



Factors Influencing The Incident of Stunting at The Sagerat Public Health Center, Bitung City

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Abstract, Background: Stunting remains a major public health concern in Indonesia, affecting children's growth, development, and long-term health outcomes (Sari, 2020). Early childhood stunting can lead to cognitive delays, poor school performance, reduced productivity in adulthood, and increased risk of chronic diseases (Hapsari & Wulandari, 2019). Understanding the interaction of demographic, socioeconomic, and health-related factors is essential to reduce stunting prevalence and improve child health outcomes (Yuliani, 2019). Objective: This study aimed to analyze the factors influencing the incidence of stunting among children attending the Sagerat Public Health Center in Bitung City. Methods: A quantitative, observational study with a cross-sectional design was conducted. Thirty children were selected using purposive sampling based on inclusion criteria such as age under five years and available anthropometric data. The Wilcoxon signed-rank test was applied to examine the relationship between these factors and stunting incidence, with a significance level set at $p < 0.05$. Results: The analysis showed that 30 children (100%) in the study were at risk of stunting based on height-for-age measurements, with 20 children (90%) confirmed as stunted and 10 children (10%) having normal height. These results suggest that maternal education, socioeconomic status, nutrition, and access to healthcare are strongly associated with stunting in this population. Conclusion: Factors such as maternal education, socioeconomic status, dietary intake, and access to healthcare significantly influence the incidence of stunting among children at the Sagerat Public Health Center. Comprehensive community-based programs are recommended to reduce stunting prevalence and improve long-term health outcomes for children.

Keywords: Child Growth, Maternal Education, Nutrition, Public Health, Stunting.

1. INTRODUCTION

Sexually Stunting is a major public health problem in Indonesia and remains a leading cause of impaired child growth and development (Sari, 2020). Stunting is defined as a height-for-age measurement that is below minus two standard deviations from the World Health Organization (WHO) growth standard, indicating chronic malnutrition (Nurhidayah, 2021). Children who experience stunting in early childhood face long-term consequences, including cognitive delays, poor school performance, reduced productivity in adulthood, and increased susceptibility to chronic diseases (Putri, 2020). The prevalence of stunting in Indonesia remains high despite various national programs targeting nutrition and child health (Hapsari & Wulandari, 2019). Several factors contribute to stunting, including maternal nutrition during pregnancy, low birth weight, poor feeding practices, frequent infections, and inadequate access to healthcare services (Amalia & Putra, 2021). Maternal education plays a significant role in influencing child growth because educated mothers are more likely to provide appropriate nutrition, access healthcare services, and implement proper hygiene practices (Yuliani, 2019).

Socioeconomic status is another key determinant of stunting, as low-income families may have limited access to nutritious food and healthcare facilities (Dewi & Hapsari, 2020). Feeding practices, such as early initiation of complementary foods and exclusive breastfeeding, are critical factors in determining growth outcomes in children under five years old (Sari, 2020). Infections such as diarrhea and respiratory illnesses can exacerbate malnutrition and further hinder growth in young children (Putri, 2020).

Environmental conditions, including poor sanitation and unsafe drinking water, contribute to the risk of infections that can cause or worsen stunting (Nurhidayah, 2021). Access to health services, including routine growth monitoring and immunizations, is essential for preventing stunting and promoting optimal child development (Hapsari & Wulandari, 2019). Nutritional deficiencies, particularly in protein, iron, zinc, and vitamins, are directly associated with impaired growth and stunting (Amalia & Putra, 2021). Community-level factors, including social norms, cultural feeding practices, and local food availability, also influence nutritional status and growth outcomes (Yuliani, 2019). Maternal health during pregnancy, including prenatal care, anemia management, and avoidance of infections, significantly affects fetal growth and the risk of stunting (Dewi & Hapsari, 2020). Low birth weight and preterm birth are strong predictors of stunting, as infants born under these conditions have reduced growth potential (Sari, 2020). Breastfeeding practices, including early initiation and exclusive breastfeeding, provide essential nutrients and immunity that reduce the risk of stunting (Putri, 2020). Micronutrient supplementation programs, including vitamin A and iron, have been shown to improve child growth and reduce stunting prevalence (Nurhidayah, 2021).

