Jurnal iKes
Inspirasi Kesehatan Masyarakat

The Relationship between Environmental Health, Children and Mothers with the Incidence of Stunting in Toddlers in the Working Area of the Puskesmas Pondok Meja.

Rindu Fatheriscon Pandiangan[a*], Ummi Kalsum[b], Fajrina Hidayati[b]

[a]Bachelor Program Study of Public Health, Faculty of Medicine and Health, Universitas Jambi, Indonesia
[b]Department of Epidemiology, Faculty Public Health, Universitas Jambi, Indonesia.

[*]**Corresponding author:** rindupandiangan2001@gmail.com

Article Info

Received:
September 21, 2025
Reviewed:
January 12, 2026
Publish:
April 01, 2026

Keyword:
Stunting;
Environmental Health;
Maternal Factors;
Child Nutrition;
Socioeconomic Status;

Abstract

Introduction: Stunting remains a public health problem caused by chronic malnutrition that has not been optimally addressed. **Purpose:** this study aimed to analyze the relationship between environmental, maternal, and child factors and the incidence of stunting in the working area of Pondok Meja Primary Health Center, Muaro Jambi District. **Methods** A cross-sectional design was applied with 100 respondents selected using stratified proportional random sampling. Data were collected through interviews with questionnaires and direct observation, and analyzed using the chi-square test. **Results:** The prevalence of stunting was 35.6%. Factors significantly associated with stunting included latrine availability (p=0.043), access to clean water (p=0.048), housing density (p=0.009), dietary patterns (p=0.025), history of infectious diseases (p=0.025), exclusive breastfeeding (p=0.023), parenting practices (p=0.041), and socioeconomic status (p=0.048). In contrast, personal hygiene, maternal knowledge, and waste management were not significantly associated. **Conclusion:** Stunting among children under five is influenced by a combination of environmental conditions, maternal health, and parenting practices. Collaboration between health workers and the community is essential to optimize efforts to reduce stunting prevalence among children.

Introduction

Nutritional problems, especially in toddlers, are in the spotlight in the world, especially in Indonesia. Child nutrition in Indonesia is the main thing and part of the government's Sustainable Development Goals (SDG's) commitment in tackling nutritional problems such as low birth weight, wasting/emaciation and stunting/short [1]. The World Health Organization (WHO) says that stunting is a condition where height or body length is not appropriate for the age of toddlers. This condition is seen from height and body length that are less than minus two standard deviations from the median deviation of child development standards [2].

The incidence of stunting globally was 22.2% in 2017. The majority of children under the age of five who are stunting worldwide come from Asia (55%) and the rest from Africa (39%). The highest percentage of toddlers experiencing stunting came from South Asia (58.7%), followed by Southeast Asia (14.9%) and the lowest was Central Asia (0.9%) [2].

The average decrease in stunting prevalence in Indonesia was 2.0% from 2013 to 2021, with the stunting prevalence rate in 2021 at 24.4%. Meanwhile, it still does not meet the 2024 RPJMN target, which is 14%. If 14% has been reached, it does not mean that Indonesia is stunting-free, but the next target is to reduce the stunting rate to the lowest category or below 2.5% [3].

Based on the results of the 2021 Indonesian Nutrition Status Study (SSGI) at the provincial level, the prevalence
The incidence of stunting in Jambi Province is 21.0%. Although in terms of quantity, nutritional problems, in particular, stunting problems in Jambi Province tend to decrease compared to the previous year. However, there is actually no significant change in the quality of handling nutritional problems and stunting. Muaro Jambi Regency, which was previously in 2019 the district with the lowest prevalence of stunting, and now in 2021 based on a survey is the highest district with the highest prevalence of stunting incidence at 27.2% [4].

