

Mobile phone use by young children and parent's views on children's mobile phone usage

Saumya Amin Shah, Varsha Dilip Phadke

Department of Pediatrics, KJ Somaiya Medical College, Mumbai, Maharashtra, India

ABSTRACT

Aims: This study aims to explore the prevalence of mobile phone use among young children aged 6 months to 4 years. We studied the usage patterns, optimal age for use, and the attitudes of parents toward their child's mobile phone use. **Methods:** We conducted a cross-sectional study in a pediatric OPD of a tertiary teaching hospital for a period of 2-months. Ethics committee approval and informed consent was taken before conducting the research. A predesigned and validated questionnaire was used to collect data. We calculated a sample size of 90 children at a 95% confidence level. Chi-square test and Fischer's exact test were used as a test of significance at 5% level of significance. **Results:** We observed that 73.34% of children were using mobile phones and mobile phone usage increased with age. Children used mobile phones for educational purposes (43.9%), and for less than an hour a day (57.6%). In the 3-4 year age group, 19% used mobile phones for 3 hours or more. While 93.3% of parents felt they shouldn't give their child a phone, 71.4% children of these parents still used one. **Conclusions:** Our study highlights a high prevalence of mobile phone use among young children aged 6 months to 4 years. Although parents aimed to limit their child's phone usage, the reality was different. We recommend that guidelines on mobile phone use be followed in India.

Keywords: Children, exposure, mobile phones, parents believe, screen time

Introduction

In the past few decades, mobile phones have seamlessly integrated into our daily lives, even for young children. They have become more popular than other media devices due to their compact size, portability, content streaming capabilities, interactive features, and cost-effectiveness. According to a survey conducted by Common Sense Media in America, the percentage of children aged 0 to 8 using mobile phones increased from 38% in 2011 to 72% in 2013. Even more dramatic was the increase in usage by children under 2, from 10% in 2011 to 38% in 2013^[1,2] A cross-sectional study of digital habits among

350 children aged 6 months to 4 years revealed that nearly all children (96.6%) used mobile phones.^[3]

In Indian studies, children as young as 2 months were exposed to such media, with a median age of first exposure around 10 months. By the time a child reaches 18 months of age, the majority have already been exposed to screen-based media. Interestingly, the prevalence of smartphone usage (96%) surpasses that of television viewing (89%) among these young children.^[4]

Prolonged screen time during early childhood is linked to detrimental effects, including increased sedentary behaviour, obesity, disrupted sleep patterns, and developmental issues.^[5] A study conducted in Ujjain, India, found that headaches were significantly associated with the use of mobile phones.^[6] To prevent such harmful effects various guidelines have been provided by different countries.

Address for correspondence: Prof. Varsha Dilip Phadke,
KJ Somaiya Medical College, Sion, Mumbai - 400 022,
Maharashtra, India.
E-mail: varshap@somaiya.edu

Received: 27-04-2023

Revised: 14-08-2023

Accepted: 17-08-2023

Published: 21-12-2023

Access this article online

Quick Response Code:



Website:
<http://journals.lww.com/JFMPC>

DOI:
10.4103/jfmpe.jfmpe_703_23

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Shah SA, Phadke VD. Mobile phone use by young children and parent's views on children's mobile phone usage. *J Family Med Prim Care* 2023;12:3351-5.

According to a study, only 15% of parents reported that their pediatrician engages in discussions about media use with them.^[7] Pediatricians and family physicians should familiarize themselves with guidelines for mobile phone use by children and provide counselling on the appropriate use of screens to promote digital wellness.

A limited number of studies have been conducted on parental beliefs regarding cell phone usage by children in the country and globally; most of the research is dedicated to adolescent age groups.^[8] Hence, this study was conducted with the aim of finding out the prevalence of cell phone use in children aged 6 months to 4 years, assessing the pattern of mobile phone use in the study group and understanding the beliefs and attitudes of parents about their child's mobile phone use.

Materials and Methods

We conducted this study in the pediatric OPD of a tertiary teaching hospital for a period of 2 months. This setup allowed us to interact with a large number of parents of the target age group. It also provided a comfortable environment for the parents to express their opinions on the subject.

