



Effects of television exposure on developmental skills among young children



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ABSTRACT

Background: Literature addressing the effects of television exposure on developmental skills of young children less than 36 months of age is scarce. This study explored how much time young children spend viewing television and investigated its effects on cognitive, language, and motor developmental skills.

Methods: Data were collected from the Pediatric Clinics at University Medical Center in Southern Taiwan. The participants comprised 75 children who were frequently exposed to television and 75 children who were not or infrequently exposed to television between 15 and 35 months old. The age and sex were matched in the two groups. The Bayley Scales of Infant Development—second edition and Peabody Developmental Motor Scales—second edition were used to identify developmental skills. Independent *t*-tests, χ^2 tests, and logistic regression models were conducted.

Results: Among 75 children who were frequently exposed to television, young children watched a daily average of 67.4 min of television before age 2, which was excessive according to the American Academy of Pediatrics. Viewing television increased the risk of delayed cognitive, language, and motor development in children who were frequently exposed to television. Cognitive, language, and motor delays in young children were significantly associated with how much time they spent viewing television. The type of care providers was critical in determining the television-viewing time of children.

Conclusion: We recommend that pediatric practitioners explain the impacts of television exposure to parents and caregivers to ensure cognitive, language, and motor development in young children. Advocacy efforts must address the fact that allowing young children to spend excessive time viewing television can be developmentally detrimental.

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1. Introduction

Current research on children has addressed the entire functional scope of the International Classification of Function, Disability, and Health for Children and Youth (ICF-CY): activities and participation (World Health Organization, 2007). Engaging

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in activities such as play and learning are vital to a child's development (Certain & Kahn, 2002). Children most commonly participate in screen-based activities (television exposure) and physical activities (outdoor playground activities). Children have more access to media, such as through television, smartphones, and computer games, compared with children a decade ago (Common Sense Media, 2011). Very young children spend more time watching television, and then they spend less time playing (Anderson & Pempek, 2005). Children may not have sufficient time and opportunities to develop cognitive, language, and motor developmental skills. However, research on television exposure has primarily focused on preschool or school-aged children. To our knowledge literature regarding television exposure and developmental skills in young children is limited, particularly for those younger than 36 months. Studies have investigated relationships of television exposure and development in young children is scarce. Therefore, we examined the amount of time that young children engaged in viewing television, and its effects on cognitive, language, and motor developmental skills.

In recent decades, children's lifestyles have become more sedentary. Television viewing is a common type of media use among young children (Smith & Biddle, 2008; Vandewater et al., 2007). One study investigated 1384 parents of children aged 0–8 years old (Common Sense Media, 2011). The findings indicated that 10% of 0- to 1-year-olds and 39% of 2- to 4-year-olds had access to popular media such as smartphones, video iPods, iPads, or other tablet device. The average daily screen time was 25 min per day for children younger than 4. Numerous researchers have reported that children who watch excessive amounts of television are likely to develop health and developmental problems, such as obesity and delayed cognitive and language development (Chonchaiya & Pruksananonda, 2008; Christakis, 2009; Linebarger & Walker, 2005; Okuma & Tanimura, 2009; Zimmerman, Christakis, & Meltzoff, 2007). In response to the developmental and health issues associated with television viewing, the American Academy of Pediatrics recommends that children 2 years and older watch less than 2 h of television per day, and that children younger than 2 years watch no television (American Academy of Pediatrics [AAP], 2011). However, there is little evidence to suggest that television viewing is related to the developmental skills of young children.

Previous studies have indicated that parental screen-based behaviors may increase the sedentary behaviors of children (Sallis, Prochaska, & Taylor, 2000; Salmon, Timperio, Telford, Carver, & Crawford, 2005; Songul-Yalcin, Tugrul, Nacar, Tuncer, & Yurdakok, 2002). Regarding variables that account for media use patterns, factors such as types of care providers and parental demographics should not be ignored. For instance, nonparental care providers allowed the children to spend more time viewing television than would their parents (Benjamin et al., 2009). Parental educational levels are also a critical indicator (Guryan, Hurst, & Kearney, 2008). Highly educated parents devote less time to viewing television than do less educated parents. To date, insufficient information is available on the variables that account for media use patterns among young children.

In this study, we addressed the following questions: (1) How many minutes do young children who are frequently exposed to television spend watching television a day?; (2) How do television exposure relate to their developmental skills?; and (3) What possible factors account for television exposure patterns among young children?

2. Methods

2.1. Procedures

Ethical clearance for the study was received from the National Cheng Kung University Hospital internal review board (B-BR-101-075). Data were collected from the pediatric outpatient clinics (e.g., vaccinations, well-child clinics, general pediatric clinics) at university medical center in southern Taiwan. A standard protocol was applied to all children; when the children and their caregivers first came to the pediatric clinic, they were met by a pediatric neurologist and a trained case manager (certified nurse). The caregivers were asked whether or not the child used any media such as television, smartphone, iPad, and computer and if they were willing to have their children take part in research that involved developmental assessments. The case manager explained the research procedures to the primary caregivers, who provided their written informed consent and subsequently completed a primary interview with the case manager. Then the children were assessed by a team of qualified professionals, comprising a pediatric neurologist, a psychiatrist, an occupational therapist, a physical therapist, a psychologist, and two speech therapists. The Bayley Scales of Infant Development-second edition (BSID-II) and Peabody Developmental Motor Scales-second edition (PDMS-2) were used.

2.2. Participants

Children were divided into two groups according to the AAP recommendations. For children 2 years and older, if they watched television more than 2 h per day, they were assigned to the television exposure group; on the contrary, if they watched television less than 2 h, they were assigned to the control group. For children younger than 2 years, if they watched television, they were assigned to the television exposure group; conversely, if they did not watch television, they were assigned to the control group.

Then we focused on children between the ages of 12 and 35 months to eliminate the effects of certain internal and external factors (e.g., existing disorders and schooling). The inclusion criteria were (1) between the ages of 12 and 35 months; (2) no previous diagnosis of diseases or disorders related to developmental delays (such as cerebral palsy, chromosomal anomalies

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