Original Article

Parenting Styles, Gadget Use, and Their Impact on Children's Growth and Development

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ABSTRACT

Background: Every parent desires for their children to grow and develop optimally in accordance with their developmental stages. Child development includes various domains such as language, social, fine motor, and gross motor skills. The purpose of this study was to analyze the influence of parenting patterns and gadget use on the growth and development of preschool children.

Methods: This study employed an analytical survey design with a cross-sectional approach. The population consisted of 1,049 parents and preschool children, and a sample of 290 respondents was selected. Parenting style and gadget use were considered independent variables, while children's growth and development were the dependent variables. Data were analyzed using logistic regression.

Results: The findings revealed that a majority of mothers practised a democratic parenting style (92.1%), most children had moderate gadget use (72.8%), and 47.9% of children experienced normal growth. The logistic regression analysis showed a significant relationship between parenting style (p = 0.007) and gadget use (p = 0.050) with child development, indicating that both variables influence developmental outcomes. Parenting and gadget use affect children's development, and parents need to identify these factors to promote healthier child growth and development.

Conclusion: The importance of guiding parents to apply appropriate parenting styles and regulate gadget use to support optimal child development. Future research should examine additional factors such as content quality, screen time duration, and parental education level to provide a more comprehensive understanding and more targeted interventions.

Keywords: Child, Preschool, Parenting, Child Development, Motor Skills, Screen Time.

Implications for Practice :

- Parenting Education Programs, Healthcare providers should offer educational programs for parents that focus on the importance of democratic parenting styles, emphasizing positive reinforcement, open communication, and supportive environments for children's growth.
- Guidance on Gadget Use, Clinicians should advise parents on the importance of regulating screen time for preschool children, encouraging appropriate content and limiting excessive gadget use to foster healthier cognitive, social, and motor development.
- Holistic Approach to Child Development, Healthcare professionals should assess not only physical health but also social, emotional, and cognitive development in pediatric care, addressing parenting

practices and technology use as key factors in overall child well-being

Introduction

Every parent desires optimal growth and development for their children according to their developmental stages. This development includes language, social, fine motor, and gross motor skills. Despite this ideal, many children still do not develop optimally according to their age. Growth, on the other hand, relates to the physical changes that children undergo as they get older (Crotty et al., 2023; Savarino et al., 2021; Zhao et al., 2022). Parents play a crucial role in facilitating both growth and development through their unique parenting styles, which significantly influence developmental outcomes (Burnett et al., 2020; Chen et al., 2021; Fong et al., 2022). In today's digital era, children's development is increasingly intertwined with the use of mobile gadgets.

Among the 200 million children under five in developing countries, over one-third do not reach their full developmental potential. Of 23.5 million Indonesian children under five, 27.5%—around 5 million—experience developmental and growth disorders. The World Health Organization (WHO) also reports that 5–25% of preschool-aged children suffer from minor brain dysfunctions. Globally, the prevalence of anxiety, emotional vulnerability, and behavioural disorders in children is concerning, ranging from 9% to 15%. In Indonesia, the Ministry of Health noted that 0.4 million (16%) children under five face developmental challenges in areas such as motor skills, hearing, intelligence, and speech.

Regional data reinforce this issue. The East Java Provincial Health Office recorded that 2% or 1,700 children under five face weight or intellectual disorders. In Kediri Regency in 2016, out of 14,697 toddlers, 352 (2.4%) showed signs of developmental deviation (Kediri Health Office). Furthermore, in 2010, 63.48% of 3,657,353 under-five children in East Java were identified with developmental concerns. Preliminary research at Dharma Wanita Kindergarten in Plosoklaten District, Kediri, revealed that 30% of children had difficulties in storytelling, 30% lacked independence, 40% were delayed in gross motor skills, and 50% in fine motor development.

Various risk factors threaten child development in developing countries, such as chronic malnutrition, lack of early stimulation, iodine deficiency, and iron deficiency anaemia. Among these, parenting and early stimulation are critical. Both genetic (intrinsic) and environmental (extrinsic) influences, such as nutrition, parental involvement, and education.

