

## Excessive Screen Time : Having look at the Screen time on Children's Health - A Narrative Review

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### Abstract

Screen time is the total amount of time that we spent using a devices like a smartphone, computer, television, tablet, or playing video or hand-held computer games. Screen time can be interactive, non-interactive, educational, or recreational also [1]. Children's are exposed to inaccurate, inappropriate, or unsafe content and contacts from the media. Many research experts have suggested that excessive screen time is harmful and can affect a child's health and wellbeing potentially leading to sedentary behaviors, sleep disturbances, poor academic performances, less cognitive skill, poor achievements, obesity etc. [2]. The parents and care givers must watch with their children in order to alleviate the possibility of negative media effects. Child development experts recommended that limit the children's daily screen time because real-life interactions with you and others are better for your child's growth, wellbeing, learning and development instead of simply putting the children on visual screen. If we limit the Screen time the children started to enjoys lots of healthy, fun activities like physical play, reading, creative play like drawing, playing outdoor games and social time with family and friends [1]. The researcher conducted literatures search on "screen time and its impacts on children's health and wellbeing" and the findings are presented as narrative review. Databases web search were used in this search strategy included online, PubMed, Medscape, Medline, National and international published journal articles.

**Keywords:** Screen time; Impacts; Children; Health.

### Introduction

Today's generation children are growing up with a vast variety of electronic devices at their fingertips. They can't imagine the world without television, smartphones, tablets, and the internet. Screen time is the total time that we spend on daily for watching

TV, using computers, playing video or computer games, or using tablets or smartphones [1]. Many children become addicted in to the digital media. The digital devices are providing endless hours of entertainment and pleasure for the children and they can offer educational content also, but unlimited screen time can create many harmful effects on children health. The screen time is not always a bad thing. There are some educational apps and TV shows are great ways for children to sharpen their developing brains and improve their communication and creative skills but it should not go unlimited [3]. Adults should make the screen time best by choosing the quality one and watch

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the screen along with children. Always young children are very eager and interested in watching on screen. So screen time is the one of the important things which we should concentrate more and should limit the uncontrolled screen time. Instead motivate the children to spend more time on real time exposure and make your possibilities to spend time with kids. The media is very greatly influencing on the psychosocial development of children [2]. Therefore, it is important for the health professionals to discuss with parents about their child's exposure to media and screen time behavior, and provide proper guidance on age-appropriate use of media, like television, smartphone, tablet, video games and the Internet. Explain them about the beneficial and negative effects of excessive screen time on their children's mental and physical health and the importance of real exposures. We have vital role in controlling the unlimited screen time among children. The young children learn the best thing only from the direct interactions with caregivers they should be always under the adults supervision while play and even while on screen. Screen time should be the last opportunity for your child to learn in real time. For the children below 2 years old, screen time is not recommended and for children 2 to 5 years old, limit the regular screen time to less than 1 hour per day [4].

### Discussion

Screen time is a term used to describe the amount of time that we spent for looking at a screen. Screens may include TVs, computers, smart phones, tablets, and video consoles. Due to many uses of screen, it is difficult to control the amount of screen time on children. Excessive screen time is creating many negative health outcomes like obesity, sleep disturbances, etc. The American Academy of Pediatrics (AAP) is announced new recommendations for children's media use to help the families are as follows:

- For children age lesser than 18 months, must avoid use of screen media other than video-chatting.
- For children ages 2 to 5 years, limit screen use to 1 hour per day, only high-quality programs are allowed and play with your children.
- For children ages 6 years and above, keep consistent limitations on the screen time [5,6].

As per Canadian 24-Hour Movement Guidelines for children:

The new Canadian 24-Hour Movement Guidelines for the 0-4 Years shows there is significant relationship between amount of sleep, sedentary behavior and physical activity children get in a 24-hour period.

- 30 minutes of tummy time is recommended for infants throughout the day while awake and no screen time for less than 1 year child, 12 to 16 hours of sleep recommended for infants, including naps.
- For toddlers 180 minutes spent in a variety of physical activities, including energetic play, 11 to 14 hours of good-quality sleep recommended, including naps.
- 60 minutes of energetic play recommended for preschoolers every day. 10 to 13 hours of sleep recommended, which may include a nap.
- 60 minutes of recommended screen time limit for toddlers and preschoolers over 2 years old, 12 to 16 hours of good-quality sleep recommended, including naps [7].

