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The Relationship between Parental Factors and Severity of Stunting Among Toddlers at Balung Community Health Center

Ida Maghfiroh[1], Robi Aji Permana[2*]

[1]Nursing Program, Faculty of Health Science, Universitas dr. Soebandi, Jember
[2]Nursing Program, Faculty of Health Science, Universitas dr. Soebandi, Jember

*Correspondence:
Author Name : Roby Aji Permana
Email : roby.ajipermana@uds.ac.id

Abstract

Introduction: Stunting is a chronic nutritional problem in toddlers that affects children's physical growth and cognitive development and can reduce the quality of human resources. The condition is influenced by various factors including parental factors. This study aims to analyze the relationship between parental factors and the degree of stunting in toddlers at the Integrated Management Clinic for Sick Toddlers at the Balung Community Health Center.
Methods: This study was a quantitative with cross-sectional design. The research population consisted of mothers with stunted toddlers totaling 50 respondents. From the sample calculation, 44 respondents were obtained as research subjects selected purposively. Data were collected using questionnaires and observational forms to record weight and height, which were evaluated using Z-scores. Statistical analyses were performed using Spearman Rank and Chi- square tests.
Results: The results revealed that 82% of respondents had incomes below the regional minimum wage, while 79% had attained a secondary level of education (junior or senior high school). Approximately 64% of respondents practiced authoritarian parenting styles, and 64% reported household food availability comprising fewer than five types of nutrients. Statistical analysis demonstrated no significant relation between parental socioeconomic status and the degree of stunting (0.109). Likewise, parental education level was not significantly associated with the degree of stunting (0.150). No significant relationship was found between parenting style and the degree of stunting (0.882). Household food availability also showed no significant association with the degree of stunting (0.062)
Conclusions: Socioeconomic status, educational attainment, parenting practices, and household food availability showed no significant association with the degree of stunting relationship with stunting severity, suggesting that adequate household food availability does not necessarily ensure optimal child growth in this study.

Keywords: Parental Factors, toddlers, *stunting*

Introduction

Stunting is a growth disorder in children caused by long-term malnutrition. This condition causes children to be shorter than the standard height for their age and indicates chronic nutritional deficiency. The World Health Organization defines stunting as a public health problem when its prevalence reaches 20% or higher. In 2017, the global prevalence of

stunting reached 22.2%, affecting approximately 150.8 million children worldwide (Oktavia, 2021). Stunting remains a major challenge in health development. Data from the 2022 Indonesian Nutrition Status Survey shows a national prevalence of 21.6 %, or more than 4.4 million toddlers (Adolph 2020).

The government has set a target to reduce stunting to 14 % by 2024 by strengthening nutrition interventions and basic health services. At the regional level, East Java Province is among the regions with high stunting rates. Data from 2019 recorded a prevalence of 26.86 %, which decreased to 23.5 % in 2021(Mukodi & Rahmawati, 2022). Jember Regency is recorded as one of the areas with the highest prevalence in East Java, with a rate of 12.8 % based on the 2021 SSGI (Adolph 2020). Data from the 2024 weighing month shows a stunting prevalence of 11.4 %, or around 17,784 toddlers, as of November. The Balung Community Health Center report notes an increase in cases from 190 toddlers in August 2024 to 192 toddlers in February 2025. Stunting in Indonesia is still a problem.

Previous studies have shown that parental factors play an important role in stunting. Oktavia 2021 reported a significant association between parental factors and stunting. Another study by Yanti et al. (2023) found that low socioeconomic status and permissive parenting styles are associated with stunting in toddlers. Stunting is influenced by internal and distal factors. Distal factors mainly originate from the family environment. Parents, especially mothers, play a major role in meeting children's nutritional needs and caring for them. Food availability, education, employment, and parenting patterns are closely related to children's nutritional status. Socioeconomic status reflects parents' level of education, income, and employment type, which affects their ability to meet their children's nutritional needs. Parents with low levels of education tend to have limited knowledge about balanced nutrition, breastfeeding, and complementary feeding. Low income limits access to nutritious food and increases the risk of low food security (Adolph 2020).

Inappropriate parenting practices can worsen children's nutritional status, especially during complementary feeding. At this stage, nutritional needs increase because breast milk no longer meets toddlers' energy and nutrient requirements. Lack of stimulation and inappropriate feeding patterns can exacerbate growth disorders (Amalia et al. 2024). The effects of stunting are both short-term and long-term. Initial effects include growth retardation, cognitive and motor development disorders, and metabolic disorders. Long-term effects include reduced intellectual capacity and low learning ability, which impact productivity in adulthood. Stunting before age 2 is associated with lower cognitive and educational achievement in childhood and adolescence. This condition affects the quality of human resources and future competitiveness

(Sitti Patimah 2021). Based on these conditions, this study analysed parental factors that influence the degree of stunting in toddlers. The results of this study are expected to contribute to scientific knowledge and serve as a basis for health workers in developing promotional and preventive strategies for the sustainable management of stunting.

