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AN OVERVIEW OF FACTORS ASSOCIATED WITH THE INCIDENCE OF STUNTING

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ABSTRACT
Stunting is one of the prevalent public health issues in society, affecting the quality of life of children under five and the nation's future productivity. Objective: This study aims to describe the factors associated with stunting among children under five in Sukamentri Village, under the jurisdiction of Guntur Public Health Center, Garut City. Method: This research employs a descriptive quantitative design with a cross-sectional approach. The study sample comprises 26 stunted children aged 0–59 months and their parents from 21 families in Sukamentri Village, selected using total sampling. The research was conducted from August to September. Data analysis includes univariate analysis with frequency distribution. Results: The findings reveal that the majority of stunted children are female (57.69%) and aged 0–36 months (65.38%). Most mothers of stunted children have a high school education level (38.10%), monthly income exceeding the UMK Garut Regency (76.19%), and access to health insurance, predominantly BPJS (85.71%). Regarding sanitation facilities, almost all families have private toilets (95.24%), dispose of feces in drains (57.14%), and discharge wastewater into rivers or drains (85.71%). Immunization among stunted children is incomplete (53.85%), most attend integrated health posts (73.08%), and consume snacks 1–2 times daily (69.23%), with 80.77% being packaged foods. Conclusions: These findings highlight the need for multidimensional interventions to reduce stunting prevalence, including nutrition education, sanitation improvement, and strengthening family economic resilience. A holistic approach involving cross-sectoral collaboration is necessary to create a supportive environment for optimal child growth and significantly reduce stunting prevalence.

Keywords: community health; demographics; nutrition; stunting

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INTRODUCTION

Stunting is a form of chronic nutritional disorder characterized by impaired physical growth in children, particularly in height relative to established standards (z-score <-2 standard deviations based on WHO criteria). This condition reflects prolonged inadequate nutritional intake and repeated exposure to infectious diseases, especially during the first 1,000 days of life. In Indonesia, stunting remains a significant public health issue, contributing to poor human resource quality, diminished productivity, and an increased risk of non-communicable diseases later in life (Kemenkes RI, 2022).According to the 2022 Indonesian Nutrition Status Survey, the national prevalence of stunting stood at 21.6%, showing a decline from the 2018 Riskesdas data, which reported a prevalence of 30.8%. The government, through the National Medium-Term Development Plan 2020–2024, has set a target to reduce the prevalence of stunting to 14% by 2024 (Kemenkes RI, 2023). However, in certain regions, including Garut Regency, the prevalence of stunting in 2023 remained above the national average at 24.1%, an increase from 23.6% in 2022, underscoring the need for focused attention on this issue.

Sukamentri Village, located within the jurisdiction of Guntur Public Health Center, Garut City, is one of the areas with a high prevalence of stunting. Based on the 2022 Garut Regency Health Profile report, the prevalence of stunting in the Guntur Public Health Center's working

area was reported at approximately 28.9%. The predisposing factors for stunting in children under five are multifaceted, including environmental health factors such as sanitation facilities, maternal and child factors, and family economic conditions (WHO, 2022). Stunting in children can be mitigated through a holistic, community-based multistrategy approach. The WHO framework identifies various causes of stunting, such as household and family conditions, inadequate complementary feeding practices, breastfeeding patterns, infections, and contextual factors like community and social aspects (Lestari, 2021).Other factors contributing to stunting include parenting practices. Poor parenting during pregnancy and postpartum significantly contribute to stunting in children under five. Adequate complementary feeding also plays a crucial role in meeting infants' nutritional needs and strengthening their immune systems. Additionally, limited availability of healthcare services and restricted access to quality maternal and child healthcare during pregnancy, childbirth, and postpartum remain critical challenges. Furthermore, inadequate access to vaccination services for children exacerbates the issue (Sutarto et al., 2018).

Stunting in children under five has profound impacts on their growth and development. Research by Mustakim et al., 2022, indicates that stunted children face a higher risk of developmental delays compared to those who grow normally. Other studies have found that stunted children also exhibit significantly lower cognitive scores compared to their non-stunted peers (Ekholuenetale et al., 2020; Sudfeld et al., 2015).Sukamentri Village is one of the densely populated areas in Garut City, where access to healthcare facilities, clean water, and sanitation poses significant challenges. These conditions potentially increase the risk of stunting due to the lack of an optimal environment that supports children's health. As an urban area, urbanization in Garut City also impacts housing conditions. Slum settlements are often associated with various risk factors for stunting, such as limited space for children's play, exposure to pollution, and environmental stress. This aligns with research indicating that in several countries, children in urban slum areas have a higher risk of stunting and anemia compared to children in non-slum urban areas (Assaf & Juan, 2020).

