SYMPHONIA
Journal of Theory and Research Output
Volume 1, Issue 2, March 2026

Socio-Cultural Determinants of Childhood Stunting in an Urban Fringe Society: A Qualitative Study from Semarang, Indonesia

Determinan Sosial Budaya Stunting pada Anak di Masyarakat Pinggiran Perkotaan: Studi Kualitatif di Kota Semarang, Indonesia

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Submitted : 12 May 2026	*Revision : 13 June 2026*	*Accepted : 26 June 2026*

Abstract

Childhood stunting remains a persistent public health challenge in Indonesia, particularly in densely populated urban fringe communities where social and environmental vulnerabilities intersect. This study aimed to examine the socio-cultural determinants of stunting and evaluate existing intervention programs in an urban fringe community of North Semarang, Indonesia. A descriptive qualitative case study was conducted using secondary data from the 2024 Semarang City Health Profile and monthly Primary Health Care records (2024–2025), complemented by in-depth interviews with six purposively selected informants. The findings indicate that stunting prevalence (4.9%) was substantially higher than the city average (1.03%) and showed an increasing trend during the observation period. Major determinants included inadequate feeding practices, inconsistent implementation of healthy living behaviors, a gap between parental knowledge and childcare practices, recurrent childhood infections, limited parental participation, economic constraints, and persistent cultural misconceptions. The study highlights that sustainable stunting reduction requires integrated interventions addressing behavioral, socio-cultural, and health system barriers alongside nutritional support.

Keywords: Childhood Stunting; Socio-Cultural Determinants; Parenting Practices; Urban Fringe Communities; Primary Health Care

Abstrak

Stunting pada balita masih menjadi permasalahan kesehatan masyarakat yang serius di Indonesia, khususnya pada kawasan pinggiran perkotaan dengan berbagai kerentanan sosial dan lingkungan. Penelitian ini bertujuan menganalisis determinan sosial budaya stunting serta mengevaluasi pelaksanaan program penanganannya di salah satu masyarakat pinggiran Kecamatan Semarang Utara. Penelitian menggunakan pendekatan studi kasus kualitatif deskriptif melalui analisis data sekunder dari Profil Kesehatan Kota Semarang Tahun 2024 dan data bulanan layanan kesehatan primer periode 2024–2025 yang dipadukan dengan wawancara mendalam terhadap enam informan yang dipilih secara purposive. Hasil penelitian menunjukkan prevalensi stunting mencapai 4,9%, jauh lebih tinggi dibandingkan rata-rata Kota Semarang (1,03%) dan memperlihatkan tren peningkatan selama periode pengamatan. Determinan utama meliputi pola pemberian makan yang kurang tepat, rendahnya penerapan PHBS, kesenjangan antara pengetahuan dan praktik pengasuhan, penyakit infeksi berulang, rendahnya partisipasi orang tua, keterbatasan ekonomi, serta miskonsepsi budaya. Penanganan stunting memerlukan intervensi terpadu yang mengintegrasikan pendekatan perilaku, sosial budaya, dan penguatan sistem pelayanan kesehatan.

Kata Kunci: Stunting Balita; Determinan Sosial Budaya; Pola Asuh; Masyarakat Pinggiran Perkotaan; Layanan Kesehatan Primer

INTRODUCTION

Stunting and malnutrition among children under five remain significant public health concerns in Indonesia due to their long-term impacts on children's growth, development, and the quality of human resources. Stunting is a condition of impaired growth among children aged 0–59 months, characterized by a height-for-age measurement below the standard growth threshold caused by prolonged chronic nutritional deficiencies. Meanwhile, malnutrition refers to inadequate nutritional intake that may hinder children's physical development and increase their vulnerability to various infectious diseases.[1]

Although Indonesia is recognized as one of the largest economies in Southeast Asia, the issues of stunting and malnutrition continue to pose major public health challenges. This condition indicates that economic growth has not been fully accompanied by equitable improvements in health quality and nutritional fulfillment, particularly among vulnerable groups such as children under five.[2] One of the areas still experiencing these challenges is an urban peripheral community in North Semarang District, Semarang City. This area is a densely populated coastal region and is categorized as one of the largest slum settlements in Semarang City. The population of Semarang City reached 1,694,740 inhabitants in 2023 with a population density of 4,534.07 people per square kilometer, while 92.56% of the total 120.91 hectares of slum settlements in the city are located in North Semarang District.[3]

The problems of stunting and malnutrition in the urban peripheral community of North Semarang remain alarming. Based on the 2024 Semarang City Health Profile, the number of children classified as short according to the height-for-age indicator and cases of malnutrition still require serious attention. Data obtained from primary healthcare services also show that the number of stunted children ranged from 149 to 178 cases throughout 2024, while cases of malnutrition increased from six cases at the beginning of the year to sixteen cases by the end of the year and continued to increase in 2025. These conditions are not solely associated with inadequate nutritional intake but are also influenced by recurrent infectious diseases, including childhood tuberculosis, diarrhea, and acute respiratory infections, which can interfere with nutrient absorption.[4]

From the perspective of the sociology of health, stunting and malnutrition should not be understood merely as biological or medical problems, but also as phenomena influenced by parenting practices, family behavior, socioeconomic conditions, cultural values, and the community's ability to access and accept healthcare services. Feeding practices that prioritize satiety over nutritional quality, inadequate implementation of Clean and Healthy Living Behavior (CHLB), irregular sleeping patterns among children, and parental decisions to comply