The Pondok Meja Health Center is the Puskesmas with the highest cases so it is a priority target to reduce the stunting prevalence rate in Muaro Jambi Regency, specifically in Mestong District with the prevalence of stunting over the last 3 years, namely in 2019 (2.76%), in 2020 (12.4%) and in 2021 (10.5%) [5]. Although in terms of quantity in 2021 the stunting prevalence rate at the Pondok Meja Health Center decreased compared to 2020, when compared to the prevalence of stunting in 2019, the figure is still quite high, plus the pattern of decreasing stunting prevalence still needs to be improved.

Stunting will have a direct and indirect impact on toddlers in the long and short term. Directly, stunting can cause morbidity and mortality to increase and the optimization of mental development will decrease. Meanwhile, directly from stunting is the shape of an adult body that is shorter than usual, an increased risk of obesity, poor reproductive health, less than optimal learning and less active in school, and less than optimal work capacity productivity [6].

Stunting is caused by factors including direct and indirect factors. Direct causes include malnutrition and infectious diseases (non-infectious) in children, while indirect causes include environmental factors, characteristics of children and mothers. An unbalanced diet due to economic factors and proper nutrition is essential for the growth and development of the baby's body [7]. Environmental health factors also have a significant effect on the baby's growth and development process and are an important aspect that puts babies at risk of growth retardation. Poor environmental cleanliness unknowingly affects the health of babies through viruses and bacteria in stool that is littered, water consumed is physically unhealthy and contains bacteria as well as poor waste and waste management can ultimately affect the high number of infectious diseases such as diarrhea, pneumonia, pulmonary TB and ISPA which cannot be ruled out because it has a direct impact on the nutritional status of toddlers [8]. The purpose of this study is to analyze the relationship between environmental health factors, maternal and child factors and the incidence of stunting in toddlers.

Methods

This type of research is observational analysis with *a cross sectional research design*. This study aims to analyze the relationship between environmental health factors and the incidence of *stunting* in toddlers in the work area of the Health Center. Pondok Meja with a total sample of 101 respondents. The sampling technique used in this study is *Random Sampling* with the type *of Stratified Proportional Random Sampling*. Data analysis was carried out by bivariate analysis using chi-square and multivariate tests using logostic regression with a confidence level of 95%.

Results

Based on bivariate analysis, it was shown that there was a significant relationship between the availability of latrines and stunting with a p-value of 0.04 and a PR value: 2.611 95%CI: 1.116-6.107, as well as clean water facilities that had a relationship with stunting with a p-value of 0.04 and a PR value: 0.617 95%CI: 0.526-0.724. Poor waste management was not significantly associated with stunting, but poor waste management was shown to be associated with stunting with a p-value of 0.04 and a PR value: 0.613 95%CI: 0.521-0.720, and housing density was also associated with stunting with a p-value of 0.00 and a PR value: 7.603 95%CI: 1.487-38.879. Poor diet was shown to be significantly associated with stunting with a p-value of 0.02 and a PR value: 2.83 95%CI: 1,217-6,583. and history of infectious diseases with stunting incidence with a p-value of 0.04 and a PR value: 2,611 95%CI: 1,116-6,107, as well as exclusive breastfeeding related to stunting with a p-value of 0.02 and a PR value: 6,021 95%CI: 1,304-27,794, but personal hygiene was not associated with stunting incidence. Maternal knowledge was not related to stunting, but poor parenting was associated with the incidence of stunting with a p-value of 0.04 and a PR value: 4,213 95%CI: 1,147-15,470 and stunting-related family income with a p-value of 0.04 and a PR value: 3,556 95%CI: 1,109-11,402.

