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Educational Factors, Income Factors, Maternal Height Factors, And Parenting Factors Are Associated With Stunting Control In Children Under Five In Tateli Dua Village, Mandolang Sub-District, Minahasa District

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Abstract

Stunting is a condition of impaired growth in toddlers caused by chronic malnutrition, resulting in children being shorter than the standard height for their age. This condition typically becomes apparent after the child reaches the age of two. In Indonesia, the prevalence of stunting is 21.6%, making it a significant public health concern. Several factors contribute to stunting, including parental education, family income, maternal height, and parenting practices. This study examines the relationship between these factors and the incidence of stunting in toddlers in Tateli Dua Village. A cross-sectional study design involved 73 mothers with children under five. Data were analyzed using the chi-squared statistical test. The results showed significant relationships between stunting and parental education (p = 0.000), family income (p = 0.001), maternal height (p = 0.001), and parenting patterns (p = 0.001), all of which were below the significance level (α < 0.05). These findings indicate that the identified factors are significantly associated with stunting in toddlers. The study concludes that improving parental education, increasing household income, ensuring adequate maternal nutrition, and promoting effective parenting practices are essential to reducing stunting rates.

Keywords: Parents' Education, Family Income, Mother's Height, Parenting, Stunting Control

Abstrak (Indonesian)

Stunting merupakan kondisi gagal tumbuh pada balita akibat kekurangan gizi kronis yang menyebabkan anak memiliki tinggi badan di bawah standar usianya. Kondisi ini umumnya mulai terlihat setelah anak berusia dua tahun. Di Indonesia, prevalensi stunting mencapai 21,6%, sehingga menjadi masalah kesehatan masyarakat yang serius. Beberapa faktor yang berperan dalam kejadian stunting antara lain tingkat pendidikan orang tua, pendapatan keluarga, tinggi badan ibu, dan pola asuh. Penelitian ini bertujuan untuk mengetahui hubungan antara faktor-faktor tersebut dengan kejadian stunting pada balita di Desa Tateli Dua. Penelitian ini menggunakan desain cross-sectional dengan jumlah responden sebanyak 73 ibu yang memiliki balita. Analisis data dilakukan menggunakan uji statistik Chi-Square. Hasil penelitian menunjukkan adanya hubungan yang signifikan antara kejadian stunting dengan pendidikan orang tua (p = 0,000), pendapatan keluarga (p = 0,001), tinggi badan ibu (p = 0,001), dan pola asuh (p = 0,001), di mana semua nilai p berada di bawah tingkat signifikansi (α < 0,05). Kesimpulan dari penelitian ini adalah bahwa pendidikan orang tua, pendapatan keluarga, tinggi badan ibu, dan pola asuh memiliki hubungan yang erat dengan pengendalian stunting pada balita..

Kata Kunci: Pendidikan Orang Tua, Pendapatan Keluarga, Tinggi Badan Ibu, Pola Asuh, Kendali Stunting

INTRODUCTION

Stunting is characterized by impaired growth in children under five, primarily due to chronic malnutrition, resulting in height below age-based standards. This condition often begins in the prenatal phase and continues through early childhood, although it typically becomes visible after the child turns two. The World Health Organization (WHO, 2015) defines stunting as growth and development failure resulting from prolonged nutritional deficiencies and recurrent infections. In a more recent statement (WHO, 2020), stunting is described as a height-for-age measurement that falls more than two standard deviations below the WHO growth standard, often stemming from irreversible nutritional deficits or chronic infections, particularly within the critical first 1,000 days of life.

This early period, from conception to a child's second birthday, is essential for long-term physical, cognitive, and economic development. Inadequate maternal nutrition, suboptimal breastfeeding, and poor infant feeding practices during this phase significantly contribute to stunting. According to the Ministry of Health (2019), meeting nutritional needs during pregnancy and early infancy can help prevent stunting and poor nutritional status later in life.

Despite ongoing efforts, stunting remains a significant public health issue in Indonesia. The 2022 Indonesian Nutrition Status Survey (SSGI) revealed a national stunting prevalence of 21.6%. Globally, 148.1 million children under five were reported to be stunted, with Indonesia ranking 27th out of 154 countries and 5th in Asia based on WHO and UNICEF data. The prevalence declined slightly from 24.4% in 2021 to 21.6% in 2022, as the Ministry of Health reported.

