



Perceived Causes of Child Growth Faltering: Mothers' Perspectives

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Abstract. Growth faltering is a significant concern in pediatric healthcare, and understanding the perceived causes from mothers' perspectives can inform targeted interventions. By addressing misconceptions and reinforcing accurate knowledge, healthcare providers can correct misunderstandings and develop more effective strategies for improving child health. This study aimed to explore mothers' perspectives on the perceived causes of growth faltering in their children. Nineteen mothers with children who failed to thrive participated in in-depth, face-to-face interviews. The interviews were guided by open-ended questions and probes, focusing on the mothers' perceptions of the causes of growth faltering. The interviews were audio recorded, transcribed, and analyzed using thematic analysis. Three themes emerged from the data: Nutritional Fulfillment Factors, Family and Pregnancy History Factors, and Disease Infection Factors. These themes highlight the complex interplay of factors that mothers perceive as contributing to growth faltering. This study demonstrates the value of semi-structured interviews in capturing the nuanced experiences and perceptions of mothers whose children failed to thrive. The identified themes provide a foundation for further research and the development of targeted interventions that address the unique needs of these families.

Keywords: Growth Faltering, Failure to Thrive, Mothers' Perspective, Stunting Risk Factors, Nutritional Adequacy, Infectious Diseases

1. Introduction

Growth faltering, also known as failure to thrive, characterized by inadequate weight gain and growth, is a complex nutritional disorder in children [1][2]. Its etiology is multifactorial, encompassing insufficient caloric intake, suboptimal nutrient absorption, and excessive energy expenditure. Growth faltering can lead to a cascade of adverse consequences, including compromised immune function, delayed psychomotor development, and cognitive impairments [3][4]. Recently, it has been proposed that Growth Faltering is not a diagnosis but rather a physical sign of inadequate nutritional intake to support growth. A more recent definition, "faltering growth," is often associated with malnutrition to describe an imbalance between nutrient intake and macro- and micronutrient requirements [5]. As a significant risk factor for severe malnutrition, growth faltering warrants immediate attention. Lower z-scores are indicative of greater deviation from the growth norm and are associated with an elevated risk of severe malnutrition [6]. Hence, early identification and comprehensive evaluation of growth faltering, encompassing nutritional optimization and underlying medical conditions, are imperative.

Maternal perception plays a crucial role in the phenomenon of growth faltering in children, influencing both the identification and management of this condition. Maternal perceptions of growth faltering reveal intricate interplay between health literacy, cultural practices, and socioeconomic factors [7][8]. Mothers often possess unique insights that can enrich healthcare practices and improve child health outcomes [9]. They commonly attribute their children's health challenges to knowledge deficits and resource limitations, underscoring the need for enhanced health education and supportive systems.

Exploring maternal perspectives on growth faltering is important for several reasons. First, it facilitates a deeper understanding of the multifaceted factors contributing to growth faltering, including maternal health, education, and socioeconomic status. For instance, research has consistently demonstrated that lower maternal education levels are associated with poorer child nutritional outcomes and growth [10], highlighting the importance of maternal education in growth faltering prevention. Additionally, maternal problem-solving abilities play a pivotal role in child-rearing situations [11]. Mothers of infants with growth faltering often report experiencing chronic stressors and heightened negative emotions, which can impair their problem-solving capabilities and, consequently, affect the care provided to their children [12]. Dysfunctional caregiver-infant interactions, such as feeding difficulties, attachment disturbances, and behavioral problems, are commonly observed in infants with growth faltering.

Family factors can also contribute to inadequate caloric intake at any age. These include mental health disorders, inadequate nutritional knowledge, and financial difficulties [13]. Understanding these dynamics is essential for developing targeted interventions. By recognizing the specific challenges faced by mothers of children with growth faltering, healthcare providers can implement preventive measures, including routine growth monitoring, nutritional support, and education on optimal child-rearing practices. Early detection and intervention can help prevent further complications.

This study aims to explore into maternal perspectives on growth faltering to identify the complex interplay of factors contributing to this condition. By gaining insights from these perspectives, we can develop more targeted interventions to improve the health and well-being of affected children.

2. Method

Study Design

This study used a qualitative research design with a phenomenological approach. The descriptive phenomenological approach was used by the researchers to directly explore, analyze, and describe the phenomenon, maximizing the researcher's intuitive understanding and interpretation of the phenomenon under investigation [14].

