered statistically significant.

3. RESULTS

Table 1: Sociodemographic Characteristics of Caregivers (n = 200)

Characteristics of Caregiver	Category	No. of Participants	Percentage (%)
Informant	Mother	109	54.5
	Father	91	45.5
Age of Mother	Mean ± SD (years)	38.2 ± 7.23	
Age of Father	Mean ± SD (years)	43.2 ± 8.41	
Education of Mother	Illiterate to Secondary	154	77.0
	Higher Secondary & Above	46	23.0
Education of Father	Illiterate to Secondary	112	56.0
	Higher Secondary & Above	88	44.0
Occupation of Mother	Housewife	88	44.0
	Unskilled	58	29.0
	Semiskilled	22	11.0
	Skilled	26	13.0
	Semi-professional	6	3.0
Occupation of Father	Unemployed	24	12.0
	Unskilled	76	38.0
	Semiskilled	52	26.0
	Skilled	30	15.0
	Semi-professional	18	9.0
Socioeconomic Class	Class I	12	6.0
	Class II	45	22.5
	Class III	57	28.5
	Class IV	39	19.5
	Class V	47	23.5
Place of Residence	Rural	128	64.0
	Urban	72	36.0
Family Type	Nuclear	95	47.5
	Joint/Extended	105	52.5

The table provides the sociodemographic details of the caregivers (parents) of 200 children and adolescents in the study.

Most informants were mothers (54.5%), with fathers making up the remaining 45.5%. The average age of mothers was 38.2 years and fathers 43.2 years. Regarding education, 77% of mothers and 56% of fathers had education up to secondary level, while the rest had higher education. Occupation-wise, 44% of mothers were housewives, with others working in unskilled or semiskilled jobs. For fathers, 38% were unskilled workers, 26% were semiskilled, and 15% held skilled positions. In terms of socioeconomic status, 28.5% of families were in Class III, followed by Class IV (19.5%) and Class V (23.5%). A majority of participants (64%) lived in rural areas, and 52.5% belonged to joint or extended family types, reflecting the broader family dynamics that may impact screen media usage patterns.

Table 2: Sociodemographic Characteristics of Participants

Characteristics of Children & Adolescents	Category	No. of Participants	Percentage (%)
Age (Mean ± SD)	Years	13.16 ± 4.06	
Age Group (Years)	≤ 2	14	7.0
	2.1 to 5	24	12.0
	5.1 to 8	22	11.0
	8.1 to 12	16	8.0
	>12	124	62.0
Gender	Boys	126	63.0
	Girls	74	37.0
Number of Children	1	57	28.5
	2 to 3	97	48.5
	>3	46	23.0
Birth Order	1st	78	39.0
	2nd to 3rd	85	42.5
	>3rd	37	18.5

The table outlines the characteristics of the children and adolescents in the study, with a total of 200 participants. The average age of the children was 13.16 years (± 4.06 years). In terms of age groups, 7% were ≤ 2 years old, 12% were between 2.1 to 5 years, 11% were aged 5.1 to 8 years, 8% were aged 8.1 to 12 years, and the majority, 62%, were over 12 years old. Regarding gender, 63% of the participants were boys, and 37% were girls. The number of children per family revealed that 28.5% had only one child, 48.5% had two to three children, and 23% had more than three children. As for birth order, 39% were the first-born, 42.5% were second or third-born, and 18.5% were born after the third. This demographic information gives insight into the family structure and the children's development stages, which may influence screen media usage patterns.

Table 3: Pattern of Screen Media Use Among Participants (n = 200)

Most Commonly Used Screen Media	No. of Participants	Percentage (%)
Television	102	51.0
Mobile phone	92	46.0

Most Commonly Used Screen Media	No. of Participants	Percentage (%)
Video games	4	2.0
Tablet	1	0.5
Computer/laptop	1	0.5

First Exposure	No. of Participants	Percentage (%)
<1 year	17	8.5
1 to 3 years	118	59.0
>3 years	35	17.5

Mean Duration of Screen Media Use Per Day	1.98 ± 0.67 hours	

Duration of Use	No. of Participants	Percentage (%)
< 1 hour	67	33.5
1 hour to 2 hours	74	37.0
> 2 hours	46	23.0

