KESANS: International Journal of Health and Science
2808-7178 / 2808-7380
http://kesans.rifainstitute.com/index.php/kesans/index

The Incidence of Stunting and Its Influencing Factors in Toddlers

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Article Information
Submitted: **16 June 2025**
Accepted: **20 June 2025**
Publish: **30 June 2025**

Keyword: Stunting; Multifactorial; Toddler;

Abstract
Introduction*: The Sigi Regency has long struggled with a high rate of stunting among children in Central Sulawesi. There are multiple factors that play a role in contributing to this issue.* ***Objective****: The goal of this study is to examine the various factors that impact stunting in toddlers.* ***Method****: To conduct this research, a Case-control study was utilized in the Marawola Health Center Working Area in April and May of 2025. A total of 78 mothers with toddlers participated in the study, providing information through surveys and observations. The data was then analyzed using the Chi Square test with a confidence level of 95%.* ***Result and Discussion****: The results revealed that education, exclusive breastfeeding, immunization, and toddler weighing all played a significant role in the prevalence of stunting among toddlers (p value < 0.05). However, factors such as occupation, income, and access to Integrated Health Service Post did not show a significant correlation with stunting (p value > 0.05).* ***Conclusions****: It is crucial to take a comprehensive approach to health education, promote exclusive breastfeeding, conduct vaccination campaigns, and regularly monitor the growth of children in order to effectively reduce the prevalence of stunting in young children.*

How to Cite **I Kadek Wartana, Veni Mornalita Kolupe, Sitti Fajrah, Alfrida Semuel Rabung/The Incidence of Stunting and Its Influencing Factors in Toddlers, Vol. 4, No. 9, 2025**
DOI https://doi.org/10.54543/kesans.v4i9.388
e-ISSN/p-ISSN **2808-7178 / 2808-7380**
Published by **CV Rifainstitut/KESANS: International Journal of Health and Science**

Introduction

Stunting continues to be a major public health issue, not only in Indonesia but also worldwide, especially in countries with lower to middle income levels (Aprilya Sirait & Achadi, 2020; Kusumajaya et al., 2023; Mulyaningsih et al., 2021). As per the Indonesian Ministry of Health, the rate of stunting among children under the age of five has dropped from 27.7% in 2019 to 21.6% in 2022. Despite this improvement, the percentage remains higher than the World Health Organization's (WHO) goal of less than 20%. The government aims to continue reducing this rate to 17% by 2023 and 14% by 2024 (Lestari, 2023).

The Sigi Regency has long been known for having a high prevalence of stunting in Central Sulawesi. In 2021, it surpassed all other districts in the province to have the highest stunting rate. The rate stood at 40.7% in 2021, but decreased to 36.8% in 2022, and further dropped to 26.4% in 2023 (Mahendra et al., 2025; Suarayasa & Wandira, 2023; Wandira et al., 2023). Nonetheless, the current rate remains higher than the stunting prevalence threshold. The World Health Organization (WHO) defines a stunting prevalence below 20% as the benchmark for a satisfactory or "optimal" state of public health. When the prevalence exceeds 20%, it is classified as a public health issue that necessitates intervention (Taufiqurokhman, 2023).

Stunted growth occurs when a child experiences inadequate nutrition and frequent infections, resulting in hindered development. Statistics show that around 23% of children under the age of five are affected by stunting worldwide, equating to approximately 148-155 million children based on the latest data (Dadras et al., 2024; Regassa et al., 2024). Stunting in children under the age of five leads to permanent physical and cognitive impairment, such as decreased intelligence, reduced academic achievement, greater vulnerability to illnesses, and heightened mortality rate (Nomura et al., 2023; Regassa et al., 2024). Stunting in toddlers has various negative effects, including stunted physical development, delayed progress in motor skills and cognitive abilities, higher vulnerability to illnesses, and lasting consequences on intellectual and financial success (Akbar et al., 2023; Mustakim et al., 2022).

