

The Impact of Smartphone Usage on Cognitive, Social and Emotional Development Among Children: A Parent-Reported Study

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Abstract

Introduction: Because they provide both pleasure and educational opportunities, smartphones have become an essential part of children's everyday lives. However, excessive smartphone use has sparked worries about how it may affect kids' social, emotional, and cognitive growth. When it comes to observing behavioral changes linked to smartphone exposure, parents are crucial. Therefore, it's critical to evaluate how parents perceive the impact of smartphone use on children's development.

Methodology: Using an online survey, 150 parents participated in a quantitative descriptive cross-sectional study. The convenience sampling method was used. A systematic self-administered questionnaire comprising demographic factors and parent-reported items pertaining to children's cognitive, social, and emotional development was used to gather data in a specific community area of Jahanaganj, Azamgarh, U.P. Data analysis was done using both descriptive and inferential statistics.

Results: According to the research, 62.0% of kids used smartphones for longer than two hours per day. Parents indicated that children who used smartphones for extended periods of time had shorter attention spans (58.7%), less social engagement (54.0%), and more emotional irritation (60.0%). There were significant correlations ($p < 0.05$) between the length of smartphone use and developmental outcomes.

Conclusion: Negative effects on children's cognitive, social, and emotional development have been linked to excessive smartphone use. To support a child's healthy development, parents should keep an eye on screen time and advocate responsible usage of digital gadgets.

Keywords: Smartphone usage, cognitive development, social development, emotional development, children, parents, screen time.

INTRODUCTION

Globally, children's lifestyles have changed due to the quick development of digital technology. Because of its accessibility, portability, and multipurpose functions, smartphones have emerged as one of the most popular digital gadgets among kids.¹

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Children now spend a significant amount of time on digital platforms for social, recreational, and educational purposes due to the growing availability of smartphones. Smartphones offer educational opportunities and information access, but excessive screen time during children has raised concerns.²

The development of thinking, memory, problem-solving, attention, and learning skills is referred to as cognitive development. Long-term smartphone use may have an impact on children's academic performance, focus, and memory retention, according to studies.³

Interpersonal communication, social engagement, collaboration, and relationship-building abilities are all included in social development. Overuse of smartphones can decrease in-person interactions and social engagement, which could have an impact on kids' social skills.⁴

Understanding, expressing, and controlling emotions are all part of emotional growth. Excessive screen time may be linked to children's emotional instability, irritability, anxiety, mood swings, and diminished emotional regulation, according to a number of studies.⁵

Observing behavioral and developmental changes in children is a crucial responsibility of parents. Parent-reported evaluations offer important information about how kids use smartphones on a daily basis and the developmental consequences that follow.⁶

Over the past ten years, children's smartphone ownership has skyrocketed worldwide. Concerns about screen addiction, sleep disorders, decreased physical activity, and behavioral problems linked to extended smartphone use have been brought to light by research done in several nations.⁷

Children's exposure to digital media has expanded in India due to the widespread availability of reasonably priced cellphones and internet services. Children's use of smartphones has significantly increased since online learning strategies were used during and after the COVID-19 epidemic.⁸

There is no parent-reported data on the combined effects of smartphone use on children's cognitive, social, and emotional development, despite the fact that screen time has been the subject of several research. In order to determine how parents perceive

the effects of smartphone use on children's development, the current study was conducted.^{9,10}

OBJECTIVES

1. To assess smartphone usage patterns among children.
2. To evaluate the impact of smartphone usage on cognitive development among children.
3. To assess the impact of smartphone usage on social development among children.
4. To determine the impact of smartphone usage on emotional development among children.
5. To identify the association between smartphone usage and selected demographic variables.

HYPOTHESES

H₁: There is a significant association between duration of smartphone usage and cognitive development among children.

H₂: There is a significant association between duration of smartphone usage and social development among children.

H₃: There is a significant association between duration of smartphone usage and emotional development among children.

H₀: There is no significant association between smartphone usage and developmental outcomes among children.

METHODOLOGY

Research Approach

Quantitative research approach.

Research Design

Descriptive cross-sectional survey design.

Setting of the Study

Online community-based survey among parents residing in Rajasthan, India.

Population

Parents having children aged 6–12 years.

Sample Size

150 parents.

Sampling Technique

Non-probability convenience sampling.

Inclusion Criteria

Parents having children aged 6–12 years.
Parents willing to participate.

Parents able to understand Hindi or English.
Parents having internet access.

Exclusion Criteria

Parents of children with diagnosed developmental disorders.

Incomplete survey responses.

Tool for Data Collection

Section A: Demographic Variables

Age of parent, gender, educational status, occupation, family type, monthly income, child's age, and child's gender.

