

BRIEF REPORTS

Appropriate Screen Time Use to Prevent Speech and Language Delay in Toddlers during the Covid-19 Pandemic: A Brief Report

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ABSTRACT

With the COVID-19 lockdown and other limitations, screen time has increased for everyone, even young children. Children's screen use has a deleterious influence on a variety of cognitive functions, including language delay. Various Paediatrics organizations have noticed these harmful impacts, and suggestions for parents were released to limit screen usage. These agencies have provided suggestions on the duration of screen usage for specific age groups. This study tries to address screen time from a qualitative standpoint. Suggestions for successful ways to participate in screen time are presented. Interactive screen time, including co-viewing and enough language engagement, may assist to mitigate the negative effects of screen time on language development. The screen has its own restrictions and several severe repercussions if they are exceeded. As a result, wherever feasible, screen time should be avoided, and language-rich quality time with children should be prioritized.

INTRODUCTION

The outbreak of the Covid-19 pandemic has changed people's lives all over the world. Everyone is adjusting to a new 'normal' while simultaneously using more technology. Adults and children are dependent on the internet for their work, studies and entertainment. As a result, their physical activities have reduced and screen time has increased (Schmidt et al, 2020). The initial research related to Covid 19 has focused mainly on the epidemiology, risk modelling, pathophysiology, and clinical features (Andersen, Rambaut, Lipkin, Holmes & Garry, 2020; Lan et al, 2020); later reports have focused on the impact that the Covid 19 related

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lockdown has had on various aspects of life including the economy, mental health, increased digital screen time and related issues such as myopia, obesity, disturbed sleep, and so on (Maital & Barzani, 2020; Schmidt et al, 2020; Wong et al, 2021; Singh & Balhara, 2021). However, the impact of high screen time on the speech and language development among toddlers and pre-schoolers during the Covid pandemic has largely gone unreported in research.

Screen time is the total time spent per day in viewing screens such as the mobile phone, TV, computer, tablet, or any hand-held or visual device (Indian Academy of Paediatrics, 2021). Children spend more time on screens as a result of the closure of day-care centres and/or preschools, and have fewer opportunities to interact with other children. This has a negative impact on language development, especially among very young children. Kuhl, Tsao and Liu (2003) investigated language learning in non-social contexts by presenting the stimulus through non-interactive media such as speakers on video and audio recordings. Their study found that language learning, particularly phonemic and phonetic repertoire, was not developed when presented through non-interactive media. Social interaction has been shown to be important in natural language learning (Robb, Richert & Wartella, 2009; Conboy & Kuhl, 2011; Conboy, Brooks, Meltzoff, & Kuhl, 2015). The current report discusses the negative effects of non-interactive screen time, which is defined as passive viewing of a screen without any active cognitive or communicative involvement from the child. The advantages of using interactive screen time are also discussed in greater depth.

Non-interactive Screen Time and Language Development: How is it Associated?

Excessive non-interactive screen exposure in very young children and its undesirable outcomes are mentioned in numerous studies (Duch, Fisher, Ensari, & Harrington 2013; Domingues-Montanari, 2017). Increased screen time has been linked to a variety of detrimental effects including attention issues, obesity, visual problems like myopia, deprivation of sleep, eating problems, reduced social interaction and delayed language development (Nunez-Smith, Wolf, Huang, Emanuel & Gross, 2008). In a survey on parents' awareness about the impact of screen time on communication in toddlers (Vrinda, Maria, & Swathi, 2021), speech delay was the least reported impact and visual problems were the most reported impact. This indicates the parents' lack of awareness about the issue. In the same study, 75.5% of the parents thought that it was easy to manage their children by allowing them to watch a screen. Many parents believed that by

exposing their children to nursery rhymes and cartoons, the children would learn to speak. Although studies have shown that older children may learn vocabulary simply by watching television, younger children can only learn vocabulary when supported by social interaction (Roseberry, Hirsh-Pasek, Parish-Morris & Golinkoff, 2009). In the study by John et al (2021) in Kerala (the southernmost state of India), almost half of the 189 children in the study had inconsistent supervision by parents. According to this study, unsupervised or inconsistently supervised screen time is associated with suspected cognitive delays, including communication, social skills, self-care, attention span and play in preschoolers.

