

Balancing screen time: Insights and impact on preschool children

Daisy Kwai-Lin Chan^{1,2} MMed (Paed)

Over the past decade, the exposure of young children to screen devices at home and preschool has become increasingly common. Screen viewing time (SVT) has risen alongside the surge in ownership of screen devices such as television, smartphones, tablets and laptops worldwide.¹ In many countries, screen time and digital technology is utilised as tools to support young children's development of practical skills in creativity, problem-solving, curiosity, and expanding their knowledge to new topics, cultures and ideas. However, screen time can be a double-edged sword.²

In this issue of the *Annals*, Kiing et al. are to be congratulated for conducting a cross-sectional study of preschool children (0–5 years old) who were referred for developmental, behavioural or emotional (DBE) issues.³ The study aimed to investigate patterns of SVT in children with DBE issues, including changes over time and reasons for SVT introduction, and to evaluate the relationship between SVT and social-emotional development using the Devereux Early Childhood Assessment-Clinical (DECA-C) questionnaire.³ The authors found that among 225 children with a mean age of 32.4 months, the mean SVT was 138.1 minutes per day.³ This duration exceeds the recommendation of expert guidelines from the World Health Organization,⁴ American Academy of Paediatrics,⁵ Canadian Paediatric Society,⁶ Asia-Pacific experts⁷ and the Singapore Ministry of Health (MOH).⁸ The 2023 MOH Guidance on Screen Use in Children advises that sedentary screen time is not recommended for toddlers younger than 18 months, except for interactive video-chatting.⁸ For children aged between 18 months and 3 years, screen time should be limited to less than 1 hour per day.⁸ The study reported a mean age of 13.8 months for the introduction of screen time,³ which is also earlier than recommended.⁴

Parents of study subjects admitted that introducing screen time in the first 12 months was often to facilitate easier feeding during mealtimes.³ This is commonly observed in Singapore, where

infants may be seen engrossed in a smartphone while being spoon-fed. The study's cross-sectional design means that an observed association does not always imply causation. Some children with attentional issues may rely on screens to stay seated long enough for caregivers to complete feeding. The relationship between screen viewing time and socio-emotional development is complex and interlinked.

Of greater concern is the downstream effect of excessive SVT on the health and well-being of developing pre-school children, which can be divided into 4 categories—socio-emotional and language development, physical health, sleep quality, and quality parent-child interaction. Using the standardised DECA-C questionnaire, Kiing et al. revealed an association between higher past SVT and lower social-emotional skills,³ reflected as limited self-regulation, poor attentional skills, more aggression, and total behavioural concerns. Offering a screen device to distract or calm the upset child may preclude self-soothing strategies, lead to emotional instability and over-dependence on screens for emotion regulation, with missed opportunities for learning anger management. Excessive screen time is also associated with expressive language delay at 18 months,⁹ poor attention control in toddlers, and lower cognitive development and executive function.¹⁰ A systematic review of 42 studies showed that greater screen time was associated with lower language skills, while better-quality screen use was associated with stronger language skills.¹¹ Later onset of screen use was also linked to stronger language skills.¹¹

Excessive screen viewing, except for physically engaging videos like yoga or dance, is associated with poorer physical health. Although SVT had not been strongly correlated with weight gain in preschoolers, the risk of becoming sedentary persists into later life, leading to obesity and associated cardiovascular disease.¹² Viewing commercial advertisements can induce children to choose unhealthy food and encourage snacking on junk food, increasing overall intake.¹³ Prolonged

The *Annals* is an open access journal, allowing non-commercial use under CC BY-NC-SA 4.0.

¹ Department of Neonatal & Developmental Medicine, Singapore General Hospital, Singapore

² Department of Child Development, KK Women's & Children's Hospital, Singapore

Correspondence: Associate Professor Daisy Kwai-Lin Chan, Department of Neonatal & Developmental Medicine, Singapore General Hospital, Academia Level 3, College Road, Singapore 169856.

Email: daisy.chan.k.l@singhealth.com.sg

This article was first published online on 24 July 2024 at annals.edu.sg

screen time, near viewing and limited outdoor activities are linked to the onset and progression of myopia, especially during school closures when digital device use increases.¹⁴

The presence of screen devices in a child's bedroom is strongly associated with less sleep due to arousal from viewing, melatonin suppression and sleep displacement. This can lead to shorter night-time sleep, more daytime napping, later bedtimes, delayed sleep onset and greater sleep resistance.¹⁵ Although a digital screen cannot replace quality parent-child interaction, it is often used to keep children occupied, similar to a nanny's role. This "techno-ference" displaces quality, face-to-face interaction, depriving children of interactive storytelling, shared book reading, problem-solving and building shared memories with parents. Parents in Singapore have voiced serious concerns for their child's digital media use, including addiction, poor eyesight, inappropriate content, lack of parent-child interaction, poor sleep and lack of physical activity. Yet, they did not seem to enforce changes to limit screen use.¹⁶

How can healthcare providers minimise excessive SVT in preschool children?

