

Determinant Factors among Housewives Associated with the Incidence of Stunting in Pematang Raya, Langkat Regency

Siti Saidah Nasution^{1*}, Erniyati¹, Evi Karota², Siti Zahara Nasution²

ABSTRACT

OBJECTIVE: A study was conducted to analyze maternal determinants affecting children's health status, given that stunting is a chronic malnutrition condition during a child's early growth and development, influenced by family conditions, especially the mother who cares for the child.

METHODOLOGY: A quantitative correlational study was conducted using the *chi-square* test and multivariate logistic regression to analyze maternal determinants influencing children's health status. This study was conducted in Langkat Regency from April to September, with the population comprising all mothers and infants in the Langkat area, and the sample consisted of 108 housewives living in the service area of the Pematang Jaya Health Centre using purposive sampling, considering the inclusion criteria of mothers with toddlers (0-60 months) whose data were available at the health centre, and the exclusion criteria of infants with abnormalities and incomplete data, which were determined from a total population of 600 mothers with children residing in the Pematang Jaya Health Centre's service area.

RESULTS: The study found that the mother's occupation had a *p-value* of 0.007 and an *r-value* of 0.286; the mother's age had a *p-value* of 0.017 and an *r-value* of -0.255; and the number of children had a *p-value* of 0.04 and an *r-value* of -0.297.

CONCLUSION: Therefore, it can be concluded that children's health status (stunting/non-stunting) is influenced by the mother's occupation, the mother's age, and the number of children the mother has.

KEYWORDS: Health status, Stunting, Housewives, Community

INTRODUCTION

Stunting is one of the most common causes of long-term child malnutrition. Stunting occurs at a high rate in developing countries¹. Stunting is a sign of long-term malnutrition that can begin in utero and continue throughout a child's first 2 years of life, also known as the first 1,000 days of life². Malnutrition that causes stunting can occur in both quality (lack of essential nutrients) and quantity (insufficient food intake). Low intake of protein, iron, and other essential micronutrients^{3,4} is among them. The Indonesian Ministry of Health report also notes that the etiology of stunting in Indonesia is directly linked to the nutritional status of mothers during pregnancy and lactation, environmental hygiene, and access to health services⁵.

Maternal factors, including maternal age, education level, occupation, marital status, and number of children, influence children's nutritional well-being of children⁶. Research indicates that teenage mothers have children who are at risk of stunting because they are biologically immature and inexperienced, as well as uninformed regarding an appropriate amount of

information^{7,8}. Besides that, maternal education influences how they learn and apply nutritional information, as well as the childcare and feeding practices they adopt to nurture their children⁹. The government continues to demonstrate its seriousness in reducing the prevalence of stunting in Indonesia, particularly in North Sumatera. A total of 12 provinces, including North Sumatera, are prioritized for the implementation of Indonesia's national action plan to accelerate the reduction of stunting. According to data from the Indonesian Nutrition Status Survey (SSGI) released by the Indonesian Ministry of Health, the stunting rate in North Sumatera reached 25.8%. The target for 2025 is to reduce this to just 10%. The highest stunting rate in North Sumatera is found in Langkat Regency at 47.7%¹⁰.

Regarding work, a national survey conducted demonstrates that the incidence of stunting in toddlers whose mothers work is 30.9% greater than that of toddlers whose mothers do not work¹¹. However, this is contextual and may be influenced by the nature and timing of work, as well as the quality of care that might still be provided even if the mother was working¹², this can be reduced in formal work contexts, among civil servants or in the private sector with strong work support¹³. Marital status also contributes to the risk of stunting. Married mothers tend to enjoy improved social and economic access compared to unmarried mothers, which can impact the nutritional sufficiency of children¹⁴. Stunting remains at the forefront of the national health development agenda. Stunting among Indonesian children under 5 years old has decreased

¹Department of Maternal and Childcare Nursing, Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia.

²Department of Community and Mental Health Nursing, Faculty of Nursing, Universitas Sumatera Utara, Medan, Indonesia

Correspondence: siti.saidah@usu.ac.id
doi: 10.22442/jlumhs.2026.01531



from 31.8% in 2018 to 21.6% in 2022, with a goal of a 14% reduction in 2024^{5,15}. Government intervention includes nutrition-specific interventions (such as, nutrient supplements) and nutrition-sensitive interventions (such as, sanitation, maternal education, and social protection)¹⁶.

