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Predictors of screen device usage by preschool children

Pooja and Juri Baruah

Abstract
In this modern time, screen devices have become an integral but essential part of everyone's daily life, young children especially preschoolers are unavoidably getting exposed to screen devices earlier in life and for longer hours. Research studies have provided evidence on the influence of screen device usage on different domains of child development. The American Academy of Paediatrics (AAP) has recommended that children between the ages of 2-5 years should limit their screen time to a maximum of 1 hour per day under the supervision of parents. So considering the scenario, the present study was undertaken to investigate the "Predictors of Screen device usage by preschool children". The sample of the study comprised of 300 children of age 2-5 years, randomly selected from the anganwadi centres and preschools of Roorkee and Bahadrabad blocks of Haridwar district, Uttarakhand. For the data collection, a general information schedule and self-structured screen related questionnaires were used. Hierarchical linear regression method was computed to analyse the predictors of screen device usage among preschool children. Results revealed that Age of the child, gender and mother's screen time was strongly predicting the screen time of rural and urban preschool children.

Keywords: Preschool children, screen devices, screen time, child development and domains of development

Introduction
The 18th century, main era of technological invention when industrial advancement and types of machinery were invented along with various types of development and production. Since the 1960s, among screen devices, television became widely introduced into homes of high-income countries and rapidly occupied a substantial fraction of individuals' leisure time. However, in today's world, screen devices like- smartphones, laptops and tablets are emerging rapidly as a "preferred alternative" and have simply replaced television screens for more personalized viewing experience due to which the daily screen time of traditional media such as television has decreased while the time spent on the handheld screen devices has increased, especially in many developed countries. Though television is still the dominant media for family time, solitary viewing by children is mostly achieved using mobile screen media devices due to its characteristics of being portable, screen size, decreasing cost, multiple applications and fascinated games. Devices, whether it is smartphones, tablets, television or computer, children experience instant gratification and pleasure. With the variety of educational and non-educational content, online games act as a mood booster or provide instant solutions to their boredom due to which they are unavoidably exposed to such smart screens earlier in life and for longer hours.

The first five years of age is a critical stage which is considered as a foundational age for life-long learning and development of children because during this period child's brain develops more rapidly than at any other time in life. This is the period when brains are very plastic in nature that soaking up everything, forming strong critical connections that determine how the child learns, form memories and adapt to new situations.

The American Academy of Pediatrics (AAP) has recommended that children below 18 months must completely avoid the use of digital screen but suggests the gradual introduction of family-shared, high-quality content between 18 months and 2 years while limiting screen time to a maximum of 1 h/day between 2-5 years of age. It also suggested that parents and guardians restrict screen time during mealtimes and keep screen viewing devices including televisions out of children's bedrooms (Hill *et al*. 2016) [6]. According to the American Academy of Child & Adolescent Psychiatry (AACAP, 2020) [1], children should spend most of their time engaged in such activities as sleeping, doing schoolwork and reading for enjoyment, making social and family connections, doing physical activities and chores, etc. to ensure their proper and healthy development, rather than spending so much time engaged in on-screen pursuits.

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Material and Methods

The present study was carried out in urban and rural areas of Haridwar district, Uttarakhand state on the sample size of 300 preschool children. From the district Haridwar, out of six blocks, two blocks were purposively selected as per the highest population of the blocks. From each block, for rural sample, four villages were approached randomly to meet the sample size. Similarly, for urban sample, two town areas from each block were selected randomly. One anganwadi was selected from each of the selected villages. Similarly two preschools from each of the city areas were selected purposively. Anganwadis and preschools were selected purposively on the basis of intake capacity of children.

Research tool used for the study were General Information Schedule and self structured Screen Related Questionnaire, was developed to assess the screen-device usage of preschoolers.

For Statistical analysis, Frequency and percentage were calculated to interpret the preschooler's characteristics, parental and familial characteristics, and screen device related factors of children. Hierarchical linear regression analysis was used to analyze the predicting variables among child's characteristics, parental/familial characteristics and some screen related factors of screen time of preschoolers in both rural and urban areas.

Ethical consideration

The parents of preschoolers were prior informed about the study purpose and procedures, and were made aware that there is no obligation to participate and have a right to withdraw at any time. Parents were assured that their personal identity and information will be kept confidential. Throughout the phase of data collection, researcher has taken care of all the measures for protecting the participants from potential harm.

