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**Original Research**

# Parenting Styles and Eating Behaviors Among Stunted Toddlers

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**ABSTRACT**

***Background:*** *Stunting remains a significant public health challenge in Indonesia, affecting 21.6% of children under five. While nutritional interventions are commonly implemented, the role of parenting styles in shaping eating behaviors among stunted children requires further investigation. This study explored how different parenting approaches relate to eating behaviors in stunted toddlers.*

***Methods:*** *A cross-sectional study was conducted using a consecutive sampling technique, involving 132 mothers with stunted toddlers aged 24–59 months at Kalijaga Permai Community Health Center, Cirebon City, between February and May 2025. Parenting styles were measured using the Parenting Styles Four Factor Questionnaire (PS-FFQ), while eating behaviors were assessed through a validated 6-item questionnaire. Spearman's rank correlation was applied to analyze the relationships between parenting styles and eating behaviors.*

***Results:*** *Findings revealed that authoritarian parenting was most common (38.7%), followed by democratic (26.5%), permissive (25.0%), and uninvolved (9.8%) parenting styles. Nearly seven out of ten children (68.2%) exhibited problematic eating behaviors. Democratic parenting demonstrated the strongest positive relationship with healthy eating patterns ($r=0.681$, $p<0.001$). In contrast, authoritarian parenting showed a moderate negative association ($r=-0.428$, $p<0.001$), while permissive parenting displayed a weak negative correlation ($r=-0.215$, $p=0.013$). Uninvolved parenting showed no significant relationship with eating behaviors ($r=-0.013$, $p=0.885$).*

***Conclusion:*** *Parenting styles are meaningfully associated with eating behaviors among stunted toddlers, with democratic parenting showing the strongest connection to healthier eating patterns. These findings suggest that stunting prevention programs should integrate parenting education focused on responsive feeding practices alongside traditional nutritional interventions.*

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## INTRODUCTION

Stunting represents a critical public health challenge with profound long-term implications for child development and national human capital. This condition, characterized by chronic nutritional deficiency resulting in impaired linear growth, affects millions of children globally and remains a persistent obstacle to achieving sustainable development goals. The World Health Organization's 2020 data revealed that approximately 149.2 million children under five years old, representing 22% of the global population, suffer from stunting (Erviana et al., 2024). This alarming prevalence underscores the urgency of comprehensive interventions targeting both immediate and underlying determinants of child malnutrition.

Indonesia continues to grapple with significant stunting prevalence despite substantial policy efforts and resource allocation. The 2022 Indonesian Nutritional Status Survey (Survei Status Gizi Balita Indonesia/SSGBI) documented a national stunting prevalence of 21.6%, considerably exceeding the government's ambitious target of 14% by 2024 (Erviana et al., 2024; Hermawan & Pusparani, 2023). This gap between current reality and policy objectives highlights the complexity of addressing stunting through conventional nutritional interventions alone. At the provincial level, West Java recorded a prevalence of 20.2%, while Cirebon City demonstrated a relatively low yet still concerning rate of 17.0%. Within the operational area of Kalijaga Permai Primary Health Center, 263 toddlers were identified with stunting in 2023, indicating a concentrated burden requiring targeted intervention strategies.

The multifactorial nature of stunting necessitates examination beyond nutritional adequacy to encompass broader determinants including caregiving practices and family dynamics. Previous research has established that stunting results from complex interactions between immediate causes such as inadequate dietary intake and infectious diseases, and underlying factors including household food insecurity, suboptimal caregiving practices, and limited access to healthcare services (Aryu, 2020). Among these determinants, parenting style emerges as a particularly influential yet often overlooked factor that shapes children's eating behaviors and nutritional outcomes through complex psychosocial pathways.

Recent evidence suggests that parenting styles significantly influence children's eating behaviors through mechanisms involving emotional regulation, autonomy development, and behavioral modeling. Cahyaningsih et al. (2024) demonstrated significant correlations between parental feeding styles and stunting incidence among toddlers in Papua, revealing that inappropriate feeding practices increased stunting risk by 3.2-fold. Similarly, research by Dayuningsih et al. (2020) identified that majority of mothers employed excessive efforts to encourage eating, with most still practicing spoon-feeding approaches that potentially undermined children's self-regulation capacities. These findings suggest that beyond nutritional knowledge, the quality of parent-child interactions during feeding significantly determines nutritional outcomes.