Recently in 2019 WHO also given some guidelines on physical activity, sedentary behavior and sleep for children under 5 years of age as follows:

- Infants should have at least 30 minutes of tummy time, Screen time is not recommended, Have 14-17 hrs of sleep for 0-3 months of age, 12-16 hrs of good quality sleep, including naps for 4-11 months of age.
- Children between 1-2 years of age should spend at least 180 minutes of physical activities, 1-year-olds; sedentary screen time is not recommended. For those aged 2 years, sedentary screen time should not be more than 1 hour, Have 11-14h of good quality sleep, including naps
- Children 3-4 years of age should Spend at least 180 minutes of physical activities, of which at least 60 minutes moderate-to vigorous physical activity, Sedentary screen time should not be more than 1 hour, Have 10-13 hrs of good quality sleep recommended, including a nap [8].

### *The impacts of screen time on kids:*

- It may affect social skills, motivation, attention, emotional regulation, and neurological functioning.
- The Social and Emotional Effects such as increase in stress, takes more time to complete

- tasks, high anxiety, increase in frustration and less in commitment to deeper and more challenging tasks and problem solving.
- The neurobiological effects on the developing brain like increasing pleasure and addiction, less in focus and attention span, increase in arousal.
  - Sleep deprivation.
  - Risky behaviors: such as substance use, self-injury, or eating disorders.
  - Negative effect on school academic performance, Speech or language delay.
  - Risk of Sexting: That is sending unusual images and sexual related text messages using a cell phone.
  - Sensory overload, short sightedness.
  - Screen Addiction can also lead to grey, striatum, insula and white matter shrinkage.
  - Risk of getting Obesity.
  - Impaired cognitive functioning.
  - Violence due to exposure to violent TV shows, movies, music, and video games etc.
  - Bullying behavior.
  - Childhood depression [9,10,11].
- Avoid exposure to any kind screens 1 hour before going to bedtime.
  - Turn off TVs and other devices when not in use.
  - Avoid using media as the only way to calm your children.
  - Encourage your school and community for better media programs and healthier habits.
  - Children are strictly restricted to sleep with devices in their bedrooms, such as TVs, computers, and smart phones etc.
  - Parents can make their own family media use plan.
  - Encourage more energetic playtime, outdoor games, more face-to-face interaction.
  - Don't allow your children to watch Screen time alone, occupy children when they watch.
  - Be a good role model for your children.
  - Don't use technology as an emotional pacifier.
  - Older children are allowed to watch only educational related programme apps.
  - Warn children about the importance of privacy and the dangers of sexting [5,12].

***Few household rules to limit the excessive screen time:***

- Parents of children age between 18 to 24 months who wants to introduce digital media always they should choose high-quality programming, and try to watch with your children, it give them chance to understand better what they're watching.
- Encourage media-free times, while during family meals or driving, as well as create compulsorily media-free bedrooms.
- No electronics are allowed during family fun time.
- The National Sleep Foundation recommends 9 hours of sleep at night.
- Enforce lights and electronics off for a sufficient 8-9 hours of sleep.
- Family Time: 30-60 minutes of electronic free, FUN, family time daily required.
- Create rules that going to value your children moral activity.
- Encourage your child to develop daily healthy habits.

***Literature review***

SueHughes *et al.* (2018) [13] conducted the Adolescent Brain Cognitive Development (ABCD) study with 11,500, 9 and 10-year-old children and they followed them for 10 years and performed magnetic resonance imaging (MRI) brain scans for every 2 years. They focused on 3 main of brain structure like cortical thickness, sulcus depth, and gray matter volume. The study findings revealed screen media activity were associated with brain characteristics and increased anxiety, depression, withdrawal behaviors, and aggressive behaviors [13].

