

Assessment of Association of Parental Factors with Screen Time in Preschool Children Aged Between 2-5 Years in and Around Kannauj- A Cross-Sectional Study

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Abstract

Background: The increasing screen exposure among preschool-aged children has become a growing concern due to its potential impact on cognitive, behavioural, and emotional development. Parental factors, including education, occupation, awareness of screen time guidelines, and supervision, play a pivotal role in influencing children's screen habits. The objective is to determine the screen time patterns of preschool children aged 2–5 years and explore their association with different parental sociodemographic factors in and around Kannauj. **Material and Methods:** A cross-sectional study was conducted among 150 parents of preschool-aged children using a structured questionnaire. Data were collected on sociodemographic characteristics, screen time duration, supervision practices, and parental awareness. The Kuppaswamy Socioeconomic Scale and BG Prasad 2024 classification were applied. Associations were analysed using chi-square tests, and a p-value <0.05 was considered statistically significant. **Results:** Out of 150 children, 57.3% had screen exposure exceeding 1 hour a day. Parental education and occupation were significantly associated with children's screen time (p<0.05). Parents with higher educational status and professional occupations were more inclined to limit their child's screen usage. Lack of parental awareness about screen time guidelines (69.3%) and absence of supervision (26.7%) were also strongly associated with increased screen exposure (p<0.001). Additionally, parental screen time exceeding 2 hours per day showed direct correlations with higher screen use in children. **Conclusion:** Parental factors such as education level, occupation, screen habits, and awareness significantly influence screen time among preschoolers. Strengthening parental guidance and promoting screen time awareness through community-level interventions are crucial for the healthy development of young children.

Keywords: Preschool children, screen time, parental factors, supervision, Kuppaswamy scale, BG Prasad classification, cognitive development, digital exposure, screen time guidelines, and early childhood.

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INTRODUCTION

In recent years, the rapid integration of digital technology into everyday life has significantly increased children's exposure to screen-based media. Preschool-aged children (2–5 years) are particularly vulnerable, as this is a critical period of cognitive, emotional, and physical development. Excessive screen time in early childhood has been associated with various negative health outcomes, including delayed language development, behavioural problems, obesity, and sleep disturbances.^[1–3]

The World Health Organisation (WHO) recommends that children aged 2–5 years should not be exposed to more than one hour of screen time per day, emphasising the need for high-quality programming and active parental involvement.^[4] However, studies across both urban and rural regions of India have shown that many children exceed this recommended limit.^[5,6] Parental behaviours and attitudes are among the most influential factors shaping a child's screen time habits. This includes parental screen usage, education level, employment status, and parenting style, all of which

play a pivotal role in determining the duration and quality of screen exposure in children.^[7,8]

Understanding the association between these parental factors and children's screen time is particularly crucial in semi-urban and rural Indian contexts, where awareness and access to guidelines may be limited. Despite growing global literature, region-specific data are scarce, especially in North Indian districts such as Kannauj. Identifying these associations could guide the development of effective, culturally sensitive interventions

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enabling healthier screen use behaviors among preschoolers. Using a cross-sectional design, this study analyses the relationship between parental factors and screen time in children aged 2–5 years from the Kannauj region. By highlighting key determinants, this research seeks to inform public health strategies, parental counselling, and early childhood behavioral interventions in similar socio-demographic settings.

MATERIALS AND METHODS

Study Design and Setting: A cross-sectional, questionnaire-based study was conducted over three months at the Department of Paediatrics, Dr. Bhimrao Ramji Ambedkar Government Medical College, Kannauj, Uttar Pradesh, after obtaining Institutional Ethics Committee (IEC) approval.

Study Population: Parents of preschool children aged 2–5 years attending OPD and IPD were included.

Sample Size: In all, 150 participants were selected using a simple random sampling method, based on feasibility and availability during the study period.

Inclusion Criteria

1. Parents who can read and understand Hindi or English
2. Mentally sound parents with normal hearing and vision
3. Preschool children aged 2–5 years
4. Parents who gave written informed consent

Exclusion Criteria

1. Parents are unable to understand Hindi/English
2. Children with hearing or visual impairments
3. Children aged 2–5 years enrolled in digital-based schooling

4. Parents not consenting to participate

Study Tool: Data were collected using a structured, pre-validated questionnaire (Hindi/English), covering socio-demographics, screen time practices, and parental awareness. Assistance was provided as needed.

Ethical Considerations: Ethical clearance was obtained from the Institutional Ethics Committee. Informed consent was taken, and confidentiality was maintained.

Statistical Analysis: Data were entered in Microsoft Excel and analysed using SPSS (version 29). Descriptive statistics and inferential tests (Chi-square, t-test, logistic regression) were used. $p < 0.05$ was considered statistically significant.