Regionally, three provinces recorded the highest prevalence: East Nusa Tenggara (35.3%), West Sulawesi (35%), and Papua (34.6%). Conversely, the lowest rates were found in Bali (8%), DKI Jakarta (14.8%), and Lampung (15.2%). North Sulawesi ranked 20th with a rate of 20.5%. Within North Sulawesi, specific districts such as East Bolaang Mongondow (30%), South Bolaang Mongondow (27.9%), and Southeast Minahasa (26.5%) had the highest stunting rates. In contrast, Minahasa Regency initially ranked 13th at 16.5%, but in 2023, data from the Indonesian Health Survey (IHS) showed a significant rise to 32.1%, placing it sixth.

In the Tateli Health Center area, as of April 23, 2024, stunting cases were identified in seven out of twelve villages, with 12 children affected. These included villages such as Tateli Satu, Tateli Dua, Tateli Tiga, Tateli Weru, Kalasey, Koha, and Agotey.

Past research has identified several maternal and environmental factors linked to stunting, including maternal age during pregnancy (<20 or >35 years), inadequate upper arm circumference, adolescent pregnancy, short maternal height, and poor infant feeding practices such as early introduction of complementary foods and non-exclusive breastfeeding (Nirmalasari, 2020). Other contributing factors include low birth weight, male gender, infectious disease history, lack of immunization, and poor environmental sanitation.

Further studies (Tanzil & Hafriani, 2021; Yandi et al., 2022; Nugroho et al.) support that low energy and protein intake, limited maternal education, poor parenting practices, low family income, and inadequate food diversity significantly increase the risk of stunting. Effective interventions may include nutritional supplementation, maternal education, support for household food security, and health counseling.

Given the persistently high rates of stunting among toddlers, there is an urgent need for local-level analysis. One such area is Tateli Dua Village, where examining the contributing factors is critical. Therefore, this study aims to explore the determinants related to the prevention of stunting among children under five in Tateli Dua Village, Mandolang District, Minahasa Regency.

METHODS

This type of research is descriptive analytic with a Cross-sectional design or cross-sectional research. This study was conducted to determine the effect of independent and dependent variables on

factors related to stunting control in the working area of the Tateli Health Center. The research location was in Tateli Dua Village from June 29 to August 9, 2024. The population in this study is the entire research subject to be studied and meets the established criteria. The population in this study was 272 mothers who had children under five in Tateli village two. The sample in this study is part of the affordable population that can be used as research subjects through sampling. Sampling in this study was carried out using a technique for determining the sample size using the Slovin formula. The sample in this study amounted to

73 respondents with inclusion criteria: mothers with children under five and parents of toddlers willing to become respondents. Exclusion criteria: mothers who do not come to the posyandu. Data collection techniques in this study are Primary data is a source of data obtained directly from respondents, namely direct interviews with respondents in the form of giving questionnaires containing questions covering parental education, parental employment, parental height, foster care, besides that secondary data obtained from previous research journals and book literature used as references in the preparation of this study.

RESULTS AND DISCUSSION

A. RESULTS

1. General Description of the Research Location

This study was conducted in the Tateli Health Center's working area. Mandolang District, Minahasa Regency. This health center has a working area consisting of 12 villages, namely: Kalasey 1 Village, Kalasey 2 Village, Tateli 1 Village, Tateli 2 Village, Tateli 3 Village, Tateli Village, Tateli Weru Village, Koha Village, West Koha Village, East Koha Village, South Koha Village, and Agotey Village. Geographically, the boundaries of the Tateli Health Center area are as follows: North is bordered by Manado Bay, East is bordered by Pineleng District, West is bordered by Manado City, and Tombariri District borders South. Puskesmas Tateli has an area of 5,385.8 Km². The population in the Tateli Health Center working area, especially Tateli Dua Village, has the latest education, namely: Elementary School, Junior High School, High School, and College and most of the population has a meta livelihood as Private Employees, Civil Servants, Traders, Self-employed, Drivers, Laborers, TNI / Polri, Protestant, Muslim, Catholic Buddhist, Hindu, Confucian.

2. Respondent Characteristics

a. Univariate Analysis

Table 1: Frequency Distribution of Respondents Based on Mother's Age

Age Group (Year)	Frequency (n)	Percent (%)
19-23	21	28,4
24-28	36	49,9
29-33	16	21,7
Total	73	100

Based on Table 1, the largest age group is 49.9% in the 24-28 age group. The distribution table shows respondents' productive age group who can help increase family income in stunting control.

