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# Analysis of Micro-Level Social Determinants on The Incidence of Stunting in Kediri City: A Qualitative Study

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**ABSTRACT**

Stunting is a serious health problem that has long-term impacts on children's physical and cognitive growth and national progress. This study aims to explore micro-level social determinants, such as maternal knowledge, caregiving practices, household food access, and health service utilization, that influence stunting in Kediri City, and to formulate context-based strategies to address these issues. The design of this study uses a qualitative approach with a case study method; Data were collected through in-depth interviews and participatory observations of mothers who have toddlers or school-age children. Based on research, the incidence of stunting in Kediri City is influenced by various factors, including: lack of understanding of balanced nutrition, inadequate nutritional intake, malnutrition from an early age, lack of monitoring during pregnancy, Low Birth Weight (LBW), unhealthy eating habits, to recurring child health problems, lack of food variety and limited time and knowledge of mothers also exacerbate the situation. These findings emphasize the importance of nutrition education from pregnancy, improving primary health services such as routine visits to health centers, and continuous monitoring of child growth and development. This study recommends a multisectoral and participatory approach to accelerate the reduction of stunting at the community level.

**Key Messages:**

- Stunting at the micro-level is strongly driven by social factors and maternal knowledge. A lack of understanding of balanced nutrition, inadequate caregiving practices starting from pregnancy, and unhealthy eating habits are the primary root causes at the family level.
- Stunting prevention requires a multisectoral approach focused on education and strengthening health services. Effective interventions must begin during pregnancy by providing nutrition education to mothers and ensuring routine monitoring of child growth and development through primary health services..

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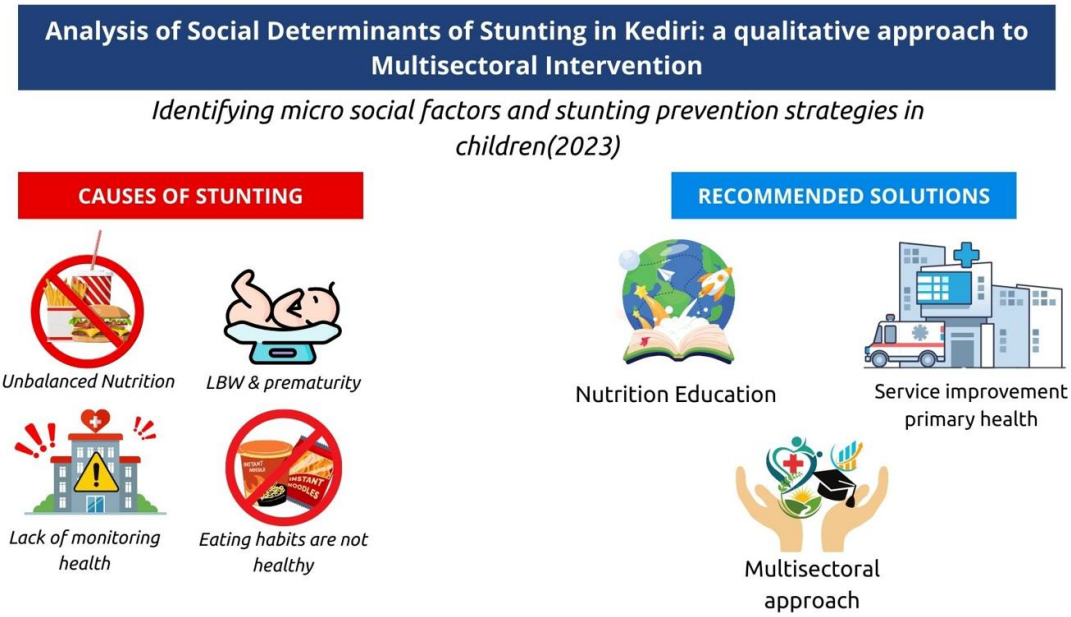
## GRAPHICAL ABSTRACT




## INTRODUCTION

Children are a crucial part of the nation's future, and ensuring their health and nutrition is a national priority. Stunting, a condition characterized by impaired growth and development in children due to chronic malnutrition, repeated infections, and inadequate psychosocial stimulation, remains a major public health concern in Indonesia (1). According to the World Health Organization (WHO), stunting not only affects physical growth but also impairs cognitive development and productivity in adulthood. As stated in Indonesia's National Medium-Term Development Plan 2020–2024, the government has set a target to reduce stunting prevalence to 14% by 2024, in alignment with the Sustainable Development Goals (SDGs) target to end all forms of malnutrition by 2030. Therefore, integrated efforts focusing on improving maternity and child nutrition are urgently needed to break the intergenerational cycle of stunting and support long-term national development (2).

Stunting has become a problem in global health, especially in children under five. Stunting remains a significant global health challenge, particularly among children under five years old. According to the latest estimates from WHO and UNICEF in 2023, approximately 148.1 million children under five worldwide, equivalent to about 22.3%, were affected by stunting (3). This condition, resulting from chronic undernutrition during the most critical periods of growth and development, continues to hinder the physical and cognitive potential of millions of children globally. In Indonesia, the prevalence of toddlers who experienced stunting in 2018 reached 30.8%, and even though the number decreased to 24.4% in 2021, the number is still far from the national target of 14% in 2024. To overcome this matter, the Indonesian government has launched an acceleration program to reduce stunting involving various areas, including Kediri City. In 2022, the prevalence of stunting in Kediri City was recorded at 13.2%, lower than the national average, but still needs more effort to carry on achieving national targets (4).

