Pre-Schoolers Screen Time: Analysing Its Association With Demographic Factors In Urban Belagavi

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Abstract:
Background*: Excessive screen time among preschoolers has become a growing concern due to its potential impact on behavioral and developmental outcomes. With increasing digital exposure, understanding the determinants of screen time is crucial.*
Aim and Objectives:*This study aims to analyze the association between screen time and various demographic factors among preschoolers in urban Belagavi. The objectives include assessing the extent of screen exposure and identifying key demographic determinants influencing screen time.*
Materials and methods:
The study utilized a cross sectional research design. The study was conducted at selected Anganwadis in Belagavi urban area. and included preschoolers aged 3–6 years. Data on screen time exposure was collected using a structured rating scale for pre-schooler answered by parents, cluster sampling method was used for sample selection.
Result:*Moderate screen time is the most common across all demographics (**31.8%–50.1%**), with no significant association with factors like age, gender, or parental education. Very high screen time (**6.9%–25%**) is slightly higher in children of less-educated mothers and certain family structures. Higher-income families (**50% in 30,001 & above**) show lower screen time, but the difference is not significant.*
Conclusion:*This study found no significant link between screen time and demographic factors among preschoolers. These findings highlight the need for regulated screen use to support healthy childhood development.*

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I.   Introduction

With the increasing integration of digital devices into everyday life, screen time has become a significant aspect of children's routines [1]. The widespread availability of electronic gadgets has contributed to a marked increase in screen exposure among preschool-aged children. While limited screen time can support learning and entertainment, excessive use is linked to adverse effects on cognitive, social, and physical development [2]. Research indicates that prolonged exposure to screens during early childhood may result in attention deficits, disrupted sleep patterns, and reduced physical activity [3].

Several demographic factors contribute to variations in screen time among preschoolers, including parental education, socioeconomic background, and family structure [4]. Children in nuclear families tend to have more screen exposure compared to those in joint families due to differences in caregiving patterns. Moreover, parental occupation influences screen time, as working parents may depend on digital devices to occupy their children. Recognizing these demographic determinants is crucial for developing targeted interventions that promote balanced screen use [5].

This study seeks to explore the association between screen time and demographic characteristics among preschoolers in urban Belagavi. By identifying key contributing factors, the findings will aid parents, educators, and policymakers in implementing measures to manage excessive screen exposure and encourage healthier digital habits in young children.

II.   Methodology

Research Design

A cross-sectional research design was employed to analysing screen time association with demogtaphic factorsamong preschoolers in selected Anganwadis of Belagavi.

Research Setting

The study was conducted in urban Anganwadis of Belagavi, where data collection was carried out using a self-structured screentime rating scale designed to measure screen time among preschoolers. The scale was completed by parents or guardians.

Population and Sampling

Target Population

The study targeted parents or guardians of preschoolers (aged 3–6 years) enrolled in selected Anganwadis of Belagavi.

Inclusion and Exclusion Criteria

- **Inclusion Criteria:**
o Parents or guardians of preschoolers aged 3–6 years.
o Those who can read and write in English, Kannada, or Marathi.
o Willing to participate in the study.
- **Exclusion Criteria:**
o Children with neurological or developmental disorders.
o Parents or guardians who were not available during data collection.

Sample Size Determination

The sample size was calculated using Cohen's formula, considering:
- 95% confidence level,
- 80% power, and
- Correlation coefficient of 0.16.

Based on these parameters, the final **sample size was determined to be 300**.

Sampling Technique

The study employed a cluster sampling technique, considering 380 Anganwadis across 15 zone**s** as clusters. A total of 30 Anganwadis were randomly selected, assuming an average of 10 preschoolers per Anganwadi to achieve the required sample size.

Data Collection Tool

A structured rating scale was used for data collection, with responses recorded from parents or guardians regarding their child's screen time.

Data Collection Procedure

Data was collected in a systematic and standardized manner by:
1. Seeking permission from relevant authorities.
2. Obtaining informed consent from participants.
3. Administering the structured rating scale to parents/guardians.
4. Ensuring confidentiality and anonymity of responses.

Data collection: ethical clearance was obtained before data collection.

Operational Definition:

Screentime**:** In this study it refers to, the time spent using a device such as a computer, laptop, tablet, television, smartphones or games console, by the Preschooler as assessed by structured questionnaire.
Preschooler:In this study, it refers to the children aged 3 to 5 years studying at selected Anganwadi's at Belagavi.
Anganwadi**:** In this study, it refers to the school for young children usually under 5 years of age.
Analyzing: In this study, analyzing refers to the systematic examination of data to identify patterns, relationships, and trends related to preschoolers' screen time and its association with demographic factors.