Parenting plays a multifaceted role, particularly in regulating children's gadget use (Al Hassan et al., 2024; Shatskaya et al., 2023). While gadgets can offer educational benefits and foster digital preparedness, excessive and unmonitored use may negatively impact a child's growth and development (Everard et al., 2024; Wang et al., 2022). Children may become isolated, overly dependent on gadgets, and experience reduced social interaction. In the UK, over 50% of parents allow up to 4 hours of gadget use per day, with 81% admitting their children spend more time with gadgets than they prefer (Maulida, 2013). Ismanto (2013) found that gadget use influences academic achievement(Shabur & Siddiki, 2024), while Istiyanto (2016) noted changes in social behaviour and mindset due to gadget exposure.

Parental involvement is thus vital for healthy development (Cheung et al., 2021; Liu et al., 2023; Lu et al., 2024; Okobi et al.,

2023). Effective parenting includes supervision, setting boundaries, and guiding gadget use. Parents must be proactive and consistent in limiting access to potentially harmful digital content (Erduran, 2024; Jimenez et al., 2022; Mazzeo et al., 2024).

However, despite extensive data on the developmental challenges faced by children and the well-documented influence of parenting and gadget use (Al-Anazi & Al-Harbi, 2022; Heyes, 2024; Volkova et al., 2023), there remains limited research that specifically analyzes the combined impact of parenting styles and gadget use on the growth and development of pre-school children—. This gap highlights the need for a focused study that examines how these two factors interact and affect early childhood outcomes in this specific region. The purpose of this study is to determine the relationship between parenting styles and gadget use with the growth and development of preschool children and to identify which aspects of development are most affected by these variables. The results of this research are expected to provide input for parents, educators, and policymakers in designing better parenting strategies and gadget usage guidelines to support optimal child development.

Methods

Study Design

This study employed a quantitative design with an analytical observational approach. The type of research applied was cross-sectional, where the independent variables (parenting style and gadget use) and the dependent variable (growth and development of preschool-aged children) were measured simultaneously at a single point in time. The independent variables in this study were parenting style and gadget use. These variables are hypothesized to influence child development outcomes. Additionally, disruptive (intervening) variables were considered, which theoretically may affect the relationship between the independent and dependent variables. These included the caregiver's educational level, the caregiver's knowledge, and the child's nutritional status during growth.

Participants

The population of this study consisted of all preschool-aged children and their parents in the Plosoklaten District, Kediri Regency, totalling 1,049 individuals. The sampling technique used was stratified random sampling based on the classification of kindergartens in the area. The sample size was determined using the Slovin formula with a 95% confidence level, resulting in 290 respondents.

Instruments

The instruments used in this study consisted of several measurement tools, including a parenting style questionnaire, a gadget usage questionnaire, and tools for assessing both child development and growth. The parenting style questionnaire was developed based on the theories of democratic, authoritarian, and permissive parenting styles, comprising a total of 21 items that reflect various indicators of each style. The gadget usage questionnaire was designed to measure the frequency and duration of gadget use by children based on parental reports. Meanwhile, child development was assessed using the Pre-Screening Developmental Questionnaire (KPSP) and the Denver Developmental Screening Test (DDST), while growth was measured through weight and height, calculated into Body Mass Index (BMI) classifications according to WHO standards.

In this study, the independent variables were parenting style and gadget usage, while the dependent variable was child

growth and development. The democratic parenting style was assessed through four indicators: parenting actions, attitudes toward the child's abilities, granting of freedom, and approaches to the child. The authoritarian style included seven indicators, such as setting strict standards, use of threats, coercive behaviour, commanding, punishing, lack of compromise, and one-way communication. The permissive style involved indicators such as loose supervision, warnings when the child is in danger, and guidance from caregivers.

Growth was assessed through BMI values, with classifications as follows: underweight (BMI < 18.50), normal (BMI 18.50–24.99), overweight (BMI ≥ 25.00), and obesity (BMI ≥ 30.00). Meanwhile, DDST results were classified as normal (no delays and a maximum of one caution), suspect (one or more delays and two or more cautions), and untestable (refusal on one or more items entirely to the left of the age line).