Various factors contribute to the occurrence of stunting in young children. These factors can range from economic status and poverty, to the mother's education level, the number of family members, the mother's height, age, and number of children. Additionally, the mother's nutritional knowledge and adherence to exclusive breastfeeding practices can also play a significant role. The child's age, low birth weight, and nutritional status, as well as maternal factors during pregnancy and genetic predisposition, are all important factors to consider (Kitu et al., 2023; Nur et al., 2023; Prabowo & Peristiowati, 2023; Santoso & Pujianto, 2024; Sari & Christy, 2025)

Furthermore, a history of infectious diseases like diarrhea and respiratory tract infections, along with poor sanitation and cleanliness in the living environment, can contribute to stunting in toddlers (Kitu et al., 2023; Santoso & Pujianto, 2024). Amongst these factors, low maternal education, inadequate exclusive breastfeeding, low birth weight, poor nutritional intake (especially of energy and protein), infectious diseases, and poor environmental sanitation are some of the most prominent and consistent influencers of stunting in young children. It is important to note that these factors often interact with one another, with poverty and limited maternal knowledge serving as underlying factors that contribute to many of the risks associated with stunting in toddlers(Kitu et al., 2023; Nur et al., 2023; Prabowo & Peristiowati, 2023; Santoso & Pujianto, 2024; Sari & Christy, 2025).

Method

This study utilised quantitative research methods employing a case-control study design. The main purpose of this study is to identify the factors affecting the occurrence of stunting in toddlers. The study took place in the months of April-May 2025 in three villages within the working area of Marawola Public Health Center. These villages are Baliase, Boya Baliase, and Binangga, chosen due to their high number of stunting cases in the Marawola district. The variables examined in this research include maternal education level, maternal occupation, family income, exclusive breastfeeding, child immunization, distance to integrated health posts, and child weighing. Maternal education level is categorized as elementary and middle-high, maternal occupation is categorized as unemployed and employed, family income is categorized as low and high, exclusive breastfeeding is categorized as no and yes, immunization is categorized as incomplete and complete, distance to integrated health posts is categorized as distant and close, and child weighing is categorized as non-routine and routine.

The participants in this study consisted of 69 mothers of toddlers, divided into 39 cases and 39 controls. Data collection methods involved the use of questionnaires and observation of maternal and child health handbooks to ensure that the information provided by the participants was accurate and matched the records. Before conducting interviews with the participants, the researcher explained the purpose and objectives of the study. The participants were asked for their willingness to participate in the study and were requested to sign an informed consent form if they agreed. The researcher did not engage in any interventions that could harm the participants' well-being. All data provided by the participants were kept anonymous and solely used for research purposes. The collected data were processed using IBM SPSS Statistics 26 software and presented in tables with explanations. Data analysis was conducted using univariate and bivariate analysis with the Chi Square test.

Research and Discussions

1. Result

The research findings indicate that data analysis was conducted using univariate analysis to observe the distribution and frequency of each variable under study, as well as bivariate analysis to examine the independent variables that affect the occurrence of stunting. A total of 78 respondents were involved in this study, divided into two groups: 39 cases and 39 controls. A Chi-square test with a confidence level of 95% was used to identify the variables that influence the occurrence of stunting. Variables with a P value of < 0.05 were considered as factors influencing stunting. The odds ratio (OR) was used to assess the likelihood of someone being at risk of stunting. The results of the univariate analysis are presented in Table 1, while the bivariate analysis is shown in Table 2.

Table 1
Participants Characteristics

No	Characteristics Variable	N	%
	Age		
1	< 20 Years	3	3.8
2	20-35 Years	58	74.4
3	> 35 Years	17	21.8
	Education		
1	Elementary	28	35.9
2	Middle-High	50	64.1
	Occupation		
1	Unemployed	71	91.0
2	Employed	7	9.0
	Income		
1	Low	54	69.2
2	High	24	30.8
	Exclusive Breastfeeding		
1	No	35	44.9
2	Yes	43	55.1
	Immunization		
1	Incomplete	26	33.3
2	Complete	52	66.7
	Access to Integrated Health Service Post		
1	Distant	26	33.3
2	Close	52	66.7
	Toddler Weighing		
1	Non-routine	44	56.4
2	Routine	34	43.6

Source: Primary Data 2024

Based on the research findings from Table 1, it is evident that the majority of mothers of toddlers in the Marawola Health Center area are aged between 20-35 years, accounting for 74.4% of the total. Additionally, most of the mothers have Middle-High education levels, amounting to 64.1%, with a large majority (91.0%) being unemployed and belonging to families with low income, accounting for 69.2%. In terms of exclusive breastfeeding, 55.1% of mothers have already provided exclusive breastfeeding, while 44.9% have not. Furthermore, the majority of toddlers, 66.7%, have received complete immunizations and live close to the Integrated Health Service Post. However, a significant portion of toddlers (56.4%) do not undergo routine weighing.