Association: In this study, association refers to the statistical relationship between screen time and various demographic factors such as age, gender, parental education, family structure, and income.

Demographic Factors: In this study, demographic factors refer to specific characteristics of the preschoolers and their families, including age, gender, parental education, family type, income, primary caregiver, and birth order.

Urban: In this study, urban refers to the geographical area of Belagavi city where the selected Anganwadis are located, characterized by higher population density, infrastructure, and access to digital technology.

Data analysis: Descriptive statistics were used to summarize the demographic characteristics and screen time patterns of preschoolers. Frequency and percentage distributions were calculated for variables such as age, gender, parental education, family type, income, primary caregiver, and birth order. The Chi-square test (Fisher's Exact test) was used to examine the association between screen time and demographic factors.

III. Result:

A summary of the data related to demographic variable is provided through a descriptive analysis, as shows in table 1

Table 1: socio demographic characteristic of pre-schoolers (N=300)

Demographic variables	No of respondents	% 0f respondents
Age of pre-schooler		
3-4 yrs.	109	36.3%
4-5 yrs.	104	34.7%
5-6 yrs.	87	29.0%
Gender of the pre-schooler Male		
Female	160	53.3%
	140	46.7%
Mother education		
Primary school	132	44.0%
Secondary school	123	41.0%
Degree	37	12.3%
Post-graduation	08	2.7%
Father education		
Primary school	57	19.0%
Secondary school	141	47.0%
Degree	88	29.3%
Post-graduation	14	4.7%
Family type		
Nuclear	138	46.0%
Joint	131	43.7%
Single parent	08	2.7%
Extended family	23	7.6%
Monthly Income		
<10000	87	
10001-20000	148	29.0%
20001-30000	55	49.4%
30001 & above	10	18.3%
		3.3%
Primary care giver		
Mother	280	93.3%
Father	01	0.3%
Grandparents	16	5.4%
other	03	1.0%
Birth o rder of a child		
First	108	36.0%
Second	118	39.3%
Third	65	21.7%
Fourth	09	3.0%
Total	300	100

Table 2 The study found no statistically significant associations between screen time patterns and demographic factors such as age, gender, parental education, family type, income, primary caregiver, and birth order. Moderate screen time was the most common across all groups, particularly among 5–6-year-olds (41.4%) and 4–5-year-olds (39.4%). Females were slightly more likely than males to have high screen time (21.4%). Parental education and family income had no major impact, though children from higher-income families (□ 30,001 and above) showed a greater tendency for low screen time (50.0%). Screen time patterns were also similar across family types and birth orders, with second-born children showing the highest percentage of moderate use (44.1%). Overall, the findings suggest that screen time is consistently moderate across different demographic backgrounds, with no significant influencing factors.

Table 2: association between screentime and demographic variables of pre-schoolers (N=300)

