

THE EFFECT OF PROLONGED SMARTPHONE USE ON CHILDREN'S COGNITIVE FUNCTIONING

Umedova M. E.

Egamberdiyev D.

Tashkent State Medical University

Over the past decade, smartphones and other personal screen devices have become an integral part of children's daily lives. Screen-based activities have turned into the primary medium for play, education, and communication among children; as a result, their daily screen time (ST) has increased substantially. For instance, among school-aged children aged 6–14 years, the average daily screen time was found to be approximately 2.77 hours, and 46.4% of this population exceeded ≥ 2 hours/day. This figure has further increased after the COVID-19 pandemic.

During the COVID-19 period, children's screen time increased by an average of 1.75 hours/day, which was largely attributed to lockdown restrictions and remote learning. Even in the post-pandemic period, average screen exposure remains higher than pre-pandemic levels. This issue is particularly important for children aged 7–10 years, since this stage represents a critical period for the development of cognitive and executive functions (such as attention, working memory, and inhibitory control).

Scientific evidence indicates that screen exposure may influence children's cognitive development in multiple ways. Previous studies have shown that preschool children with higher overall screen time demonstrate lower working memory performance (OR = 0.52; 95% CI: 0.31–0.88), suggesting that maintaining age-appropriate screen limits may help preserve working memory. Moreover, the type and content of screen use (interactive vs. passive, educational vs. entertainment) are crucial moderating factors determining the direction of these effects.

Recent systematic reviews and meta-analyses have documented both negative and positive associations of screen exposure with children's cognitive, linguistic, sleep, and socio-emotional development. Broad reviews report correlations between screen time and reduced attention, delays in language acquisition, and sleep disturbances. However, some large population-based analyses have found no consistent or strong overall associations between screen exposure and cognitive outcomes, emphasizing that results depend on contextual variables such as age, content quality, parental supervision, and socioeconomic status.

Some studies have also reported psychological outcomes, noting small but consistent associations between high screen time and depressive symptoms or anxiety. These findings highlight the importance of monitoring screen exposure for maintaining the overall well-being and academic performance of children aged 7–10 years.

Considering the above evidence and statistical observations, there is a clear need to more precisely investigate the impact of prolonged smartphone use on cognitive functioning among children aged 7–10 years. This age range is particularly significant due to the following reasons:

1. Ages 7–10 represent a period of rapid development in executive functions and reading abilities;
2. Average daily screen time has markedly increased since the COVID-19 pandemic;
3. The type of screen use, content quality, and degree of parental control can significantly moderate cognitive and psychological outcomes.

Therefore, the present article aims to analyze the influence of long-term smartphone use on attention, working memory, executive functions, and socio-psychological well-being among children aged 7–10 years, based on existing scientific literature and available statistical data.

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