Results and Discussion
Personal characteristics of preschool children

The below table 1 shows that the age of the preschool children ranged between 2-5 years. They were classified into two age groups as younger (24-42 months) and older preschool children (42-60 months). It is evident from the table that, majority (56.67% and 59.33%) of the children was in older age category in both rural and urban areas respectively. The composition of preschool children, majority of the sample were of boys in both rural (53.33%) and urban (54%) area. With regard to ordinal position, in both areas majority (47.33% and 46.67%) of the children were first born least were later born. With respect to number of siblings, most of the children in rural (70.67%) and urban (58.67%) were having only one sibling.

Table 1: Percentage distribution of rural and urban preschoolers by child characteristics.

Sl. No	Characteristics	Category	Rural (n=150)	Urban (n=150)	Total (N=300)
1	Age (Months)	Younger (24-42)	65 (43.33)	61 (40.67)	126 (42.00)
		Older (42-60)	85 (56.67)	89 (59.33)	174 (58.00)
2.	Gender	Boys	80 (53.33)	81 (54.00)	161 (54.67)
		Girls	70 (46.67)	69 (46.00)	139 (46.33)
3.	Ordinal position	First born	71 (47.33)	70 (46.67)	141 (47.00)
		Second born	67 (44.67)	62 (41.33)	129 (43.00)
		Later born	12 (8.00)	18 (12.00)	30 (10.00)
4.	No. of siblings	None	20 (13.33)	37 (24.67)	57 (19.00)
		One	106 (70.67)	88 (58.67)	194 (64.67)
		Two or more	24 (16.00)	25 (16.67)	49 (16.33)

Figures in parentheses indicate percentages

Parental characteristics of preschool children

In table 2, regarding mother's age, majority (59.33%) of the rural preschoolers had mothers below the age of thirty years while in contrast, majority of mothers (62%) of urban preschool children were older. With regards to father's age, 62.33 percent of the rural preschoolers had fathers of younger age group and 59.19 percent of the preschoolers had older age fathers.

With regard to mother's education, majority of 33.33 percent mothers in rural areas and 42.33 percent in urban areas were graduated. With respect to father's education, 36.30 percent were 10th pass but below graduation, while in urban areas, more than half (52.05%) of the father's were graduates and

least of 6.84 percent were having professional qualification.

In case of mother's occupations in rural area, it was found that most of them (64%) were homemakers followed by service at shops/cultivation (22.67 %), however in urban locality, majority (74.67%) were homemakers, followed by service in government sector (12 %). With respect to father's occupation in rural area, it was found that most of them (38.35%) work in private sector followed by service in government sector (32.87 %) while in urban areas, majority (56.84%) of father's working in private sector, followed by service in government sector (41.78%) and only 1.36 percent of them were self-employed with income above Rs 5000/-.

Table 2: Percentage distribution of rural and urban preschoolers by parental characteristics.

Sl. No	Characteristics	Category	Rural	Urban	Total
1.	Mother's Age	Younger (<30)	89 (59.33)	57 (38.00)	146 (48.67)
		Older (>30)	61 (40.67)	93 (62.00)	154 (51.33)
2.	Father's Age	Younger (<35)	91 (62.33)	60 (40.81)	151 (51.53)
		Older (>35)	55 (37.67)	87 (59.19)	142 (48.46)
3.	Mother's education	Illiterate	-	-	
		Just literate but no Schooling	-	-	
		<Primary but attended school for at least one year	05 (3.33)	-	05 (1.67)
		Primary pass but <10th	23 (15.33)	06 (4.00)	29 (9.67)
		10th class pass but < graduation	32 (21.33)	23 (15.33)	55 (18.33)

