

## Bangladeshi Young Children's Smartphone Use: Status and Parents' Awareness

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### Abstract

Nowadays the tendency for smartphone use among children is noticeable and day by day this tendency is increasing at an alarming rate. The aim of this study was to explore the status of Bangladeshi young children's smartphone use and parents' awareness of young children's smartphone uses in terms of the American Academy of Paediatrics (AAP) guidelines. The study employed a mixed-methods research approach and adopted purposive sampling. The data were collected through an online mixed questionnaire from 83 parents who owned smartphones and whose children were between 0 and 5 years old. The findings show that 44% of children spent more than 1 hour on the smartphone screen which is higher than the screen time recommended by the AAP guidelines. It was found that 65% parents gave their children smartphones to entertain them, while 62.3% for learning purposes, 42.9% for keeping their children calm, 37.7% for feeding their children, and 23.4% for keeping their children busy during their work. It is noteworthy that 78% parents found different kinds of developmental problems in their children, while the rest 22% found no negative effects on their children. The study reveals a significant gap in parental awareness and knowledge regarding the AAP guidelines on children's screen use. The results show that 75.6% of parents did not know about the guidelines for children's screen use recommended by the AAP. Although they did not know the recommended guidelines, 81.1% of the parents had taken various steps to control their children's excessive smartphone usage and the steps were effective in reducing children's excessive smartphone use. As most of the parents were found unaware of the AAP guidelines for screen use, there is a need for increasing proper awareness among parents to mitigate the negative effects of children's smartphone use.

### Keywords:

smartphones,  
children, parents'  
awareness, AAP  
guidelines, child  
development

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## **1.0 Introduction**

In recent years, there has been an increasing interest in the use of smartphones among people (Olson et al., 2022). A recent statistic suggests that the total number of smartphone users worldwide increased from 3.7 billion in 2016 to 6.4 billion in 2022 and is estimated to reach 7.7 billion by 2028 (O'Dea, 2021). Access to smartphones among children is also increasing. According to estimates, 41% of children aged 0 to 8 in the United States had access to smartphones in 2011 and that number increased to 63% in 2013, 95% in 2017 and 97% in 2020 (Rideout, 2013; Rideout & Robb, 2020). Smartphones are becoming more popular electronic devices among children because a large number of their parents have these devices at home (Chang et al., 2018; Rideout & Robb, 2020; Zaman & Mifsud, 2017).

Like that in other countries, the number of mobile users is increasing in Bangladesh as well. According to statistics, the number of mobile subscriptions in this country was 176 million in 2020 and increased to 184.44 million in 2021 (Taylor, 2023) and before COVID 19, the number of smartphone users in this country was 38% and in 2022, it increased to 48% (Hasan, 2022). This increase in smartphone usage indicates the possibility of children to be exposed more to their parents' smartphones. A recent study in Bangladesh found that 92% of children aged 3-5 years use their parents' smartphones (Abdulla, 2023).

Parents give smartphones to children for purposes like learning and entertainment. They are allowed to use smartphones during meals. They are also given smartphones to keep them calm and busy during the parent's working time and sleeping time (Kabali et al., 2015; Kilic et al., 2019; Rideout & Robb, 2020; Yadav & Chakraborty, 2018; Yadav & Chakraborty, 2022). As Kabali et al. (2015) found, 70% of parents gave their smartphones to children while doing housework, 65% gave to keep them calm in public places, and 29% while sleeping. On the other hand, according to Kılıc et al. (2019), 59.6% of parents gave smartphones while they were doing daily domestic work.

However, excessive exposure to smartphones can hamper children's mental, physical, cognitive and language development (Golden et al., 2020; Lissak, 2018; Massaroni et al., 2023; Okada et al., 2021; Park & Park, 2014; Schwarzer et al., 2022; Swider-Cios et al., 2023). There are studies that find that there is a link between children's screen time and their attention. Children who spend too much time on screens may develop attention issues (Santos et al., 2022). Children's smartphone use is positively associated with speech delays and communication delays (Alamri et al., 2023; Heuvel

et al., 2019; Park, 2017). Additionally, young children's excessive use of smartphones can lower language development and self-regulation (Lawrence & Choe, 2021). Thus, there is a huge body of research (e.g. Abdulla et al., 2023; Nisa & Siddiqua, 2015; Wacks & Weinstein, 2021; Yadav & Chakraborty, 2022) that finds that too much screen time causes language delays and many other health complications like a higher risk of obesity, aggressive behaviour and violence, social skills loss, attention deficit disorder, depression and anxiety, sleep disorder, visual acuity issues, arthritis, repetitive motion syndrome, and migraine headaches. In order to prevent children from suffering from digital screens' negative consequences, there are some research-based guidelines that are recommended by the American Academy of Paediatrics (AAP) and the World Health Organization (Brown et al., 2015; Hill et al., 2016; World Health Organization, 2019).

