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The Relationship Between Parenting Practices and Stunting among Children Under Five

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ABSTRACT:

Introduction: Stunting remains a significant public health problem in Indonesia and reflects a condition of chronic malnutrition that adversely affects children's physical growth and cognitive development. Parental parenting practices play a crucial role as direct determinants of the caregiving environment, including feeding practices, hygiene behaviors, and psychosocial stimulation.

Objective: This study aimed to analyze the relationship between parental parenting practices and the occurrence of stunting among children under five years of age in Kuala Bhee Village, Aceh Barat Regency.

Materials & Methods: This study employed a quantitative approach with a cross-sectional design. All children under five residing in Kuala Bhee Village were included using a total sampling technique, resulting in 56 respondents. Parenting practices were assessed using a structured questionnaire, while nutritional status was determined based on height-for-age measurements. Data were analyzed using the Chi-square test.

Results: The prevalence of stunting among children under five was 46.4%, with 41.1% of respondents experiencing poor parenting practices. Children exposed to poor parenting practices were 2.72 times more likely to be stunted compared to those receiving good parenting practices (OR = 2.72; 95% CI: 0.91–8.16). However, this association was not statistically significant (p = 0.124).

Conclusions: Although the relationship between parenting practices and stunting was not statistically significant, a meaningful trend of increased risk was observed among children exposed to poor parenting practices. These findings suggest that stunting prevention requires an integrated approach that not only improves parenting practices but also addresses broader socioeconomic and environmental factors.

KEYWORDS: Stunting; Parenting Practices; Toddlers; Nutritional Status; Indonesia

INTRODUCTION

Stunting, defined as a condition of growth failure resulting from prolonged and cumulative exposure to chronic malnutrition, remains one of the most critical public health challenges globally[1]. It reflects sustained nutritional deprivation during the most sensitive periods of physical and neurological development, particularly from the prenatal stage through the first five years of life. According to joint estimates released by the World Health Organization (WHO) and UNICEF in 2022, approximately 148.1 million children under the age of five worldwide were affected by stunting[2]. This alarming figure highlights that, despite global commitments and the implementation of various nutrition-specific and nutrition-sensitive interventions, stunting continues to pose a substantial burden on child health, especially in low- and middle-income countries.

In Indonesia, stunting has long been recognized as a priority public health issue due to its high prevalence and its far-reaching implications for human capital development[3], [4].

Although national efforts have led to a measurable decline in recent years, the prevalence of stunting remains a serious concern. Data from the 2023 Indonesian Nutritional Status Survey (*Survei Status Gizi Indonesia*, SSGI) indicate that the prevalence of stunting decreased from 24.4% in 2021 to 21.5% in 2023[5]. While this reduction represents meaningful progress, the current prevalence still exceeds the WHO public health threshold of 20%, indicating that stunting continues to constitute a major public health problem[6], [7]. Moreover, national averages may conceal substantial disparities across regions, socioeconomic strata, and rural–urban settings, suggesting that certain population groups remain disproportionately affected[8], [9], [10].

The consequences of stunting extend well beyond impaired linear growth, as reflected in low height-for-age measurements. A substantial body of evidence demonstrates that chronic undernutrition during early childhood adversely affects brain development, including neuronal proliferation, synaptic connectivity, and myelination processes. These biological impairments translate into long-term deficits in cognitive function, learning capacity, and motor development. Children who experience stunting are more likely to exhibit delayed school readiness, lower academic achievement, and reduced psychosocial functioning[11], [12], [13]. In the long term, stunting is associated with diminished productivity, lower earning potential, and an increased risk of chronic diseases in

adulthood, thereby perpetuating intergenerational cycles of poverty and poor health.

Importantly, stunting is not attributable to a single causal factor but arises from a complex and dynamic interaction of multiple direct and indirect determinants. At the immediate level, direct causes include inadequate dietary intake—both in terms of quantity and nutritional quality—as well as repeated or prolonged episodes of infectious diseases. Inappropriate feeding practices, such as insufficient meal frequency, limited dietary diversity, and inadequate intake of essential macro- and micronutrients, directly compromise children's nutritional status. Recurrent infections, particularly diarrheal diseases and respiratory infections, further exacerbate growth faltering by reducing appetite, impairing nutrient absorption, and increasing metabolic demands. However, these direct factors often represent the downstream effects of more fundamental and structural indirect determinants[14], [15], [16]. Indirect causes of stunting include household socioeconomic conditions, parental education, access to and utilization of healthcare services, food security, environmental sanitation, and cultural norms related to child care. Among these determinants, parenting practices occupy a particularly central position, as they constitute the immediate caregiving environment in which children's nutritional intake, hygiene behaviors, health-seeking practices, and developmental stimulation are shaped on a daily basis. Parenting encompasses the full spectrum of behaviors, interactions, supervision, and support provided by parents or primary caregivers to ensure children's survival, growth, and development. Through parenting practices, caregivers determine how food is selected, prepared, and offered; how hygiene and sanitation are maintained; and how children receive emotional support and psychosocial stimulation[17], [18]. Consequently, parenting functions as a critical mediator between broader socioeconomic conditions and child health outcomes.

