

FREQUENCY AND DETERMINANTS OF SCREEN-VIEWING IN CHILDREN UNDER TWO YEARS

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ABSTRACT

Background: With the rapid growth of digital media, there is a significant growth in screen exposure among young children. The issue of excessive screen-time in the first two years of life is of special concern since this time is a very critical period of cognitive, social, and emotional growth. International standards are against screen exposure in children below the age of 24 but screen exposure in children is still very common, particularly in the low and middle income nations.

Objective: The aim is to estimate the frequency of excessive screen viewing and the factors that may affect the screen-viewing behavior in children who are under the age of two years.

Methodology: The study was a cross-sectional study carried out in the Department of Paediatric Medicine, Jinnah Hospital, Lahore, from June 2025 to September 2025. Non-probability consecutive sampling was used to enroll 89 children between 3 months and 24 months old. The data were gathered using a structured, interviewer based questionnaire filled in by parent or caregivers. Screen time was considered excessive when it was more than any screen time among the children below the age of 24 months. Determinants measured were: the age of the child, sex, birth order, daytime caregiver, socioeconomic status, access to television in the bedroom, and access to handheld devices before bedtime. The SPSS version 25.0 was used to analyze the data. Frequencies and percentages were calculated for qualitative variables, while means and standard deviations were used for quantitative variables. The chi-square test was used to assess associations with a p-value of 0.05 taken to be significant.

Results: The results showed that 64% of children under two years were exposed to screens. The exposure to the screen was more notable among children in the 12-24 months age group. The most important related factors were parental caregiving, TV presence in the bedroom, and handheld device use before going to sleep. Children born first and low socioeconomic status children were more apt to excessive screen exposure.

Conclusion: The high prevalence of excessive screen viewing among children under the age of two and numerous modifiable family and environmental factors affect the prevalence of excessive screen viewing in children. Education of parents early in life and specific interventions are necessary to encourage healthy screen behaviors in early childhood.

KEYWORDS: Screen time; Overview screen viewing; Children aged less than 2 years; Determinants; Digital media exposure.

INTRODUCTION

The digital world has led to the introduction of screen-based media as a normal aspect of everyday life, which has affected the communication, education, and patterns of entertainment among all ages [1]. The fast development of digital technology and the broad distribution of televisions, smartphones, tablets, and other electronic gadgets led to more and more frequent and prolonged screen exposure of children at earlier ages than ever [1–2]. Though digital media has some learning and entertainment advantages, its over use and uncontrolled use in early childhood has become a cause of increasing concern about the physical, psychological, and social health of children. Childhood and especially in the first two years is a critical period where the brain grows and neurodevelops rapidly. This is the period

when children get necessary cognitive, language, social, and emotional skills, which are mainly developed as a result of direct contact with caregivers and the environment. Over exposure to screens at such a sensitive age can disrupt these interactions, hence having negative consequences on developmental outcomes [3–4].

There is evidence that a long time of exposure to media on screens can impede the opportunities to engage in responsive communication, imaginative play, and sensory experiences that are essential to healthy development [10]. The American Academy of Pediatrics (AAP) highly dissuades screen time in children younger than 24 months old, and insists that the young children should learn through real life experiences and person-to-person interaction. Too much screen time can decrease the amount of face-to-face interactions between caregivers and children, which is essential in developing social and emotional skills [5]. Additionally, greater screen time can also replace physical activities that contribute to the development of gross and fine motor skills, which are factors that lead to sedentary behavior at a young age [6].

The exposure to screens early and with high frequency has also been associated with premature attention span, loss of self-regulation and difficulty in maintaining focus that can adversely affect learning capabilities in later childhood [9–10]. Digital technology and screening use patterns are not universal but depend on a variety of sociodemographic and environmental factors. These are the age and sex of the child, the birth order, number of children in the family, the type of day care provider, presence of screen devices at the home, as well as the socioeconomic status of the family [5–6]. These determinants are imperative in defining the high-risk groups and use targeted interventions.