The causes of stunting are very complex and involve various factors. Some main reasons, among others the lack of adequate nutrition, a lack of care, limited access service health services, as well as a lack of access to clean water and sanitation (5). In addition to that, factors social economy, level of parental education, and environmental conditions the environment also play a role (6,7). In Kediri City, several factors contribute to the high prevalence of stunting, including pregnant mothers with Chronic Energy Deficiency (CED), inadequate parenting practices, and the rising number of early marriages. According to the Indonesian Nutritional Status Survey (*Survei Status Gizi Indonesia*) 2022, the stunting prevalence in Kediri City was 17.5%, indicating a pressing local concern. Furthermore, based on data from [Kediri City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Office of Religious Affairs or BPS], the number of early marriages increased in 2022 compared to the previous year, suggesting a correlation between early marriage and child nutritional problems, particularly stunting (8).

The impact of stunting is very broad, not only influencing the health and physique of children, but also inhibiting cognitive development, reducing productivity, and improving cost intervention for better health in the future (9). Stunting not only harms individuals but also obstructive progress in national development (10). For that, the government implements two types of interventions in stunting control: nutrition-specific intervention, nutrition-sensitive, focusing on pregnant mothers and children in the First 1000 Days Life, as well as intervention-sensitive involving other sectors for support change in the pattern of life and environment society (11).

Although various government policies to reduce stunting have been implemented, their application at the community level is often not fully effective. Many communities and program implementers still lack a comprehensive understanding of the stunting problem. Therefore, a more contextual and community-based approach is needed to enhance public knowledge and awareness. This study introduces a novel micro-level, qualitative approach focused specifically on Kediri City, an area that has not been the subject of in-depth community-based research on stunting. The research aims to identify the social factors influencing stunting in Kediri City in 2023 and to formulate appropriate strategies to accelerate stunting prevention and control efforts at the local level.

## METHODS

This study employs a qualitative approach using a single case study design to explore and understand the nutritional challenges faced by mothers of young children within a specific community in Kediri City. The case study method was selected to allow an in-depth investigation of contextual and social factors influencing child nutrition at the household level. To guide the analysis, the study adopts the World Health Organization (WHO) conceptual framework on the determinants of child malnutrition, which considers both immediate and underlying social, economic, and behavioral factors. In addition, elements of phenomenological analysis are used to capture the lived experiences, perceptions, and challenges encountered by mothers in meeting their children's nutritional needs. This approach enables a rich and nuanced understanding of the real-life barriers to adequate child nutrition in a local context (12).

The subjects of this study were mothers residing in the selected community area in Kediri City who had children under five years old (*toddlers*). The inclusion criteria included mothers with children who had been screened for nutritional status, were domiciled in the study area for at least one year, and were willing to participate voluntarily. Exclusion criteria included mothers with children diagnosed with non-nutritional growth disorders (e.g., genetic conditions) or those who were unavailable during the data collection period.

Participants were selected using purposive sampling with criterion-based selection, ensuring that those involved had direct experiences related to child nutrition and stunting. A total of 10 participants were interviewed, which is considered adequate in qualitative research to achieve data saturation while allowing for in-depth exploration. Data were collected through semi-structured in-depth interviews, allowing participants to express their views and experiences openly regarding the challenges and practices in fulfilling their children's nutritional needs.

Data collection was carried out using two primary techniques: in-depth semi-structured interviews and participatory observation (13). The interviews were conducted between August and September 2023 at the participants' homes in Kediri City to ensure a comfortable and familiar setting. Each interview lasted approximately 45–60 minutes and was conducted by the principal researcher, who has been trained in qualitative interviewing. A pre-prepared interview guide was used to ensure consistency while still allowing flexibility for participants to share their personal experiences regarding children's eating patterns, nutrition practices, and daily challenges.

In addition to interviews, participatory observations were carried out during three separate visits to each participant's household over two weeks. These observations focused on children's eating behaviors, meal preparation routines, and interactions between mothers and children during mealtimes.



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Field notes were taken to capture contextual details that complemented the interview data, allowing a richer understanding of the nutritional practices and challenges within the natural setting of daily life.

The collected data were analyzed using thematic analysis with an inductive approach, allowing themes to emerge organically from the participants' narratives without being constrained by pre-existing theoretical assumptions. The analysis process began with verbatim transcription of all interview recordings, followed by manual coding of the transcripts and field notes. Researchers systematically identified recurring patterns and concepts, which were then grouped into broader, meaningful themes related to maternal practices, child nutrition, and stunting. While no qualitative data analysis software was used, the coding process followed a structured step-by-step procedure to ensure consistency and analytical rigor. Finally, the emerging themes were interpreted and connected to relevant literature to contextualize the findings within the broader discourse on child nutrition.

