

## Preschool Children Screen Time and Parent-Child Interaction: A Comparison between Bogor Urban and Rural Areas

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**Abstract:** The digital era has significantly transformed children's environment and daily experiences. Screen time, the duration spent engaging with electronic media displays, encompasses television and various digital devices. Given the pervasive introduction of electronic media into the lives of children from a young age, there exists a potential risk of altering their interactions with the surrounding environment, particularly with their parents, which may consequently influence their overall development. This study examines the correlation between screen time and parent-child interactions among preschool-aged children in urban and rural settings in Bogor. Employing a quantitative methodology with an explanatory design, the research was conducted through a survey approach. The sample comprised 88 pairs of mothers and their preschool children. Findings indicate that the average duration of screen time for children exceeds the recommended guidelines. Specifically, the average daily screen time for television is 2.23 hours, while the usage of gadgets averages 2.20 hours per day. A notable trend observed is that increased screen time correlates negatively with the quality of parent-child interactions, a pattern consistent in urban and rural contexts. Moreover, results from the t-test reveal that both gadget screen time and parent-child interaction levels are significantly higher in urban areas than in rural ones.

**Keywords:** screen time, parent-child interactions, rural, urban, preschool children.

### INTRODUCTION

The evolving era of technology has profoundly impacted family dynamics, particularly with the widespread production of smartphones and the development of applications for various operating systems. This technological sophistication extends beyond smartphones to other electronic devices such as televisions, washing machines, and automobiles. In Indonesia, data indicates a notable increase in internet access among early childhood populations, with the percentage of preschoolers accessing the Internet rising from 20.69% in 2021 to 24.96% in 2022 (BPS 2021; BPS 2022). Moreover, disparities exist between urban and rural areas, where differences in socioeconomic backgrounds influence variations in daily routines and caregiving approaches.

Screen time encompasses various activities such as watching television, using smartphones, engaging with computers and tablets, and playing video games (Tamana et al., 2019). The American Academy of Pediatrics (AAP) recommends that screen time for children aged 2-5 years be limited to a maximum of one hour per day, ideally with adult supervision (AAP, 2016). However, empirical findings suggest that many children exceed these recommendations significantly. For instance, nearly half of three-year-olds in Canada surpass one hour of screen time daily, while 13% of five-year-olds engage in over two hours of daily screen exposure (Tamana et al., 2019). In Indonesia, research conducted in Bogor City reported an average screen time of 1.8 hours per day for preschoolers (Rahmawati & Latifah, 2020). Another study conducted in Depok involving 86 children aged 3-5 years found that the average screen time on school days reached 3.9 hours per day, increasing to 5.1 hours per day on weekends (Izzaturrahman et al., 2023).

The preschool years, particularly from ages three to six, represent a critical period during which children's brain development accelerates, influencing their cognitive and emotional growth. During this phase, children's environments significantly affect their developmental trajectories. Excessive media exposure in these formative years, particularly when modeled by parents, may lead to increased screen time as children often emulate parental behaviors (Khosibah & Dimiyati, 2021). Furthermore, excessive screen time has been associated with numerous adverse effects on children's health, including decreased physical activity, poor dietary choices leading to obesity, impaired sleep quality, attention deficits, aggressive behaviors, and diminished parent-child interactions (Li et al., 2020; Hendry, 2017; Setianingsih et al., 2018; Trott et al., 2022). The role of parental guidance during media consumption is crucial, as parents are the primary agents in shaping children's understanding of the world around them. According to Social Learning Theory, preschool children actively imitate their surroundings, and the parent-child relationship significantly influences their behaviors and sense of self (Lassassi, 2021). Engaging children in digital media while providing guidance fosters meaningful interactions between parents and their offspring; without such interaction, children may have limited engagement with their parents while using gadgets (Attai et al., 2020). Furthermore, unrestricted access to digital content can expose children to inappropriate material, including violent imagery, which may result in aggressive behavior and sleep disturbances (Eirich, 2021; Salehi et al., 2025).

Given these pertinent issues, this study presents research conducted among preschool children in Bogor City and Regency. It aims to identify the sociodemographic characteristics of families, measure screen time duration, and assess parent-child interactions. Additionally, the study seeks to analyze the relationships between family sociodemographic factors, screen time duration, and parent-child interaction, particularly within urban and rural settings in Bogor. The findings of this research are intended to offer valuable insights for families in both urban and rural communities regarding the implications of excessive screen time on children's development and the importance of fostering positive parent-child interactions.