All instruments were tested for validity and reliability prior to use. The validity test results for the 21 parenting style questionnaire items showed that all items had Pearson correlation values with $p < 0.05$, indicating validity. The reliability test using Cronbach's Alpha formula yielded a score of 0.77, demonstrating that the instrument was reliable and trustworthy

Table 1. Parental Parenting Style Questionnaire

No	Question	Yes	No
	Democratic		
1	When raising your child, do you give them the opportunity to express their opinions?		
2	In raising your child, is a punishment given as a consequence of inappropriate behaviour?		
3	In raising your child, do you give praise or rewards for appropriate behaviour?		
4	In raising your child, do you guide and direct without imposing your will on the child?		
5	In raising your child, do you provide clear/rational explanations if their opinions are not accepted?		
6	When raising your child, do you explain the difference between good and bad behaviour?		
7	In raising your child, do you give your child a sense of freedom?		
	Authoritarian		
8	When raising your child, do you apply strict family rules?		
9	In raising your child, do you have specific rules your child must follow, such as bedtime, playtime, mealtime, etc.?		
10	In raising your child, do you use threats to make your child obey your wishes?		
11	In raising your child, are you oriented toward punishment (physical or verbal)?		
12	In raising your child, do you often command your child to do things the way you want?		

No	Question	Yes	No
13	In raising your child, do you dislike when your child argues back against your statements?		
14	Are all decisions made solely by you when raising your child?		
	Permissive		
15	In raising your child, do you give them freedom without boundaries or supervision?		
16	When raising your child, does your child not receive rewards or praise even when showing good social behaviour?		
17	When raising your child, does your child not receive punishment even when breaking the rules?		
18	In raising your child, do you not exert control over your child's daily behaviour and activities?		
19	In raising your child, do you only act as a provider of the facilities your child needs?		
20	In raising your child, do you always fulfil your child's wishes even if you disagree?		
21	In raising your child, does your child learn to distinguish good and bad behaviour on their own?		

The parenting style questionnaire consists of a total of 21 questions divided into three main categories. The permissive parenting style is assessed through 7 questions (numbers 1 to 7), with response options of "Yes" or "No." The authoritarian parenting style is also measured using 7 questions (numbers 8 to 14), allowing participants to respond with either "Yes" or "No." Similarly, the democratic parenting style is represented by 7 questions (numbers 15 to 21), with the same answer choices. In total, the questionnaire contains 21 items designed to identify dominant parenting styles based on participants' responses. Each indicator was scored with "Yes" (1) or "No" (0), and the parenting style was categorized based on the highest proportion of scores: good (76–100%), adequate (56–75%), and poor (≤55%) (**Table 1**).

Table 2. Questionnaire on Children's Gadget Use Behavior

No.	Question	Always	Often	Sometimes	Never
1	Does the child play games using a gadget (e.g., smartphone, computer, PlayStation) every day?				
2	Does the child use a gadget multiple times in a day?				
3	Does the child always want to play with a gadget every day?				
4	Does the child spend a long time using the gadget?				
5	Is gadget use longer than study time?				
6	Does the child forget other activities while using a gadget?				

7	Is the child more interested in gadgets than playing with their peers?
8	Is the child's gadget usage time always limited or controlled?
9	Does the child tend to get angry when not allowed to use gadgets (e.g., smartphone, computer)?
10	While using gadgets, does the child prefer it over playing with children their age?

The questionnaire consists of a total of 10 questions categorized into two main parameters. The frequency of play is measured using 3 questions (numbers 1 to 3), while the duration of play is assessed with 7 questions (numbers 4 to 10). Each item offers four response options: Always, Often, Sometimes, and Never. These categories are designed to evaluate both how frequently and how long children engage in play activities based on respondents' observations or experiences. Gadget usage was assessed based on two indicators: frequency and duration of use. Scoring was as follows: always (4), often (3), sometimes (2), and never (1). The final results were classified into three categories: poor (≥75%), adequate (56–74%), and good (≤55%) **(Table 2).**

Data Collection

Data were collected through the distribution of structured questionnaires to parents or guardians of preschool-aged children. In addition, direct observation was conducted to obtain data on children's physical growth and developmental milestones.

