SOCIOECONOMIC STATUS AND FAMILY NUTRITION INFLUENCE ON STUNTING AMONG CHILDREN UNDER FIVE IN THE BELU DISTRICT EAST NUSA TENGGARA PROVINCE

***Sirilius Seran[1], Yuliati Sengkoen[1]**

[1]Faculty of Economy and Business, University of Timor, 85617 Sasi, Kefamenanu, East Nusa Tenggara, Indonesia

***Corresponding Author:** Sirilius Seran ; **Email:** siriliusseran@unimor.ac.id

ABSTRACT

Stunting is a condition observed in some children under the age of five, characterized by a visibly undernourished physique, often exhibiting a slender frame with a distended abdomen, or exhibiting shorter stature and lighter weight compared to their peers. This malnutrition-induced growth impairment can potentially hinder optimal brain development, thereby compromising the child's cognitive potential. Various factors contribute to stunting in this age group, including demographic, socio-economic, and residential conditions. This research aims to discover the causal relationship between social and economic status along with nutrition variables in relation to the likelihood of stunting. The study centers on 100 households with children under five in Belu Regency, specifically in Atambua City and Halilulik Village. Employing ordinary least square analysis, this study finds a simultaneously significant relationship (p=0.002) between residential conditions, education, occupation, and nutrition variables in relation to stunting. This relationship is notably strong, as indicated by an r-value of 0.427, while the R^2 value stands at 0.182. Notably, the likelihood of stunting is significantly higher for children whose mothers have an education level of ≤ Junior High School, at 8.081 times, in comparison to those with High School-educated mothers, who are at 8.159 times higher risk, than mothers with a University/Diploma education level. Additionally, children with lower nutritional intake are 4.913 times more likely to experience stunting compared to their well-nourished counterparts, and those from low-income households face a 1.849 times higher risk compared to those with higher family incomes.

Keywords: *stunting, income, nutrition.*

ABSTRAK

Sakit stunting yang dialami oleh sebagian anak balita diketahui dari kondisi tubuh anak: kurus, perut buncit atau tinggi/berat badan lebih pendek/ringan dari anak lain seusia dengannya. Anak-anak stunting akan tumbuh dalam keadaan tubuh yang tidak sehat bahkan pertumbuhan otak juga lemah. Banyak faktor penyebab stunting, dapat dikelompokkan menjadi: faktor demografi, dan status sosial ekonomi, dan lingkungan. Penelitian ini bertujuan untuk mengetahui hubungan sebab akibat antara variabel status sosial, ekonomi dan gizi terhadap probabilitas stunting. Fokus perhatiannya kepada 100 rumah tangga yang memiliki anak balita, yang bertempat tinggal di wilayah Kabupaten Belu, khususnya di Kota Atambua, dan Desa Halilulik. Hasil analisis regresi Ordinary Least Square, membuktikan bahwa secara simultan tempat tinggal, pendidikan, pekerjaan, pendapatan, dan gizi memilik ihubungan Signifikan.(0.002) dengan status stunting. Hubungan diantara variabel cukup kuat, nilai r sebesar 0.427, sedangkan nilai R^2 sebesar 0.182. Rasio kecenderungan kejadian stunting bagi anak balita yang berasal dari ibu yang berpendidikan ≤ SMP: 8,081 kali sedangkan anak dari ibu yang sekolah SMU/K sebesar 8,159 kali dibanding ibu yang berpendidikan Sarjana/Diploma. Anak yang kurang gizi, resiko mengalami stunting, 4,913 kali anak yang gizitinggi. Anak dari orang tua yang

berpendapatan rendah, resiko mengalami stunting, 1,849 kali, dibanding anak dari orang tua yang berpendapatan tinggi.

Kata Kunci: *Stunting, Pendapatan, Nutrisi.*

INTRODUCTION

Poverty is characterized by the inability of a community or group of people to meet their basic needs such as health, education, and access to nutritious meals [1]. It can be caused by limitations in natural resources, capital, job opportunities, low education, lack of motivation to work, and family burdens [2]. The determination of poverty is based on the Poverty Line (*Garis Kemiskinan*), which encompasses the average minimum per capita expenditure for both food and non-food items. An individual or household is considered poor if their average per capita expenditure is lower than the Poverty Line, but if the average expenditure exceeds it, they are not classified as poor (4).