## RESEARCH METHODS

This study utilized a cross-sectional design to examine the proposed hypothesis quantitatively. A cross-sectional study is an observational research method that collects data from a population at a single point in time, enabling researchers to assess the prevalence of specific outcomes and explore associations between variables without

establishing causal relationships (Nichols & Edlund, 2023). This design is particularly suitable for capturing the current state of phenomena and identifying potential correlations among variables, making it an appropriate approach for investigating the relationship between screen time and parent-child interactions. The study involved preschool-aged children (4 to 6 years old) and their mothers, providing a relevant sample for examining early childhood screen exposure and parental engagement. By concurrently measuring both the exposure variable (screen time) and the outcome variable (quality of parent-child interaction), this study provides a descriptive snapshot of these factors within the target population.

The study was conducted in West Java Province, specifically in Bogor City and Bogor Regency. These areas represent distinct urban and rural environments, allowing for a comparative analysis of screen time and parent-child interactions across different settings. Bogor City was selected as an urban site due to its high digital penetration and accessibility to electronic media. In contrast, Bogor Regency (Pamijahan District) was chosen as a rural counterpart, where media exposure and parenting practices may differ due to variations in infrastructure and socioeconomic conditions.

The sampling method was purposive sampling, ensuring that participants met the study criteria. Urban participants were selected from two kindergartens in the Tegallega Sub-district, Central Bogor, while rural participants were drawn from three PAUD institutions in Pasarean Village, Pamijahan District. A total of 88 mothers with preschool-aged children from both urban and rural areas were recruited, which is deemed sufficient for correlational analysis, following sample size recommendations by Creswell (2017). Data collection occurred through interviews conducted between May and June 2023.

The study data comprised two types: primary and secondary. Primary data were collected via direct interviews with mothers using structured questionnaires that assessed sociodemographic characteristics, children's screen time habits, and parent-child interactions. In contrast, secondary data comprised statistics on PAUD students aged 4–6 years from the relevant educational institutions in Tegallega and Pasarean Villages. These data were collected descriptively and utilized modified measurement instruments from prior research. Screen time duration was recorded descriptively, capturing the amount of daily screen exposure in hours, specifically focusing on two media types: television and electronic gadgets such as smartphones or tablets. Additional data regarding the type of content accessed and the purpose for using gadgets were also compiled through multiple-choice categories.

Parent-child interactions were evaluated using the Child-Parent Relationship Scale (CPRS), originally developed by Driscoll and Pianta (2011) and subsequently modified by Firdaus et al. (2023) to incorporate two of three identified indicators. A Likert scale with four response options was utilized: "1 = strongly disagree," "2 = disagree," "3 = agree," and "4 = strongly agree." The selected indicators included proximity and conflict. The gathered data were processed using Microsoft Excel, and analysis was performed utilizing the Statistical Package for Social Science (SPSS) version 25. Descriptive analysis was conducted to summarize the socio-demographic characteristics of families, as well as the duration of screen time and parent-child interactions, which included calculating means, maximums, and minimums. Correlation tests were employed to explore relationships between sociodemographic factors, children's screen time, and parent-child interactions. Additionally, an independent sample t-test was performed to assess differences in characteristics across the urban and rural contexts. The responses to each questionnaire item were aggregated and transformed into an index, facilitating easier interpretation through the following Formula (1).

$$\text{Index} = \frac{\text{Total score} - \text{Minimum score}}{\text{Maximum score} - \text{Minimum score}} \times 100\% \quad (1)$$

Description:

Index	= child's score that has been indexed
Total score	= cumulative score obtained by the child based on the measurement
Minimum score	= minimum score on the instrument
Maximum score	= maximum score on the instrument

The index score system is applied to the screen time and parent-child interaction variables by grouping them into three categories by [Sunarti et al. \(2005\)](#), namely low (<60), medium (60.0-79.9), and high 80.0-100.0.

## RESULTS AND DISCUSSIONS

The research data were obtained from 88 participants. The proportion of participants from urban and rural areas was quite balanced: 48.8 percent of urban participants and 51.2 percent of rural participants. The sociodemographic characteristics of respondents included the child's gender, the father and mother's age, the father and mother's education, the father and mother's occupation, and the main caregiver. The distribution of the sociodemographic characteristics of respondents can be seen in [Table 1](#).

[Table 1](#) shows the characteristics of respondents obtained through questionnaires given during interviews with mothers. The research participants were mothers of preschool children aged 4-6 years. The average age of fathers was 38.9 years, with the largest age group in the early adulthood category. Similarly, the age of mothers was mostly in the early adulthood category, with an average age of 34.4 years. The average age of mothers in urban areas was higher than in rural areas. Regarding education level, there was a quite striking difference based on region. Both fathers and mothers in urban areas had completed higher education up to university, above 70 percent. Meanwhile, in rural areas, the level of education tended to spread from elementary school graduates to university graduates, and the largest percentage was high school graduates, which only reached one-third of the total participants. Almost half of the fathers' jobs were entrepreneurs or traders in both urban and rural areas. Meanwhile, only half of housewives in urban areas were housewives in rural areas. This shows that more mothers in urban areas work. In this study, half of the respondents, or 58 percent, were small families with a family size of less than five people. Then, there is also family income data that shows that family income in urban areas is much higher than in rural areas. The average family income in urban areas reaches 13 million rupiah, while in rural areas, it is 3 million.