		Graduation	50 (33.33)	63 (42.33)	113 (37.67)
		Post graduation	40 (26.67)	58 (38.67)	98 (32.67)
		Professional qualification/technical degrees /diplomas	-	-	
2.	Father's education	Illiterate	-	-	-
		Just literate but no Schooling	-		
		<Primary but attended school for at least one year	04 (2.73)	-	04 (1.36)
		Primary pass but <10th	06 (4.10)	-	06 (2.05)
		10th class pass but < graduation	53 (36.30)	25 (17.12)	78 (26.71)
		Graduation	40 (27.39)	76 (52.05)	116 (39.72)
		Post graduation	36 (24.65)	35 (23.97)	71 (24.31)
		Professional qualification/ technical degrees/diplomas	07 (4.79)	10 (6.84)	17 (5.82)
3.	Mother's occupation	Service in central/state/public undertaken	16 (10.66)	18 (12.00)	34 (11.33)
		Service in private sector/ business	-	16 (10.67)	16 (5.33)
		Service at shops/home/cultivation	34 (22.67)	-	34 (11.33)
		Self employed with income >5000	04 (2.67)	04 (2.67)	08 (2.66)
		Self employed with income <5000	-	-	
		Homemakers	96 (64.00)	112 (74.67)	208 (69.33)
4.	Father's Occupation	Service in central/state/public undertaken	48 (32.87)	61 (41.78)	109 (37.32)
		Service in private sector/ business	56 (38.35)	83 (56.84)	139 (47.60)
		Service at shops/home/cultivation	30 (20.54)	-	30 (10.27)
		Self employed with income >5000	12 (8.21)	02 (1.36)	14 (4.79)
		Self employed with income <5000	-	-	-
		Unemployed	-	-	-

Familial characteristics of preschool children
With regards to type of family, it was found that 73.33 percent children belonged to joint family in rural and 50.67 percent were from nuclear family in urban locality.

With respect to monthly family income, in rural area, majority (48.67%) were in low income category of below Rs 30000/- and majority of 36 percent of children were in income category of Rs 30000-50000/-.

Table 3: Percentage distribution of rural and urban preschoolers according to familial characteristics

Sl. No	Characteristics	Category	Rural	Urban	Total
1.	Type of family	Nuclear	40 (26.67)	76 (50.67)	116 (38.67)
		Joint	110 (73.33)	74 (49.33)	184 (61.33)
2.	Family Income	< 30,000	73 (48.67)	23 (15.33)	96 (32.00)
		30,000-50,000	40 (26.67)	37 (24.66)	77 (25.67)
		50,000-80,000	26 (17.33)	54 (36.00)	80 (26.67)
		>80,000	11 (7.33)	36 (12.00)	47 (15.70)

Figures in parentheses indicate percentage

Prevalence of screen device usage among preschool children
The table 4 shows that in rural area, majority (93.33%) of the households had television, 89.33 percent has smart phone and only 6.67 percent has laptop/computer. None of the households has tablets in their home. While in Urban areas, every household has T.V, 98 percent has smart phones, 34 percent has laptops/computers and least of the household has tablets in their house.

Table 4: Percentage of rural and urban children exposed to different types of screens and their age of first screen exposure

Sl. No	Factors	Category	Rural (n=150)	Urban(n=150)
1	Types of Screens at home	Television	140 (93.33)	150 (100)
		Smart phones	134 (89.33)	147 (98.00)
		Tablets	-	12 (8.00)
		Laptops/Computers	10 (6.67)	51 (34.00)
3.	Screens used by preschoolers	Television	150 (100)	150 (100)
		Smart phones	150 (100)	150 (100)
		Tablets	-	12 (8.00)
		Laptops/Computers	-	11 (7.33)
4.	Age at started using S.D	≤1 Year	54 (36.00)	58 (38.67)
		1-2 Year	40 (26.67)	51 (34.00)
		2-3 Year	38 (25.33)	33 (22.00)
		≥3 Year	18 (12.00)	8 (5.33)

Regarding screen used by preschoolers, all preschoolers use television and smart phones in rural areas. While in urban areas, cent percent of preschoolers use T.V. and smart phones followed by 8 percent uses tablets and least of 7.33 percent uses laptop/computer. When looking at the age of exposure to screen devices, 36 percent of the rural preschoolers have started using screen devices at ≤1 year of age however in urban areas, 38.67 percent of urban preschoolers started using screens at or below ≤1 Years of age. From the table it can be concluded that in urban areas, due to the advancement in the field of technology, high educational and occupational status of the parents, every household possesses traditional and

modern screen devices like television, smart phones, tablets/laptops and computers as compared to rural areas.

Table 5: Percentage distribution of device specific screen time (per day) of rural and urban children.

