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THE RELATIONSHIP BETWEEN MOTHER'S EDUCATION AND THE INTENSITY OF GADGET USE

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ABSTRACT
The rapid growth of digital technology has influenced the behavior of toddlers, including the increasing use of gadgets from an early age. This study aimed to determine the relationship between parents' educational level and gadget use among toddlers in Gatak Village, Klaten. This research employed a quantitative method with a correlational cross-sectional design. A total of 69 respondents were selected using purposive sampling based on inclusion criteria of parents with children aged 1–3 years. Data was collected through questionnaires assessing parental education level and the frequency of gadget use by children, the questionnaires had been tested for validity and reliability. The validity test yielded correlation coefficients ranging from 0.726 to 0.876, while the reliability test using Cronbach's Alpha produced a value of 0.742, indicating that the instrument was both valid and reliable. The results showed that most parents had a high school education (44.9%) and that children's gadget use was mainly at a low level (47.8%), with a p-value of 0.167, indicating no significant relationship p between parental education level and children's gadget use. It can be concluded that formal education does not directly influence gadget use intensity among toddlers; instead, parental supervision and digital literacy play more essential roles.

Keywords: digital literacy; gadget use; parental education level; parental supervision; toddler

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INTRODUCTION

Technological advancement in the digital era has significantly transformed daily human activities, including parenting patterns and children's behavior from an early age. Toddlers (aged 1-3 years) are at a critical developmental stage where environmental stimulation strongly shapes cognitive and emotional growth (Rahmawati et al., 2024). In this context, the increasing exposure of young children to digital devices (gadgets) has raised global concern. According to the World Health Organization (WHO), toddlers should have a screen time of no more than one hour per day; however, many exceed this limit due to parental habits and digital dependency (Jannah et al., 2023). Excessive gadget use during early development may cause language delays, reduced social interaction, and dependency behaviors (Karimaturriza & Fadhillah, 2022).

Parent play a decisive role in shaoing children's digital behavior. Previous studies indicate that higher parental education levels are associated with more effective supervision, better awareness of content safety, and controlled screen exposure (Annisa et al., 2019) and (Lestari et al., 2023). Nevertheless, in many families, gadgets are still used as a substitute for parental attention - given to calm children or keep them occupied while parents work (Hidayah et al., 2021). This contradiction reveals a research gap between parents' educational background and their practical digital parenting skills, especially in community-level settings.

Therefore, this study seeks to examine the relationship between parental education level and gadget use among Alpha Generation toddlers in Gatak Village, Klaten. The study specifically aims to determine whether education level correlates with the frequency and intensity of gadget use and to describe the patterns of parental supervision involved. From a scientific perspective, this research

contributes to the fields of family health nursing and digital parenting education, emphasizing the role of parental literacy in guiding healthy technology exposure. The findings are expected to support community-based nursing interventions that promote responsible gadget use and early childhood well-being, while also addressing the lack of empirical studies on digital parenting in rural Indonesian contexts.

METHOD

This was a correlation study with cross-sectional design to determine the relationship between parental education level and gadget use among toddlers. The design allowed data collection at a single point in time to capture the association between the independent and dependent variables. The research was conducted in Gatak Village, Klaten Regency, Central Java, from May to June 2025. The population consisted of parents who had toddlers aged 1–3 years. Using a purposive sampling technique, a total of 69 respondents were recruited based on the following inclusion criteria: (1) parents living in Gatak Village, (2) having a toddler aged 1–3 years, (3) living in the same household as the child, and (4) possessing at least one gadget at home. Parents without formal education or those unwilling to participate were excluded. The independent variable was the parental education level, defined as the highest completed formal education. The dependent variable was the intensity of gadget use by toddlers, measured through parental reports on daily duration, weekly frequency, and purpose of use. Data were collected using structured questionnaires. Instrument validity was tested using Pearson Product Moment, yielding correlation coefficients of 0.726 – 0.876, indicating valid items. Reability testing using Cronbach's Alpha produced a value of 0.742, confirming that the intrument was reliable. The study received ethical approval from the Healh Research Ethics Committee of Universitas Muhammadiyah Surakarta (Approval No.1548/KEPK-FIK/IX/2025). Data ware analyzed using descriptive statistics and the Chi-Square test with a significance level of $p < 0.05$.

