Pravara Med Rev; June 2025, 17 (02), 26 - 29
DOI: 10.36848/PMR/2025/60966.10116

Original article

The Impact of Screen Time on Speech and Language Development in Children: A Review of Recent Studies

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Abstract

Background: *Early childhood is a crucial period for speech and language development. With the increasing prevalence of digital media exposure among children, concerns have emerged regarding the potential adverse effects of screen time on language acquisition. This review aimed to assess the association between screen time and speech and language delays in children aged 1 to 5 years.*

Methods: *A systematic review of studies published between 2019 and 2023 was conducted using databases including PubMed and Google Scholar. Relevant keywords such as "screen time," "speech delay," "language development," and "children" were used. Studies included were primarily observational in design and focused on children within the targeted age range.*

Results: *The review found consistent evidence linking excessive screen time—especially over two hours daily—with delays in expressive and receptive language skills. Educational content had a lesser negative impact compared to entertainment media. Importantly, higher levels of parental engagement, such as co-viewing and content discussion, were associated with better language outcomes. Socioeconomic and environmental factors further influenced the degree of delay observed.*

Conclusion: *Excessive and unsupervised screen time in early childhood is associated with increased risk of language delays. Interventions promoting moderated screen use and active parental involvement are essential for safeguarding early language development.*

Keywords: *Screen time, Speech delay, Language development*

Introduction

Early childhood is a crucial period for speech and language acquisition, forming the foundation for cognitive, emotional, academic, and social development. (1) During this sensitive window, interactive communication, play, and environmental stimulation are key factors in fostering linguistic skills. However, the increasing prevalence of digital media use among children—through television, smartphones, tablets, and other electronic devices—has raised significant concerns among pediatricians, educators, and researchers. (2,3,4) The shift from traditional interpersonal communication to screen-based interactions may interfere with developmental processes, particularly in language acquisition. (5) Studies have suggested that excessive screen time may reduce parent-child interactions, limit vocabulary exposure, and hinder opportunities for conversational turn-taking, all of which are essential for speech and language development. (5,6,7) Furthermore, passive screen viewing may displace activities that support expressive and receptive language skills, such as storytelling, reading, and social play. (8) Our review aims to synthesize recent evidence on the impact of screen time on the speech and language development of children aged 1 to 5 years. By analyzing the type of media consumed,

duration of exposure, and parental involvement, this review highlights emerging patterns, identifies at-risk groups, and proposes recommendations to mitigate potential developmental delays associated with screen use in early childhood.

Methodology

This review was conducted to assess the impact of screen time on speech and language development in children aged 1 to 5 years. A systematic search was carried out using electronic databases such as PubMed, Google Scholar, and ResearchGate. The search focused on studies published between 2019 and 2023. Keywords used included "screen time," "speech delay," "language development," and "children." The aim was to identify original research articles that examined the relationship between screen exposure and speech or language outcomes in early childhood.

The inclusion criteria consisted of observational studies, cohort studies, and case-control studies that evaluated children aged between 1 and 5 years. Articles were included if they reported outcomes related to speech and/or language development and provided quantitative or qualitative data linking these outcomes with screen time duration or type of media exposure. Studies focusing on interventions, editorials, expert opinions, or children with underlying neurological or developmental disorders were excluded to avoid confounding results.

Data extraction was performed independently by the authors, who reviewed the abstracts and full texts of eligible articles. Information such as study design, sample size, age group, duration of screen exposure, parental involvement, and speech-language outcomes were documented. The methodological quality of each study was evaluated based on clarity of objectives, sample representativeness, and statistical validity.

After selection and extraction, the studies were analyzed thematically. The findings were synthesized to identify common trends and associations between excessive screen time and speech-language delays. Particular attention was given to factors such as the type of media content (educational vs. entertainment), the daily duration of screen use, and socioeconomic influences. The results were compiled to form a comprehensive understanding of how screen time affects early childhood language development.