Screen time (Minutes)	Television		Smartphones		Tablets		Laptop/Computer		Total screen time	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
<30	60 (40.0)	38 (25.33)	44 (29.33)	22 (14.66)	-	03 (2.00)	-	11 (7.33)	20 (13.33)	10 (6.67)
30-90	63 (42.0)	62 (41.33)	51 (34.0)	64 (42.67)	-	09 (6.00)	-	-	59 (39.33)	55 (36.67)
>90	27 (18.0)	50 (33.33)	55 (36.67)	64 (42.67)	-	-	-	-	71 (47.33)	85 (56.66)

Table 5 indicates that, the percentage of children spending >90 minutes of screen time per day is more in urban areas (56.66%) compared to rural areas (47.33%). When the screen time was observed separately for television and smart phone, percentage of children from urban areas were found to be more than rural areas. The percentage of children spending <30 minutes screen time is more in rural areas (13.33%) compared to urban areas (6.67%). When the screen time was observed separately for television and smart phone, percentage of children from rural areas were found to be more than urban areas. The possible reason behind the high screen time of urban children as compared to rural children is that, most of the urban mothers in the present study were homemakers who seemed to utilize screen devices as their leisure activity which may influence the screen time of the preschoolers. Moreover, in urban setting due to the increasing trend of online education mode and amalgamation of technology with education has increased the availability and usage of screen devices by children. The results are in congruence with Tomaz *et al.* (2020) [10] who reported that 67 percent of the children had higher rates of exceeding screen time guidelines than children from rural setting (3.5%).

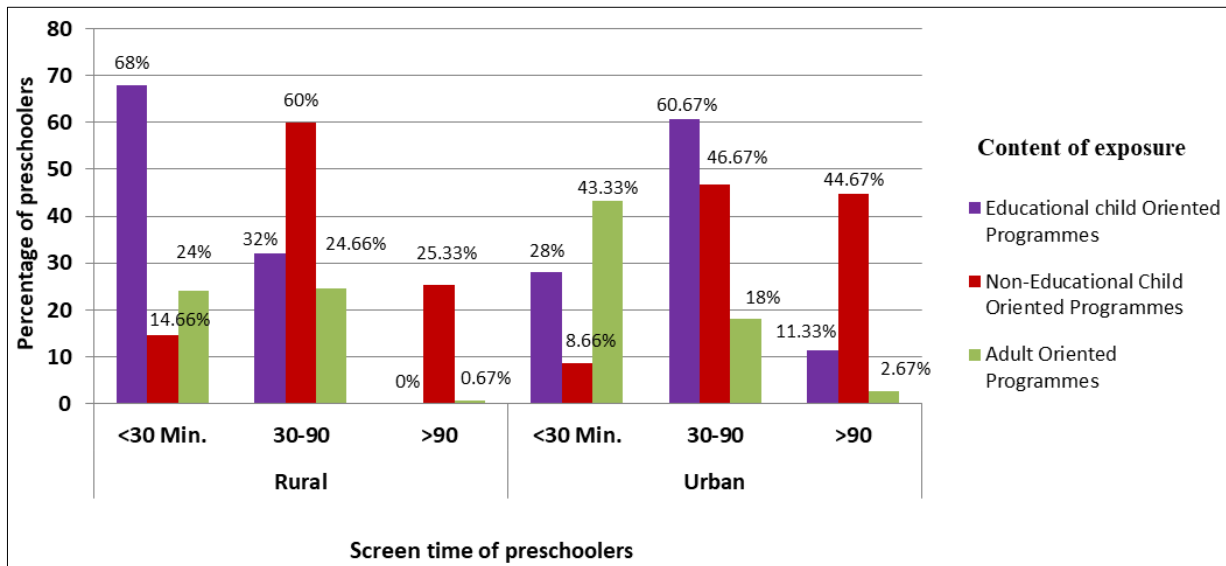**Percentage and frequency distribution of mother's screen time in rural and urban areas**
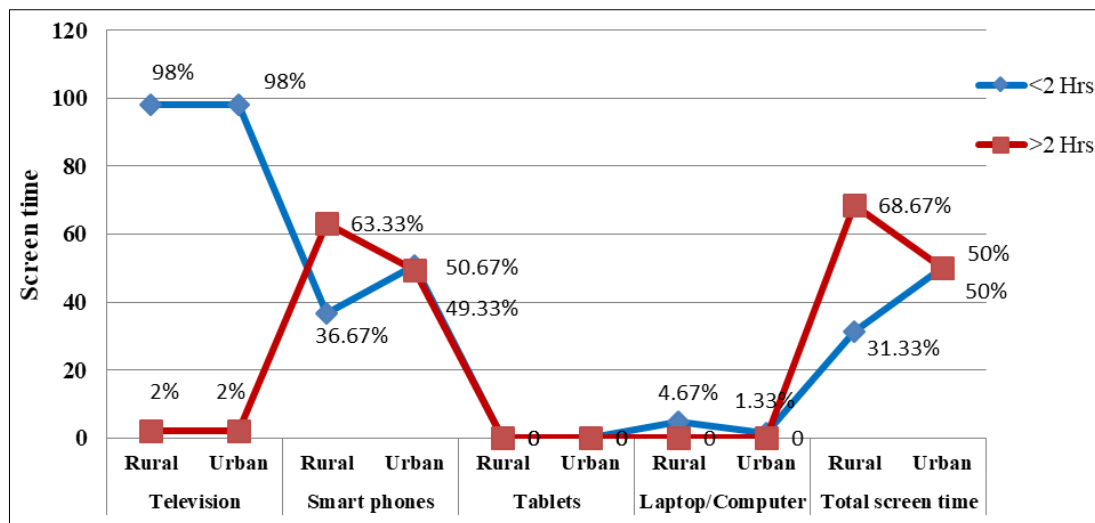
Fig 1: Percentage and frequency distribution of mother's screen time per day