It was a cross-sectional study where we interviewed the parents of children between 6 months to 4 years of age. Ethics committee approval was obtained before conducting this study. At a 95% confidence level the sample size formula for qualitative data is:

$$\text{Sample Size} = \frac{4pq}{L^2} \text{ [9]}$$

Where,

$$p = \text{proportion of mobile use in 6 months to 4 years} = 96.6\% \text{ [3]}$$

$$q = 100 - p = 100 - 96.6 = 3.4\%$$

$$L = 4\%$$

$$= \frac{4 * 96.6 * 3.4}{4 * 4}$$

$$= 82.11$$

$$= 82 \text{ (approx.)}$$

For a 10% non-response rate the corrected sample size is $82 + 8 = 90$. Hence the sample size of 90 children was taken for the study.

The exclusion criteria included children older than 4 years or younger than 6 months and children with chronic debilitating illnesses. Written informed consent had been taken from the parents or the legal guardians prior to the participation in the study. A predesigned and validated questionnaire was used to collect data. The 4-page questionnaire collected sociodemographic details about the children, as well as information on their mobile phone

usage patterns, including the parents' views on their usage. The data was entered and analysed using MS Excel version 2013. Data was summarized using mean, standard deviation, frequency and percentage. Simple bar diagrams were used for data presentation. Chi-square test and Fischer's exact test were used as a test of significance at a 5% level of significance.

Observations

Mobile phone use

Our study indicated a prevalence of 66 out of 90 children using mobile phones as seen in Table 1. The percentage of children using mobile phones increases with the increase in the age group with the highest being 95.5% of children from the 3-4 year age group. This relationship with age was found to be statistically significant ($P < 0.0000001$). There was no statistically significant association between the gender of the child, the parent's education and mobile usage.

Most of the children used mobile phones for less than an hour (57.6%) and more than 5 times a week (65.2%) as shown in Table 2. Older children belonging to the age group 3-4 years showed higher duration of usage and weekly usage. Children primarily used mobile phones for educational or recreational purposes (43.9%), followed by playing games (25.8%). A majority of children in the age group of 2-3 years used mobile phones for educational or recreational activities (57.9%). Out of 66 children, 33 of them never required help using a mobile phone out of which the maximum number of children in the older age group of 3-4 years never require help (14/21, 66.7%). Only 2 children in the 3-4 year age group used mobile applications.

Table 1: Demographics of the study population

	No. of children	Uses mobile	Does not use mobile
Age group of child			
0-1 yrs	21 (23.3)	5 (23.8)	16 (76.2)
1-2 yrs	27 (30)	21 (77.8)	6 (22.2)
2-3 yrs	20 (22.2)	19 (95)	1 (5)
3-4 yrs	22 (24.4)	21 (95.5)	1 (4.5)
Sex of child			
Female	37 (41.1)	29 (78.37)	8 (21.63)
Male	53 (58.9)	37 (69.81)	16 (30.19)
Education of father			
Illiterate	17 (18.9)	9 (52.9)	8 (47.1)
10 th pass	22 (24.4)	16 (72.7)	6 (27.3)
12 th pass	24 (26.7)	20 (83.3)	4 (16.7)
Graduate or postgraduate	26 (28.9)	20 (76.9)	6 (23.1)
Professor or Honours	1 (1.1)	1 (100)	0 (0)
Education of mother			
Illiterate	25 (27.8)	15 (60)	10 (40)
10 th pass	25 (27.8)	18 (72)	7 (28)
12 th pass	22 (24.4)	16 (72.7)	6 (27.3)
Graduate or postgraduate	17 (18.9)	16 (94.1)	1 (5.9)
Professor or Honours	1 (1.1)	1 (100)	0 (0)
Total	90	66	24

Note: Figures in the parenthesis are the percentages calculated out of the total frequency

Figure 1 describes various reasons why parents give their children a mobile phone. The most common reasons reported by parents for giving mobiles to their children were while feeding them (47%) and when the children were crying (42.4%). Other reasons were doing household chores (27.3%), keeping their children calm in public places (4.5%) and helping their children fall asleep (6.1%).

Table 3 displays the results of the survey, indicating whether parents believed their child's mobile phone use was excessive and whether they implemented any control measures. Most parents (69.7%) reported that their children did not use the phone more than expected.

Of the 78.8% of parents who implemented control measures, an overwhelming 88.4% found them to be effective. When asked about the ideal duration of phone use, the majority of parents (69.7%) suggested that their child should use the phone for less than 30 minutes.