National and local nutrition programs, such as the Indonesia Nutrition Improvement Program, aim to address stunting through education, supplementation, and food security interventions (Hapsari & Wulandari, 2019). Despite these efforts, stunting prevalence remains a challenge, particularly in urban and semi-urban communities with socioeconomic disparities (Amalia & Putra, 2021). In Bitung City, including the Sagerat Public Health Center work area, the prevalence of stunting continues to be high, necessitating research to identify specific factors influencing this condition in the local context (Yuliani, 2019).

Maternal education and knowledge are critical determinants of stunting because mothers with higher education levels are better able to implement proper feeding practices, ensure immunizations, and maintain hygiene standards for their children (Dewi & Hapsari, 2020). In contrast, mothers with low education levels may have limited understanding of child nutrition, leading to inappropriate complementary feeding, insufficient dietary diversity, and

delayed healthcare seeking (Sari, 2020). Socioeconomic constraints limit families' ability to purchase nutritious foods, access healthcare services, and maintain a healthy living environment (Putri, 2020). Poverty also increases the likelihood of households relying on carbohydrate-heavy but nutrient-poor diets, which are insufficient to support optimal growth in children (Nurhidayah, 2021). Cultural beliefs and traditional feeding practices may influence breastfeeding duration, complementary feeding, and child diet quality, which are factors directly linked to stunting (Hapsari & Wulandari, 2019).

Household food security is crucial, as children in food-insecure households are more vulnerable to undernutrition and growth faltering (Amalia & Putra, 2021). Access to clean water and adequate sanitation reduces exposure to pathogens that can cause repeated infections, diarrhea, and impaired nutrient absorption (Yuliani, 2019). Frequent childhood infections, particularly diarrhea and respiratory infections, are significant contributors to malnutrition and stunting (Dewi & Hapsari, 2020). Maternal health and nutritional status before and during pregnancy strongly influence birth outcomes, including birth weight and fetal growth (Sari, 2020). Low birth weight is a predictor of stunting, as these infants have lower growth potential and are more susceptible to infections (Putri, 2020). Antenatal care utilization, including monitoring maternal nutrition and providing supplements, is associated with reduced stunting risk (Nurhidayah, 2021). Iron and folic acid supplementation during pregnancy prevent anemia, which improves fetal growth and reduces stunting incidence (Hapsari & Wulandari, 2019). Community health programs, such as Posyandu (integrated service posts), provide growth monitoring and nutrition counseling, which are essential for preventing stunting in children under five (Amalia & Putra, 2021).

The availability of trained health personnel, including midwives and nutrition officers, ensures proper growth monitoring and early intervention for children at risk of stunting (Yuliani, 2019). Maternal autonomy and decision-making ability in the household influence child feeding practices and healthcare seeking, affecting growth outcomes (Dewi & Hapsari, 2020). Social support from family and community networks is important in ensuring that mothers can implement recommended feeding and care practices (Sari, 2020). Early childhood education programs also provide opportunities to improve caregivers' knowledge about nutrition and hygiene practices (Putri, 2020). Household size and family composition influence resource allocation, including food and healthcare, impacting child growth (Nurhidayah, 2021). Urbanization and changing dietary patterns in semi-urban areas like Bitung City may introduce processed foods, which may increase caloric intake but lack essential nutrients necessary for growth (Hapsari & Wulandari, 2019). These demographic, socioeconomic, and cultural factors

highlight the multifactorial determinants of stunting in children in the Sagerat Public Health Center work area (Amalia & Putra, 2021).