Poverty is closely related to the area of residence and type of occupation. In March 2024, of the 25,20 million poor people in Indonesia., 11,79 percent live in rural areas, and the majority work in the agriculture sector (3) Click or tap here to enter text.. The majority of this poor population came from families with low education. Result from 2021 stated that there were 74.34% of the poor population living in rural areas with only elementary education, which is higher than those residing in urban areas at 51.2%. Conversely, the poor population who completed secondary and tertiary education were more likely to live in urban areas, at 35.72% and 13.03% respectively, compared to those in rural areas, at 20.48% and 5.17% for higher education [4].

Individuals with lower levels of education are more likely to work in the agricultural sector or in other types of employment with relatively lower compensation compared to those working in the industrial sector in urban areas. The research revealed a positive and significant correlation between education and income, resulting in a coefficient value of 0.245 (p-value < 0.001), and an R^2 value of 0.860 [5].

The consumption patterns of low-income families do not prioritize nutritional and health aspects. What matters most to them is the quantity consumed, rather than its nutritional standard. According to data from 2016, the highest per capita expenditure for health factors was recorded in Singapore, at US$ 4,083.8, the highest in the world, followed by Brunei Darussalam: US$ 1,812.4, and Malaysia: US$ 1,052.6. Indonesia ranked fifth, with US$ 362.7, higher than Vietnam, the Philippines, Myanmar, Cambodia, and Laos. This situation places Singapore at the top of the health index at 78.96, followed by Malaysia at 69.12, while Myanmar has the lowest health index at 48.17 [6].

The per-capita expenditure patterns for health have had an impact on the prevalence of stunting in the respective countries. Singapore experienced the lowest prevalence of stunting in 2020, at 2.8%, followed by Thailand at 12.3%. Brunei Darussalam ranked third lowest at 12.7%. Meanwhile, Indonesia had a stunting prevalence of 31.8%, the second highest in Southeast Asian countries, following Timor-Leste at 48.9% [7]. This study aims to understand the influence and causal relationship between social, economic, and environmental factors on the probability of stunting among toddlers in Belu District-East Nusa Tenggara Province.

METHODS

The focus of this research is on 140 households that have children under five residing in the border area of Atambua City, East Nusa Tenggara Province. The sample

size of 100 households was determined using a formula with a significance level of 0.05. As the characteristics of the population are not diverse, 100 out of the total 140 households were selected using probability sampling techniques.

This study utilizes primary data obtained through direct interviews with 100 respondent households. The examined variables are place of residence, wife's education, wife's occupation, family income, nutrition, and stunting probability. The first five variables are independent variables, while the sixth variable is treated as the dependent variable. The Nutrition variable plays a dual role: as a dependent variable (Y) because its value variations are influenced by the other four independent variables, but simultaneously, along with the other independent variables, it influences the probability of stunting experienced by children under five.

This research uses two analytical methods: descriptive analysis and inferential analysis, which includes multiple linear regression (Ordinary Least Squares/OLS) and multiple logistic regression. The utilization of OLS enables a comprehensive exploration of the causal connection between the four independent variables and the fifth variable (nutrition), while multiple logistic regression investigates the cause-and-effect dynamic between the five independent variables and the probability of stunting experienced by children under five years old. The outcomes encompass more than just the coefficient values of each independent variable; they extend to incorporate effective contributions, odds ratios of stunting occurrence, and the findings from hypothesis testing.

RESULTS

Descriptive Analysis Result

Table 1 elaborates on the descriptive relationship between stunting occurrence and socio-economic variables. Out of the 100 households sample, 52% of children under five suffer from stunting, while the remaining 48 percent are not. Among the subset of 52 stunted children, 42% belong to families residing in urban areas, while 58% hail from rural areas.