The theoretical framework of parenting styles, as conceptualized by Baumrind and refined through subsequent research, provides crucial insights into how different approaches to child-rearing influence developmental outcomes. Authoritarian parenting, characterized by high demandingness and low responsiveness, may create stressful feeding environments that compromise children's appetite regulation and food acceptance. Conversely, authoritative (democratic) parenting, balancing appropriate boundaries with emotional warmth, has been associated with healthier eating patterns and better nutritional status (Rosyida et al., 2024; Wang et al., 2022). Permissive and

uninvolved parenting styles present their own risks, potentially leading to irregular eating patterns and inadequate nutritional intake through different pathways of dysfunction.

Despite growing recognition of parenting's importance in child nutrition, our understanding of these relationships remains incomplete in several critical areas. While international research has documented associations between parenting styles and eating behaviors in generally well-nourished children, we know remarkably little about how these dynamics operate among children who are already stunted. These children may respond differently to parenting approaches due to the physiological and psychological effects of chronic malnutrition (Maulina et al., 2024).

Moreover, most Indonesian studies have examined feeding practices without considering the broader parenting context in which these practices occur. What remains particularly unclear is how different parenting styles translate into eating behaviors within Indonesian cultural settings, where multigenerational households, traditional beliefs about child feeding, and local caregiving norms may fundamentally alter the relationships documented in Western populations. Although Maulina et al. (2024) highlighted the need for culturally-sensitive approaches to understanding feeding patterns among stunted Indonesian children, we still lack concrete data on how these relationships actually manifest in urban Indonesian communities.

A closer look at existing research reveals another important gap: while numerous studies have explored either parenting or nutrition in isolation, few have systematically examined how the four distinct parenting styles relate to specific eating problems in children experiencing active growth faltering. This distinction matters because interventions for children with established stunting may need to differ from prevention strategies aimed at healthy children. The situation becomes even more complex when we consider local contexts.

To our knowledge, no research has investigated these parenting-nutrition relationships specifically in Cirebon City, where the intersection of urban poverty, diverse educational backgrounds, and local feeding traditions creates a unique environment that may shape both how parents interact with their children during meals and how these interactions influence eating behaviors. Without understanding these local dynamics, we risk designing interventions that overlook the behavioral and relational factors that may be just as important as nutritional content in addressing stunting. Current interventions often focus heavily on food supplementation while potentially missing critical opportunities to support healthier feeding interactions within families.

To address these knowledge gaps, we designed this study to examine how parenting styles relate to eating behaviors among stunted toddlers in Cirebon City. This study had three specific aims: first, to identify the most common parenting styles among families with stunted children; second, to determine the prevalence of problematic eating behaviors in this population; and third, to examine how different parenting approaches—authoritarian, democratic, permissive, and uninvolved—correlate with children's eating patterns.

By focusing on children already experiencing stunting rather than prevention alone, the study is expected to provide insights that can inform more comprehensive recovery strategies. These strategies may complement nutritional supplementation by addressing the quality of parent–child feeding interactions. Ultimately, the findings may help shift the perspective from viewing parents merely as food providers to recognizing them as key partners in shaping children's relationships with food and eating, with implications extending beyond early childhood.

## MATERIALS AND METHOD

This investigation employed an analytical observational study with a cross-sectional approach, selected for its capacity to simultaneously examine the relationship between parenting styles and eating behaviors among stunted toddlers within a defined temporal framework. The cross-sectional design enabled efficient data collection while capturing the complex interplay between parenting practices and child nutritional behaviors in real-world settings. This methodological approach aligned with similar studies examining parenting-nutrition relationships, as demonstrated by Cahyaningsih et al. (2024) in their Papua-based investigation, thereby facilitating comparative analysis across Indonesian contexts.