Globally, stunting is a repeating pattern across generations, with mothers who were born of low birth weight or who themselves were stunted as children being more likely to have stunted children^{17,18}. Evidence from Ethiopia, Vietnam, Tanzania, and Indonesia shows that mothers' education level and family income are strong predictors of stunting¹⁸. This study is expected to provide valuable insights into maternal determinants of children's health status. Maternal employment, age, and the number of children were found to be significantly related to children's nutritional condition, as reported in the national and international literature^{11,20}. These findings provide evidence of the need for a context-based approach that takes local characteristics into account in planning stunting prevention programmes in Langkat District, serving as a reference model for health workers in addressing the challenges of stunting.

METHODOLOGY

Study Design

This study is a quantitative correlation analysis using the *chi-square* test and multivariate logistic regression analysis to analyze maternal factors that influence child health status.

Population and Sample

This study was conducted in Langkat Regency from April to September, with the population comprising all mothers and infants in the Langkat area, and the sample consisted of 108 housewives living in the service area of the Pematang Jaya Health Centre. Population: 600 housewives with children, using a propositional sampling technique with the following inclusion criteria: mothers with toddlers (1-60 months) and complete child data at the community health centre, and exclusion criteria: mothers with disabled children, incomplete child data, children not of appropriate age.

Instrument

Instrument distribution of Respondents Based on Maternal Characteristics, consisting of: Age, Number of Children, Education, Occupation, Family Support and Counselling. This instrument was created by the researcher, referring to the literature review developed based on the theory and factors related to the causes of stunting in children, namely the influence of family roles in childcare, especially maternal care, namely age, number of children, education, occupation, family support and health counselling received. This questionnaire has been tested for validity using content validity by lecturers from the Department of Maternity and Child Nursing, Faculty of Nursing, University of North Sumatra. The reliability of the

questionnaire was tested on 20 respondents in another district, which was not part of the research intervention area in Langkat Regency. This research questionnaire has been tested for validity by lecturers from the Faculty of Nursing at the University of North Sumatra, with a content validity index (CVI) score of 0.90. It has also been tested for reliability with 20 respondents, with a Cronbach's alpha of 0.82, which is above 0.6, indicating reliability. Child health status instrument to determine whether a child of stunted, based on measurements of age, height, and weight. Anthropometric measurements are used to diagnose stunting by measuring a child's height and comparing it to the WHO growth standards. This situation is represented by a height-for-age (height/age) z-score of less than -2 standard deviations (SD) according to WHO growth standards. Source: Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Children's Anthropometry Standards.

Data Analysis

Using the *chi-square* test and multivariate logistic regression analysis to analyze maternal factors such as mother's occupation, mother's age, child's age, mother's level of education, child's immunization status, that influence child health status, and to analyze the significance level by multivariate logistic regression analysis for each determinant factor of housewives. The study analyzed the relationship between each independent factor and children's health status, the dependent variable, using the *chi-square* test. Given the results ($p < 0.25$) and normally distributed data, the related factors were analyzed using multivariate regression to identify the dominant factor. The dominant factor is the result with a *p-value* < 0.05 .

RESULTS

Table I presents the characteristics of respondents by maternal age, highest level of education, child's health status, maternal occupation, child's age, number of children, and child's immunization status. The majority of mothers were in the 20–35 age group (53.8%), had a high school education (39.8%), worked as housewives (53.7%), had children aged 13–24 months (30.6%), had 2–3 children (46.3%), and had children with complete immunization status (67.6%).

Table II shows the distribution of children's health status within the working area of the Pematang Jaya Community Health Centre. A substantial majority of the children (92.6%) were classified as not stunted, whereas only a small fraction (7.4%) experienced stunting.

There was a significant relationship between the number of children and children's health status ($p = 0.004$) with an *r* value of -0.291. All cases of stunting were found in mothers with more than two children, specifically > 3 children (75%).

There was a significant relationship between maternal occupation and child health status ($p = 0.007$; $r = 0.286$),

Table I: Frequency Distribution of Housewives in the Pematang Jaya Community Health Centre Working Area

Characteristics	Frequency (f)	Percentage (%)
Number of children		
1 Child	30	27.8
Child	50	46.3
>3 Children	28	25.9
Work		
civil servant	16	14.8
Housewife	58	53.7
Private	34	31.5
Mother's Age		
<20	12	11.1
20-35	63	53.8
>35	33	30.6
Child Age		
1-12 Months	13	12.0
13-24 Months	33	30.6
25-36 Months	31	28.7
37-48 Months	31	28.7
Education		
Elementary School	11	10.2
Junior High School	34	31.5
Senior High School	43	39.8
University	20	18.5
Child Immunization Status		
Complete	73	67.6
Incomplete	35	32.4

Table II: Children's Health Status (Stunting & No Stunting) at Pematang Jaya Community Health Centre Working Area