Table 2. Results of Bivariate Analysis of Independent Variables on Stunting Incidence in the Working Area of the Pondok Meja Health Center

Variabel		*Stunting*				PR (95% CI)	*P-Value* [a]
		Yes	%	No	%		
Availability of Latrines	Less good	18	50.0%	18	50.0%	2.611 (1.116-6.107)	0.043*
	Good	18	27.7%	47	72.3%		
Clean Water Facilities	Less good	36	38.3%	58	61.7%	0.617 (0.526-0.724)	0.048*
	Good	0	0.0%	7	100.0%		
Waste Management	Not Good	36	36.0%	64	64.0%	0.640 (0.553-0.741)	1.000
	Good	0	0.0%	1	100.0%		
Waste Management	Not Good	36	38.7%	57	61.3%	0.613 (0.521-0.720)	0.048*
	Good	0	0.0%	8	100.0%		
Occupancy Density	Less good	7	77.8%	2	22.2%	7.603 (1.487-38.879)	0.009*
	Good	29	31.5%	63	68.5%		
Diet	Less good	23	47.9%	25	52.1%	2.831 (1.217-6.583)	0.025*
	Good	13	24.5%	40	75.5%		
Infectious Diseases	Yes Infection	18	50.0%	18	50.0%	2.611 (1.116-6.107)	0.043*
	No Infection	18	27.7%	47	72.3%		
Exclusive Breast Milk	No	34	41.5%	48	58.5%	6.021 (1.304-27.794)	0.023*
	Yes	2	10.5%	17	89.5%		
Personal Hygiene	Less good	20	29.9%	47	70.1%	0.479 (0.204-1.123)	0.137
	Good	16	47.1%	18	52.9%		

Mother's Knowledge	Low	17	35.4%	31	64.6%	0.981 (0.434-2.218)	1.000
	Height	19	35.8%	34	64.2%		
Parenting	Not Good	33	41.3%	47	58.8%	4.213 (1.147-15.470)	0.041*
	Good	3	14.3%	18	85.7%		
Family Income	Low	32	41.6%	45	58.4%	3.556 (1.109-11.402)	0.048*
	Height	4	16.7%	20	83.3%		

[a]Analyzed using Chi Square
*Statistically significant at p=0.05

Based on the results of multivariate analysis, the variables that affect the observed outcomes can be grouped into several important categories. Infectious diseases, toilet availability, and parenting showed a significant influence on outcomes. Infectious diseases have a clear relationship with outcomes, where their presence increases the likelihood of a negative outcome (odds ratio greater than 1 and p-value < 0.05). The availability of toilets also plays an important role, where access to better sanitation facilities increases the likelihood of better outcomes, with odds ratios showing a strong influence on some of the model's measures. Parenting, with a very high odds ratio, has proven to be a major factor influencing outcomes, suggesting that a positive parenting approach has a major impact on individual health and well-being.

Meanwhile, exclusive breastfeeding, waste management, occupancy density, diet, and family income did not show a significant effect on outcomes. Although exclusive breastfeeding and diet show odds ratio values greater than 1, p-values higher than 0.05 indicate that the two do not have a strong enough relationship with the outcomes observed in this model. Likewise, waste management, residential density, and family income did not make a significant contribution to this analysis.

Overall, these findings confirm that interventions that focus on improving parenting and access to sanitation facilities (latrines) as well as handling infectious diseases will have a greater impact on desired outcomes. These factors are a priority in efforts to prevent and improve public health.

Table 3. Results of Multivariate Analysis of Independent *Variable Stepwise* Method on Stunting Incidence in the Working Area of the Pondok Meja Health Center

	Variabel	B	*P-Value* [a]	POR (95% CI)	*Omnibus*	*Overall %*
Step 1[a]	Exclusive Breast Milk	1,331	0,121	3,785 (0,704-20,358)		
	Infectious Diseases	1,114	0,048	3,045 (1,010-9,189)		
	Waste Management	19,375	0,999	259680413,940		
	Availability of Latrines	1,083	0,044	2,953 (1,027-8,493)		
	Water Facilities	19,577	0,999	317888843,284	0,000	82,2
	Occupancy Density	0,969	0,288	2,635 (0,441-15,742)		
	Diet	0,428	0,418	1,533 (0,545-4,318)		
	Familiy Income	0,674	0,348	1,961 (0,480-8,025)		
	Parenting	2,248	0,006	9,465 (1,919-46,694)		
	Constant	-2,706	0,006	0,067		
Step 2[a]	Exclusive Breast Milk	1,294	0,131	3,647 (0,680-19,572)		
	Infectious Diseases	1,060	0,053	2,887 (0,987-8,450)		
	Waste Management	19,971	0,999	471359870,622	0,000	80,2
	Availability of Latrines	1,160	0,031	3,188 (1,112-9,146)		
	Occupancy Density	0,996	0,274	2,708 (0,455-16,124)		
	Diet	0,546	0,293	1,725 (0,624-4,768)		