Inappropriate parenting may manifest in various forms, particularly in relation to infant and young child feeding practices. For instance, caregivers with limited nutritional knowledge may fail to provide a balanced and diverse complementary feeding regimen (*Makanan Pendamping ASI*, MPASI), relying instead on monotonous diets that are energy-dense but nutrient-poor. Additionally, the inappropriate timing of complementary food introduction—either too early or too late—can disrupt optimal nutrient intake during critical growth periods. Such practices increase children's vulnerability to chronic undernutrition and growth failure. Parenting practices related to hygiene and sanitation further influence stunting risk. Poor personal hygiene behaviors, such as infrequent handwashing, unsafe food handling, and inadequate waste disposal, elevate children's exposure to pathogenic microorganisms. In environments with limited access to clean water and sanitation facilities, these behaviors contribute to recurrent infections, particularly gastrointestinal illnesses, which impair nutrient absorption and utilization. Over time, repeated infections create a vicious cycle of illness and undernutrition that accelerates growth faltering.

Beyond physical care, parenting also plays a crucial role in children's psychosocial development. Adequate stimulation through responsive caregiver–child interactions, verbal communication, and age-appropriate educational play is essential for optimal cognitive and emotional development. Insufficient psychosocial stimulation, characterized by limited interaction, neglect, or lack of emotional responsiveness, may adversely affect cognitive development and appetite regulation, indirectly influencing nutritional status. Thus, parenting practices shape not only children's physical growth but also their overall developmental trajectories. Empirical evidence supports the association between parenting styles and stunting outcomes. A study conducted in rural Indonesia demonstrated that children raised under authoritarian or permissive parenting styles exhibited a significantly higher risk of stunting compared to those raised within a democratic parenting framework. Democratic parenting is characterized by warmth, responsiveness, and active engagement with the child's needs, fostering healthier feeding practices, better hygiene behaviors, and more effective caregiving. These findings suggest that parenting is not merely about the availability of food or material resources, but also about the quality of parental interactions that influence children's health-related behaviors and adaptive capacities.

Despite the widespread implementation of targeted nutritional interventions in Indonesia, such as vitamin A supplementation, iron supplementation, and growth monitoring programs, stunting remains persistent. This persistence indicates that biomedical and nutrition-specific strategies alone are insufficient to address the complex and deeply rooted causes of chronic undernutrition. Many of the underlying drivers of stunting reside within behavioral, social, and caregiving domains, particularly those related to parenting practices, which are often inadequately addressed in conventional health interventions. Therefore, a more comprehensive understanding of stunting requires a shift toward examining the broader caregiving context in which child growth occurs. Investigating how various dimensions of parenting practices—such as feeding behaviors, hygiene supervision, emotional responsiveness, and psychosocial stimulation—interact to influence stunting is essential for informing more holistic and sustainable prevention strategies. Accordingly, this study aims to investigate in depth the relationship between multiple dimensions of parenting practices and the occurrence of stunting among children, with the expectation that the findings will contribute to the development of integrated, family-centered approaches to stunting reduction.

RESEARCH METHODOLOGY

This study employed a quantitative approach using a descriptive-analytic method with a cross-sectional design. This approach allows researchers to simultaneously observe and analyze the relationship between parenting practices and stunting in children under five at a single point in time. The study population consisted of all children under five residing in Kuala Bhee Village, West Aceh. Due to the relatively small and accessible population, a non-probability sampling technique, specifically total sampling, was applied. Data were collected using a structured questionnaire designed to measure parenting practices, including aspects of feeding, hygiene,

and psychosocial stimulation. In addition, the nutritional status of the children was assessed by measuring height-for-age to determine the occurrence of stunting. The collected data were analyzed using two types of statistical analysis: univariate and bivariate. Univariate analysis was employed to describe the characteristics of each variable separately, such as the frequency distribution and percentage of parenting practices and stunting prevalence. Bivariate analysis was used to examine the relationship between the independent variable (parenting practices) and the dependent variable (stunting occurrence). The Chi-Square test was applied, as it is appropriate for analyzing the association between two categorical variables and determining whether a statistically significant relationship exists between parenting practices and stunting in children under five.