The World Health Organization (WHO) guidelines focus broadly on physical activity, sedentary behaviour, and sleep for children. According to these guidelines, children should not use screens before one year of age and after 2 to 5 years, they are allowed to use screen for one hour or less. Children should sleep for 14–17 hours (0–3 months) or 12–16 hours (4–11 months) every day before 1 year of age. They should also have numerous opportunities for floor-based interactive play, including at least 30 minutes of tummy time per day. Children between the ages of 1 and 2 should sleep for 11 to 14 hours a day, including naps, and engage in at least 180 minutes of varied activity. Children 3 to 5 years of age should sleep 10 to 13 hours a day, including naps, and participate in 180 minutes of physical exercise, of which 60 minutes should be moderate to vigorous.

While the WHO offers valuable insights into promoting overall health and well-being, they are less specific about the impacts of digital media and technology. On the other hand, the American Academy of Paediatrics (AAP) guidelines are specifically tailored to address the effects of modern technology on children. They provide detailed recommendations on screen time, social media, and digital media use, making them highly relevant for research focused on these areas. The AAP also offers practical guidance for parents on managing their children's media consumption.

However, the AAP guidelines are more detailed and directly applicable to the study of technology use, offering insights that are particularly useful for understanding its effects on child development and for guiding parental practices. The WHO guidelines, while globally applicable, provide a broader perspective that is less focused on the nuances

of digital media. As well, the target audiences of these guidelines are policymakers, people working in health-related sectors and caregivers. The aim of this study was to explore the status of Bangladeshi children's smartphone use and Bangladeshi parents' awareness of young children's smartphone use in terms of AAP guidelines and therefore the AAP guidelines were chosen for their specificity, practical application, and relevance to contemporary challenges in digital media use.

### **1.1 American Academy of Paediatrics (AAP) Guidelines**

1. All screen should be avoided for kids younger than 18 to 24 months, except for video-chatting.
2. Parents should not feel pressured to introduce technology early. Children can quickly learn to use intuitive technology interfaces once they are exposed to them, regardless of the age at which they start.
3. For children aged 18 to 24 months, if parents choose to introduce digital media, it is important to select high-quality educational programming and engage with the child during media use. Co-viewing helps enhance a child's understanding and learning. Solo media use at this age does not provide the same cognitive and language benefits involved in interactive and shared experiences.
4. Additionally, for children aged 2 to 5 years, it is recommended to limit screen use to 1 hour per day of high-quality programming. Co-viewing is essential during this stage as well, as it helps children understand the content and apply what they learn to their everyday experiences.
5. It is crucial to avoid fast-paced and violent content for young children. Fast-paced programs can be overstimulating and difficult for young children to process.
6. Turning off televisions and other devices when not in use is advised to prevent background media from distracting or overstimulating children. Background media can interfere with playtime and parent-child interactions, both of which are vital for healthy development.
7. While digital media can be useful for calming children in certain situations such as during medical procedures or airplane flights, it should not be the primary method for soothing them. Overreliance on media for calming can impede the development of self-regulation skills and create difficulties with setting limits.

Parents should encourage alternative soothing strategies and seek paediatric advice if needed.

8. Monitoring children's media use is crucial. Parents should keep track of the apps and media their children are using, test apps beforehand, and play together.
9. Establishing screen-free zones and times, such as during meals, in bedrooms, and during parent-child playtime, is beneficial. Parents can also set their devices to "do not disturb" during these times to fully engage with their children.
10. Finally, it is important to avoid screens at least 1 hour before bedtime and to remove devices from bedrooms.

## **2. The Study**

Although limited, there are some studies that investigated the extent of parents' knowledge and awareness of international guidelines such as those from the American Academy of Paediatrics (AAP) on digital device use for young children in different countries in the world (Asplund et al., 2015; Golden et al., 2020; Lammers et al., 2022; Lampard et al., 2013; Wallace & Livingstone, 2019). As it appears in these studies, a large number of parents are not aware of the AAP guidelines (Golden et al., 2020; Lammers et al., 2022; Shirley & Kumar, 2019; Wallace & Livingstone, 2019). However, parents who are well-informed about international guidelines like the AAP guidelines have a higher chance of successfully controlling their children's screen time use than those who are unaware (Lammers et al., 2022). Therefore, this study employs AAP guidelines as a standard yardstick to measure Bangladeshi parents' awareness of children's smartphone use.