The target population encompassed all mothers with stunted toddlers across primary health centers in Cirebon City. The accessible population was strategically defined as mothers with stunted toddlers actively participating in integrated health service posts (posyandu) within the Kalijaga Permai Primary Health Center operational area. This delimitation ensured feasibility while maintaining representativeness of the broader stunting burden in urban Cirebon contexts.

This study employed consecutive sampling methodology, systematically enrolling all eligible participants who met our predetermined criteria during the study period from February to May 2025. The consecutive sampling technique was chosen because the accessible population of stunted toddlers was relatively small (n =196) and the research time was limited, allowing researchers to recruit a larger proportion of cases compared to random sampling. This approach also ensures more comprehensive representation of parenting patterns, including those that are less common in the population. In addition, consecutive sampling helps reduce selection bias by including all mothers who meet the criteria and are present at the health center during the study period without subjective decisions by the researcher.

This study used consecutive sampling by recruiting all mothers with stunted toddlers aged 24–59 months who met the inclusion criteria and attended the health center in the working area of the Kalijaga Permai Community Health Center, Cirebon City, during the data collection period from February to May 2025. This nonprobability technique was chosen to maximize the number of participants in a limited population, ensure representation of variations in parenting patterns, and minimize selection bias by researchers, although the generalization of findings is limited to the study population. Exclusion criteria included mothers or toddlers who were unwilling to participate, were absent during the data collection period, or had certain health conditions that could affect the measurement of research variables.

The sample size in this study was determined using the Slovin formula because the population size of stunted toddlers was known and relatively small, namely 196 children registered at the Kalijaga Permai Community Health Center. With an acceptable error rate of 5% (e = 0.05), a sample size of 132 respondents was obtained, which was considered sufficient to provide statistical power of more than 80% in detecting a moderate correlation at a significance level of $\alpha = 0.05$. This number also represents about 67% of the reachable population, thus reflecting the local burden of stunting while considering the limitations of research resources and time (Argaw et al., 2021). The calculation proceeded as follows:

$$n = N/(1 + Ne^2)$$

This sample size of 132 provided us with adequate statistical power (greater than 80%) to detect medium-sized correlations ($r \geq 0.30$) at our significance level of $\alpha = 0.05$, based on standard power analysis calculations for correlation studies. While a larger sample would certainly have been ideal for precision, our calculated sample size represented a substantial proportion—67%—of the accessible population. This meant we were capturing a significant portion of the local stunting burden while still keeping the study manageable within our resource and time constraints.

This study collected data using two validated questionnaires, both administered through face-to-face interviews to ensure we captured complete and accurate information from participants. To measure parenting styles, we used the Parenting Styles Four Factor Questionnaire (PS-FFQ), which assesses caregiving approaches across four distinct dimensions based on Baumrind's well-established parenting typology. The questionnaire contains 32 items split evenly across the four parenting categories: 8 items each for authoritarian, democratic, permissive, and uninvolved styles. For each item, mothers responded using a 5-point scale ranging from "never" (scored as 1) to "always" (scored as 5). This means each parenting dimension received a subscale score ranging from 8 to 40. We used the Indonesian adaptation developed by Zulfikar Rahadian, which has demonstrated excellent reliability in Indonesian populations with a Cronbach's alpha of 0.968—well above the generally accepted threshold for good internal consistency.

When it came to categorizing each mother's predominant parenting style, we took a comparison-based approach rather than using absolute cut-off scores. Here's how it worked: for each participant, we calculated her scores across all four parenting subscales, then identified which dimension had the highest score. That became her designated predominant parenting style. So, for example, if a mother scored 35 on democratic parenting, 28 on authoritarian, 22 on permissive, and 15 on uninvolved, we would classify her as having a predominantly democratic parenting style.

For assessing eating behaviors, this research used a questionnaire that Rohma Rifani had previously validated (2021) specifically with Indonesian toddler populations. This instrument contains 6 items that evaluate eating problems commonly seen in young children, particularly those experiencing growth challenges. The items assess things like whether children refuse food, show extreme pickiness about what they'll eat, take more than 30 minutes to finish meals, behave disruptively during mealtimes, prefer liquids over solid foods, or will only eat when distracted. Mothers responded to each item using the same 5-point Likert scale we used for parenting (1=never to 5=always), producing total scores that could range from 6 to 30. The questionnaire has shown strong reliability, with a Cronbach's alpha of 0.880, and all items correlated well with the total score ($r > 0.3$).