Among the 48 non-stunted children, 48 percent are from parents in rural areas, and 52% are from urban areas. A negative correlation is observed between parental education and stunting. Among the 52 stunted children, 56% originate from parents with lower educational levels, compared to the 2% children whose parents hold university degrees. A semiliar trend was also found by Suratri, at al(2023) that out of 636 respondents there were 245(31,5%) stunted children who had parents (mothers) who were higly educated, relatively lower than mothers who had low education, who had stunted children of 391(44,1%) [8]

Regarding occupation type, income, and nutrition, there is an interrelation that can subsequently influence the variability in the number of stunting cases. 96 percent of those stunted children have parents who are not civil servants or teachers, with the remaining 4 percent belonging to families where the parents are in such professions. 90 percent of children from low-income families, experience stunting, a markedly higher figure than children with middle to high-income parents, which was 8% and 2%, respectively. A similar pattern unfolds applies to nutritional factor: 81% of stunted children can be attributed to low nutrition, while stunted children with a diet rich in nutrients constitute 19% of the cases (refer to Table 1).

Table 1. Variation in Stunting Children Under Five Based on Socioeconomic Conditions and Household's Nutrition

Variable/Category	Total	Stunting	Normal
Residency Area			

1. Urban Areas	45	22(42%)	23(48%)
2. Rural Areas	55	30(58%)	25(52%)
Total	100	52	48
Wife's Education			
1. ≤ Junior High School	50	29(56%)	21(44%)
2. High School	42	22(42%)	20(42%)
3. University	8	1(2%0	7(14%)
Total	100	52	48
Wife's Occupation			
1. Civil Servant/Teacher	10	2(4%)	8(17%)
2. Others	90	50(96%)	40(83%)
Total	100	52	48
Family Income			
1. Low	87	47(90%)	40(83%)
2. Middle	10	4((8%)	6(13%)
3. High	3	1(2%)	2(4%)
Total	100	52	48
Nutrition			
1. Low	63	42(81%)	21(44%)
2. High	37	10(19%)	27(56%)
Total	100	52	48

Note : determining income categories and nutritional levels using scale/formula :

$$Interval\ Scale = \frac{highest\ score - \ lowest\ score}{number\ of\ variable\ categories}$$

Inferential Analysis Result: Ordinary Least Squares Regression

The inferential regression Ordinary Least Squares (Table 2) shows the results of two analysis models, which are: simple regression model, and multiple regression model. The simple model comprises three models, involving regressing each independent variable (X) against each dependent variable (Y). While, the multiple regression model consists of two models, which involve simultaneously regressing the independent variables (X) against the dependent variables (Y): nutrition and stunting occurrence. The stunting variable in the model is not treated as a binary variable (1, 0) but as a ratio-scaled variable. The goal of this model is not only to understand the coefficients of each independent variable (X) with stunting probability (Y), but also to calculate the magnitude of the effective contribution of each independent variable (X) to the occurrence of stunting (Y) (Table 3).

Tabel 2. Summary of Regression Analysis (Ordinary Least Squares) Results for Each Model

Models	Const.	Coeff.	R	R^2	Sign
Simple Model					
Residency Area(X1) → Wife's Education	1.533	0.085	0.066	0.004	0.511
Wife's Education(X2) → Wife's Occupation	3.364	-0.357	0.378	0.143	0.000
Wife's Education(X2) → Family	0.856	0.191	0.276	0.076	0.000

Income					
Wife's Occupation(X3) → Family Income	2.000	-0.300	0.408	0.167	0.000
Multiple Model on Nutrition	1.267		0.251	0.063	0.181
Residency Area(X1) → Nutrition		-0.114			0.258
Wife's Education (X2) → Nutrition		0.062			0.452
Wife's Occupation (X3) → Nutrition		-0.055			0.550
Family Income (X4) → Nutrition		0.191			0.129
Multiple Model on Stunting Occurrence	0.754		0.427	0.182	0.002
Residency Area (X1) → Stunting (Y)		0.048			0.624
Wife's Education (X2) → Stunting (Y)		-0.061			0.317
Wife's Occupation (X3) → Stunting (Y)		0.114			0.204
Family Income (X4) → Stunting (Y)		0.037			0.766
Nutrition(X5) → Stunting (Y)		-0.362			0.000

Source: Result of primary data analysis

According to Table 3, it is observed that the nutrition variable (X5) makes the largest contribution (I) to stunting occurrence at 13.41%, followed by wife's occupation (II) at 2.93%, wife's education (III) at 1.99%, and place of residence (IV) at 0.27%. The lowest contribution comes from wife's education, at -0.34% (Table 3).

