

# Leading Article

## Speech and Language Delay: A Rising Concern in the Digital Era.

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### Introduction:

Speech and language are important developmental milestone of a child and reflects the intellect, cognition and overall development. Speech is the sound produced and language is the appropriate measure of comprehension.<sup>1,2</sup> Child is diagnosed as speech delay or language delay when his/her speech is delayed or unintelligible than would be expected for his or her age or is characterized by speech sound error patterns not appropriate for his/her age.<sup>3</sup> Speech and language delay affects about 1 in 12 children or 5%- 8% of preschool children.<sup>4</sup> Persistent delay creates significant effects on literacy, academic achievement, psychosocial development including behavioral challenges, mental health problems and high school dropout.<sup>5,6</sup> Exposure to visual and verbal stimulation encompasses language development in early childhood.

In the era of smart media and digital communication, the impact of devices like television, cell phone, tabs and video games create immense impact on verbal stimulation of the children. Therefore, the number of children with speech and language impairment is increasing alarmingly.

Early childhood is the sensitive and critical period of speech and language development. There is breach of optimum stimulation for language due to overexposure to digital media particularly the use of portable devices. Hence comes the terminology of 'Screen time'. Screen time is the time spent using a device such as a computer, television, iPad, or mobile device. There is an exponential rise in screen time in the last decade which may be the reason behind the

increased number of children with speech delay including autism.<sup>7</sup>

The American Academy of Pediatrics (AAP) guideline stated that children below the age of two years should not have any screen exposure, and screen time of 3 hour/day is considered excessive among children aged 2-5 years.<sup>8</sup> UK guidelines set out by the National Institute for Clinical Excellence (NICE) recommends no more than 2 hour of leisure screen time/day for children of any age.<sup>9</sup> In recent years, there is tendency of excessive exposure to screen time among under five children in the high and middle income countries. In a review, Chao Li et al. confirms that excessive screen time, mainly engaging in more than 2 h/day screen time, has various health indicators in physical, behavioral, and psychosocial aspects.<sup>10</sup> Therefore, analysis of relationship between screen time and language development in under five children is a matter of concern and should be addressed with great importance. Among under five children, excess screen time prevalence varies from 10%-93.7% across the high-income countries, and 21%- 98% in the middle-income countries.<sup>11</sup> The duration of screen time ranged from 0.9-3.5 hours/day among under five children; 1.0-3.1 hours/day among school-aged children; and 1.3-7.1 hours/day among adolescents across different studies.<sup>12</sup>

### Impact of digital media on speech & language:

*First*, there is less interaction to human contact particularly the parents. American academy of pediatrics points out that infant's vocabulary growth is directly related to amount of time parents spend speaking to them.<sup>13</sup>

*Second*, digital media restricts the development of language in the window period. Studies showed that children who had exposure to tv in early age or had watched tv more than 2 hours per day had significant language delay. Moreover, there is limited vocabulary in this group of children.<sup>14</sup> Sola et al. in their study have showed that for every hour of electronic media exposure, there were reductions in child vocalizations,

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conversational turns, and language development.<sup>15</sup> Thus it is proven that there is clear link between digital media exposure and language delay.

*Third*, digital media exposure has been associated with irregular sleep schedule leading to abnormal mood, behavior and concentration.<sup>16</sup>

*Forth*, the early age of exposure to devices plays crucial role in delayed language development. In one study by Tan S et al, it was found that children below two years of age who are exposed to smart media devices have higher odds of language delay than those over two years of age.<sup>17</sup>

*Fifth*, with frequent use of digital media, the playtime of the children with peers as well as the creative play is disturbed. This affects the problem solving capacity and creative expression of the child. Moreover, the screen time causes hyperarousal due to disrupted melatonin production leading to sleep disturbance which adversely impacts the language development.<sup>18</sup>

#### Recommendation for digital media use:

Parents, pediatricians, and policymakers should be cognizant of the harmful effects of digital media use in children. There should be limited supervised use of television, mobile phone, video games and social media. In this regard, World Health Organization<sup>19</sup> recommend: No sedentary screen time for 1-year-olds and screen exposure of less than 1 hour/day in 2-5 years old; lesser the better. No screen use during mealtimes and before bedtime.