To categorize children as having "problematic" versus "non-problematic" eating behaviors, reseacher used what's called a median split approach. Essentially, researchers calculated the median score across all our participants and used that as our dividing line. Children scoring 22 or above were classified as having problematic eating behaviors, while those scoring below 22 were considered to have non-problematic patterns. This approach was chosen because it produced a relatively balanced group division, thereby supporting the strength of statistical analysis. In addition, the use of median values reflects the actual distribution of eating problems in stunted toddlers and is consistent with the method used in previous validation studies that effectively distinguished levels of eating difficulty (Rifani, 2021).

The research implementation followed a systematic three-phase protocol ensuring methodological rigor and ethical compliance. The preparatory phase encompassed

stakeholder engagement, instrument preparation, and administrative coordination with health center leadership. During this phase, research assistants received standardized training on interview techniques, questionnaire administration, and ethical considerations in vulnerable population research.

The implementation phase involved direct questionnaire administration during routine posyandu sessions, capitalizing on existing health service utilization patterns to minimize participant burden. Trained enumerators conducted structured interviews in Bahasa Indonesia or local dialect as preferred by respondents, ensuring linguistic accessibility. Each interview session lasted approximately 20-30 minutes, conducted in private areas to maintain confidentiality and reduce social desirability bias. The completion phase focused on data quality assurance through systematic verification procedures. All questionnaires underwent immediate review for completeness, with clarification sought for ambiguous responses before participants departed. This real-time quality control minimized missing data and enhanced response accuracy.

Bivariate analysis examined associations between parenting styles and eating behaviors using Spearman's rank correlation coefficient, appropriate given the ordinal nature of Likert-scaled variables and potential non-normal distributions. The Spearman correlation ($\rho$) quantified both strength and direction of relationships, with interpretation following Cohen's conventions: 0.10-0.29 (weak), 0.30-0.49 (moderate), and $\geq$0.50 (strong). Statistical significance was evaluated at $\alpha = 0.05$, with two-tailed tests acknowledging bidirectional hypotheses.

This investigation received comprehensive ethical approval from the Health Research Ethics Committee, Faculty of Medicine, Universitas Swadaya Gunung Jati Cirebon (Ethical Clearance No. 76/EC/FKUGJ/IV/2025), affirming compliance with national and international ethical standards for human subject's research. The ethical framework prioritized participant welfare through systematic application of bioethical principles.

The informed consent procedure in this study ensures voluntary participation by providing clear information about the objectives, procedures, benefits, and potential risks of the study, as well as the participants' right to withdraw at any time without affecting their access to health services. The principles of beneficence, non-maleficence, confidentiality, and fairness are applied by minimizing risks, providing educational benefits, protecting identities through de-identification and secure data storage, and treating all participants equally.

## RESULTS

### Characteristics of Respondents

Table 1. present the demographic characteristics of our 132 study participants, covering both child and maternal variables.

**Table 1.** Demographic Characteristics of Study Participants (n =132)

| Variables | Frequency (n) | Percentage (%) |
|---|---|---|
| **Child age** | | |
| 24-30 months | 55 | 41.6 |
| 31-36 months | 40 | 30.3 |
| 37-42 months | 26 | 19.7 |
| 43-48 months | 8 | 6.1 |
| >48 months | 3 | 2.3 |

| Variables | Frequency (n) | Percentage (%) |
|---|---|---|
| **Child Gender** | | |
| Male | 62 | 47.0 |
| Female | 70 | 53.0 |
| **Maternal Age** | | |
| 18-22 years | 4 | 3.0 |
| 23-27 years | 43 | 32.6 |
| 28-32 years | 62 | 47.0 |
| 33-37 years | 21 | 15.9 |
| >37 years | 2 | 1.5 |
| **Maternal Education** | | |
| Elementary School | 18 | 13.6 |
| Junior High School | 61 | 46.2 |
| Senior High School | 50 | 37.9 |
| Bachelor`s Degree | 3 | 2.3 |