Table 1. Sociodemographic characteristics by region (n=88)

Sociodemographic characteristics	Percentage (%)		
	Urban	Rural	Overall
Gender of child			
Girl	60,5	71,1	65,9
Boy	39,5	28,9	34,1
Father's age			
Early adulthood (18-40)	65,1	73,3	69,3
Middle adulthood (41-60)	34,9	24,5	29,6
Late adulthood (>60)	0,0	2,2	1,1
Mother's age			
Early adulthood (18-40)	86,0	91,1	88,6
Middle adulthood (41-60)	14,0	8,9	11,4
Late adulthood (>60)	0,0	0,0	0,0
Father's education level			
Elementary school/equivalent	0,0	26,7	13,6
Junior high school/equivalent	0,0	22,2	11,4
High school/equivalent	27,9	37,8	33,0
University	72,1	13,3	42,0
Mother's education level			
Elementary school/equivalent	0,0	22,2	11,4
Junior high school/equivalent	4,7	26,7	15,9
High school/equivalent	23,3	33,3	28,4
University	72,1	17,8	44,3
Father's occupation			
Entrepreneur/trader	44,2	40,0	42,0
Private employee	37,2	17,8	27,3
Civil servant	4,7	0,0	2,3
State-owned enterprise employee	4,7	0,0	2,3
Teacher/lecturer	2,3	4,4	3,4
Laborer	0,0	26,7	13,6
Other	7,0	11,1	9,1
Mother's occupation			
Unemployed/housewife	34,9	68,9	52,3
Entrepreneur/trader	27,9	11,1	19,3
Private employee	18,6	2,2	10,2
Civil servant	2,3	2,2	2,3
State-owned enterprise employee	7,0	0,0	3,4
Teacher/lecturer	4,7	15,6	10,2
Other	4,7	0,0	2,3
Family size			
<4 people	62,8	53,4	58,0
5-6 people	32,6	37,8	35,2
>7 people	4,7	8,8	6,8
Primary caregiver			
Mother	83,7	95,6	89,8
Other	16,3	4,4	10,2

## Screen Time

Data on screen time characteristics in preschool children include the age at which they were first exposed to screen time, the duration of their television use, and the duration of their gadget use. The results are shown in [Table 2](#).

Table 2. Characteristics of children's screen time

Characteristics of children's screen time	Urban	<i>P values</i>	Rural	Overall
Age of first exposure to screen time				
Min-max	0,5-4	0,002*	1-5	0,5-5,0
Average±SD	1,86±1,07		2,63±1,18	2,26±1,19
Duration of television use				
Min-max	0-8	0,149	0-16	0-16
Average±SD	1,85±1,92		2,58±2,68	2,23±2,36
Duration of gadget usage				
Min-max	0-6	0,012*	0-14	0-14
Average±SD	2,75±1,81		1,67±2,14	2,20±2,05

Note: \* $p < 0,05$ ; \*\* $p < 0,01$

The study showed differences in screen time characteristics in preschool children and their mothers in urban and rural areas. The average age of first exposure to screen time differed significantly between children in urban and rural areas, with a  $p$ -value of 0.002. Preschool children in urban areas had a lower average age of first exposure than children in rural areas, which was less than 2 years. This means that children in urban areas are introduced to screen time at a younger age. In addition, differences were also found in the duration of television and gadget use. The duration of watching television in urban areas was lower, while the duration of gadget use was higher than in rural areas. A significant difference was shown in gadget use with a  $p$ -value of 0.012.

The types of television content accessed by children are included in the data on children's screen time characteristics. Children's television content varies, including cartoons, educational shows, advertisements, and others. Many children (81.8%) watch cartoons on television. Children in urban areas access more diverse types of content than children in rural areas. As many as one in five children in urban areas do not watch television, while in rural areas, only two children do not access television. Children in urban areas access more educational content than children in rural areas. Likewise, other content, such as watching vlogs, game reviews, or singing, is accessed more by children in urban areas, with a percentage of 23.3 percent.

In addition to television exposure, data on children's gadget usage shows that most children access the internet on gadgets at 80.7 percent. One-third of children in rural areas do not access the internet, while in urban areas, most have accessed the internet on children's gadgets. The activities carried out by urban children on gadgets the most are playing games (79.1%), then watching videos/YouTube (76.7%), talking on the phone, and taking photos/videos the same percentage, namely 55.8 percent, finally using social media at 14 percent. Meanwhile, in rural areas, many children watch videos/YouTube (84.4%). Children who play games reach half of rural respondents, namely 53.3 percent. Then, the order of activities that are often carried out is taking photos/videos (48.9%), talking on the phone (40%), and using social media (8.9).