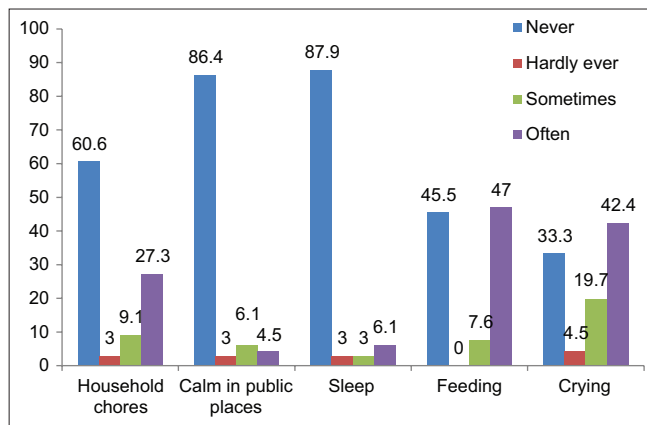


Figure 1: Frequency of mobile phone use with various reasons for allowing a child to use the mobile phone

When we asked the parents reasons why their child requires a mobile phone 57.7% said for education purposes. Other reasons mentioned by the parents were to keep the child occupied so that they do not trouble them (24.2%), to familiarise themselves with technology (12.12%) and to follow current trends (6.06%).

Interestingly, when comparing the parents' beliefs to the real scenario, it was found that out of the 84 parents who believed that their child did not require a mobile phone, 71.4% of them actually allowed their child to use a mobile phone.

Discussion

This study reveals a significant prevalence rate of mobile phone usage (73.34%) among children in the age group of 6 months to 4 years. One study reported prevalence rates, as high as 96.6% and at 2 years of age, most of the children were using a cell phone daily.^[3] Common Sense Media reported a rise in mobile phone usage from 38% in 2011 to 72% in 2013.^[1,2]

Our study identified a significant correlation between a child's age and their mobile phone usage, which was also found in a study conducted by Kabali.^[3] This finding is consistent with research by Yu-Mi Baek, which revealed that young children (ages 3-5) utilized smart phones more frequently than infants (ages 0-2).^[10] A study conducted in rural India found that older children had greater screen time exposure^[5]

The guidelines from the Indian Academy of Pediatrics (IAP) advise against any screen exposure for children below 2 years of age.^[11] However, our study revealed mobile phone usage in children as young as 6 months. Meena P's study similarly demonstrated that 96% of children had used smartphones before reaching 18 months of age.^[12] In another study, 20 out of 32 children began using mobiles before the age of 2, while

Table 2: Mobile usage by the child

	Age of child				Total
	0-1 yrs	1-2 yrs	2-3 yrs	3-4 yrs	
Mob usage (per day)					
Less than an hour	5 (100)	11 (52.4)	10 (52.6)	12 (57.1)	38 (57.6)
1-<2 h	0 (0)	6 (28.6)	6 (31.6)	4 (19)	16 (24.2)
2-<3 h	0 (0)	0 (0)	1 (5.3)	1 (4.8)	2 (3)
3 hours and more	0 (0)	4 (19)	2 (10.5)	4 (19)	10 (15.2)
Mob usage (per week)					
Once a week	0 (0)	1 (4.8)	0 (0)	1 (4.8)	2 (3)
2-3 times a week	1 (20)	6 (28.6)	1 (5.3)	6 (28.6)	14 (21.1)
4-5 times a week	2 (40)	3 (14.3)	1 (5.3)	1 (4.8)	7 (10.6)
>5 times a week	2 (40)	11 (52.4)	17 (89.5)	13 (61.9)	43 (65.2)
Frequent activities by child					
Call	0 (0)	2 (9.5)	0 (0)	0 (0)	2 (3)
Educational/recreational purposes	2 (40)	10 (47.6)	11 (57.9)	6 (28.6)	29 (43.9)
Play games	1 (20)	3 (14.3)	4 (21.1)	9 (42.9)	17 (25.8)
Use apps	0 (0)	0 (0)	0 (0)	2 (9.5)	2 (3)
Watch movies/TV shows	2 (40)	6 (28.6)	4 (21.1)	4 (19)	16 (24.2)
Total	5	21	19	21	66

Table 3: Parents beliefs on children's mobile phone usage

	No of children
More than expected usage	
No	46 (69.7)
Yes	20 (30.3)
Control measures used	
No	14 (21.2)
Yes	52 (78.8)
Total	66

46% of the children started using mobile phones before reaching 5 years of age.^[4] These findings signify the easy access and use of mobile phones at a young age.

