

Parenting Styles and Sociodemographic Factors Associated with the Risk of Stunting among Under-Five Children

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ABSTRACT

Introduction: Stunting persists as a significant public health concern in Indonesia, contributing to long-term cognitive and health complications. Parenting practices and sociodemographic conditions are considered key determinants of stunting risk. The objective of this study was to examine the association between sociodemographic factors, parenting styles, and the risk of stunting among children aged 25–59 months.

Method: A case-control study was conducted at Koya Community Health Center, Minahasa, Indonesia, in March 2024. A total of 102 mothers were recruited using purposive sampling, consisting of 51 cases (stunting risk) and 51 controls (non-stunting). Sociodemographic variables and parenting styles were assessed using structured questionnaires. Anthropometric data were obtained from health records. Data were analyzed using Chi-square tests and Odds Ratios (OR) with 95% Confidence Intervals (CI).

Result: Negative parenting styles (permissive and neglectful) were more prevalent in the stunting group (64.7%) compared to controls (29.4%). A significant association was found between parenting style and the risk of stunting ($p < 0.001$). Children exposed to positive parenting were less likely to experience stunting (OR = 0.227; 95% CI: 0.099–0.522). Low maternal education and low household income were more common among stunting cases.

Conclusion: Parenting style is significantly associated with the risk of stunting. Strengthening positive parenting interventions may contribute to reducing stunting prevalence.

Keywords: Parenting Style; Stunting; Sociodemographic Factors

Introduction

Stunting, defined as height-for-age below minus two standard deviations of the World Health Organization (WHO) child growth standards, reflects chronic undernutrition occurring during critical periods of growth and development (WHO, 2022). Globally, an estimated 148 million children under five years of age were affected

by stunting in 2022, with a disproportionate burden observed in low- and middle-income countries, particularly in Southeast Asia (UNICEF, 2023). In Indonesia, despite gradual national progress, stunting remains a priority public health issue due to persistent regional disparities (Ministry of Health Indonesia, 2022).

Stunting is a multifactorial condition influenced by biological, environmental, socioeconomic, and behavioral determinants. Extensive evidence indicates that low household income, limited parental education, and inadequate access to health services are strongly associated with impaired linear growth in children (Chilot et al., 2023; Tran et al., 2023). However, structural disadvantage alone does not fully explain variability in stunting risk among children living in similar contexts.

Caregiving behaviors, particularly parenting practices related to feeding, healthcare utilization, and psychosocial stimulation, play a crucial role in shaping child nutritional outcomes (Handryastuti et al., 2024; Shenoy et al., 2023). Parenting style represents a multidimensional construct encompassing responsiveness, control, and emotional support (Lansford, 2025; Pan et al., 2025). Authoritative or democratic parenting, characterized by warmth and structured guidance, has been associated with improved dietary practices and child growth (Watson et al., 2023). Conversely, permissive and neglectful parenting styles may contribute to inconsistent feeding routines and inadequate supervision, thereby increasing the risk of chronic undernutrition (Black et al., 2020; Frosch et al., 2019; Ramsewak et al., 2022).

Despite growing recognition of behavioral determinants, empirical studies in Indonesia have predominantly emphasized socioeconomic and biomedical factors. This study integrates parenting style within a case-control framework to examine its association with stunting risk in a primary healthcare setting. The objective of this study was to analyze the association between sociodemographic factors and parenting styles with stunting risk among children aged 25–59 months.

Methods

This study employed a case-control design conducted in March 2024 at Koya Community Health Center, Minahasa Regency, Indonesia. The study population consisted of mothers with children aged 25–59 months registered at the health center. A

total of 102 respondents were recruited using purposive sampling, including 51 mothers of children at risk of stunting as the case group and 51 mothers of non-stunted children as the control group.

