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Original Research

Correlation of Parental Feeding Practices with the Incidence of Stunting Among Children Aged 12–59 Months in Samigaluh, Kulon Progo

Dina Arisonaningtyas[1,*], Annisa Rahmania Yulman[2] and Pratiwi Putri Masrul[3]

[1]Center of Excellence Department, JIH Hospital Yogyakarta, Sleman, Yogyakarta 55283, Indonesia
[2]Child Health Department, Faculty of Medicine, Universitas Indonesia, Depok 16424, Indonesia
[3]Mother and Child Hospital Harapan Bunda, Bandung 40286, Indonesia

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***Correspondence:**
Dina Arisonaningtyas
Address: 1Center of Excellence Department, JIH Hospital Yogyakarta, Sleman, Yogyakarta 55283, Indonesia.
Email: dinaarisona.dr@gmail.com

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ABSTRACT

Background: Stunting represents a severe global health burden, affecting over 50% of children under five worldwide. In Indonesia, it remains a pressing national health concern. According to the 2022 Indonesian Nutrition Status Survey, Yogyakarta Province reported a stunting prevalence of 16.4%, with Kulon Progo Regency contributing 15.8% of cases. The first 1000 days of life constitute a critical window for nutritional intervention, wherein parental feeding practices significantly influence childhood growth trajectories and nutritional outcomes. This study aimed to comprehensively analyze the correlation between distinct parental feeding practices and stunting incidence among children aged 12-59 months in Samigaluh, Kulon Progo. **Methods:** A cross-sectional analytical study was conducted utilizing stratified random sampling to recruit 26 respondent pairs of parents and children. Data collection incorporated a validated parental feeding practices questionnaire assessing feeding styles through structured interviews, combined with direct anthropometric measurements using standardized techniques. Statistical analysis employed chi-square tests using IBM SPSS Statistics version 26.0, with significance set at $p < 0.05$. **Results:** The study found a high stunting prevalence of 80.8% (21/26). Democratic feeding practices were employed by 18 parents. Non-democratic practices increased the risk of stunting by 1.7 times ($p = 0.014$), while permissive practices doubled the risk ($p = 0.0005$) compared to non-permissive approaches. However, authoritarian practices showed no statistically significant association with stunting. **Conclusions:** Parental feeding practices exhibit a substantial correlation with stunting incidence in this community. Public health initiatives should prioritize educational interventions promoting responsive, non-permissive feeding strategies to effectively reduce stunting prevalence in this vulnerable population.

Keywords: Parental feeding practices; stunting; toddlers; child nutrition; growth monitoring

1. INTRODUCTION

Nutritional status is a fundamental determinant in developing quality human resources for any nation. A persistent global nutritional challenge is stunting among children under five. Stunting is defined as impaired growth in children under five years of age resulting from chronic malnutrition and recurrent infections, particularly during the

first 1000 days of life. This condition is associated with multiple factors including socioeconomic status, dietary intake, infections, maternal nutritional status, infectious diseases, micronutrient deficiencies, and environmental factors.[1,2] Stunting, characterized by a height-for-age z-score below two standard deviations based on World Health Organization growth standards, is considered irreversible.[3]

According to the UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates 2025, the global prevalence of stunting among children under five reached 148.1 million cases, with 52% residing in Asia and 43% in Africa.[4] While stunting reduction has been a global agenda since 2000, accelerated efforts are required to achieve the Sustainable Development Goals target. Data gaps across multiple countries complicate accurate assessment of global stunting reduction progress.

The 2023 Indonesian Health Survey reported a national stunting prevalence of 21.5%, indicating that one in five Indonesian children under five experiences stunting, with the highest prevalence occurring in the 24-35 month age group.[4] The Special Region of Yogyakarta recorded a stunting prevalence of 16.4% according to the 2022 Indonesian Nutritional Status Survey. Kulon Progo Regency has identified 10 stunting prevention focus areas with a target of zero stunting by 2030. Data from the Kulon Progo District Health Office indicates 3,157 stunted children in the 0–59-month age group. The highest prevalence is found in the Samigaluh II Community Health Center coverage area with a stunting rate of 26.8%.[4]