Participants included children across the toddler age range, with the largest groups being those aged 24-30 months (41.6%) and 31-36 months (30.3%). We enrolled slightly more girls (53.0%) than boys (47.0%). The mothers in our study were primarily in their late twenties to early thirties, with nearly half (47.0%) aged 28-32 years and about one-third (32.6%) aged 23-27 years. Looking at educational background, we found that most mothers had completed either junior high school (46.2%) or senior high school (37.9%), while 13.6% had elementary education and just 2.3% held bachelor's degrees.

**Parenting Styles Distribution Among Stunting Families**

Table 2 shows how parenting styles were distributed among the mothers we studied.

**Table 2.** Distribution of Parenting Styles Among Mothers of Stunted Toddlers (n = 132)

| Parenting Style | Frequency (n) | Percentage (%) |
|---|---|---|
| Authoritarian | 51 | 38.7 |
| Democratic | 35 | 26.5 |
| Permissive | 33 | 25.0 |
| Uninvolved | 13 | 9.8 |
| **Total** | **132** | **100** |

This study found that authoritarian parenting was the most common approach, accounting for more than one-third of mothers (38.7%). Democratic parenting was present in about one-quarter of families (26.5%), with permissive parenting at a similar level (25.0%). Uninvolved parenting was the least common style, observed in fewer than one in ten mothers (9.8%).

**Eating Behavior Patterns Among Stunted Toddlers**

Table 3 presents how we categorized the eating behaviors we observed in these children. More than two-thirds of the stunted toddlers in our study (68.2%) showed problematic eating behaviors, while about one-third (31.8%) exhibited non-problematic eating patterns.

**Table 3.** Distribution of Eating Behaviors Among Stunted Toddlers (n = 132)

| Eating Behavior Category | Frequency (n) | Percentage (%) |
|---|---|---|
| Non-Problematic | 42 | 31.8 |
| Problematic | 90 | 68.2 |
| **Total** | **132** | **100** |

**Relationships Between Parenting Styles and Eating Behaviors**

Table 4 brings together our findings on how each parenting style is related to children's eating behaviors. This study has included both the distribution of eating problems across parenting styles and the correlation statistics for each relationship.

**Table 4.** Association Between Authoritarian Parenting and Eating Behaviors (n = 132)

| Parenting Style | Category | Non-Problematic (n, %) | Problematic (n, %) | p-value* | r |
|---|---|---|---|---|---|
| **Authoritarian** | Present | 4 (3.0) | 47 (35.6) | **<0.001** | **−0.428** |
| | Absent | 38 (28.8) | 43 (32.6) | | |
| **Democratic** | Present | 30 (22.7) | 5 (3.8) | **<0.001** | **0.681** |
| | Absent | 12 (9.1) | 85 (64.4) | | |
| **Permissive** | Present | 4 (3.0) | 29 (22.0) | **0.013** | **−0.215** |
| | Absent | 38 (28.8) | 61 (46.2) | | |
| **Uninvolved** | Present | 4 (3.0) | 9 (6.8) | **0.885** | **−0.013** |
| | Absent | 38 (28.8) | 81 (61.4) | | |

Note: * Spearman's rank correlation coefficient

This study found that the vast majority of their children—92.2%, exhibited problematic eating behaviors. This contrasted sharply with children whose mothers used other parenting styles, where just over half (53.1%) showed eating problems. The statistical analysis revealed a moderate negative correlation between authoritarian parenting and healthy eating patterns ($\rho = -0.428$, $p < 0.001$), meaning that as authoritarian parenting increased, non-problematic eating behaviors decreased.

The pattern we observed with democratic parenting was notably different. Among children whose mothers used this approach, only 14.3% showed problematic eating behaviors striking contrast to the 87.6% rate among children of non-democratic parents. This relationship produced the strongest correlation we found in our study: a strong positive association between democratic parenting and healthy eating behaviors ($\rho = 0.681$, $p < 0.001$).