Children's Health Status	f	%
Stunting	8	7.4
No Stunting	100	92.6

Table III: The Relationship Between Children's Health Status and the Number of Children

Case Status Child	Number of children						Total	P-Value	r	
	1 child		2-3 children		>3 children					
	f	%	f	%	f	%				n
Stunting	0	0	2	25	6	75	8		0.004	-0.291
No stunting	30	30	48	48	22	22	100	100		
Total	30	27.77	50	46.29	28	26.85	108	100		

Table IV: Relationship between Child Health Status and Mother's Occupation

Case Status Child	Mother's Job						Total	P-Value	r	
	Civil servant		Housewife		Private					
	f	%	f	%	f	%				n
Stunting	4	50	4	50	0	0	8	100	0.007	0.286
No Stunting	12	12	54	54	34	34	100	100		
Total	16	14.81	58	53.70	34	31.48	108	100		

indicating a moderately substantial relationship. Stunting was more common among mothers who worked as civil servants or housewives, whereas no cases of stunting were found among mothers who worked in the private sector.

There is a significant relationship between maternal age and child health status ($p=0.017$; $r=-0.255$) with an r value of -0.255 . Stunting in children is more common among mothers aged >35 years (75%) than among those in other age groups.

No significant association was found between child age and health status ($p=0.086$). Stunting cases were distributed across various age groups, with the highest proportions in children aged 1–12 months and 25–36 months (37.5% each).

The test results showed no significant relationship between maternal education and child health status ($p=0.215$). However, the proportion of children without Stunting was higher among mothers with a high school education (42%).

No significant relationship was found between children's immunization status and their health status ($p=0.749$). The proportion of children with complete immunizations was higher in the non-stunting group (68%).

Multivariate logistic regression analysis identified the number of children as a significant determinant ($p = 0.043$; OR = 0.162). These findings indicate that mothers with more children are more likely to have children with stunting than mothers with fewer children. Meanwhile, other variables such as mother's occupation ($p = 0.072$; OR = 3.594), mother's age ($p = 0.137$; OR = 0.236), child's age ($p = 0.108$; OR = 2.165), mother's education level ($p = 0.491$; OR = 1.370), and immunization status ($p = 0.283$; OR = 0.337) did not reach statistical significance in the model.

Table V: Relationship between Child Health Status and Mother Age

Case Status Child	Mother's Age						Total	P Value	r	
	<20 Years		20-35 years		>35 Years					
	f	%	f	%	f	%	n	%		
Stunting	0	0	2	25	6	75	8	100	0.017	-0.255
No Stunting	12	12	61	61	27	27	100	100		
Total	12	11.11	63	58.33	33	30.55	108	100		

Table VI: Relationship between Child Health Status and Child's Age

Case Status Child	Child's age								Total	P Value	
	1-12 months		13-24 months		25-36 months		37-48 months				
	f	%	f	%	f	%	n	%	f	%	
Stunting	3	37.5	1	12.5	3	37.5	1	12.5	8	100	0.086
No Stunting	10	10	32	32	28	28	30	30	100	100	
Total	13	12.03	33	30.55	31	28.70	31	28.70	108	100	

Table VII: Relationship between Child Health Status and Mother's Last Education

Status to Child	Mother's Last Education								Total	P Value	
	Elementary School		Junior High School		Senior High School		University				
	f	%	f	%	f	%	n	%	f	%	
Stunting	1	12.5	5	62.5	1	12.5	1	12.5	8	100	0.215
No Stunting	10	10	29	29	42	42	19	19	100	100	
Total	11	10.18	34	31.48	43	39.81	20	18.51	108	100	

Table VIII: Relationship between Children's Health Status and Children's Immunization Status

Case Status Child	Immunization Status				Total	P Value	
	Complete		Incomplete				
	f	%	f	%	f	%	
Stunting	5	62.5	3	37.5	8	100	0.749
No Stunting	68	68	32	32	100	100	
Total	73	67.59	35	32.40	108	100	

Table IX: Table of significance levels for logistic regression analysis for determinant factors of housewives

Determinant factors	P Value (sig.)	Exp(B)
Number of children	0.043	0.162
Mother's occupation	0.072	3.594
Mother's age	0.137	0.236
Child's age	0.108	2.165
Mother's age	0.491	1.370
Child's immunization status	0.283	0.337

DISCUSSION

The results of the study showed a significant relationship between maternal age and child health status ($p=0.017$; $r=-0.255$). This finding aligns with several studies showing that maternal age significantly influences a child's nutritional status. Mothers who are too young or too old tend to face the risk of complications during pregnancy and less than optimal caregiving, which ultimately impacts child growth²¹⁻²³.