Table 3. Effective Contribution of Each Independent Variable to Stunting Occurrence

Variable	Coeff. Cor	Coef.β standardized	Effective Contribution	%	Ranking
Residency Area(X1)	0.056	0.048	0.003	0.27	IV
Wife's Education(X2)	-0.194	-0.103	0.020	1.99	III
Wife's Occupation(X3)	0.214	0.137	0.029	2.93	II
Family Income(X4)	-0.105	0.032	-0.003	-0.34	V
Nutrition(X5)	-0.383	-0.350	0.134	13.41	I
Total			**0.183**	**18.27**	

Inferential Analysis Result: Multiple Regression Logistic

Variable Y (probability of stunting) can be treated as a binary variable (1, 0) containing probabilistic elements. The results of the logistic regression analysis regarding the relationships among the variables are presented in the following Table 4.

Table 4. Summary of Multiple Logistic Regression Analysis Results

Variable	Coeff	Sign	Exp	95% CI	
				Lower	Upper
Residency Area(1)	-0.350	0.459	0.704	0.279	1.780
Wife's Education		0.251			
Wife's Education(1)	2.090	0.102	8.081	0.660	98.977
Wife's Education(2)	2.099	0.103	8.159	0.656	101.531
Wife's Occupation(1)	-1.175	0.216	0.309	0.048	1.985
Family Income		0.781			
Family Income(1)	-0.164	0.922	1.849	0.032	22.732

Family Income(2)	0.536	0.768	0.709	0.048	60.525
Nutrition	1.592	0.001	4.913	1.931	12.499
Constanta	-2.532	0.198	0.080		

Nagelkerke R.Square : 0.263
Cox&SnellR.Square : 0.197
-2LLliklihood : 116.525

Source: Result of primary data analysis

The important values in Table 4 are the Odds Ratios statistics, explained by the exponential values, used to understand the differences in the likelihood of stunting occurrence due to variations in the values of each independent variable (X). The risk of stunting tendency is experienced by children with mothers who have low education (≥ Junior High School) with an Odds Ratio of 8.08, and with mothers having education up to Senior High School with an Odds Ratio of 8.16 compared to children whose mothers have tertiary education. Children whose mothers work as civil servants and/or teachers have a risk of experiencing stunting 0.309 times compared to children whose mothers work in other fields (non-civil servant/teacher). Similarly, to income, the risk of experiencing stunting for children from parents with low and middle incomes is 1.85 and 0.71 times higher respectively compared to children from parents with high income. Meanwhile, children with low nutritional intake have a risk of experiencing stunting 4.9 times higher than children with high nutritional intake.

DISCUSSION

Place of Residence and Its Relation to Stunting

Stunting is a condition of failed growth experienced by children under five. Stunting becomes apparent only after a child reaches 2 (two) years of age or the first 1000 days of life. The illness can be identified by physical signs of thinness and shorter stature compared to other children of the same age. Stunting is not a condition that suddenly appears after birth; rather, it begins to develop while the baby is still in the mother's womb. Pregnant mothers who consume high-quality food and beverages (meeting nutritional standards) and consistently attend prenatal check-ups with obstetricians are more likely to give birth to healthier babies compared to those who do not. The Thrifty Phenotype Theory suggests that infants who experience malnutrition in the womb and have undergone permanent metabolic and endocrine adaptations will struggle to adapt to a postnatal environment rich in nutrients [9]. Consequently, babies will face a risk of obesity and impaired glucose tolerance, but the probability of obesity risk will be lower if they consume food in moderate amounts during the first 1000 days of life. One of the factors influencing the prevalence of stunting is the place of residence. The prevalence of stunting among children living in rural areas is higher than among those living in urban areas. Inferential analysis yields a Chi-square coefficient (X^2) value of 4.008, with a probability value of 0.045[10].