Sociodemographic variables assessed in this study included maternal age, educational level, employment status, and household income. Parenting style was measured using a structured questionnaire adapted from established parenting style frameworks, classifying parenting practices into positive styles, including democratic and authoritarian, and negative styles, including permissive and neglectful. Stunting status was determined using height-for-age indicators obtained from validated anthropometric records maintained by the health center in accordance with national growth monitoring guidelines (Ministry of Health Indonesia, 2022).

Data were analyzed using statistical software. Associations between sociodemographic factors, parenting style, and stunting risk were examined using Chi-square tests, and the strength of associations was estimated using Odds Ratios with 95% confidence intervals. Statistical significance was set at $p < 0.05$. Ethical approval was not obtained because the data were collected from secondary data, which was provided by Puskesmas.

Results

The descriptive analysis indicated that mothers in the stunting group were predominantly aged between 36 and 45 years and had lower educational attainment compared to the control group. Most respondents in both groups were not formally employed, and a substantial proportion reported household incomes below the regional minimum wage (Table 1).

Table 1. Sociodemographic Characteristics of Respondents

Variable	Stunting (n=51)	Non-Stunting (n=51)
Maternal age 36–45 yrs	54.9%	43.1%
Basic education	58.8%	35.3%
Not working	68.6%	70.6%
Income < minimum wage	58.8%	72.5%

Source: Puskesmas Koya, 2024

Inferential analysis revealed a statistically significant association between parenting style and the risk of stunting. Negative parenting styles were substantially more common among mothers of children at risk of stunting, whereas positive parenting styles predominated in the non-stunting group (Table 2).

Table 2. Association Between Parenting Style and Stunting Risk

Parenting Style	Stunting (%)	Non-Stunting (%)	p-value	OR (95% CI)
Positive	35.3	70.6	0.001	0.227 (0.099–0.522)
Negative	64.7	29.4		

Source: Primary Data, 2024

The Odds Ratio indicated that children who experienced positive parenting were significantly less likely to be stunted, suggesting a strong protective effect of responsive and structured caregiving practices. A significant association was found between parenting style and risk of stunting ($p < 0.001$). Positive parenting reduced the likelihood of stunting by approximately 77%.

Discussion

This study demonstrates that parenting style is significantly associated with stunting risk among children aged 25–59 months. The strong relationship between negative parenting practices and stunting supports existing evidence that inadequate caregiving behaviors contribute to suboptimal nutritional intake and impaired growth (Handryastuti et al., 2022; Shenoy et al., 2020). Children raised in environments characterized by low parental responsiveness and limited supervision are more likely to experience irregular feeding patterns and insufficient dietary quality, thereby increasing the risk of chronic undernutrition.

The protective effect of positive parenting styles observed in this study is consistent with previous findings showing that responsive caregiving enhances feeding interactions and promotes dietary adequacy (Watson et al., 2023; Chilot et al., 2023). Importantly, this study extends previous research by demonstrating that parenting style may mediate the influence of socioeconomic disadvantage on child growth outcomes.

While low income and limited maternal education were more common among stunting cases, these factors alone did not fully explain differences in nutritional status, suggesting that adaptive parenting behaviors may buffer children against the adverse effects of poverty.

From a public health perspective, these findings underscore the importance of integrating behavioral and psychosocial components into stunting prevention programs. Community health nurses are strategically positioned to deliver parenting education focused on responsive feeding, caregiver–child interaction, and daily care routines. Addressing parenting style as a modifiable determinant may enhance the effectiveness and sustainability of nutrition-specific interventions.

Conclusion

This study concludes that parenting style is significantly associated with stunting risk among children aged 25–59 months. Positive parenting practices substantially reduce the likelihood of stunting, even within socioeconomically vulnerable populations. These findings highlight the need for comprehensive stunting prevention strategies that integrate parenting education and caregiver support alongside conventional nutritional interventions. Longitudinal studies are recommended to clarify causal pathways further and evaluate the long-term impact of parenting-focused interventions.

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