Research in the context of Bangladesh mainly explores parental perceptions of young children's excessive use of screen time (Shil, 2020; Sattar, 2021), and of the negative effects on 1 to 10 year old children's physical and psychological development (Sadri, 2018). There are also some studies on the parents' role in enhancing the value of their children's media screen time (Rahman & Farzana, 2019); the role of parental mediation in their children's internet use (Chandrima et al., 2020) and the prevalence of children's problematic smartphone use along with its influential factors and detrimental impacts on 3 to 5 year old pre-schoolers' psychological and physical development (Abdulla et al., 2023). However, no previous study has investigated Bangladeshi parents' awareness of young children's smartphone use in terms of international guidelines like the guidelines recommended by the American Academy of Paediatrics (AAP). Based

on the perceptions of parents, this study explores the status of Bangladeshi children's smartphone use and Bangladeshi parents' awareness of young children's smartphone use in terms of AAP guidelines. The findings of this study will create awareness among parents about young children's use of smartphones and have policy implications for saving young children from the harmful effects of smartphone use.

### **3. Method**

This research employed a mixed-methods research approach to explore the issues about Bangladeshi parents' awareness of young children's smartphone use. A convergent mixed methods was designed by combining both quantitative and qualitative method to provide a better understanding of the social phenomenon. Owing to the fact that with an integration of quantitative and qualitative data, one source of data could enhance, elaborate, or complement data from the other source (Greene, Caracelli, & Graham, 1989). While quantitative data were collected to assess the frequency and magnitude of trends and awareness of the effects of smartphone use, qualitative data provided the opportunity to offer different perspectives on the issues. The researcher gathered both quantitative and qualitative data, analysed both datasets separately, compared the results from the analysis of both the datasets, and interpreted them.

The participants of this study were the Bangladeshi parents of children aged between 0 and 5. The study adopted purposive sampling. The researcher selected the most relevant individuals to conduct the study with a view to collecting the information rich data. The parents who were involved in their children's upbringing and owned smartphones were selected as participants in this study. The selected parents were educated: most of them completed their graduate studies. Initially, 300 parents from the Dhaka city were selected for the study, however only 83 parents responded. Though the sample size is small, it is still useful and valid for meaningful results considering the research purpose and the research method. Among the participants, 29 parents responded to the open-ended question comprising the qualitative part. These 29 participants are referred to as Parent 1, Parent 2... Parent 29.

A mixed questionnaire integrating both closed-ended and open-ended questions was employed to provide a rich and comprehensive picture of the parents' awareness of young children's smartphone use (Zohrabi, 2013). The instrument was developed by the researcher and later on, reviewed by content experts. The questionnaire is divided into two sections where the first section contains 11 closed-ended questions focusing

on the status of using smartphone, parents' perceptions of smartphone use by children, and parental knowledge and awareness about the AAP guidelines. The second part contains a comprehensive open-ended question to collect parents' opinions on the effects of smartphone use on their children and the steps they took to address those effects. The open-ended question is included in the questionnaire to gather unbiased data and to achieve the research goals. The questionnaire was made using Google Forms. The questions in the form were written in both Bangla and English so that all the parents could find it easy to understand. The link of the questionnaire was sent to the participants through WhatsApp and Messenger. The quantitative data were analysed using Google Forms and Microsoft Excel. On the other hand, the qualitative data were organized and analysed in a thematic way. For thematic analysis, the researcher coded the data, generated themes, reviewed the themes, defined and presented the themes contextually. The researcher maintained the quality and credibility of the data by collecting data from the appropriate sample, implementing suitable data collection instrument, and interpreting the data in contexts with accuracy and caution. To enhance the trustworthiness of data, the researcher employed some techniques like data triangulation, member checking, audit trail, and peer debriefing.

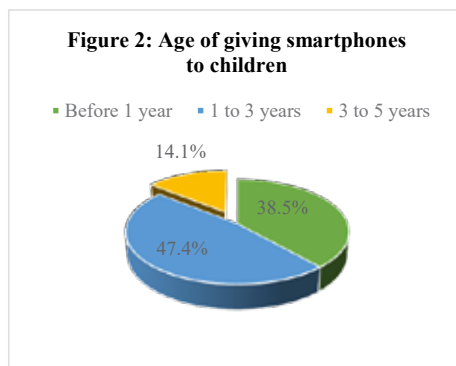
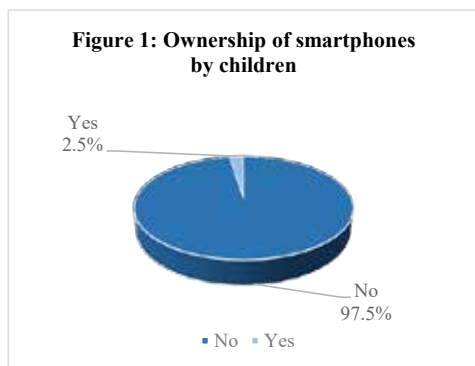
#### **4. Findings and Discussion**

Findings are divided into three main categories, namely the status of using smartphones by children, parents' perceptions about the effects of their children's smartphone use, and parental knowledge and awareness of the AAP guidelines.