Data Analysis

Data analysis in this study was conducted in two stages. The first stage involved univariate analysis, which was used to describe the characteristics of each variable individually, providing a general overview of the data distribution. The second stage involved bivariate analysis, which was carried out using the Chi-square test and logistic regression. These statistical tests were employed to examine the influence of parenting style and gadget usage on children's growth and development, allowing for the identification of significant relationships between the independent and dependent variables.

Ethical Considerations

Ethical considerations for this study were approved by Universitas STRADA Indonesia, East Java, Indonesia, ensuring informed consent, confidentiality, and voluntary participation, with participants having the right to withdraw at any time without consequences.

Results

The demographic data showed that the majority of the respondents' parents were aged between 26 and 30 years (50.0%), while 33.4% were under 25 years old, and the remaining 16.6% were between 31 and 35 years. Most parents had a senior high school education (77.6%), with 17.2% having completed junior high school and only 5.2% holding a higher education degree. In terms of occupation, nearly half of the respondents' parents were housewives (46.9%), followed by those working in the private sector (28.6%), farmers (21.4%), and only 3.1% as civil servants.

When viewed from the child's interaction patterns, the majority of children most frequently interacted with their mothers (77.2%), followed by their

grandmothers (21.7%), and only a small portion interacted most with a nanny (1.0%). All respondents (100%) had received information about parenting, most of which was obtained through electronic media (84.1%), while the rest received it from health workers (15.9%). In terms of the child's gender, more than half were female (59.7%), and the rest were male (40.3%) (**Table 3**).

Furthermore, the data indicated that most of the children were firstborns (88.6%), with only 11.4% being second-born. Regarding birth history, the vast majority were born through normal delivery (92.1%), while 7.9% were delivered via cesarean section. The age distribution showed that most children were between 49–60 months old (63.1%), followed by those aged 36–48 months (36.6%), and a very small portion aged 61–72 months (0.3%).

Table 3. Respondents' Demographic Characteristics

No	Variable	Category	Frequency	Percentage (%)
1	Parents' Age	< 25 years	97	33.4
		26–30 years	145	50
		31–35 years	48	16.6
2	Parents' Education	Junior High School	50	17.2
		Senior High School	225	77.6
		Higher Education	15	5.2
3	Parents' Occupation	Farmer	62	21.4
		Private Sector	83	28.6
		Civil Servant	9	3.1
		Housewife	136	46.9
4	Child's Main Interaction Figure	Mother	224	77.2
		Grandmother	63	21.7
		Nanny	3	1
5	Parenting Information Received	Yes	290	100
		No	0	0
6	Source of Parenting Information	Electronic Media	244	84.1
		Health Workers	46	15.9
7	Child's Gender	Male	117	40.3
		Female	173	59.7
8	Child's Birth Order	First Child	257	88.6
		Second Child	33	11.4
9	Childbirth History	Normal Delivery	267	92.1
		C-Section	23	7.9
10	Child's Age	36–48 months	106	36.6
		49–60 months	183	63.1
		61–72 months	1	0.3

The findings on research variables revealed that nearly all respondents applied a democratic parenting style (92.1%), while only 7.9% practised an authoritarian approach. In terms of gadget usage among children, the majority were categorized as having fair usage (72.8%), whereas 27.2% had good usage patterns. For growth status, nearly half of the children

were in the normal category (47.9%), followed by 42.4% who were underweight, and 9.7% categorized as overweight. Regarding developmental status, most children showed normal development (96.9%), and only a small fraction (3.1%) were classified as having suspected developmental delays.

Table 4. Distribution Frequency of Research Variables (n=290)

No	Variable	Category	Frequency	Percentage (%)
1	Parenting Style	Democratic	267	92.1
		Authoritarian	23	7.9
2	Gadget Usage	Good	79	27.2
		Fair	211	72.8
3	Child's Growth Status	Underweight	123	42.4
		Normal	139	47.9
		Overweight	28	9.7
4	Child's Development	Suspect	9	3.1
		Normal	281	96.9
5	Language Development	Normal	290	100
6	Gross Motor Skills	Normal	290	100

Table 4 shows the multivariate analysis results regarding the influence of parenting style and gadget use on children's growth and development. Linear regression analysis for growth indicated that neither parenting style (p = 0.643) nor gadget use (p = 0.148) had a statistically significant effect. The R^2 value was 0.008, meaning that both independent variables accounted for less than 1% of the variance in children's growth.

