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EXAMINING STUNTING INCIDENCE BASED ON MATERNAL FACTORS IN TEGAL CITY

Meyliya Qudriani[1)], Istiqomah Dwi Andari[2)], Adevia Maulidya Chikmah[3)], Taryuli[4)]
Email: meyliya.qudriani@gmail.com[1)], isti_andari@gmail.com[2)], depheeya@gmail.com[3)], yulie_dimas@yahoo.co.id[4)]
[1,2,3)]Diploma of Midwifery, Politeknik Harapan Bersama Tegal, Indonesia
[4)] Indonesian Midwives Association, Tegal City

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Abstract

Stunting, a condition resulting from inadequate nutrition, recurrent infections, and insufficient psychosocial stimulation, affects children's development. It is characterized by stunted growth due to nutritional deficiencies and chronic or recurring infectious diseases, indicated by a height-for-age z-score of less than -2 standard deviations. In Indonesia, the average prevalence of stunting among children under five is 30.8%. In Central Java, the prevalence is 28.5%, and in Semarang, it is 16.89%. The prevalence of stunting in Tegal City is projected to decrease by 6.7% in 2019, 4.76% in 2020, and 7.1% in 2021, reaching 16.8% from the initial value of 23.9%. This descriptive study focuses on identifying the determinants of mothers with stunted children. The study included all mothers with stunted children under five years of age in 7 villages of Tegal City, with a sample size of 27 willing participants. The findings highlight family income and maternal parity as the most dominant characteristics among the respondents. Maternal anemia, CED history, and excellent maternal knowledge level were also noted.

Keywords*: stunting, maternal determinants*

Correspondence:
Meyliya Qudriani. Sumber RT/RW 02/01 Desa Soneyan Kecamatan Margoyoso Kabupaten Pati
Phone Number xxxxxxx22334
Email meyliya.qudriani@gmail.com

1. Introduction

Stunting, a developmental disorder in children, is a result of poor nutrition, recurrent infections, and inadequate psychosocial stimulation. It can be interpreted as linear growth caused by chronic undernutrition and infectious diseases, indicated by a height-for-age z-score of less than -2 standard deviations (SD).[1] The causes are multidimensional and complex, not limited to malnutrition in pregnant women or toddlers. [2]

Indonesia ranks third in Southeast Asia for stunting among toddlers, with an average prevalence of 30.8%. [3] In Central Java, the prevalence is 28.5%, while in Semarang City, it is 16.89%. (4) The stunting rate in Tegal City decreased by 6.7% in 2019, 4.76% in 2020, and 7.1% in 2021, dropping from 23.9% to 16.8%, below the national average. [5]

Through the Ministry of Health, the government has identified stunting reduction as a major project requiring strategic, effective, and efficient steps. According to the Indonesian Nutrition Status Survey, the prevalence in Indonesia is expected to decrease from 24.4% in 2021 to 21.6% in 2022. However, this remains far from the government's 2014 target of 14%. [6]

While stunting has been extensively studied in various regions of Indonesia, the factors identified by mothers as related to stunting incidence may vary from region to region due to geographical

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and community differences. Maternal education level and height are also risk factors for child stunting, as supported by Nursyamsiyah et al.'s research findings (2021). [7]

The maternal determinants in this study included pre-pregnancy and pregnancy nutritional status, maternal height, BMI, age, knowledge of stunting, education, employment status, parenting and breastfeeding practices, parity, antenatal care, history of comorbidities during pregnancy, childhood vaccinations, and child growth and development. The study aimed to determine the incidence of stunting in the Tegal City Region based on these maternal determinant factors.

2. Method

This descriptive study focused on the determinant factors of stunting in children, specifically related to maternal influences. Factors examined include maternal age during pregnancy, parity, pregnancy history (including ANC and illness), nutritional status, chronic energy deficiency (CED) status, iron supplementation, and maternal knowledge about stunting. The study included 27 willing mothers with stunted children under five years old in 7 villages of Tegal City.

3. Result and Discussion

a. Respondents' Characteristics

Table 1. Respondents' Characteristics

		∑	%
Age	< 2 years old	4	15%
	> 2 years old	23	85%
Maternal Education	Elementary School	9	33%
	Junior High School	11	41%
	High School	6	22%
Income	< minimum wage	22	81.5%
	> minimum wage	5	18.5%
Age when married	underage	6	22%
	legal age	21	78%
Age when pregnant	unrisked	19	70%
	risked	8	8%
Parity	Primipara	5	18,5%
	Multipara	22	81,5%
Pregnancy spacing	< 2 years	4	14.8%
	> 2 year	23	85.2%

The findings presented in Table 1 reveal that the majority of participants in the study were mothers with children over two years old, constituting 85% of the respondents. Furthermore, a substantial portion of the mothers possessed a junior high school education (41%) and reported a family income below the minimum wage (85.5%). Moreover, a significant proportion of the mothers were of advanced age at the time of marriage (78%) and did not encounter pregnancy-related risks (70%). Additionally, a large majority of the mothers had multiple children (81.5%), and the interpregnancy interval exceeded two years for the majority of respondents (85.2%).