RESULTS

Table. Characteristics of Respondents

No	Characteristics	Frequency (n)	Percentage (%)
1	Education		
	Bachelor	1	1.8
	Senior High School	30	53.6
	Junior High School	15	26.8
	Elementary School	9	16.1
	No Formal Education	1	1.8
	Total	56	100
2	Occupation		
	Housewife	35	62.5
	Farmer	19	33.9
	Private Sector	2	3.6
	Total	56	100

The characteristics of the respondents revealed that most parents of children under five had a middle-level educational background, with the largest proportion being senior high school graduates (53.6%), followed by junior high school graduates (26.8%) and elementary school graduates (16.1%). Only a small proportion of respondents had attained higher education (1.8%) or had no formal education (1.8%). In terms of occupation, the majority of respondents were housewives (62.5%), followed by farmers (33.9%), with only a small proportion working in the private sector (3.6%). These findings suggest that the respondents largely came from families with limited educational and occupational backgrounds, which could influence their parenting practices, access to health information, and ability to provide adequate nutrition for their children. Consequently, these socioeconomic conditions may indirectly contribute to nutritional problems such as stunting, given the strong link between parental education, employment, and child health outcomes.

Table. Parenting Patterns and Stunting Incidence among Respondent

Characteristics	Frequency (n)	Percentage (%)
Parenting Pattern		
Poor	23	41.1
Good	33	58.9
Stunting Incidence		
Yes	26	46.4
No	30	53.6
Total	56	100

The distribution of respondents based on parenting patterns and stunting incidence shows that the majority of children under five were raised with good parenting practices (58.9%), while 41.1% experienced poor parenting. Despite this, the prevalence of stunting remained relatively high, with 46.4% of children identified as stunted compared to 53.6% who were not. These findings highlight that even though most parents reported practicing good parenting, nearly half of the children still experienced growth faltering. This suggests that parenting practices, while important, may not be the sole determinant of stunting. Other underlying factors such as household socioeconomic conditions, food security, maternal education, sanitation, and access to health services may also contribute to the persistence of stunting. Thus, efforts to reduce stunting should not only focus on improving parenting practices but also address broader structural and environmental determinants that influence child nutrition and growth.

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Table 5 Relationship between Parenting Pattern and Stunting Incidence

Variable	Category	Stunting Yes n (%)	Stunting No n (%)	Total n (%)	p-value	OR	95% CI
Parenting	Poor	14 (60.9)	9 (39.1)	23 (41.1)	0.124	2.72	0.91 – 8.16
Pattern	Good	12 (36.4)	21 (63.6)	33 (58.9)			
Total		26 (46.4)	30 (53.6)	56 (100)			

The bivariate analysis examining the relationship between parenting patterns and stunting incidence revealed that among children raised with poor parenting, 60.9% experienced stunting compared to only 36.4% of those raised with good parenting practices. Although the Chi-square test showed that this association was not statistically significant (p = 0.124), the odds ratio (OR = 2.72; 95% CI: 0.91–8.16) suggests that children with poor parenting were more than twice as likely to suffer from stunting compared to those with good parenting. This finding indicates a potential relationship between parenting quality and child nutritional outcomes, even though the sample size may have limited the statistical power to reach significance. From a public health perspective, the elevated risk highlights the importance of strengthening parenting practices, especially in feeding, hygiene, and psychosocial stimulation, as part of integrated stunting prevention programs.