Mothers in the 20–35-year age range, such as the majority in this study (53.8%), are the most biologically optimal age group for pregnancy and childcare²⁴.

No significant association was found between maternal education and child health status ($p=0.215$). However, a higher proportion of children without stunting was found among mothers with a high school education (42%). This is consistent with several studies showing that higher maternal education levels are often positively correlated with children's nutritional status because mothers better understand the importance of nutrition and health²⁵⁻²⁷. However, several studies also suggest that the effect of education on nutritional status may be mediated by other factors such as family income and access to health services²⁸.

A significant relationship was found between maternal occupation and child health status ($p=0.007$; $r=0.286$). This finding indicates that stunting is more common among housewives and civil servants. At the same time, there were no cases of stunting among mothers working in the private sector; this may be related to maternal involvement in direct care or job stress levels^{29,30}. Several studies have shown that jobs with flexible working hours or work environments that support maternal and child health can have a positive impact on children's nutritional status³¹. However, another study found that children in urban areas whose mothers work are 1.116 times more likely to experience stunting than children in rural areas³².

No significant association was found between child age and child health status ($p=0.086$). However, stunting cases were spread across all child age

groups, with the most significant proportions occurring in children aged 1–12 months and 25–36 months (37.5% each). This is in line with global findings showing that the critical period for stunting is in the first 1,000 days of life^{12,13}. A significant association was found between the number of children and child health status ($p = 0.004$; $r = -0.291$), with the number of children a significant determinant ($p = 0.043$; OR = 0.162). Families with more children tend to have a higher risk of stunting, which may be due to limited economic resources and time for care^{30,33}. Although the immunization status of children did not have a significant effect in this study, this issue still needs to be considered. Other studies have found that children who have not received all their basic immunizations are at higher risk of stunting than those who are fully immunized. The risk of stunting increases by 1.2–2.7 times in children who are not fully immunized or are not immunized at all³⁴.

CONCLUSION

Based on the analysis of the frequency distribution table and the relationship test between various maternal factors and the child's health status, it can be concluded that the majority of respondents are mothers aged 20–35 years, have a high school education, work as housewives, have children aged 13–24 months, with a total of 2–3 children, and complete child immunization status. Factors that have a significant relationship with child health status are mother's occupation ($p = 0.007$), mother's age ($p = 0.017$; $r = -0.255$), and number of children ($p = 0.04$), with mother's age as a significant determinant ($p = 0.043$; OR = 0.162). The mother's level of education, the child's age, and the child's immunization status do not show a significant relationship with the child's health status. Stunting is more common among children of mothers aged >35 years, working as civil servants or housewives, and having more than two children. However, observations of community behaviour related to the role of the family and cultural norms may be contributing factors to stunting in children and warrant further study. This study had limitations in terms of adjusting the schedule with respondents, and the research location was far from the mothers' place of residence.

ACKNOWLEDGMENT

The authors are grateful to the institutional research of University of North Sumatera. This research was funded by the University of North Sumatera Talenta Grant, and to all participants who took part of the data collection.

Ethical permission: University of North Sumatera, Indonesia, ERC approval letter No. 611/KEPK/USU/2025.

Conflict of interest: There is no conflict of interest between the authors.

Financial Disclosure / Grant Approval: A Talenta grant from University of North Sumatera funded this study.

Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publicly.

AUTHOR CONTRIBUTION

Hasution SS: Contributed to determining the concept, measurement tools, doing data analysis, writing the abstract, results and discussion part.

Erniyati: Contributed to collecting data and writing results

Bukit EK: Contributed to research methodology, took part of doing analysis and preparing the article.

Nasution SZ: Contributed to data analysis and prepared the article.