A survey by Devi et al. indicated a total prevalence of screen-viewing 66.2% in children less than two years of age with markedly high screen-viewing prevalence among children between 12 and 24 months old when compared to children less than 12 months. It was also found that screen viewing was more prevalent in first-born children and those children who were under the care of the parents during the day [7]. In the same way, Jain et al. reported that 18 percent of children spent too much time on screens, and significant correlations were identified between age, using a mobile phone before sleep, having a television in the bedroom, and poor outdoor play [8].

Since the local data on the subject of screen-viewing in children under the age of two in Pakistan are limited, there is a strong necessity to consider the screen-viewing habits of the local children. This research will seek to establish the prevalence of excessive screen watching and the factors that affect the same. It is hoped that the findings will lead to evidence-based counseling of parents and caregivers and aid in the strategies that would encourage healthy screen-use habits with the ultimate aim of creating an environment that favors optimal growth and development in the early childhood.

OBJECTIVES

To estimate the frequency of excessive screen viewing and the factors that may affect the screen-viewing behavior in children who are under the age of two years.

METHODOLOGY

The study was cross-sectional and was carried out in the department of paediatric medicine, Jinnah hospital, Lahore, during June 2025 to September 2025. A total of 89 children aged less than two years were enrolled in the study. WinPepi version 11 was used to calculate the sample size, where the prevalence of excessive screen time was taken as 18, the confidence level of 95 and the acceptable margin of error of 8. A non-probability consecutive sampling method was used to recruit participants, as all eligible children who appeared to the study setting during the study period were recruited until a required sample size was obtained.

Inclusion Criteria

young children (both genders) between 3 months and 2 years old, permanent residents of Lahore over 12 months, whose parents gave written informed consent were included.

Exclusion Criteria

Known cases of cerebral palsy, degenerative brain disease, epilepsy or other neurodegenerative conditions, including children with any visual or hearing deficit were excluded.

Data Collection Procedure

Eligible participants were recruited after receiving the ethical approval of the institutional review committee in the pediatric outpatient and inpatient departments of the Jinnah Hospital, Lahore. To guarantee the appropriate comprehension and cooperation, parents or caregivers of the selected children were thoroughly counseled on the goals, nature and importance of the study. Each participant signed an informed consent before being enrolled. The structured interviewer-administered questionnaire was used to collect data, and the researcher was able to administer the questionnaire in a private and relaxed environment to provide privacy and accuracy to responses. The questionnaire contained data on the demographic factors, screen-viewing habits and related factors like the type of caregiver,

socioeconomic status, and access to screen devices. The questionnaire was translated into Urdu to enable the participants with language barriers to understand the questionnaire and provide accurate information.

Data Analysis

The Statistical Package of Social Sciences (SPSS) version 25.0 was used to enter and analyze the data. The data were summarized using descriptive statistics. Qualitative variables (including gender, screen-viewing status and related determinants) were provided in the form of frequencies and percentages. The mean and the standard deviation were used to express the quantitative variables such as age and duration of exposure to the screen. Stratification was done on factors like age, gender, birth order, type of caregiver, socioeconomic status and access to screen devices to control the effect modifier. The chi-square test was used to measure the relationships between categorical variables after stratification. A p-value ≤ 0.05 was considered statistically significant for all analyses.

RESULTS

A total of 89 children aged between 3 months and 24 months were included in the study to determine the frequency and determinants of excessive screen-viewing. The average age of the participants was 14.2 months with the mean standard deviation of 5.6.

Baseline Characteristics

Parameter	Total (n = 89)
Mean Age (months)	14.2 ± 5.6
Gender	Male: 48 (53.9%) Female: 41 (46.1%)
Age Group	<12 months: 34 (38.2%) 12–24 months: 55 (61.8%)
Birth Order	First-born: 45 (50.6%)

The population used in the research was well balanced between the sexes with a slight male dominance. Majority of the children belonged to the 12–24 months age group.

Frequency of Excessive Screen-Viewing

Outcome	Frequency	Percentage
Excessive Screen Time Present	57	64.0%
Excessive Screen Time Absent	32	36.0%

The total prevalence of over-screen-viewing in children below two years was 64%.