#### Conclusion

Early childhood is an age which needs quality care for potentiation optimum development of language and speech. The impact of excessive use of digital media act as hindrance of conducive learning environment at home and in early child care centers. There should be limited use of electronic media in childhood to achieve optimum level of development particularly in under five children. Like other countries, a national guideline indicating the strategy of digital media usage should be published and circulated.

#### Reference:

1. Saeed HT, Abdulaziz B, AL Daboon SJ. Prevalence and risk factors of primary speech and language delay in children less than seven years of age. J Community Med Health Educ 2018;8: 608.
2. Sidhu M, Malhi P, Jerath J. Early language development in Indian children: A population based pilot study. Ann Indian Acad Neurol 2013;16:371-5.

3. Shriberg LD, Austin D, Lewis BA, McSweeny JL, Wilson DL. The Speech Disorders Classification System (SDCS): Extensions and lifespan reference data, J Speech Lang Hear Res. 1997; 40: 723-40.
4. U.S. Preventive Services Task Force. Screening for Speech and Language Delay in Preschool Children: Recommendation Statement. Pediatrics. 2006; 117:497-501.
5. Boudreau DM, Hedberg NL. A comparison of early literacy skills in children with specific language impairment and their typically developing peers. Am J Speech-Lang Pathol. 1999; 8:249-60.
6. National Research Council (US) and Institute of Medicine (US) Committee on Integrating the Science of Early Childhood Development. From Neurons to Neighborhoods: The Science of Early Childhood Development. Shonkoff JP, Phillips DA, editors. Washington (DC): National Academies Press (US); 2000. PMID: 25077268.
7. Radesky JS, Christakis DA. Increased Screen Time: Implications for Early Childhood Development and Behavior. Pediatr Clin North Am. 2016; 63(5):827-39.
8. Reid Chassiakos YL, Radesky J, Christakis D, Moreno MA, Cross C. Council On Communications and Media. Children and Adolescents and Digital Media. Pediatrics. 2016; 138(5):e20162593.
9. Kaur N, Gupta M, Malhi P, Grover S. Screen Time in Under-five Children. Indian Pediatr. 2019; 56(9):773-88.
10. Li C, Cheng G, Sha T, Cheng W, Yan Y. The Relationships between Screen Use and Health Indicators among Infants, Toddlers, and Preschoolers: A Meta-Analysis and Systematic Review. Int J Environ Res Public Health. 2020;17(19):7324.
11. Lin LY, Cherng RJ, Chen YJ, et al. Effects of television exposure on developmental skills among young children. Infant Behav Dev. 2015; 38:20-6.
12. Christakis DA, Garrison MM. Preschool-aged children's television viewing in child care settings. Pediatrics 2009; 124:1627-32.
13. Council on Communications and Media; Brown A. Media Use by Children Younger Than 2 Years. Pediatrics 2011; 128(5), 1040-45.
14. Frederick J, Zimmerman, Dimitri A, Christakis. Associations Between Content Types of Early Media Exposure and Subsequent Attentional Problems. Pediatrics 2007 ;120:986.
15. Sola AM, Brodie KD, Stephans J, Scarpelli C, Chan DK. Tracking home language production and environment in children who are deaf or hard of hearing. Otolaryngol Head Neck Surg. 2022; 166:171-78.
16. Chonchaiya W, Pruksananonda C. Television viewing associates with delayed language development. Acta Paediatrica 2008; 97: 977-82.
17. Tan S, Mangunatmadja I, Wiguna T. Risk factors for delayed speech in children aged 1-2 years. Paediatr Indones. 2019 ;59(2):55-62.
18. Kubota T, Uchiyama M, Suzuki H, Shibui K, Kim K, Tan X, et al. Effects of nocturnal bright light on saliva melatonin, core body temperature and sleep propensity rhythms in human subjects Neurosci Res. 2002;42:115-22.
19. Guidelines on Physical Activity, Sedentary Behaviour and Sleep for Children Under 5 Years of Age. Geneva: World Health Organization; 2019. PMID: 31091057.