Meanwhile, children most of the time access screen time is during their free time (80.7%). This was found to be the same in urban and rural areas. In rural areas, the percentage of children given access to screen time before bed is more significant than in urban areas, which is 60 percent. In urban areas, the percentage of children granted access to meals is greater which is 41.9 percent).

Table 3. Characteristics of mother's screen time

Characteristics of mother's screen time	Urban	P-values	Rural	Overall
Duration of television use				
Min-max	0-7		0-16	0-16
Average±SD	0,78±1,52	0,108	1,53±2,64	1,17±2,19
Duration of gadget usage				
Min-max	0,5-16		0,5-12	0,5-16
Average±SD	5,38±3,40	0,002*	3,30±2,79	4,32±3,26

Note: \* $p < 0,05$ ; \*\* $p < 0,01$

In addition to children's screen time data, this study also took screen time data from mothers, which can be seen in Table 3. This study found that mothers' duration of television and gadget use in urban and rural areas differed. Mothers in rural areas had higher television screen time, reaching 1.53 hours daily. However, the independent t-test results did not show any significance in the difference in the duration of mothers' television screen time. On the other hand, the duration of mothers' gadget use was much higher in urban areas, reaching 5.38 hours per day. Mothers' gadget screen time was significantly different between urban and rural areas, with a p-value of 0.002.

Mothers give their children access to gadgets for various reasons and are accompanied by various rules. Almost half of mothers in urban areas (46.5%) reason that children access screen time for entertainment. Meanwhile, in villages, most parents give their children access to gadgets so that children are calm and not fussy (35.6%). Mothers who do not have any reasons were also found in rural areas. Mothers also apply several rules to children regarding screen time. The rules that mothers mostly give are time limits. The second most common rule in urban areas is related to content choices (32.6%), while in rural areas, there are rules pertaining to prerequisites for activities that must be done before or after children access screen time (20%). It was also found that mothers who do not give rules to children in rural areas amounted to 8.9 percent. All mothers in urban areas admitted to having reasons for giving gadgets to children, and all of them also applied rules related to children's screen time.

### Parent-Child Interactions

In this study, parent-child interaction includes closeness and conflict dimensions. The distribution of parent-child interaction score indexes as a whole and by region is presented in Table 4.

Table 4. Distribution of parent-child interaction categories

Categories	Urban	P-values	Rural	Overall
Parent-child interactions				
Min-max	46,9-89,4	0,003*	46,9-84,8	46,9-89,4
Mean±SD	70,1±10,02		63,9±9,2	66,9±10,1
Dimensions of closeness				
Min-max	56,7-100,0	0,307	60,0-100,0	56,7-100,0
Mean±SD	82,5±10,6		80,1±12,0	81,3±11,3
Dimensions of conflict				
Min-max	6,06-69,7	0,000*	15,2-66,6	6,06-69,7
Mean±SD	31,8±14,6		42,02±11,03	37,1±13,8

Note: \* $p < 0,05$ ; \*\* $p < 0,01$

The results showed that the average score index of parent-child interaction in urban areas was higher than in rural areas. The average score of the closeness dimension in urban areas was also higher than in rural areas, and the average score of the conflict dimension was lower in urban areas. The difference test using the independent t-test

showed significance in parent-child interaction ( $p$ -value 0.003) and the conflict dimension ( $p$ -value 0.000) but not in the closeness dimension. This proves a difference in the parent-child interaction index and conflict index in urban and rural areas.

Parent-child interaction is divided into low, medium, and high categories. The results of the closeness dimension categorization in urban areas were found to reach 62.8 percent in the high category. Meanwhile, in the conflict dimension, most urban respondents were categorized as low. Overall, parent-child interaction was mostly categorized as medium in urban areas. The results of the closeness dimension categorization in rural areas reached 51.1 percent in the high category. Similarly, many respondents were categorized as low in the conflict dimension in urban areas. Overall, the low category in parent-child interaction in rural areas reached 33.3 percent, while in urban areas, it was 14 percent. This means the number of families with low parent-child interaction in rural areas is higher than in urban areas.

### Correlation Tests

Correlation tests were conducted separately for respondents in urban and rural areas to see differences in relationship patterns based on region. Table 5 shows the correlation coefficient between sociodemographic characteristics of urban areas and children's screen time and dimensions of parent-child interaction.

