

Screen Use Among Preschool Children in the Galle Municipal Council Area: Prevalence, Patterns, and Associated Factors from Parents' Perspectives

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Abstract

Prolonged screen exposure during early childhood has been linked to negative developmental, behavioural, and health consequences. With increasing access to electronic screen devices in Sri Lanka, understanding usage patterns among pre-school-aged children is essential for guiding parental awareness and public health interventions. The present study aimed to assess the prevalence, usage patterns, and associated factors of screen use among preschool-aged children in the Galle municipal council area. A descriptive cross-sectional study was conducted among 196 parents of three to five-year-old preschool-aged children. Data were collected using a self-designed, pre-tested, self-administered questionnaire, which underwent content validation by a panel of five experts in the area. Descriptive statistics, Chi-square test, and Fisher's exact tests were performed using SPSS version 26, with $p < 0.05$ as statistical significance. Among the preschool children, the majority were girls (53.6%) and five years old (42.9%), with most living in nuclear families (63.8%). Among them, 34.2% exceeded the WHO-recommended screen time limits. Smartphones (48.9%) and televisions (46.8%) were the most used devices. Most children (65.8%) used screens for less than an hour, but 34.2% were overusing them. Significant associations with screen overuse were found for children's gender ($p = 0.001$), family type ($p = 0.002$), living arrangements ($p = 0.001$), parental age ($p = 0.001$), employment status ($p = 0.001$), and number of children in a family ($p = 0.001$). In conclusion, a considerable proportion of pre-school children in the Galle Municipal Council area are exposed to excessive screen time. Interventions focusing on parental education and behaviour modelling are recommended to promote healthy screen use practices.

Keywords: Parents; Pre-school children; Prevalence; Patterns; Screen overuse

Introduction

The rapid proliferation of digital devices has fundamentally transformed childhood experiences, with screen-based activities becoming increasingly prevalent among preschool-aged children (Madigan et al., 2020). During this critical developmental period, children undergo significant cognitive, social, and physical growth that can be profoundly influenced by their media consumption patterns (Azzam et al., 2024).

Screen overuse refers to the time spent on digital platforms, including smartphones, tablets, televisions, and computers, that exceeds the recommended limit of one hour per day (Madigan et al., 2020). Globally, excessive screen time among preschoolers is a growing concern. In the United Kingdom, approximately

50% of children aged 2–5 years had high screen time, and the prevalence increased over time, reaching 55.3% in 2022 (McArthur et al., 2022). In South Asia, the prevalence of screen overuse among preschool children is alarmingly high. According to an Indian study reported that 87.2% of children started screen use by the age of 3, with an average screen time of 2.7 hours per day. Only 17.2% of participants met the recommended screen time of less than one hour (Shah et al., 2019). Considering the local context, it was reported that 96% of preschool-attending children in suburban areas in Sri Lanka used electronic devices, with over 60% exceeding the recommended screen time limit of one hour per day (Rathnasiri et al., 2022).

Several familial and socio-economic factors significantly shape children's screen time engagement. Parental education levels are notably influential in determining screen use patterns among their children (Wang et al., 2023). Lower levels of parental education and a lack of awareness about screen time guidelines are linked to higher screen use in children. In some settings, higher screen time is associated with both low-income households and high-income households due to greater access to multiple devices (Mollborn et al., 2022). Notably, the COVID-19 pandemic led to a significant surge in screen time due to remote learning and reduced physical activity opportunities (Nagata et al., 2020).

Despite the growing awareness of risks and high prevalence, there remains limited comprehensive research examining the prevalence of screen overuse specifically within preschool populations. Understanding the prevalence, patterns, and predictors of screen overuse in preschool children is essential for informing evidence-based recommendations for families, educators, and policymakers. In light of this, the current study aimed to address these knowledge gaps by examining the prevalence, identifying usage patterns, and determining associated factors of screen overuse among preschool-aged children in the Galle municipal council area.

Materials and Methods

A descriptive cross-sectional study was conducted to assess the prevalence, patterns, and associated factors of screen overuse among preschool children in the Municipal Council area of Galle District, located in the Southern Province of Sri Lanka. The setting comprised 26 preschools registered under the Galle Municipal Council.

