



Factors Associated with Decreasing Incidence of Stunting in the Working Area of the Palu Health Center

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Abstract

Stunting in toddlers needs special attention because it can hamper children's physical and mental development. Based on a report from the Palu City Health Office in 2021, the number of stunted toddlers reached 8.00%. This study aimed to determine the factors associated with a decrease in the incidence of stunting in the working area of the Palu City Health Center (Puskesmas). This type of research was quantitative observational analytic with a cross-sectional study design. The population in this study were all mothers registered in the working area of the Pantoloan Health Center, Nosarara Health Center, and Tipu Health Center with an eligible sampling technique, then the sample in this study was 98 samples. Data was collected based on a questionnaire that would be analyzed using univariate and bivariate analysis. This study's results indicated no relationship between the variable provision of basic immunization ($p=0.906$) to a decrease in the incidence of stunting in the working area of the Palu City Public Health Center. A relationship was identified between the time variable providing weaning food ($p=0.039$) and decreased stunting in the Public Health Center Palu City working area. There was a relationship between the variable support of health workers ($p=0.012$) to a decrease in the incidence of stunting in the working area of the Palu City Health Center. Strengthening health promotion performance in developing promotive and preventive programs is recommended, particularly in improving complete basic immunization programs.

Keywords: Stunting, Immunization, Weaning Food, Support for Health Workers

Key Messages:

- The study found that there is a relationship between the time variable providing weaning food and the support of health workers to a decrease in the incidence of stunting in the working area of the Palu City Health Center.
- Strengthening health promotion performance is recommended, particularly in improving complete basic immunization programs. Stunting in toddlers needs special attention as it can hamper children's physical and mental development.

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1. Introduction

Stunting is a developmental disorder experienced by children due to malnutrition, repeated infections, and inadequate psychosocial stimulation (1). Stunting in toddlers needs special attention because it can hamper children's physical and mental development. Efforts to reduce the incidence of stunting require convergent nutrition interventions, including specific and sensitive nutrition interventions (2). Specific nutrition interventions are carried out to address direct causative factors, such as supplementary feeding for pregnant women, exclusive breastfeeding, complete basic immunization, and weaning food. Meanwhile, nutrition-sensitive interventions seek the role of health workers and work together with relevant cross-sectors to reduce the incidence of stunting. The impact of stunting in the short term can be a decrease in learning ability due to a lack of cognitive development. In the long term, it can reduce the quality of life of children as adults due to decreased opportunities for education, employment opportunities, and better income (3). In addition, there is also a risk of becoming obese in the future, thus increasing the risk of various non-communicable diseases, such as diabetes, hypertension, cancer, and others (4). Data on the prevalence of stunting in children under five collected by the World Health Organization (WHO), which was released in 2019, states that the SouthEast Asia region is still the region with the highest stunting prevalence rate (31.9%) in the world after Africa (33.1%) (5). Indonesia is the sixth country in the South-East Asia region after Bhutan, Timor Leste, Maldives, Bangladesh, and India, which is 36.4% (6).

Globally, stunting is one of the Sustainable Development Goals (SDGs) goals. Indonesia realizes the second SDGs or sustainable development goals: ending hunger, achieving better food security and nutrition, and supporting sustainable agriculture. The target included in this is the reduction of stunting by 2025. The 2nd goal is closely related to the 3rd goal, namely ensuring a healthy life and supporting well-being for all ages. Based on data from the 2018 Basic Health Research (Riskesmas in Indonesia), the stunting rate in Indonesia is 30.8%. This figure is still relatively high compared to the target of the National Medium-Term Development Plan (RPJMN in Indonesia), which is 19% in 2024. Stunting is more prevalent than other nutritional problems such as malnutrition, wasting, and obesity. The Palu City Health Office report, the stunting rate in 2020 was 14.04%, and there was a decrease in 2021 of 8.00% (7).

According to Kurniawan's research (2021), weaning food (in Indonesia id MP-ASI) is another factor related to stunting). Some mothers have improper parenting, where there are still giving complementary foods to babies before 6 months of age and giving babies food that is not good. He also said that the nutritional needs of babies aged 7 months must be given the right and correct weaning food to help optimal growth and development (8). Based on the description above, the research team will examine the factors related to the reduction in the incidence of stunting in the working area of the Palu City Health Center. The purpose of this study was to determine the factors associated with a decrease in the incidence of stunting in the working area of the Palu City Health Center.