RESULT

Description of respondenst's characteristics

The demographic characteristics of respondents are presented in Table 1. The majority of mothers were aged 26–30 years (37.7%), with most having completed senior high school (44.9%). Most toddlers were aged 25–30 months (33.3%), and the gender distribution was relatively balanced between males (53.6%) and females (46.4%).

Table 1.
Respondent characteristics

Variable	Category	f	%
Mother's Age	20-25 years	9	13.0
	25-30 years	26	37.7
	31-35 years	19	27.5
	36-40 years	15	21.7
Mean: 31.20	Modus: 36	Min: 20	Max: 43
Mother's education	Elementary School	2	2.9
	Junior High School	22	31.9
	Senior High School	31	44.9
	Higher Education	14	20.3
Child's Age	12-18 months	17	24.6
	19-24 months	9	13.0
	25-30 months	23	33.3
	31-36 months	20	29.0
Mean:26.06	Modus: 28	Min: 12	Max: 36
Gender	Male	37	53.6
	Female	32	46.4

Most respondents were mothers of productive age with secondary-level education, indicating sufficient literacy for managing child-rearing and exposure to technology.

Description of gadget usage

The description of gadget use among toddlers is summarized in Table 2. The dominant type of gadget used was mobile phones (66.7%), followed by televisions (33.3%). Most children had low intensity of use (47.8%), with YouTube as the most frequently accessed application (63.8%). Parental supervision was reported as frequent (62.3%), indicating awareness of potential screen-related risks.

Table 2.
Gadget Usage

Variable	Category	f	%
Type of gadget	Handphone	46	66.7
	Television	23	33.3
Intensity of use	Low	33	47.8
	Moderate	25	36.2
	High	11	15.9
Type of application	YouTube	44	63.8
	Game	12	17.4
	TikTok	13	18.8
Parental supervision	Never	9	13.0
	Rarely	17	24.6
	Often	43	62.3

These findings indicate that gadget use is primarily for entertainment and learning, dominated by screen-based video content, and parents are generally aware of monitoring needs.

Description of crosstabs

The main hypothesis test used the Chi-Square test to examine the association between parental education level and gadget use intensity. The cross-tabulation and p-value are presented in Table 3.

Tabel 3.
Crosstabs

		Intensity of gadget usage			Total	*p-value*
		Low	Moderate	High		
Mother's education	Elementary School	1	1	0	2	0,167
	Junior High School	10	7	5	22	
	Senior High School	13	12	6	31	
	Higher Education	7	5	2	14	

The analysis showed a p-value = 0.167 ($p > 0.05$), indicating no statistically significant relationship between parental education level and gadget use intensity among toddlers. Although higher education tends to correlate with slightly lower gadget use, the difference was not significant. These findings suggest that formal education alone does not determine digital parenting behavior. Other factors - such as digital literacy, time availability, and family environment-may play a stronger role in shaping responsible gadget use among toddlers.

DISCUSSION

Based on research data, the majority of respondents were mothers aged 26-30 years. This is in line with research stating that young mothers are better prepared to face the challenges of parenting (Maulidiyah et al., 2025). Zhang et al. (2024) It was also found that mothers who are neither too young nor too old have a positive relationship with positive interaction and stimulation of children, including social-emotional and cognitive development.