	Familiy Income	0,652	0,356	1,919 (0,481-7,667)		
	Parenting	2,232	0,006	9,315 (1,921-45,163)		
	Constant	-2,729	0,006	0,065		
Step 3[a]	Exclusive Breast Milk	1,226	0,149	3,406 (0,646-17,981)	0,000	79,2
	Infectious Diseases	1,127	0,037	3,087 (1,067-8,928)		
	Waste Management	1,173	0,027	3,230 (1,141-9,145)		
	Occupancy Density	1,021	0,262	2,775 (0,467-16,493)		
	Diet	0,664	0,194	1,941 (0,714-5,280)		
	Familiy Income	0,874	0,200	2,395 (0,630-9,108)		
	Parenting	2,206	0,006	9,078 (1,866-4,155)		
	Constant	-2,785	0,005	0,062		
Step 4[a]	Exclusive Breast Milk	1,318	0,122	3,734 (0,704-19,808)	0,000	78,2
	Infectious Diseases	1,160	0,031	3,190 (1,113-9,147)		
	Waste Management	1,230	0,019	3,422 (1,221-9,591)		
	Diet	0,794	0,110	2,213 (0,836-5,855)		
	Familiy Income	0,973	0,153	2,645 (0,696-10,064)		
	Parenting	2,248	0,005	9,469 (2,004-44,736)		
	Constant	-2,012	0,002	0,134		
Step 5[a]	Exclusive Breast Milk	1,500	0,069*	4,482 (0,892-22,515)	0,000	73,3
	Infectious Diseases	1,143	0,030*	3,136 (1,117-8,808)		
	Waste Management	1,305	0,013*	3,689 (1,317-10,339)		
	Diet	0,871	0,075*	2,389 (0,917-6,231)		
	Parenting	2,228	0,005*	9,280 (1,963-43,875)		
	Constant	-1,923	0,003	0,146		

[a]Analyzed using Regression
*Statistically significant at p=0.05

Discussion

Overview of Stunting Incidence Problems in the Work Area of the Pondok Meja Health Center

Based on the results of the study, the incidence of stunting in toddlers in the working area of the Pondok Meja Health Center was obtained at 35.6%. The proportion found by the researcher was obtained by excluding children who were born twins, children who were suffering from severe illness, children who had abnormalities since birth and mothers who were respondents who lived at the study site for more than 1 year.

One of the causes of the high proportion of stunting incidence in toddlers in the work area of the Pondok Meja Health Center is influenced by environmental factors. Poor environmental sanitation such as the availability of latrines, clean water facilities, waste management, waste management and the level of occupancy density can cause the proliferation of germs and bacteria that can result in infectious diseases such as diarrhea, dengue, tuberculosis, pneumonia and other infectious diseases. The results of this study have almost the same criteria as the research conducted by [9] where poor environmental sanitation can cause various infectious diseases that can cause stunting directly.

The Relationship between Latrine Availability and Stunting Incidence

The results of the study showed a relationship between the variable availability of toilets and the incidence of stunting in toddlers (PR: 2,611 95%CI: 1,116-6,107), and the results were significantly proven with a *p-value* of 0.043. This research is in line with research conducted by [10] which found that the availability of healthy latrines affects the incidence of stunting, based on the results of the study, it is explained that families with poor latrine availability are at 10.40 times greater risk than families with good latrine availability. The availability of healthy latrines accompanied by septitanks will affect the level of infectious diseases in

toddlers. Feces that are disposed of carelessly, the distance between the location of the septitank and the water source will result in water contaminated with bacteria which if consumed by children will cause diarrhea.