Permissive parenting showed a pattern somewhat similar to authoritarian parenting, though less pronounced. We found that 87.9% of children with permissive parents exhibited problematic eating, compared to 61.6% among children whose parents weren't permissive. The correlation was statistically significant but weaker than what we saw with authoritarian or democratic styles ($\rho = -0.215$, $p = 0.013$).

Interestingly, uninvolved parenting showed quite different results from the other styles. The rates of problematic eating were similar whether or not parents were classified as uninvolved—69.2% for uninvolved parents versus 68.1% for others. Correspondingly,

we found no statistically significant relationship between uninvolved parenting and eating behaviors ($\rho = -0.013$, $p = 0.885$).

## DISCUSSION

In this study, we examined how parenting styles relate to eating behaviors among 132 stunted toddlers at Kalijaga Permai Primary Health Center in Cirebon City. Our findings revealed significant associations between specific parenting approaches and children's eating patterns, though we want to emphasize from the outset that these cross-sectional associations cannot tell us about cause and effect.

### Parenting Style Distribution in Families with Stunted Children

This study found that authoritarian parenting was the most common approach in our sample, present in more than one-third of mothers (38.7%). This finding resonates with what Erick (2022), observed in East Nusa Tenggara, where authoritarian parenting similarly emerged as the predominant style among families with stunted children. Interestingly, our prevalence was slightly higher than the 34.5% Erick reported, which might reflect differences between our urban setting and their more rural context, or simply regional variation in how parents approach child-rearing across Indonesia. That said, our findings paint a somewhat different picture from what Rosyida et al. (2024) found in Central Java, where they saw a more balanced distribution across parenting styles. These geographical differences suggest to us that local cultural contexts and socioeconomic conditions likely shape parenting patterns in different ways across Indonesian regions.

When reseachers compare our findings that only about one-quarter of mothers (26.5%) used democratic parenting to what researchers have found in general populations, the contrast is striking. Rosyida et al. (2024) reported that authoritative (democratic) parenting typically predominates in Western populations, often exceeding 40% prevalence. The fact that democratic parenting was relatively underrepresented in our sample of families with stunted children caught our attention.

We suspect this might relate to educational and socioeconomic constraints—after all, nearly 60% of our participants had completed only elementary or junior high school. Previous research has shown connections between lower educational attainment and different parenting practices, though we need to be careful not to assume that education directly shapes parenting choices. Both might be influenced by broader socioeconomic factors that we didn't measure.

### Prevalence of Problematic Eating Behaviors

The fact that more than two-thirds of children in our study (68.2%) showed problematic eating behaviors aligns remarkably well with what Wahyuni et al. (2021), found in their national Indonesian study, where they reported 68.6% prevalence. This consistency across different settings suggests to us that eating difficulties are quite common among stunted children throughout Indonesia.

What makes this even more noteworthy is how much higher this rate is compared to general pediatric populations, where problematic eating typically affects only about 25-35% of children (Wulandari et al., 2024). While this substantial difference suggests some kind of connection between stunting and eating problems, we can't determine from our data whether eating difficulties might contribute to stunting development, whether being stunted somehow leads to eating problems, or whether both might share common roots in things like food insecurity or caregiver stress that we didn't directly measure.

The high rate of eating problems we observed fits with what Wulandari et al. (Wulandari et al., 2024) documented among stunted children in Papua. Cultural factors might also play a role here. Maulina et al. (2024) used a transcultural nursing approach to identify how traditional feeding beliefs and practices in Indonesian communities sometimes clash with what's recommended for responsive feeding. We didn't directly measure cultural beliefs in our study, so we can only flag this as something worth exploring in future research.

**Association Between Authoritarian Parenting and Eating Behaviors**

When reseachers looked at the relationship between authoritarian parenting and eating behaviors, we found a moderate negative correlation ($\rho = -0.428$, $p < 0.001$). What this meant in practical terms was that among the authoritarian parents in our sample, 92.2% of their children showed problematic eating patterns, compared to just over half (53.1%) among non-authoritarian parents. This pattern aligns with what Wang et al. (2022) found in their meta-analysis of longitudinal studies, where non-responsive feeding practices—which are characteristic of authoritarian approaches—were associated with poorer eating outcomes in children over time.