Methods

This study was conducted at the MTBS Clinic of the Balung Community Health Center in September 2025. The research design used a quantitative, cross-sectional approach. The research population consisted of mothers with toddlers with *stunting* who visited the MTBS Clinic at the Balung Community Health Center. The average population in the last three months was fifty people. The sample size was determined using the Slovin formula, yielding a sample of 44 respondents. The sampling technique used purposive sampling. The inclusion criteria included mothers of children aged 2 to 59 months with stunted nutritional status who came to the MTBS Clinic during the research period, were willing to be respondents, and were able to communicate well. Exclusion criteria included mothers who were unwilling to participate or who did not live with their toddlers.

Data was collected using questionnaires and observational forms to record weight and height, which were evaluated using Z-scores Data collection was conducted directly with respondents under the guidance of researchers. Data analysis included bivariate analyses to determine the direction and strength of relationships between variables. Spearman's correlation test was used for ordinal scale data, while the chi-square test was used for nominal data. This study obtained ethical approval from the Health Research Ethics Committee of Universitas dr. Soebandi on August 19, 2025, with number 1344/KEPK/UDS/VII/2025. The confidentiality of respondent data was fully maintained by the researchers.

Results

Respondent characteristics, including number of children, maternal age, parental employment status, child age, and gender of toddlers at the Balung Community Health Center MTBS Clinic, were analysed using SPSS software, yielding the following findings :

Table 1. Frequency distribution based on number of children, mother's age, occupation, and child's gender

Indicators	Frequency	%age (%)
Number of Children		
≤ 2 children	36	81%
> 2 children	8	19%
Mother's age		
< 20 years	0	0%
20-35 years	35	80%
>35 years	9	20%
Parent's occupation		
Working	24	55%
Not working	20	45%
Child's gender		
Male	18	41%
Female	26	59%
Comorbidities		
Congenital heart disease	2	4%
Epilepsy	3	7%
Mental retardation	2	4%
Delay meleston	3	7%
Recurrent URTI (allergy)	16	37%
Diarrhea	6	15%
TB	2	4%
Febris	6	14%
Hiv	1	2%
Pneumonia	2	4%
Febril seizure	1	2%

Data Source: Primary data, September 2025

Based on the results in Table 1, the majority of respondents have more than two children (81%), and most mothers are in the age range of 20 to 35 years old (80%). The distribution of parents' employment status shows an almost equal split between respondents who work (55%) and those who do not (45%). The majority of toddlers are female, at 59%. The most common comorbidities in toddlers are recurrent respiratory infections due to allergies, with a total of 36 cases.

Table 2. Distribution of respondent characteristics based on family socioeconomic status

Parental income	Frequency	%age (%)
< UMR	36	82%
≥ UMR	8	18%
Total	**44**	**100%**

Notes: UMR: Upah Minimum Regional
Data Source: Primary data, September 2025

The results of the analysis in Table 2 show that most respondents came from families with incomes below the regional minimum wage namely 82% (36 people). Meanwhile, respondents with incomes equal to or above the regional minimum wage accounted for 18% or 8 people.

Table 3. Distribution of respondent characteristics based on parental education

Parental education	Frequency	%age (%)
No schooling	0	0%
Elementary school	4	10%
Elementary school junior high	35	79%
Minimum D3	5	11%
Total	44	100%

Data source : Primary data, September 2025

The findings in Table 3 indicate that the majority of respondents had parents with the highest level of education of junior or senior high school, accounting for 79%. A smaller proportion had parents with a minimum of a diploma-level education, representing 11 %, or 5 individuals, while 10 %, or 4 respondents, had parents with an elementary educational background.

Table 4. Distribution of respondent characteristics based on parenting styles

Parenting Styles	Frequency	%age (%)
Permissive	3	7%
Authoritarian	28	64%
Democratic	13	29%
Total	**44**	**100%**

Data source : Primary data, September 2025

Table 4 shows that most respondents (64% or 28) had an authoritarian parenting style, 29% (13) had a democratic parenting style, and 7% (3) had a permissive parenting style.

Table 5. Distribution of respondent characteristics based on food availability in the household

Food availability household	Frequency	%age (%)
5 type of nutrients	13	29,5%
< than 5 type of nutrients	31	70,5%
Total	**44**	**100%**

Data source : Primary data, September 2025

Table 5 shows that most respondents (70,5%) had nutritional deficiencies in less than five types of nutrients, while 29,5% had nutritional deficiencies in five types of nutrients.