1 Abdi Subayu, "Penerapan Metode K-Means Untuk Analisis Stunting Gizi Pada Balita: Systematic Review," *Jurnal Sains, Nalar, Dan Aplikasi Teknologi Informasi* 2, no. 1 (2022), https://doi.org/10.20885/snati.v2i1.18; Heppy Jelita Sari Batubara et al., "Penyuluhan Pencegahan Gizi Buruk Dalam Upaya Peningkatan Kualitas Kesehatan Pada Peserta Didik (Sekolah Dasar Negeri 101848 Desa Kuala Lau Bekeri Kecamatan Kutalimbaru)," *Karya Nyata: Jurnal Pengabdian Kepada Masyarakat* 2, no. 3 (2025): 202–8, https://doi.org/10.62951/karyanyata.v2i3.2187.

2 Maria Kareri Hara, Servasius To'o Jala Mulu, and Leni Landudjama, "Cegah Stunting Dengan Pendampingan Keluarga Berisiko Stunting," *SWARNA: Jurnal Pengabdian Kepada Masyarakat* 3, no. 1 (2024): 11–18, https://doi.org/10.55681/swarna.v3i1.1107.

3 F Javier and Sriyono, "Analisis Daya Dukung Permukiman Berbasis Building Coverage Ratio (BCR) Di Kecamatan Semarang Utara, Kota Semarang," *Briliant: Jurnal Riset Dan Konseptual* 11, no. 1 (2026): 130–40, https://doi.org/10.28926/briliant.v11i1.2330.

4 Matheus Aba, "Hubungan Penyakit Infeksi Dengan Kejadian Stunting Pada Balita Umur 24-59 Bulan," *Journal Of Midwifery* 13, no. 1 (April 30, 2025): 79–86, https://doi.org/10.37676/jm.v13i1.8735.

with children's demands without considering their health consequences represent social practices that may worsen children's nutritional conditions.

Various intervention programs have been implemented by the government as efforts to reduce stunting and malnutrition, including the Supplementary Feeding Program (PMT) with an intervention duration of 28–90 days, the provision of F-100 formula milk for children with severe malnutrition, regular nutritional counseling through Integrated Health Service Posts (Posyandu), and referrals to the Rumah Pelangi nutritional rehabilitation program. However, the implementation of these programs continues to encounter several challenges, including limited access to nutritional rehabilitation services, the high cost of nutritional support products, limited referral quotas, and low levels of parental participation and consistency in following healthcare recommendations.[5]

Previous studies have examined various approaches to stunting prevention and management. A study conducted by Heny Yuniarti and Rizkie Woro Hastuti found that nutritional counseling and supplementary feeding programs improved mothers' knowledge regarding children's nutritional needs. However, the study primarily focused on intervention effectiveness and did not thoroughly explore the dynamics of program implementation, barriers to healthcare access, and sociocultural factors influencing parenting practices in urban peripheral communities.[6]

Another study conducted by Matolisi et al. revealed that the high prevalence of stunting and malnutrition in slum areas of Palembang City was associated with inadequate food intake, recurrent infectious diseases, and limited access to healthcare services. Nevertheless, the study relied solely on secondary data and therefore did not provide a comprehensive understanding of community experiences, parenting practices, and challenges in implementing healthcare programs at the local level.[7]

Based on previous studies, there remains a limited number of studies integrating epidemiological analyses of stunting and malnutrition prevalence with the perspective of the sociology of health, particularly in urban peripheral communities characterized by high population density, socioeconomic vulnerability, and specific challenges in accessing healthcare services. Therefore, this study aims to analyze the prevalence of stunting and malnutrition among children under five in an urban peripheral community of North Semarang District using data from the 2024 Semarang City Health Profile and monthly records from primary healthcare services. Furthermore, this study examines sociocultural factors, parenting practices, and challenges in implementing healthcare programs as efforts to address stunting and malnutrition.

Method

This study employed a descriptive qualitative method with a case study approach to obtain an in-depth understanding of the phenomena of stunting and malnutrition among children under five in an urban peripheral community in North Semarang District, Semarang City. This study integrated secondary and primary data sources. Secondary data were obtained from the 2024 Health Profile of the Semarang City Health Office and monthly records from Primary Healthcare Services from January 2024 to December 2025, which were used to describe the

5 A Khairunnisa, N Kartinah, and Rakmawati, "Pemberdayaan Wanita Desa Pasar Jati Melalui Produksi Susu F100 Untuk Peningkatan Ekonomi Dan Gizi Ibu Balita," *Jurnal Pengabdian Masyarakat* 6, no. 2 (2025): 214–21.

6 Heny Yuniarti and Rizkie Woro Hastuti, "Edukasi Dan Pendampingan Dalam Menurunkan Angka Kejadian Stunting Di Kota Semarang," *Community Empowerment Journal* 3, no. 1 (2025): 1–7, https://doi.org/10.61251/cej.v3i1.94.