Sample

The sample size was determined using the estimated prevalence of electronic screen device use among preschool children in suburban Sri Lanka, as reported by Rathnasiri et al. (2022). The prevalence (p) was taken as 0.27. Using the standard formula of $n = p(1-p) Z^2 \div E^2$ for estimating sample size for proportions. Since the total population size is 426, a finite population correction was applied. Accordingly, the required sample size for this study was 178 preschool-attending children. To account for dropouts additional 10% was added to calculate the final sample size of 196. The stratified sampling technique was utilized to recruit the sample.

Data Collection Tool and Procedure

A self-administered and researcher-developed questionnaire was utilized to gather the data. The instrument was structured into three sections: (a) Socio-demographic data; (b) screen using time; (c) patterns of using devices. To ensure content validity, the questionnaire was reviewed by a panel of five experts, including clinical specialists and researchers in public health and child development. Each expert assessed the relevance, clarity, and comprehensiveness of the items. Based on their feedback, necessary revisions were made. The questionnaire was pre-tested among the 10 parents to improve its clarity and understandability, and further modifications were made based on their suggestions. These parents have not participated in the actual study. The questionnaire was distributed to parents through preschool teachers and collected after completion. Data were collected for the study during August 2024 after obtaining ethical clearance for the study.

Ethical Considerations

Ethical clearance was obtained from the Ethics Review Committee of the Teaching Hospital, Karapitiya (THK/ERC/24/29). Participation was voluntary, and written informed consent was obtained from all respondents. Participant confidentiality and data anonymity were maintained throughout the study, and the data collected were used solely for research purposes.

Data analysis

All data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, such as means, standard deviations, frequencies, and percentages, were applied to summarize demographic characteristics and patterns of screen use. Associations between screen overuse and related factors were examined using Chi-square and Fisher's exact tests, with a p-value < 0.05 considered statistically significant.

Results

Socio-demographic Characteristics of Preschool Children and Their Parents

A total of 196 parents participated in the study. Among the preschool children, the majority were girls (53.6%). Regarding the preschool children's profile, the majority were aged five years (42.9%), followed by four years (37.8%) and three years (19.4%). More than half of the children were female (53.6%), and in terms of religion, 57.1% of the children were Sinhalese, while 42.9% were Muslim. Most children (63.8%) lived in nuclear families, and a significant majority (89.8%) lived with both parents. With regard to the number of children in the family, 38.8% of families had two children, 29.1% had one child, and 24.5% had three children.

In terms of parental characteristics, most parents were aged between 31 and 40 years (65.3%), while 16.8% were either below 30 or above 40 years, and only 1% were below 20 years. Regarding educational attainment, half of the parents (50.5%) had completed education up to Ordinary Level (O/L), 26.5% up to Advanced Level (A/L), 15.3% had only primary education, and 7.7% had pursued higher education. In relation to employment, the majority of fathers (82.1%) were employed, whereas only 7.7% of mothers were employed; 10.2% reported that both parents were working. The monthly family income for most households (61.7%) ranged between LKR 25,000 and 50,000, while 30.6% earned less than LKR 25,000, and only 7.7% reported an income between LKR 50,001 and 100,000.

Patterns of Screen Usage of Preschool Children

Mode of Use

The most commonly used screen devices among preschool children were smartphones (48.92%) and televisions (46.78%) (Table 1).

Table 1: *Mode of screen use among preschool children*

Mode	Frequency (n)	Percentage (%)
Television	153	46.78
Smart Phone	160	48.92
Tablet	06	1.83
Computer	06	1.83
Other	02	0.61

The Average Weekday's Screen Time

As shown in Table 2, Screen time duration varied by device in a day. For television, 35.2% watched for less than 30 minutes a day, and 6.1% watched 2-3 hours. For smartphones, 18.4% of children had no weekday

use, while 45.9% used them for less than 30 minutes. About 10.7% of children used smartphones for 1–2 hours, and 2% for 2–3 hours on a typical weekday. Tablet and computer use was cited as minimal: 96.9% of children did not use either device during weekdays.