2. Methods

This study used quantitative observational analytic research with a cross-sectional study design. This research was conducted in the working area of the Palu City Health Center, including the Pantoloan Health Center, Nosarara Health Center, and Tipo Health Center, in June 2022. The population in this study were all mothers who were registered in the work area of those three health centers, with the research sample being taken from the population eligible, namely mothers of toddlers in the stunting category who are registered in the working area of those health centers and meet the inclusion and exclusion criteria. The total sample of the research is 140 people.

Data collection techniques were carried out by collecting the required variable data through the collection of primary data and secondary data. This study used primary data obtained through direct interviews with respondents using a questionnaire prepared by the research team and secondary data obtained from data in the Register Book and Toddler KMS Book (maternal and child health book). The first step was to provide research questionnaires for respondents to fill out. Furthermore, the answers from the respondents would be cleaned before being entered and analyzed using the SPSS statistical application. This study had 1 dependent variable, namely integrated stunting toddlers in 2021 and 3 independent variables covering complete basic immunization, provision of weaning food (MP-ASI) and the role of health worker.

3. Results

Table 1 Distribution of Stunting Incidence Frequency in Palu City

Variable	n	%
Stunting	109	77.9
Nonrml	31	22.1
Total	140	100

Table 1 shows that out of 140 respondents, 109 (77.9%) of respondents were toddlers who experienced stunting. In comparison, 31 (22.1%) of the respondents were toddlers who were not stunted.

Table 2 Frequency Distribution Characteristics of Mother

Characteristics of Mother	n	%
Age group (y.o)		
18-21	8	5.7
22-25	15	10.7
26-29	52	37.1
30-33	31	22.1
34-37	12	8.6
38-41	12	8.6
42-45	8	5.7
≥ 46	2	1.4
Last education		
No school	1	0.7
Elementary school	25	17.9
Junior high school	36	25.7
Senior high school	64	45.7
Associate degree - D3	3	2.1
Bachelor degree	11	7.9
Occupation		
Housewife	129	92.1
Self-employed	1	0.7
Honorary	4	2.9
Entrepreneur	1	0.7
Civil servant	5	3.6
Total	140	100

Table 3 Analysis of the Frequency Distribution of Independent Variables Against Dependent Variables

Variable	Status						ρ (Value)
	Stunting		Normal		Total		
	n	%	n	%	n	%	
Basic Immunization							
Incomplete	4	80.0	1	20.0	5	100	0.906
Complete	105	77.8	30	22.2	135	100	
Weaning Food Giving Time							
Not on-time	65	71.4	12	15.6	77	100	0.039
On-time	44	89.8	19	32.3	63	100	
Health Workers Support							
Less Support	63	86.3	10	13.7	73	100	0.012
Good Support	46	70.3	21	31.3	67	100	

Table 2 shows that out of 140 respondents, most were mothers of toddlers in the 26-29 year age group, with a total of 52 (37.1%) respondents. In comparison, the fewest respondents were mothers under five with the age group ≥ 46 years, namely 2 (1.4%) respondents. Based on last education, most had a high school education, namely 64 (45.7%) respondents, while the least were respondents who did not attend school, 1 (0.7%) respondents. The majority of respondents had jobs as a housewife, about 129 (92.1%) respondents, while a small number of respondents had jobs as self-employed and entrepreneurs, each with 1 (0.7%) respondents. Based on the analysis table 3, it can be seen that the proportion of stunted toddlers who have incomplete immunization history is as many as 4 respondents (80%). The proportion of non-stunted toddlers with a history of incomplete immunization is 1 respondent (20%). The Chi-Square test analysis of the relationship between immunization and the incidence of stunting shows that the significance value or p-value is 0.906, greater than $\alpha = 0.05$. So, it can be concluded that statistically, there is no relationship between immunization history and the incidence of stunting. The Chi-Square test analysis of the relationship between the timing of complementary feeding and the incidence of stunting shows that the significance value or p-value is 0.039, less than $\alpha = 0.05$. So, it can be concluded that statistically, there is a relationship between the timing of complementary feeding and the incidence of stunting. The results of the Chi-Square test analysis of the relationship between health worker support and the incidence of stunting show that the significance value or p-value is 0.012; this value is smaller than $\alpha = 0.05$. So, it can be concluded that statistically, there is a relationship between the support of health workers and the incidence of stunting.