Section B: Smartphone Usage Pattern Scale

10 items assessing:

- Daily screen time
- Purpose of smartphone use
- Frequency of use
- Supervision by parents
- Device ownership

Section C: Cognitive Development Assessment Scale

10 items assessing:

- Attention span
- Memory
- Concentration
- Learning ability
- Academic performance

Section D: Social Development Assessment Scale

10 items assessing:

- Communication skills
- Peer interaction
- Participation in activities
- Social engagement

Section E: Emotional Development Assessment Scale

10 items assessing:

- Irritability
- Mood changes
- Anxiety
- Emotional regulation
- Aggressive behavior

Scoring Interpretation

Low Impact: 0–25

Moderate Impact: 26–50

High Impact: 51–75

Very High Impact: 76–100

Validity

The tool was validated by experts from nursing, psychology, pediatrics, and community health specialties.

Reliability

Reliability of the tool was established using Cronbach's Alpha coefficient ($r = 0.86$).

Data Collection Procedure

After obtaining informed consent, the questionnaire was distributed through Google Forms. Participants completed the survey voluntarily.

Ethical Considerations

- Informed consent obtained.
- Confidentiality maintained.
- Participation voluntary.
- Data used only for research purposes.

Plan for Data Analysis

Descriptive Statistics:

- Frequency
- Percentage
- Mean
- Standard Deviation

Inferential Statistics:

- Chi-square test
- Pearson correlation coefficient

Level of significance: $p < 0.05$.

RESULTS

Table 1: Distribution of Parents According to Demographic Variables (N=150)

Variable	Frequency (f)	Percentage (%)
Age 20–30 years	38	25.3
Age 31–40 years	72	48.0
Age >40 years	40	26.7
Male	58	38.7
Female	92	61.3
Graduate & Above	96	64.0
Secondary Education	54	36.0
Nuclear Family	98	65.3
Joint Family	52	34.7

Finding: Majority of parents (48.0%) belonged to the age group of 31–40 years and 61.3% were females.

Table 2: Distribution of Children According to Daily Smartphone Usage

Smartphone Usage per Day	Frequency	Percentage (%)
Less than 1 hour	18	12.0
1–2 hours	39	26.0
2–4 hours	56	37.3
More than 4 hours	37	24.7

Finding: Majority (62.0%) of children used smartphones for more than 2 hours daily.

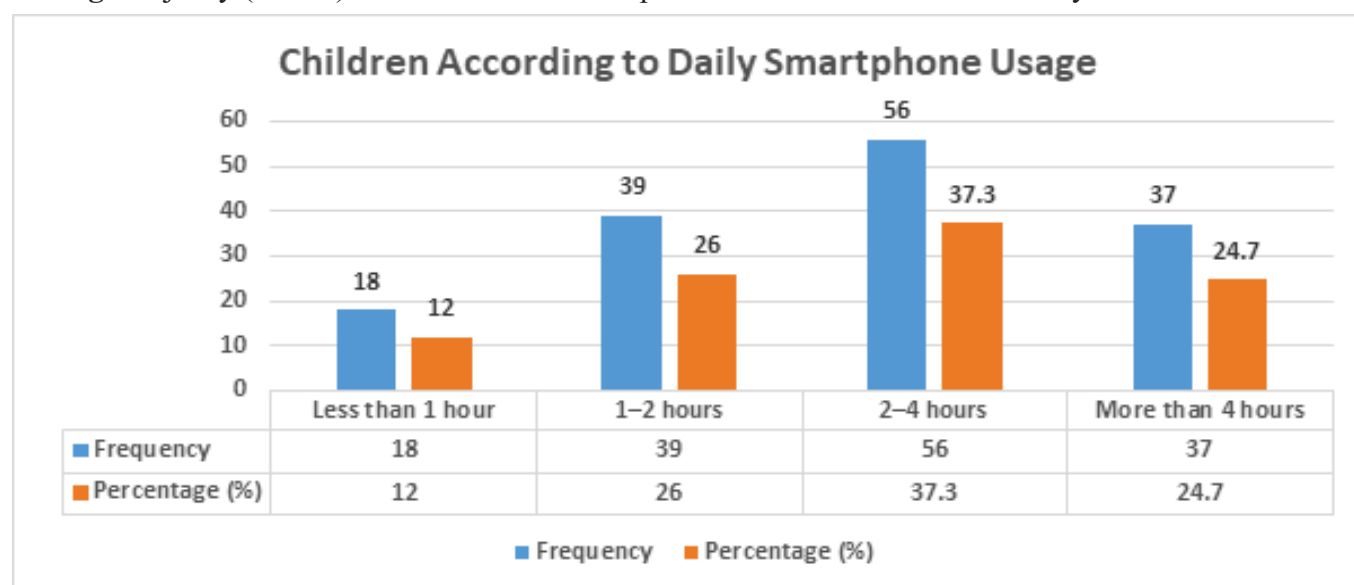


Figure 01: Distribution of Children According to Daily Smartphone Usage

Table 3: Purpose of Smartphone Usage

Purpose	Frequency	Percentage (%)
Online Learning	45	30.0
Gaming	40	26.7
Watching Videos	38	25.3
Social Media	17	11.3
Others	10	6.7

Finding: Online learning (30.0%) was the most common purpose of smartphone usage.