The etiology of stunting is multifactorial and can occur across three periods: prenatal, birth, and postnatal. The first 1000 days of life represent the critical window for stunting prevention. Theurich et al. (2020) emphasized that complementary feeding practices during this period have long-term health implications, with appropriate feeding being essential for optimal growth and development.[5] Maternal and family education serves as a primary factor in stunting prevention through optimization of child growth during this crucial period. Several factors influencing stunting include parenting practices, economic status, low birth weight, and nutritional intake (exclusive breastfeeding, dietary diversity, and animal-sourced complementary foods).[1] Stunting yields long-term consequences for individuals and societies, including impaired cognitive abilities, reduced academic achievement, diminished earning potential in adulthood, decreased productivity, and when accompanied by excessive weight gain in later childhood, increased risk of nutrition-related chronic diseases in adulthood.[1]

A systematic review by Munawar et al. (2024) highlighted that parenting and feeding practices are critical determinants of children's feeding behavior and growth outcomes across Asian countries, with responsive feeding styles consistently associated with better nutritional status.[6] Similarly, Makwela et al. (2025) identified that sub-optimal complementary feeding practices remain prevalent in low- and middle-income countries, with caregiver knowledge, education, and socioeconomic status being key determinants.[2] Nutritional intake provided by parents constitutes a critical determinant of children's nutritional status. Adequate dietary intake can prevent growth and development impairments, reduce infection risk, and prevent mortality.[5] Yunitasari et al. (2022) found that in Indonesia, factors such as maternal education, household economic status, and access to health services significantly influence complementary feeding practices among children aged 6-23 months, ultimately affecting nutritional outcomes.[7] Astuti et al. (2024) further demonstrated that traditional feeding practices in Central Java were significantly associated with stunting incidence, emphasizing the need for culturally appropriate interventions.[8]

Based on these concerns, this study aims to examine one of the causative factors of stunting in children under five by investigating the correlation between parental feeding practices and stunting incidence among children aged 12-59 months in Samigaluh, Kulon Progo. The findings of this study are expected to provide evidence-based insights for public health practitioners and policymakers in designing targeted interventions to improve parental feeding practices, particularly in rural settings with high stunting prevalence. Additionally, this research contributes to the growing body of knowledge on the role of responsive feeding strategies in stunting prevention, which can inform community-based nutrition programs in similar socio-demographic contexts.

2. METHODS

2.1. Study Design and Setting

This correlative analytical study utilized a cross-sectional design and was conducted in Sidoharjo Village, Samigaluh, Kulon Progo, Yogyakarta, during August

2024. Data collection involved questionnaire administration to mothers of toddlers and direct nutritional status assessment of their children.

2.2. Sample and Sampling Technique

The study recruited 26 participants selected through probability sampling using stratified random sampling technique. Inclusion criteria comprised: (1) parents with toddlers aged 12-59 months, (2) parents serving as primary caregivers, (3) toddlers registered at Samigaluh II Health Center, and (4) willingness to participate as respondents. Exclusion criteria included: (1) absence during posyandu (integrated service post) meetings, (2) toddlers with congenital diseases, (3) history of chronic infectious diseases, (4) low birth weight history, (5) parental psychiatric disorders, and (6) parental illiteracy.

2.3. Data Collection

Data were collected through structured questionnaires and direct anthropometric measurements. Researchers assisted respondents in questionnaire completion. Height and weight measurements were conducted using standardized instruments: baby scales and step scales for weight, and microtoise for height measurement.

2.4. Measurement Instruments

The questionnaire comprised respondent identification and 30 items assessing three parenting types (10 items each for democratic, authoritarian, and permissive styles) with dichotomous (yes/no) response options. The instrument was adopted from previous research with established construct validity through expert judgment and statistical analysis. Reliability testing using Cronbach's Alpha demonstrated acceptable internal consistency: democratic parenting (α = 0.64), authoritarian parenting (α = 0.746), and permissive parenting (α = 0.719).[6]

Nutritional status assessment included toddler's name, date of birth, age, gender, height, and weight. Z-scores were calculated using height-for-age and weight-for-age indices according to WHO standards. Height-for-age classification included: normal (≥ -2 SD), short (≤ -2 SD), and very short (≤ -3 SD). Toddlers with height-for-age z-score ≤ -2 SD were classified as stunted.[3]

2.5. Data Analysis

Bivariate analysis using chi-square test was performed to examine the relationship between parental feeding practices and stunting incidence. All statistical analyses were conducted using IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY, USA). A p-value of less than 0.05 was considered statistically significant.