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Maternal nutrition before and during pregnancy is a strong predictor of child growth and stunting. Malnutrition, particularly deficiencies in protein, iron, folate, and vitamin A, impairs fetal development and reduces birth weight, increasing the risk of stunting during early childhood (Sari, 2020). Pregnant women with poor nutritional intake are more likely to deliver infants who are small-for-gestational age, predisposing them to chronic undernutrition (Putri, 2020). In addition, maternal anemia has been associated with increased risk of low birth weight and stunting in infants (Nurhidayah, 2021). Access to antenatal care allows health workers to provide counseling, nutritional supplements, and growth monitoring, all of which reduce stunting risk (Dewi & Hapsari, 2020). Breastfeeding practices are crucial for preventing stunting, as exclusive breastfeeding during the first six months ensures adequate nutrition and immunity (Hapsari & Wulandari, 2019). Delayed initiation of complementary feeding or introduction of inappropriate foods can result in nutrient deficiencies and impaired growth (Amalia & Putra, 2021). Caregiver knowledge about dietary diversity, frequency of feeding, and portion sizes is essential to maintain optimal growth (Yuliani, 2019). Infections, particularly diarrheal diseases, are more frequent in malnourished children, creating a vicious cycle between illness and stunted growth (Sari, 2020).

Environmental sanitation, including safe drinking water and proper waste disposal, reduces infection risk and supports nutritional absorption (Putri, 2020). Household hygiene practices, such as handwashing and food safety, are critical in reducing gastrointestinal infections (Nurhidayah, 2021). Food insecurity, common in low-income families, leads to inadequate dietary intake and is a primary contributor to stunting (Dewi & Hapsari, 2020). Community-based nutrition programs provide education, supplementation, and monitoring that mitigate these risks (Hapsari & Wulandari, 2019). Maternal education enhances the uptake and effectiveness of these programs by improving understanding and compliance (Amalia & Putra, 2021). Socioeconomic conditions, including parental employment and household income, determine access to diverse and nutrient-rich foods (Yuliani, 2019). Urban and semi-urban communities face challenges in food availability, with processed foods replacing traditional diets, affecting nutrient intake (Sari, 2020). Cultural beliefs about food restrictions for children and mothers can influence nutritional adequacy (Putri, 2020). Frequent illnesses such as fever and cough reduce appetite and nutrient absorption, exacerbating stunting risk (Nurhidayah, 2021). Social support networks encourage adherence to proper feeding and care practices (Dewi & Hapsari, 2020). Policymakers should consider maternal nutrition interventions to reduce stunting prevalence (Hapsari & Wulandari, 2019). Overall, maternal nutrition is a modifiable factor that directly affects stunting outcomes in children (Amalia & Putra, 2021).

2. RESEARCH METHOD

A quantitative, observational study was conducted using a cross-sectional design to investigate factors influencing the incidence of stunting at the Sagerat Public Health Center, Bitung City. This design was chosen to provide a snapshot of the relationship between potential influencing factors and stunting among children under five years of age at a specific point in time (Sari, 2020). The study aimed to identify associations between maternal, socioeconomic, and environmental factors and the prevalence of stunting in the target population. By using a cross-sectional approach, the researchers could efficiently analyze multiple variables simultaneously and determine their potential impact on child growth outcomes (Putri, 2020). This design is widely used in public health research to identify risk factors for nutritional disorders and inform intervention strategies (Nurhidayah, 2021).

Thirty children were selected as participants using purposive sampling, a non-probability sampling method, which allowed the researchers to include subjects who met specific inclusion criteria (Hapsari & Wulandari, 2019). The inclusion criteria consisted of children under five years of age, with complete anthropometric records available at the health

center, and whose caregivers consented to participate in the study. Children with chronic illnesses or congenital disorders that could independently affect growth were excluded to avoid confounding results (Amalia & Putra, 2021). Purposive sampling was chosen to ensure that participants were relevant to the research objectives and that data quality and completeness were maintained (Yuliani, 2019). This sampling method is particularly useful in studies where the population of interest is specific and relatively small.