Table 5. The correlation coefficient between sociodemographic characteristics with screen time and parent-child interaction in urban areas

Categories	Screen time	Parent-child interactions		
		Closeness	Conflict	Overall
Sociodemographic characteristics	-0,114	-0,287	0,119	-0,224
Father's age	-0,036	-0,129	0,079	-0,120
Mother's age	-0,122	-0,069	0,221	-0,194
Father's education level	0,114	-0,043	0,096	-0,090
Mother's education level	0,000	0,000	0,000	0,000
Father's occupation (0=unemployee;1=employee)	0,296*	0,134	0,033	-0,002
Mother's occupation (0=not working;1=working)	-0,030	0,079	-0,251	0,220
Income	-0,144	-0,024	0,365*	-0,277
Family size	0,065	0,080	0,169	-0,161
Child's age	0,030	-0,070	0,038	-0,067
Child's gender (0=female;1=male)				

note: \* $p < 0,05$ ; \*\* $p < 0,01$

The results found that maternal employment in urban areas is positively related to screen time duration ( $r = 0.296$ ), so working mothers tend to increase the duration of children's screen time in one day. Family size shows a significant positive relationship with the conflict dimension in parent-child interactions ( $r = 0.365$ ). This means that the greater the number of family members in urban families, the higher the level of conflict. In addition, the correlation test results in rural areas showed slightly different results. Table 6 shows the correlation coefficients of sociodemographic characteristics with children's screen time and parent-child interactions in rural areas.

The data shows that parental education correlates with parent-child interaction, both in closeness and conflict. Findings in rural areas show a relationship between father's and mother's education with parent-child interaction. Father's education is positively related to the closeness dimension ( $r=0.311$ ) and overall parent-child interaction ( $r=0.370$ ) but negatively related to the conflict dimension ( $r=-0.311$ ).

Meanwhile, the mother's education is positively related to overall parent-child interaction ( $r=0.346$ ) and negatively related to the conflict dimension ( $r=-0.332$ ). This means that the higher the level of education of the father or mother in rural areas, the higher the closeness with the child or parent-child interaction, and the level of conflict will be lower. Mother's occupation negatively correlates with the closeness dimension ( $r=-0.418$ ) and parent-child interaction ( $r=-0.384$ ), meaning that rural housewives have better closeness and parent-child interaction compared to working mothers. No significant correlation was found between rural sociodemographic characteristics and children's screen time.

Table 6. The correlation coefficient between sociodemographic characteristics with children's screen time and parent-child interaction in rural areas

Categories	Screen time	Parent-child interactions		
		Closeness	Conflict	Overall
Sociodemographic characteristics	0,056	0,003	-0,107	0,066
Father's age	0,178	-0,032	-0,142	0,066
Mother's age	-0,008	0,311*	-0,311*	0,370*
Father's education level	-0,069	0,250	-0,332*	0,346*
Mother's education level	0,049	0,030	0,190	-0,123
Father's occupation (0=unemployee;1=employee)	0,191	-0,418**	0,205	-0,384**
Mother's occupation (0=not working;1=working)	0,161	0,133	-0,033	0,099
Income	0,018	0,012	-0,025	0,022
Family size	0,094	-0,181	-0,030	-0,089
Child's age	0,217	-0,044	0,243	-0,145
Child's gender (0=female;1=male)				

note: \* $p<0,05$ ; \*\* $p<0,01$

A correlation test was also conducted on the characteristics of screen time with each dimension of parent-child interaction. Table 7 shows the correlation coefficient of urban areas.

Table 7. Correlation coefficient between screen time characteristics and parent-child interactions in urban areas

Screen time characteristics	Parent-child interactions		
	Closeness	Conflict	Overall
Age of first exposure to screen time	0,092	-0,265	0,237
Children's television screen time	-0,082	0,002	-0,041
Children's gadget screen time	-0,157	0,371*	-0,345*
Children's total screen time	-0,160	0,244	-0,255

note: \* $p<0,05$ ; \*\* $p<0,01$

Based on the results of the correlation test on urban area data, children's gadget screen time was found to have a significant positive correlation with the conflict dimension ( $r=0.371$ ). In contrast, the correlation with total parent-child interaction was significantly negatively correlated ( $r=0.345$ ). This shows that the higher the duration of children's gadget screen time in urban areas in one day, the higher the level of conflict and parent-child interaction decreases. Table 8 lists the correlation test results of children's screen time characteristics with each dimension of parent-child interaction in rural areas.

Table 8. Correlation coefficient between screen time characteristics and parent-child interactions in rural areas

Screen time characteristics	Parent-child interactions		
	Closeness	Conflict	Overall
Age of first exposure to screen time	0,151	-0,051	0,120
Children's television screen time	-0,384**	0,097	-0,285
Children's gadget screen time	-0,291	0,050	-0,202
Children's total screen time	-0,448**	0,153	-0,356*

note: \* $p < 0,05$ ; \*\* $p < 0,01$

The data shows that children's total screen time, especially in rural respondents, has a significant negative relationship with the closeness dimension ( $r = -0.384$ ) and total parent-child interaction ( $r = -0.285$ ). This means that the longer the duration of television screen time in rural areas in one day, the less close interaction with children will occur.