Our correlation coefficient falls right in line with what Ayu et al. (2023) reported. They found similar negative associations ($r = -0.39$) between controlling feeding practices and child nutritional status in Indonesian contexts. However, we need to acknowledge an important limitation in interpreting this correlation: it doesn't tell us which came first. It's entirely possible that some mothers develop authoritarian feeding responses after struggling with their children's eating difficulties, rather than their controlling approach causing the problems. Dayuningsih et al. (2020) made this same point, noting that many mothers turn to pressuring and controlling tactics out of frustration when children refuse food. This suggests the relationship might work in both directions.

**Association Between Democratic Parenting and Eating Behaviors**

The relationship we observed between democratic parenting and healthy eating was the strongest we found in our entire study—a robust positive correlation of $\rho = 0.681$, $p < 0.001$. In real-world terms, this meant that only 14.3% of children with democratic parents showed eating problems, compared to a whopping 87.6% among children whose parents weren't using this approach. This finding supports a large body of research establishing connections between authoritative parenting and positive child outcomes, including around nutrition and eating (Rosyida et al., 2024).

What's particularly interesting is that our correlation appears stronger than what researchers typically report in Western studies, where authoritative parenting-nutrition associations generally hover between $r = 0.30$ and $r = 0.50$. One possibility is that there's simply more variability in both parenting practices and eating problems among stunted populations compared to general populations, which could make correlations appear stronger.

Another thought is that the relationship between responsive parenting and eating behaviors might be especially important in contexts where children are nutritionally vulnerable. That said, we can't rule out the possibility that other factors we didn't measure—things like maternal education, household food security, or even child temperament—might be influencing both parenting style and eating behaviors, creating what looks like a strong direct relationship when it's actually more complex (Rosyida et al., 2024).

**Association Between Permissive Parenting and Eating Behaviors**

Permissive parenting showed a weaker but still statistically significant negative correlation with healthy eating ($\rho = -0.215$, $p = 0.013$). This finding echoes what Aboka et al. (2024) reported when they looked at associations between permissive parenting and nutritional problems in Indonesian toddlers, though their correlation ($r = -0.28$) was a bit stronger than ours. The fact that our association was weaker compared to what we saw with authoritarian parenting suggests something interesting: while a lack of structure might be linked with eating difficulties, it may not be as strongly connected as active controlling behaviors.

Our results parallel what Ayu et al. (2023) observed—they found that children under permissive care tended to show irregular eating patterns and struggled with self-regulation around food. However, we want to be cautious about how we interpret this. Both permissive parenting and child eating might reflect broader issues with family functioning rather than representing a direct relationship between the two. Future research using more sophisticated statistical approaches like structural equation modeling could help untangle these complex relationships.

**Lack of Association with Uninvolved Parenting**

Here's where our findings surprised us: we found essentially no relationship between uninvolved parenting and eating behaviors ($\rho = -0.013$, $p = 0.885$). This goes against what we expected based on theory and some previous research suggesting that neglectful parenting should be associated with the poorest outcomes for children (Rohmawati et al., 2023). We've been considering several possible explanations for this unexpected finding.

First, we had relatively few uninvolved parents in our sample (only 13), which may have limited our ability to detect a relationship even if one exists. Second, as Suryawan et al. (2022) suggested, the ways uninvolved parenting affects nutrition might work through different pathways that we didn't capture in our eating behavior questionnaire—things like whether food is even available in the home or whether basic care is being provided. Third—and this is particularly relevant in Indonesian contexts—many families live in multigenerational households where grandparents or other extended family members might step in when parents are less involved, potentially protecting children from some of the negative effects. Reseachers want it to be clear that these are just possible explanations, and what our findings actually show is simply that we didn't observe a significant association in this particular sample.

**Implications for Public Health Practice**

Despite these limitations, we believe our findings point to some potentially important directions. The associations we observed between parenting styles and eating behaviors suggest that interventions aimed at helping stunted children might benefit from addressing not just what children eat, but how feeding interactions and parent-child relationships unfold around food. However, we want to emphasize that intervention research is actually needed to test whether parenting education really improves eating behaviors and nutritional outcomes in this population—we can't just assume it will be based on correlational data.