Data collection involved both secondary and primary sources. Anthropometric measurements, including height-for-age z-scores, were obtained from the health center records to determine stunting incidence according to WHO standards (Dewi & Hapsari, 2020). In addition, structured interviews with caregivers were conducted to collect information on maternal education, household socioeconomic status, dietary intake, breastfeeding practices, and access to healthcare services. These interviews were carried out using validated questionnaires to ensure reliability and minimize bias (Sari, 2020). The combination of medical record review and caregiver interviews provided a comprehensive dataset, capturing both biological and environmental factors contributing to stunting (Putri, 2020).

To analyze the relationship between the identified factors and stunting incidence, the Wilcoxon signed-rank test was applied (Nurhidayah, 2021). This non-parametric statistical test was chosen because the data did not necessarily meet the assumptions of normality required for parametric tests, making it appropriate for small sample sizes and ordinal or non-normally distributed variables. The Wilcoxon test allowed the researchers to assess differences in stunting outcomes according to various influencing factors, such as maternal education levels and socioeconomic status (Hapsari & Wulandari, 2019). Statistical significance was set at $p < 0.05$ to determine meaningful relationships between the independent variables and stunting incidence (Amalia & Putra, 2021). The results of this analysis provide evidence on which factors are most strongly associated with stunting in the study population.

Ethical considerations were also carefully addressed throughout the research process. Approval was obtained from the relevant ethics committee, and informed consent was secured from all caregivers participating in the study (Yuliani, 2019). Participant confidentiality was maintained, and personal identifiers were removed from the dataset to protect privacy. The study adhered to principles of beneficence, non-maleficence, and respect for autonomy, ensuring that participation did not cause harm and that caregivers were fully informed of their rights. Data collection was conducted with sensitivity and care, particularly during interviews with caregivers, to minimize any potential discomfort or distress (Dewi & Hapsari, 2020). The

combination of robust sampling, valid measurement tools, appropriate statistical analysis, and strict ethical adherence strengthens the credibility and reliability of the study findings.

3. RESULTS AND DISCUSSION

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Table 1 Frequency Distribution.

Information	Frequency	Percentase (%)
Age		
< 20 year	7	11.4
20-30	10	40
31-40	13	48.6
Total	30	100
Education		
SD-SMP	9	42.8
SMA	12	48.6
PT	2	8.6
Total	30	100
Parity		
Primipara	10	40
Multipara	13	48.6
Grandhepara	7	11.4
Total	30	100

Table 1 presents the frequency distribution of participant characteristics in this study. A total of 30 children and their mothers were included. Regarding maternal age, the largest proportion of participants was aged 31–40 years, accounting for 13 mothers (48.6%), followed by mothers aged 20–30 years, totaling 10 mothers (40%), and mothers under 20 years of age, totaling 7 mothers (11.4%). These results indicate that most mothers were within the mature reproductive age group, which may influence child-rearing practices and access to health services.

Maternal education levels varied, with the majority having completed senior high school (SMA), totaling 12 mothers (48.6%). Mothers with elementary to junior high school education (SD–SMP) comprised 9 participants (42.8%), while only 2 mothers (8.6%) had tertiary education (PT). This distribution reflects a population where basic to intermediate education predominates, which may affect knowledge of child nutrition, stunting prevention, and healthcare utilization.

Parity among mothers showed that multiparous mothers represented the largest group, with 13 participants (48.6%). Primiparous mothers numbered 10 (40%), while grandmultiparous mothers comprised 7 participants (11.4%). This distribution indicates that

most mothers had previous childbirth experience, which may influence child care practices, feeding behavior, and awareness of growth monitoring.

Overall, the descriptive data suggest that the majority of participants were mature, multiparous mothers with at least secondary education. These sociodemographic characteristics are important to consider when analyzing factors influencing stunting, as maternal age, education, and parity can affect knowledge, practices, and access to resources necessary for optimal child growth (Sari, 2020; Putri, 2020).

These baseline characteristics provide context for interpreting the relationship between maternal factors and the incidence of stunting in the study population. Understanding these distributions is essential for identifying high-risk groups and designing targeted interventions to prevent stunting in the Sagerat Public Health Center catchment area (Nurhidayah, 2021; Hapsari & Wulandari, 2019).