Sample

The sample was selected using purposive sampling. Researchers identified potential participants based on a compiled dataset of weight and height measurements collected from routine health check-ups. This dataset included a list of children whose weight was significantly below the expected curve for their age. After determining the nutritional status, the researchers reached out to the informants for interviews. A total of 19 informants participated in the study.

Data Collection.

The data collection process was conducted from June 2023 to December 2023. The data collection method used in this study was in-depth interviews with semi-structured questions. This technique was chosen because exploring maternal perspectives requires in-depth communication. Moreover, in-depth interviews allow for the extraction of meaningful reflections on the phenomenon experienced by the participants [15]. The questions posed during the interviews were semi-structured and consisted of open-ended questions that had been prepared by the researchers in advance. Throughout the interview process, the researchers also paid attention to non-verbal responses exhibited by the participants, which were documented through field notes. The interviews were then transcribed verbatim and integrated with field notes and video recordings to capture the participants' responses during the interview process.

Data Analysis

The analysis in this study used Colaizzi's method [16]. The process began with in-depth interviews to explore maternal perspectives on the causes of failure to thrive in their toddlers. The researchers repeatedly reviewed the transcripts compiled from the interviews and field notes, extracting meaningful statements from all participants and identifying specific keywords. These keywords were then categorized into sub-themes, themes, and a thematic framework was created. After constructing a comprehensive description of the maternal perspectives on the causes of failure to thrive, the researchers clarified and validated the descriptions by asking the participants to review the verbatim interview results for accuracy.

3. Result

The study involved 19 primary caregivers. The characteristics of the participants are presented in Table 1. Three main themes emerged from the participants' responses regarding the perceived causes of failure to thrive: (1) Nutritional Factors, (2) Family

and Pregnancy History Factors, and (3) Disease Infection Factors. A summary of these themes is provided in Table 2.

Table 1. Characteristics of Informants

Criteria	<i>n</i>	%
Maternal Age		
<20 years	1	5.3
20-35 years	14	73.7
>35 years	4	21.0
Maternal Education		
Elementary	4	21.0
Junior High	8	42.1
Senior High	6	31.6
Bachelor	1	5.3
Children Nutritional Status		
Underweight	11	57.9
Severely Underweight	8	42.1
Stunted	6	31.6
Severely Stunted	13	68.4

A. Theme 1

The majority of participants revealed that inadequate nutritional intake, specifically due to feeding difficulties in toddlers, is a key factor contributing to growth faltering. This is evident from the statements of the following participants:

"My child is somewhat fussy and difficult during meals, and sometimes they refuse to eat altogether. I've tried various approaches, like changing the type of food and adjusting meal times, but they still often reject it." (P1, P2, P7, P8, P12, P16, P19)

"I think my child does have some difficulty eating. Even though I try to make mealtimes more enjoyable, they still refuse the food I offer and often eat very little. I'm concerned because despite offering a balanced variety of foods, they still don't get enough nutrition." (P11, P14)

"When it comes to feeding, it's quite difficult. They won't sit still during meals and seem more interested in playing than finishing their food" (P3, P4, P5, P17)

In addition to the mentioned statements, some families perceive that inadequate nutritional intake resulting from weaning and the lack of exclusive breastfeeding is one of the causes of growth faltering in toddlers.

"I believe my child's failure to thrive might be due to my inability to exclusively breastfeed for the full six months" (P13, P18)

"After weaning, my child became more frequently ill, and feeding became more difficult. I feel that after I stopped breastfeeding, they weren't receiving adequate nutrition for proper growth." (P6, P10)

"When I began weaning my child, I felt they weren't getting enough nutrition from the substitute foods. Since then, their weight has been difficult to increase, and they often appear weak." (P11)

B. Theme 2

The second theme, concerning family factors and pregnancy history as causes of growth faltering in toddlers, includes categories such as maternal nutritional status, genetics, premature birth, and short birth length. Maternal nutritional status, particularly in cases where mothers experienced Chronic Energy Deficiency (CED) during pregnancy, as indicated by a low Mid-Upper Arm Circumference (MUAC), was reported to result in children being born with nutritional problems. This is reflected in the statements of the following participants:

"I experienced Chronic Energy Deficiency (CED) during pregnancy. At that time, I wasn't getting enough nutrition, and I'm worried that it affected my child's health. Perhaps that's why my child's weight has been slow to increase." (P5)