Table 6. Distribution of *stunting* classifications

Classification of Stunting	Frequency	%age (%)
Severly stunted	7	16%
Stunted	37	84%
Total	**44**	**100%**

Data source : Primary data, September 2025

Table 6 shows that the majority of toddlers, 84% (37), were classified as stunted, and

16% (7) were classified as severely stunted.

Table 7. Analysis of Parental Factors with the Degree of *Stunting* in Toddlers at the MTBS Clinic, Balung Community Health Center

Parental factors	Degree of stunting		Total	p-value
	Stunted	Severly stunted		
Socioeconomic status				
< UMR	31 (70,5%)	5 (11,5%)	36 (82%)	0,109
≥ UMR	6 (13,6%)	2 (4,4%)	8 (18%)	
Total	37 (84%)	7(16%)	44 (100%)	
Education level				
Elementary school graduate	4 (10%)	0	4 (10%)	
Junior high school/high school	30 (68%)	5 (11%)	35 (79%)	0,150
College	3 (6,8%)	2 (4,2%)	5 (11%)	
Total	37 (84,8%)	7 (15,2%)	44 (100%)	
Parenting style				
Permisive	2 (4,2%)	1 (2,8%)	3 (7%)	
Authoritary	24 (54%)	4 (10%)	28 (64%)	0,882
Democratic	11 (24,8%)	2 (4,2%)	13 (29%)	
Total	37 (83%)	7 (17%)	44 (100%)	
Food availability				
Lack of 5 types of nutrients	24 (54%)	7 (17%)	31 (70,5%)	0,062
5 types of nutrients	13 (29,5%)	0	13 (29,5%)	
Total	37 (83%)	7 (17%)	44 (100%)	

Discussion

A. The Relationship Between Socioeconomic Factors and The Degree of Stunting in Toddlers

Most respondents in this study came from families with incomes below the regional minimum wage, namely 36 respondents (82%), while respondents with incomes equal to or above the minimum wage accounted for 18%. These findings indicate that the majority of stunted toddlers in the study came from families with low economic conditions. Statistical analysis showed no significant relationship between parents' socioeconomic factors and the degree of stunting. This was proven through a Chi-Square test

which produced a p-value of 0.109, with p greater than 0.05.

These findings indicate that economic factors are not the only determinants of stunting severity in toddlers. Other factors, such as parenting patterns, nutritional intake, parental education, and the child's health condition, are thought to play a more dominant role than family income alone. The results of this study are consistent with those of Yanti et al. (2023), who found that family economic status does not show a significant relationship with the degree of stunting, even though most stunted toddlers come from families with lower-middle-class economic status. Other studies have also reported similar results, emphasizing the role of parenting patterns, food consumption quality, breastfeeding, sanitation conditions, and infectious diseases as more influential factors (Adolph 2020).

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The insignificant relationship between socioeconomic status and stunting in this study was also influenced by the high incidence of comorbidities among toddlers, including recurrent respiratory infections, diarrhea, and other infections. These conditions can interfere with nutrient absorption, reduce appetite, and increase the body's energy requirements, so that a family's economic advantage does not always correlate directly with improvements in children's nutritional status (Tebi et al. 2025).

B. The Relationship Between Education Level and The Degree of Stunting in Toddlers

Most respondents in this study had parents with a secondary education level, namely junior high school and high school, amounting to 79 %. Respondents with parents who had at least a diploma amounted to 11 %, while those with an elementary school or Islamic elementary school education amounted to 10 %. This distribution shows that the majority of parents of toddlers have a secondary education.

The results of the correlation analysis show that there is no significant relationship between parental education level and the variables studied. A correlation coefficient value of 0.221 indicates a very weak relationship. The p-value of 0.150, with p> 0.05, indicates that differences in parental education levels do not have a significant effect on stunting. Although toddlers with college-educated parents show a higher proportion of severe stunting, the number of respondents in this group is relatively small, so the difference is not statistically significant.

These findings are in line with the research by Ruswati et al. (2021) and Sastria et al. (2019), which state that parents' formal education levels are not always directly related to the degree of stunting, as other factors, such as parenting patterns, nutritional knowledge, and feeding habits, play a more dominant role. On the other hand, Tebi et al. (2025) reported different results, stating that maternal education is associated with parenting quality and health decision-making. This difference shows that access to health information, which is now available through digital media outreach and posyandu activities, enables parents with low levels of education to still obtain adequate knowledge about child nutrition and health.