##### **4.1 The status of using smartphones by children**

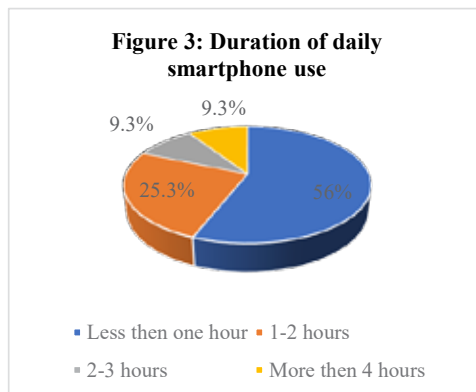
###### **4.1.1 Smartphone ownership and early exposure**

Out of 83 participants, 2 parents did not respond to the question about their children's smartphone ownership. According to the opinions of 81 parents, 97.5% (79/81) of Bangladeshi children aged between 0 and 5 years do not have their own smartphones and only 2.5% (2/81) of children have their own smartphones (Figure 1). However, the children who do not own any smartphone are using their parents' smartphones (Figure 1). As the data show, 98% (81/83) of children aged between 0-5 years have access to smartphones. Among them 38.5% of children started using smartphones before 1 year of age, 47.4% of children between 1 and 3 years, and 14.1% of children between 3 and 5 years (Figure 2).



#### 4.1.2 Duration of giving smartphones to children

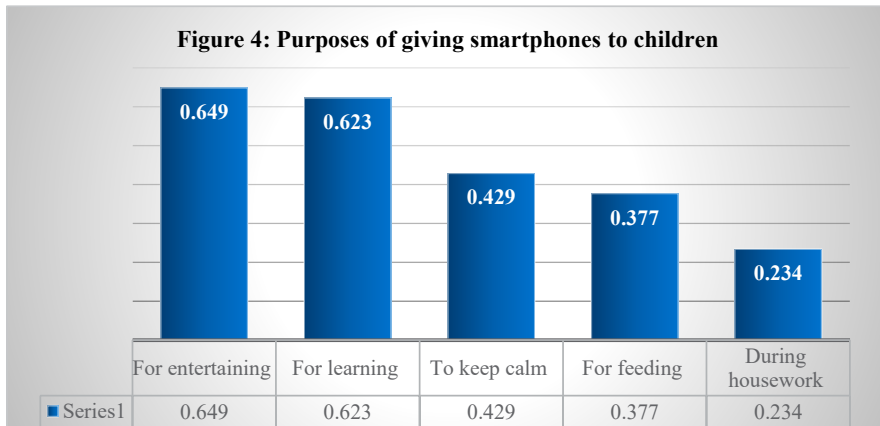
Of the 83 parents, 75 responded to the question regarding the duration of smartphone use by children. The data revealed that 56% of children spent less than 1 hour, 25.3% of children spent 1-2 hours, 9.3% of children spent 2-3 hours, and 9.3% of children spent more than 4 hours in front of the smartphone screen (Figure 3). As it appears, in 44% cases the duration of smartphone use is more than 1 hour which is more than the duration recommended by AAP guidelines.



#### 4.1.3 Purposes of giving smartphones to children

Of the 83 parents, 77 responded to the question about the purpose of giving smartphones to their children where the participants had the opportunity to choose multiple options. It was found that 65% parents gave their children smartphones to entertain them, while 62.3% for learning purposes, 42.9% for keeping their children calm, 37.7% for feeding their children, and 23.4% for keeping their children busy during their work (Figure 4).





The realities behind the purposes of giving smartphones to children are revealed in the qualitative data. As for giving children smartphones for learning purposes, Parent 11 said, “In my opinion, smartphones help kids learn foreign languages, general knowledge, rhymes and so on.” Similarly, Parent 09 expressed that using smartphones, his child tried to “learn the English language”. As for keeping the children calm, Parents 24 said, “Devices only help to keep the children calm.” Parent 04 claimed that she “cannot feed [her child] without a smartphone.”

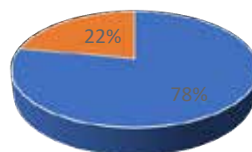
## 4.2 Parents’ perceptions about the effects of their children’s smartphone use

### 4.2.1 Adverse effects of children’s smartphone use

The findings of the study revealed different perceptions of parents about the use of smartphones by children. Out of 83 parents, 78% found different kinds of developmental problems in their children where most of the children faced multiple developmental problems at the same time (Table 1), while the rest 22% of the parents found no negative effects on their children (Figure 5).