Awareness of a healthy lifestyle varies among communities. Habits such as indiscriminate waste disposal, lack of proper sanitation facilities, and poverty are more prevalent in rural communities compared to urban ones. The study revealed a significant relationship (Sign. 0.000) between the cleanliness of the living environment and the occurrence of stunting, the risk of stunting in an unclean environment is 12,813 times higher compared to a clean environment [11]. Based on the literature review, there is a significant relationship between the variables of clean water source, sanitation access, household waste management, household waste disposal, occurrence of diarrhea, and occurrence of acute respiratory infections with stunting in toddlers in Indonesia [12]. India

has 1063 (79%) out of 1345 children experiencing stunting who consume public water, while only 282 (21%) of those who use private tap water are affected by stunting [13]. Study found that 24.2% of stunted children come from families without proper sewage disposal, which is higher than the 6.1% of stunted children from families with access to sewage disposal. The risk of experiencing stunting for children from families without sewage disposal is 4.309 times higher compared to families with access to sewage disposal [14]. The study identified a positive correlation (0.048) but it was not statistically significant (Sign. 0.624) between residential area and stunting (Table 1). There was a tendency for children under five living in urban areas to experience stunting 0.704 times more than those living in rural areas, though it was not statistically significant (Table 2). Similar trends were observed in Pakistan, where children under five living in rural areas had a 1.09 times higher risk of experiencing stunting compared to those in urban areas [15].

Education, Income, Occupation, Nutrition and Stunting

Education is a process pursued by an individual or a group of people to enhance their quality. Education encompasses not only formal education but also non-formal and informal education. The formal education process is more systematic and hierarchical, starting from the lowest level, which is kindergarten to the highest level which is University. Everything within formal education is regulated by laws and regulations, including the curriculum, which is detailed in teaching units, methods of instruction, and evaluation processes.

Many studies have demonstrated that higher levels of formal education led to higher quality, which in turn may lead to more demanding types of occupations. There is a negative relationship between the two, resulting in a coefficient value of -0.357 with a significant value of 0.000. Individuals in Malaysia with a Bachelor's, Master's, or Doctoral degree have a 30% higher chance of securing employment compared to those with lower educational levels [16]. People with higher education tend to receive relatively higher wages compared to those with lower educational [17]. Wages for workers who have completed junior high school are 0.61% higher than those who have not completed junior high school. Wages for workers who have completed high school are 0.74% higher than those who have not. Workers with a Bachelor's degree have wages 0.96% higher than those without a Bachelor's degree, while workers with a Master's degree or a Doctorate have wages 1.38% higher than those with lower educational attainment [17].

This research also found a similar trend, showing that education has a positive correlation with income, resulting in a coefficient value of 0.858 with a significance of 0.006. Although the relationship/influence between them is weak (r=0.276), with an R^2 value of 0.076. Parents with higher education understand the proper way to nurture their children, which contributes to child's healthy and illness-free development [12]. Studies have shown a correlation between parents with higher education and taller children [18]. The study yielded a positive coefficient of 0.452 between the education level of wives and the nutritional status of children, although it was not statistically significant. In Pakistan it was found that nursing mothers had difficulty providing exclusive breast milk (the first 6 month) to their children due to the frequency of busy work(Riaz, et al,2019) [19] 94,87 percent of babies who receive exclusive breast milk experience normal nutrition compared to babies who do not enjoy exclusive breast milk from their mothers [20]. This condition has and will worson the body's energy so that it is easily attacked by pests and diseases which in the and can cause stunting and death.

Parents with incomes lower than the regional minimum wage have 0.17 times higher odds of having a child with stunting compared to those with incomes higher than the minimum wage. The significance value of this relationship is 0.004, which is lower than the alpha value of 0.005, indicating a statistical significance [21]. Descriptive analysis in this study found that 90% of stunted children come from low-income families, while stunted children from families with moderate and high incomes account for 8% and 2% respectively, out of a total of 52 stunted children.