4. Discussion

Basic Immunization and Decreasing Incidence of Stunting

Basic immunization is a way to create active immunity in an individual's body against infectious diseases. Immunization aims to reduce morbidity, disability, and death in diseases that immunization can prevent (9). The analysis using the chi square test showed $p = 0.906$, which means there is no significant relationship between basic immunization and a decrease in the incidence of stunting. The results of this study are directly proportional to the results of the study (9), which shows no significant relationship between basic immunization and the incidence of stunting (9). Study Azriful (2018) also showed the same result; there was no significant relationship between basic immunization and stunting (10). The results of this study are not in line with research conducted by Shinsugi, which shows that children aged 12-59 months with incomplete immunization history have a 1.47 times greater risk of suffering from stunting compared to children aged 12-59 who are fully immunized (11). This is because primary immunization is not a factor that can directly prevent stunting in toddlers. Basic immunization cannot guarantee that an individual will avoid disease completely. Moreover, its effectiveness depends heavily on the vaccine quality (9).

The timing of weaning food and a decrease in the incidence of stunting

Complementary food for breastfeeding (Weaning food) helps supplement the nutrition of children who cannot be fulfilled by breast milk at 6 months. Because of its nature as a companion, breastfeeding is still given until the child is 2 years old. The timing of complementary feeding is one of the factors associated with stunting because up to 6 months, children only need breast milk to fulfill their nutrition. Meanwhile, at the age of > 6 months, the nutritional needs of children can no longer be fulfilled only by consuming breast milk. Therefore, weaning food is needed to help optimal child growth and development (12). The analysis using the chi-square test showed $p = 0.039$, which means a significant relationship exists between the timing of complementary feeding and a decrease in the incidence of stunting. Other studies have shown no statistically significant relationship between giving weaning food to children before 6-23 months and the incidence of stunting (13). Research results (12) showed different results, namely that there was a significant relationship between the variable of early complementary breastfeeding to stunting (12).

Health Worker Support and Reducing Stunting Incidence

Health workers play a role in implementing, controlling, and evaluating all aspects of health. So that it is expected to provide solutions to the problems encountered. Interaction between health workers and the community can take various forms, such as visiting residents' homes and providing appropriate health information to the community regarding family health to lead a healthy life. Routine visits by health workers providing useful information can support the community for healthy and clean behavior. The question support can also be in the form of emotional and instrumental support. In addition, the public interest is also influenced by technology and the attitudes of health workers. Technological capabilities that are owned will raise public interest. Officers who utilize technology will be in line with the ease of access to information technology. Then the

ease of access to the media and the press. Ease of access to electronic devices in the environment as well as more optimal access to health services. The role of health workers is to carry out, control, and evaluate all aspects of health. So that the health program that is run is the result of the evaluation it does. Control efforts can be in the form of health problems in rural communities and can provide solutions or suggestions to the community for the issues. Control efforts can be carried out through direct visits to residents' homes (14).

The analysis using the chi-square test showed $p = 0.039$, which means there is a significant relationship between the support of health workers and a decrease in the incidence of stunting. The results of this study are directly proportional to the effects of Florensia and Eleindra's research which showed a significant relationship between health service variables and the incidence of stunting. Good health services will reduce the risk of stunting in toddlers by 0.335 times compared to those with poor health services (15). HL Blum's theory reinforces this, which states that health service factors contribute 20% to health status (16). Apart from that, this is also in line with the stunting intervention program launched by the government through the First 1000 Days of Life Movement by making health service facilities, especially the public health center (Puskesmas) and Integrated public health service (Posyandu), the drivers of the program in Indonesia. (17)..

5. Conclusion

Factors associated with a decrease in the incidence of stunting in the Palu City Public Health Center's working area include the timing of complementary feeding and support from health workers and factors that were not related, namely the provision of basic immunization. Strengthening health promotion performance in developing promotive and preventive programs is recommended, especially in improving complete basic immunization programs.