The duration of time children spends engaging with screens—defined as watching television and using digital devices—commonly referred to as screen time, is a subject of increasing concern. Evidence suggests that variations in infrastructure, socioeconomic conditions, and parental involvement shape urban and rural disparities in screen usage. Studies indicate that the average television usage is greater in rural areas than in urban areas, whereas the reverse is true for gadget use. These differences may stem from the accessibility of digital technology and the reliance on traditional media in rural communities. According to a survey by Kominfo 2017, urban populations exhibited a higher prevalence of smartphone use than their rural counterparts. These differences may stem from the accessibility of digital technology and the reliance on traditional media in rural communities. Statistical analysis further reveals significant differences in the duration of gadget use among children across urban and rural settings. Alarming, the average screen time for children in both environments far exceeds the American Academy of Pediatrics recommendation, which advises preschool children to engage with electronic media for no more than one hour daily. Notably, this phenomenon is closely associated with the screen time habits of mothers; the study found that urban mothers spend significantly more time on gadgets than those in rural areas. This finding in maternal screen time aligns with the elevated gadget screen time among urban children, whereas the increased television viewing time in rural children parallels that of their mothers (Ishii et al., 2022).

Furthermore, data indicates that the age at which children are first introduced to screens is notably lower in urban areas, with significant statistical differences documented. Sari et al. (2021) noted that children cared for by babysitters are introduced to gadgets at an earlier age. This trend may be driven by urban families' greater reliance on non-parental caregivers due to demanding work schedules. The proportion of primary caregivers who are not mothers is higher in urban settings, contributing to this trend. The American Academy of Pediatrics advises that children under two years should restrict electronic media exposure to video chatting only, advocating for high-quality programming accompanied by parental guidance for preschoolers. However, our study revealed a disturbing trend that only a few parents actively supervise their children's screen time.

In contemporary settings, many parents have begun to employ gadgets as substitutes for direct parental engagement. Elias and Sulkin (2019) assert that utilizing media as a parenting tool exacerbates children's screen time consumption. When parents resort to screens to soothe their children, it complicates establishing appropriate time limits and hinders children's ability to self-regulate their emotions (AAP, 2016). Our research discovered that in rural areas, parents frequently justify granting access to

screens with the intent to calm their children.

A negative correlation was observed between children's screen time and parent-child interactions, particularly regarding emotional closeness. This indicates that as children's screen time increases, the quality of interactions with parents diminishes. This finding is consistent with the conclusions of [Arrumdias et al. \(2020\)](#), which indicate that poor parent-child relationships are linked to problematic media use. Children exhibiting less interaction with parents often display less control over their media consumption. Conversely, [Wooldridge and Shapka \(2012\)](#) found that some mothers perceive their involvement as diminished when children engage in screen-based games, suggesting a reduced maternal presence in children's device usage. However, this contention contrasts with research by [Foo et al. \(2022\)](#), which identified a positive correlation between screen time and parent-child interactions, highlighting that some parents actively participate in media engagement alongside their children, enhancing interaction.

The relationship between screen time and parent-child interaction varies notably between urban and rural contexts. In urban environments, gadget screen time correlates with interaction conflicts, while in rural settings, television screen time is associated with emotional closeness. The presence of television was found to diminish parental responsiveness ([Kirkorian et al., 2009](#)). In urban contexts, the financial burden of gadgets contributes to parental discomfort related to their children's device usage ([Genc, 2014](#)). Moreover, significant differences in the indices of parent-child interaction and conflict dimensions were evident, reinforcing findings from [Lassassi \(2021\)](#) that suggested superior parent-child interactions in urban households. The lower conflict levels in urban settings contribute to enhanced interactions, which [Garcia et al \(2021\)](#) contextualize within the framework of maternal education. Mothers with higher education levels report experiencing less conflict with their children than those with lower educational attainment. Consequently, more college-educated parents in urban areas correlate with improved parent-child interactions compared to their rural counterparts. Financial hardships parents face may complicate fulfilling children's needs, ultimately affecting relational quality ([Olabisi & Ahmad, 2022](#)).

In rural settings, maternal employment status was linked to parent-child interaction, particularly in terms of emotional closeness. For instance, housewives in rural areas exhibited higher levels of interaction with their children, a trend not observed in urban areas. This disparity may result from minimal differences in interaction scores among working mothers and housewives in urban environments. Urban mothers possess higher average levels of education, which tends to yield a more homogenous educational landscape, predominantly comprising high school and college graduates. Higher educational achievement among parents positively influences parenting practices, enhancing the quality of parent-child relationships ([Suherman et al., 2021](#)). Consequently, even non-working, highly educated mothers can maintain significant interaction levels with their children.