RESULTS

A total of 150 parents of preschool children participated in the study. Most of the respondents (50.7 %) were aged 31–40 years, followed by 32.0 % in the 20–30 years group. Most participants were female (64.0 %).

Sociodemographic Characteristics of Parents [Table 1]

In terms of educational status (as per the Kuppaswamy scale), the highest proportion had intermediate/diploma-level education (32.0 %), followed by graduates (25.3 %) and professionals/postgraduates (14.7 %). The most common occupations were clerical/shop-owner/farmer (24.0 %), semi-skilled (18.7 %), and skilled workers (16.0 %).

According to the BG Prasad Socioeconomic Classification (2024), most families belonged to the Upper Middle Class (30.7 %), followed by the Middle Class (28.0 %), and Lower Middle Class (18.7 %). Only 13.3 % were in the Upper Class, while 9.3 % fell into the Lower Class category.

Table 1: Demographic characteristics distribution

Variable	Category	Frequency (n)	Percentage (%)
Parent Age (years)	20–30	48	32.0 %
	31–40	76	50.7 %
	>40	26	17.3 %
Parent Gender	Male	54	36.0 %
	Female	96	64.0 %
Education Level (Kuppaswamy)	Professional/Postgraduate	22	14.7 %
	Graduate	38	25.3 %
	Intermediate/Diploma	48	32.0 %
	High School	26	17.3 %
Occupation (Kuppaswamy)	Middle or Below	16	10.7 %
	Professional	14	9.3 %
	Semi-professional	20	13.3 %
	Clerical/Shop-owner/Farmer	36	24.0 %
	Skilled Worker	24	16.0 %
	Semi-skilled Worker	28	18.7 %
	Unskilled Worker	20	13.3 %
	Unemployed	8	5.4 %
Socioeconomic Status (BG Prasad 2024)	Upper Class (Class I)	20	13.3 %
	Upper Middle (Class II)	46	30.7 %
	Middle Class (Class III)	42	28.0 %
	Lower Middle (Class IV)	28	18.7 %
	Lower Class (Class V)	14	9.3 %

Child Characteristics and Screen Use Patterns [Table 2]

Among the children surveyed, 61.3% were aged 4–5 years and 56.0% were male. More than half (57.3%) had daily screen time exceeding one hour. Mobile phones (74.7%) and televisions (57.3%) were the most frequently used devices, followed by tablets (24.0%) and laptops/desktops (13.3%).

In terms of supervision, 48.0% of children were only occasionally monitored, while 26.7% received no supervision at all. Over half of the parents (56.0%) stated that their screen time exceeded two hours a day, and 69.3% were unaware of recommended screen time guidelines for children.

Table 2: Child Characteristics and Screen Time Pattern (n = 150)

Variable	Category	Frequency (n)	Percentage (%)
Child Age (years)	2–3	58	38.7
	4–5	92	61.3
Child Gender	Male	84	56.0
	Female	66	44.0
Average Daily Screen Time	≤1 hour	64	42.7
	>1 hour	86	57.3
Type of Devices Used	Mobile phone	112	74.7
	Television	86	57.3
	Tablet	36	24.0
	Laptop/Desktop	20	13.3
Supervision During Screen Use	Always supervised	38	25.3
	Sometimes supervised	72	48.0
	Not supervised	40	26.7
Parental Screen Time (>2 hrs/day)	Yes	84	56.0
	No	66	44.0
Parental Awareness of Guidelines	Aware	46	30.7
	Not Aware	104	69.3

Association Between Parental Education and Child's Screen Time

As shown in [Table 3], there was a statistically significant association between parental education and screen time in children ($p = 0.002$). Children whose parents had higher

educational levels (graduate or above) were significantly more likely to have screen time ≤1 hour/day, whereas those whose parents had high school or lower education levels showed increased screen exposure (>1 hour/day).

Table 3: Association Between Parental Education Level (Kuppuswamy Scale) and Child's Screen Time (n = 150)

Parental Education Level (n)	≤1 hr Screen Time (n, %)	>1 hr Screen Time (n, %)	Total (n)	p-value
Professional/Postgraduate (n=22)	16 (72.7%)	6 (27.3%)	22	0.002
Graduate (n=38)	28 (73.7%)	10 (26.3%)	38	
Intermediate/Post-high school (n=48)	14 (29.2%)	34 (70.8%)	48	
High School/Middle & Below (n=42)	6 (14.3%)	36 (85.7%)	42	

Association Between Parental Occupation and Child's Screen Time

[Table 4] illustrates a significant relationship between occupation and child screen time ($p = 0.021$). Children of

professionals/semi-professionals were more likely to have screen time ≤1 hour/day, while those from clerical, semi-skilled, and unskilled occupational groups were more likely to have excessive screen exposure.