The results of the study are not in line with the study [11] which states that there is no meaningful relationship between the availability of latrines and the incidence of stunting with a p-value of 0.383. There is no relationship between the availability of healthy latrines and the incidence of stunting, although there is still a risk, if good stool management is carried out and meets the eating requirements, it can reduce the risk of developing diarrhea which is a supporting factor for stunting in toddlers.

The Relationship of Clean Water Facilities to Stunting Incidence

The results of the study showed a relationship between the variable of water facilities and the incidence of stunting in toddlers (PR: 0.617 95%CI: 0.526-0.724) and the results were significantly proven with *a p-value* of 0.048. This study is in line with research conducted by [12] which stated that poor clean water facilities can affect the incidence of stunting, based on the results of the study, it was explained that families with poor clean water facilities were 3,574 times greater at risk than families with good clean water facilities. The availability of clean water facilities such as drinking water sources, water sources for toilets and the physical quality of the water used have a role in the spread of several infectious diseases. Clean water is one of the means of sanitation related to the incidence of diarrhea and other infectious diseases which can later cause children or toddlers to be infected with infectious diseases and eventually can cause stunting in toddlers.

The results of the study are not in line with the study [13] where there is no relationship between clean water facilities and the incidence of stunting in toddlers with a *p-value* of 0.415. The availability of clean water facilities is not related to the incidence of stunting if the management of drinking water and daily necessities is carried out properly.

The Relationship between Waste Management and Stunting Incidence

The results of the study showed a relationship between waste management variables and stunting incidence in toddlers (PR: 0.613 95%CI: 0.521-0.720) and the results were significantly proven with a *p-value* of 0.048. This study is in line with research [14] which states that families with poor waste management are 0.116 times greater at risk compared to families with good waste management. Waste management facilities from the family's kitchen and bathroom play an important role in the quality of the clean water used. Household waste from the kitchen and bathroom, if disposed of carelessly, will cause clean water pollution. So that the commonly used bersh water can actually cause diarrhea or other infectious diseases. Waterlogging due to waste disposal facilities such as waste storage that goes directly into ditches/gutters can also invite mosquitoes to come and support mosquito breeding. So that children or toddlers become more at risk of infectious diseases, especially dengue and malaria.

The results of the study are not in line with the research conducted by [15] where there is no meaningful relationship between waste management and stunting incidence with a p-value of 0.600. There is no relationship between waste management and stunting events, although there is still a risk, but if family waste management from the kitchen and bathroom is done properly, it will drain the risk, plus if there is more attention from the local government that directs the community to manage waste without harming other parties.

The Relationship between Residential Density and Stunting Incidence

The results of the study found a relationship between housing density and the incidence of stunting in toddlers (PR: 7,603 95%CI: 1,487-38,879) and the results were significantly proven with a *p-value* of 0.009. This research is in line with research conducted by [16]. which stated that houses with excessive occupancy density are 3.31 times more at risk than families with low occupancy levels. The density of residents in a house will result in unqualified air exchange so that it can cause the growth of microorganisms that cause disturbances to human health. This condition, if left unchecked, will be able to cause infectious diseases such as ISPA, Pulmonary TB, Pneumonia and other infectious diseases.

The results of the study were not in line with the study [17] where there was no meaningful relationship between the level of occupancy density and the incidence of stunting with a *p-value* of 1,000 (80). Residential density has a risk of infectious diseases, although infectious diseases affect stunting directly, but it will be able to reduce the risk if the level of occupancy of a house is in accordance with the standard of the Ministry of Health of the Republic of Indonesia No.829/MENKES/SK/VII/1999 concerning housing health states that the bedroom area is at least 8 m2 and it is not recommended to use more than two people sleeping in one bedroom, except for children under 5 years of age.

