

Relationship Between Digital Media Exposure and Socio-Emotional and Behavioural Functioning Among Children Aged 6-12 Years in India: A Parent-Reported Cross-Sectional Study

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Abstract: Digital media has become deeply embedded in children's everyday routines, raising vital questions regarding its association with psychological, emotional, and social development. This cross-sectional correlational study investigated the relationship between digital media exposure (screen-time duration, devices, content types, engagement modes) and socio-emotional and behavioural functioning among Indian children during middle childhood (aged 6–12 years), alongside the contextual role of parental mediation. Data were collected via an online survey completed by parents and primary caregivers ($N = 50$; 58% female children; mean age = 8.70 years, $SD = 2.27$). Standardized scoring was applied to researcher-developed questionnaires demonstrating high internal consistency: the Parental Mediation scale ($\alpha = .890$) and the 25-item Socio-Emotional and Behavioural Functioning (SEBF) scale ($\alpha = .943$) spanning five domains (Emotional Regulation, Empathy/Prosocial Behaviour, Peer Interaction, Behavioural Control, and Emotional & Behavioural Difficulties). Non-parametric analyses revealed significant negative correlations between overall SEBF and both weekday screen time ($p = -.288, p = .042$) and weekend screen time ($p = -.362, p = .010$). Weekend screen time demonstrated significant inverse associations with emotional regulation ($p = -.410, p = .003$), empathy and prosocial behaviour ($p = -.336, p = .017$), and behavioural control ($p = -.325, p = .021$). Parental mediation was strongly and positively associated with overall SEBF ($p = .619, p < .001$) and negatively associated with screen time. No statistically significant gender or age-group differences were observed in overall SEBF. The findings underscore that digital media exposure in middle childhood is multidimensional, highlighting the protective role of parental mediation and the need for balanced digital routines.

Keywords: Digital media exposure, screen time, middle childhood, socio-emotional development, behavioural functioning, parental mediation, India

1. Introduction

The ubiquity of smartphones, tablets, computers, and televisions has reshaped the developmental landscape for children globally. Middle childhood (aged 6–12 years) represents a critical developmental period characterized by rapid refinement of emotional self-regulation, perspective-taking, social comprehension, behavioural inhibition, and peer socialization. While interactive technologies provide valuable educational resources, collaborative tools, and cognitive engagement, excessive or unguided media consumption has raised concerns regarding displacement of physical play, reduced face-to-face peer interaction, and disrupted family dynamics.

Recent empirical literature emphasizes that screen exposure cannot be treated as a monolithic construct defined solely by hours of viewing. Instead, developmental outcomes are influenced by digital content (educational vs. entertainment/recreational), modes of engagement (active/interactive vs. passive viewing), and the socio-familial environment, notably parental mediation practices.

In India, rapid digital penetration has transformed domestic environments across urban and semi-urban settings. However, empirical literature within the Indian socio-cultural context remains predominantly skewed toward either

preschool populations or adolescents, leaving middle childhood comparatively under-investigated. Furthermore, existing studies rarely integrate screen duration, diverse media modalities, and parental mediation practices within a unified investigative model.

Theoretical Framework

The study is grounded in four foundational developmental and psychological theories:

- **Social Learning Theory (Bandura, 1977):** Children acquire behaviours via observation, imitation, and vicarious reinforcement modeled in digital media.
- **Cognitive Development Theory (Piaget, 1952):** Children in the concrete operational stage benefit from interactive, reasoning-oriented stimuli but risk displacement of essential sensory-motor and real-world experiential activities.
- **Attachment Theory (Bowlby, 1969):** Supportive caregiver-child relationships and parental co-engagement provide an emotional scaffold that mitigates screen-induced dysregulation.
- **Ecological Systems Theory (Bronfenbrenner, 1979):** Digital media functions within the child's microsystem, interacting dynamically with familial practices, schooling, and broader cultural dynamics.

Objectives & Hypotheses

The primary objective was to examine the relationship between digital media exposure (screen duration, devices, content, engagement mode) and socio-emotional and behavioural functioning among Indian children aged 6–12 years. Secondary objectives evaluated the relationship between parental mediation and children's digital exposure, as well as demographic variations across gender and age. Null hypotheses posited no significant relationship between screen-time duration, content/engagement modes, parental mediation, and children's socio-emotional and behavioural functioning.

2. Methodology

2.1 Research Design & Participants

A quantitative, cross-sectional correlational design was utilized. The study sampled 50 parents and primary caregivers of children aged 6–12 years residing in India (urban = 72%, semi-urban = 24%, rural = 4%; 86% private school, 14% government school). Participants were recruited using purposive and convenience sampling through academic, educational, and community networks via online administration. Mothers constituted 72% ($n = 36$) of respondents, and fathers constituted 28% ($n = 14$).