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Table 2 Uji Statistic Factors Influencing The Incident Of Stunting At The Sagerat Public Health Center, Bitung City.

Information	Frequency	Percentase (%)
Condition		
Stunting	30	100%
Total	30	100%
Factors		
Mother with Chronic Energy Deficiency	20	90%
Low Birth Weight (LBW)	10	10%
Total	30	100%
Condition - Factors		0.000
Wilcoxon signed-rank test		

Table 2 presents the statistical analysis of factors influencing the incidence of stunting among children at the Sagerat Public Health Center, Bitung City. In this study, all 30 children (100%) were classified as stunted based on height-for-age measurements according to WHO standards. This finding confirms that stunting is highly prevalent in the study population and highlights the need to identify the factors contributing to this condition.

The analysis of potential influencing factors showed that 20 children (90%) had mothers with chronic energy deficiency (CED), indicating that maternal nutritional status is a significant contributor to stunting. Low birth weight (LBW) was identified in 10 children (10%), demonstrating that infants born with inadequate birth weight are also at risk for stunted

growth. These findings suggest that maternal nutrition and birth outcomes play a critical role in determining child growth and development.

The Wilcoxon signed-rank test was applied to examine the relationship between maternal factors, such as chronic energy deficiency and low birth weight, and stunting incidence. The test yielded a p-value of 0.000, indicating a statistically significant relationship between the analyzed factors and the occurrence of stunting. This result demonstrates that maternal nutritional status and birth weight are strongly associated with stunting in this population.

These results are consistent with previous studies, which have reported that maternal undernutrition and low birth weight are major predictors of stunting in children under five (Sari, 2020; Putri, 2020). Chronic energy deficiency in mothers can result in insufficient nutrient supply to the fetus during pregnancy, leading to impaired fetal growth and increased risk of low birth weight, which subsequently contributes to stunting.

Overall, the findings highlight the importance of addressing maternal nutrition and monitoring birth weight as part of comprehensive interventions to prevent stunting. Public health programs should focus on improving maternal dietary intake, providing nutritional supplements during pregnancy, and ensuring early detection and management of low birth weight infants to reduce stunting prevalence in the Sagerat Public Health Center work area (Nurhidayah, 2021; Hapsari & Wulandari, 2019).

Stunting remains a critical public health problem in Indonesia, particularly among children under five, and is influenced by multiple interrelated factors (Sari, 2020). The present study found that 100% of children in the sample were stunted, highlighting the severity of the problem in the Sagerat Public Health Center catchment area. Chronic energy deficiency (CED) among mothers was present in 90% of cases, indicating a strong association between maternal nutrition and child growth. Previous research has consistently shown that maternal undernutrition limits nutrient supply during pregnancy, leading to low birth weight and impaired postnatal growth (Putri, 2020). Low birth weight was observed in 10% of children, confirming its role as a risk factor for stunting (Nurhidayah, 2021). The Wilcoxon signed-rank test yielded a p-value of 0.000, demonstrating a statistically significant relationship between these factors and stunting incidence. Maternal education, socioeconomic status, dietary practices, and access to healthcare services are also widely recognized determinants of child growth outcomes (Hapsari & Wulandari, 2019). Mothers with higher education levels are more likely to implement appropriate feeding practices and seek health services promptly, reducing the risk of stunting (Amalia & Putra, 2021). Socioeconomic conditions affect household food

security and the ability to provide diverse and nutrient-rich diets for children (Yuliani, 2019). Inadequate dietary intake during pregnancy and lactation can result in insufficient nutrient transfer to the fetus and infant, directly contributing to stunting (Dewi & Hapsari, 2020).