The above figure reveals that the majority of the rural mother (68.67%) showed more than 2 hours of total screen time against 50 percent of urban mothers. Less than two hours of total screen time has been seen in 50 percent of urban mothers and 31.33 percent of rural mothers. The majority of both rural (98 %) as well as urban mothers (98%) spend less than two hours in front of television screen. Only two percent showed more than two hours of exposure. More than two hours of exposure to smart phone screen has been seen in 63.33 percent of rural and 49.33 percent of urban mothers. Less than two hours of exposure was in 36.67 percent of rural and 50.67 percent of urban mothers. With respect to laptop/computer, in rural areas only 4.67 percent had <2 hours of screen and in urban areas only 1.33 percent mothers' had <2 hrs of screen time. The reason behind high screen time of mothers in rural areas may be that, the mothers after completing household chores utilize their leisure time by watching television or using mobile phones rather than looking after their children because they leave their kids outdoor for playing by themselves.

Percentage and frequency distribution of screen time of content exposure of rural and urban children.
Fig 2. Percentage and frequency distribution of screen time of content exposure of rural and urban children.
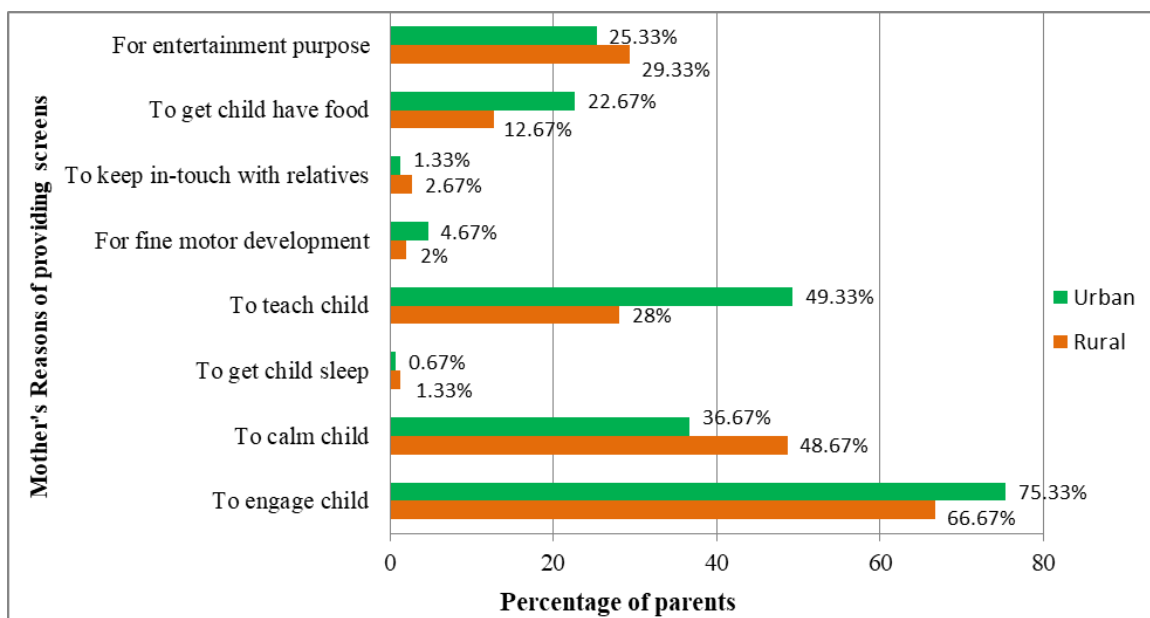
Fig 2: Percentage and frequency distribution of preschooler's screen time of content of exposure (in minutes).