Table 2
Various Variables that Influence Stunting

No	Variables	Stunting				*p*-value	OR (95% CI)
		Cases		Control			
		n	%	n	%		
	Education						
1	Elementary	19	67.9	9	32.1	0.034	3.167
2	Middle-High	20	40.0	30	60.0		(1.195 – 8.389)
	Occupation						
1	Unemployed	34	47.9	37	52.1	0.431	0.368
2	Employed	5	71.4	2	28.6		(0.067 – 2.021)
	Income						
1	Low	24	44.4	30	55.6	0.220	0.480
2	High	15	62.5	9	37.5		(0.179 – 1.286)
	Exclusive Breastfeeding						
1	No	23	65.7	12	34.3	0.023	3.234
2	Yes	16	37.2	27	62.8		(1.273 – 8.218)
	Immunization						
1	Incomplete	18	69.2	8	30.8	0.031	3.321
2	Complete	21	40.4	31	59.6		(1.222 – 9.031)
	Access to Integrated Health Service Post						
1	Distant	16	61.5	10	38.5	0.230	2.017
2	Close	23	44.2	29	55.8		(0.772 – 5.275)
	Toddler Weighing						
1	Non-routine	27	61.4	17	38.6	0.040	2.912
2	Routine	12	35.3	22	64.7		(1.150 – 7.372)

Source: Primary Data 2024

The findings from Table 2 reveal that education significantly influences the occurrence of stunting in toddlers, as the p-value (0.034) is less than 0.05, with an odds ratio (OR) of 3.167. On the other hand, occupation does not have a significant impact on stunting in toddlers, as the p-value (0.431) is greater than 0.05. Similarly, income also shows a p-value (0.220) greater than 0.05, indicating it does not affect the occurrence of stunting in toddlers

The p-value of the exclusive breastfeeding variable is 0.023, which is less than 0.05, with an OR of 3.234, signifying its influence on stunting. The same applies to the immunization variable, with a p-value of 0.031 and an OR of 3.321, indicating its role in stunting in toddlers. Access to Integrated Health Service Post is not a factor influencing stunting, as its p-value (0.230) is greater than 0.05. Meanwhile, the Toddler Weighing variable with a p-value of 0.040 and an OR of 2.912 also influences stunting in toddlers. Results indicate that education, exclusive breastfeeding, immunization, and toddler weighing are variables that affect the occurrence of stunting, while occupation, income, and access to Integrated Health Service Post do not impact stunting in toddlers in the working area of Marawola Public Health Center.

2. Discussion

Stunting refers to a situation where children below five years of age have a height-to-age Z score that falls below -2 standard deviations. The condition is typically a result of inadequate nutrition during pregnancy and early childhood. Factors such as low maternal education and economic status, limited knowledge on health and nutrition, lack of proper health services, restricted access to nutritious food, and inadequate sanitation and clean water also play a role in contributing to stunting in children (Eva Purwita, 2022; Sari & Christy, 2025).

Maternal education plays a crucial role in determining the likelihood of stunting in young children. Mothers who have received higher levels of education typically possess greater awareness and understanding of nutrition, health, and appropriate feeding habits. Educated mothers are more knowledgeable about the significance of maintaining a well-rounded diet, practicing good hygiene, and accessing healthcare services that are essential for supporting their child's overall growth and development (Nurwasilah, Sahadewa, 2024; Yunitawati et al., 2025). Research carried out in various nations including Pakistan, Ethiopia, Rwanda, Burundi, Nepal, and Indonesia consistently indicate a concerning pattern: children born to mothers with limited education face an increased likelihood of suffering from stunting. For instance, children below the age of five whose mothers have a limited educational background are approximately three times more likely to experience stunting compared to those whose mothers have received a higher level of education (Azizah et al., 2022). Similarly, mothers lacking formal education are 1.7 times more likely to have undernourished children below the age of two compared to mothers with a higher educational attainment (Yunitawati et al., 2025).