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References

1. Scheffler C, Hermanussen M, Bogin B, Liana DS, Taolin F, Cempaka PMVP, et al. Stunting is not a synonym of malnutrition. *Eur J Clin Nutr.* 2020 Mar;74(3):377–86.
2. Migang YW, Rarome MJ, Heriteluna M, Dawam M. Intervention of Specific Nutrition and Sensitive Nutrition with Nutritional Status of Under Two-Year Infants in Family Planning Village as Efforts to Face the Demographic Bonus. *KEMAS: Jurnal Kesehatan Masyarakat.* 2020 Jul 27;16(1):101–10.
3. Woldehanna T, Behrman JR, Araya MW. The effect of early childhood stunting on children's cognitive achievements: Evidence from young lives Ethiopia. *Ethiop J Health Dev.* 2017;31(2):75–84.
4. Wells JC, Sawaya AL, Wibaek R, Mwangome M, Poullas MS, Yajnik CS, et al. The double burden of malnutrition: aetiological pathways and consequences for health. *Lancet.* 2020 Jan 4;395(10217):75–88.
5. World Health Organization. World health statistics overview 2019: monitoring health for the SDGs, sustainable development goals. Geneva: World Health Organization; 2019. 28 p.
6. Nirmalasari NO. Stunting Pada Anak : Penyebab dan Faktor Risiko Stunting di Indonesia. *Qawwam: Journal For Gender Mainstreaming.* 2020;14(1):19–28.
7. Dinkes Kota Palu. Profil Dinas Kesehatan Kota Palu. 2021.
8. Kurniawan R, Asril, Endang. Media Kesmas (Public Health Media). *Media Kesmas (Public Health Media).* 2021;1(2):225–40.
9. Putri MG, Irawan R, Mukono IS. the Relationship of Vitamin a Supplementation, Giving Immunization, and History of Infection Disease With the Stunting of Children Aged 24-59 Months in Puskesmas Mulyorejo, Surabaya. *Media Gizi Kesmas.* 2021;10(1):72.
10. Azriful, Bujawati E, Aeni S, Yusdarif. Determinan Kejadian Stunting Pada Balita Usia 24. *Al-Sihah : Public Health Science Journal.* 2018;10(2):192–203.
11. Shinsugi C, Mizumoto A. Associations of nutritional status with full immunization coverage and safe hygiene practices among thai children aged 12–59 months. *Nutrients.* 2022;14(1).
12. Prihutama NY, Rahmadi FA, Hardaningsih G. Pemberian Makanan Pendamping Asi Dini Sebagai Faktor Risiko

Kejadian Stunting Pada Anak Usia 2-3 Tahun. *Diponegoro Medical Journal (Jurnal Kedokteran Diponegoro)*. 2018;7(2):1419-30.

13. Tello B, Rivadeneira MF, Moncayo AL, Buitrón J, Astudillo F, Estrella A, et al. Breastfeeding, feeding practices and stunting in indigenous Ecuadorians under 2 years of age. *International Breastfeeding Journal*. 2022;17(1):1-15.
14. Bukit DS, Keloko AB, Ashar T. Dukungan tenaga kesehatan dalam pencegahan stunting di Desa Tuntungan 2 Kabupaten Deli Serdang Support of health workers in stunting prevention in Tuntungan Village 2 Deli Serdang Regency. 2018;2017:67-71.
15. Herianti F, Elwindra. Analisis Faktor Risiko Kejadian Stunting Pada Anak Balita di Wilayah Puskesmas Kelurahan Cipinang Melayu Jakarta Timur. *Persada Husada Indonesia*. 2017;4(14):74-83.
16. Hayati AN, Pawenang ET. Analisis Spasial Kesehatan Lingkungan dan Perilaku di Masa Pandemi Untuk Penentuan Zona Kerentanan dan Risiko. *Indonesian Journal of Public Health and Nutrition*. 2021;1(2):164-71.
17. Saputri RA. Upaya Pemerintah Daerah Dalam Penanggulangan Stunting Di Provinsi Kepulauan Bangka Belitung. *Jdp (Jurnal Dinamika Pemerintahan)*. 2019;2(2):152-68.