To increase the accuracy and validity of research results, data triangulation will be done. Researchers will compare information from in-depth observation and secondary data sources. The approach allows researchers to see similarities and differences in understanding as well as practice-related fulfillment of nutrition in children, which can produce more comprehensive and valid.

## RESULTS

### Misperceptions About Healthy Food

The study found that many mothers still have a limited understanding of what constitutes a balanced and nutritious diet for children. A common misconception is that feeding children whatever food is available, regardless of variety or nutritional content, is sufficient.

For example, Informant 2 stated, *"Many mothers have limited knowledge."* This indicates that nutritional awareness is still low, particularly regarding the role of protein, vitamins, and minerals in supporting child growth. The reliance on limited food types hinders the fulfilment of essential nutritional needs.

### Dependence on Staple Foods

Many participants viewed rice and vegetables as adequate daily nutrition for children, without recognizing the absence of key food groups such as animal protein.

Informant 3 shared, *"I thought eating rice and vegetables was already enough, but not."* This reflects a widespread perception that starchy staples are the main requirement, while the importance of dietary diversity is overlooked.

This evidence highlights the urgent need for targeted nutrition education for mothers. Health promotion efforts should emphasize the importance of complete, balanced meals, including protein sources and micronutrients, and be delivered regularly through Community Health Centers and community-based programs. Collaborative efforts between the health sector and local stakeholders are necessary to ensure this information reaches and is understood by the broader community.

### Inadequate Nutritional Intake – Between Economic Constraints and Child Feeding Behavior

The study reveals that mothers face challenges in providing balanced and nutritious food for their children, which stems from both economic limitations and children's selective eating behaviors. Some mothers report that their children prefer snack foods over nutritious meals, which complicates efforts to provide a well-rounded diet.

For instance, Informant 2 stated, *"My child is a picky eater—he prefers snacks like crackers."* This suggests that, in some cases, the issue is not just about food availability, but also about children's resistance to healthy food options. In other cases, time constraints due to work or household responsibilities lead mothers to rely on fast or ready-to-eat food. As Informant 4 explained, *"We often give fast food because there's no time to cook."*

However, these feeding practices, while convenient, tend to be low in protein, vitamins, and minerals, and high in salt, sugar, or fat, which increases the risk of stunting and poor child development.

Economic limitations also play a role in restricting food diversity. Some mothers reported difficulties in accessing animal protein or fruits due to high prices. Despite this, it was not evident whether



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they had access to additional food assistance or government social protection programs (e.g., providing additional food). This raises concerns about the reach and utilization of such programs in supporting nutrition at the household level.

Furthermore, the findings suggest that many mothers still lack understanding of macro- and micronutrient needs, and instead base feeding decisions primarily on whether the child feels "full." The perception of satiety is often prioritized over nutritional quality, which underscores the importance of nutrition literacy interventions.

Improving maternal knowledge about practical, affordable sources of nutrition, as well as time-saving cooking methods, could help increase both the diversity and quality of children's diets, even in resource-limited households.

**Delayed Recognition of Malnutrition in the First 1000 Days of Life**

Stunting often begins in the earliest stages of a child's life, particularly within the critical window of the First 1000 Days of Life from conception to a child's second birthday. This period is widely recognized in global and national health policies, including the WHO framework and Indonesia's RPJMN, as the most crucial for preventing chronic malnutrition and supporting optimal brain and body development.

However, this study found that many parents only recognize stunting after visible signs of growth faltering appear, missing the opportunity for early intervention. As Informant 2 shared, *"Dinda was diagnosed with stunting at the age of 2 years,"* indicating that detection occurred beyond the optimal intervention period. Similarly, other parents expressed delayed awareness: *"We didn't know our child had been stunted from the beginning."*

This lack of early recognition reflects a gap in parental knowledge about early childhood nutrition and growth monitoring and suggests inadequate dissemination or accessibility of early health education during pregnancy and infancy.

Stunting left unaddressed during the first 1000 days of life can have long-term impacts on physical growth, cognitive function, and productivity in adulthood. Therefore, integrating HPK-focused education and routine monitoring into maternal and child health services is vital. Efforts must ensure that parents, especially mothers, are not only informed but also empowered to act early, through counseling, home visits, and regular growth assessments, to prevent and mitigate stunting during this irreversible phase of development.

**Inadequate Nutritional Monitoring During Pregnancy**

The study reveals that limited attention to maternal nutrition during pregnancy can significantly affect both maternal health and fetal development, contributing to the risk of stunting in early childhood. Although several mothers reported having smooth pregnancies, many did not undergo routine antenatal check-ups or receive proper nutritional monitoring, especially from formal health facilities.

For example, Informant 2 stated, *"Thank God, there were no complications. My weight reached 49 kg during the first pregnancy, but there was no indication of routine antenatal visits or nutritional assessments to ensure that my condition met recommended standards. Similarly, Informant 1 mentioned, "I regularly went to the midwife, not to the primary health center,"* which highlights that some mothers relied solely on private midwives, who may not always provide integrated services such as nutritional screening, anemia testing, or provision of supplements.