2.6. Ethic Approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki Prior to data collection, the research objectives and the procedures were explained to all participants and written informed consent was obtained from each mother or legal guardian of the participating toddlers. All respondents were informed of their right to withdraw from the study at any time without consequences. To ensure confidentiality all personal identifiers were anonymized and replaced with unique code during data analysis. This study involved only non-invasive questionnaire based on interviews and anthropometric measurements with minimal risk to participant.

3. RESULTS

3.1. Demographic Characteristics

The demographic characteristics of the respondents, comprising mothers of toddlers, are presented in Table 1 based on age, education level, and occupation.

Table 1. Characteristics of mothers based on age, education, and occupation

Characteristics	n	%
Mother's age		
≤35 years	20	77%
>35 years	6	23%
Mother's education		
< Senior high school	10	38%
> Senio high school	16	62%
Mother's occupation		
Work	10	38%
Housewife	16	62%
Total	26	100%

Table 1 shows that the majority of mothers (77%) were aged ≤35 years, while 23% were older than 35 years. Regarding educational attainment, 62% of mothers had education above senior high school level, and 38% had education below senior high school. In terms of occupation, 62% of mothers were housewives, while 38% were employed outside the home.

From the respondents, namely mothers, obtained data on toddlers with characteristics as listed in Table 2, namely based on age and gender.

Table 2: Characteristics of toddlers by age and gender

Characteristics	n	%
Age of Toddlers		
12-23 months	2	8%
24-35 months	10	38%
36-47 months	9	35%
48-59 months	5	19%
Gender		
Boys	16	62%
Girls	10	38%
Total	26	100%

Based on toddler characteristics presented in Table 2, the largest age group was 24-35 months (38%), followed by 36-47 months (35%), 48-59 months (19%), and 12-23 months (8%). Male toddlers accounted for 62% of the sample, while female toddlers comprised 38%.

3.2. Nutritional Status Assessment

Direct nutritional status assessment of 26 toddlers revealed a high prevalence of stunting. As shown in Table 3, 21 toddlers (81%) were classified as stunted, while only 5 toddlers (19%) had normal nutritional status.

Table 3. Results of Measurement of Nutritional Status of Toddlers with Distribution by Gender

Nutrition Status	Gender		%
	Boys	Girls	
Normal	5	0	19%
Stunting	11	10	81%
Total	16	10	100%

Among stunted toddlers, 11 were boys (52.4% of stunted cases) and 10 were girls (47.6% of stunted cases). Notably, none of the female toddlers (0%) achieved normal nutritional status, whereas 5 out of 16 male toddlers (31.3%) were classified as normal.

3.3. Relationship Between Parenting Styles and Stunting Incidence

Bivariate analysis using chi-square tests examined the association between parenting styles and stunting incidence, as presented in Table 4. Regarding democratic parenting, 23 parents (88.5%) reported using democratic feeding practices, with 18 of them (78.3%) having stunted children. The chi-square test showed a statistically significant association between democratic parenting and stunting (p = 0.014). Parents who did not apply democratic practices had 1.78 times higher risk of having stunted children (95% CI: 0.63-1.97).

Table 4. Relationship between parenting patterns and the incidence of stunting in toddlers

Parenting	Stunting				Total		*p*-value	OR
	No		Yes					
	N	%	N	%	N	%		
Democratic								
Yes	5	22%	18	78%	23	100%	0.014	1.78
No	0	0%	3	100%	3	100%		(0.63 – 1.97)
Total	5	19%	21	81%	26	100%		
Authoritarian								
Yes	1	8%	12	92%	13	100%	0.99	0.18
No	4	31%	9	69%	13	100%		(0.02-1.98)
Total	5	19%	21	81%	26	100%		
Permissive								
No	3	18%	14	82%	17	100%	0.0005	2.05
Yes	2	22%	7	78%	9	100%		(0.10 – 5.58)
Total	5	19%	21	81%	26	100%		

For authoritarian parenting, 13 parents (50%) reported using this style, with 12 of them (92.3%) having stunted children. No significant association was found between authoritarian parenting and stunting (p = 0.99).

Regarding permissive parenting, 9 parents (34.6%) reported using permissive feeding practices, with 7 of them (77.8%) having stunted children. The analysis revealed a statistically significant association (p = 0.0005), with permissive parenting increasing the risk of stunting

by 2.05 times (95% CI: 0.10-5.58) compared to non-permissive approaches.

4. DISCUSSION

This study revealed that the majority of parents implemented democratic parenting styles, while a smaller proportion practiced non-democratic approaches. The findings demonstrate a significant association between parenting styles and stunting incidence ($p < 0.05$). Parents practicing undemocratic feeding approaches were 1.7 times more likely to have stunted children compared to those employing democratic practice.