In terms of communication, non-interactive screens are always one-sided and do not require the child to respond. Also, when screen time increases, the chances of reduced parent-child interaction are high (Mistry, Minkovitz, Strobino & Borzekowski, 2007; Tanimura, Okuma & Kyoshima, 2007; Radesky, Schumacher & Zuckerman, 2015). Human to human interactions have a strong influence on a child's language development for both speech perception and production (Kuhl, 2004). Passive viewing of excessive television or screen time will diminish parent-child interaction, which will have a substantial impact on a child's language development (Tanimura Okuma & Kyoshima, 2007). In a study of two-year-old Korean children (Byeon & Hong, 2015), the average daily TV viewing time of more than 2 hours was linked to language delay. Apart from language development, the other negative impacts associated with high screen time for young children include delays in cognitive and social development (Barr Lauricella, Zack & Calvert, 2010).

When it comes to toddlers' language development, it is not only direct TV viewing but also background television viewing that has been found to disrupt 12- and 24-month-old children's sustained toy play. It also decreases the quality and quantity of parent-child interactions when compared to interactions that take place with the television turned off (Schmidt Pempek, Kirkorian, Lund & Anderson, 2008; Pempek, Murphy, Schmidt & Anderson, 2009). Parental screen time should be limited as well, because parental interactions with young children have been shown to decrease significantly as a result of parental use of mobile phones (Radesky et al, 2014). As a result, it appears that parental involvement with electronic devices may reduce the quantity and quality of parent-child interactions, which are critical for the development of cognitive skills, particularly language and executive function (Anderson & Subrahmanyam, 2017). Screen time replaces time spent interacting, thereby reducing communication opportunities.

Interactive Screen Time and Language Development: How is it Associated?

Recent evidence reveals that it is not watching the screen that hampers children's language development, but the lack of interactivity during screen time. A study on English-speaking toddlers, aged 24 to 30 months, on novel verb learning in three ways - live interaction training, socially contingent video training over video chat, and non-contingent video training - revealed that children learned new verbs only during socially dependent interactions (live interactions and video chat) (Roseberry, Hirsh-Pasek, & Golinkoff, 2014). This implies that the screen itself does not impede children's language development; rather, the lack of interactivity during screen time is the problem. Roseberry et al, 2014; Myers LeWitt, Gallo and Maselli, 2017 state, based on their research, that children can learn language through technology that promotes social interaction. The content of the media and the context of viewing, such as co-viewing, are the most important factors influencing language development on the screen (Nathanson, 2001). This can be explained as the reason behind offering speech language intervention services via telepractice. Age-appropriate quality television programmes with specific educational goals can provide a good pathway for children as young as two years of age to develop early language and literacy skills. These programmes also promote cognitive skill development, such as imaginative play (Thakkar Garrison & Christakis, , 2006). According to research, interactive media associated with contingent responses from adults help children memorise learned information. These contingent responses, combined with age-appropriate content, timing, and intensity of action, can aid in the acquisition of new words (Radesky Schumacher & Zuckerman, 2015).

Effective Use of Interactive Screen Time to Support Language Development

Both the World Health Organisation (2019) and the American Academy of Paediatrics (AAP) (2016) have advised children to limit their screen time. The Indian Academy of Paediatrics (IAP) recently released screen time guidelines for parents. Delayed speech was mentioned as one of the negative effects of excessive screen time for children. According to the IAP (2021), children under the age of two should not be exposed to any type of screen, with the exception of occasional video calls with relatives. Screen time for children aged 2 to 5 years should not exceed one hour in a day; the less time spent on screens, the better (Twenge & Campbell, 2018). Recommendations by various agencies on restriction of screen time suggest no screen time till 2 years of age. The reason is that children below 2

years of age will have difficulty in transferring the information from a 2-D object on the screen to a 3-D object in the real world; this phenomenon is called video-deficit (Strouse & Troseth, 2014).