Furthermore, the findings indicate that most mothers were not aware of the importance of iron (Fe) supplementation, and there was no clear indication whether they received supplementary food for pregnant Women or counseling on micronutrient needs such as folic acid, calcium, and protein intake. This limited knowledge and access potentially compromise maternal nutritional status and fetal growth, factors that are crucial during the First 1000 Days of Life.

The lack of comprehensive monitoring and education underscores the need to strengthen antenatal services, particularly through community health centers, by ensuring pregnant women receive complete pregnancy examinations, nutritional counseling, and government-provided supplements like Fe tablets and supplementary food for pregnant women. Community-level outreach and integrated health promotion



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efforts are essential to ensure that all expectant mothers, regardless of socioeconomic status, receive the care needed to prevent malnutrition and stunting from the earliest stage.

**Lack of Dietary Diversity and Micronutrient-Rich Foods**

This study found that limited variation in children's daily food intake contributes to inadequate nutrition, particularly in terms of Animal-Source Foods (ASF) and essential micronutrients such as iron (Fe), zinc (Zn), and vitamin A, which are crucial for growth, immunity, and cognitive development.

Many mothers reported providing repetitive meals lacking in diversity. For example, *Informant 2 stated, "My child's food is almost always rice and vegetables. I rarely give different side dishes."* This indicates a dietary pattern that may satisfy caloric needs but lacks nutrient density, especially from sources rich in bioavailable micronutrients such as eggs, fish, chicken, liver, or milk.

In addition, child food preferences and feeding difficulties further restrict dietary diversity. Informant 3 said, *"My child prefers rice soup over porridge," and noted, "Sometimes children don't like more variety, like fruits or other side dishes."* This dependence on a few familiar foods can reduce exposure to nutrient-rich options, creating a risk for hidden hunger or subclinical micronutrient deficiencies.

The reluctance of children to try new foods, often termed food neophobia, is a common challenge in early childhood. However, this can be mitigated through consistent exposure, positive reinforcement, and role modeling by caregivers. It also highlights the need to educate mothers and caregivers not only about the importance of balanced nutrition but also about strategies to gradually introduce and sustain diverse, nutrient-rich foods, particularly from animal sources. Therefore, nutrition counseling should emphasize: 1) The importance of including animal source foods regularly in children's meals; 2) The role of micronutrients like Fe, Zn, and vitamin A in preventing stunting and supporting healthy development; 3) Practical methods to improve dietary diversity even within low-income settings; 4) Integrating this message into community health services (e.g., Posyandu nutrition sessions) could significantly help improve nutritional outcomes at the household level.

**Unhealthy Eating Patterns in Children**

Habit Eat No healthy, like consuming food instantly and snacks, becomes a factor in the nutrition of children. Many mothers report that children choose snacks like shrimp crisps over nutritious food. *Informant 2 said, " Children, I often eat crackers and light food, rarely eat healthy food. " Food This often No give mark adequate nutrition and reduce intake nutrition important for the development child.*

A number of mothers realize the importance of healthy food, but face difficulty in providing nutritious food because of limited time or dependence on fast food. *Informant 2 said, "I have to be more diligent in preparing healthy food for children. Don't only eat biscuits," which indicates a challenge for mothers to ensure children consistently get nutritious food.*

Besides that, children often choose instant food like instant noodles, which contains artificial preservatives, salt, and saturated fat, which is not Good For long-term health term long. *Informant 3 said, " Sometimes, child, I choose instant food, and I tend to let it be." This shows the difficulty of mothers in limiting food choices; more food is practical, but not nutritious enough.*

Counseling parents about methods to reduce food dependency on instant and snacks, as well as introducing eating more balanced with fruits, vegetables, protein, and complex carbohydrates, is very important to increase the quality nutrition for children.

**Lack of Growth Optimal Body Weight**

This study identified the phenomenon of low weight gain in children, even though they have been given nutritious food, which indicates a more complex problem, such as stunting, which inhibits the physical growth and overall development of children.

Some mothers expressed their concerns about their children not gaining weight despite being given nutritious food. This shows that children's weight problems are not only influenced by food quality, but also by other factors such as body metabolism, nutrient absorption, or certain medical conditions.



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*Informant 1 said, "My child is not gaining weight, even though I have tried to give him nutritious food." This statement illustrates the mother's hard work that has not yielded results, indicating a deeper problem that is hindering the child's growth and development.*

Some mothers also reported that even though their children were given additional food to support weight gain, the results were still inadequate. *Informant 2 said, "My child's weight is still low, even though I have often been given additional food." This suggests that nutrient absorption problems or medical conditions may be a barrier to achieving optimal weight.*

*Informant 3 also added, "My child is always thin, even though he eats a lot, this worries me." This concern indicates a potential metabolic disorder or other health problem that prevents effective nutrient absorption, which hinders the child's physical growth.*

From these quotes, stunting appears as a major problem in child development. Although they receive nutritious food and additional calories, other factors such as metabolic disorders or health problems can be obstacles to optimal weight.

Some factors that influence this problem include: Digestive problems, such as food intolerances or digestive diseases, can inhibit nutrient absorption. Some children may have conditions that inhibit the body's ability to grow properly. Recurrent infections or undetected chronic diseases can affect a child's weight and appetite.