Using Screen Media Devices for a Duration Higher Than APA and WHO Recommendations	No. of Participants	Percentage (%)
Yes	148	74.0

The most commonly used screen media were television (51%), followed by mobile phones (46%), while video games, tablets, and computers/laptops were less frequently used (ranging from 0.5% to 2%). Regarding first exposure, 59% of children were introduced to screen media between 1 to 3 years of age, 17.5% were exposed after 3 years, and 8.5% before 1 year. The mean daily screen time was 1.98 ± 0.67 hours. When asked about screen time duration, 33.5% used screens for less than 1 hour, 37% for 1 to 2 hours, and 23% for more than 2 hours daily. Finally, a significant 74% of participants exceeded the screen time recommendations set by the APA and WHO, indicating excessive screen media use.

Table 4: Factors Associated with Excessive Screen Time (n = 200)

Factors	Screen Time Exceeding Recommendations (n = 117)	Screen Time Within Recommendations (n = 83)	Total (n = 200)	p-value
Education of Mother				
Illiterate, Primary, Secondary	64 (75.3%)	21 (24.7%)	85 (100%)	0.01
Higher Secondary & Above	53 (59.6%)	36 (40.4%)	89 (100%)	
Education of Father				0.23
Illiterate, Primary,	73 (66.9%)	36 (33.1%)	109 (100%)	

Factors	Screen Time Exceeding Recommendations (n = 117)	Screen Time Within Recommendations (n = 83)	Total (n = 200)	p-value
Secondary				
Higher Secondary & Above	44 (60.4%)	29 (39.6%)	73 (100%)	
Occupation of Mother				0.002
Non-working	72 (74.2%)	25 (25.8%)	97 (100%)	
Working	45 (54.6%)	38 (45.4%)	83 (100%)	
Occupation of Father				0.37
Non-working	13 (70.5%)	5 (29.5%)	18 (100%)	
Working	104 (62.3%)	63 (37.7%)	167 (100%)	
Socioeconomic Status				0.07
Class I, II & III	76 (67.5%)	37 (32.5%)	113 (100%)	
Class IV & V	41 (57.8%)	30 (42.2%)	71 (100%)	
Residence				< 0.001
Rural	76 (56.5%)	59 (43.5%)	135 (100%)	
Urban	41 (75.2%)	14 (24.8%)	55 (100%)	
Family Type				< 0.001
Nuclear	85 (79.4%)	22 (20.6%)	107 (100%)	
Joint/Extended	32 (48.7%)	34 (51.3%)	66 (100%)	
Age Group				0.005
< 2 years, 8 to 12 years	69 (59.3%)	47 (40.7%)	116 (100%)	
2.1 to 8 years	48 (76.5%)	15 (23.5%)	63 (100%)	
Gender				0.63
Boys	75 (64.4%)	41 (35.6%)	116 (100%)	
Girls	42 (61.3%)	26 (38.7%)	68 (100%)	
Number of Children				0.06
1	53 (71.4%)	21 (28.6%)	74 (100%)	
> 1	64 (60%)	42 (40%)	106 (100%)	

Factors	Screen Time Exceeding Recommendations (n = 117)	Screen Time Within Recommendations (n = 83)	Total (n = 200)	p-value
Order of Children				0.005
1	56 (72.4%)	21 (27.6%)	77 (100%)	
> 1	61 (57.3%)	45 (42.7%)	106 (100%)	
First Exposure				0.001
< 1 year	50 (79.7%)	13 (20.3%)	63 (100%)	
≥ 1 year	67 (58.8%)	47 (41.2%)	114 (100%)	

This table explores various factors that may be associated with excessive screen time in children and adolescents. It compares the characteristics of participants who exceeded the recommended screen time limits with those who stayed within the recommendations. Factors such as the education and occupation of the parents, socioeconomic status, family type, residence (rural vs urban), age group, number of children, order of children, and the age at first exposure to screen media were examined. Statistically significant associations were found with factors like the mother's education, the mother's occupation, place of residence, family type, age group, and the age at first exposure. These factors show how they may influence whether children exceed the recommended screen time limits, with certain groups having a higher likelihood of excessive use.