Table 2: *The average screen use time in a weekday*

Device	None n (%)	< 30 min n (%)	30 min to 1 hr n(%)	1-2 hrs n(%)	2-3 hrs n(%)
TV	43(21.9)	69(35.2)	58(29.6)	14(7.1)	12(6.1)
Smart Phone	36(18.4)	90(45.9)	45(23)	21(10.7)	04(2)
Tablet	190(96.9)	02(1)	04(2)	0	0
Computer	190(96.9)	02(1)	04(2)	0	0
Other devices	194(99)	02(1)	0	0	0

Prevalence of Screen Overuse Among Preschool Children

According to the WHO guidelines, the total daily screen time was categorized in Table 4. Of the sample, 65.8% of children were categorized as having normal use (less than 1 hour per day), while 34.2% were identified as having screen overuse (more than 1 hour per day) (Ponti et al., 2017).

Table 3: *Daily screen time*

Variable	Frequency (n)	Percentage (%)
Normal use (<1 hour)	129	65.8
Overuse (≥ 1 hour)	67	34.2

Table 4: *Factors Associated with Screen Overuse*

Characteristic	Normal use (n)	Overuse (n)	p-value	Characteristic	Normal use (n)	Overuse (n)	p-value
Age				Educational level of the parent			
3 years	22	16	0.300	Primary	17	13	0.028
4 years	47	27		up to O/L	60	39	
5 years	60	24		up to A/L)	43	09	
Gender				Higher	09	06	
Male	51	40	0.007	education			
Female	78	27		Parents employment status			
Type of family				Father	99	62	0.001
Nuclear	92	33	0.002	Mother	15	00	
Joint family	37	34		Both	15	05	
Living with whom				Number of children in the family			
Both parent	109	67	0.001	One	26	31	0.028
Single parent	20	00		Two	60	16	
Age of parent				Three	31	17	
< 20 years	02	00	0.001	Four or more	12	03	
21 - 30 years	27	06					
31 - 40 years	74	54					
> 40 years	26	07					

Associated Factors Related to Screen Overuse

Several factors were found to be significantly associated with screen overuse among preschool children (Table 5). Gender ($p = 0.007$), type of family ($p = 0.002$), child living with whom ($p = 0.001$), age of parents

($p = 0.001$), parents' employment status ($p = 0.001$), and number of children in the family ($p = 0.001$) was significantly associated with the screen overuse among preschool children.

Discussion and Conclusion

The study sample consisted mainly of five-year-old pre-school children, with a slight female majority (53.6%). Most of the children were from Sinhala backgrounds and nuclear families, with nearly 90% living with both parents, which may support stable screen use environments. The present study reveals that smartphones and televisions were the most commonly used screen devices among preschoolers, with minimal use of tablets and computers. This pattern aligns with global trends, where portable and accessible devices like smartphones are increasingly favoured by young children. A study by Kabali et al. (2015) in the United States similarly found that 97% of young children under four had used mobile devices, with smartphones being the most accessible screen (Kabali et al., 2015).

Present findings align with those of Rathnasiri et al. (2022), who reported high rates of electronic devices among pre-school attending children in suburban Sri Lanka. Consistent with their findings, the present findings revealed that approximately one-third of children exceeded the recommended daily screen time of one hour. This exceeds the World Health Organization's recommendation that children under five should have no more than one hour of screen time per day.

Present findings identified several socio-demographic factors associated with screen overuse among pre-school children. Consistent with findings of Park and Park (2014), gender and the number of children in the family were significantly linked to increased screen overuse. Children from single-child families showed significantly higher screen overuse ($p = 0.028$), likely due to the absence of sibling interaction. This lack of peer engagement may hinder social development and delay essential skills like communication and cooperation (Muppalla et al., 2023). Additionally, this study demonstrated significant associations between screen overuse and other factors, including the age of the parents, parents' employment status, and the type of family structure. Present findings are further supported by Yalçın et al. (2021), who reported an association between paternal age and increased screen overuse. This is possible limited interaction can negatively affect language development and emotional bonding of the child. Overall, the findings highlight the multifaceted nature of screen overuse and emphasize the need for targeted parental guidance and public health strategies.

The study has several limitations, including a relatively small sample size, the use of self-reported data which may introduce response bias, and the exclusive reliance on parents' perspectives, which may not fully capture the children's actual screen use behaviours.

The finding highlights that a considerable proportion of preschool children were categorized as screen over-users. The findings highlight the multifactorial nature of screen overuse among preschool children, influenced by both child-and family-related factors. Socio-demographic elements such as gender, family structure, parental age, and employment status appear to play a significant role in determining screen time behaviour. These insights underscore the importance of targeted interventions that consider the household environment and parental involvement when addressing screen time habits in early childhood.

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