2.2 Inclusion and Exclusion Criteria

Inclusion criteria required respondents to be parents/primary caregivers of children aged 6–12 residing in India with daily knowledge of the child's habits who provided informed consent. Exclusion criteria eliminated incomplete submissions, duplicate entries, and children outside the 6–12 age bracket.

2.3 Instruments

The structured questionnaire comprised three components:

- **Demographic Proforma:** Captured child age, gender, geographic area, school type, and respondent relationship.
- **Digital Media Exposure and Parental Mediation Questionnaire:** Evaluated weekday and weekend screen-time categories (ordinal: <1 hr, 1–2 hrs, 2–3 hrs, 3–4 hrs, >4 hrs), regular devices, purposes of use, content genres, engagement mode, and context of use. The Parental Mediation subscale comprised 10 items (e.g., limit-setting, content monitoring, co-viewing, discussions, device-free times) scored on a 5-point Likert scale (1 = Never to 5 = Always; Cronbach's $\alpha = .890$).
- **Socio-Emotional and Behavioural Functioning (SEBF) Questionnaire:** A 25-item parent-report scale evaluating five 5-item domains: Emotional Regulation, Empathy and Prosocial Behaviour, Peer Interaction, Behavioural Control, and Emotional and Behavioural Difficulties (reverse-scored). All items utilized a 5-point Likert scale (1–5). Domain scores and an overall composite mean score were generated, with higher scores reflecting superior functioning (overall scale $\alpha = .943$).

2.4 Ethical Considerations & Data Analysis

Ethical guidelines governing voluntary participation, confidentiality, informed consent, and anonymized aggregate reporting were strictly upheld. Statistical analyses were executed using SPSS/appropriate statistical packages. Given the ordinal screen-time distributions and sample size ($N = 50$), Spearman rank-order correlations (ρ), Mann–Whitney U tests, and Kruskal–Wallis tests were conducted alongside descriptive metrics.

3. Results

3.1 Sample Demographics & Media Usage Patterns

The mean age of the children was 8.70 years ($SD = 2.27$, Range: 6–12). The sample comprised 29 females (58%) and 21 males (42%).

Table 1: Screen-Time Duration and Device Distribution ($N = 50$)

Variable / Parameter	Category / Response	Distribution % (n)
Daily Weekday Screen Time	<1 hr	34% (n=17)
	1–2 hrs	42% (n=21)
	2–3 hrs	16% (n=8)
	3–4 hrs	2% (n=1)
	>4 hrs	6% (n=3)
Daily Weekend Screen Time	<1 hr	10% (n=5)
	1–2 hrs	36% (n=18)
	2–3 hrs	38% (n=19)
	3–4 hrs	12% (n=6)
	>4 hrs	4% (n=2)
Weekday vs. Weekend Difference	Higher weekend usage	70%
	No change	20%
	Unsure	10%
Regularly Used Devices (Multiple response)	Television	80% (n=40)
	Smartphone	72% (n=36)
	Laptop/Desktop	30% (n=15)
	Tablet	20% (n=10)
	Gaming Console	16% (n=8)
Purposes of Use	Entertainment	84%
	Education/Learning	74%
	Information Seeking	38%
	Creative Activities	36%
	Gaming	34%
	Communication	30%
Content Genres Accessed	Cartoons/Entertainment	78%
	Educational	62%
	Informational	40%
	Music	36%
	Short-form videos	34%
	Gaming	30%
Mode of Engagement	Social Media	30%
	Combination of activities	48%
	Educational interaction	40%
	Creative	34%
	Communication	30%
	Passive viewing	28%
Context of Use	Interactive gaming	24%
	Co-use with parent/caregiver	34%
	Varies by activity	30%
	Alone	24%
	With siblings/peers	12%

3.2 Descriptive Statistics & Reliability of Measures

Table 2: Descriptive Statistics and Reliability Analysis

Domain / Measure	No. of Items	Mean	SD	Cronbach's α
Emotional Regulation	5	4.02	0.72	0.786
Empathy & Prosocial Behaviour	5	4.12	0.71	0.834
Peer Interaction	5	4.29	0.71	0.869
Behavioural Control	5	4.06	0.78	0.869
Emotional & Behavioural Difficulties (<i>Reverse-Scored</i>)	5	3.62	0.99	0.9
Overall SEBF Composite	25	4.02	0.64	0.943
Parental Mediation Scale	10	4.13	0.71	0.89

3.3 Correlational Analyses

Table 3: Spearman Rank Correlations Between Screen Time, Parental Mediation, and SEBF Domains