Lack of increase in optimal body weight, even though the intake of nutrition is enough, signifies existence possibility of health problems. Therefore, that's important for parents to monitor their health and do inspection in -depth medical for identify and address obstructive disturbances grow flower they.

**Low Birth Weight (LBW) and Maternal Nutritional Deficiencies During Pregnancy**

The study identifies low birth weight (LBW) as a significant early-life risk factor that can negatively impact a child's health, growth, and development. LBW is frequently linked to inadequate maternal energy-protein intake and poor dietary quality during pregnancy, particularly the lack of nutrient-dense foods that support fetal growth.

Informant 3 shared, *"My first child was born weighing only 2.7 kg,"* a figure that borders the clinical LBW threshold (<2.5 kg). Although it may seem marginal, suboptimal birth weight is associated with higher vulnerability to infection, delayed physical development, and reduced resilience to nutritional deficits. The same informant added, "*Ilham was born weighing 2.8 kg, and I felt that was low,"* expressing maternal concern despite a slight improvement in birth weight. Informant 1 echoed a similar experience: *"My child was born with low birth weight and is still small now,"* indicating the lasting developmental effects of LBW.

LBW is strongly correlated with maternal undernutrition, especially low intake of quality proteins and essential micronutrients (e.g., iron, folate, zinc), during the antenatal period. Poor maternal nutritional status can impair placental development and fetal growth, leading to Intrauterine Growth Restriction (IUGR).

Furthermore, children born with LBW are at increased risk of: 1) Respiratory complications; 2) Recurrent infections; 3) Nutritional deficiencies; 4) Delayed motor and cognitive milestones; and 5) Long-term metabolic disorders.

Given these risks, early interventions, including adequate maternal dietary intake, iron and protein supplementation, and routine antenatal care, are critical. Health systems must ensure that pregnant women receive access to supplementary feeding for pregnant women, regular Fe and energy-protein supplementation, and nutrition-focused counseling to prevent LBW and its long-term consequences.

Promoting balanced energy-protein intake during pregnancy, especially through animal-source foods and fortified supplements, is essential to break the intergenerational cycle of malnutrition and support optimal child development starting in utero.

**Lack of Visit to the Health Center During Pregnancy**

Routine check-ups during pregnancy are very important to monitor the health of the mother and fetus, but some mothers do not make regular visits to the health center, which can be risky for the health of the mother and child.



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*Informant 1 said, "I did not go to the health center regularly during pregnancy, only to the midwife." Although midwives play an important role, regular check-ups at the health center provide more comprehensive health monitoring.*

Some mothers are not aware of the importance of regular visits to the health center. *Informant 3 said, "I don't know that I should go to the health center regularly for pregnancy check-ups." This lack of information can increase the risk of undetected complications.*

*Informant 2 also said, "In my first pregnancy, there were no routine check-ups, only occasional visits to the midwife." These limited visits reduce comprehensive monitoring of maternal and fetal health, which should be done routinely to detect problems such as hypertension or fetal growth disorders.*

Lack of visit routine to the health center can increase the risk of medical complications like preeclampsia, and life-threatening infections mother and baby. Therefore, education about the importance inspection pregnancy routine is very important to ensure the health mother and child during pregnancy. Health Center provides service health more complete, and routine visits allow early detection of Health problems.

**Recurring Child Health Problems and the Role of the Home Environment**

The study found that several mothers reported recurring health problems in their children, particularly chronic coughs, respiratory issues, and frequent colds, which negatively affect both physical development and nutritional intake. These symptoms, although often underestimated, may indicate underlying respiratory conditions such as asthma, chronic bronchitis, or environmental allergies and thus require appropriate diagnosis and long-term management.

Informant 2 stated, *"My child had a lung disease, a cough that could not be cured,"* suggesting a potential chronic respiratory condition that was not fully addressed. Similarly, Informant 3 shared, *"I used to get sick often, cough and cold every month, but now I don't get sick often,"* implying the episodic nature of such illnesses and the importance of sustained health interventions.

Contextual factors within the home environment appear to play a critical role in either exacerbating or alleviating these recurring illnesses. Overcrowded housing, poor air circulation, exposure to indoor smoke (e.g., from firewood, cigarettes, or kerosene stoves), damp conditions, and lack of sunlight can contribute to a higher burden of respiratory infections in children. However, the study did not find widespread use of preventive measures, such as improving ventilation or reducing exposure to indoor pollutants.

In addition, the home environment affects care practices. Frequent illnesses often led to reduced appetite in children, which, in turn, affected their nutritional intake and weight gain. Informant 1 noted, *"My child often has coughs and colds, which affect his appetite."* This reduced intake can worsen the child's condition, creating a vicious cycle of illness and malnutrition.

There was also limited mention of access to regular health services or follow-up care, which may stem from a lack of knowledge, limited access to transportation, or financial constraints. In some cases, treatment was sought only after symptoms worsened.

Therefore, to break the cycle of recurrent illness and malnutrition, it is essential to: 1) Promote healthier home environments by reducing exposure to respiratory irritants; 2) Provide routine medical check-ups, especially for children with frequent respiratory issues; 3) Improve caregiver knowledge about hygiene, early treatment, and signs of chronic illness; 4) Ensure adequate nutrition during and after illness to support recovery and growth. Strengthening these areas, especially through community-based health promotion, can significantly improve child health outcomes and prevent preventable stunting caused by recurrent infections.