Conversely, maternal occupation correlates positively with children's screen time duration in urban environments. Interestingly, housewives in urban areas demonstrate lower screen time for their children. This observation diverges from [Genc \(2014\)](#), who found that preschoolers with stay-at-home mothers spent more time watching television than their peers with working mothers. The discrepancy in our findings may be attributed to the greater prevalence of gadgets compared to televisions in urban contexts, coupled with a larger proportion of children in urban areas not engaging in television, leading to more frequent access to gadgets instead. Addressing these challenges requires a collaborative effort from parents, educators, and policymakers. Raising parental awareness through media literacy programs can help caregivers develop a more mindful approach to technology use, ensuring that screen time is balanced with meaningful

interactions. Encouraging alternative engagement strategies, such as storytelling, outdoor play, and structured learning activities, can provide children with non-digital entertainment options that promote cognitive and emotional development. Furthermore, integrating screen time awareness into early childhood education programs can reinforce healthy digital habits from an early age. Policymakers should also prioritize digital literacy initiatives, particularly in rural areas, to bridge the gap in parent-child interactions and equip caregivers with the skills needed to manage children's screen exposure effectively. Lastly, future research should explore the differential impact of various media types on parent-child relationships, distinguishing between educational and entertainment-based screen use to provide more nuanced recommendations. By implementing these strategies, a more balanced and enriching digital environment can be fostered for young children.

## CONCLUSION

The average duration of screen time among children is 2.23 hours per day for television and 2.20 hours per day for gadgets. Notably, the predominant type of content consumed on television is cartoons, whereas the primary activity on gadgets involves watching videos, particularly on platforms like YouTube. Most children use screen time during leisure, typically following the school day. Parent-child interaction within this context is generally characterized as moderate. Regarding relational dynamics, the closeness dimension of parent-child interaction rates is high, while the conflict dimension is assessed as low. A significant positive correlation exists between mothers' occupations and children's screen time in urban settings, indicating that children of housewives tend to exhibit lower screen time. Conversely, parental education in rural areas shows a positive relationship with parent-child interaction, particularly in fostering closeness, while negatively influencing conflict levels. Higher parental education levels are associated with increased closeness in parent-child relationships and reduced conflicts. Furthermore, empirical evidence suggests a significant negative relationship between screen time and parent-child interaction; specifically, as screen time increases, the quality of parent-child interaction, particularly in the closeness dimension, tends to diminish. Comparative analyses based on geographic residence reveal significant differences in parent-child interaction. Urban respondents report better interactions characterized by minimal conflict, albeit at the cost of increased gadget screen time compared to their rural counterparts. Notably, no significant difference in television screen time was observed between urban and rural children.

## REFERENCES

- [AAP] American Academy of Pediatrics. (2016). Media and Young Minds. *Pediatrics*, 138(5):e20162591
- [BPS] Badan Pusat Statistik. (2021). *Profil Anak Usia Dini*. Jakarta: BPS.
- [BPS] Badan Pusat Statistik. (2022). *Profil Anak Usia Dini*. Jakarta: BPS.
- Arrumdias, A. A., Marianti, S., & Rachmayani, D. (2020). An analysis child-parent relationship with problematic media use. *INTERAKTIF: Jurnal Ilmu-ilmu Sosial*, 12(1), 15-26.

- Attai, P., Szabat, J., Anzman-Frasca, S., & Kong, K. L. (2020). Associations between parental and child screen time and quality of the home environment: A preliminary investigation. *Int J Environ Res Public Health*, 17(17), 1–11. doi:10.3390/ijerph17176207.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Driscoll, K., & Pianta, R. C. (2011). Mothers' and fathers' perceptions of conflict and closeness in parent-child relationships during early childhood. *Journal of Early Childhood & Infant Psychology*, (7), 1-24.
- Eirich, R. (2021). Associations between screen time and child internalizing and externalizing behaviour problems: A Meta-analysis [tesis]. Calgary: University of Calgary.
- Elias, N., & Sulkin, I. (2019). Screen-Assisted Parenting: The Relationship Between Toddlers' Screen Time and Parents' Use of Media as a Parenting Tool. *J Fam Issues*, 40(18), 2801–2822.
- Firdaus, L., Hunaepi, H., & Samsuri, T. (2023). Analisis Disposisi Berpikir Kritis Mahasiswa Calon Guru Biologi. *Jurnal Ilmiah IKIP Mataram*, 8(1), 189-196.
- Foo, N., Ismail, N., & Arshat, Z. (2022). Relationship between Screen Time, Sleep Duration, Parent-Child Interaction and Psychosocial Adjustment among Preschool Children in Selangor, Malaysia. *J Educ Dev Psychol*, 12(2), 94. doi:10.5539/jedp.v12n2p94.
- Garcia, A. S., Ren, L., Esterach, J. M., & Raikes, H. H. (2017). Influence of child behavioral problems and parenting stress on parent–child conflict among low-income families: The moderating role of maternal nativity. *Merrill-Palmer Quarterly*, 63(3), 311-339.
- Gay, L. R., Mills, G. E., & Airasian, P. (2012). *Educational Research, Competencies for Analysis and Application* (10th Ed). New Jersey: Pearson Education Inc.
- Genc, Z. (2014). Parents' Perceptions about the Mobile Technology Use of Preschool Aged Children. *Procedia - Soc Behav Sci*, 146, 55–60.
- Hendry, R. S. (2017). Investigating relationship between screen time and young children's social emotional development [tesis]. Columbia: The University of British Columbia.
- Ishii, K., Shibata, A., Koohsari, M. J., & Oka, K. (2022). The relationships between parents' and children's screen times on body mass index: a cross-sectional path analysis. *BMC Public Health*, 22(1), 1–8.
- Izzaturrahman, N., Safira, L., Herardi, R., & Muktamiroh, H. (2023). Hubungan antara durasi penggunaan media layar dengan pola tidur pada anak usia tiga sampai dengan lima tahun saat masa pandemi covid-19. *Jurnal Sari Pediatri*, 24(6), 382-387.
- Khosibah, S., A., & Dimiyati. (2021). Bahasa reseptif anak usia 3-6 tahun di Indonesia. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(2), 1860-1869.
- Kirkorian, H. L., Pempek, T. A., Murphy, L. A., Schmidt, M. E., & Anderson, D. R. (2009). The impact of background television on parent-child interaction. *Child Dev*, 80(5), 1350–1359.
- Lassassi, M. (2021). Does preschool improve child development and affect the quality of parent-child interaction? Evidence from Algeria. *International Journal of Educational Development*, 82, 1-19. Doi.org/10.1016/j.ijedudev.2021.102354
- Li, C., Cheng, G., Sha, T., Cheng, W., & Yan, Y. (2020). The relationships between screen use and health indicators among infants, toddlers, and preschoolers: A meta-analysis and systematic review. *Int J Environ Res Public Health*, 17(19), 1–20. doi:10.3390/ijerph17197324.