The study highlighted that a considerable percentage of participants, 41%, had attained a junior high school education, while 22% had completed high school. Consequently, the study classified maternal education as primarily falling within the "primary" category. Berhe et al. (2019) posited that higher levels of maternal education may influence the selection and provision of nutritious food for children, potentially affecting the mother's reception and comprehension of received information. [8]

Notably, 85.5% of respondents reported family incomes below the minimum wage. Family income has been shown to significantly impact dietary patterns, with higher incomes correlating with more diverse and nutritionally adequate diets. Conversely, lower incomes are often associated with less nutritious daily food consumption, potentially influencing child stunting. Families with limited financial resources may encounter challenges in providing essential nutrition for their young

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children, as balanced diets are often associated with higher costs. [9]

Regarding maternal pregnancy spacing, the study revealed that the majority of respondents (85.2%) reported interpregnancy intervals exceeding two years. This suggests that the participants did not experience risky pregnancies due to excessively short birth intervals. Inadequate spacing between pregnancies, defined as intervals of less than two years, can lead to adverse effects on child and maternal health. Such inadequate spacing may contribute to stunting, impacting both the fetus and the parents' ability to care for their children. [10]

Overall, these findings shed light on the demographic and socioeconomic characteristics of the study participants, as well as their potential implications for child nutrition and maternal and child health.

b. Pregnancy History

Table 2. Pregnancy History

		∑	%
ANC History	irregular	7	25.9%
	regular	20	74 .1%
History of illness during pregnancy	none	24	88.9%
	Anemia	2	7.4%
	HG/PE	1	3.7%
Nutritional Status	Underweight	5	18,5%
	Normal	14	51.9%
	Overweight	2	22.2%
CED Status	None	19	70.4%
	CED	8	29.6%
iron supp consumption	< 90 Tablet	2	7.4%
	> 90 Tablet	25	92.6%

In Table 2, it is evident that a significant proportion of mothers (74.1%) underwent regular Antenatal Care (ANC) during their pregnancies. However, a notable 7.4% of mothers experienced anemia, while 3.4% experienced hypertension during pregnancy. Additionally, 51.9% of mothers exhibited a normal health status, 22.2% were classified as obese, and 29.6% experienced Chronic Energy Deficiency (CED) during pregnancy. Notably, the majority of mothers (92.6%) consistently consumed iron tablets during their pregnancies.

The history of ANC examinations reveals that 20 respondents consistently underwent ANC examinations, which is a critical health service for the early identification of high-risk pregnancies. While most respondents received regular ANC in health facilities, a notable 25.9% did not [11] . According to the Maternal and Child Health (MCH) book (2022), ANC visits during pregnancy should ideally total at least six, with a minimum of two examinations by a physician in the first and third trimesters. [12] Regular ANC visits are crucial for the timely detection and management of any pregnancy-related abnormalities before they can detrimentally impact the pregnancy. [13]

In terms of pregnancy-related illnesses, the majority of respondents did not report any comorbidities. However, 7.4% experienced anemia, and 3.4% experienced hypertension during pregnancy. Both anemia and hypertension can pose significant risks to pregnant women and their fetuses, potentially leading to premature birth and developmental delays. [14]

Furthermore, only 29.6% of respondents experienced SEZ during pregnancy, a serious issue associated with fetal growth restriction. Adequate nutrition is essential for pregnant women to meet their own needs as well as to support the growth of their fetus. Nutritional deficiencies during pregnancy can contribute to low birth weight and developmental stunting. [14]

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c. Maternal Knowledge about Stunting

Table 3. Maternal Level of Knowledge

		∑	%
Level of Knowledge	Excellent	22	81.5%
	Sufficient	5	18.5%

Based on Table 3, it is found that most mothers have good knowledge about stunting, 81.5%. The study indicates that most mothers exhibited a commendable level of knowledge regarding stunting. This is significant as a high level of maternal knowledge can positively impact children's nutritional status, thereby contributing to their optimal growth and development. The correlation between maternal knowledge and providing appropriate food for children is crucial, as it directly influences the children's ability to grow and develop optimally. A greater understanding of stunting and health among mothers is associated with improved food assessment. Conversely, lower maternal knowledge often results in children consuming food that needs to meet their nutritional requirements adequately. [15]

4. Conclusion

The study's findings suggest a significant influence of maternal factors on stunting, with family income and maternal parity emerging as the most predominant characteristics. Furthermore, the mother's pregnancy history, particularly instances of anemia and CED, also demonstrated notable associations with stunting. It is worth noting that most mothers exhibited a commendable level of knowledge about maternal care.

5. Acknowledgment

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