Table 4: Cognitive Development Impact

Cognitive Indicator	Yes (%)	No (%)
Reduced Attention Span	58.7	41.3
Difficulty Concentrating	55.3	44.7
Reduced Memory Retention	49.3	50.7
Academic Performance Affected	46.0	54.0

Finding: Reduced attention span was reported by 58.7% of parents.

Table 5: Social Development Impact

Social Indicator	Yes (%)	No (%)
Reduced Social Interaction	54.0	46.0
Less Outdoor Play	66.0	34.0
Reduced Communication Skills	42.0	58.0
Difficulty Making Friends	34.0	66.0

Finding: 66.0% of parents reported reduced outdoor activities among children.

Table 6: Emotional Development Impact

Emotional Indicator	Yes (%)	No (%)
Irritability	60.0	40.0
Mood Swings	52.7	47.3
Anxiety Symptoms	41.3	58.7
Aggressive Behavior	38.0	62.0

Finding: Irritability was the most frequently reported emotional issue (60.0%).

Table 7: Overall Impact Level

Impact Level	Frequency	Percentage (%)
Low	18	12.0
Moderate	46	30.7
High	59	39.3
Very High	27	18.0

Finding: Majority (57.3%) experienced high to very high developmental impact.

Table 8: Association Between Smartphone Usage and Cognitive Development

Smartphone Usage	Poor Cognitive Outcome	Good Cognitive Outcome	χ^2
<2 Hours	18	39	
>2 Hours	71	22	
$\chi^2 = 12.64, p = 0.001$			Significant

Finding: Significant association was found between smartphone usage duration and cognitive development ($p < 0.05$).

Table 9: Association Between Smartphone Usage and Social Development

Smartphone Usage	Poor Social Outcome	Good Social Outcome	χ^2
<2 Hours	16	41	
>2 Hours	68	25	
$\chi^2 = 10.89, p = 0.003$			Significant

Finding: Smartphone usage was significantly associated with social development ($p < 0.05$).

Table 10: Association Between Smartphone Usage and Emotional Development

Smartphone Usage	Poor Emotional Outcome	Good Emotional Outcome	χ^2
<2 Hours	14	43	
>2 Hours	73	20	
$\chi^2 = 15.72, p = 0.001$			Significant

Finding: Significant association was found between smartphone usage and emotional development ($p < 0.05$).

Final Findings

- Majority of children used smartphones for more than 2 hours daily.
- Reduced attention span was reported by 58.7% of parents.
- Reduced outdoor play was reported by 66.0% of parents.
- Irritability was reported by 60.0% of parents.
- High developmental impact was found among 39.3% of children.

6. Significant associations existed between smartphone usage and cognitive, social, and emotional development.

DISCUSSION

According to the current study, youngsters frequently use smartphones for extended periods of time. Over 50% of the participants said they used their smartphones for more than two hours per day. Similar results have been documented in earlier research showing that children's screen time has increased as a result of widespread digitalization and online learning¹¹

The study showed that smartphone use and cognitive development are negatively correlated. Children's attention span, concentration, and memory issues were mentioned by parents. Overexposure to screens might hinder active learning and lower participation in educational activities.

In terms of social development, a significant percentage of parents saw a decline in in-person interactions and outdoor activity engagement. Children's social competency and ability to form relationships may be impacted by smartphones' potential to restrict social interaction and interpersonal communication chances.

The emotional results showed that children who used smartphones more frequently had higher levels of irritation, mood swings, and anxiety symptoms. Constant use of digital media may have an impact on behavioral reactions and emotional control.

The research that suggests excessive smartphone exposure may negatively impact several areas of child development is supported by the statistically significant correlations between smartphone usage and developmental outcomes. As a result, balanced screen-time practices and parental supervision are crucial.

CONCLUSION

The results of this cross-sectional study show a strong correlation between children's cognitive, social, and emotional developmental outcomes as reported by parents and extended smartphone use. Children who used smartphones more frequently on a daily basis were more likely to have shorter attention spans, less social contact, fewer outside activities, impatience, and emotional disorders. Although the study does not demonstrate a causative relationship, the observed

associations underscore the significance of supporting balanced smartphone use, parental supervision, and healthy recreational activities to enhance children's overall development. To gain a deeper understanding of the causal association between smartphone use and developmental outcomes, more experimental and longitudinal research is advised.

RECOMMENDATIONS

1. Parents should routinely check on their kids' smartphone use.
2. Daily screen time should be regulated according to age-specific guidelines.
3. Healthy digital behaviors should be the subject of awareness campaigns in schools.
4. Kids should be encouraged to engage in social and outdoor activities.
5. Parents should get screen-time management education from pediatric and community health nurses.
6. Larger sample sizes should be used in future research.
7. To evaluate long-term developmental consequences, longitudinal research had to be carried out.
8. To assess strategies for lowering excessive smartphone use, experimental research might be carried out.

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Nil

CONFLICT OF INTEREST: None

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