7 Elizabet Matolisi, Satriyanto, and Muhammad Dwi Alimin, "Gambaran Kesehatan Masyarakat Pada Daerah Kumuh Di Kota Palembang," *Jurnal Lantera Ilmiah Kesehatan* 3, no. 1 (2025), https://doi.org/10.52120/jlik.v3i1.111.

prevalence of stunting and malnutrition through tables and graphical presentations. Meanwhile, primary data were collected through in-depth interviews to explore sociocultural factors, parenting practices, the implementation of intervention programs, and challenges in accessing healthcare services as efforts to address stunting and malnutrition among children under five.[8]

This study involved six informants selected through purposive sampling based on their roles, experiences, and involvement in handling stunting and malnutrition cases in the research area. The informants consisted of nutritionists from Primary Healthcare Services, Posyandu cadres, and community members who had experiences and knowledge related to stunting and malnutrition among children under five in the urban peripheral community. Primary data collection through in-depth interviews was conducted in May 2026 while maintaining the confidentiality of all informants' identities and obtaining their informed consent prior to the interview process.

In this study, stunting was defined as a condition of growth failure among children under five caused by chronic nutritional deficiencies, characterized by a length-for-age (LAZ) or height-for-age (HAZ) *z-score* below minus two standard deviations according to child growth standards. Meanwhile, malnutrition was defined as a condition of nutritional deficiency resulting in a child's growth status falling below normal standards. Healthcare access was understood as the ability of communities to obtain and utilize healthcare facilities provided to support their health needs.[9]

Data analysis in this study employed Creswell's qualitative data analysis technique, which consists of six stages: organizing and preparing interview transcripts and secondary documents, thoroughly reading all data to gain a comprehensive understanding, conducting coding by categorizing significant information into specific categories, developing categories into major themes, presenting findings in a narrative form supported by tables and figures, and interpreting the findings by connecting empirical data with relevant theories and literature to answer the research objectives.[10]

RESULTS AND DISCUSSION

Prevalence of Stunting and Malnutrition in Urban Peripheral Communities

The findings in this section were derived from two main data sources, namely the 2024 Semarang City Health Profile and monthly records from Primary Healthcare Services from January 2024 to December 2025. The analysis was conducted to examine the prevalence of stunting and malnutrition among children under five in urban peripheral communities compared with the overall condition of Semarang City, as well as to identify changes in case trends over time.

8 John W Creswell and Cheryl N Poth, *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (Sage publications, 2016).

9 Nova Dwi Yanti, Feni Betriana, and Imelda Rahmayunia Kartika, "Faktor Penyebab Stunting Pada Anak: Tinjauan Literatur," *REAL in Nursing Journal (RNJ)* 3, no. 1 (2020): 1–10, https://doi.org/10.32883/rnj.v3i1.447.g227; Gadisty Bunga Mentari and Susilawati, "Faktor-Faktor Yang Mempengaruhi Akses Pelayanan Kesehatan Di Indonesia," *Jurnal Health Sains* 3, no. 6 (2022), https://doi.org/10.46799/jhs.v4i06.512.

10 R H Siregar and M Albina, "Menjelaskan Cara Menganalisis Data Dalam Penelitian Pendidikan," *Jurnal Media Akademik (JMA)* 3, no. 6 (2025): 2–14, https://doi.org/10.62281.

Table 1. Nutritional status of children under five in Primary Healthcare Services compared with the average of Semarang City in 2024

Indicator	Urban Peripheral Community (n=3,278)	Semarang City (n=82,043)
Stunted Children (Height-for-Age)	160 (4.9%)	848 (1.03%)
Severe Malnutrition (Weight-for-Height)	6 (0.2%)	25 (0.03%)

Source: Table 48 of the 2024 Semarang City Health Profile

Based on Table 1, the prevalence of stunting in the urban peripheral community reached 4.9% or 160 children under five, which was considerably higher than the average prevalence in Semarang City at 1.03%. Similarly, the prevalence of malnutrition reached 0.2%, which was higher than the city average of 0.03%. These findings indicate a disparity in nutritional status between urban peripheral communities and the general nutritional conditions of children under five in Semarang City.

A discrepancy was identified in the malnutrition data, where the Semarang City Health Profile recorded six cases, while the final records from Primary Healthcare Services in 2024 documented thirteen cases. This difference may have occurred due to variations in data collection periods (*cut-off time*) and the hierarchical validation process conducted by the Health Office, resulting in some field data changes not being immediately included in the final city-level reports. Therefore, these two data sources do not contradict each other but represent different stages of health data recording and validation.[11]

Table 2. Monthly data on malnutrition and stunting among children under five in urban peripheral communities, January 2024–December 2025

Month	Total Children Under Five	Measured Children Under Five	Severe Malnutrition (n)	Severe Malnutrition Prevalence (%)	Stunting (n)	Stunting Prevalence (%)
2024						
January	3,965	3,568	6	0.17%	150	4.20%
February	3,837	3,688	6	0.16%	150	4.07%
March	3,833	3,661	6	0.16%	150	4.10%
April	3,796	3,627	6	0.17%	149	4.11%
May	3,550	3,352	8	0.24%	150	4.47%
June	3,484	3,484	9	0.26%	176	5.05%
July	3,510	3,444	10	0.29%	174	5.05%
August	3,452	3,299	13	0.39%	173	5.24%
September	3,434	3,270	13	0.40%	176	5.38%

11 Nanthyan Khampa Usada and Artha Prabawa, "Analisis Manajemen Pengelolaan Data Sistem Informasi Analisis Pengelolaan Data Manajemen Sistem Informasi Puskesmas Di Tingkat Dinas Kesehatan Di Kabupaten Bondowoso," *Jurnal Biostatistik, Kependudukan, Dan Informatika Kesehatan* 2, no. 1 (2021), https://doi.org/10.7454/bikfokes.v2i1.1020.