Table 4: Association Between Parental Occupation (Kuppuswamy Scale) and Child's Screen Time (n = 150)

Parental Occupation (n)	≤1 hr Screen Time (n, %)	>1 hr Screen Time (n, %)	Total (n)	p-value
Professional/Semi-professional (n=34)	24 (70.6%)	10 (29.4%)	34	0.021
Clerical/Skilled/Semi-skilled (n=88)	26 (29.5%)	62 (70.5%)	88	
Unskilled/Unemployed (n=28)	14 (50.0%)	14 (50.0%)	28	

Parental Factors Associated with Excessive Screen Time

[Table 5] presents associations between screen time and key parental behaviours:

1. Awareness of screen time guidelines was significantly associated with screen exposure ($p < 0.001$). Among those aware, 82.6% maintained ≤1 hour screen time for their children.
2. Children whose parents had >2 hours of daily screen use were significantly more likely to exceed screen time limits (76.2%, $p < 0.001$).
3. Supervision during screen use was strongly linked to lower screen exposure. Among always-supervised children, 84.2% had screen time ≤1 hour/day ($p < 0.001$).

Table 5: Association of Awareness, Parental Screen Time, and Supervision with Child's Screen Time

Parental Factor (n)	≤1 hr Screen Time (n, %)	>1 hr Screen Time (n, %)	Total (n)	p-value
Awareness of Guidelines (n=150)				<0.001
Aware (n=46)	38 (82.6%)	8 (17.4%)	46	
Not Aware (n=104)	26 (25.0%)	78 (75.0%)	104	
Parental Screen Time >2 hrs (n=150)				<0.001
Yes (n=84)	20 (23.8%)	64 (76.2%)	84	
No (n=66)	44 (66.7%)	22 (33.3%)	66	
Supervision During Screen Use (n=150)				<0.001
Always (n=38)	32 (84.2%)	6 (15.8%)	38	
Sometimes/None (n=112)	32 (28.6%)	80 (71.4%)	112	

DISCUSSION

The present study aimed to assess screen time patterns among preschool children and examine the influence of parental sociodemographic characteristics, awareness, and practices using standardized tools like the Kuppaswamy Scale and BG Prasad Classification. The study found that 57.3% of children spent more than one hour per day on screens, with significant links to determinants such as parental education and occupation, awareness of screen time guidelines, parental screen use, and supervision practices.

Our findings resonate with the study conducted by Birken et al. (2011)^[9] in Toronto, Canada, which showed that increased screen time in 3-year-old children was associated with parental employment, lack of supervision during meals, and higher parental screen time. Similar to their observation, our study noted that children whose parents were unaware of screen time guidelines or had screen exposure themselves (>2 hours/day) were significantly more likely to engage in excessive screen time ($p < 0.001$).

Following the study by Bhutani et al. (2024)^[10] which reported that the lack of screen-time limits and use of screens during feeding significantly increased screen exposure, our results demonstrated that inconsistent or absent supervision was strongly associated with excessive screen use. This highlights a consistent pattern across cultural settings emphasizing the role of parental involvement and monitoring.

The Kerala-based study by John et al. (2021)^[11] showed that 89.4% of children had excessive screen time and linked inconsistent supervision with developmental concerns such as delayed attention and language. In our study, 74.7% of children used mobile phones, and only 25.3 % were consistently supervised, suggesting a similar trend of inadequate parental control and potential developmental implications.

Furthermore, the study by Çaylan et al. (2021)^[12] emphasised how lower parental education and permissive parenting styles correlated with increased screen exposure. Reflecting this, our findings revealed that parents with lower education (high school or below) were significantly associated with higher child screen time ($p = 0.002$), underlining the critical role of education in shaping screen-related behaviours.

Lastly, the socioeconomic stratification using the BG Prasad 2024 scale showed that children from the middle and lower-middle classes had higher screen time. This aligns partially with Bhutani et al. (9's Indian study, which observed no strong sociodemographic predictors but emphasised behavioural patterns. However, usage of the refined income and occupation-based classifications allowed us to highlight nuanced differences in screen exposure across social strata.

CONCLUSION

This cross-sectional study highlights a significant association between parental factors and screen time among preschool children aged 2 to 5 years in and around Kannauj. Findings

indicate that higher screen exposure in children is influenced by lower parental education, specific occupational categories, lack of awareness of screen time guidelines, and absence of consistent supervision. Socioeconomic status, as per the BG Prasad 2024 classification, also played a notable role, with children from middle and lower-middle classes being more prone to excessive screen time.

The results emphasise the need for parental education and awareness programs focused on screen time recommendations, appropriate digital habits, and active supervision. Interventions aimed at empowering parents with strategies to regulate and model healthy screen behaviour are essential to safeguard the cognitive, emotional, and social development of young children in the digital age.

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Conflicts of interest

There are no conflicts of interest.

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