CONCLUSION AND SUGGESTION

Conclusion

The are five independent variables (residency area, wife's education, wife's occupataion, family income, nutrition) and one dependent variable (probability of stunting). Determinant coefficient value(R^2) : 13,27 percent. The biggest contribution to the formation of stunting comes from nutritional factors at 13,41 percent, followed by employment : 2,93 percent, residance at 0,27 percent, while the income variable has a negative contribution to stunting at 0,34 persecnt. The nutritional factor in the OLS and logistic regression models produces a Sign value of 0,000 and 0,001 for stunting, while the other variables do not have Sign. relationship with the incidence of stunting.

Suggestion

Based on the findings of this research, it is recommended that local governments, stakeholders, and the entire community commit with strong determination to address stunting. Governments should have the authority to create pro-people public policies, provide affordable healthcare facilities, assist the less fortunate, and ensure price stability to maintain the purchasing power of the people. Additionally, motivating the community to adopt a healthy lifestyle and consume foods and beverages rich in carbohydrates and protein is essential. Utilizing home gardens to cultivate vegetables is one way to improve people's nutritional intake. The community should be encouraged to seek regular prenatal care at healthcare facilities to ensure the health of both the mother and the baby.

ACKNOWLEDGEMENTS

This research was funded by Universitas Timor and received support from the Local Government of Belu Regency, including the Head of the Health Office, Head of Tasifeto Barat Community Health Center, Kota Atambua Community Health Center, and the community (respondents) during the data collection process. Similar support was also provided by the Head of the Research and Community Engagement Institute (*Lembaga Penelitian dan Pengabdian Masyarakat*) – Universitas Timor, as well as several lecturers, students, and alumni. We express our gratitude for their support and collaboration.

REFERENCES

[1] S. Seran, "Hubunganantara Pendidikan, Pengangguran, dan Pertumbuhan Ekonomi dengan Kemiskinan," *Jurnal Ekonomi Kuantitatif Terapan*, May 2017, doi: 10.24843/JEKT.2017.v10.i01.p07.

[2] M. A. Okuputra and N. Nasikh, "Pengaruh inovasi daerah terhadap kemiskinan," *INOVASI*, vol. 18, no. 1, pp. 159–166, Mar. 2022, doi: 10.30872/jinv.v18i1.10379.

[3] Z. Hasan, "THE EFFECT OF ECONOMIC GROWTH AND HUMAN DEVELOPMENT INDEX ON POVERTY IN INDONESIA," *JOURNAL OF*

ECONOMICS AND SUSTAINABILITY, vol. 3, no. No.1, pp. 42–53, Jan. 2021, doi: 10.32890/jes2021.3.1.5.

[4] BPS, "Persentase Penduduk Berumur 15 tahun Ke Atas menurut Daerah Tempat Tinggal, Jenis Kelamin, dan Jenjang Pendidikan tertinggi Yang Ditamatkan, 2009-2021," Badan Pusat Statistik. [Online]. Available: https://www.bps.go.id/statictable/2012/04/20/1610/persentase-penduduk-berumur-15-tahun-ke-atas-menurut-daerah-tempat-tinggal-jenis-kelamin-dan-jenjang-pendidikan-tertinggi-yang-ditamatkan-2009-2021.html

[5] M. B. Kapisa, S. A. Bauw, and R. A. Yap, "Analisis Tingkat Pendidikan dan Jenis Pekerjaan Terhadap Pendapatan Kepala Keluarga (KK) di Kampung Manbesak Distrik Biak Utara Provinsi Papua," *Lensa Ekonomi*, vol. 15, no. 01, p. 131, Jul. 2021, doi: 10.30862/lensa.v15i01.145.

[6] Yosepha Pusparisa, "Pengeluaran Kesehatan per Kapita Negara di ASEAN 2016," Databoks. Accessed: Sep. 24, 2023. [Online]. Available: https://databoks.katadata.co.id/datapublish/2020/03/23/pengeluaran-kesehatan-per-kapita-negara-di-asean

[7] Asian Development Bank, "Prevalensi Stunting Balita Indonesia Tertinggi ke-2 di Asia Tenggara," Databoks. Accessed: Aug. 20, 2023. [Online]. Available: https://databoks.katadata.co.id/datapublish/2021/11/25/prevalensi-stunting-balita-indonesia-tertinggi-ke-2-di-asia-tenggara

[8] M. A. L. Suratri*et al.*, "Risk Factors for Stunting among Children under Five Years in the Province of East Nusa Tenggara (NTT), Indonesia," *Int J Environ Res Public Health*, vol. 20, no. 2, Jan. 2023, doi: 10.3390/ijerph20021640.