October	3,433	3,268	16	0.49%	177	5.42%
November	3,409	3,289	16	0.49%	178	5.41%
December	3,431	3,278	13	0.40%	160	4.88%
2025						
January	3,406	3,263	13	0.40%	177	5.42%
February	3,425	3,265	15	0.46%	257	7.87%
March	3,373	3,263	12	0.37%	249	7.63%
April	3,370	3,219	9	0.28%	245	7.61%
May	3,370	3,219	9	0.28%	245	7.61%
June	3,353	3,293	12	0.36%	241	7.32%
July	3,338	3,212	10	0.31%	235	7.32%
August	3,356	3,229	9	0.28%	231	7.15%
September	3,331	3,205	9	0.28%	229	7.15%
October	3,216	2,264	3	0.13%	227	10.03%
November	3,154	2,044	9	0.44%	240	11.74%
December	3,170	2,101	9	0.43%	244	11.61%

Source: Secondary data from Primary Healthcare Services in Semarang

The data in Table 2 show that the number of monitored children under five ranged from 3,154 to 3,965 children per month. During 2024 until the middle of 2025, the coverage of anthropometric measurements remained relatively high, allowing the data to adequately represent the nutritional condition of children under five in the study area. However, from October to December 2025, measurement coverage declined to approximately 64–70%. Therefore, prevalence rates during this period should be interpreted with caution.

Malnutrition cases demonstrated a relatively controlled pattern, with prevalence ranging from 0.13% to 0.49%. The number of cases increased during the middle to the end of 2024, reaching a peak of sixteen cases, and subsequently showed a decreasing trend throughout 2025. This condition suggests that nutritional intervention programs have begun to contribute positively to the control of malnutrition cases.

In contrast, stunting cases showed a more persistent increasing pattern. Throughout 2024, the prevalence of stunting increased from 4.07% to 5.42%, followed by a significant increase in February 2025, reaching 7.87%. Although the prevalence gradually declined in the following months, the number of stunting cases remained higher than those reported in the previous year. By the end of 2025, the prevalence exceeded 10%; however, this finding should be interpreted carefully due to the decline in anthropometric measurement coverage during the same period.

Overall, these findings indicate that stunting represents a more complex challenge than malnutrition. Unlike malnutrition, which tends to respond more quickly to short-term nutritional interventions, stunting is associated with long-term factors such as household socioeconomic conditions, parenting practices, environmental conditions, and the community's ability to access healthcare services. Therefore, efforts to address stunting should not solely focus on nutritional interventions but should also consider broader sociocultural factors that influence health-related behaviors within the community.

Figure 1. Trends in stunting and malnutrition cases among children under five in 2024

Source: Secondary data from Primary Healthcare Services in Semarang

Figure 1 illustrates a gradual increase in both stunting and malnutrition cases throughout 2024. The increase in stunting cases was more prominent than that of malnutrition, particularly during the middle and final months of the year, indicating that stunting became a more persistent health concern within the urban peripheral community.

Figure 2. Trends in stunting and malnutrition cases among children under five in 2025

Source: Secondary data from Primary Healthcare Services in Semarang

Figure 2 shows a substantial increase in stunting cases at the beginning of 2025, particularly in February, followed by a gradual decline during the following months. However, the number of cases remained higher compared with those reported in 2024. Meanwhile, malnutrition cases demonstrated a fluctuating pattern but remained relatively more controlled.

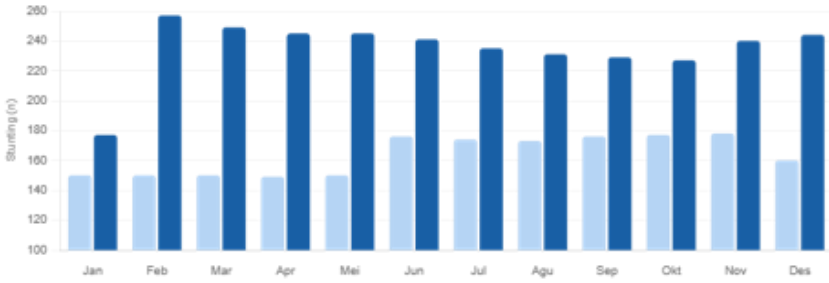

Figure 3. Comparison of monthly stunting cases between 2024 and 2025

Source: Secondary data from Primary Healthcare Services in Semarang

Figure 3 compares the monthly number of stunting cases between 2024 and 2025, where the light blue bars represent data from 2024, while the dark blue bars represent data from 2025. The figure demonstrates that the number of stunting cases in 2025 was consistently higher than those reported during the same months in 2024. Even the lowest number of cases in 2025 was nearly equivalent to the highest number of cases recorded in 2024. This finding indicates an increasing burden of stunting and suggests that existing interventions have not yet produced a significant reduction in stunting cases.

Figure 4. Comparison of monthly malnutrition cases between 2024 and 2025

Source: Secondary data from Primary Healthcare Services in Semarang

Figure 4 compares the monthly number of severe malnutrition cases between 2024 and 2025, where the yellow bars represent data from 2024, while the brown bars represent data from 2025. In contrast to stunting, severe malnutrition cases followed a more fluctuating pattern and did not demonstrate a consistent increase from year to year. The number of cases in several months of 2025 was lower than those recorded in the corresponding months of 2024, particularly at the end of the year. However, the interpretation of this decline should still consider the reduced coverage of anthropometric measurements during the same period.