Efforts to mitigate stunting in Sukamentri Village have been implemented through various intervention programs. One such initiative is the Isi Piringku program, which promotes balanced nutrition for young children and includes the provision of supplementary food to children identified as stunted or at risk of stunting. Additionally, Guntur Public Health Center conducts nutritional education and outreach for pregnant and breastfeeding mothers to enhance their knowledge of parenting practices and the importance of proper nutrition during pregnancy and early childhood. Health education for adolescents as agents of change also plays a role in early prevention of stunting. This is consistent with research suggesting that health education for adolescents, which focuses on cognitive improvement, awareness, and appropriate actions, significantly contributes to reducing stunting prevalence in communities (Witdiawati et al., 2024).In addressing stunting, nurses serve as caregivers, educators, collaborators, and researchers. Nurses need to collaborate with health volunteers to identify stunting cases in the community. Their role in enhancing attitudes toward early detection of stunting among health volunteers demonstrates the consistency and independence of nurses in community-based stunting prevention efforts (Jauhar & Kartikasari, 2021).

However, despite these interventions, the reduction in stunting prevalence has not shown significant progress in Sukamentri Village. This indicates challenges in program implementation, such as limited resources, low community participation, and barriers to accessing healthcare services. Therefore, further research is needed to map the prevalence of stunting more accurately using the latest data from Sukamentri Village, Garut City. This research is expected to inform the development of more effective and targeted strategies to address stunting in Sukamentri Village. The purpose of this study is to describe the factors

associated with the incidence of stunting in Sukamentri Village, within the jurisdiction of the Garut City Public Health Center.

METHOD

This study employed a descriptive quantitative research design with a cross-sectional approach. The objective of the research was to examine the factors associated with stunting among children under five in Sukamentri Village, within the service area of Puskesmas Guntur, Garut City. The study was conducted from August 31 to September 5, 2024, across 11 neighborhood units (RW) in Sukamentri Village. The sampling technique used was total sampling, involving 26 stunted children from 21 families. Data were verified with Puskesmas Guntur and anthropometric measurements were conducted during data collection. The research instrument utilized was the Survei Mawas Diri (Self-Awareness Survey) questionnaire, developed by students of the 47th batch of the Professional Nurse Program, Faculty of Nursing, Universitas Padjadjaran. The questionnaire underwent content, construct, and face validation through expert judgment and was pretested prior to the study. The validity and reliability value of the questionnaire used is Croanbach's alpha 0.71. Data were analyzed using Microsoft Excel.

RESULT

Table 1.
Frequency Distribution of Toddler Factors (n=26 stunted toddlers)

Category	f	%
Gender		
Male	11	42.31
Female	15	57.69
Age		
0-36 months	17	65.38
37-59 months	9	34.62
Imunization Status		
Complete	12	46.15
Incomplete	14	53.85
Posyandu Attendance		
Routine	19	73.08
Not Routin	7	26.92
Snack Frequency		
Never	1	3.85
1-2 times	18	69.23
> 3 times	7	26.92
Snack		
Self-prepared food	5	19.23
Minimal or unprocessed food (fruit)	0	0.00
Packaged food	21	80.77

Based on table 1 that toddlers with stunting are more than half female with a percentage of 57.69%. In terms of age, most of the stunted toddlers were aged 0-36 months as much as 65.38%. Then, more than half of the stunted toddlers were not fully immunized (53.85%). However, most of these stunted toddlers routinely attended posyandu (73.08%) and ate snacks 1-2 times a day (69.23%), with the majority of snacks being packaged food (80.77%).

Based on table 2, the education of mothers of toddlers with stunting is mostly at the high school level at 38.10% followed by the elementary level at 33.33%. Most of the income of family heads with stunted toddlers is more than the UMK Garut Regency (76.19%), there are 5 families who have 2 stunted toddlers in the family. Family dependents almost entirely amount to 1-5 people (80.95%). As for health insurance, the majority have BPJS (85.71%). And almost all families with stunted toddlers have private toilets (95.24%). The final disposal

of feces is more than half into the sewer with a percentage of 57.14%, and almost all water disposal into the river/sewer with a percentage of 85.71%.