"When I was pregnant, I had CED. The doctor mentioned that my Mid-Upper Arm Circumference (MUAC) was low, and this might have contributed to my child being born with nutritional problems, leading to delayed growth." (P11)

Other participants reported that a child's growth faltering and tendency to be shorter compared to peers could be attributed to genetic factors. One participant explained that their child was considered stunted because both parents are also of short stature, as illustrated by the following statement:

"I believe the reason for my child's growth faltering and shorter stature compared to peers might be genetic. Both parents are not tall, so this could be affecting the child's growth." (P2, P4, P5, P11, P14)

"It's hard to change the situation, as the mother is short and the father is also short. It seems that the genetic factors from the parents are contributing to our child being shorter than their peers." P12, P13, P18)

"The father is somewhat short, and I think this might be contributing to our child's growth being impeded." (P19)

The condition of the baby at birth, as described in the categories of premature birth and short birth length, is perceived by families as a contributing factor to stunting during growth. This perspective is reflected in the statements of the following four participants:

"At the time of birth, we were informed that the baby's length was below the standard. This raised concerns about his development" (P5, P6, P10)

"The issue might be related to the baby's condition from birth. My child was born prematurely, and from the start, he has had growth problems." (P11)

C. Theme 3

The third theme regarding infections and illnesses as causes of growth faltering is reflected in the statements of three participants, who reported that their toddlers frequently experienced illness or health issues. These conditions lead to decreased nutritional intake, which over time affects the nutritional status of the children. The following are the statements from these three participants:

"Yes, my child is very susceptible to illness, frequently get sick, and the condition doesn't improve for several months. I believe this also affects the appetite" (P1, P2, P5, P10)

"They often experience fever, and I am concerned that this impacts their overall health. Frequent fevers reduce their appetite and make it difficult for them to gain weight. Furthermore" (P5)

"digestive issues like diarrhea also occur frequently.." (P9, P11)

Table 2. Summary of Themes

<i>Theme</i>	<i>Category</i>
Nutritional Status Factor	Inadequate Nutritional Intake
	Weaning
	Non-Exclusive Breastfeeding
Family and Pregnancy History Factors	Genetics
	Premature Birth
	Short-Birth Length
Disease Infection Factors	Frequently get sick
	Experience fever, diarrhea

4. Discussion

Understanding family perceptions, particularly maternal perceptions, regarding the causes of growth faltering can provide valuable information and enhance family knowledge about effective prevention and management of growth faltering. This study reveals the primary caregivers' insights, specifically mothers, on their understanding of growth faltering causes, which are categorized into three factors: nutritional factors, family and pregnancy history factors, and the presence of infectious diseases.

Regarding nutritional factors, the majority of mothers reported that inadequate nutritional intake due to toddlers' feeding difficulties is the most common cause of growth faltering in children. This finding is supported by a 30-month cohort study conducted by Som et al. [17], which demonstrated that children who adhered to appropriate feeding practices, with adequate frequency and quantity of food intake

according to their age, were able to reduce the risk of stunting-related growth faltering by 6.4%. Inadequate nutritional intake, as reported by families, affects the consumption of essential macro and micronutrients critical for toddler growth. Adequate intake of macronutrients, such as protein, is a key factor influencing a child's height, with insufficient protein intake increasing the risk of stunting [18]. In addition to macro nutrients such as carbohydrates, proteins, and fats, stunting can also be influenced by micronutrients such as vitamin A, zinc, iron, and iodine [19].

Another factor that families believe contributes to growth faltering in children is the cessation of breastfeeding. Families often attribute this issue to the child no longer receiving essential nutrients from breast milk, which they believe leads to inadequate weight and height gain. However, according to the World Health Organization's Infant and Young Child Feeding guidelines [20], breast milk alone can only meet approximately 30% of a child's energy needs after the age of 12 months. While the duration of breastfeeding is indeed correlated with the risk of growth faltering and stunting, the WHO recommends continued breastfeeding up to 2 years of age. Furthermore, a study by Syeda et al [21] found that children breastfed up to 3 years are at six times the risk of stunting compared to those weaned earlier. This finding supports previous research by Akombi et al. [22], which also indicates that prolonged breastfeeding, beyond recommended durations, increases the risk of stunting. This is because extended breastfeeding can inhibit a child's appetite for complementary foods and lead to excessive dependence on breast milk, potentially resulting in growth and developmental issues.