**Figure 5: Effects of smartphones on children’s development**

■ Negative effects ■ No negative effects



Parents who found that smartphone use had negative effects on their children had found several developmental problems in their children like speech delays, visual deficiency, obesity etc. Additionally, they had found some behavioural problems like decreased concentration, excessive anger, mood swings, stress, depression and sleep disorders. The statistical data display that 29.2% of children faced speech delays, 21.5% faced visual deficiency, 6.2% had headache, and 1% had obesity; 47.7% faced concentration decrease, 40% excessive anger, 21.5% mood swing problems, and 15.4% faced stress, depression and sleep disorder problems (Table 1). These findings align with existing literature suggesting that high screen time can be responsible for developmental and behavioural problems like speech delays, excessive anger, concentration decrease etc. (Alamri et al., 2023; Heuvel et al., 2019; Lawrence & Choe, 2021; Lin et al., 2020; Park, 2017; Rinaldi et al., 2023; Santos et al., 2022).

Table 1: Adverse effects of children's smartphone use

<b>Problems of children because of excessive smartphone use</b>	<b>(%) Percentages</b>
Excessive anger	40%
Decrease concentration	47.7%
Speech delays	29.2%
Visual deficiency	21.5%
Mood swing	21.5%
Stress, depression, sleep disorder	15.4%
Headache	6.2%
Obesity	1%

Despite the challenges, the study also found positive effects of smartphone use. 73.8% of parents reported positive effects of educational contents on children's development (Table 2). This supports previous research indicating that high-quality educational media maintained with guidelines can benefit young children in their knowledge increase, language development, social interaction and communication skills (Sergi et al., 2017; Yadav & Chakraborty, 2018; Yadav & Chakraborty, 2021).

Table 2: Effects of educational contents on children's development

Positive effects	73.8%
Negative effects	15%
No effects	11.2%

#### **4.2.2 The harsh realities with children's smartphone use**

Although the parents referred to the positive effects of children's smartphone use in the quantitative data, the qualitative data show that they did it with caution as they were aware of the negative effects of the excessive use of smartphones. As Parent 11 said:

In my opinion, using smartphones is useful because it helps kids learn foreign languages, general knowledge, rhymes, and so on. However, excessive use of these devices is harmful to physical and mental growth. Smart devices should be used in a limited and guided manner, so they can be helpful for learning and entertainment purposes.

Some parents also added that they were against their children's excessive use of smartphones, though the educational contents are helpful for children. As one of the parents (Parent 25) said:

I do not support the excessive use of smartphones by kids. Though there are lots of educational content and they can build proficiency through it, because of excessive use, they get disconnected from socializing and sometimes face language delays.

The qualitative data also exposed the harsh realities the parents experienced with their children's smartphone use. Use of smartphones so affected the children that Parent 24 said, "From my very personal experience, I directly observed how smartphones affected the children in their daily activities. It makes them hyperactive in most cases. I believe all these happen because children use smartphones longer." Parent 14 referred to communication delay problems:

Using smartphones hampers our children's development. Toddlers watch cartoons that are full of many languages, which decreases their natural process of language learning. As they spend lots of time on their mobile phones, they can't connect with others and can't share their emotions.

Parent 26 also expressed a similar concern: "Smartphones are making children less curious about what is happening around them." Parents also said that playing any social media videos, music or cartoons for their children on their smartphones can later turn into addiction. This addiction makes them hyperactive. They cannot respond to their parents and face attention problems. As Parent 03 explained:

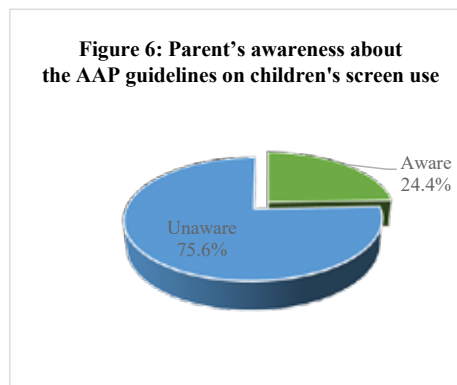
We should not play any social media related videos, music, or cartoons for the children. It hampers our children, and they will become addicted to mobile devices. It also has a negative impact on the development of a child's language.

What is more, as Parent 12 said, children “who are addicted to smartphones cannot speak properly.” According to some parents, at present, most children face speech delays because of excessive use of smartphones. Parent 01 explained, “My child had problems with language development due to prolonged use of a smartphone. But when we stopped giving him the smartphone, his language problems started to resolve.” Parent 15 said, “It’s a very harmful device for every child. I’ll make sure that my daughter will not be able to use a mobile phone during her childhood.” Another parent, Parent 29, suggested, “In order to build the future ideals of children as ethical, honest, responsible, hardworking and patriotic, the use of mobile phones should be stopped.”