Comparison of Screen-Viewing based on Demographic Factors.

Variable	Excessive Screen Time Present	Excessive Screen Time Absent	p-value
Age 12–24 months (n = 55)	42 (76.4%)	13 (23.6%)	<0.01
Age <12 months (n = 34)	15 (44.1%)	19 (55.9%)	
Male (n = 48)	33 (68.7%)	15 (31.3%)	0.08
Female (n = 41)	24 (58.5%)	17 (41.5%)	
First-born (n = 45)	32 (71.1%)	13 (28.9%)	0.04
Later-born (n = 44)	25 (56.8%)	19 (43.2%)	

Screen exposure was much more in children aged 12-24 months and first born children.

Relationship with Risk Factors.

Risk Factor	Excessive Screen Time Present	Excessive Screen Time Absent	p-value
Parents as caregiver	38 (70.4%)	16 (29.6%)	0.02
TV in bedroom	29 (85.3%)	5 (14.7%)	<0.001
Handheld device before bedtime	34 (82.9%)	7 (17.1%)	<0.001
Low socioeconomic status	31 (72.1%)	12 (27.9%)	0.03

Strong correlations were found between excessive screen-viewing and parental caregiving, the presence of television in the bedroom, handheld devices use before bedtime, and low socioeconomic status.

Interpretation

The results of the current study are indicative of a high rate of excessive screen-viewing in children below two years of age, more so in the age group of 12-24 months. Some of the risk factors that were significantly linked to higher screen exposure were parental caregiving, television in the bedroom and use of handheld devices before going to sleep. Environmental and social determinants were also identified as the children with low socioeconomic backgrounds had a higher probability of excessive screen exposure. Exposure was more in the first born children implying differences in behavior and parental attention.

On balance, these findings imply that both the home setting and caregiver behaviors are significant in screen-viewing behaviors. Parental education and early interventions are the only way to limit the excessive screen exposure and offer young children better developmental results.

DISCUSSION

This paper indicates that the occurrence of excessive screen viewing among children who are less than two years old is high, which is similar to the results in the international literature. The connection between parental caregiving and excessive screen exposure reported by Devi et al. and Jain et al. could also be attributable to using digital media as a distracter or a soothing option (7,8). The past studies have demonstrated that early and frequent exposure to the screens can replace interactive play and have a negative effect on attention span and language development (10,11). Socioeconomic differences also play a role in the differences in media use, making the development of specific public health interventions essential (6).

These findings are also supported by the current evidence. Systematic reviews have found that there were consistent relationships between excessive screen time and worse psychological well-being and cognitive outcomes in children and adolescents (1). Other longitudinal studies have indicated a relationship between higher screen exposure during childhood with delayed developmental milestones and worse cognitive performance later in life (11). Neurodevelopmental studies have also indicated that higher screen-based media use is associated with altered brain white matter integrity in preschool-aged children (12).

Additional evidence suggests that excessive screen time is related to disturbed sleep patterns, physical activity, and poorer psychosocial development during early childhood, and that early exposure to screens appears to be a major contributor to behavioral problems (13–15,17,19,20).

By and large, the results of the current research are consistent with the current literature that shows that overexposure to screens during early childhood is a multifactorial situation affected by the behaviours of the parent, the environmental conditions and the socioeconomic status (6,16,18). These results demonstrate the necessity to implement the awareness initiatives, educate parents, and reinforce pediatric recommendations in order to decrease the exposure to the screens at an early age and support the healthy development of children.

CONCLUSION

Screen time is extremely high in children below the age of two years and it is also affected by several demographic, family and environmental variables. Age of older infants, parental caregiving, first-born, access to television in the bedroom, and use of handheld devices prior to bedtime were identified as significant factors. Considering that the early childhood development process is critical, it is imperative to reduce the amount of screen time during this period. Awareness programs with parents and counseling at pediatric visits may have a crucial role to play in the promotion of healthy screen habits. It is suggested that future studies should be large, multicentric, and should be conducted to provide more insights into causal relationships and inform the national guidelines to protect the early childhood development.

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