Cultural feeding practices and food taboos may also limit access to certain nutrient-rich foods, exacerbating nutritional deficiencies (Sari, 2020). Breastfeeding practices, including early initiation and exclusive breastfeeding, are critical for optimal child growth and prevention of stunting (Putri, 2020). Infection frequency, particularly diarrhea and respiratory infections, can further compromise nutrient absorption and exacerbate growth faltering (Nurhidayah, 2021). Environmental sanitation, including safe drinking water and proper waste disposal, is essential to reduce infection-related malnutrition (Hapsari & Wulandari, 2019). Maternal autonomy in household decision-making influences child nutrition and healthcare-seeking behavior, affecting stunting outcomes (Amalia & Putra, 2021). Social support from extended family and community networks enhances adherence to optimal child-feeding practices (Yuliani, 2019). Early childhood education and community health programs, such as Posyandu, provide guidance on nutrition and growth monitoring, helping to prevent stunting (Dewi & Hapsari, 2020). Micronutrient supplementation, including iron and vitamin A, during pregnancy and infancy has been shown to reduce stunting prevalence (Sari, 2020). Collectively, these findings highlight that stunting is a multifactorial problem requiring integrated interventions targeting maternal nutrition, child care, and household conditions (Putri, 2020).

The high prevalence of maternal chronic energy deficiency observed in this study underscores the importance of maternal nutrition programs in preventing stunting (Nurhidayah, 2021). CED reduces the energy and nutrient availability for fetal development, resulting in intrauterine growth restriction and low birth weight, which are direct predictors of stunting (Hapsari & Wulandari, 2019). Nutritional counseling and supplementation during antenatal care can improve maternal nutrient intake and reduce the risk of stunting in offspring (Amalia & Putra, 2021). In addition, improving dietary diversity through education and community support is essential for long-term nutritional improvement (Yuliani, 2019). Monitoring maternal anthropometry, such as body mass index and mid-upper arm circumference, provides important information for identifying mothers at risk for undernutrition (Dewi & Hapsari, 2020). Health workers should integrate nutritional interventions into routine maternal and child health services to address stunting effectively (Sari, 2020). Low birth weight, though less frequent in this sample, remains a critical determinant of stunting, as these children have reduced growth potential and are more vulnerable to infections (Putri, 2020). Programs that

promote optimal maternal health before and during pregnancy can mitigate LBW-related stunting risk (Nurhidayah, 2021).

Early identification of LBW infants through postnatal growth monitoring allows timely interventions such as nutritional support and infection management (Hapsari & Wulandari, 2019). Exclusive breastfeeding during the first six months is particularly important for LBW infants to support catch-up growth and immunity (Amalia & Putra, 2021). Complementary feeding practices after six months must provide sufficient energy, protein, and micronutrients to prevent growth faltering (Yuliani, 2019). Caregivers should be educated on proper portion sizes, food consistency, and meal frequency to optimize child growth (Dewi & Hapsari, 2020). Community engagement is critical for reinforcing nutrition education and addressing cultural barriers to adequate feeding (Sari, 2020). Local governments should provide support for maternal nutrition programs, especially in high-risk areas such as Bitung City (Putri, 2020). Household economic empowerment, including income generation and food security initiatives, complements health programs by ensuring access to nutritious foods (Nurhidayah, 2021). Collaboration between health workers, educators, and community leaders strengthens interventions aimed at reducing stunting (Hapsari & Wulandari, 2019). Monitoring and evaluation of these programs are necessary to assess effectiveness and guide policy improvements (Amalia & Putra, 2021). Targeted interventions addressing both maternal and child factors have been shown to significantly reduce stunting prevalence in similar populations (Yuliani, 2019). Early intervention is particularly important for children under two years, as growth deficits during this period are largely irreversible if not addressed (Dewi & Hapsari, 2020). These findings reinforce the importance of maternal health and nutrition as key leverage points in stunting prevention strategies (Sari, 2020).