It is evident from the above figure that, the majority of children watch educational content less than 30 minutes in rural areas and 30-90 minutes in urban areas. While looking at non-educational content, majority of rural and urban children watch it for about 30-90 minutes per day. Regarding Adult-oriented programmes, most of the children watch it for less than 30 minutes and a few for 30-90 minutes. To conclude, the urban children had high screen time regarding all three types of content exposure. The possible explanation may be that, in urban setting due to covid19 situation, children's outdoor activities has hampered. Hence, they spend their time watching fun and entertainment games and videos on screens. Primarily because games and entertaining videos comprised of animations and characters that best suits their likings,

attracts their attention due to which children's screen time for such contents increases. According to the study of Shirley and Kumar (2019) [9], majority of the screen time (67.6%) was based on children's entertainment (children's entertainment programs and playing games) followed by educational contents (21%) and adult based entertainment programs (11.4%). This pattern was observed in all the age groups studied.

Percentage and frequency distribution of parent's reason of providing screens to preschoolers
Fig 3. Percentage and frequency distribution of parent's reason of providing screens to preschoolers.

Fig 3: Percentage and frequency distribution of parent's reason of providing screens to preschoolers.

The above fig. 3 exhibited that, in rural area, majority of mothers' (66.67%) provide screen to their children to keep them engaged, 48.67 percent to calm down their children, 29.33 percent for entertainment purpose, and 28 percent of the parents provide for teaching purpose. While in urban areas, 75.33 percent provides screen for engaging their children

followed by 49.33 percent provides it for educational purpose, 36.67 percent to calm their children, 25.33 percent for entertainment purpose. It can be concluded that the majority of the mothers irrespective of their locality, deliberately provide screens to their naughty, explorative, curious preschool children to keep them engaged to avoid interruption

during their household and other important works. Moreover, children of this age is very attention seeker, and if they don't get the attention they starts throwing tantrums and whines so parents provides screens to calm them down. Moreover, parents believe that the children can learn a lot through watching videos, games, so to facilitate learning parents allow their children to use screens. According to the results of Kabali *et al.* (2015) [7], parents reported that they gave children devices when doing house chores (70%), to keep them calm (65%), and at bedtime (29%).

Predictors of screen device usage by preschool children
The results of table 6, in model 1, the R^2 value of .17 revealed that the age, gender, birth order, number of siblings and age at using screens explained 17% variance in the screen time of preschoolers with F (5, 140) = 5.731, $p<.001$. The findings revealed that age ($\beta=$ .32, $p<.001$) and gender ($\beta=$ -.258, $p<.001$) positively predicted screen time of preschoolers.

In model 2, the R^2 value of .36 revealed that the child characteristics along with parental characteristics explained 36% variance in the screen time of preschoolers with F (12, 133) = 6.454, $p<.001$. The findings revealed that age ($\beta=$ .289, $p<.001$) and gender ($\beta=$ -.156, $p<.05$), father's age ($\beta=$ .236, $p<.05$) and mother's screen time ($\beta=$ .292, $p<.001$) positively predicted screen time of preschoolers. The ΔR^2 value of .19 revealed 19% change in the variance of model 1 and model 2 with $\Delta F=$ (7, 133) = 5.956, $p<.001$.