Results

Table 1: Association Between Daily Screen Time and Speech/Language Delay

Screen Time Duration	Number of Studies Reporting Delay	Type of Delay Observed	Remarks
<1 hour/day	2	No significant delay	Often accompanied by high parental interaction
1–2 hours/day	5	Mild speech or vocabulary delay	Delay minimized if content was educational
>2 hours/day	8	Moderate to severe speech and language delay	Strong association with expressive and receptive language issues

Table 2: Influence of Media Type on Language Development

Type of Media	Number of Studies	Observed Impact on Language Development	Notes
Educational programs	4	Minimal or no delay	Parental co-viewing improved outcomes
Entertainment/Cartoons	7	Significant delay in vocabulary and communication	Passive viewing common, reduced interaction
Mixed content	3	Variable effects	Dependent on supervision and context

Table 3: Effect of Parental Involvement on Language Outcomes

Level of Parental Engagement	Number of Studies	Language Development Outcome	Conclusion
High (e.g., co-viewing, discussion)	5	Better vocabulary and comprehension	Acts as a protective factor
Moderate	3	Mild delays	Mixed outcomes based on screen duration
Low or None	7	Significant speech and language delay	Lack of interaction worsens developmental risk

Discussion

The findings of this review highlight a consistent and concerning association between excessive screen time and speech and language delays in early childhood. The majority of studies analyzed reported that children exposed to more than two hours of screen time per day were more likely to experience delays in both expressive and receptive language development. These delays were especially pronounced when screen exposure replaced direct human interaction, which is critical during the formative years for language acquisition.

Table 1 illustrates that increased screen time correlates with the severity of language delay. While minimal exposure (less than one hour per day) showed no significant adverse effects, exposure exceeding two hours daily was consistently linked with notable communication impairments. This suggests a possible dose-response relationship, where more time spent on screens diminishes opportunities for real-life social and linguistic engagement essential for developing vocabulary, sentence structure, and comprehension.

The type of content viewed also played a significant role, as shown in Table 2. Educational programs, especially those accompanied by adult interaction, had a lesser negative impact and were in some cases even associated with improved outcomes. In contrast, passive entertainment content, such as cartoons or non-interactive games, was frequently linked to poor language skills. The lack of interactivity and the often fast-paced, unrealistic dialogue in such content may not provide the necessary stimuli for linguistic growth. Furthermore, entertainment media can reduce children's attention spans and limit their ability to process and retain verbal information, exacerbating the risk of delays.

Parental involvement emerged as a crucial moderating factor, as reflected in Table 3. Children whose screen time was accompanied by active parental engagement—such as co-viewing, discussing the content, or translating digital experiences into real-life learning—tended to have better speech and language outcomes than those who were left to interact with screens alone. This finding supports the idea that the quality of interaction, rather than merely the quantity of screen time, significantly affects language development. Parental dialogue helps children connect words to meaning and provides opportunities for turn-taking, a key aspect of language use. (9,10,11)

Socioeconomic and environmental variables also interacted with screen time's impact. Studies conducted in underserved or multilingual communities indicated that children from lower socioeconomic backgrounds were more vulnerable to screen-related language delays, possibly due to limited parental availability or educational resources. This underlines the importance of contextual factors and reinforces the need for targeted interventions in high-risk groups. (12,13)

Despite the compelling evidence presented, several limitations exist. Many studies relied on parent-reported screen time, which may be subject to recall or reporting bias.(14-19) Furthermore, the cross-sectional nature of most research limits causal inference. Longitudinal studies are needed to confirm long-term effects and identify critical exposure windows. Also, the variability in defining and measuring speech delay and screen content types complicates comparison across studies. (20)

Conclusion

In conclusion, while screen media is an integral part of modern life, its unregulated use poses a significant risk to the speech and language development of young children. Efforts should focus on educating parents about

appropriate screen use, promoting co-viewing practices, and encouraging screen-free interactive activities during early childhood to support optimal language acquisition.

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