According to a report from Kerala, where the literacy rate is very high (96.6% as per the Census of India, 2011), the majority of parents were aware that screen time should be limited; however, they were unaware of the established guidelines, and hence proper screen time restriction for their children was not implemented. Only 25 of the 200 participants had set a screen time limit of less than one hour, and 90 had not set any guidelines at all (Vrinda et al, 2021). Despite all of the recommendations and guidelines to restrict screen time, most parents have found it difficult to impose limits due to the lockdowns during the Covid-19 pandemic. The following are some pointers to help caregivers support their children's language development even when they are watching screens:

1. The most important piece of advice is to co-view. Co-viewing strengthens the parent-child bond and allows the parent to monitor the content that the child is watching. However, co-viewing alone will not aid in the development of language. Along with co-viewing, parents could describe what they see on the screen.
2. The various language stimulation techniques used during shared reading can be used in the context of screen time. The screen's visuals can be described in simple language so that children can understand what they see.
3. Recognise and respond to children's efforts to communicate. In the meantime, ask simple questions, extend and broaden their utterances. Expansion and extension will aid in increasing the average length of utterances.
4. Try to relate what is seen on the screen to what is seen in real life. For example, if a girl is seen eating a banana on the screen, the parents should assist the child in recalling previous instances of eating a banana or show the child a banana at home. If a child points to a flower, parents can encourage him or her to say the name of the flower, where it can be found, describe the smell, and so on. With more verbal children, parents can encourage imaginative play and role play scenarios based on the cartoons they watch. For example, if the child enjoys the "Tom and Jerry" cartoon, parents can play the role of Tom and the child can act as Jerry, or vice versa, using appropriate dialogue.

5. Avoid background screens while spending quality time with one's children. Caregivers' attention may wander when the screen is playing in the background and this could affect the quality of the parent-child interaction. Also, exposure to excessive background TV has been shown to have a negative impact on language development, attention, and executive function in children under the age of five (Zimmerman & Christakis, 2007; Schmidt et al, 2008; Kirkorian et al, 2009).
6. Caregivers can engage in games involving objects similar to those seen in the media, such as building blocks or catching balls. Introduce various strategies to extend children's media learning, such as acting out a story based on the content of a recent TV show they watched, or labelling the colours of common household items they learned from an app.
7. Parents should be aware that repetition can help children learn. For example, if the child learns about counting from a TV show, he or she should focus on counting on multiple occasions, while watching different shows and in real-life situations. This will also help in generalisation of the learned skill.
8. Digital books are becoming more popular. E-books can be encouraged instead of animated videos, as e-books are proven to have many of the benefits of traditional printed books (Reich et al, 2019). An e-book is like a traditional storybook in several ways. It contains book elements like a table of contents, sections, and pages, and it is organised around a subject or theme for communication functions (de Jong & Bus, 2003). The e-book's interactive features can help with vocabulary/word learning, print awareness, word decoding, and reading fluency scaffolding (Paciga & Hoffman, 2015).

Visual and audio effects from e-books and animation help in story comprehension and event sequencing in pre-schoolers (Radesky et al, 2015). Hence, along with entertainment, screen time supports language development in children, when quality content is co-viewed and discussed with a parent or caregiver (Linebarger & Walker, 2005).

9. Early literacy can be promoted by using interactive 'learn-to-read' apps and e-books to practice letters, phonics, word recognition and reading.
10. Limit the caregivers' screen time, because parent-child interaction will be limited when the caregivers' screen time is high. This will have a negative effect on the child's language development due to the poor language stimulating

environment the child is in. Provide a language-rich environment for the child's language development.

Remember the screen has its own limitations and there are many other detrimental effects if the limits are exceeded. So, whenever possible, avoid screen time especially during meals and 1 hour prior to sleep, and enjoy language-rich quality time with one's young children.

CONCLUSION

The screen is not in itself the villain responsible for children's delayed language development; rather, the lack of interactivity during screen time is the problem. Interactive co-viewing may solve this problem to a certain extent. However, the screen has its own limitations, so screen time needs to be restricted. Limiting toddlers' screen time to less than 2 hours per day would improve their cognitive abilities. Also, caregivers should spend some quality screen-free time with their children and play physical games with them. It is strongly recommended that the screen time guidelines are revised to include suggestions for parents of young children to choose age-appropriate quality content, as well as to encourage co-viewing in order to improve parent-child interaction. Raising public awareness about the effects of screen time on language development and using screen time effectively to help develop language should also be considered, as studies have shown that parents are unaware about the harmful effects of screen time on language development and about the recommendations to limit screen time.

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