In the current study, a significant proportion of children primarily used phones for educational purposes (43.9%), which is consistent with findings from a Greek study where educational gaming was predominantly conducted on smart mobile devices (93.23%).^[13] In contrast, a study conducted in rural western India revealed that most children used phones for watching videos or playing video games.^[11]

Very few parents had downloaded apps for their children in the present study in contrast to other studies where half of the parents (52%) had downloaded apps on their mobile phones.^[3] According to Common Sense Media app usage among children in the age group 0-8 has increased to 50% from just 16% within a span of 2 years.^[1,2] Another study stated 91.38% parents downloaded apps as a reward for an achievement or a child good behaviour.^[13]

The most common reason behind allowing the child to use the mobile phone in this study was to feed them (47%). In the study conducted by Meena P 95% of the time screen-based devices were given to toddlers to keep them occupied while the caretaker was busy and/or to console the child.^[12] Kabali found that many parents (70%) allowed phone use for tasks like household chores.^[3] A Turkish study reported 18% of children use phones while eating or crying.^[14] However, while mobile phones may be successful in distracting children in the short term, there is concern that they may have a detrimental effect on children's social-emotional behaviour in the long run.^[15]

Our study reported that 57.6% of children use their mobile phones for less than an hour per day. This aligned with the IAP guidelines which suggested restricting screen time to a maximum of one hour per day, dividing it into sessions of no more than 20 to 30 minutes each. However, the Common Sense Media survey documented a tripling in daily mobile phone usage among children over a two-year period.^[1,2] The study by Meena P revealed most of them used mobile for more than one hour per day.^[12]

While examining weekly usage, there was a marked increase in the frequency of mobile phone usage compared to other studies. Yu-Mi Baek's study reported that 57.9% of infants used their

phones less than 5 times a week.^[10] Common Sense Media also found that the percentage of children using mobile devices daily for at least once a day or more had more than doubled from 8% to 17% in a two-year span.^[1,2]

At such a young age normally, we would expect parents to help their child in operating the mobile phone. However, 50% of children never require help to use the mobile phone which was higher compared to other studies. For instance, in Kabali 28.2% of 2-year-old children and 42.9% of 4-year-olds never required help.^[3] In another study, out of 325 children, 21 children used a mobile phone independently and 37 had their own device.^[13] Child's ability to operate the mobile implies their independent usage and exploration.

Most of the parents in our study believed that their child did not require a mobile phone. In contrast, other studies have reported varying degrees of concern among parents regarding their child's mobile phone use. For example, a survey conducted by Northwestern University found that 31% of parents expressed concern about their child's media exposure, while 72% of parents in a study conducted in India said they were "not concerned".^[12,16]

The findings of this study indicate that a majority of parents believe that providing their children with mobile phones is necessary for educational purposes (57.7%) which was similar to a study conducted in Korea, where 47.7% of parents perceived mobile phones as beneficial for learning.^[10] In an Indian study, it was revealed that 53% of parents hold a positive perspective toward screen activities for toddlers, for learning purposes and as a means to keep the child engaged while they are doing household chores.^[12] Although mobile media can be useful for education, it can also distract children from learning and face-to-face interactions, making it crucial to maintain a balance between mobile media learning and distractions, especially at a young age.

In our study, the parents expressed a desire for their children to use mobile phones for shorter durations and took control measures to regulate their usage, which they found effective. In a Greek study, parents expressed concern about the effects of mobile phone exposure on their children.^[13] Interestingly, they sought advice from family and friends rather than consulting doctors or scientific literature to manage their children's phone usage. Hence, pediatricians and family physicians are essential in advising parents about the significance of overseeing screen exposure and offering credible resources for appropriate mobile phone use as part of child assessments. They should counsel the parents according to the guidelines provided by the Indian Academy of Pediatrics to promote digital wellness.^[11] The most effective way to curb mobile phone use is through intervention at the family level, where parents provide alternatives to mobile use and enforce home-based rules.^[8]

The strengths of this study are that it examines mobile phone usage among younger age groups, specifically those aged 6 months to 4 years in India. This area of research is relatively

less explored, making the study a valuable contribution to the field. Additionally, the study considers the influence of parents' beliefs on their child's mobile phone usage.