Sociocultural Factors Underlying Stunting and Severe Malnutrition

The problem of stunting and severe malnutrition among children under five in urban peripheral communities is not solely related to inadequate nutritional intake but is also influenced by social practices embedded within everyday family life. The findings reveal that parenting practices remain primarily focused on ensuring that children feel full without considering the nutritional quality and diversity of their food. A nutritionist from the Primary Healthcare Services explained during an interview on May 18, 2026, that many parents still follow the principle of *"sing penting wis makan"* ("as long as the child has eaten"), meaning that children are considered sufficiently fed regardless of whether their nutritional needs have been adequately fulfilled. According to the nutritionist, this parenting pattern prioritizes satiety over nutritional adequacy, indicating that the understanding of balanced nutrition has not been fully translated into everyday caregiving practices.

This finding is consistent with the study by Suryawan et al., which explains that feeding practices lacking food diversity are associated with an increased risk of stunting among children under five.[12] This pattern was also observed in the urban peripheral community, where food choices were often adjusted to children's preferences rather than their nutritional requirements. A mother of a child under five explained during an interview on May 18, 2026, *"Kalo ikan itu ga begitu suka mbak, dia itu sukanya kalo telor. Telor tak rebus jadi satu sama kuah mie, tapi mie-nya ndak tak suruh makan terus telor sama sayur sop"* ("My child does not really like fish; he prefers eggs. I usually boil an egg and serve it with noodle broth, but I do not let him eat the noodles, only the egg and vegetable soup"). This statement reflects a negotiation process in child feeding practices, where parental decisions are frequently based on children's food preferences but do not always ensure a balanced nutritional intake necessary for optimal growth and development.

In addition to feeding practices, other parenting behaviors contributing to stunting and severe malnutrition include inappropriate complementary feeding (*MPASI*), inadequate regulation of children's sleeping schedules, and the insufficient implementation of Clean and Healthy Living Behavior (*Perilaku Hidup Bersih dan Sehat/PHBS*). Some parents still believe that washing hands

12 Aisha Excelia Suryawan, Farida Wahyu Ningtyias, and Manik Nur Hidayati, "Hubungan Pemberian Makan Pola Dan Asuh Skor Keragaman Pangan Dengan Kejadian Stunting Pada Balita Usia 24–59 Bulan," *Ilmu Gizi Indonesia* 6, no. 1 (2022): 23–34, https://doi.org/10.35842/ilgi.v6i1.310.

before eating is unnecessary as long as children use eating utensils. However, such practices may increase the risk of infectious diseases, which subsequently interfere with children's growth and development. This finding supports the study by Dhefiana et al., which identified a relationship between poor parental implementation of PHBS and the incidence of stunting among children under five. Therefore, family health behaviors play an essential role in determining the success of stunting and severe malnutrition prevention.[13]

Parenting issues are also influenced by the socioeconomic conditions of families, particularly when parents are required to work and childcare responsibilities are transferred to other family members. This condition creates a gap between health knowledge obtained through educational programs and its implementation within daily parenting practices. A nutritionist from the Primary Healthcare Services stated during an interview on May 18, 2026, that the community had frequently received health education and generally understood the importance of adequate nutrition; however, many obstacles remained in translating such knowledge into practice. As expressed by the nutritionist, *"kalo secara teori mereka itu udah pinter-pinter, kita sering banyak penyuluhan… secara teori itu mereka paham ya, engga semuanya nangkep tapi kebanyakan udah paham, tapi untuk prakteknya yang masih banyak hambatan"* ("in theory, they already understand quite well because we have provided many health education sessions… most of them understand the information, although not everyone fully grasps it, but there are still many obstacles when it comes to putting it into practice"). This finding demonstrates that the main challenge in preventing stunting is not merely a lack of knowledge but the gap between health knowledge and everyday practices.

The gap between knowledge and practice is also reflected in the implementation of exclusive breastfeeding and complementary feeding practices. Although most community members understand the importance of exclusive breastfeeding, social circumstances, such as mothers' employment or inadequate breast milk production, often lead to the early introduction of complementary foods. Furthermore, the social construction of stunting influences the effectiveness of health interventions. Some parents perceive short stature as a normal condition, while others reject the classification of their children as stunted. Consequently, Posyandu cadres often use more careful communication approaches to ensure that parents accept health information without feeling stigmatized by their children's conditions.

Apart from parenting practices and social perceptions, recurrent infectious diseases also contribute to the deterioration of children's nutritional status. Based on interview findings, there were cases where children had adequate food intake but failed to gain weight due to childhood tuberculosis. In addition, acute respiratory infections (ARI) and diarrhea were frequently identified among children experiencing nutritional problems. These conditions interfere with nutrient absorption and increase the body's energy requirements, ultimately disrupting children's growth. This finding is in line with Kusumawati et al., who reported that children with a history of infectious diseases, including ARI, diarrhea, and tuberculosis, had a 3.2 times higher risk of experiencing stunting compared with children without such conditions.[14]

Cultural factors related to maternal dietary practices after childbirth were also identified, although they no longer represent dominant beliefs within the community. A nutritionist from the Primary Healthcare Services explained during an interview on May 18, 2026, that some

13 Tika Dhefiana, Reni Suhelmi, and Hansen Hansen, "Hubungan Penerapan Perilaku Hidup Bersih Dan Sehat (PHBS) Orang Tua Dengan Kejadian Stunting Di Kelurahan Air Hitam Kota Samarinda," *Sanitasi: Jurnal Lingkungan Kesehatan* 16, no. 1 (2023): 20–28, https://doi.org/10.29238/sanitasi.v16i1.1484.