### **4.3 Parental Knowledge and Awareness About the AAP Guidelines**

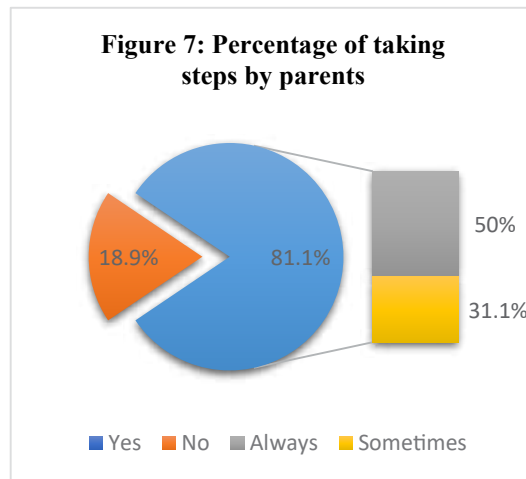
#### **4.3.1 Parent’s knowledge about AAP guidelines**

Although parents were in general aware of the adverse effects of young children’s smartphone use, most of them were found unaware about international guidelines like the guidelines for children’s screen use recommended by the American Academy of Paediatrics (AAP). To know parents’ familiarity with AAP guidelines, parents were asked if they heard about AAP guidelines about children’s screen use on smartphone. 78 parents out of 83 participants responded to the question. The results show that a large number of parents, i.e. 75.6%, did not know about the guidelines, while the remaining 24.4% knew about the guidelines (Figure 6). A previous survey showed that 62.2% of US parents were aware of the AAP screen time recommendations, but only 46.1% of them could accurately specify them (Lammers et al., 2022). Another study showed that although 84% of UK parents placed limitations on children’s screen time, only 27% of parents followed the proper AAP guidelines (Wallace & Livingstone, 2019). Additionally, a study on Indian children showed that only 14.2% had screen time according to AAP guidelines (Shirley & Kumar, 2019).



### 4.3.2 Steps taken to avoid adverse effects of smartphone use

Although 75.6% of the parents did not know about the AAP guidelines, most of them had taken some steps to reduce the use of smartphones. When asked whether they had taken any steps to reduce children's smartphone use, 74 parents (including the parents who knew about the AAP guidelines) responded to the question. Among them 81.1% of parents had taken some initial steps, while the remaining 19.9% did not take any steps. Among the 81.1% of parents, 50% took the steps always and 31.1% sometimes (Figure 7).



#### 4.3.2.1 Specifics of the steps in terms of AAP guidelines

To know about the specifics of the steps parents take to avoid the adverse effects of children's smartphone use, questions were framed with options in terms of AAP guidelines, where parents could choose multiple options. As the findings show, parents took different steps to control their children's smartphone use. 70.9% spent screen free time with them; 51.9% encouraged their children to do physical activities; 22.8% avoided allowing the use of devices during meals, and 6.3% restricted their children from watching violent videos.

As for co-viewing, g i.e. the presence of parents when children use their smartphones, 54.4% of parents claimed that they were always present with them when their children used smartphones, while 40.5% were sometimes able to be present with their children and the rest 5.1% were never present with them (Table 3). This also aligns with the AAP's advice for parents to co-view media with their children to help them understand what they are seeing and apply that to the world around them (Hill et al., 2016). The

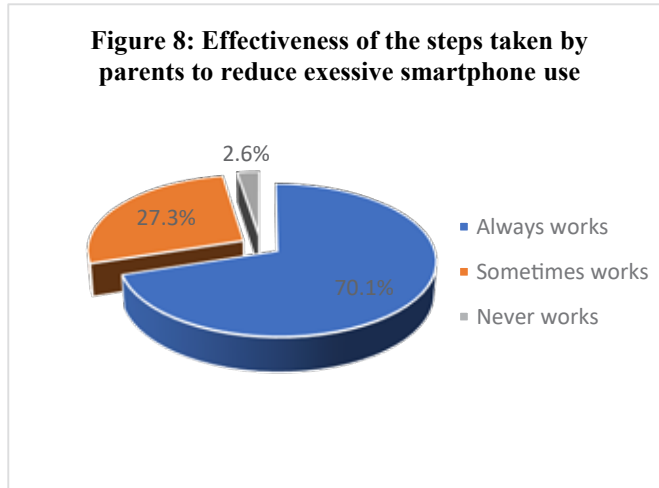
details of the steps are seen in the qualitative data. An aligned presentation of the steps and the AAP guidelines (Table 3) indicates parents' approaches to save their children from the adverse effects of smartphone use, albeit they were not fully informed by AAP recommendations.