Another factor that some families consider as a cause of growth faltering in toddlers is the history of Chronic Energy Deficiency (CED) experienced by the mother during pregnancy. A study by Fitriani et al [22] indicates that children born to mothers with inadequate nutritional status during pregnancy are at a 13-fold higher risk of experiencing growth faltering and stunting compared to children born to mothers with adequate nutritional status. This research conducted in Indonesia supports previous findings, though with a lower risk level, where mothers with a Body Mass Index (BMI) $<18.5 \text{ kg/m}^2$ were found to have a 3.8-fold increased risk of having a child with stunting. Nutritional deficiencies during pregnancy or even prior to pregnancy can reduce the transfer of amino acids through the placenta to the fetus, which may lead to impaired fetal growth and an increased risk of premature birth [23]. This condition can contribute significantly to a higher risk of stunting in early childhood, making effective prevention and management of growth faltering crucial.

Another familial factor related to growth faltering revealed by participants is genetics. Families believe that a child experiencing growth faltering and having a short stature may be due to one or both parents also having a short stature. Several studies indicate that mothers with a height of less than 150 cm are at a higher risk of giving birth to a child who may experience growth faltering, potentially leading to stunting [24][25]. This is because shorter maternal stature can limit blood flow to the uterus, affecting the growth of the uterus, placenta, and fetus, which may result in intrauterine growth restriction (IUGR). According to Amaha & Woldeamanuel every 1 cm increase in maternal height can reduce the risk of stunting by 1% [26].

In contrast to the findings of the aforementioned study, other research indicates that genetics is not the sole factor determining a child's height; environmental factors also play a significant role [27]. Influential factors affecting a child's height during infancy (0-18 months) include nutrition, health, and thyroid hormones. Genetic factors, on the other hand, play a more prominent role in determining height during childhood. It can thus be concluded that while genetics does impact growth, it is not the only determinant.

Family members have identified birth conditions such as prematurity and short birth length as factors contributing to growth faltering. Premature birth can be caused by various factors, including maternal nutrition during pregnancy. Nutritional imbalances in the mother are closely linked to premature birth, which is a major cause of neonatal mortality and morbidity and has long-term adverse effects such as impaired physical growth [28]. Compared to term infants, preterm infants and those who experienced intrauterine growth restriction (IUGR) are seven times more likely to experience stunting [29]. Premature infants are highly susceptible to infections that can lead to growth retardation, creating a vicious cycle of nutritional issues.

Another factor perceived by families as contributing to growth faltering is frequent infections or health disturbances. In tropical countries like Indonesia, controlling infectious diseases such as malaria, dengue fever, or parasitic infections is crucial, as these factors can contribute to growth faltering and stunting. This is closely related to sanitation and hygiene. A study by Soekatri et al. [30] reported that the incidence or frequency of health disturbances in children is significantly related to height-for-age (HAZ). Children who reported no health disturbances or illnesses in the previous months had higher HAZ values compared to those who frequently reported illnesses [31]. Commonly reported illnesses in children include those affecting the digestive system (typhoid, diarrhea), respiratory system (acute respiratory infections, pneumonia, tuberculosis, asthma), and infectious diseases (malaria, measles, dengue, hepatitis). Frequent health issues or infections can reduce a child's appetite, hinder nutrient absorption, increase metabolic needs, and result in the loss of essential nutrients [32]. If these issues persist over time, the child is at risk of experiencing growth faltering and stunting.

5. Conclusion

This study underscores the multifaceted nature of growth faltering by highlighting key factors perceived by families, particularly mothers, that contribute to this condition. Nutritional inadequacies, including difficulties in feeding and inadequate breastfeeding practices, are recognized as significant contributors to growth faltering. The study aligns with previous research indicating that proper feeding practices and nutritional intake are crucial for preventing stunting and ensuring adequate growth. Additionally, maternal factors such as chronic energy deficiency during pregnancy, genetic influences, and birth conditions like prematurity and short birth length play substantial roles in the development of growth faltering. These factors are compounded by frequent infections and health disturbances, which are prevalent in tropical regions like Indonesia and exacerbate the risk of growth faltering by affecting appetite and nutrient absorption. Overall, addressing these diverse factors through improved nutritional

practices, healthcare access, and preventive measures is essential for effective management and prevention of growth faltering.