DISCUSSION

The relationship between parenting practices and stunting constituted the principal finding of this study, highlighting the pivotal role of caregiving behaviors in shaping child growth outcomes. The analysis demonstrated that children who were raised under poor parenting practices were 2.72 times more likely to experience stunting compared to those who received good parenting (OR = 2.72; 95% CI: 0.91–8.16). Although this association did not reach statistical significance (p = 0.124), the magnitude of the odds ratio suggests a meaningful trend indicating an increased risk of stunting among children exposed to suboptimal parenting. The lack of statistical significance may be attributed to limitations in sample size, variability in parenting indicators, or the influence of unmeasured confounding factors, rather than the absence of a true association. From a public health perspective, an odds ratio exceeding 2.5 reflects a substantial elevation in risk and should not be dismissed solely on the basis of statistical non-significance. In epidemiological research, particularly in studies with relatively small sample sizes, effect size and directionality are essential for interpreting findings within a broader conceptual framework. The present results reinforce the growing body of evidence suggesting that parenting practices play a critical role in determining child nutritional status and growth trajectories, even when traditional statistical thresholds are not met. The observed association aligns with existing literature emphasizing parenting as a proximal determinant of stunting. Previous studies conducted in Indonesia and other low- and middle-income countries have consistently reported that inadequate caregiving practices—particularly in feeding, hygiene, and psychosocial stimulation—are associated with higher stunting prevalence. For instance, research in rural Java and eastern Indonesia has shown that children raised in households with poor feeding responsiveness and limited caregiver engagement were significantly more likely to be stunted than those in supportive caregiving environments. Similar findings have been reported in studies from South Asia and Sub-Saharan Africa, where caregiving quality mediated the relationship between socioeconomic disadvantage and child growth failure.

Parental characteristics observed in this study further contextualize the relationship between parenting and stunting. The majority of parents had a secondary level of education, with 53.6% completing senior high school and 26.8% completing junior high school. However, only a very small proportion had attained tertiary education (1.8%), while 16.1% had completed only elementary education and another 1.8% had no formal education. Educational attainment is widely recognized as a key determinant of health literacy, including knowledge related to nutrition, hygiene, and child development. Parents with limited education may face challenges in understanding optimal feeding practices, recognizing early signs of growth faltering, and effectively utilizing available health services. Several studies have demonstrated that low parental education is significantly associated with poor complementary feeding practices and higher stunting risk, supporting the relevance of educational background as an indirect determinant in the present findings. In terms of occupation, most respondents were housewives (62.5%), followed by farmers (33.9%), with only a small proportion engaged in private-sector employment (3.6%). These occupational patterns suggest that a substantial proportion of households may lack stable and sufficient income, potentially limiting their capacity to provide nutritionally adequate diets and supportive home environments. Economic constraints are known to influence food availability, dietary diversity, and access to healthcare services, all of which are critical for preventing chronic undernutrition. Previous research has shown that children from households reliant on informal or subsistence-based livelihoods are more vulnerable to stunting due to income instability and seasonal food insecurity.

Regarding parenting patterns, this study found that 58.9% of children received good parenting, while 41.1% were classified as experiencing poor parenting practices. Poor parenting in this context included inadequate feeding practices, suboptimal environmental hygiene, and limited psychosocial stimulation. Although the majority of parents were categorized as providing good parenting, a considerable proportion of children remained exposed to caregiving environments that were insufficient to fully support optimal growth and development. This finding underscores the heterogeneity of parenting behaviors within the study population and suggests that interventions should be tailored to address specific caregiving gaps rather than assuming uniform parenting practices. Interestingly, despite the relatively high proportion of good parenting practices, stunting was still observed in 46.4% of

children. This finding indicates that while parenting plays a crucial role, it is not the sole determinant of stunting. The persistence of a high stunting prevalence among children receiving good parenting suggests the influence of additional factors beyond caregiving quality.

These may include household socioeconomic status, access to quality health services, environmental sanitation, recurrent infections, maternal nutritional status during pregnancy, and potential genetic or intergenerational influences[19]. Similar observations have been reported in other studies, where adequate caregiving alone was insufficient to offset the effects of structural poverty and environmental deprivation.[20] The coexistence of good parenting practices and high stunting prevalence highlights the multifactorial nature of chronic undernutrition. It also emphasizes the importance of adopting an integrated approach to stunting prevention that combines improvements in parenting practices with broader nutrition-sensitive interventions. Such interventions may include poverty alleviation programs, improved water and sanitation infrastructure, enhanced access to maternal and child health services, and community-based nutrition education.

CONCLUSIONS

This study demonstrates that the prevalence of stunting in the study area remains high (46.4%), despite the majority of parents having implemented good parenting practices. Children exposed to poor parenting practices showed a markedly higher risk of stunting, with a 2.72-fold increase compared to those receiving good parenting. Although this association did not reach statistical significance, the magnitude of the risk suggests important clinical relevance. These findings underscore that stunting is a multifactorial condition that cannot be explained by parenting practices alone. Socioeconomic conditions, environmental sanitation, parental education, and access to health services also contribute substantially to the persistence of stunting. Therefore, effective stunting prevention requires a holistic and integrated approach that combines the improvement of parenting practices—particularly in feeding, hygiene, and psychosocial stimulation—with broader socioeconomic and environmental interventions to achieve sustainable reductions in stunting.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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