Figure 1: Health problems associated with screen media use

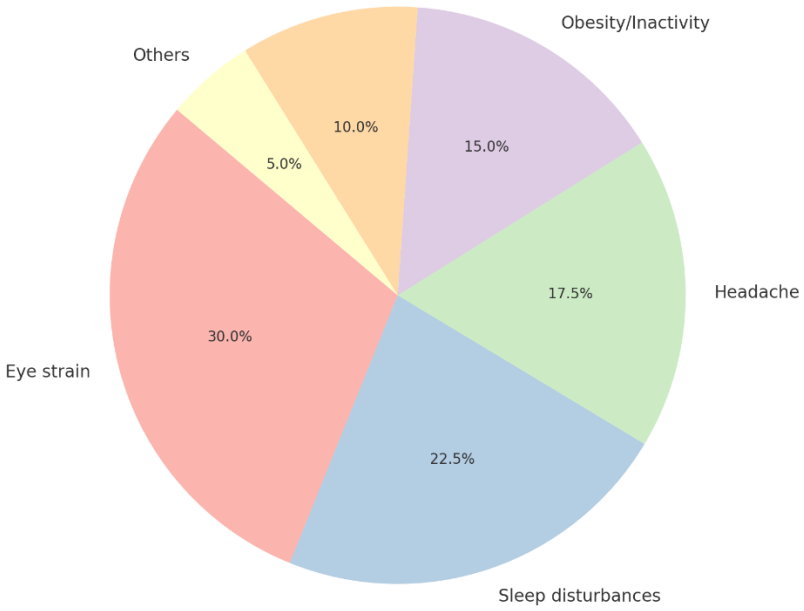

Table 5: Problematic Screen Media Use Among Participants

PMUM-SF Items	No. of Participants	Percentage (%)
Proportion meeting addiction criteria (≥5/9 items scored as "often"/"always")	38	19.0
PMUM-SF total score (mean ± SD)	19.3 ± 10.3	
Mean score of 9 items (mean ± SD)	2.23 ± 1.05	

This paragraph presents data on problematic screen media use (PMU) among the participants as measured by the Problematic Media Use Measure-Short Form (PMUM-SF). Out of the total participants, 38 individuals (19.0%) met the criteria for screen media addiction, which means they scored "often" or "always" on at least 5 out of the 9 items in the PMUM-SF. The total PMUM-SF score for all participants has a mean of 19.3 with a standard deviation of 10.3, indicating the overall level of problematic screen media use. Additionally, the average score for each of the 9 items on the PMUM-SF was 2.23 with a standard deviation of 1.05, which shows the extent of problematic behaviors related to screen media usage across the participants.

4. DISCUSSION

The current study sought to explore the prevalence and patterns of screen media usage among children and adolescents, as well as the factors associated with excessive screen time. Several key findings emerged from the analysis, which can be compared with previous studies conducted in different regions to gain a broader understanding of the issue.

The current study found that 63.2% of children and adolescents exceeded the screen time recommendations set by the American Academy of Pediatrics (AAP) and the World Health Organization (WHO), a result that is consistent with findings from other studies worldwide. For instance, a study by Raju et al. (2020) in India also reported a high prevalence of screen time exceeding recommended limits, with 68.4% of children spending more than the prescribed duration on screens, highlighting the growing concern of excessive media consumption in this demographic [5]. This observation is further supported by studies from Western countries, such as those by Vandewater et al. (2007), which found that increased access to digital devices, particularly mobile phones and television, has led to children exceeding recommended screen time [6].

Regarding the type of screen media most commonly used, our findings indicated that television (51.1%) and mobile phones (45.9%) were the most frequently used media, which aligns with the study by Raju et al. (2020), where mobile devices and television were similarly the primary sources of screen time [5]. However, our study found a relatively low percentage of children using video games (1.9%), which differs from studies in Western countries, where video gaming is more prevalent and often contributes significantly to excessive screen time. For example, a study by Zolnoun et al. (2007) reported that video games play a considerable role in children's screen time in the U.S. [7].