The study findings indicated that the stunting rate in toddlers was not influenced by maternal employment or family income. This aligns with previous research that also found no significant link between maternal employment and stunting. In Karang Taliwang and Ngalang Villages, for instance, maternal employment was not found to have a notable impact on stunting. It is possible that mothers who are not employed have more availability to provide care and meals for their children, whereas working mothers contribute financially but may have less time to directly care for their children (Akka et al., 2024; Fitriani, F.D., Sunarsih, T., Yulaikhah, 2024). The prediction of stunting in children cannot solely rely on family income as income is frequently allocated to necessities other than food. Even families with lower incomes can still manage to offer their children nutritious meals by opting for cost-effective and convenient food choices (Nurwasilah, Sahadewa, 2024).

Exclusively breastfeeding toddlers has a strong protective impact against stunting. Studies have shown that exclusive breastfeeding can decrease the likelihood of stunting by 25% to 46%, with research indicating that exclusively breastfed toddlers are 50% less likely to be stunted compared to those who are not exclusively breastfed (Hadi et al., 2021; Tari et al., 2023). Various studies have also demonstrated a significant connection between exclusive breastfeeding and reduced stunting, with p-values consistently below 0.05, providing robust evidence of this protective effect (Ode Novi Angreni et al., 2024; Putri et al., 2024). Exclusive breastfeeding offers crucial macronutrients and micronutrients, such as colostrum, that enhance immunity and support proper growth and development. By preventing chronic malnutrition that can lead to stunting, exclusive breastfeeding plays a key role in promoting the health and well-being of young children (Putri et al., 2024).

The positive impact of full immunization on the prevention of stunting in young children is highly significant. Children who have completed their immunization schedule are at a much lower risk of experiencing stunted growth compared to those who have not. Research has shown that the risk of stunting in toddlers is 1.18 to 1.2 times higher in those who are not fully immunized (Mulyani et al., 2023; Purwanti et al., 2025). A comprehensive study conducted in Indonesia, which involved over 70,000 toddlers, revealed that incomplete immunization raises the likelihood of stunting by 18%. Moreover, children who do not receive any immunizations are at a 27% increased risk of stunting, even after taking into account socioeconomic and birth-related factors (Purwanti et al., 2025). Full immunization plays a crucial role in preventing infections that can hinder a child's growth by causing a decrease in appetite, poor nutrient absorption, and disruption in the production of growth hormones (Siddiqui et al., 2024; Theresia & Sudarma, 2022).

Proximity to the Integrated Health Service Post is not the sole determinant of stunting prevalence, as stunting is influenced by a myriad of intricate factors apart from mere geographical access to healthcare facilities. Studies indicate that the frequency and standard of visits to the Integrated Health Service Post are linked to the prevalence of stunting, but physical distance to the Integrated Health Service Post does not directly impact the number of visits or results. This implies that hurdles such as lack of awareness, limited education, and inadequate social support play a more significant role than distance when it comes to stunting prevention (Andrestian et al., 2025; Diva et al., 2023). Proximity to integrated health posts does not necessarily correlate with the prevalence of stunting, as stunting is determined by a variety of interconnected social, environmental, and behavioral factors that impact health outcomes beyond just physical distance (Andrestian et al., 2025; Diva et al., 2023; Kitu et al., 2023; Soviyati et al., 2023).

Regularly monitoring the weight of toddlers is closely linked with the prevalence of stunting in this age group. Weighing toddlers on a regular basis is a crucial method for evaluating their nutritional status and growth. Studies indicate that toddlers who are not weighed regularly are 1.5 times more likely to face growth issues, such as stunting, compared to those who are weighed consistently. This connection exists because routine weighing enables the early detection of growth problems, enabling timely interventions to prevent long-term malnutrition and stunting (Rosalina et al., 2023; Yusuf et al., 2025).