14 Erna Kusumawati, Setiyowati Rahardjo, and Hesti Permata Sari, "Model Pengendalian Faktor Risiko Stunting Pada Anak Bawah Tiga Tahun," *Jurnal Kesehatan Kesmas, Masyarakat* 9, no. 3 (2022), https://doi.org/10.21109/kesmas.v9i3.572.

community members still believe that consuming foods with a fishy smell after childbirth should be avoided because it is assumed to affect breast milk quality and delay postpartum wound healing. As stated by the nutritionist, *"Kalau misalkan habis melahirkan nggak boleh yang amis-amis kaya gitu"* ("After giving birth, mothers should not consume foods with a fishy smell"). However, foods such as fish and other animal-based protein sources contain essential nutrients that play an important role in maternal recovery and maintaining breast milk quality. This finding indicates that traditional beliefs continue to shape health behaviors, even though public awareness and access to health education have gradually increased.

Overall, the findings demonstrate that stunting and severe malnutrition are health problems shaped by complex interactions between biological and sociocultural factors. This study reinforces the findings of Suryawan et al., Dhefiana et al., and Kusumawati et al., which emphasize that stunting is not merely related to insufficient food intake but is also influenced by parenting practices, hygiene behaviors, infectious diseases, and community perceptions of child health. Therefore, efforts to address stunting and severe malnutrition in urban peripheral communities should not rely solely on nutritional interventions but must involve comprehensive strategies, including strengthening family caregiving practices, improving healthy behaviors, applying culturally sensitive approaches, and enhancing healthcare services for managing accompanying infectious diseases.

Efforts and Challenges in Addressing Stunting and Severe Malnutrition in Urban Peripheral Communities

During the growth period, children under five require special attention in fulfilling their nutritional needs, as inadequate nutritional intake during early childhood may have long-term consequences for their growth and development. Sunarti et al. explain that the under-five period represents a critical stage requiring continuous nutritional monitoring to prevent growth disorders.[15] Based on the research findings, Primary Healthcare Services in urban peripheral communities have implemented various programs to address stunting and severe malnutrition through collaboration among community health centers (*Puskesmas*), Posyandu cadres, local government offices, and the Health Office. The intervention programs implemented to reduce stunting and severe malnutrition among children under five are presented in Table 3.

Table 3. Intervention Programs for Addressing Stunting and Severe Malnutrition in Urban Peripheral Communities

Intervention Program	Implementation Activities	Objectives and Benefits
Monthly Posyandu activities	Monitoring child growth through anthropometric measurements, immunization, nutritional counseling, and early detection of growth problems.	Identifying growth disorders at an early stage and improving the monitoring of children's nutritional status.
Supplementary Feeding Program (PMT)	Provision of supplementary foods based on nutritional standards and recipes designed by Primary Healthcare Services nutritionists.	Improving nutritional intake among children at risk of stunting and severe malnutrition.
F-100 milk provision	Administration of high-energy formula with a specific frequency for children experiencing severe malnutrition.	Accelerating nutritional recovery and fulfilling the energy

15 Sunarti et al., "Faktor-Faktor Yang Berhubungan Dengan Kejadian Stunting Pada Balita Di Wilayah Kerja Puskesmas Serawai," *JPKM: Jurnal Profesi Masyarakat Kesehatan* 5, no. 1 (2024): 53–63, https://doi.org/10.47575/jpkm.v5i1.568.

		requirements of children with severe malnutrition.
Nutritional counseling and education	Educational activities for parents through Posyandu, child classes, and maternal classes regarding breastfeeding, complementary feeding, dietary practices, and Clean and Healthy Living Behavior (PHBS).	Improving parental knowledge and encouraging positive behavioral changes in child care and nutritional practices.
Rumah Pelangi program	Referral services for children with severe malnutrition to receive pediatric specialist examinations, growth monitoring, and advanced nutritional therapy.	Providing more intensive and comprehensive management for severe malnutrition cases requiring further intervention.
Daycare for children with stunting	Childcare facilities provided by the local government to support proper feeding and parenting practices.	Supporting improvements in parenting practices and the fulfillment of nutritional needs among children experiencing stunting.

Source: Primary data obtained from interviews with nutritionists and Posyandu cadres and secondary data from Primary Healthcare Services in Semarang, 2026.

The intervention programs are implemented through various approaches, ranging from early detection through Posyandu activities, supplementary feeding, F-100 provision for severe malnutrition cases, referral services through Rumah Pelangi, and daycare facilities for children with stunting. Posyandu serves as the frontline service for monitoring child growth through anthropometric measurements, immunization, and parental counseling. If a child is identified as experiencing growth problems based on the standards outlined in the Child Growth Monitoring Card (*Kartu Menuju Sehat/KMS*), Posyandu cadres will direct parents to consult with nutritionists to receive appropriate interventions.

The Supplementary Feeding Program (PMT) is provided periodically according to each child's nutritional condition using foods prepared based on nutritional standards established by nutritionists. However, the effectiveness of this intervention varies among children. Some children experience improvements in their nutritional status, while others show no significant progress, particularly children suffering from comorbid conditions such as childhood tuberculosis. These findings indicate that the success of nutritional interventions is not solely determined by increased food intake but is also influenced by the child's overall health condition, the presence of infectious diseases, and the consistency of parental care and health monitoring.