Amy Orciari Herman [14] conducted study on 4500 U.S. children aged 8 to 11 years and compared the children who are meeting Canadian 24-Hour Movement Guidelines for Children. Study results Revealed 37% of children met the screen time recommendation, 51% met the sleep recommendation, and 18% met the activity recommendation. 5% of children met all 3 recommendations and had better global cognition scores than those who did not meet the recommendations. And said each minute that spent on screens replacing a minute from sleep or

cognitively challenging activities [14].

Nazir S. Hawi *et al.* [15] was performed research study using 3,141 children aged 7–11 years old, Bivariate logistic regression models were used. The results revealed that children whose parents used screen devices as discipline tools had significantly more screen time compared to children whose parents did not. Also stated, no significant gender differences were found statistically in the odds of exceeding the recommended screen time under e-discipline [15].

According to the research Troy Brown [16], Children who spend more time on digital media and screens at ages 24 and 36 months are more likely to have worse scores on developmental screening tests at ages 36 and 60 months. The researchers found a significant association between higher levels of screen time at ages 24 and 36 months and poorer performance on developmental screening tests at ages 36 months and 60 months. This finding suggests that the screen time is actually the cause of the developmental delays and not the other way around [16].

Stephen Johnson (2018) [17] mentioned that the National Institutes of Health did study on 300 million kids to examine the effects of screen time on developing brains using MRI scans. Study results revealed that children who are using the screens for more than 7 hours per day their brain showing physical changes in the form of premature thinning of the cortex and also shows who spent more than 2 hours per day on screens scored less on language tests [17].

Sheri Madigan, PhD, *et al.* [18] conducted this longitudinal cohort study used a 3-wave, cross-lagged panel model including 2441 mothers and children in Calgary, Alberta, Canada. Data were collected when the children were aged 24, 36, and 60 months about children's screen-time behavior and developmental outcomes via maternal report. The study results revealed that higher levels of screen time at age of 24 and 36 months were significantly associated with poor performance on developmental screening tests at 36 and 60 months respectively [18].

Nicky Broyd [19] said in a statement the Royal College of Pediatrics and Child Health has issued the UK's first guidance on child screen use and mentioned some negative impacts. The RCPCH was consulted the 109, 11–24 year old while preparing its guidance, they found sleep was negatively affected for 88%, for 41% Play or fun was affected, for 35% Mood and mental health were negatively

affected, for 18% Family time and school work was affected. Also stated on a typical day 3 hours was spent on phones, 2.5 hours on a computer, laptop, or tablet, plus 2 hours of TV viewing [19].

Children who spend less than 2 hours in a day engaging in recreational screen-based activities, like social media on the Internet and watching television, they are getting adequate sleep and also engaged more in physical activities, having better cognition than the children who spend more time in screen-based activities and who affected with sleep disruption, less in physical activity said by Mr. Batya Swift in Medscape news after investigating 4500 children aged 8 to 11 years for 10-year of study to assess the adherence to Canadian 24-hour Movement Guidelines for Children and Youth regarding physical activity, recreational screen time, and sleep duration [20].

According to Pam Harrison [21], Children who spend more than 3 hours a day glued to a screen are more likely to be fatter and have early risk factors for type 2 diabetes, especially insulin resistance, than those who spend an hour a day or less. He conducted cross-sectional survey of heart health carried out in children between 9 and 10 years of age attending 200 primary schools. In their study 4495 children were included, and checked anthropometric measurements and fasting blood glucose levels. Physical activity was also assessed. Their findings suggest that reducing screen time may be beneficial in reducing type 2 diabetes risk factors in both boys and girls and in different ethnic groups from an early age [21].

## Conclusion

In many places we could see the children playing games with smart phones always in home and even in hospital. Health care personnel's should take efforts to control the screen time among children. Even many research findings are emerging on screen time and evidences are showing the negative effects on children health. For promoting child health and development in a digital world, physicians and other health care providers should counsel the parents and caregivers of young children on the age-appropriate use of screen time and the impacts of screen time on children's health. Tell the parents to give importance to face to face communication and energetic outdoor play. Encourage them to remember that they should keep the screen time means last opportunities for teaching and learning. Be reassured that there is

no evidence to support introducing technology at an early age of children.

**Conflict of Interest:** Nil

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