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Impacts of Screen Media on Young Children

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Introduction

Today's children are growing up with an array of electronic media at their fingertips. Screens are ubiquitous in this digital world. The screen, whether it is computer, mobile phone, tablet or television, is a symbol of modern life. Infants, toddlers and pre-schoolers are now using the new screen-based technologies at increasing rates. Screen-viewing is a common sedentary behaviour among pre-schoolers [1]. Mobile media use among two to four years-old children has significantly increased during the last decade. Even infants, six to eleven months-old, are using touch screens in this high-tech era. Exposure to digital screens during early childhood can be habit-forming and can lead to overuse during future life [2]. Infants and toddlers have difficulty to transfer new learning from a screen which is a 2D representation to a 3D object in real life. There are several developmental risks associated with young children's use of screen media.

Screen Time

'Screen time' of children refers to the time spent by children with any screens including the computers, tablets, smart phones, television or video games. Childhood screen-time has been increasing over the last few years and studies have shown negative associations between increased screen-time and several domains of child development. High level of screen time has negative impact on cognitive functioning and academic achievement of children [3]. Increased screen time is linked to delay in language development [4]. Studies suggest that increased screen time in infants and toddlers is associated with autistic-like behaviour, hyperactivity, reduced attention span and irritability [5]. High screen time is also associated with deleterious effects on socioemotional development of children. Screen media exposure at 6 months of age is associated with lower cognitive development at 14 months of age [6]. Excessive screen time is also associated with a number of deleterious behavioural outcomes in young children. Hence interventions to reduce screen media use in young children are essential.

Screen Media Use in Young Children

Television dominates total screen time and television viewing is a very common screen-based activity among young children [7]. Many young children are exposed to several hours of background television on a day.

There is high prevalence of exposure to mobile devices in young children. In the research conducted regarding young children’s use of mobile media devices, it was found that 96.6% of young children used mobile devices. Half the children by four years of age had their own television and three-fourths of children had their own mobile device. Most of the children started using the mobile media devices before one year of age. 70% of the parents gave mobile devices to children while doing daily tasks or domestic chores. By two years of age, most of the children used a mobile device daily. One-third of the children between three and four years of age, were engaged in media multitasking [8].

In the study including 422 parents of children aged 1-60 months, to determine mobile media use in early childhood, the median age at the first time use of a mobile device was found to be one year. 6 months old infant, was the youngest to use a mobile device. 68 % of children below five years of age, owned a “tablet”, which was the most commonly owned mobile device. 70.8% of the children used mobile devices for watching videos. 91.5% of the parents were not informed by a doctor regarding the adverse effects of exposure to mobile devices at very young age [9].

Effects of Screen Media on Language and Cognitive Development

Viewing television increases the risk of delay in language development in children. Cognitive and language delays in young children are related to the television viewing time [10]. Early onset and high frequency of television viewing is associated with significant delay in the development of language skills. Children who watched television for more than two hours a day and started watching television during infancy are at greatest risk for delay in language development [11]. In the meta-analysis including 18905 participants from 42 studies, it was found that higher quantity of screen use is associated with lower language skills [12]. For children less than two years old, television viewing has negative associations for language development and executive function [13]. Television viewing has negative impact on the development of cognitive abilities of young children [7].

Screen Media Exposure and Behaviour Problems

Viewing cartoons in television at young age has negative effect on children's attentional abilities [14]. Longitudinal data of early television exposure and subsequent attentional problems were analysed by Christakis DA et al, including 1278 children at age 1 and 1345 children at age 3. It was found that early television exposure is associated with attentional problems at 7 years of age [15]. Exposure to entertainment television before 3 years of age, is significantly associated with attentional problems in children [16].

Sustained exposure to television is a risk factor for behaviour problems in children [17]. Tamana SK, Ezeugwu V, Chikuma J, et al, conducted study to examine screen-time exposure and behavioural morbidity in pre-school children. This research showed that screen-time of more than two-hours a day is associated with an increased risk of externalizing behaviour problems and specifically inattention problems in young children [18]. Daily television exposure at 18 months of age is associated with hyperactivity and inattention at 30 months of age [19]. Excessive television viewing of more than two hours per day is associated with

difficulties in self-regulation during childhood.

Role of Parents

Infants and toddlers learn language skills and social skills very effectively through face-to-face interaction with parents. Hence parents should find time for face-to-face interactions with very young children. Preschool children also learn best from direct interactions with parents.

In the systematic review and meta-analysis examining the association between parent training and language development in young children with a mean age of less than six years, Roberts MY et al found that parent training interventions are associated with significant improvement in child language development [20]. The recommended first-line treatment for attention-deficit/hyperactivity disorder in preschool children is parent training intervention [21].

Parents should become the role models for children especially related to digital habits. Electronic devices should never become the family’s sole source of entertainment. Everyone in the family should be encouraged to find time for meals without any screens and parents should make it a habit to engage in screen-free activities with their children. Avoid all screen media for very young children up to 2 years of age. For children of 3 to 5 years, screen time should be limited to one hour a day of high-quality programs. Background television should be eliminated. Screens should be kept out of children's bedroom.

Conclusion

Television viewing and use of mobile media devices, among young children, has become pervasive and heavy in this digital era. There are significant health implications of using screen media during early childhood. Increased screen time in toddlers and pre-school children is associated with several negative health outcomes which includes impairment in cognitive development, language delay, autistic-like behaviour, hyperactivity and reduced attention span. High levels of screen time in early childhood has negative impact on academic, behavioural, language and social outcomes in later life.

For children of ages two and under, experts recommend no screen time at all. Interventions should be implemented to limit children's duration of screen exposure after two years of age. Parents should be the best role-models for children regarding the healthy use of digital devices. Children younger than 5 years need quality family time for the best child development.

Several scientific studies have shown that training parents to implement language and communication intervention techniques leads to improved outcomes for children. For young children with delay in language development, parent training interventions should be provided at the earliest to improve the language skills of children. Attention skills also can be improved significantly through parent mediated interventions. Parental awareness should be provided regarding the negative impacts of screen media on young children, in order to ensure adequate cognitive, language, academic and behavioural development. Parent-child communication should be improved and parents should encourage the young children to take part in developmentally healthy play activities without screens.

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