In contrast, logistic regression analysis for development outcomes revealed statistically significant effects for both parenting style (p = 0.007) and gadget use (p = 0.050). The overall model was also important (p = 0.044), indicating that parenting style and gadget use jointly influence child development. These findings highlight the importance of parenting strategies and digital media exposure in supporting or hindering developmental milestones in preschool-aged children, even though their direct impact on physical growth remains inconclusive (**Table 5 and Figure 1**).

Table 3. Multivariate Analysis: The Effect of Parenting Style and Gadget Use on Growth and Development of Preschool Children (n = 290)

Dependent Variable	Independent Variable	B	SE	Wald / t	Sig. (p)	Exp(B) / Beta	Interpretation
Child Growth (Linear)	Parenting Style	-0.065	0.14	-0.464	0.643	-0.027	Not significant
	Gadget Use	0.123	0.085	1.449	0.148	0.085	Not significant
Model Fit	R = 0.090	R^2 = 0.008	Adj R^2 = 0.001	F = 1.172	p = 0.311		Model not significant
Child Development (Logistic)	Parenting Style	–	–	2.598	0.007	–	Significant predictor
	Gadget Use	–	–	3.757	0.05	–	Significant predictor
Overall Model Fit	–	–	–	χ^2 = 6.226	0.044		Model statistically significant (p < 0.05)

Constant (Logistic)	–	–	–	–	0	Exp(B) = 31.222	High baseline probability

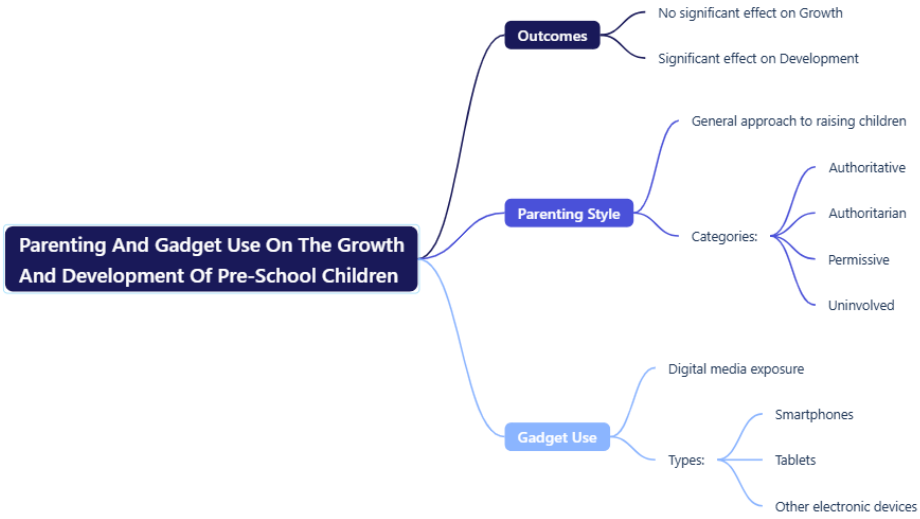

Figure 1. Conceptual Framework Parenting And Gadget Use On The Growth And Development

Discussion

This study aimed to analyze the relationship between parenting styles and gadget use with the growth and development of preschool children in Plosoklaten District, Kediri Regency. The findings revealed several important aspects that contribute to the understanding of how environmental and behavioural factors influence early childhood outcomes.

The novelty of this study lies in its simultaneous examination of parenting style and gadget usage—two factors that are rarely analyzed in conjunction, particularly within the context of rural and semi-urban communities in Indonesia. By integrating both variables, the research provides a more nuanced understanding of how modern technology interacts with traditional parenting models and how this interaction may influence both physical growth and developmental milestones in children aged 3 to 6 years.