Conclusion

The research findings indicate a strong connection between the level of education, exclusive breastfeeding, complete immunization, and regular weighing of toddlers with the occurrence of stunting in this age group. Providing exclusive breastfeeding during the first six months of a child's life is crucial in combatting stunting, as it offers essential nutrients and boosts immunity. Additionally, ensuring that toddlers receive all necessary vaccinations can also impact the likelihood of stunting, as immunization guards against illnesses that may hinder growth. Mothers' education levels and knowledge are key factors in decreasing the prevalence of stunting by enhancing childcare practices such as feeding and monitoring the child's health, including regular weighing to promptly address any growth issues. Altogether, these elements collectively influence the risk of stunting, highlighting the importance of comprehensive health education, promoting exclusive breastfeeding, implementing immunization initiatives, and regularly monitoring growth to effectively reduce instances of stunting in toddlers.

Reference

Akbar, R. R., Kartika, W., & Khairunnisa, M. (2023). The Effect of Stunting on Child Growth and Development. *Scientific Journal*, *2*(4), 153–160. https://doi.org/10.56260/sciena.v2i4.118

Akka, R., Putra, J., Akka, R., Putra, J., Irawati, D., & Zubaidi, F. F. (2024). *The* Relationship Between Socioeconomic Status And Incidence Of Stunting In Toddlers At Karang Taliwang Health. *Mataram*. https://doi.org/10.32832/pro

Andrestian, M. D., Darmayanti, Hariati, N. W., Netty, Ardiansyah, & Mau, E. A. J. C. (2025). Analysis of Nutrition Intervention Policies in the Prevalence of Stunting in Indonesia. *Universal Journal of Public Health*, *13*(1), 210–222. https://doi.org/10.13189/ujph.2025.130121

Aprilya Sirait, A. R., & Achadi, E. L. (2020). Factors Associated with Minimum Dietary Diversity among Breas tfed Children Aged 6-23 Months in Indonesia (Analysis of Indonesia DHS 2017). *Indonesian Journal of Public Health Nutrition*, *1*(1). https://doi.org/10.7454/ijphn.v1i1.4381

Azizah, A. M., Nurmala, I., & Devy, S. R. (2022). The Effect of Mother's Educational Level and Stunting Incidence on Toddler: A Meta-analysis. *Amerta Nutrition*, *6*(4 SE-Original Articles), 369–375. https://doi.org/10.20473/amnt.v7i4.2022.369-375

Dadras, O., Suwanbamrung, C., Jafari, M., & Stanikzai, M. H. (2024). Prevalence of stunting and its correlates among children under 5 in Afghanistan: the potential impact of basic and full vaccination. *BMC Pediatrics*, *24*(1), 436. https://doi.org/10.1186/s12887-024-04913-w

Diva, J. A., Sari, C. W. M., Rahayuwati, L., & Kosim, K. (2023). Correlation between Basic Immunization Status and IHC Visits to Stunting Incidents on Toddlers. *Journal of Nursing Care*, *6*(1). https://doi.org/10.24198/jnc.v6i1.44538

Eva Purwita. (2022). Determinants of Stunting in Children Under Five in Rural Areas. *Science Midwifery*, *10*(4), 2858–2865. https://doi.org/10.35335/midwifery.v10i4.729

Fitriani, F.D., Sunarsih, T., Yulaikhah, L. (2024). The Association of Occupation and Income with The Incidence of Stunting. *EMBRIO: Jurnal Kebidanan*, *16*(2 SE-Article), 147–154. https://doi.org/10.36456/embrio.v16i2.9296

Hadi, H., Fatimatasari, F., Irwanti, W., Kusuma, C., Alfiana, R. D., Asshiddiqi, M. I. N., Nugroho, S., Lewis, E. C., & Gittelsohn, J. (2021). Exclusive Breastfeeding Protects Young Children from Stunting in a Low-Income Population: A Study from Eastern Indonesia. *Nutrients*, *13*(12), 1–14. https://doi.org/10.3390/nu13124264

Kitu, H. O. N., Syamruth, Y. K., & Purnawan, S. (2023). Factors Associated with Stunting in Toddlers Under the Service Area of Bakunase Primary Health Center in Kupang City. *Journal of Public Health for Tropical and Coastal Region*, *6*(2), 37–48. https://doi.org/10.14710/jphtcr.v6i2.18034