Table 2: Frequency Distribution Table of Respondents Based on Parental Education (Father)

Father's Education	Frequency (n)	Percent (%)
Low	7	9.6
High	66	90,4
Total	73	100

Table 2 shows that 90.4% of fathers have higher education.

Table 3: Frequency Distribution of Respondents Based on Parents' Education (Mother)

Mother's Education	Frequency	Percent (%)
Low	32	43,8
High	41	56,2
Total	73	100%

Table 3 illustrates that 56.2% of mothers have higher education.

Table 4: Distribution of Respondents Based on Family Income

Income	Frequency (n)	Percent (%)
Less	39	53,4
Enough	34	46,6
Total	73	100

Table 4 shows that 53.4%. Who has the least income at the level of the least?

Table 5: Frequency Distribution of Respondents Based on Mother's Height

Mother's Height	Frequency (n)	Percent (%)
Short	40	54,7
Normal	33	45,3
Total	73	100

Table 5 shows that 54.7% have short height.

Table 6: Frequency Distribution of Respondents Based on Parenting

Parenting Pattern	Frequency (n)	Percent (%)
Not good	39	53,4
Good	34	46,6
Total	73	100

Table 6 shows that parenting patterns are not good, with 53.4%.

Table 7: Frequency distribution based on stunting control seen from child height

Child Height	Frequency (n)	Percent (%)
Short	11	15.1
Normal	62	84.9
Total	73	100

Based on table 7, it can be seen that children in Tateli Dua village have an average height of 84.9%.

3. Bivariate Analysis

a. Relationship between Parental Education and Stunting Control

The analysis results with the Chi-Square Test can be seen in the table below.

Table 8: Chi-Square test of the relationship between father's education and stunting control

Variable	Sig
Father's education Stunting Control	0,000

Table 9 Spearman test of the relationship between the mother's education and stunting control

Variable	Sig
Mother's education Stunting Control	0,000

Based on tables 8-9, it is known that the education of parents, both fathers and mothers, in Tateli Dua village, on average, has a high school education, as seen in cross tables 8 and 9 above.

b. Relationship between family income and stunting control

Table 10: Chi-Square test of family income with stunting control

Variable	Sign
Family Income Stunting Control	0,001

Based on the cross table 10 above, it can be seen that the average income of parents in Tateli Dua village is around quintiles 1 and 2.

Based on the Chi-Square test results, the family income obtained a Sig. (2-sided) value of 0.001. Because the Sig. (2-sided) If the value is less than the alpha value of 0.05, it means that there is a relationship between family income and the incidence of stunting.

c. Relationship between maternal height and stunting control

Table 11: *Chi-Square* test of maternal height with stunting control

Variable	Sig
Mother's Height Stunting Control	0.001

Based on Table 11 above, it can be seen that the height of the mother is mainly in the short standard, <150cm.

Based on the Chi-Square test results, the mother's height obtained a Sig. (2-sided) value of 0.001. Because the Sig. (2-sided) If the value is less than the alpha value of 0.05, it means that there is a relationship between family income and the incidence of stunting.

d. The relationship between parenting patterns and stunting control

Table 12: Chi-Square test of parenting with stunting control

Variable	Sig
Parenting Pattern Stunting Control	0.001

Based on Table 12 above, it can be seen that the parenting pattern of parents in Tateli Dua Village is not good.

Based on the Chi-square test results, the parenting pattern obtained a Sig. (2-sided) value of 0.001. Because the Sig. (2-Tailed) If the value is less than the alpha value of 0.05, it means that there is a relationship between parenting patterns and the incidence of stunting.

DISCUSSION

1. Parental Education

The higher the education, the higher the knowledge and behavior of a person, but conversely, the lower the education, the lower the knowledge and behavior of a person. The results showed a significance value (sig.(2-sided)) 0.000. With a very low p-value, it can be concluded that parental education significantly affects stunting control. This shows that the higher the parents' education level, the better they can apply nutrition, health, and healthy lifestyle knowledge to prevent stunting in their children. Parental education has been shown to impact stunting management and prevention significantly. Educated parents are more likely to understand the importance of good nutrition, healthy diets, and adequate child health care. Parental education is shown to impact stunting management and prevention significantly. Educated parents are more likely to understand the importance of good nutrition, healthy diets, and adequate child health care. Health education programs aimed at parents, especially in communities with a high risk of stunting, can be an effective strategy. These programs should focus on providing practical knowledge about nutrition, child health, and the importance of regular health checks.