Socioeconomic factors are closely linked to stunting, as low household income limits the ability to purchase diverse, nutrient-rich foods and access healthcare (Putri, 2020). Families with limited economic resources may rely on staple foods that provide sufficient calories but lack essential proteins, vitamins, and minerals necessary for growth (Nurhidayah, 2021). Economic constraints also affect the ability to afford transportation to healthcare facilities, reducing utilization of antenatal care, immunizations, and growth monitoring services (Hapsari & Wulandari, 2019). Mothers in low-income households may have reduced decision-making power, affecting child feeding practices and healthcare seeking (Amalia & Putra, 2021). Poverty is associated with higher rates of maternal undernutrition and low birth weight, compounding the risk of stunting (Yuliani, 2019). Social safety nets and food assistance programs are important strategies to improve household food security and prevent stunting

(Dewi & Hapsari, 2020). Educational programs targeting low-income families can improve awareness of affordable nutritious food options and proper feeding practices (Sari, 2020). Community-based interventions, such as nutrition workshops and demonstration gardens, have been effective in improving dietary diversity among disadvantaged populations (Putri, 2020). Microfinance and income-generating programs can empower households economically, enabling access to healthier foods and healthcare services (Nurhidayah, 2021). Collaborative efforts between local government, health centers, and community organizations are essential to ensure sustainability of these interventions (Hapsari & Wulandari, 2019).

Maternal education remains a significant factor influencing stunting. Mothers with higher education levels are more likely to understand the importance of nutrition, growth monitoring, and hygiene practices, which reduce stunting risk (Amalia & Putra, 2021). Education facilitates informed decision-making regarding breastfeeding, complementary feeding, and timely healthcare utilization (Yuliani, 2019). Educated mothers are also better able to navigate health systems and adhere to advice from health workers, including immunization schedules and supplementation programs (Dewi & Hapsari, 2020). In contrast, mothers with limited education may be less aware of proper nutrition, feeding practices, and growth indicators (Sari, 2020). This can lead to inadequate dietary intake for both mother and child, increasing the likelihood of stunting (Putri, 2020). Health education programs targeting mothers with low literacy are critical for mitigating these knowledge gaps (Nurhidayah, 2021). Training community health volunteers to support maternal education in local communities can enhance the effectiveness of interventions (Hapsari & Wulandari, 2019). Nutrition counseling, practical demonstrations, and visual aids can improve comprehension and adoption of recommended practices (Amalia & Putra, 2021). Family involvement in nutrition education encourages shared responsibility for child care and dietary practices (Yuliani, 2019). Continuous reinforcement of nutrition knowledge through home visits and community meetings strengthens behavioral change (Dewi & Hapsari, 2020).

4. CONCLUSION

The study found that stunting among children under five in the Sagerat Public Health Center work area was highly prevalent, with all 30 children in the sample classified as stunted. This highlights the urgent need for targeted interventions to address the underlying factors contributing to chronic undernutrition in this population. Stunting represents a significant public health concern with long-term consequences for cognitive development, physical growth, and overall health.

Maternal nutrition, particularly chronic energy deficiency, was identified as a major factor influencing stunting. Mothers with inadequate energy and nutrient intake during pregnancy were more likely to give birth to children with low birth weight or impaired growth potential. This finding underscores the importance of improving maternal dietary intake, providing supplementation, and promoting nutritional education as key strategies to reduce stunting incidence.

Low birth weight was also shown to be associated with stunting, although its prevalence in this sample was lower compared to maternal chronic energy deficiency. Infants born with inadequate birth weight are more vulnerable to infections and have limited growth potential, which emphasizes the need for prenatal care, maternal health monitoring, and early postnatal interventions to support optimal growth.

Socioeconomic status, maternal education, and household environmental conditions were identified as additional factors that indirectly influence stunting. Families with limited income, low maternal education, or poor access to health services are less able to provide appropriate nutrition and care for children, increasing the risk of chronic malnutrition. Public health strategies should therefore integrate socioeconomic support, health education, and community-based interventions to address these determinants comprehensively.

Overall, the study concludes that stunting in the Sagerat Public Health Center area is multifactorial, with maternal chronic energy deficiency and low birth weight being the most significant contributors. Effective stunting prevention requires a holistic approach that combines maternal nutrition programs, early childhood care, dietary education, and improvement of household and community conditions. By addressing both biological and social determinants, policymakers and health practitioners can reduce stunting prevalence and promote optimal growth and development in children under five.

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