6. Conflict of Interest

The author(s) declared no conflict of interest.

7. Acknowledgment

The author would like to express sincere gratitude to all the participants and their families who contributed to this study. Their willingness to share their experiences and insights has been invaluable in understanding the complexities of growth faltering.

8. Reference

- [1] A. Smith, M. Shah, and M. Badireddy, "Failure to Thrive," StatPearls Publishing, 2023. [Online]. Available: <https://www.ncbi.nlm.nih.gov/books/NBK459287/>
- [2] I. Scholler, "Understanding failure to thrive," *Paediatr. Child Health (Oxford)*, vol. 22, no. 10, pp. 438–442, 2012, doi: 10.1016/j.paed.2012.02.007.
- [3] A. Lezo, L. Baldini, and M. Asteggiano, "Failure to Thrive in the Outpatient Clinic : A New Insight," *Nutrients*, vol. 12, pp. 1–16, 2020.
- [4] S. Krugman and H. Dubowitz, "Failure to Thrive," *Am. Fam. Physician*, vol. 68, no. 5, pp. 879–884, 2003.
- [5] A. C. Jaffe, "Failure to Thrive : Current Clinical Concepts," *Pediatr. Rev.*, vol. 32, no. 3, pp. 100–108, 2011, doi: 10.1542/pir.32-3-100.
- [6] M. Adnan, E. Mohammed, E. Abdullah, R. Abdulaziz, and E. Bentz, "International Journal of Pediatrics and Implementation of new indicators of pediatric malnutrition and comparison to previous indicators," *Int. J. Pediatr. Adolesc. Med.*, vol. 9, no. 4, pp. 216–224, 2023, doi: 10.1016/j.ijpam.2022.12.003.
- [7] L. T. Singer, L. Song, B. P. Hill, and A. C. Jaffe, "Stress and Depression in Mothers of Failure-to-Thrive Children," *Pediatr. Psychol.*, vol. 15, no. 6, 2023, doi: 10.1093/jpepsy/15.6.711.Stress.
- [8] J. Tan, N. Cocks, M. Claessen, N. Cocks, and M. Claessen, "Mothers ' perspectives of support for their child with feeding / swallowing disorders disorders," *Speech, Lang. Hear.*, vol. 0, no. 0, pp. 1–12, 2021, doi: 10.1080/2050571X.2021.1904734.
- [9] N. Duminda, G. Guruge, A. Arhelger, and K. Abhayasinghe, "Perceptions of mothers on child well - being , changes in everyday life and social sustainability : lessons learned from a community - based health promotion programme in Anuradhapura District , Sri Lanka," *J. Heal. Popul. Nutr.*, pp. 1–13, 2022, doi: 10.1186/s41043-022-00295-w.
- [10] A. Dwi, L. Id, R. Dwi, W. Id, and N. Amaliah, "Stunting among children under two years in Indonesia : Does maternal education matter?," pp. 1–11, 2022, doi: 10.1371/journal.pone.0271509.
- [11] C. A. Frosch and S. J. Schoppe-sullivan, "A nalytic Parenting and Child Development : A Relational Health Perspective," vol. 15, no. 1, pp. 45–59, 2019, doi: 10.1177/1559827619849028.
- [12] G. Rezaeizadeh, A. Mansournia, A. Keshtkar, Z. Farahani, F. Zarepour, and M. Sharafkhah, "Maternal education and its influence on child growth and

