

Reduced or Denied Screen Time for Children Aged 2–8 Years and Its Impact on Cognitive Development: An Indian Perspective

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Abstract:

Excessive screen time among young children in India has emerged as a significant concern affecting cognitive, emotional, and social development. Children aged 2–8 years often exceed recommended screen exposure, leading to attention deficits, delayed language skills, emotional disturbance, and sedentary behavior. This study involved ten families across urban India, including Gujarat, in an eight-week intervention that combined structured screen time reduction with culturally appropriate alternative activities such as storytelling, traditional games, and creative play. Assessments demonstrated improvements of approximately 30% in attention span, 25% in language and comprehension, and 20% in problem-solving skills. Emotional regulation and social interaction also improved significantly. The study underscores the critical role of parental involvement, culturally relevant engagement, and policy-level actions in fostering healthy development amid increasing digital exposure.

1. Introduction

1.1 Background

Digital devices, including smartphones, tablets, and televisions, have become ubiquitous in Indian households. Recent studies show that Indian children under 5 years spend an average of 3.2 hours daily on screens—double the Indian Academy of Pediatrics (IAP) recommended limit of 1 hour. The COVID-19 pandemic accelerated digital exposure due to online education and entertainment. Excessive screen time during early childhood is linked to detrimental effects on attention span, language acquisition, emotional well-being, and physical health.

1.2 Problem Statement

Indian children, particularly in urban areas like Gujarat, frequently exceed screen time recommendations, leading to:

- Reduced attention spans and working memory deficits.
- Delayed vocabulary development and narrative skills.
- Emotional dysregulation including irritability and anxiety.
- Poor social interaction and alienation from peers.
- Sedentary lifestyle contributing to obesity and eye health problems.

1.3 Objectives

This study aims to:

- Evaluate the cognitive and emotional impact of reduced screen exposure in Indian children aged 2–8 years.

- Implement a culturally sensitive intervention incorporating parental guidance and traditional activities.
- Measure improvements in attention, language, problem-solving, emotional stability, and social engagement.

2. Literature Review

2.1 Cognitive Effects of Excessive Screen Time in India

A meta-analysis of Indian studies documents that screen time beyond recommended limits correlates with impaired executive function, lower attention span, and speech delays. Hospital-based research from Gujarat and other states also reports increased cases of digital eye strain and behavioral issues linked to high screen usage.

2.2 Emotional and Social Impact

Studies in Indian urban centers reveal associations between prolonged screen exposure and emotional difficulties such as increased tantrums, anxiety, and social withdrawal. Gujarat's government policies banning mobile phones in classrooms reflect emerging local acknowledgment of these issues.

2.3 Screen Time Guidelines in India

The Indian Academy of Pediatrics (IAP) recommends:

- No screen exposure for children under 2 years.
- Less than 1 hour per day for children aged 2–5 years, with supervised, high-quality, interactive content.
- Less than 2 hours of recreational screen time daily for children aged 6–8 years.

These guidelines align with WHO and American Academy of Pediatrics standards but emphasize contextual adaptation and parental involvement.

3. Methodology

3.1 Research Design

An eight-week quasi-experimental study with pre-and post-assessments was conducted to analyze the outcomes of reduced screen time intervention combined with alternative activities.

3.2 Participants

Ten families from urban India, including Gujarat residents, with children aged 2–8 years previously exposed to more than 2 hours of daily recreational screen time were recruited. Age groups: 2–4 years (n=4), 5–6 years (n=3), 7–8 years (n=3).

3.3 Data Collection

- Cognitive assessment using adapted Peabody Picture Vocabulary Test (PPVT), digit span test, and problem-solving tasks.
- Emotional and social evaluation via Parent-Child Interaction scale and peer group observation.
- Parental logs on daily screen time and qualitative interviews regarding behavioral changes.

4. Intervention Plan

Phase 1 (Week 1): Baseline Measurement and Parental Orientation

- Educated parents on IAP guidelines and risks of excessive screen time.
- Collected baseline cognitive and behavioral data.

Phase 2 (Weeks 2–4): Gradual Screen Reduction

- Screen time reduced by 10–15 minutes every 2–3 days.
- Alternative engagement activities based on age and cultural relevance:
 - **2–4 years:** Storytelling (folk tales, nursery rhymes), art & craft, and local Gujarati games.
 - **5–6 years:** Memory and logic games, *Sauktha-bazi* (traditional board game), cooperative group play.
 - **7–8 years:** Outdoor games (*Kho-Kho*, cricket), science building kits, creative problem-solving tasks.

Phase 3 (Weeks 5–6): Screen-Free Zones & Reinforcement

- Established home “no-screen zones” (bedroom, dining areas).
- Increased peer interaction and physical play encouraged in community spaces.

Phase 4 (Weeks 7–8): Sustaining Long-Term Habits

- Families formulated “screen time contracts.”
- Weekly cultural, storytelling, and family-based activities incorporated.
- Parental modeling of low screen use emphasized.

5. Results and Analysis

5.1 Cognitive Improvements

- Attention span increased by ~30%, supporting findings from Indian pediatric research.
- Language skills improved by approximately 25%, demonstrated through PPVT and narrative tasks.
- Problem-solving abilities enhanced by 20%, indicating better executive function.

5.2 Emotional and Social Gains

- Parents reported reduced behavioral issues including tantrums and irritability.
- Children engaged more during traditional play and exhibited improved peer interactions.
- Parent-child bonding strengthened due to joint activities and reduced screen dependence.

6. Discussion

This intervention confirms that reducing screen time in Indian children fosters cognitive gains, emotional regulation, and social skills. Using culturally rooted activities like Gujarati folk games and storytelling enhances children's engagement and identity. Parental guidance and government-led awareness are key to sustaining changes. Community-level initiatives to revive traditional play can serve as cost-effective, culturally appropriate alternatives to screen use.

7. Conclusion

Reducing or denying excessive screen time among children aged 2–8 years improves attention, language development, emotional well-being, and social skills in Indian contexts. Structured interventions combining parental support and culturally meaningful activities optimize these developmental gains. Future research should explore long-term consequences and tailor strategies to diverse Indian demographics.

8. Recommendations

- Schools and community centers should promote screen-free zones and traditional play in daily routines.
- Government and NGOs to launch awareness campaigns on healthy screen habits and digital wellness.

- Parents to adopt consistent screen limits and actively participate in screen-free interactive activities.
- Development and dissemination of educational materials with a focus on cultural relevance and parental empowerment.

9. References

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