In model 3, the R^2 value of .38 revealed that the child characteristics, parental characteristics along with familial factors explained 38% variance in the screen time of preschoolers with F (14, 131)= 5.838, $p<.001$. The findings revealed that age ($\beta=$ .274, $p<.001$) and mother's screen time ($\beta=$ .295, $p<.001$) positively predicted screen time of preschoolers. None of the familial factors predicted the screen time of preschoolers. The ΔR^2 value of .01 revealed 1% change in the variance of model 2 and model 3 with $\Delta F=$ (2,131), 1.721, $p<.001$. The results are supported by the study of Eyimaya and Irmak (2021), suggested that, for the screen time model, the child's gender (being male) (β = 0.067, p ≤ .05), child's age (β = 0.249, p ≤ .001) were found to be a significant and strong predictors of screen time of children.

Table 6: Hierarchical linear regression results predicting the factors of screen time of preschoolers in rural areas

Variables	B	95% CI		SE B	B	R^2	ΔR^2
		LL	UL				
Model 1 (child factors)							
(Constant)	82.92**	32.336	133.50	25.58		.17	**.17***
Age	1.33**	.596	2.06	.372	.320		
Gender	-29.21**	-47.202	11.218	9.100	-.258		
Birth order	6.474	11.105	24.053	8.891	.077		
Number of siblings	-15.22	-33.255	2.808	9.120	-.181		
Age @ using screens	4.223	-4.541	12.988	4.433	.077		
Model 2 (Parental factors)							
Constant	-129.570**	-225.632	-33.508	48.566		.36	**.19***
Age	1.202**	.504	1.900	.353	.289		
Gender	-18.887*	-35.736	-2.039	8.518	-.167		
Birth order	6.126	-10.378	22.631	8.344	.073		
Number of siblings	-9.113	-25.694	7.647	8.382	-.109		
Age @ using screens	6.579	-1.480	14.637	4.074	.120		
Mother's Age	-.697	-3.621	2.227	1.478	-.047		
Father's age	3.661*	.466	6.856	1.615	.236		
Mothers education	4.959	-12.204	22.123	8.677	.049		
Father's education	-2.104	-19.983	15.774	9.039	-.021		
Mother's occupation	6.409	-2.990	15.774	4.752	.108		
Father's occupation	8.361	-4.429	21.151	6.466	.116		
Mother's screen time	**32.937***	16.181	49.694	8.472	.292		
Model3(familial fatcors)							
Constant	-103.951*	-204.429	-3.473	50.791		.38	.01
Age	1.142**	.435	1.848	.357	.274		
Gender	-15.929	-33.008	1.150	8.634	-.141		
Birth order	4.400	-12.218	21.017	8.400	.053		
Number of siblings	-7.239	-23.965	9.487	8.455	-.086		
Age @ using screens	7.376	-.786	15.538	4.126	.134		
Mother's Age	.249	-2.940	3.438	1.612	.017		
Father's age	3.065	-.177	6.307	1.639	.197		
Mothers education	2.281	-15.035	19.598	8.753	.023		
Father's education	-.243	-19.803	19.318	9.888	-.002		
Mother's occupation	.501	-11.008	12.009	5.818	.008		
Father's occupation	6.143	-8.555	20.842	7.430	.085		
Mother's screen time	33.221***	16.372	50.070	8.517	.295		
Family type	-16.767	-38.682	5.147	11.078	-.129		
Family income	5.996	-7.589	19.581	6.867	.103		

Table 7: Hierarchical linear regression results predicting the factors of screen time of preschoolers in urban areas