Similarly, permissive parenting showed a strong correlation with stunting incidence ($p = 0.0005$), with parents utilizing permissive feeding practices being twice as likely to have stunted children compared to those employing non-permissive approaches. These findings align with previous research by Astuti et al. (2024) which indicated that traditional and permissive feeding practices in Central Java were significantly associated with higher stunting prevalence among children aged 6-59 months.[8] Recent systematic reviews have reinforced these findings; a meta-analysis by Munawar et al. (2024) demonstrated that responsive feeding practices were consistently associated with better nutritional outcomes across Asian countries.[6]

Feeding practices constitute a crucial determinant in stunting occurrence. Parents with limited nutritional knowledge and those implementing feeding pressure contribute significantly to stunting risk. Serwatka et al. (2026) found that feeding styles significantly impact children's dietary intake, with permissive styles associated with increased consumption of unhealthy foods and higher weight-for-length z-scores.[9] Responsive feeding practices, characterized by appropriate guidance and responsiveness, have been shown to enhance children's appetite and nutritional status more effectively than authoritarian or permissive approaches.[6,9] Several underlying factors influence parental feeding practices, as identified in the literature:[2,7,10]

1. Economic factors significantly affect daily food consumption patterns and access to nutritious foods,
2. Socio-cultural factors, including beliefs and traditions, influence food selection, preparation, and allocation,
3. Educational level affects parental knowledge and information processing regarding child nutrition,
4. Environmental factors shape feeding behaviors through established food preferences and habits, and
5. Maternal age influences childcare experience and feeding competence.

During critical growth periods, parents should emphasize both quantitative and qualitative aspects of nutrition by implementing balanced dietary patterns, regulated feeding schedules, and adequate nutritional adequacy levels. Research by Isanovic et al. (2024) demonstrated that integrated nutrition, parenting, and health interventions in rural settings can significantly improve child feeding practices and nutritional outcomes, highlighting the importance of comprehensive approaches.[11]

Maternal behavior regarding healthy food consumption profoundly influences children's dietary habits. Yunitasari et al. (2022) found that maternal education, household economic status, and access to health services were significant determinants of complementary feeding practices in Indonesia.[7] Similarly, Purwani et al. (2025) identified that maternal mental health and child health history play crucial roles in stunting outcomes, emphasizing the need for holistic interventions.[10] Maternal knowledge and active involvement in feeding practices are essential for maintaining appropriate nutritional management, including age-appropriate food selection, portion control, and nutrient content consideration. Consistent implementation of proper feeding practices is crucial for preventing stunting and ensuring optimal child development. Herawati et al. (2025) further emphasized that demographic factors, including maternal age, education, and household size, significantly influence stunting prevalence in Indonesian border regions, suggesting that interventions must be tailored to local contexts.[12]

Several limitations should be considered when interpreting these findings. The relatively small sample size (n = 26) restricted to one geographic area (Sidoharjo Village, Samigaluh) may limit the generalizability of the findings to broader populations. The cross-sectional design prevents establishing causal relationships between feeding practices and stunting, as temporality cannot be determined. Additionally, the precise onset of stunting among the studied toddlers remains unknown,

which could affect the interpretation of feeding practice influences. Future research should employ larger, multi-site samples with longitudinal designs to confirm these associations.

5. CONCLUSION

This study demonstrates a significant association between parental feeding practices and stunting incidence among children aged 12-59 months in Samigaluh, Kulon Progo. The findings indicate that non-democratic feeding practices increase the risk of stunting by 1.7 times compared to democratic approaches (p = 0.014). Similarly, permissive feeding practices double the risk of stunting compared to non-permissive methods (p = 0.0005). However, authoritarian feeding practices showed no statistically significant relationship with stunting incidence in this population.

Based on these findings, the following recommendations are proposed: 1) Develop targeted educational programs for parents focusing on democratic feeding practices that emphasize responsive feeding while maintaining appropriate nutritional boundaries. Integrated approaches combining nutrition education with parenting support; 2) Enhance training for community health workers regarding the importance of feeding styles and their impact on nutritional outcomes, with emphasis on culturally appropriate counseling techniques; 3) Conduct larger-scale studies with expanded sample sizes across multiple regions, longitudinal designs to establish temporal relationships, mixed-methods approaches combining quantitative and qualitative data, precise measurement of stunting onset and duration, and control for potential confounding variables (socioeconomic status, maternal education, food security, and maternal mental health); and 4) Integrate feeding practice education into existing maternal and child health programs to address both nutritional and behavioral aspects of stunting prevention. Consideration should be given to local cultural contexts.