This study is in line with the research of Yanti et al (2022), namely, the results show that in children who experience stunting, the majority have parents with junior and senior high school education. In addition, the Chi-Square value of 0.001 states that toddlers who have mothers with junior and senior high school education are 8 times more likely than toddlers who have parents with higher education levels. This study also aligns with Khoirun et al.'s (2019) research in Surabaya, which shows that the proportion of low fathers' education level in the stunting toddler group is slightly higher (47.1%) compared to the normal toddler group.

2. Family Income

Family income generated by both father and mother in one family can meet the family's needs. The results showed a significance value of 0.001. This value is much lower than the generally accepted significance level (e.g., 0.05), indicating that the results of this study are highly statistically significant. With a very low p-value, we can conclude that family income significantly affects stunting control. With a very low p-value, we can conclude that family income significantly affects stunting control. Families with higher incomes tend to have more resources to access nutritious food, health services, and other facilities to help prevent their children's stunting. Families with higher incomes generally have better access to nutritious food, adequate health care, and a healthier environment. These factors contribute to stunting prevention, which explains why family income matters. Programs that address stunting should consider family income an important factor. Initiatives such as food subsidies, financial assistance for low-income families, and health awareness programs can help families with lower incomes overcome the challenges associated with stunting.

This study's results align with the research of Liza Tanzil and Hafriani (2021). Families with good economic status will obtain better public services, such as education, health services, and high purchasing power for nutritious foods. In contrast, low-income families cause reduced family purchasing power for good nutritional foods, causing nutritional deficiencies, both macro and micro nutrients.

3. Maternal Height

Stunting is a health problem that affects child growth, and various factors can influence the incidence of stunting, including maternal height. The results of the analysis showed a significance value of 0.001. This value indicates that the association between maternal height and stunting control is highly statistically significant, well below the conventional significance level of 0.05. With such a low p-value,

we can conclude that maternal height is significantly associated with stunting control. Maternal height, which is often considered a more general indicator of maternal nutritional status, may be related to mothers' ability to provide adequate nutrition and care for their children. Maternal height is often used as an indicator of long-term nutritional status. Mothers with better height may have a better nutritional background, which may influence their ability to provide proper nutrition to their children, thus reducing the risk of stunting. Health programs that focus on improving the nutritional status of mothers, including education on nutrition and health, can contribute to the prevention of stunting. interventions designed to improve maternal nutritional status before and during pregnancy can potentially reduce the risk of stunting in children.

This study compares with research conducted by Cucuk Kunang Sari (2023), based on the results of the statistical test of parental height with Chi-square, the resulting p-value is 0.000 <0.05, meaning that there is a relationship between parental height and the incidence of stunting.

4. Parenting Pattern

Good parenting can prevent stunting in children. The results of the analysis show a significance value of 0.001, which is far below the general significance level (e.g. 0.05), indicating that the association between parenting and stunting control is highly statistically significant. The p value of 0.001 indicates that the association between parenting and stunting control is highly significant. This means that the likelihood of this result occurring by chance is very small, and indicates a strong association between parenting and stunting control. Parenting, which includes providing nutritious food, regularly monitoring children's health, and implementing good care practices, has a major impact on stunting prevention. Intervention programs that focus on parenting education can help parents understand and implement parenting practices that support children's optimal growth. Education on nutrition, how to serve nutritious food, and the importance of regular health visits should be part of this program. This study is in line with research conducted by Cucuk Kunang Sari (2023). Based on statistical tests on parenting patterns with Chi-square, the resulting p-value is 0.004 <0.05, meaning that there is a relationship between feeding parenting patterns and the incidence of stunting. It can be concluded that the research conducted by the author is directly proportional to the research conducted by cucuk kunang sari.

CONCLUSION

Based on the results of the discussion, the following conclusions can be drawn:

1. Based on the results of the discussion, it can be concluded that parental education has a close relationship with stunting control.
2. Family income has a close relationship with stunting control.
3. Maternal height has a close relationship with stunting control.
4. Parenting has a close relationship with stunting control.

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