SI NO	Demographic variables	Minimal ST		Moderate ST		High ST		Very high ST		P-value
		NO	%	NO	%	NO	%	NO	%	
1	**Age**									
	3-4yrs	34	31.2%	40	36.7%	20	18.3%	15	13.8%	4.868
	4-5yrs	33	31.7%	41	39.4%	14	13.5%	16	15.4%	(0.561)
	5-6yrs	27	31.0%	36	41.4	18	20.7%	6	6.95	
2	**Gender**									
	Male	50	31.3%	68	42.5%	22	13.8%	20	12.5%	3.625
	Female	44	31.4%	49	35.1%	30	21.4%	17	12.1%	(0.305)
3	**Mother education**									
	Primary school	47	35.6%	52	39.4%	20	15.2%	13	9.8%	
	Secondary school	35	28.5%	46	37.4%	24	19.5%	18	14.6%	6.454
	Degree	10	27.1%	15	40.5%	8	21.6%	4	10.8%	(0.684)
	Above	2	25.0%	4	50.0%	0	0.0%	2	25.0%	
4	**Fathers education**									
	Primary school	22	38.6%	21	36.8%	9	15.8%	5	8.8%	7.446
	Secondary school	39	27.7%	61	43.2%	21	14.9%	20	14.2%	(0.591)
	Degree	30	34.1%	28	31.8%	19	21.6%	11	12.5%	
	above	3	21.4%	7	50.1%	3	21.4%	1	7.1%	
5	**Family type**									
	Nuclear	44	31.9%	59	42.8%	17	12.3%	18	13.0%	9.006
	JointV	40	30.5%	48	36.6%	29	22.1%	14	10.7%	(0.403)
	Single parent	4	50.0%	2	25.0%	2	25.0%	0	0.0%	
	Extended family	6	26.1%	8	34.8%	4	17.4%	5	21.7%	
6	**Income**									
	<10000	25	28.7%	32	36.8%	19	21.8%	11	12.6%	13.435
	10001-20000	42	28.4%	62	41.9%	29	19.6%	15	10.1%	(0.121)
	20001-30000	22	40.0%	21	38.2%	3	5.5%	9	16.4%	
	30001& above	5	50.0%	2	20.0%	1	10.0%	2	20.0%	
7	**Primary care giver**									
	Mother	85	30.4%	112	40.0%	48	17.1%	35	12.5%	6.713
	Father	1	100.0%	0	0.0%	0	0.0%	0	0.0%	(0.713)
	Grandparents	6	37.5%	5	31.3%	3	18.8%	2	12.5%	
	Others	2	66.7%	0	0.0%	1	33.3%	0	0.0%	
8	**Birth order of a child**									
	First									
	Second	35	32.4%	40	37.0%	17	15.7%	16	14.8%	6.343
	Third	37	31.4%	52	44.1%	17	14.4%	12	10.2%	(0.700)
	Fourth	19	29.2%	23	35.4%	15	23.1%	8	12.3%	
		3	33.3%	2	22.2%	3	33.3%	1	11.1%	

IV. Discussion

This study examined the relationship between screen time and various demographic variables among preschool-aged children in urban Belagavi. The results reveal that moderate screen time (31.8%–50.1%) was the most frequently observed across all demographic groups, with no statistically significant links found between screen exposure and factors such as age, gender, parental education, family structure, household income, primary caregiver, or birth order. These findings provide insight into the screen-use behaviors of young children and suggest that demographic characteristics do not play a major role in determining screen time patterns.

These results are consistent with prior research, which suggests that screen exposure among preschoolers is a prevalent issue shaped more by societal and environmental influences rather than individual demographic factors [2,6]. While some studies have proposed that parental education and socioeconomic status may contribute to differences in screen time, the current study did not find significant variations across these

aspects [1]. This may be due to the growing accessibility of digital technology across all economic strata, reducing disparities in screen exposure.

One trend observed in this study was that children from higher-income households (☐ 30,001 & above) tended to have lower screen time engagement (50%) [7]. This could be explained by greater access to structured extracurricular activities, outdoor play, and other forms of entertainment. Conversely, children from less-educated mothers and certain family structures were more likely to exhibit higher screen use, though these variations were not statistically significant [5].

The study also found minor differences in screen time between genders, with females slightly more likely to have higher screen exposure (21.4%) than males (13.8%) [8]. This may reflect differences in content preference or parental supervision; however, the lack of statistical significance suggests that gender is not a key factor influencing screen time habits.

Furthermore, birth order did not show a meaningful impact on screen time patterns, though second-born children had the highest percentage of moderate use (44.1%) [9]. Previous studies suggest that parental approaches change with experience, yet this does not necessarily result in notable differences in screen time across siblings.

The absence of significant correlations in this study implies that screen exposure among preschoolers is a widely occurring behavior influenced by broader external factors rather than demographic characteristics. This highlights the need for universal recommendations for responsible screen use, rather than focusing solely on demographic-based interventions. Future research should explore qualitative dimensions, such as parental perceptions, screen content, and intended use, to better understand the factors influencing screen time behaviors in early childhood.

While this study provides meaningful insights, certain limitations must be acknowledged. The reliance on parental self-reports for screen time measurement may have introduced response bias, as the data was not gathered through direct observation or automated tracking [10]. Additionally, the study was confined to selected Anganwadis in urban Belagavi, which may limit the applicability of the findings to other geographical regions. Future research should consider employing longitudinal designs to better understand the long-term effects of screen time on preschoolers' cognitive and behavioral development [11].

V.   Conclusion:

This study determined that screen time among preschoolers in urban Belagavi is not significantly influenced by demographic factors. The results highlight the widespread nature of moderate screen usage, reinforcing the need for well-structured screen time management rather than approaches based solely on demographic attributes. To encourage healthy digital habits from an early age, it is crucial for policymakers and caregivers to implement awareness initiatives and interactive parental involvement strategies that promote balanced screen use.

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