Kusumajaya, A. A. N., Mubasyiroh, R., Sudikno, S., Nainggolan, O., Nursanyoto, H., Sutiari, N. K., Adhi, K. T., Suarjana, I. M., & Januraga, P. P. (2023). Sociodemographic and Healthcare Factors Associated with Stunting in Children Aged 6-59 Months in the Urban Area of Bali Province, Indonesia 2018. *Nutrients*, *15*(2). https://doi.org/10.3390/nu15020389

Lestari, T. R. P. (2023). Stunting In Indonesia : Understanding The Roots of The Problem and Solutions. *Info Singkat*, *XV*(14), 21–25. https://berkas.dpr.go.id/puslit/files/info_singkat/Info Singkat-XV-14-II-P3DI-Juli-2023-196-EN.pdf

Mahendra, Y. I., Salham, M., & Anzar, M. (2025). Strategy for Empowering Community Leaders Towards Prevention Stunting in Souluwe Village , Dolo Main Health Center Working. *Jurnal Riset Kualitatif dan Promosi Kesehatan 4*(1), 1–7.

Mulyani, I., Khairunnas, K., Ayunda, H. M., Syafiq, A., Ahmad, A., & Muliadi, T. (2023). Exploring the Relationship Between Immunization and Stunting: Understanding the Impact of Vaccinations on Child Growth and Development. *J-Kesmas: Jurnal Fakultas Kesehatan Masyarakat (The Indonesian Journal of Public Health)*, *10*(1), 11. https://doi.org/10.35308/j-kesmas.v10i1.7364

Mulyaningsih, T., Mohanty, I., Widyaningsih, V., Gebremedhin, T. A., Miranti, R., & Wiyono, V. H. (2021). Beyond personal factors: Multilevel determinants of childhood stunting in Indonesia. *PLOS ONE*, *16*(11), e0260265. https://doi.org/10.1371/journal.pone.0260265

Mustakim, M. R. D., Irwanto, Irawan, R., Irmawati, M., & Setyoboedi, B. (2022). Impact of Stunting on Development of Children between 1-3 Years of Age. *Ethiopian Journal of Health Sciences*, *32*(3), 569–578. https://doi.org/10.4314/ejhs.v32i3.13

Nomura, K., Bhandari, A. K. C., Matsumoto-Takahashi, E. L. A., & Takahashi, O. (2023). Risk Factors Associated with Stunting among Children Under Five in Timor-Leste. *Annals of Global Health*, *89*(1), 1–14. https://doi.org/10.5334/aogh.4199

Nur, N. A. R., Ekayanti, I., Dwiriani, C. M., & Khomsan, A. (2023). The influential factors of stunting in toddlers of Cianjur regency. *International Journal Of Community Medicine And Public Health*, *10*(7 SE-Original Research Articles), 2327–2334. https://doi.org/10.18203/2394-6040.ijcmph20232017

Nurwasilah, Sahadewa, A. D. (2024). the Relationship Between Maternal Education Level and Family Income on the Incidence of Stunting in Toddlers. *Jurnal Ners*, *8*(2), 1422–1429. https://doi.org/10.29303/jppipa.v10i10.9495

Ode Novi Angreni, W., Arda, D., Setyawati, A., Sasmita, A., Aris Tyarini, I., & Nordianiwati, N. (2024). Exclusive breastfeeding in preventing stunting in toddlers. *Jurnal Edukasi Ilmiah Kesehatan*, *2*(1), 07–13. https://doi.org/10.61099/junedik.v2i1.29

Prabowo, B., & Peristiowati, Y. (2023). Faktor Risiko Stunting pada Balita di Indonesia. *Journal of Telenursing (JOTING)*, *5*(2), 2275–2283. https://doi.org/10.31539/joting.v5i2.5928

Purwanti, E. D., Masitoh, S., & Ronoatmodjo, S. (2025). Association Between Basic Immunization Status and Stunting in Toddlers Aged 12-59 Months in Indonesia. *Journal of Preventive Medicine and Public Health = Yebang Uihakhoe Chi*, *58*(3), 298–306. https://doi.org/10.3961/jpmph.24.230