However, the study has some limitations. It does not explore the side effects of mobile phone use at this age. The study is affected by recall bias and selection bias, which could impact the accuracy of the findings. Additionally, the sample size is relatively small, which may limit the generalizability of the results.

In conclusion, there was a high prevalence of mobile phone use among children of age group 6 months to 4 years and their usage increased with their age. Children use phones for educational purposes, playing games or watching movies or TV shows. Parents often allow their children to use mobile phones while feeding them. The maximum number of children use mobile phones for less than an hour per day and more than 5 times a week.

While most parents believe that their children do not require a phone, in reality, the children of these parents do use a mobile phone. Hence further studies on prevalence, adverse effects and interventional strategies to curb mobile phone use in this age group are required.

Financial support and sponsorship

The study was funded by the Indian Council of Medical Research (ICMR) STS 2019 program, New Dehli, India.

Conflicts of interest

There are no conflicts of interest.

References

- Rideout V, Saphir M, Pai S, Rudd A. Zero to eight: Children's media use in America 2013. Common Sense Media. Available from: <https://www.commonsensemedia.org/research/zero-to-eight-childrens-media-use-in-america-2013>. [Last accessed on 2023 Aug 12].
- Rideout V, Saphir M. Zero to eight: Children's media use in America 2011. Common Sense Media. Available from: <https://www.commonsensemedia.org/research/zero-to-eight-childrens-media-use-in-america>. [Last accessed on 2023 Aug 12].
- Kabali HK, Irigoyen MM, Nunez-Davis R, Budacki JG, Mohanty SH, Leister KP, *et al*. Exposure and use of mobile media devices by young children. *Pediatrics* 2015;136:1044-53.
- Rajma J, Sathiyamoorthy K. impact of mobile phones in children's lives and factors associated with mobile phone addiction: A prospective observational study. *Int J Med Sci Clin Res Rev* 2022;5:540-4.
- Shah RR, Fahey NM, Soni AV, Phatak AG, Nimbalkar SM. Screen time usage among preschoolers aged 2-6 in rural Western India: A cross-sectional study. *J Family Med Prim Care* 2019;8:1999-2002.
- Jain S, Shrivastava S, Mathur A, Pathak D, Pathak A. Prevalence and determinants of excessive screen viewing time in children aged 3-15 years and its effects on physical activity, sleep, eye symptoms and headache. *Int J Environ Res Public Health* 2023;20:3449.
- Brown A. Media use by children younger than 2 years. *Pediatrics* 2011;128:1040-5.
- Kaur NK, Gupta MG, Malhi PM, Grover SG. Screen time in under-five children. *Indian Pediatr* 2019;56:773-88.
- DIXIT JV. Principles and Practice of Biostatistics. 5th ed. Aurangabad: M/S Banarsidas Bhanot; 2011. 77 p.
- Baek YM, Lee JM, Kim KS. A study on smart phone use condition of infants and toddlers. *Int J Smart Home* 2013;7:123-32.
- Gupta P, Shah D, Bedi N, Galagali P, Dalwai S, Agrawal S, *et al*. Indian Academy of pediatrics guidelines on screen time and digital wellness in infants, children and adolescents. *Indian Pediatr* 2022;59:235-44.
- Meena P, Gupta P, Shah D. Screen time in indian children by 15- 18 months of age. *Indian Pediatr* 2020;57:1033-6.
- Papadakis S, Alexandraki F, Zaranis N. Mobile device use among preschool-aged children in Greece. *Educ Inf Technol* 2022;27:2717-50.
- Dinleyici M, Carman KB, Ozturk E, Sahin-Dagli F. Media use by children and parent's view on children's media usage. *Interactive J Med Res* 2016;5:1-10.
- Bozzola E, Spina G, Ruggiero M, Memo L, Agostiniani R, Bozzola M, *et al*. Media devices in pre-school children: The recommendations of the Italian Pediatric Society. *Ital J Pediatr* 2018;44. doi: 10.1186/s13052-018-0508-7.
- Wartella E, Rideout V, Lauricella AR, Connell SL. Parenting in the age of digital technology: A national survey. Center on Media and Human Development, School of Communication, Northwestern University. June 2013. Available from: http://static1.1.sqspcdn.com/static/f/1083077/22839022/1370380073813/PARENTING_IN_THE_AGE_OF_DIGITAL_TECHNOLOGY.pdf?token=ywpuHSykX7ykiNpr4IvemQ%2BPIX4%3D.