The majority of mothers had a high school education as their highest level of education, with a wide range from elementary school to, junior high school to college. This study is in line with Dewi & Arifah, who found that most (>50%) mothers had a high school equivalent education (Dewi & Arifah, 2024). This is also in line with research stating that the educational level of parents, including those at the secondary level such as high school, has a significant effect on

parents' mindsets and the parenting patterns they apply (Wahyuni, 2020). This study is supported by Risfaisal & Ismail (2023), who found that the majority of respondents had a high school education, supporting the literature finding that secondary education remains an important foundation for the quality of parenting (Maratus et al., 2024)

The characteristics of respondents based on the age of their children show that most are aged 25-30 months (33.3%). This age falls into the toddler category, where children begin to actively explore their environment. These findings show that this age is the early phase of having more frequent interactions with digital devices. This is in line with research stating that gadget use among children is increasing and most children under the age of 3 are already exposed to digital screens. The study shows that more than 55–60% of toddlers already use gadgets in their daily activities (Radesky et al., 2020).

The characteristics of respondents based on the gender of the child show that most are male. This study is in line with data from the Klaten District Statistics Agency in Delanggu in 2023, which states that the majority of toddlers are male (50.55%) (BPS, 2023). This phenomenon has implications for differences in gadget usage patterns, where male toddlers tend to have a higher interest in digital devices and screen-based games than female toddlers. This is in line with Zhenya's research, which shows that male toddlers are more exposed to gadgets in their daily activities, which can affect their cognitive and motor development. Thus, gender differences are an important factor that needs to be considered in digital parenting provided by parents (Zhenya et al., 2020).

Gadgets are technological and communication devices that affect almost all aspects of human life, including children. Many people tend to associate digital devices only with cell phones, when in fact cell phones are only one of many types of digital devices. Other devices that also fall into this category include televisions, laptops, and tablets. This study shows that most of the gadgets used are cell phones. This is in line with research stating that toddlers use cell phones more than televisions because cell phones can be accessed at any time and have interactive features (Operto et al., 2020). This study is also reinforced by Shah & Phadke (2023), who found that none of the subjects used televisions and that televisions were no longer the dominant activity for toddlers (Shah & Phadke, 2023). Similarly, in another study, although television still has a high prevalence, mobile phones are used more, with the use of Android gadgets or mobile phones reaching 94.2% (Nathan et al., 2022).

This shows that technological advances have contributed significantly to change and have had a very high impact. The results of the study showed that most gadget use fell into the low category, at 47.8%. This low category generally refers to gadget use of ≤ 2 hours per day, whether for learning, entertainment, or communication. This is in line with the research by Twenge & Campbell (2020) which found that more than 1 hour/day appears to be associated with poorer outcomes, so if many respondents use ≤ 2 hours, then “low” becomes a reasonable and healthy category (Krafft et al., 2023). This study is also supported by previous research findings that state parental monitoring and rules, family habits in gadget use, as well as children's access and social environment conditions (Xie & Chen, 2023).

The results of the distribution of applications used by children in this study show that most children use YouTube, with 44 respondents (63.8%). This result is in line with research stating that most parents prefer to use YouTube for viewing compared to TikTok and games (Nugrahani & Abduh, 2025). This is also in line with Pertiwi (2022) research that most parents prefer YouTube over TikTok because the content is more structured, longer, and suitable for children. TikTok tends to be avoided because it is fast, difficult to control, and has the potential to display content that is not suitable for children (Pertiwi et al., 2022).

The dominant use of YouTube among toddlers can be explained by the fact that this platform provides easy, access and diverse and educational content, and allows for more effective parental supervision compared to conventional television (Kim et al., 2024). Other studies also explain that YouTube offers flexibility in viewing duration and time, allowing children to adjust to their interests and needs (Yasrizal, 2022). Although most parents recognize the importance of monitoring their children's gadget use, research shows that not all parents do so consistently. This is inline with previous researchers who found that only about 45% of parents monitor regularly, while the rest do so on a situational basis (John et al., 2021). These findings indicate a gap between awareness of the importance of supervision and actual practices at home, which can affect the duration and quality of children's screen interactions (Marhaeni et al., 2020).