Specific treatment for severe malnutrition is carried out through the provision of F-100 milk, a high-energy formula designed to accelerate nutritional recovery among affected children. A nutritionist from the Primary Healthcare Services explained during an interview on May 18, 2026, that *"kalau misalkan dari gizi buruk itu ada yang penanganannya beda, pertama diberikan susu F100"* ("for severe malnutrition cases, the management is different; the first intervention is the provision of F-100 milk"). The administration of F-100 requires strong parental commitment because it must be given six to eight times per day to achieve optimal nutritional recovery. If the child's condition does not improve after the initial intervention, the child will be referred to Rumah Pelangi to receive more comprehensive examinations by pediatric specialists and regular monitoring of their growth and development.

Rumah Pelangi serves as an advanced intervention for children with severe malnutrition who require intensive treatment. A nutritionist from the Primary Healthcare Services explained during an interview on May 18, 2026, that *"sebenarnya kita juga ada program dari Dinas Kesehatan itu*

namanya Rumah Pelangi, di sana ada dokter spesialis anak dari Rumah Sakit Kariadi, kemudian balita diukur tinggi badan, berat badan, mendapatkan F100, dan melakukan konsultasi dengan dokter" ("Actually, we also have a program from the Health Office called Rumah Pelangi. There are pediatric specialists from Kariadi Hospital, where children undergo height and weight measurements, receive F-100, and have consultations with the doctors."). In addition, the local government also provides daycare facilities for children with stunting to support improved parenting practices and adequate nutritional fulfillment. However, the effectiveness of these programs remains dependent on the willingness and active participation of families in utilizing the available services.

Although various programs have been systematically implemented, their implementation in the field continues to face challenges originating from social, economic, parenting, and healthcare service limitations. The main challenges encountered in implementing stunting and severe malnutrition intervention programs are summarized in Table 4.

Table 4. Challenges in Implementing Stunting and Severe Malnutrition Intervention Programs in Urban Peripheral Communities

Challenges	Forms of Problems and Impacts
Low parental awareness and participation	Some parents assume that active children do not experience growth problems, resulting in limited participation in health interventions.
Emotional factors and environmental influences	Parents experience difficulties in consistently implementing healthy dietary practices due to emotional attachment to children's demands and surrounding social influences.
Family economic limitations	Economic constraints limit access to nutritious foods and supporting products, such as PKMK milk, which is relatively expensive and difficult to obtain.
Suboptimal parenting practices	Limited supervision of children's diet, sleep schedules, and growth monitoring may hinder the effectiveness of nutritional interventions.
Refusal of referral services	Some parents refuse referrals to Rumah Pelangi or daycare services because they believe their children are healthy or have concerns about leaving them outside the home.
Limited healthcare service capacity	The limited quota of Rumah Pelangi prevents all children with severe malnutrition from receiving intensive intervention services.
Misconceptions regarding severe malnutrition	Some communities associate severe malnutrition only with visible conditions such as severe wasting or starvation, causing less visible cases to be overlooked.

Source: Primary data obtained from interviews with nutritionists and Posyandu cadres from Primary Healthcare Services in Semarang, 2026

One of the main challenges in implementing intervention programs is the low level of parental awareness regarding children's growth conditions. A nutritionist from the Primary Healthcare Services stated during an interview on May 18, 2026, that *"mereka yang penting melihat anaknya aktif itu mereka menganggapnya ya sudah"* ("they only focus on whether their child appears active and therefore assume that everything is fine"), indicating that parents often perceive active children

as healthy and free from nutritional problems. However, stunting and severe malnutrition are not always identifiable through visible physical weakness. Furthermore, emotional factors also influence parenting practices, particularly when parents continue to provide unhealthy foods or sweet drinks because they find it difficult to refuse their children's requests.

Economic limitations also represent significant barriers to meeting children's nutritional needs. Maududi et al. explain that economic factors contribute to the risk of stunting among children. A nutritionist from the Primary Healthcare Services explained that products such as PKMK milk are difficult to access because they are only available in large pharmacies and are relatively expensive.[16] As stated during the interview, *"cuma nyarinya susah dan harus di apotek, dan apoteknya harus yang besar, harganya juga engga murah"* ("it is difficult to find and is only available in large pharmacies, and the price is also quite expensive"). This condition demonstrates that access to nutritional support products remains a challenge for families with limited financial resources.

Other challenges are related to suboptimal parenting practices, limited acceptance of medical referrals, and healthcare service capacity. Some parents refuse to enroll their children in daycare facilities due to various concerns. A Posyandu cadre explained during an interview on May 18, 2026, that *"kemarin ada yang ibunya enggak mau juga ada. Dititipkan itu kan jarang ada yang mau ya"* ("there was a mother who refused to leave her child there; in general, very few parents are willing to place their children in daycare"). Additionally, the Rumah Pelangi program has limited capacity, meaning that not all children experiencing severe malnutrition can receive these services. A Posyandu cadre also explained that *"selama ini kita ngirimnya dua atau tiga, dari Dinas Kesehatan mau ngasihnya berapa, berarti tidak semuanya gizi buruk di sini bisa kita bawa ke sana"* ("so far, we have only been able to refer two or three children, depending on the quota provided by the Health Office, which means not all severe malnutrition cases here can be referred there").