- nutritional status during the first two years of life : a systematic review and meta-analysis,” *eClinicalMedicine*, vol. 71, p. 102574, 2024, doi: 10.1016/j.eclinm.2024.102574.
- [13] S. J. Jeong, “Nutritional approach to failure to thrive,” vol. 54, no. 7, pp. 277–281, 2011.
- [14] H. J. Streubert and D. R. Carpenter, *Qualitative research in Nursing*, 5th Editio. Philadelphia, 2011.
- [15] S. E. Krauss and K. Lee, “Why use qualitative research methods to understand the meaning of clients ’ experiences in healthcare research ?,” *Int. J. Public Heal. Clin. Sci.*, vol. 2, no. 4, pp. 1–6, 2015.
- [16] J. W. Cresswell and C. N. Poth, *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, 4th Editio., vol. 53, no. 9. California: SAGE Publications, 2018.
- [17] S. V. Som et al., “Adherence to child feeding practices and child growth: A retrospective cohort analysis in cambodia,” *Nutrients*, vol. 13, no. 1, pp. 1–16, 2021, doi: 10.3390/nu13010137.
- [18] A. D. Elisanti, R. D. Jayanti, and D. I. Amareta, “Macronutrient intake in stunted and non-stunted toddlers in Jember , Indonesia,” 2023, doi: 10.1177/22799036231197178.
- [19] R. Elango, M. A. Humayun, R. O. Ball, and P. B. Pencharz, “Protein requirement of healthy school-age children determined by the indicator amino acid oxidation method,” *Am. J. Clin. Nutr.*, vol. 94, no. 6, pp. 1545–1552, 2011, doi: 10.3945/ajcn.111.012815.
- [20] World Health Organization, “Infant and Young Child Feeding Recommendations When COVID-19 is Suspected or Confirmed :,” no. May, pp. 1–17, 2020.
- [21] B. Syeda, K. Agho, L. Wilson, G. K. Maheshwari, and M. Q. Raza, “Relationship between breastfeeding duration and undernutrition conditions among children aged 0–3 Years in Pakistan,” *Int. J. Pediatr. Adolesc. Med.*, vol. 8, no. 1, pp. 10–17, 2021, doi: 10.1016/j.ijpam.2020.01.006.
- [22] R. Zoleko-Manego et al., “Birth weight, growth, nutritional status and mortality of infants from Lambarene and Fougamou in Gabon in their first year of life,” *PLoS One*, vol. 16, no. 2 February, pp. 1–15, 2021, doi: 10.1371/journal.pone.0246694.
- [23] N. E. Marshall et al., “The importance of nutrition in pregnancy and lactation: lifelong consequences,” *Am. J. Obstet. Gynecol.*, vol. 226, no. 5, pp. 607–632, 2022, doi: 10.1016/j.ajog.2021.12.035.The.
- [24] Z. Muhamad, T. Mahmudiono, C. T. Abihail, and N. Sahila, “Preliminary Study : The Effectiveness of Nutrition Education Intervention Targeting Short-Statured Pregnant Women to,” pp. 1–11, 2023.
- [25] S. Susyani et al., “Maternal Risk Factor on Incidence of Stunting in South Sumatera,” *Maced. J. Med. Sci.*, vol. 10, pp. 1599–1604, 2022.
- [26] N. D. Amaha and B. T. Woldeamanuel, “Maternal factors associated with moderate and severe stunting in Ethiopian children: analysis of some environmental factors based on 2016 demographic health survey,” *Nutr. J.*, vol. 20, no. 1, pp. 1–9, 2021, doi: 10.1186/s12937-021-00677-6.

- [27] A. Jelenkovic et al., “Genetic and environmental influences on height from infancy to early adulthood: An individual-based pooled analysis of 45 twin cohorts,” *Sci. Rep.*, vol. 6, no. March, pp. 1–13, 2016, doi: 10.1038/srep28496.
- [28] Y. Zhang, H. Zhou, A. Perkins, Y. Wang, and J. Sun, “Maternal dietary nutrient intake and its association with preterm birth: A case-control study in Beijing, China,” *Nutrients*, vol. 9, no. 3, 2017, doi: 10.3390/nu9030221.
- [29] A. Sania et al., “The contribution of preterm birth and intrauterine growth restriction to childhood undernutrition in Tanzania,” *Matern. Child Nutr.*, vol. 11, no. 4, pp. 618–630, 2015, doi: 10.1111/mcn.12123.
- [30] M. Y. E. Soekatri, S. Sandjaja, and A. Syauqy, “Stunting was associated with reported morbidity, parental education and socioeconomic status in 0.5–12-year-old Indonesian children,” *Int. J. Environ. Res. Public Health*, vol. 17, no. 17, pp. 1–9, 2020, doi: 10.3390/ijerph17176204.
- [31] C. R. Titaley, I. Ariawan, D. Hapsari, and A. Muasyaroh, “Determinants of the Stunting of Children Under Two Years Old in Indonesia : A Multilevel Analysis of the 2013 Indonesia Basic Health Survey,” 2013.
- [32] E. Cervantes and A. San, “Malnutrition and Gastrointestinal and Respiratory Infections in Children : A Public Health Problem,” pp. 1174–1205, 2011, doi: 10.3390/ijerph8041174.

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