**Perceptions of Heredity vs. Medical Risk Factors (LBW and Prematurity)**

The study identified that some mothers attributed their children's growth and nutritional status to hereditary or genetic factors, particularly when the child appeared physically smaller than peers. This perception often influenced how they responded to growth issues.



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Informant 2 stated, *"My child is small because his father is also small,"* reflecting a common belief among mothers that a child's stature is predetermined by family traits. While genetic predisposition may influence height and body frame, this belief can sometimes mask underlying medical or nutritional issues, delaying appropriate intervention.

On the other hand, several participants reported medically verifiable conditions at birth that are recognized as risk factors for stunting and developmental delays. Informant 3 mentioned, *"My first child was born with low birth weight, and so was my second child,"* indicating a pattern of Low Birth Weight (LBW), which is medically defined as birth weight under 2,500 grams and is often associated with poor intrauterine nutrition or maternal health conditions.

Informant 1 added, *"My child was born prematurely, and I think it runs in the family,"* highlighting both a clinical condition (prematurity) and a perceived genetic link. Premature birth increases the risk of respiratory, metabolic, and developmental problems and typically requires intensive neonatal and postnatal care.

While genetic factors may indeed play a role in some health outcomes, it is crucial to distinguish between: 1) Subjective perceptions of heredity (e.g., "my child is naturally small"); 2) Clinical indicators such as LBW and prematurity require medical attention and close monitoring. Failing to differentiate between these may result in under-recognition of modifiable risk factors such as poor maternal nutrition, infections during pregnancy, or inadequate antenatal care.

Therefore, public health education should emphasize, 1) The importance of routine antenatal monitoring to detect and manage risks of LBW or preterm birth; 2) Encouraging mothers to seek medical advice rather than relying solely on family comparisons. Highlighting that even children with hereditary predispositions need adequate nutrition and health care to reach their optimal growth potential.

**Prematurity and Child Health Challenges**

Prematurity, birth before 37 weeks of gestation, brings significant health challenges for the children who experience it. This study explores the experiences of mothers with premature children and the challenges they face in terms of their children's health, development, and nutrition.

*Informant R said, "My child was born premature at 6 months, and did not cry at birth," describing a serious condition that requires intensive medical care. Children born prematurely often experience respiratory distress, digestive problems, and delays in physical and cognitive development.*

Premature birth also leads to parental concerns about long-term risks, such as chronic respiratory disorders and developmental delays. *Informant 2 added, "When my child was born premature, I felt worried about his health," reflecting the normal anxiety of parents about their child's future health.*

However, with proper medical care and ongoing support, many premature babies can thrive despite early delays. Careful monitoring of physical and cognitive development is essential to ensure that premature babies reach their full potential.

Premature brings a big impact on children's development. The child who was born premature needs intensive medical attention and support sustainable for help them overcome the challenges of health and development that they face. Supporting psychology for parents is also very important for reducing anxiety they, as well as ensuring children get the necessary care for growing and developing optimally.

**Table 1. Coding Matrix of Research Findings on Social Determinants of Stunting**

| Theme | Sub-Theme | Key Quotes from Informants | Researcher's Interpretation |
|---|---|---|---|
| **Mother's Understanding of Balanced Nutrition** | Misconceptions about Healthy Food | *"I think eating rice and vegetables is already enough."* (Informant 3) | Many mothers equate satiety with nutrition. Lack of awareness about the need for animal-source food (ASF), micronutrients (Fe, Zn, Vitamin A), and dietary diversity. |
| | Perception of Heredity | *"My child is small because his father is also small."* (Informant 2) | Mothers may attribute stunting to genetics, overlooking medical causes like chronic undernutrition or LBW. |



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| Theme | Sub-Theme | Key Quotes from Informants | Researcher's Interpretation |
|---|---|---|---|
| **Inadequate Nutritional Intake** | Child Food Preferences | *"My child prefers snacks like crackers."* (Informant 2) | Children's preferences lead to poor-quality diets, often lacking in protein and micronutrients. Mothers lack strategies to introduce healthier alternatives. |
| | Time Constraints | *"We often give fast food, no time to cook."* (Informant 2) | Mothers' workload influences food choices. Practical nutrition education is needed to manage time and ensure nutritious meals. |
| **Lack of Food Variation** | Dependence on Staple Foods | *"Almost every day just rice and vegetables."* (Informant 2) | Repetitive menus reduce micronutrient intake. Mothers need support to introduce diverse, affordable, and protein-rich food. |
| | Child Refuses New Food | *"Sometimes children don't like new dishes, like fruit or side dishes."* (Informant 3) | Food neophobia hinders diversification. Repeated exposure and positive reinforcement can help overcome resistance. |
| **Recurring Child Health Issues** | Chronic Cough, Frequent Illness | *"My child had a cough that wouldn't go away."* (Informant 2) | Recurrent illness reduces appetite and nutrient absorption. Poor home environment or inadequate medical care may contribute. |
| **Access to Health Services** | Lack of Routine Check-ups | *"I only went to the midwife, not to the health center."* (Informant 1) | Some mothers only access basic care. provision of additional food for pregnant women, Fe supplementation and full antenatal services are often missed. |
| **Low Birth Weight & Prematurity** | Inadequate Maternal Nutrition | *"My first child was born at 2.7 kg, second at 2.8 kg."* (Informant 3) | LBW is associated with suboptimal maternal intake during pregnancy. Requires improved antenatal nutrition and close postnatal monitoring. |
| | Premature Birth | *"My child was born prematurely, maybe hereditary."* (Informant 1) | Prematurity is often underestimated. Mothers need a better understanding of risks and follow-up care. |