[9] C. N. Hales *et al.*, "Fetal and infant growth and impaired glucose tolerance at age 64.," *BMJ*, vol. 303, no. 6809, pp. 1019–1022, Oct. 1991, doi: 10.1136/bmj.303.6809.1019.

[10] M. A. K. Al-Mansoob and M. S. A. Masood, "The Relationship between Stunting and Some Demographic and Socioeconomic Factors among Yemeni Children and Adolescents," *Advances in Public Health*, vol. 2018, pp. 1–6, Aug. 2018, doi: 10.1155/2018/5619178.

[11] I. Tongkonoo, M. Solang, and D. W. K. Baderan, "THE RELATIONSHIP OF SOCIAL, ECONOMIC, AND ENVIROMENTAL FACTORS WITH STUNTING OCCURRENCE IN TODDLERS," *Jambura Journal of Health Sciences and Research*, vol. 3, no. 2, pp. 256–276, Jul. 2021, doi: 10.35971/jjhsr.v3i2.10736.

[12] S. Hasanah, S. Handayani, and I. R. Wilti, "Hubungan Sanitasi Lingkungan Dengan Kejadian Stunting Pada Balita di Indonesia (Studi Literatur)," *Jurnal Keselamatan Kesehatan Kerja dan Lingkungan*, vol. 2, no. 2, pp. 83–94, Aug. 2021, doi: 10.25077/jk3l.2.2.83-94.2021.

[13] S. Das, S. Chanani, N. Shah More, D. Osrin, S. Pantvaidya, and A. Jayaraman, "Determinants of stunting among children under 2 years in urban informal settlements in Mumbai, India: evidence from a household census," *Journal of Health, Population and Nutrition*, vol. 39, no. 1, p. 10, Dec. 2020, doi: 10.1186/s41043-020-00222-x.

[14] A. Adyas, S. R. W. Handayani, A. Djamil, A. Kustiani, and N. K. Dalimunthe, "Analysis of Risk Factors of Stunting in Toddlers," *Jurnal Kesehatan*, vol. 14, no. 1, p. 172, Apr. 2023, doi: 10.26630/jk.v14i1.3701.

[15] A. Ali and S. A. Hussain, "The Impact of Household Socio-Economic Status on Child Stunting in Pakistan," in *Using Statistics for Sustainable Development Goals and Human Development*, London: ResearchGate, Feb. 2021.

[16] H. Agron and F. Besnik, "The Effect of the Level of Education on Employment: Evidence from Western Balkans," *Economic Alternatives*, vol. 28, no. 2, pp. 364–375, Jun. 2022, doi: 10.37075/EA.2022.2.11.

[17] W. Mou, "A Quantitative Analysis of the Relationship between Education Level and Income," *Journal of Education, Humanities and Social Sciences*, vol. 12, pp. 160–166, Apr. 2023, doi: 10.54097/ehss.v12i.7617.

[18] C. Scheffler, H. Greil, and M. Hermanussen, "The association between weight, height, and head circumference reconsidered," *Pediatric Research*, vol. 81, no. 5, pp. 825–830, May 2017, doi: 10.1038/pr.2017.3.

[19] S. Riaz and L. Condon, "The experiences of breastfeeding mothers returning to work as hospital nurses in Pakistan: A qualitative study," *Women and Birth*, vol. 32, no. 2, pp. e252–e258, Apr. 2019, doi: 10.1016/j.wombi.2018.06.019.

[20] L. Hanifah, "ANALISIS PEMBERIAN ASI EKSKLUSIF TERHADAP STATUS GIZI BALITA Study Of Exclusive Breastfeeding For Toddler Nutritional Status."

[21] L. Agustin and D. Rahmawati, "Hubungan Pendapatan Keluarga dengan Kejadian Stunting," *Indonesian Journal of Midwifery (IJM)*, vol. 4, no. 1, p. 30, Mar. 2021, doi: 10.35473/ijm.v4i1.715.