Table 2.
Frequency distribution of family factors (n=21 families)

Category	f	%
Mother's Education		
Not in school	3	14.29
Elementary	7	33.33
Junior High School	3	14.29
Senior High School	8	38.10
Diploma	0	0.00
Bachelor	0	0.00
Income		
> UMK	16	76.19
≤ UMK	5	23.81
Number of family dependents		
None	2	9.52
1-5 people	17	80.95
> 5 people	2	9.52
Health Insurance		
BPJS	18	85.71
Private Insurance	0	0.00
Do not have	3	14.29
Existence of private latrines		
Available	20	95.24
Not Available	1	4.76
Final disposal site for feces		
River	5	23.81
Sewer	12	57.14
Pond	1	4.76
Private septic tank	0	0.00
Public septic tank	3	14.29
Water disposal		
River/sewer	18	85.71
Rice field/garden	0	0.00
Special disposal facilities	2	9.52
Flooded	1	4.76

DISCUSSION

Based on the table above, the data indicate that the majority of stunted children are female (57.69%) and most are aged 0–36 months (65.38%). This finding aligns with research suggesting that stunting is more prevalent among girls, potentially due to biological differences or gender-biased parenting practices (Geberselassie et al., 2018). The age range of 0–36 months represents a critical period for growth and development, during which chronic malnutrition can significantly affect linear growth. Children aged 12–23 months are approximately four times more likely to experience stunting compared to infants aged 0–11 months, while those aged 24–59 months are 4.5 times more likely to be stunted than infants (Vonaesch et al., 2017).The study data also show that the majority of mothers of stunted children have a high school education (38.10%) or elementary school education (33.33%). Maternal education plays a critical role in parenting and child nutrition. Previous studies have found that lower maternal education levels are associated with limited knowledge about nutrition and proper caregiving practices, which can increase the risk of stunting (Fadare et al., 2019). Mothers with lower educational attainment may have a limited understanding of the importance of a balanced diet and may underutilize available healthcare facilities. This is consistent with other research indicating that the majority of mothers of stunted children have medium-level education (Armansyah et al., 2023).

Maternal education also influences knowledge about preparing nutritious meals for children. Most mothers provide their children with packaged or instant foods, such as porridge. Another study revealed that feeding practices for stunted children are often dominated by carbohydrates and lack animal protein due to cultural reasons, which need to be adjusted to support optimal growth (Soesanti et al., 2020). The level of maternal education is significantly associated with mothers' knowledge about meeting the nutritional needs of their children. This is supported by other research indicating that mothers with elementary-level education or lower are 1.587 times more likely to have children under two years old who are stunted compared to mothers with higher education. Additionally, mothers with high school education are 1.230 times more likely to have stunted children under two years old compared to mothers with a college education (Laksono et al., 2022). Economic factors also play a significant role in stunting. Most families with stunted children in Sukamentri Village have monthly incomes above the UMK Garut Regency (76.19%), with an average household size of 1–5 members (80.95%). Despite sufficient income, the high prevalence of stunting may be attributed to suboptimal financial allocation for children's nutritional needs, limited knowledge of healthy eating habits, or limited access to nutritious food. The majority of families with stunted children have health insurance, primarily through BPJS (85.71%), indicating some level of financial preparedness for emergencies, such as childhood illness. However, families without adequate financial support to sustain children's health may face worsening child health outcomes, contributing to the incidence of stunting (Tongkonoo et al., 2021).

Stunting has significant long-term impacts on the development of children and the quality of environmental health in Sukamentri Village. The majority of families with stunted children have private latrines (95.24%). However, most of these families dispose of feces into drains (57.14%) or rivers (85.71%). Poor sanitation substantially increases the risk of infectious diseases such as diarrhea, which hinders nutrient absorption and is a direct cause of stunting. Improving sanitation, such as providing proper latrines and appropriate wastewater disposal systems, is essential to support optimal child growth. Health-compliant latrines can prevent the direct spread of infections and inhibit disease vectors in the environment (Sinatrya & Muniroh, 2019).A study by Shofifah et al., 2022, found a significant relationship between household sanitation and the history of infectious diseases in children ($p = 0.037$). Children living in unhealthy home environments are 4.4 times more likely to contract infectious diseases compared to those in healthy homes. This research also revealed a significant association between the history of infectious diseases and the incidence of stunting. Interestingly, children who had never experienced infectious diseases were 4.6 times more likely to be stunted compared to those who had a history of infection. One of the most common infectious diseases affecting children is diarrhea, which impacts approximately 45.5% of children. Diarrhea disrupts nutrient absorption, thereby contributing to growth and developmental impairments (Shofifah et al., 2022).