## DISCUSSION

This study aims to identify various determinants social level, micro contributing to stunting problems in children, with a focus on understanding the role of nutrition balance, nutrition intake in children, and the role factor environmental factors in supporting child growth. Based on the data obtained from interviews with several mothers who have children with stunting, several factors are the main influencers against stunting, such as a lack of understanding about balanced nutrition, intake nutrition that is not adequate, lack of variation food, problem recurring health, as well as factor socio economic and medical other.

**Lack of Understanding about Nutrition Balanced**

One of the main factors identified in this study is the low level of maternal understanding regarding the importance of a balanced diet to support child growth. Many mothers assume that a diet consisting of rice and vegetables is sufficient to meet their child's nutritional needs, whereas in reality, such meals often lack variety and do not include essential components such as animal protein, vitamins, and minerals. This limited knowledge is suspected to be associated with several factors, including low levels of formal education, limited access to accurate nutritional information, and minimal exposure to nutritional counseling from health professionals (14). These findings highlight the need for more intensive and targeted nutrition education efforts directed at mothers, particularly at the community level. The results of this study are consistent with previous research identifying maternal knowledge as one of the key social determinants of stunting. For instance, research by Tahreem (15), found that low maternal nutrition literacy is significantly associated with a higher prevalence of stunting. Inadequate understanding prevents mothers from planning and preparing nutritionally balanced meals for their children. Therefore, improving


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maternal nutrition literacy through community-based interventions and primary healthcare services is essential in the prevention of stunting.

**Intake Nutrition that is not Adequate for Children**

Several mothers reported difficulties in providing nutritious food for their children due to limited time and children's preferences for certain types of food. These challenges often result in unhealthy dietary patterns, characterized by a high dependence on instant food and snacks, which significantly reduce the quality of nutritional intake. This condition puts children at increased risk of poor health outcomes and accelerates the onset of stunting.

This finding aligns with research indicating that children who do not receive balanced and adequate nutrition during the first 1,000 days of life (from conception to two years of age), a critical window for growth and development, are at significantly higher risk of experiencing stunting (16). It is important to note that stunting (impaired linear growth) is distinct from wasting (low weight for height) and reflects long-term chronic undernutrition rather than acute malnutrition.

One of the key contributing factors is the insufficient intake of essential nutrients, particularly animal protein, iron, zinc, and vitamin A, which are crucial for optimal growth and immune function. Studies have also demonstrated that time constraints often lead mothers to choose convenience foods that are low in nutritional value (17), thereby exacerbating deficiencies in critical nutrients.

Moreover, the potential of utilizing locally available, nutrient-dense foods such as eggs, fish, tempeh, and dark green leafy vegetables is often overlooked. Community-based interventions should thus focus not only on improving maternal knowledge about balanced diets but also on promoting the use of affordable, local food sources that can meet children's nutritional needs, particularly during the 1,000 HPK window.

**Lack of Variation in Kids' Food**

Low dietary diversity is not solely the result of economic constraints, but is also shaped by cultural food norms, convenience, and children’s feeding behavior. A diet dominated by staple foods such as rice and vegetables lead to deficiencies in critical micronutrients essential for a child’s growth and development. Although many mothers attempt to provide healthy meals, children’s reluctance to try new foods often hinders the achievement of balanced nutrition.

This pattern is supported by the findings of Suratri (18), which indicates that limited food variation and a growing dependence on instant foods contribute to an increased risk of stunting among children. Similarly, UNICEF notes that chronic infections, when left untreated, can impair nutrient absorption and further exacerbate undernutrition in children (3).

Data from the Indonesian Basic Health Research (Riskesdas) also reflect this trend, showing that while most children consume staple foods and vegetables, the intake of animal-based proteins—such as fish, eggs, and meat—remains low, particularly among low-income households. This is concerning, as animal-source foods are key providers of essential nutrients like vitamin B12, heme iron, and zinc, which play vital roles in immune function, cognitive development, and linear growth (19).

To address this, nutritional interventions must consider not only economic limitations but also the influence of cultural food practices, parental feeding strategies, and children's taste preferences. Educating caregivers about the importance of dietary diversity and how to gradually introduce animal-source and nutrient-dense foods into children's meals is essential for promoting optimal nutrition and preventing stunting.

**Recurring Health Problems**

Recurrent health problems in children, such as chronic coughs and respiratory tract infections, are significant aggravating factors for poor nutritional status. When left untreated or inadequately managed, these illnesses reduce appetite, impair nutrient absorption, and increase metabolic demands—ultimately contributing to growth faltering and stunting.