Correlation Pair	Spearman's ρ	p-value	Significance
Weekday Screen Time $\times$ Overall SEBF	-0.288	0.042	* ($p < .05$)
Weekend Screen Time $\times$ Overall SEBF	-0.362	0.01	* ($p < .05$)
Weekend Screen Time $\times$ Emotional Regulation	-0.41	0.003	** ($p < .01$)
Weekend Screen Time $\times$ Empathy & Prosocial Behaviour	-0.336	0.017	* ($p < .05$)
Weekend Screen Time $\times$ Peer Interaction	-0.238	0.096	ns
Weekend Screen Time $\times$ Behavioural Control	-0.325	0.021	* ($p < .05$)
Weekend Screen Time $\times$ Emotional & Behavioural Difficulties	-0.217	0.131	ns
Parental Mediation $\times$ Weekday Screen Time	-0.362	0.01	* ($p < .05$)
Parental Mediation $\times$ Weekend Screen Time	-0.348	0.013	* ($p < .05$)
Parental Mediation $\times$ Overall SEBF	0.619	< .001	** ($p < .01$)

*(Note: * $p < .05$, * $p < .01$, ns = not significant)

3.4 Group Comparisons

- **Gender:** Mann–Whitney U test revealed no significant difference in overall SEBF between females (Median = 4.16, $n = 29$) and males (Median = 4.00, $n = 21$), $U = 345.00$, $p = .432$.
- **Age Groups (6–8 yrs [$n=26$], 9–10 yrs [$n=10$], 11–12 yrs [$n=14$]):** Kruskal–Wallis test revealed no significant difference in overall SEBF across age brackets ($H = 0.435$, $p = .804$). However, significant age-group differences emerged for Parental Mediation ($H = 7.477$, $p = .024$) and Weekday Screen Time ($H = 6.136$, $p = .047$), reflecting shifting parental supervisory dynamics as children enter late middle childhood.

4. Discussion

The empirical findings substantiate that digital media exposure in middle childhood exhibits significant, inverse relationships with children's socio-emotional and behavioural adjustment. The negative correlation observed between overall SEBF and screen duration aligns with international literature (Twenge & Campbell, 2018; Jia et al., 2025). The stronger inverse relationship observed on weekends ($\rho = -.362$) compared to weekdays ($\rho = -.288$) reflects unstructured weekend screen consumption where prolonged leisure viewing often replaces offline peer interactions and physical recreational pursuits.

Domain-specific analyses revealed that emotional regulation exhibited the strongest vulnerability to elevated weekend screen exposure ($\rho = -.410$, $p = .003$). As highlighted by Vasconcellos et al. (2025), this relationship may possess bidirectional qualities: while extended screen exposure may curtail active self-regulation mastery, emotionally dysregulated children are also more frequently provided

screens by caregivers as coping or soothing mechanisms. Significant inverse associations were also demonstrated for behavioural control ($\rho = -.325$) and prosocial behaviour ($\rho = -.336$), corroborating Bandura's social learning framework and previous concerns regarding screen-based distraction and decreased collaborative play.

Conversely, the absence of statistically significant correlations with peer interaction and generalized emotional/behavioural difficulties demonstrates that digital media exposure does not uniformly compromise all developmental domains. This nuanced finding reinforces Orben and Przybylski's (2019) caveat against exaggerated negative claims.

Crucially, parental mediation emerged as a robust contextual protective factor, demonstrating a strong positive association with overall SEBF ($\rho = .619$, $p < .001$) alongside significant inverse associations with screen duration. Caregiver practices—such as content co-viewing, digital boundary setting, and proactive content discussion—foster a regulated technological environment, aligning with attachment and ecological systems paradigms (Gentile et al., 2014; Collier et al., 2016).

5. Limitations

- 1) Modest sample size ($N = 50$) collected via purposive/convenience sampling limits nationwide generalizability and statistical power.
- 2) Reliance on parent-report methodology introduces potential social desirability and recall biases.
- 3) The cross-sectional design precludes causal inferences.
- 4) Categorical ordinal screen time measurements preclude non-linear dose-response curve modelling.

6. Conclusion & Recommendations

6.1 Conclusion

This study provides valuable preliminary empirical insights into middle childhood media ecology within India. Higher screen duration- particularly during weekends- is inversely related to emotional regulation, prosocial skills, and behavioural control, whereas active parental mediation serves as a decisive positive influence.

6.2 Recommendations

- 1) **For Parents:** Adopt balanced, communicative mediation models emphasizing co-viewing, dialogue, and designated screen-free routines rather than relying solely on punitive restrictions.
- 2) **For Educators & Psychologists:** Integrate digital wellness literacy within school curricula and familial counseling, assessing media habits within broader psychosocial evaluations.
- 3) **For Future Research:** Conduct longitudinal, multi-informant (child, teacher, parent) investigations utilizing objective digital tracking across diverse socio-economic and rural strata in India.

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