

Study finds links between early screen exposure, sleep disruption and EBD in kids

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Digital media have become an integral part of lifestyles in recent years, and the ubiquity of digital devices coupled with poor screen use habits can have a detrimental effect on the developmental and psychosocial

well-being of children.

A new study by KK Women's and Children's Hospital (KKH), together with National University of Singapore, has found that first exposure earlier than 18 months of age to screen devices—such as smartphones, tablets, videogame consoles, television, etc—and the presence of multiple screen devices in the bedroom are associated with elevated [sleep disruption](#) and emotional and behavioural difficulties (EBD) in [preschool children](#) with neurodevelopmental disorders (NDDs).

"Although this study was conducted in children with NDDs, the results from this study are applicable to the general population, and aligned with existing evidence from studies that have been done on typically developing children," said Dr. Mae Wong, Senior Consultant, Department of Child Development, KKH, who led the study.

Conducted from 2015 to 2017, the study looked at 367 preschool children in Singapore aged two to five years old with NDDs such as autism, language delay, global developmental delay, and learning disorders. Using caregiver-reported information, the researchers explored the relationships between the children's screen use and sleep habits, and emotional and behavioural difficulties (EBD).

The study has been published in the *Journal of Developmental & Behavioral Pediatrics*.

Key study findings are outlined below, with further details in Annex A:

- Age of screen exposure—More than half (52%) were exposed to screens / commenced screen usage at the age of 18 months or earlier.
- Screen devices in the bedroom—More than half (57.7%) had at least one screen [device](#) in their bedrooms.

- Screen time—Majority (93.9%) of the children exceeded the 1 hour limit of daily average [screen time](#) recommended by the American Academy of Pediatrics (AAP).
- Sleep problems—A majority (72.3%) of children had parent-reported elevated sleep problems.
- Emotional / behavioural difficulties—Nearly 60% (59.9%) of children had parentreported clinically elevated emotional/behavioural difficulties.
- Parental/Caregiver screen use—Increased screen use in preschool children was associated with parents who have higher screen use themselves, and who are less likely to have house rules about screen use.

To ascertain that the sleep problems and EBDs reported did not arise from the children's own NDDs, but were fully mediated by screen use, statistical analysis was used to control for levels of functional impairment. "Despite controlling for this, there was still a clear association between first screen exposure earlier than 18 months of age and the presence of one or more screen devices in the bedroom, with sleep problems, poorer sleep quality and more EBDs. Furthermore, children who experienced both lifestyle factors had more sleep and EBD problems than those who experienced only one lifestyle factor," said Dr. Wong. Compared with typically developing children, children with NDDs are at overall higher risk for [sleep problems](#), EBDs and poorer developmental outcomes.

"As this group of children also have more difficulties disengaging from screen use—possibly due to the attractive and repetitive nature of the screen content—increased screen use may possibly further exacerbate these problems," adds Dr. Wong.

Home And Family Lifestyle Factors

Earlier introduction to screen use may be related to:

- The [home environment](#)—where shared living or study spaces where media is consumed may also function as the infant or child's sleeping area; and household lifestyle behaviours—such as the practice of co-sleeping with family members.
- Reliance on screen devices as tools for infant or child engagement, calming or management—while there are intermittent times (e.g., medical procedures, airplane flights) when screen devices may be useful as a soothing strategy, the continued use of screen devices to calm children may over time displace the development of the child's internal self-regulation mechanisms, perpetuating difficulties with emotional/behavioural self-regulation and increasing reliance on screen use.
- The study found that increased screen use in preschool children was associated with parents who have higher screen use themselves, and who are less likely to have house rules about screen use.
- While there can be educational benefits from selected, age-appropriate high-quality screen use on child development and skills learning, studies have reported associations between early and sustained increased screen use, poorer language and cognitive development, and EBDs in typically developing children worldwide.
- Increased screen use over time may also further interfere with the child's sleep quality and development in a negative trajectory.

Recommendations For Parents And Caregivers

- Be alert to possible or detrimental health associations between poor screen use habits, sleep quality and EBDs in young children
- Make modifications to the home environment and family lifestyle to encourage regulated, interactive screen use with

caregiver involvement for learning and play.

- Delay the child's first exposure to screen devices to later than 18 months of age—Adhere to established guidelines on healthy screen use (Annex A) to mitigate the negative effects on [children](#)'s sleep quality, and emotional and behavioural function and development.

Provided by KK Women's and Children's Hospital

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