This pattern aligns with the malnutrition-infection cycle framework, which explains how repeated infections exacerbate undernutrition through two primary mechanisms: increased metabolic requirements and reduced dietary intake. During periods of illness, especially infections such as diarrhea or respiratory



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tract disease, children often experience a significant decrease in appetite and energy intake. If these episodes recur without sufficient nutritional recovery, they lead to cumulative growth deficits.

Several studies have shown that acute and recurrent infections, particularly respiratory illnesses, significantly impair nutritional status and hinder linear growth in children (20). Another study found that children's energy intake dropped substantially during infection episodes, and without proper dietary compensation post-illness, this leads to long-term deficits in both weight and height (21). Additionally, recovery from illness is often delayed in undernourished children, perpetuating the cycle of infection and malnutrition (22). Therefore, preventing and managing recurrent infections, through improved hygiene, timely medical care, and adequate nutritional support, is essential to break the cycle and reduce the risk of stunting.

**Factor Socio-Economic and Access to Health Services**

Many mothers also expressed a lack of access to adequate health care, such as routine visits to the health center. Research finds that Lots Mother only inspect midwives without continuing inspection, more continue at the health center or House sick, which has the potential to ignore early detection problem health problems at risk of worsening stunting conditions. Research Rochmawati L (23) ( **Error! Reference source not found.**) also highlights the importance of monitoring health routinely during pregnancy and after birth in preventing health conditions that cause stunting. Research by Supadmi, along with his team (24), stated that stunting is more often found in families with low income, poor sanitation, and limited access to health care. Mothers who do not access complete health services (including health centers or home sick) during pregnancy own risk more tall For giving birth to a baby with low birth weight and other possible complications leading to stunting (25). Monitoring routine and intervention appropriate time during the 1000 days. First, life is very important in preventing stunting. Without access to services, nutritional and medical needs are often not met (26). Other research highlights the importance of addressing socioeconomic disparities, such as family economic conditions, to ensure sustainable stunting prevention (27).

**Low Birth Weight and Prematurity as Risk Factors for Stunting**

Low birth weight (LBW) and prematurity were identified as significant risk factors contributing to the incidence of stunting. Children born with LBW face heightened risks of both physical and cognitive developmental delays. Studies indicate that children with LBW have more than twice the risk of experiencing stunting compared to those born with normal birth weight (28). Research by the Indonesian Ministry of Health (19), also confirms that LBW is one of the strongest predictors of stunting in the country.

Furthermore, a study in Nepal found that premature infants are particularly vulnerable to impaired growth, especially when neonatal care and nutritional support are inadequate (29). The combination of LBW and prematurity compounds the likelihood of stunting, especially in low-resource settings with limited access to maternal and child health services (30). Another study showed that increasing maternal education levels can help reduce the incidence of stunting in toddlers, highlighting the importance of education in preventing child malnutrition (31).

From a preventive standpoint, maternal nutrition education, iron–folic acid supplementation, and routine antenatal care play a crucial role in reducing the incidence of LBW. These interventions can significantly lower the risk of stunting by ensuring optimal fetal growth and improving maternal health during pregnancy. Early identification and support for high-risk pregnancies through community health programs and primary care facilities are therefore essential to break the intergenerational cycle of malnutrition.

**Recommendation**

Based on the findings of this study, several recommendations can be made to address the problem of stunting in children: 1) Balanced Nutrition Education: Increase education on the importance of balanced nutrition through various channels, such as health centers, schools, and local health institutions; 2) Improving Access to Health Services: Ensure that mothers and children have adequate access to health services, including routine pregnancy check-ups and monitoring of child development; 3) Increasing Food Variety: Educating mothers about the importance of introducing a variety of foods early on to avoid


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malnutrition. Recurrent Health Care Treatment: Optimizing service health for children who often experience disturbances in health, like cough and cold, so as not to affect their nutritional status.

## CONCLUSION

This study concludes that the prevalence of stunting in Kediri City is driven by a complex interplay of social determinants at the household level. The most dominant factor identified is the limited maternal understanding of balanced nutrition, which is influenced by low formal education, limited access to accurate nutritional information, and minimal exposure to health counseling. Inadequate dietary intake, low dietary diversity, children's selective eating behaviors, and cultural feeding norms also contribute significantly to insufficient nutrition among children.

In addition, repeated child health problems, limited maternal health monitoring during pregnancy, low birth weight (LBW), prematurity, and restricted access to quality health services were found to exacerbate the risk of stunting. These findings underscore that stunting is not merely a nutritional issue but a multifaceted social health problem requiring comprehensive, multisectoral intervention.

This research highlights the need for integrated strategies involving health, education, and social sectors. Key recommendations include strengthening maternal nutrition education during pregnancy, ensuring access to iron-folic acid supplementation and antenatal care, promoting dietary diversity, and improving child growth monitoring through regular visits to primary healthcare facilities.

By emphasizing local contextual factors in Kediri City, this study contributes to the growing body of literature on the social determinants of stunting and supports the development of community-based, context-sensitive interventions. These findings reinforce the importance of cross-sector collaboration to reduce stunting prevalence sustainably and equitably.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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