REFERENCES

1. Organization WH. Child growth standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age. Geneva: World Health Org. 2023.
2. Islam MS, Zafar Ullah AN, Mainali S, Imam MA, Hasan MI. Determinants of stunting during the first 1,000 days of life in Bangladesh: A review. *Food Sci Nutr*. 2020 Jul 20; 8(9): 4685-4695. doi: 10.1002/fsn3.1795.
3. Black RE, Victora CG, Walker SP. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*. 2013; 382(9890): 427–51.
4. Prendergast AJ, Humphrey JH. The stunting syndrome in developing countries. *Paediatr Int Child Health*. 2014; 34(4): 250–65.
5. Ministry of Health of the Republic of Indonesia. Results of the 2022 Indonesian Nutritional Status Study (SSGI). Jakarta: Ministry of Health; 2022.
6. Marsianah J, Adhani R, Nugroho A, Husaini H, Ilmi B. Relationship of Mother's Characteristics and Nutritional Status in Children in Indonesia. *J Berk Kesehatan*. 2022
7. Schummers L. Association of maternal age with adverse pregnancy outcomes. *BMJ*. 2019; 364: k4372.
8. Kozuki N, Lee AC, Silveira MF. The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality. *BMC Public Health*. 2013; 13(Suppl 3): S2.
9. Alderman H, Headey DD. How important is parental education for child nutrition? *World Dev*. 2017; 94: 448–64.
10. Kementerian Kesehatan Republik Indonesia. Pedomani Gizi Seimbang. Jakarta: Kementerian Kesehatan Republik Indonesia; 2021.
11. Susilowati I, Fadilah R. Maternal employment and child stunting in Indonesia: a national study. *Int J Environ Res Public Health*. 2022; 19(4): 2150.
12. Doku DT. Maternal employment and child nutritional status in Sub-Saharan Africa. *Matern Child Nutr*. 2016; 12(4): 889–901.

13. Komarulzaman A, Smits J. Maternal employment and child health in Indonesia. *J Dev Stud.* 2021; 57(8): 1362–78.
14. Gubhaju B. The influence of spouse and family support on child nutrition in Nepal. *Asia Pac Popul J.* 2019; 34(2): 23-36.
15. Asian Development Bank (ADB). Country Report: Indonesia Nutrition Profile. Manila: ADB; 2022.
16. Bappenas. National Strategy for Accelerating Stunting Prevention 2020–2024. Jakarta: Secretariat of the Vice President; 2020.
17. Vats H, Walia GK, Saxena R, Sachdeva MP, Gupta V. Association of Low Birth Weight with the Risk of Childhood Stunting in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis. *Neonatology.* 2024; 121(2): 244-257. doi: 10.1159/000532006. Epub 2024 Jan 10.
18. Ong KK. The role of maternal and child nutrition in the intergenerational cycle of undernutrition. *Lancet.* 2020; 395(10234): 75–88.
19. Danaei G. Risk factors for childhood stunting in 137 developing countries: a comparative risk assessment analysis. *PLoS Med.* 2016; 13(11): e1002164.
20. Schummers L. Association of maternal age with pregnancy outcomes. *BMJ.* 2019; 364: k4372.
21. Khan JR. Young maternal age and the risk of child undernutrition. *Matern Child Health J.* 2017; 21(12): 2228–36.
22. Organization WH. Adolescent pregnancy. Geneva: World Health Org. 2020.
23. Alderman H, Headey DD. How important is parental education for child nutrition? *World Dev.* 2017; 94: 448–64.
24. Fadare O. Women's empowerment and child nutrition in Nigeria. *BMC Public Health.* 2019; 19(1): 1001.
25. Smith LC, Haddad L. Explaining child malnutrition in developing countries. IFPRI. 2015.
26. Hafid F, Nasrul N, Amsal A, Ramadhan K, Taufiqurahman T, Sariman S. Low Birth Weight, Child Gender, Number of Children, and Maternal Education as Risk Factors for Stunting in Palu City, Indonesia. *Amerta Nutr.* 2024; 8(2SP): 75-84
27. Ogunlela YI, et al. Effect of maternal employment on child nutrition. *Int J Child Health Nutr.* 2020; 9(1): 23–32.
28. Komarulzaman A. Impact of women's employment on child nutrition in Indonesia. *J Dev Stud.* 2021; 57(8): 1362–78.
29. Black RE. Maternal and child undernutrition and overweight in LMICs. *Lancet.* 2013; 382(9890): 427–51.
30. Prendergast AJ, Humphrey JH. The stunting syndrome. *Paediatr Int Child Health.* 2014; 34(4): 250–65.
31. Khara T, Dolan C. Technical Brief: The relationship between wasting and stunting. Emergency Nutrition Network. 2014.
32. Supadmi S, Laksono AD, Kusumawardani HD, Ashar H, Nursafingi A, Kusrini I et al. Factor related to Stunting of children under two years with working mothers in Indonesia. *Clin Epidemiol Glob Heal [Internet].* 2024; 26(February): 101538. <https://doi.org/10.1016/j.cegh.2024.101538>.
33. Rah JH. Maternal undernutrition and child undernutrition in South Asia. *Matern Child Nutr.* 2015; 11(Suppl 1): 1–6.
34. Purwanti ED, Masitoh S, Ronoatmodjo S. Association Between Basic Immunization Status and Stunting in Toddlers Aged 12-59 Months in Indonesia. *J Prev Med Public Health.* 2025; 58(3): 298–306.