The particularly strong association we found with democratic parenting suggests to us that programs promoting responsive feeding practices might be worth investigating in populations of stunted children. Of course, as Maulina et al. (2024) emphasized, any such

interventions would need to be carefully adapted to Indonesian cultural contexts rather than simply imported from other settings. The fact that authoritarian parenting was so common in our sample—present in more than one-third of families—suggests that many parents might benefit from learning about alternative approaches. That said, we need to be careful not to assume that changing parenting practices will automatically improve child outcomes without actually testing this through well-designed intervention studies.

Looking ahead, reseachers see several important directions for future research. Reseachers need longitudinal studies that can examine how parenting and eating behaviors influence each other over time. Reseachers need research that includes broader assessment of family circumstances and environmental factors that might be shaping both parenting and nutrition. Reseachers 'd benefit from studies that use observational methods alongside self-report measures to get a more complete picture. And most importantly, reseachers need intervention research that actually tests whether programs addressing parenting practices lead to real improvements in how children eat and grow. Only through such research can we move from observing associations to understanding what actually works to help these vulnerable children and their families.

**Study Limitations and Future Reseach**

Reseachers need to be upfront about several important limitations that should be kept in mind when interpreting our findings. First and foremost, our cross-sectional design means we captured a snapshot at one point in time, which fundamentally limits what we can conclude about cause and effect. Even when we find strong correlations, we simply cannot determine from our data whether certain parenting styles lead to particular eating behaviors, whether children's eating problems shape how parents respond, or whether both are influenced by other factors entirely. To answer those questions, we would need longitudinal research that follows families over time.

Second, our use of consecutive sampling and the fact that we studied a relatively small group from just one health center means our findings might not apply to other Indonesian regions or to families in different socioeconomic situations. Third, reseachers relied on mothers to report both their own parenting practices and their children's eating behaviors. This creates potential for what researchers call social desirability bias—mothers might present themselves or their children in a more favorable light—and something called shared method variance, where using the same measurement approach for both variables can artificially inflate the correlations we observe. Studies that actually observe parent-child interactions would give us more objective data.

Fourth, there are several potentially important factors we didn't measure that could be influencing both parenting and eating behaviors. These include things like whether families have reliable access to food, maternal mental health, child temperament, and overall family functioning. Any of these could be creating relationships that look direct but are actually more complicated. Fifth, while our decision to categorize eating behaviors as either problematic or non-problematic was useful for statistical analysis, it might not capture the full range of feeding difficulties that children experiencing problems exist on a spectrum. Finally, our parenting style assessment captured mothers' predominant approaches but didn't account for how they might vary their parenting in different situations or specifically during mealtimes, which might be particularly relevant for understanding dynamics.

## CONCLUSION

In this cross-sectional study of 132 stunted toddlers in Cirebon City, we found that parenting styles showed significant associations with children's eating behaviors. Authoritarian parenting, which we observed in more than one-third of mothers, demonstrated a moderate negative correlation with healthy eating patterns. Democratic parenting, present in about one-quarter of families, showed the strongest relationship we found—a robust positive correlation with non-problematic eating. Permissive parenting was associated with eating difficulties as well, though weaker, while uninvolved parenting showed no significant relationship. Overall, we found that two-thirds of these stunted children exhibited problematic eating behaviors.

These correlational findings suggest to us that how parents approach feeding and caregiving is meaningfully connected to eating patterns in stunted toddlers, with democratic parenting showing the strongest positive relationship with healthy eating. However, because the study examined families at only one point in time, it cannot determine whether parenting approaches influence children's eating behaviors, whether children's eating problems shape parental responses, or whether both reflect unmeasured family circumstances. Therefore, longitudinal research that follows families over time, as well as intervention studies that evaluate whether promoting more responsive feeding practices leads to meaningful improvements in eating behaviors and nutritional outcomes among stunted children, is required.

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## CONFLICT OF INTERESTS

The author declares that there is no conflict of interest in this research.

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