In addition to service limitations, misconceptions regarding severe malnutrition remain common among parents. Many parents believe that severe malnutrition can only be identified through visible conditions such as starvation, causing active children to be perceived as healthy despite experiencing nutritional problems. These findings reinforce the study by Khoiriyah et al.[17], which demonstrates that parental behavior and understanding are associated with an increased risk of stunting among children. Overall, these findings are consistent with studies by Vinci et al.[18], Hamdy et al.[19], and Ginting et al.[20], which explain that challenges in preventing stunting involve low parental participation, economic limitations, misconceptions about children's health conditions, and suboptimal parenting practices. Therefore, comprehensive interventions involving family education, improved access to healthcare services, and sociocultural approaches are essential to reduce the prevalence of stunting and severe malnutrition in urban peripheral communities.

16 Salahudin Maududi et al., "Pencegahan Stunting Melalui Upaya Pemberian Makanan Tambahan (PMT) Dan Sosialisasi Pola Makan Sehat Di Desa Pare Kabupaten Temanggung," *Jurnal Pengabdian Sosial* 2, no. 10 (2025): 4491–97, https://doi.org/10.59837/5h00t624.

17 Hikmatul Khoiriyah, Wantonoro, and Ismarwati, "Analisis Hubungan Pola Asuh Orang Tua Dengan Kejadian Stunting Pada Balita," *Jurnal Kebidanan Indonesia* 15, no. 1 (2024): 106–20, https://doi.org/10.36419/jki.v15i1.994.

18 Alfi Sina Vinci, Adang Bachtiar, and Isidora Galuh Parahita, "Efektivitas Edukasi Mengenai Pencegahan Stunting Kepada Kader: Systematic Literature Review," *Jurnal Endurance* 7, no. 1 (2022): 66–73.

19 M Kholis Hamdy et al., "Peran Kader Posyandu Dalam Menurunkan Angka Stunting," *Jurnal Ilmu Sosial Indonesia* 4, no. 2 (2023): 87–96, https://doi.org/10.15408/jisi.v4i2.37128.

20 Desni Oktavina Ginting, Zulhaida Lubis, and Etti Sudaryati, "Hubungan Pengetahuan, Sikap Dan Tindakan Dengan Kejadian Stunting Pada Anak Usia 2-5 Tahun Di Kabupaten Simalungun," *MAHESA : Malahayati Health Student Journal* 6, no. 4 (2024), https://doi.org/10.33024/mahesa.v4i6.14569.

CONCLUSION

This study demonstrates that childhood stunting in the urban fringe community of North Semarang represents a complex public health issue shaped not only by nutritional deficiencies but also by interconnected socio-cultural, behavioral, economic, and health-system factors. Secondary health data revealed that the prevalence of stunting was substantially higher than the average for Semarang City and continued to increase throughout the observation period, despite ongoing intervention programs. Qualitative findings further revealed that inappropriate feeding practices, inadequate implementation of clean and healthy living behaviors, inconsistent parenting practices, recurrent infectious diseases, and limited utilization of health services collectively contributed to poor child nutritional status. Importantly, the study identified a persistent discrepancy between parental knowledge and actual childcare practices, indicating that awareness alone is insufficient to produce sustainable behavioral change. In addition, misconceptions regarding child nutrition and cultural beliefs surrounding maternal and child feeding continued to influence household decision-making, while economic constraints further limited access to nutritious food and specialized nutritional support. These findings highlight that childhood stunting in urban fringe settings should be understood as a multidimensional social phenomenon rather than merely a biomedical or nutritional problem.

The primary contribution of this study lies in its integration of epidemiological evidence with a health sociology perspective to explain how social structures, parenting behavior, cultural beliefs, and institutional factors interact in shaping childhood stunting. Unlike previous studies that predominantly focused on nutritional intake or the effectiveness of individual intervention programs, this research demonstrates that the success of nutritional interventions is strongly mediated by parental participation, social perceptions, cultural acceptance, and accessibility of health services. The findings also provide empirical evidence regarding practical barriers faced by frontline health workers, including limited referral capacity, inadequate parental compliance, misconceptions regarding child malnutrition, and financial obstacles to obtaining nutritional supplements. These insights offer important implications for policymakers by emphasizing that effective stunting prevention should extend beyond food supplementation toward family-centered behavioral interventions, culturally sensitive health promotion, strengthened community engagement, and improved coordination between primary health care facilities, local governments, and community organizations. Such an integrated approach is essential for achieving sustainable reductions in childhood stunting within socially vulnerable urban communities.

Despite these contributions, this study has several limitations. The qualitative investigation involved a limited number of participants from a single urban fringe community, which may restrict the transferability of the findings to other geographical and socio-cultural contexts. In addition, although secondary epidemiological data strengthened the analysis, longitudinal household observations were not conducted, limiting the ability to explain long-term behavioral changes and causal relationships. Future research should therefore employ mixed-methods or longitudinal designs involving larger and more diverse populations to examine the dynamic interaction between socio-cultural determinants, household resilience, environmental conditions, and child nutritional outcomes. Comparative studies across different urban and rural settings are also recommended to identify context-specific intervention strategies. Furthermore, future investigations should evaluate the long-term effectiveness of integrated community-based interventions that combine nutritional support, behavioral change communication, parenting education, infectious disease control, and social protection policies to accelerate sustainable stunting reduction in Indonesia.

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