Putri, R. M., Sumardiyono, S., & Andarini, I. (2024). The Effect of Exclusive Breastfeeding on Stunting Toddlers: A Scoping Review. *Proceedings of the International Conference on Nursing and Health Sciences*, *5*(1 SE-Articles). https://doi.org/10.37287/picnhs.v5i1.3888

Regassa, R., Belachew, T., Duguma, M., & Tamiru, D. (2024). Factors associated with stunting in under-five children with environmental enteropathy in slum areas of Jimma town, Ethiopia. *Frontiers in Nutrition*, *Volume 11*. https://doi.org/10.3389/fnut.2024.1335961

Rosalina, L., Yustanta, B. F., Wardani, N. W., Mahendika, D., Sari, P. I. A., & Djafar, T. (2023). Relationship Between Parenting and Nutrition-Aware Family Behavior with The Incidence of Stunting in Toddlers at Klaten Regency Central Java Province. *Jurnal Penelitian Pendidikan IPA*, *9*(8), 6213–6218. https://doi.org/10.29303/jppipa.v9i8.4194

Santoso, P., & Pujianto, T. (2024). The Analysis of Factors that Influence Stunting. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, *11*(2 SE-Literature Review), 200–208. https://doi.org/10.26699/jnk.v11i2.ART.p200-208

Sari, N., & Christy, J. (2025). Factors Influencing Stunting among Children Aged 0–59 Months. *Indonesian Journal of Global Health Research*, *7*(4 SE-Articles). https://doi.org/10.37287/ijghr.v7i4.6572

Siddiqui, M., Bajwa, N., Junaid, K., Awais, M., Amin, A., Haleem, I., Rasool, S. H., & Afzal, S. (2024). The Impact of Vaccination Status on Anthropometric Indices of Growth Among Children: A Cross-Sectional Study. *Cureus*, *16*(7), e64123. https://doi.org/10.7759/cureus.64123

Soviyati, E., Sulaeman, E. S., Sugihardjo, I., & Wiboworini, B. (2023). Effect of applying the health promotion model in stunting prevention and behavior control in Indonesia. *Journal of Education and Health Promotion*, *12*, 227. https://doi.org/10.4103/jehp.jehp_276_23

Suarayasa, K., & Wandira, B. A. (2023). One Million Eggs Program in Sigi Regency (Efforts to Reduce Stunting Rates). *Journal of Medical and Dental Science Research*, *10*(2), 121–124.

Tari, P. I., Rahardjo, S. S., & Setiyadi, N. A. (2023). Meta-Analysis: Effects of Exclusive Breastfeeding, Antenatal Care Visit, and Maternal Education on Stunting in Toddlers. *Journal of Maternal and Child Health*, *8*(4 SE-Articles), 483–497. https://doi.org/10.26911/thejmch.2023.08.04.10

Taufiqurokhman. (2023). Equality Strategy for Reducing Stunting Prevalence Rate: Case Study of DKI Jakarta Province. *Jurnal Bina Praja*, *15*(3), 495–506. https://doi.org/10.21787/jbp.15.2023.495-506

Theresia, G. N., & Sudarma, V. (2022). Immunization status lowers the incidence of stunting in children 1-5 years. *World Nutrition Journal*, *6*(1), 9–15. https://doi.org/10.25220/wnj.v06.i1.0003

Wandira, B. A., Hermiyanty, Suwendro, N. I., & Rakhman, A. (2023). Factors Associated with the Incidence of Post-Disaster Stunting in Toddlers Aged 25-59 Months in Posyandu Biromaru Health Centre Working Area. *Journal of Health and Nutrition Research*, *2*(1), 5–14. https://doi.org/10.56303/jhnresearch.v2i1.96

Yunitawati, D., Laksono, A. D., Khairunnisa, M., Purwoko, S., & Muis, E. W. (2025). *Education Role in Stunting Under Two Years among Poor Communities in Indonesia*. *20*(1). https://doi.org/10.14710/jpki.20.1.30-36

Yusuf, N. A. R., Puspita, C., Haji, S., & Pandeirot, F. (2025). The Relationship between Family Nutrition Awareness (KADARZI) and the Incidence of Stunting in Toddlers 24-59 Months of Age. *Idea, An Journal, Health*, *5*(02), 104–112.