Table 3: Steps taken to avoid adverse effects

Quantitative findings	Qualitative findings	AAP guidelines	
Spend screen free time with (children: 70.9% (56/79)	Parent 07 said, "The whole family should spend time with children, talk to them more and sometimes take them outside for a walk or play. And it is better not to use smartphones in front of children unless ".necessary	Create screen free zone and time with children	
Encouraging physical activity: (51.9% (41/79)	Parent 19 said, "When you have free time, ".go outside with your children  Parent 24 said, "Smartphones only help to calm the children temporarily, but parents can calm them by involving them in various other activities as well, and that will ".help their children permanently  Parent 06 said, "They should be taken for walks, play games, and talk together with ".their parents	Finding alternate activities	
Disallowing smartphone use during mealtime: 22.8% ((18/79)	Parent 27 said, "It is better for children to ".use mobile phones less  Parent 20 said, "Try not to give smart- ".phone so much  Parent 28 said, "Children can use smart- phones for entertainment and learning to ".a limited extent	Monitor smartphone usage	
Restrict child from viewing (violent videos: 6.3% (5/79)	Parent 10 said, "Should restrict smart- ".phones at a younger age	Content selection and restrictions	
Presence of parents while using .smartphones by children	Parent 08 said, "Should limit screen time ".and elders should supervise	Co-viewing with children	
Always			(43/79) 54.4%
Sometimes			(32/79) 40.5%
Never			(4/79) 5.1%

#### 4.3.2.2 Effectiveness of the steps

Parents were asked about the effectiveness of their initial steps and whether they were actually working or not. As they replied, these steps eventually helped their children reduced excessive use of smartphones. 70.1% parents always benefited from these steps while 27.3% sometimes found the benefits, and the remaining 2.6% did not find any benefits (Figure 8).



## 5. Conclusion

The effectiveness of the steps aligned with the AAP guidelines suggests that even basic interventions, when consistently applied, can mitigate some of the adverse effects of excessive screen use. This underscores the importance of parental knowledge about and adherence with established guidelines. However, the study reveals a significant gap in parental awareness and knowledge regarding the American Academy of Paediatrics (AAP) guidelines on children's screen use on smartphones. Despite the critical role these guidelines play in mitigating developmental issues associated with excessive screen time, a substantial number (75.6%) of parents were unaware of them (Figure 6). This lack of awareness is concerning, given the increasing prevalence of smartphone use among young children and the associated risks. Therefore, it is necessary to disseminate these guidelines more widely to ensure greater parental awareness about children's smartphone use and the effects of smartphone use on children.

Although parents displayed their awareness about the adverse effects of children's smartphone use, the status of children's smartphone use presents that most children

(97.5%) use their parents' smartphones, with only a small fraction (2.5%) having their own smartphone (Figure 1). The data also show that 56% of children use smartphones for less than an hour daily, yet a considerable 44% exceed this duration where 9.3% children spent more than four hours on screens of smartphones (Figure 3). Additionally, a notable number of children (38.5%) started using smartphones before the age of 1 (Figure 2). This is alarming in light of the AAP's recommendations that children under 18 months should avoid screens entirely except video chatting, and those aged two to five should be limited to only one hour of high-quality content per day (Hill et al., 2016). This contradiction between the parents' awareness and the status of children's smartphone use argues that common sense awareness hardly overcomes the purposes, e.g. entertainment, keeping children calm, feeding etc. Hence, the study emphasizes the need for increased awareness and adherence to AAP guidelines among parents. While many parents were intuitively implementing beneficial practices, a more structured understanding and application of these guidelines could further enhance children's developmental outcomes. Efforts to disseminate this knowledge effectively could bridge the awareness gap, ensuring that children benefit from technology without compromising their developmental health.

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## Appendix

### Questionnaire

#### Section: 1

##### A: Status of Using Smartphone

1. Does your child have own smartphone? / আপনার সন্তানের কি নিজের স্মার্টফোন আছে?
  - Yes (হ্যাঁ)
  - No (না)
2. From what age is your child connected with smartphone? / আপনার সন্তান কোন বয়স থেকে স্মার্টফোনের সঙ্গে সংযুক্ত?
  - Before 1 year (১ বছরের আগে)
  - 1 to 3 years (১ থেকে ৩ বছরের মধ্যে)
  - 3 to 5 years (৩ থেকে ৫ বছরের মধ্যে)
3. Specify the average duration of your child’s daily smartphone use? / আপনার সন্তানের দৈনিক স্মার্টফোন ব্যবহারের গড় সময়কাল উল্লেখ করুন।
  - Less than 1 Hours (এক ঘন্টার কম)
  - 1-2 Hours (১-২ ঘন্টা)
  - 2-3 Hours (২-৩ ঘন্টা)
  - More than 4 Hours (৪ ঘন্টার বেশি)