Child-centred approaches

- For children younger than 18 months, screen time should be avoided, except for interactive video-chatting with caring adults.
- For toddlers (18 months to 3 years old) and preschoolers (3–5 years old), limit sedentary screen time to less than 1 hour per day.
- Maintain screen-free times around meals and an hour before bedtime. Establish bedtime routines to help preschoolers fall asleep.

Parent/caregiver-centred approaches

- Co-view screen content with children to encourage digital media literacy by helping them recognise and question advertising messages, stereotyping and inappropriate content.
- Support self-regulation without screen use by discussing alternative strategies for managing anger and emotional lability.
- Curate appropriate playlists and limit exposure to advertising content.

Family-centred approaches

- Encourage families to prioritise shared media use, such as watching movies or playing video games together, over solitary use by children.

- Promote activities unrelated to screens, such as shared book reading, outdoor play, board games and crafts.

Future studies on screen viewing in young children should consider parental screen viewing patterns, as parents are often the first role models children emulate. This study underscores the need for similar research in neuro-typical population, emphasising the collective responsibility of parents, caregivers, healthcare providers and early childhood educators to ensure the holistic well-being of children, including their digital health.

Declaration

The author has no affiliations or financial involvement with any commercial organisation with a direct financial interest in the subject or materials discussed in the manuscript.

Keywords: children, developmental paediatrics, emotional regulation, language expression, preschool, screen time, toddlers

REFERENCES

1. Statista Research Department. Smartphone Market in Singapore-Statistics and Facts. <https://www.statista.com/topics/5842/smartphones-in-singapore/#topicOverview>. Accessed 19 May 2024.
2. Tan IYH. Commentary: We simply cannot leave our kids to their own devices. Today. 8 July 2024. <https://www.channelnewsasia.com/commentary/smartphone-ban-school-social-media-children-parents-screen-time-addiction-4459061>. Accessed 9 July 2024.
3. Kiing JSH, Kang YQ, Mulay KV, et al. Screen time and social-emotional skills in preschoolers with developmental, behavioural or emotional issues in Singapore. *Ann Acad Med Singap* 2024;7:410-19.
4. World Health Organization. Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. 2019. <https://iris.who.int/handle/10665/311664>. Accessed 19 May 2024.
5. Council on Communications and Media. Media and Young Minds. *Pediatrics* 2026;138:e20162591.
6. Ponti M. Screen time and preschool children: Promoting health and development in a digital world. *Paediatr Child Health* 2023;28:184-92.
7. Loo BKG, Okely A, Taylor R, et al. Asia-Pacific consensus statement on integrated 24-hour activity guidelines for the early years. *Lancet Reg Health West Pac* 2022;32:100641.
8. Ministry of Health, Singapore. Guidance on screen use in children. March 2023. <https://www.moh.gov.sg/docs/librariesprovider5/resources-statistics/guidelines/for-upload-guidance-on-screen-use-in-children-17-aug-2023.pdf>. Accessed 19 May 2024.
9. Van den Heuvel M, Ma J, Borkhoff CM, et al. TARGET Kids! Collaboration. Mobile media device use is associated with expressive language delay in 18-month-old children. *J Dev Behav Pediatr* 2019;40:99-104.

10. McHarg G, Ribner AD, Devine RT, et al. Screen time and executive function in toddlerhood: A longitudinal study. *Front Psych* 2020;11:570392.
11. Madigan S, McArthur BA, Anhorn C, et al. Associations between screen use and child language skills: A systematic review and meta-analysis. *JAMA Pediatr* 2020;174:665-75.
12. Poitras VJ, Gray CE, Janssen X, et al. Systematic review of the relationships between sedentary behaviour and health indicators in the early years. *BMC Public Health* 2017;17:868.
13. Council on Communications and Media. Children, adolescents, obesity, and the media. *Pediatrics* 2011;128:201–8; erratum 128:594.
14. Wong CW, Tsai A, Jonas JB, et al. Digital Screen Time During the COVID-19 Pandemic: Risk for a Further Myopia Boom? *Am J Ophthalmol* 2021;223:333-7.
15. Janssen X, Martin A, Hughes AR, et al. Associations of screen time, sedentary time and physical activity with sleep in under 5s: A systematic review and meta-analysis. *Sleep Med Rev* 2020;49:101226.
16. Chia MYH, Komar J, Chua TBK et al. Associations between Parent Attitudes and on- and off-Screen Behaviours of Preschool Children in Singapore. *Int. J. Environ Res Public Health* 2022;19:11508.