- Nichols, A. L., & Edlund, J. (Eds.). (2023). *The Cambridge Handbook of Research Methods and Statistics for the Social and Behavioral Sciences: Volume 1: Building a Program of Research*. Cambridge University Press.
- Olabisi, A., & Ahmad, S. (2022). Examining the relationship between parents' profile and parent - child relationship among parents of children with learning disabilities. *August*. doi:10.17605/OSF.IO/AHJS8.
- Rahmawati, M., & Latifah, M. (2020). Penggunaan gawai, interaksi ibu-anak, dan perkembangan sosial-emosional anak prasekolah. *JIKK*, 13(1), 75-86. Doi: 10.24156/jikk.2020.13.1.75.
- Salehi, E. N., Brakenridge, C., Jaydarifard, S., & Mielke, G. I. (2025). Longitudinal analysis of the bidirectional relationship between screen time and sleep: Exploring the role of physical activity. *Sleep Medicine*, 126, 319-326.
- Sarı, B. A., Taner, H. A., & Kaya, Z. T. (2021). Screen media exposure in pre-school children in turkey: The relation with temperament and the role of parental attitudes. *Turk J Pediatr*, 63(5), 818-831.
- Setianingsih, Ardani, A. W., & Khayati, F. N. (2018). Dampak penggunaan gadget pada anak usia prasekolah dapat meningkatkan resiko gangguan pemusatan perhatian dan hiperaktivitas. *GASTER*, 16(2), 191-205.
- Suherman, R. N., Saidah, Q., Nurhayati, C., Susanto, T., & Huda, N. (2021). The relationship between parenting style and gadget addiction among preschoolers. *Malaysian Journal of Medicine and Health Sciences*, 17, 117-122. <https://www.scopus.com/record/display.uri?eid=2-s2.0-85108971208&origin=resultslist&zone=contextBox>.
- Sunarti, E., Tati, & Atat, S. (2005). Pengaruh Tekanan Ekonomi Keluarga, Dukungan Sosial, Kualitas Perkawinan, Pengasuhan, dan Kecerdasan Emosi Anak terhadap Prestasi Belajar Anak. *Media Gizi dan Keluarga*, 29(1), 34-40.
- Tamana, S.K., Ezeugwu, V., Chikuma, J. Lefebvre, D.L. Azad, M.B, Moraes, T.J., Subbarao, P., Becker, A.B., Turvey, S.E., & Sears, M.R., et al. (2019). Screen-time is associated with inattention problems in preschoolers: Results from the CHILD birth cohort study. *PLoS ONE*, 14(4), e0213995.
- Trott, M., Driscoll, R., Iraldo, E., & Pardhan, S. (2022). Changes and correlates of screen time in adults and children during the COVID-19 pandemic: A systematic review and meta-analysis. *eClinicalMedicine*, 48, 1-29.
- Wooldridge, M.B., & Shapka, J. (2012). Playing with technology: Mother-toddler interaction scores lower during play with electronic toys. *J Appl Dev Psychol*, 33(5), 211-218.