Variables	B	95% CI		SE B	β	R^2	ΔR^2
		LL	UL				
Model 1 (child factors)							
(Constant)	148.818***	91.875	205.760	28.802			
Age	.435	-.384	1.255	.414	.095		
Gender	-25.499**	-45.184	-5.814	9.957	-.206	.09	.09*
Birth order	-11.551	-34.810	11.707	11.764	-.132		
Number of siblings	-3.602	-27.493	20.288	12.084	-.039		
Age @ using screens	6.202	-4.649	17.052	5.488	.099		
Model-2 (Parental factors)							
Constant	52.634	-67.085	172.353	60.526			
Age	.250	-.517	1.016	.388	.054		
Gender	-16.176	-33.842	1.489	8.931	-.131		
Birth order	-14.863	-37.920	8.195	11.657	-.170		
Number of siblings	-4.261	-25.634	17.113	10.806	-.047		
Age @ using screens	5.753	-4.829	16.334	5.350	.092		
Mother's Age	-1.107	-5.259	3.045	2.099	-.076	.38	.28***
Father's age	2.267	-1.573	6.108	1.942	.156		
Mothers education	-40.890**	-67.346	-14.433	13.376	-.261		
Father's education	12.819	-14.467	40.104	13.795	.078		
Mother's occupation	10.999	1.259	20.739	4.924	.192		
Father's occupation	3.434	-15.684	22.553	9.666	.029		
Mother's screen time	60.354***	41.298	79.411	9.634	.452		
Model3 (familial factors)							
Constant	87.675***	-42.345	217.696	65.725			
Age	.279	-.489	1.048	.389	.061		
Gender	-15.087	-32.883	2.708	8.996	-.122		
Birth order	-15.486	-38.883	7.634	11.687	-.177		
Number of siblings	-3.465	-24.871	17.941	10.821	-.038		
Age @ using screens	6.299	-4.359	16.957	5.388	.100		
Mother's Age	-.876	-5.041	3.289	2.105	-.060		
Father's age	1.836	-2.092	5.764	1.986	.126	.39	.009
Mothers education	-41.556***	-68.289	-14.822	13.514	-.266		
Father's education	8.147	-20.499	36.793	14.481	.050		
Mother's occupation	9.271	-1.092	19.633	5.238	.162		
Father's occupation	.496	-19.127	20.118	9.919	.004		
Mother's screen time	58.782***	39.355	78.209	9.820	.441		
Family type	-9.729	-26.750	7.292	8.604	-.079		
Family income	5.281	-6.901	17.463	6.158	.084		

Table no. 7 of in model 1, the R^2 value of .09 revealed that the age, gender, birth order, number of siblings and age at using screens explained 9% variance in the screen time of preschoolers with $F_{(5, 140)} = 3.062$, $p<.05$. The findings revealed that gender ($\beta= -.206$, $p<.05$) positively predicted screen time of preschoolers.

In model 2, the R^2 value of .38 revealed that the child characteristics along with parental characteristics explained 38% variance in the screen time of preschoolers with $F_{(12, 133)} = 7.019$, $p<.001$. The findings revealed that mother's education ($\beta= -.261$, $p<.001$) negatively predicted and mother's screen time ($\beta= .452$, $p<.001$) positively predicted screen time of preschoolers. The ΔR^2 value of .28 revealed 28% change in the variance of model 1 and model 2 with $\Delta F= (7, 133) = 8.974$, $p<.001$. In model 3, the R^2 value of .39 revealed that the child characteristics, parental characteristics along with familial factors explained 39% variance in the screen time of preschoolers with $F_{(14, 131)}= 6.164$, $p<.000$. The findings revealed that mother's education ($\beta= -.266$, $p<.001$) negatively predicted and mother's screen time ($\beta= .441$, $p<.001$) positively predicted screen time of preschoolers. None of the familial factors predicted the screen time of preschoolers. The ΔR^2 value of .009 revealed 1% change in the variance of model 2 and model 3 with $\Delta F= (2,131)$, 1.021, $p>.05$. So the overall model 3 shows non-significant results. The results are in line with the results of Bernard *et al.* (2017) [3] reported that child gender (being male), maternal education (lower education) and parental screen time (high screen time) are the significantly strongest predictors of screen time of preschoolers. Lauricella *et al.* (2015) [4] and Attai *et al.* (2020) [2] also stated that the mother's screen time is the strongest predictor of screen time of preschool children. The possible reason behind this may be that the children of preschool age are highly imitative in nature. Their learning takes place through imitation. So, the children learn screen engagement behavior by parents' self engagement with screens in front of their children.

Conclusion
The results reported that all of the children had access to smartphones and television. Irrespective of the locality, the majority of the children have started using screens at early age. Moreover, when device-specific screen time was observed, the percentages of urban children using smartphones and television for a longer time were higher. The majority of rural mothers showed higher screen time as compared to urban mothers. Regarding content exposure, the urban children had high screen time regarding all three types of content exposure. The results indicated that among child and parental factors, Age, gender, mother's education and

mother's screen time were found to be the significant predictors of screen time of children. Among these significant predictors, mother's screen time was strongly predicting the screen time of rural and urban preschool children.

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