According to the data, 53.85% of stunted children did not receive complete immunizations. Incomplete immunization increases the risk of infections, such as measles and diarrhea, which contribute to malnutrition and stunting. Complete basic immunizations play a crucial role in protecting children from external threats, including diseases that can impair growth and development (Theresia & Sudarma, 2022). Although most stunted children regularly attend Posyandu (73.08%), there are gaps in immunization coverage. This indicates a need for enhanced education and facilitation of immunization through maternal and child health programs.Most stunted children consume snacks 1–2 times a day (69.23%), with the majority being packaged foods (80.77%). Packaged foods tend to be high in sugar, salt, and fat but low in essential nutrients like protein, vitamins, and minerals, which are crucial for supporting child growth. This consumption pattern reflects unhealthy eating habits that can worsen

children's nutritional status and increase the risk of stunting. Education on providing healthy snacks, such as fruits and nutritious homemade preparations, needs to be strengthened through Posyandu and community health campaigns. This aligns with research showing that nutritional interventions improve calcium intake and lead to improved nutritional status, transitioning children from stunted to normal growth categories (Hayati & Ridwan, 2022).

Research findings indicate that children's nutritional status is influenced by several factors. These include household food insecurity, low household income, caregivers' illiteracy, unemployment, inadequate food intake, low birth weight, monotonous diets, caregivers' limited nutritional knowledge, poor access to water and sanitation, improper weaning practices, caregiver age, and children's demographic characteristics such as age and sex (Mkhize & Sibanda, 2020). Posyandu, attended regularly by most stunted children (73.08%), plays a crucial role in early detection of stunting and nutritional education. However, its effectiveness can be improved by providing more comprehensive information on healthy eating patterns and the benefits of immunization. Supplementary Feeding Programs conducted at Posyandu can also be utilized to improve the nutritional status of children, particularly during the critical first 1,000 days of life (Afifa & Novianti, 2024).Efforts to address stunting are carried out through programs within various ministries and agencies, focusing on enhancing community development and empowerment in villages or urban neighborhoods, particularly in alignment with the village fund programs. Specific nutrition interventions, led by the Ministry of Health, target priority groups, including pregnant women, breastfeeding mothers, and children. These programs aim to ensure that their nutritional needs are adequately met, especially during the critical first 1,000 days of life, which includes pregnancy and the first two years of a child's life. Interventions include providing iron and folic acid supplements for pregnant women, promoting exclusive breastfeeding, and distributing nutritious complementary feeding. Studies indicate that specific nutrition interventions contribute approximately 30% to the reduction of stunting prevalence, underscoring their importance in supporting optimal growth and development (Saputri et al., 2020). Key interventions include supplementary feeding programs for children, deworming medications, zinc supplements, complete immunization, and other preventive programs.

Nurses play a vital role in enhancing health workers' attitudes toward early stunting detection. Through training and mentoring, nurses help improve the competencies of health cadres in recognizing early signs of stunting and implementing appropriate preventive measures. Research by Jauhar and Kartikasari in 2021, highlights the consistent and independent role of nurses in developing community-based stunting prevention efforts, which in turn raises public awareness of the importance of monitoring children's growth and development. Other studies indicate that community-based approaches involving nurses as facilitators significantly improve health cadres' knowledge and skills in early detection and stunting interventions. This emphasizes that empowering health cadres is a critical factor for the success of stunting prevention programs at the local level (Julianti & Elni, 2022; Lukman et al., 2024).A limitation of this study is that it was conducted in only 11 neighborhood associations within Sukamentri Village, making it inapplicable for generalization to all stunted children in the service area of Puskesmas Guntur, Garut City, or broader populations. Additionally, the study employed only quantitative data, thus failing to delve deeper into the perceptions, experiences, and challenges faced by families in preventing stunting.

CONCLUSION

This study reveals that stunting among children under five in Sukamentri Village, within the service area of Puskesmas Guntur, Garut City, is influenced by various factors. The majority of stunted children are female and aged 0–36 months. Maternal low educational attainment,

family economic conditions despite having income above the UMK Garut Regency and access to health insurance and inadequate sanitation practices contribute significantly to the high prevalence of stunting. Furthermore, incomplete immunization remains a critical risk factor, even though most children regularly attend Posyandu (integrated health service posts). The consumption pattern of snacks dominated by packaged foods further exacerbates the nutritional status of children. Addressing this issue requires an integrated, comprehensive, and multidimensional approach to nutritional programs. Efforts should include enhanced nutritional education and improved facilitation of immunization through maternal and child health programs. Future research is encouraged to build upon these findings, enabling more detailed and specific data collection on stunting prevalence in the service area of Puskesmas Guntur, Garut City, to inform targeted interventions.

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