C. Relationship Between Parenting Patterns and The Degree of Stunting in Toddlers

Respondents applied an authoritarian parenting style, with 64% (28 people). A democratic parenting style was reported by 29 % of respondents, while a permissive parenting style was reported by only 7 %. These findings indicate that parenting styles with a high level of parental control are still dominant in families with stunted toddlers in the study location.

Statistical analysis shows that parenting styles have a very weak negative relationship with the degree of stunting, with a correlation coefficient of minus 0.023. A significance value of 0.882 indicates that this relationship is not statistically significant. The distribution of stunting degrees is relatively similar across parenting style categories, so there is no strong evidence of a relationship between parenting styles and stunting degree.

The high incidence of comorbidities in toddlers, such as recurrent respiratory infections, diarrhea, and other infections, plays a major role in exacerbating stunting. These health problems lead to decreased appetite, impaired nutrient absorption, and increased energy requirements in children. This condition means that the benefits of good parenting do not fully impact improving nutritional status.

The authoritarian parenting style that dominated this study was characterized by high parental control and one-way communication. The emphasis on discipline and obedience was often unbalanced by attention to the child's emotional needs. This situation has the

potential to affect children's eating behaviour and growth and development, although its effect on the degree of stunting has not been statistically proven. The results of this study are in line with previous findings that state that parenting styles are not always significantly related to the degree of stunting (Suparmi et al., 2023). Other factors, such as infectious diseases, sanitation conditions, and the quality of daily intake, are considered more influential in determining toddlers' nutritional status (Yuwanti et al., 2021).

D. Relationship Between Food Availability in Households and The Degree of Stunting in Toddlers

Most respondents in this study had access to fewer than 5 types of nutrients, namely 64% (31 people). Respondents with access to five types of nutrients accounted for only 7 %, or 13 people. These findings indicate that the variety of foods consumed in families with stunted toddlers remains limited. The results of the Pearson Chi-Square test showed that there was no significant relationship between household nutritional adequacy and the degree of stunting. The p-value was 0.062, which was above the significance threshold of 0.05, although it was close to it. All toddlers from families with access to five types of nutrients were stunted, whereas severely stunted cases were found only in groups with access to fewer than five types of nutrients. The findings of this study are in line with those of a study by Sastria et al. (2019), which found that diversity in daily food consumption is not always directly related to the degree of stunting. Stunting is more influenced by adequate nutrient intake during the first thousand days of life than by consumption patterns at the time of the study. Other factors, such as the mother's health during pregnancy, a history of infectious diseases, and environmental sanitation, also contribute to the occurrence of stunting (Ruswati et al. 2021).

Several other studies show different results. Rohmah (2022) states that diverse food consumption contributes to the fulfilment of macro- and micronutrients needed for the linear growth process of children. These differing findings indicate that the effect of food availability on stunting is strongly influenced by the child's context and overall condition. The absence of a significant relationship in this study indicates that adequate household food supplies do not necessarily have a direct impact on stunting rates. Recurrent infectious diseases such as ARI and diarrhea play a major role in worsening children's nutritional status through decreased appetite, impaired nutrient absorption, and increased energy requirements. This condition prevents the optimal utilization of available nutrients, causing toddlers to remain stunted and at risk of severe stunting.

Conclusion

1. The analysis shows that parenting patterns are not statistically significantly associated with the degree of *stunting* in toddlers. A p-value of 0.882 indicates that variations in parenting patterns do not explain differences in *stunting* rates in the study area.
2. The findings show no significant relationship between family socioeconomic status and the degree of *stunting*. A p-value of 0.109 indicates that family income is not the only factor determining *stunting* in toddlers.
3. Analysis of parental education levels also showed no significant relationship with *stunting* rates. A p-value of 0.150 indicates that although education is related to nutritional knowledge and behaviour, it does not have a statistically significant effect on *stunting* in this study.
4. The results of the study indicate that household food availability is not significantly associated with the degree of *stunting* in toddlers. A p-value of 0.620 indicates that adequate food at the family level cannot guarantee *stunting* prevention in the context of this study.

Author Contributions

Ida Maghfiroh served as the lead author responsible for research design, data collection, data processing and analysis, and preparation of the initial draft of the manuscript. Robi Aji Permana contributed to the development of the study's conceptual framework, supervision of methodology and data analysis, and critical review and refinement of the manuscript. All authors were involved in interpreting the research results, revising the manuscript, and approving the final version for publication.

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Data Availability Statement

The data supporting the findings in this study is primary data obtained through direct data collection at the MTBS Clinic of the Balung Community Health Center. This data is not available to the public because it contains respondents' personal information. However, the data can be obtained from the author upon a reasonable request and with the authorities' approval.

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