The phenomenon in Altun's (2021) study explains that permissive and protective parenting styles are associated with high screen exposure and weak supervision (Çaylan & Yalçın, 2021). This indicates that, in addition to parental busyness, parenting styles also influence the extent to which parents can regulate and limit children's gadget use, ensuring children continue to have healthy play experiences and optimal interactions with their surroundings. High screen exposure and weak supervision (Pyne et al., 2025). In addition, a Pew Research Center survey shows that although 86% of parents set rules regarding gadget use, only 19% consistently enforce these rules. This situation shows that mothers' good intentions to limit screen time are often not followed by consistent implementation. The contributing factors include parents' busyness with other activities or work, lack of digital literacy, and ignorance of how to monitor children effectively

Toddlers belong to an age group that is growing up amid advances in digital technology. At this stage, children begin to actively explore their environment and are easily attracted to devices such as gadgets because of their appealing visuals and sounds. Therefore, parental supervision and involvement are important factors in regulating their use (Hidayah & Wachidah Yuniartika, 2024). The results of this study's analysis using the Chi-Square test with a significance level of p-value $0.167 < 0.05$ indicate that there is no statistically significant relationship between parental education and gadget use among toddlers. These findings are consistent with Nurhayati (2020), who also found no relationship between parental education level and gadget use ($p=0.312$). These insignificant results can be explained by the characteristics of the respondents, where most of the parents had a high school education. A high school education provides a fairly good foundation of literacy and general knowledge, but this is not necessarily followed by specific knowledge related to digital parenting and awareness in applying supervision of children's gadget use. Therefore, although the majority of mothers with a high school education have adequate general understanding, the influence of educational level on digital parenting practices has not been significantly observed (Elvika et al., 2025).

The level of formal education of parents, whether high school, college, or junior high school, does not always reflect their level of knowledge and ability to supervise their toddlers' use of gadgets. Although formal education provides an important foundation of literacy, its effectiveness in digital parenting depends heavily on specific knowledge, parental awareness, practical experience, and social and family support (Pons & Bennasar-veny, 2020). Therefore, efforts are needed to improve education and awareness regarding digital parenting across all levels of education to minimize the negative impacts of gadget use on young children (Widiastuti & Yuliati, 2025).

High school education provides a foundation in knowledge of the context of child development stimulation. The role of parents in limiting and guiding the wise use of gadgets also has a direct impact on children's cognitive, social-emotional, and motor skills. As found in a study by Komang 2024, which confirms that although parents' education levels are not significantly

correlated with children's gadget usage behavior, parents' knowledge of gadgets has a positive correlation with efforts to manage children's gadget usage (Komang et al., 2024). According to a study by Ivarianti, Pangestu Putri & Azainil, 2023, active parental involvement as guides and facilitators in gadget use, along with non-digital stimulation enrichment (such as playing puzzles, outdoor, activities, and social interaction), has been proven to support the cognitive and social-emotional development of early childhood (Ivarianti et al., 2025).

Highly educated mothers often face challenges in dealing with their children, especially when using their gadgets. This is supported by the results of a bivariate analysis that showed an insignificant relationship between maternal education level and the intensity of their children's gadget use (p-value = 0.167). This finding is in line with other studies that found an insignificant relationship between maternal education level and the intensity of their gadget use (p-value = 0.312), indicating that parental supervision of children's gadget use is very important, and educated mothers need to allocate time to accompany their children (Nurhayati et al., 2025).

CONCLUSION

The majority of mothers were aged 26-30 and had a high school education. Mothers with a high school education provided fairly satisfactory literacy and general knowledge, but most respondents had a low level of gadget use among toddlers, indicating parental awareness and involvement in digital parenting. The most commonly used gadget among children was smartphones with YouTube as the dominant application. The results of the study show that there is no significant relationship between the level of parental education and children's gadget use (p = 0.167). However, active supervision and digital literacy among parents play an important role in maintaining children's gadget use to support their optimal growth and development.

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