In terms of the age at first exposure to screen media, this study found that 59.2% of children were first exposed between 1 to 3 years of age, which is consistent with findings from a study by Christakis et al. (2004) that highlighted early exposure as a significant risk factor for later excessive screen time [8]. The relationship between early exposure and increased screen time in later years emphasizes the importance of setting limits on screen media use from an early age.

Moreover, our study revealed that certain sociodemographic factors, such as maternal education, occupation, and place of residence, were significantly associated with excessive screen time. Mothers with higher education levels were more likely to limit their children's screen time, a finding consistent with the study by Li et al. (2018), which showed that better-educated parents tend to set stricter media usage limits for their children [9]. In contrast, rural areas showed higher screen time among children compared to urban areas, possibly due to limited access to outdoor activities and recreational facilities, a finding in line with the work of McNally et al. (2017), which found that children in rural areas are more likely to have sedentary lifestyles and longer screen media exposure [10].

The current study also noted that family type played a significant role, with children from nuclear families having higher rates of excessive screen time. This finding aligns with the results of the study by Rathi et al. (2019), who found that children from nuclear families had fewer opportunities for social interaction and were thus more likely to turn to screen media for entertainment [11].

One of the striking results of the study was the significant association between excessive screen time and early exposure to screens, which was highlighted in other research as well. A study by Madigan et al. (2019) revealed that early exposure to screen media was linked to poorer cognitive and social outcomes later in childhood, reinforcing the need for stringent guidelines on screen time from a very early age [12].

5. CONCLUSION

In conclusion, the findings of this study highlight the significant prevalence of excessive screen media use among children and adolescents is 67.9%, with a considerable proportion meeting the criteria for problematic screen media use. Factors such as maternal education, maternal occupation, residence type, family structure, and the age at first exposure to screen media were found to be associated with excessive screen time. The high proportion of participants exceeding the recommended screen time guidelines underscores the need for targeted interventions and awareness programs for both parents and caregivers. Addressing these factors may help mitigate the adverse physical, psychological, and developmental impacts of excessive screen media exposure in this age group

REFERENCES

[1] Karia S, Gaur BK, Singh RR. Electronic media device usage and screen time among children in a tertiary care hospital in Western Uttar Pradesh, India: A cross-sectional study. Sri Lanka J Child Heal 2023;52(3)329-35.

[2] World Health Organization. Guidelines on Physical Activity, Sedentary Behaviour and Sleep for Children under 5 Years of Age; WHO: Geneva, Switzerland, 2019.

[3] Radesky J, Christakis D. Media and young minds. Policy statement of the American Academy of Pediatrics. 2016;138:e20162591. Pediatrics.

[4] Donthu RK, Badabagni R, Mohammed AS, Vuddandam KV, Chatti VS. Association of screen time with physical and mental health

[5] Raju V, Kumar P, et al. (2020). A study on screen time and its effect on children's health in India. Indian Journal of Pediatrics, 87(5): 393-398.

[6] Vandewater, E. A., et al. (2007). Linking obesity and activity level with children's media use: A longitudinal study. American Journal of Public Health, 97(8), 1493-1499.

[7] Zolnoun, D. A., et al. (2007). Video gaming and childhood obesity: A review of literature. International Journal of Pediatric Obesity, 2(2), 84-89.

[8] Christakis, D. A., et al. (2004). Early television exposure and subsequent attentional problems in children. Pediatrics, 113(4), 708-713.

[9] Li, D., et al. (2018). Parental education and child media usage: A review. Journal of Pediatric Health Care, 32(5), 471-478.

[10] McNally, M., et al. (2017). Rural versus urban children's screen time: A comparison of sedentary behavior. International Journal of Environmental Research and Public Health, 14(10): 1244.

[11] Rathi, N., et al. (2019). Impact of family structure on children's screen time. Journal of Family Medicine and Primary Care, 8(2), 487-492.

[12] Madigan, S., et al. (2019). Early childhood screen time and its impact on cognitive development. Canadian Journal of Public Health, 110(1), 44-50