A unique finding in this study is that although 72.8% of children had only a "fair" level of gadget usage, the overwhelming majority (96.9%) were still categorized as having normal development. This suggests that the mere presence or use of gadgets does not necessarily hinder developmental outcomes, especially when moderated by democratic parenting styles, which were dominant among respondents (92.1%). Democratic parents tend to supervise and guide their children's activities, which likely includes regulating the type of digital content accessed, screen time duration, and ensuring that the use of gadgets complements rather than replaces social interaction and physical activity.

Moreover, the fact that most parents received parenting information from electronic media (84.1%) indicates a strong reliance on modern sources of information. This shift is both an opportunity and a challenge; it underscores the potential of digital platforms in delivering parenting

education while also raising concerns about the quality and accuracy of information being consumed.

However, despite the high prevalence of normal developmental status, the study found that 42.4% of children were underweight. This finding is critical, as it suggests that although cognitive and social aspects of development are preserved, nutritional and physical well-being may still be at risk. It is possible that extended gadget use is contributing to sedentary behaviour, reduced outdoor playtime, or irregular eating habits. Furthermore, while democratic parenting is linked to better developmental outcomes, it may not be sufficient on its own to ensure optimal physical health, highlighting the need for more comprehensive parenting interventions that include guidance on nutrition and physical activity.

Another interesting contrast in the findings is related to the birth order and interaction figures. Most children were firstborns (88.6%) and had the most frequent interaction with their mothers (77.2%). These two factors could positively influence early stimulation, emotional bonding, and learning environments, which might explain the high rate of normal development despite external challenges such as gadget exposure. Firstborns often receive more parental attention, and frequent maternal interaction has long been associated with secure attachment and better developmental outcomes.

This study supports prior research that links authoritative or democratic parenting styles with positive child outcomes. However, it also adds context-specific evidence from Indonesia, where cultural values, extended family roles, and socioeconomic status may shape parenting behaviour differently from Western contexts. This localization of findings provides useful insights for policymakers and educators in designing culturally appropriate interventions.

Despite its contributions, this study has several limitations. First, the cross-sectional design only allows for observation at a single point in time, which limits causal inference. Second, the reliance on self-reported data introduces the possibility of recall bias or socially desirable responses, particularly regarding parenting practices and gadget use. Third, the measurement of gadget use was limited to general categories (i.e., "good" or "fair") without a detailed breakdown of content type, screen time duration, or the child's engagement level, which are crucial factors in understanding its actual impact. Finally, the developmental outcomes were not measured through clinical or standardized developmental assessments but based on general categorization, which may affect the accuracy of the findings.

Relevance to Clinical Practice

The findings of this study highlight the significant role of parenting styles and gadget use in influencing the growth and development of preschool children. For healthcare providers working with families, it is essential to educate parents on the impact of these factors on child development. By promoting awareness and offering practical strategies for balanced parenting and regulated gadget use, clinicians can support healthier developmental outcomes for children.

Conclusion

. The findings from this study have several implications for future practice. First, there is a need for educational programs that emphasize balanced gadget usage, particularly in guiding parents to choose age-appropriate content and enforce healthy screen time limits. Second, health and education practitioners should integrate discussions on parenting styles

into routine services, especially maternal and child health programs. Given that most respondents received information from electronic media, digital platforms should be optimized as tools for disseminating evidence-based parenting guidance.

Moreover, future research should consider longitudinal approaches to track the long-term impact of parenting and gadget use on children's development. It would also be beneficial to include objective assessments such as growth charts, nutrition intake records, and standardized developmental screening tools. Further exploration of the role of fathers and other caregivers is also recommended, given the high reliance on maternal interaction reported in this study.

In an era where technology is increasingly embedded in daily life, the study reaffirms the critical role of parental engagement and supervision. The future of healthy child development will depend not on avoiding technology altogether but on how effectively parents can integrate it into a balanced and nurturing environment.

Authors Contributions

Restu was responsible for the conception and design of the study, data collection, and data analysis. Restu also contributed to manuscript drafting and critical revision for important intellectual content. All aspects of the work were thoroughly reviewed and approved by the author.

Conflicts of Interest

The author declares no conflict of interest related to this study.

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