4. Why is your child given a smartphone? / কেন আপনার সন্তানকে স্মার্টফোন দেওয়া হয়?

- Learning purpose (শেখার উদ্দেশ্যে)
- For entertainment (বিনোদনের জন্য)
- During meal (খাবার সময়)
- While your work (আপনার কাজ করার সময়)
- To keep him calm (তাকে শান্ত রাখতে)

B: Parents' Perceptions About the Effects of Their Children's Smartphone Use

5. What problems is your child facing due to excessive smartphone use? / অতিরিক্ত স্মার্টফোন ব্যবহারের কারণে আপনার সন্তানের কোন সমস্যাগুলো দেখা দিচ্ছে?

- Speech Delay (ভাষা বিলম্ব)
- Visual deficiency (দৃষ্টিশক্তির সমস্যা)
- Headache (মাথা ব্যেথা)
- Obesity (স্থূলতা)
- Mood Swing (মুড সুইং)
- Excessive anger (অতিরিক্ত রেগে যাওয়া)
- Decreased concentration (মনযোগ কমে যাওয়া)
- Stress, Depression and Sleep Disorders (স্ট্রেস, বিশ্রামতা, ঘুমের সমস্যা)

6. What effect do educational contents (rhymes, stories, Songs, Alphabets and numbers learning etc) on smartphones have on children's language development? / স্মার্টফোনে শিক্ষামূলক বিষয়বস্তু (ছড়া, গল্প, গান, বর্ণমালা এবং সংখ্যা শেখা ইত্যাদি) শিশুদের ভাষার উপর কী প্রভাব ফেলে?

- Positive effects (ইতিবাচক প্রভাব)
- Negative effects (নেতিবাচক প্রভাব)
- No effects (কোন সমস্যা নেই)
- C. Parental Knowledge and Awareness About the AAP Guidelines

7. Do you know about the guidelines for children's screen use which are recommended by the American Academy of Pediatrics? / আমেরিকান একাডেমি অফ পেডিয়াট্রিক্স দ্বারা সুপারিশকৃত শিশুদের জন্য স্ক্রীন ব্যবহারের নির্দেশিকা সম্পর্কে আপনি কি জানেন?

- Yes (হ্যাঁ)
- No (না)

8. Have you taken any precautionary measures to control your child's use of additional smartphone? / আপনার সন্তানের অতিরিক্ত স্মার্টফোন ব্যবহার নিয়ন্ত্রণ করার জন্য আপনি কি কোনো সতর্কতামূলক ব্যবস্থা নিয়েছেন?
- Always (সব সময়)
  - Never (কখনো না)
  - Sometimes (মাঝেমাঝে)
9. Which of the following methods you use in order to motivate your child so that your child's smartphone use is reduced? / আপনার সন্তানকে অনুপ্রাণিত করার জন্য আপনি নিচের কোন পদ্ধতি ব্যবহার করেন যাতে আপনার সন্তানের স্মার্টফোন ব্যবহার কম হয়?
- Spend screen free time with them (তাদের সাথে স্মার্টফোন ছাড়া সময় কাটিয়ে)
  - Restrict your child from viewing violent video (আপনার সন্তানকে হিংসাত্মক ভিডিও দেখা থেকে সীমাবদ্ধ করে)
  - Disallowing device use during mealtime (খাবারের সময় ডিভাইস ব্যবহারের অনুমতি না দেওয়া)
  - Encouraging physical activity (শারীরিক কার্যকলাপে উৎসাহিত করে)
10. Is someone present with your child while using the smartphones? / আপনার সন্তানের স্মার্টফোন ব্যবহার করার সময় কি সঙ্গে কেউ উপস্থিত থাকে?
- Always (সব সময়)
  - Never (কখনো না)
  - Sometimes (মাঝে মাঝে)
11. Do you think that the precautionary measures you have taken to reduce excessive smartphone usage eventually helped your child? / আপনি কি মনে করেন যে অতিরিক্ত স্মার্টফোনের ব্যবহার কমাতে আপনি যে সতর্কতামূলক ব্যবস্থা নিয়েছেন তা শেষ পর্যন্ত আপনার সন্তানকে সাহায্য করেছে?
- Yes (হ্যাঁ)
  - No (না)
  - Sometimes (মাঝে মাঝে)

**Section: 2**

Give your opinion on the effects of smartphone use on your children and the steps you took to address those effects. / আপনার বাচ্চাদের উপর স্মার্টফোন ব্যবহারের প্রভাব এবং সেই প্রভাবগুলি মোকাবেলায় আপনি কী পদক্ষেপ নিয়েছেন সে সম্পর্কে আপনার মতামত দিন।

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