This study provides foundational evidence for the importance of parental feeding practices in stunting prevention and suggests that promoting democratic, non-permissive feeding approaches may contribute to reducing stunting prevalence in similar populations. Further research is needed to validate these findings and develop evidence-based interventions tailored to local contexts.

Ethical Approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

REFERENCES

1. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, Mathers C, Rivera J. Maternal and child undernutrition: global and regional exposures and health consequences. The Lancet. 2008;371(9608):243–260. http://dx.doi.org/10.1016/s0140-6736(07)61690-0
2. Makwela MS, Mashaba RG. Determinants of sub-optimal complementary feeding practices among caregivers of children aged 6–23 months in low-and middle-income countries: scoping review. Frontiers in Public Health. 2025;13: 1655685 http://dx.doi.org/10.3389/fpubh.2025.1655685
3. World Health Organization. (2018). Reducing stunting in children: equity considerations for achieving the Global Nutrition Targets 2025. Geneva: World Health Organization; 2018. https://apps.who.int/iris/handle/10665/260202 (Avccessed on 10 December 2025)
4. UNICEF, WHO, World Bank. Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group Joint Child Malnutrition Estimates. Key findings of the 2025 edition. New York, Geneva, Washington DC: UNICEF, WHO, World Bank; 2025. Available from: https://data.unicef.org/resources/jme/ (Avccessed on 10 December 2025)
5. Theurich MA, Grote V, Koletzko B. Complementary

feeding and long-term health implications. Nutrition Reviews. 2020;78(Supplement_2):6–12. http://dx.doi.org/10.1093/nutrit/nuaa059

6. Munawar K, Mukhtar F, Roy M, Majeed N, Jalaludin MY. A systematic review of parenting and feeding practices, children's feeding behavior and growth stunting in Asian countries. Psychology, Health & Medicine. 2024;29(10):1705–1752. http://dx.doi.org/10.1080/13548506.2024.2421461
7. Yunitasari E, Al Faisal AH, Efendi F, Kusumaningrum T, Yunita FC, Chong MC. Factors associated with complementary feeding practices among children aged 6–23 months in Indonesia. BMC Pediatrics. 2022;22(1):727. http://dx.doi.org/10.1186/s12887-022-03728-x
8. Addisu Y, Wassie GT. Patterns and short term neurosurgical treatment outcomes of neonates with neural tube defects admitted to Felege Hiwot Specialized Hospital, Bahir Dar, Ethiopia. BMC Pediatrics. 2024;24(1):350. http://dx.doi.org/10.1186/s12887-024-04837-5
9. Serwatka CA, Smith LM, Moore AM, Sethi T, Engel H, Smith AR, Kong KL. The impact of feeding styles on unhealthy dietary intakes and weight-for-length z-scores: Investigating sweet beverages and snack food consumption during early childhood in a diverse sample. Appetite. 2026;216:108319. http://dx.doi.org/10.1016/j.appet.2025.108319
10. Purwani YD, Yuwono T, Rimawati E, Handayani S, Wiwoho S, Kharisma DC. Determinants of Childhood Stunting in Central Java, Indonesia: The Role of Maternal Mental Health and Child Health History. Sage Open Pediatrics. 2025;12:30502225251401695. http://dx.doi.org/10.1177/30502225251401695
11. Isanovic S, Sanoe M, Wooten S, Frongillo EA, Yousafzai AK, Blake CE, Kanyangarara M, Swan M, Rodger N, Murray M, Larson LM. Integrated child nutrition, parenting, and health intervention in rural Liberia: A mixed-methods feasibility study," SD Dubik (ed.), PLOS One. 2024;19(12):e0311486. http://dx.doi.org/10.1371/journal.pone.0311486
12. Herawati MH, Suli AAT, Kairupan AN, Lintang M, Polakitan D, Layuk P, Joseph GH, Kindangen JG, Malia IE, Paat PC, Polakitan A. The Impact of Demographic Factors on the Prevalence of Stunting in Children: A Case Study in the Border Region of the Archipelago, Indonesia. Academic Journal of Interdisciplinary Studies. 2025;14(3):96. http://dx.doi.org/10.36941/ajis-2025-0050