Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

Digital Media and Children's Health

Understanding the Effects of Technology and Digital Media (TDM) on Development

What do we know about TDM and children's health?

Use of TDM among U.S. children of all ages is nearly universal, but knowledge about how it influences children's health and development is incomplete. We know that some TDM uses benefit children, such as by enhancing learning and promoting social connectedness. Research shows it may also have negative effects, like contributing to poor sleep, less physical activity, and issues with mental health. Studying complex relationships between TDM use and all stages of child development, including brain activity, behavior, learning, and overall health and well-being, is critical to informing best practices for age-appropriate use of TDM.

How does NICHD support research on the impact of TDM on children's health?

NICHD funds studies on the effects of exposure to and use of TDM from infancy to adolescence. In the past, institute research focused on TV viewing, including educational programming. As "screen time" widened, our efforts also broadened to explore the impacts of TDM use/exposure across applications and devices. More recently, NICHD expanded its work to explore how TDM use affects health outcomes, developmental trajectories, and parent-child interactions. Funds from the Children and Media Research Advancement Act (2022) are accelerating this work on the short- and long-term effects of TDM throughout development.

Success Snapshot: Understanding Screen Time Effects

TDM use over long periods may affect child health and development in multiple ways.

- One NICHD-funded study of nearly 1,500 toddlers found a link between caregiver-reported screen exposure at ages 2 years and younger and issues with sensory processing.
- Another study suggested that high amounts of screen time may worsen negative cognitive and behavioral outcomes common in children born before 28 weeks of pregnancy). Six- and 7-year-olds with more than 2 hours of daily screen time were more likely to have deficits in overall IQ, problem solving skills, impulse control, and attention span.
- Analyzing data from more than 9,000 9- to 10-year-olds found a link between playing video games, watching videos, and a later diagnosis of obsessive-compulsive disorder.

Additional research is needed to determine whether TDM usage contributes to these subsequent behaviors and disorders.

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Selected NICHD-Funded Projects on TDM and Children's Health

Unraveling Media Use Influences on Health Outcomes
Evidence points to relationships between media exposure and a range of physical and mental health outcomes. For example, one NIH-funded study suggested that exposure to social media emphasizing personal connections correlated with lower inflammation, better sleep quality, and lower body mass index years later. But relatively little is known about the mechanisms by which media use may influence such health outcomes.

Ongoing NICHD-supported research seeks to identify the short- and long-term influences of TDM use on children's executive functioning, sleep patterns, and weight. Other work strives to examine digital media use among children ages 1 to 8 years and evaluate associations with emotional regulation and social competence. Researchers also seek to characterize the relationships between social media content, behaviors, brain activity, health, and well-being during adolescence. Assessing the effects of TDM on developmental trajectories and mental health outcomes over time can inform best practices.

Elucidating Caregiver Roles in Media Use
As gatekeepers of children's media exposure, parents and caregivers can strongly influence how children use TDM, including what they use and how long they use it. Findings from one NICHD-funded study suggested that maternal postpartum depression may be a risk factor for problematic media use among young children and both parents. Other work highlighted parenting characteristics related to less problematic media use, including belief in one's ability to parent effectively, high parent-child closeness, attachment security in infancy, and early digital media restriction.

Protecting Children While Online
NICHD has a long history of supporting research to protect children from bullying, both online and in real life. Unlike traditional bullying, online bullying can be more anonymous. Worse, it can occur nearly constantly, thanks to the many social media platforms and mobile devices available to children and teens. NICHD is working with other agencies and organizations to shape a research agenda that quantifies the clinical, health, and developmental impacts of online harassment and abuse and that supports prevention and intervention strategies.

Measuring Media Use
Many studies of children's media use rely on parent-reported estimates of screen time. But caregivers may not monitor children's media use closely, especially as children gain independence. Using software embedded within mobile devices, researchers calculated children's actual use. They found that slightly more than one-third of parents underestimated their child's usage, and nearly the same proportion overestimated it. Accurate measurements of media use promise to inform future research.

Understanding Toddler Experiences
Transitions can be difficult for toddlers, and those involving TDM are no different. One study found that toddlers experienced more tantrums following play with a tablet device compared to a print book, although tablet use had no impact on subsequent behavior. Other work suggests that toddlers who are energetic before engaging in digital media have less difficulty transitioning away from the device, whereas using digital media as a tool to regulate children's emotions may result in more challenging transitions.

Learn More About NICHD TDM Projects

NICHD's TDM Website:
https://go.nih.gov/gZEb9xg