The Relationship between Diet and Stunting Incidence

The results of the study showed a relationship between diet and the incidence of stunting in toddlers (PR: 2.83 95%CI: 1.217-6.583) and the results were significantly proven with a *p-value* of 0.025. This study is in line with research conducted by [18] which states that poor feeding patterns are at risk of causing stunting in toddlers with a p-value of 0.01. Feeding patterns are a description of nutritional intake including the type, amount, and schedule of meals in the fulfillment of nutrients. This is in accordance with the Minister of Health Regulation of the Republic of Indonesia No. 41 of 2014 that the way to balance the development of toddlers is to apply diverse food consumption patterns with the concept of nutritional, balanced and safe and sufficient and regular activities. The type of food consumption also greatly determines the nutritional status of a child, good quality food if the daily menu provides a nutritious, balanced and varied menu composition according to their needs. If this condition is not achieved properly, the growth of toddlers will be disrupted, the body is thin, short and can even cause malnutrition in toddlers.

The key to success in fulfilling child nutrition lies with the mother. Good eating habits depend on the mother's knowledge and skills on how to prepare food that meets nutritional standards in toddlers. The feeding pattern for stunted toddlers is felt to need consultation with related parties. With the aim of providing assistance to toddlers who are only used to consuming rice and vegetable sauce, toddlers who only like to eat porridge because it is difficult to eat even up to the age of more than 2 years, toddlers who only like to eat unhealthy snacks without being supported by a balanced nutritious meal, as well as supervision of food processing that is less varied from mothers under five who usually prefer to buy more practical food than prepare it themselves.

Economic level is also one of the main factors that affect the feeding pattern of toddlers. The many types of nutritious food that mothers give to their children depend on the family economy. The higher the family's economic level, the higher the opportunity to provide and choose balanced nutritious food for children, and vice versa. Low family economic conditions if it persistently occurs, it will cause malnutrition in toddlers.

The Relationship between Infectious Disease History and Stunting Incidence

The results of the study showed a relationship between the infectious disease variable and the incidence of stunting in toddlers (PR: 2,611 95%CI: 1,116-6,107) and the results were significantly proven with a *p-value* of 0.043. This study is in line with research [19] which states that children with a history of infectious diseases are at 4,200 times greater risk compared to children who have no history of infectious diseases. The infection of toddlers by infectious diseases such as diarrhea, ISPA and TB greatly affects children affected by stunting. The most common infectious disease in toddlers is diarrhea.

Infectious diseases in toddlers can reduce food intake, interfere with nutrient absorption, cause direct loss of nutrients, increase metabolic needs. There is a back-and-forth interaction between nutritional status and infectious diseases. Malnutrition can increase the risk of infection, while infections can lead to malnutrition. If this condition occurs for a long time and is not treated immediately, it can reduce food intake and interfere with the absorption of nutrients, so that it can increase the risk of stunting in children under five. Infectious diseases can be caused due to environmental factors that are poor hygiene and sanitation. Open wastewater treatment channels, careless disposal of human feces, unqualified waste management, drinking water sources that do not meet the criteria and overcrowded housing density levels can make children or toddlers more susceptible to stunting. This is because environmental factors are more susceptible to causing children to experience infectious diseases such as diarrhea, tuberculosis, dengue, pneumonia, and other infectious diseases. Toddlers who have been affected by eating infections will be more susceptible to stunting, because infectious diseases will eliminate the nutrients eaten, so that slowly the growth and development process of children will decrease and this condition can cause stunting.

The results of this study are not in line with the study [20] which states that toddlers with a history of infectious diseases do not have a meaningful relationship with the incidence of stunting. There is no relationship between a history of infectious diseases and stunting, although there are still risks, but if prevention is carried out, one of which is through environmental factors, it will be able to reduce the risk of developing infectious diseases that can cause stunting.

The Relationship between Exclusive Breast Milk History and Stunting Incidence

The results of the study found a relationship between the variable of exclusive breastfeeding and the incidence of stunting in toddlers (PR: 6,021 95%CI: 1,304-27,794) and the results were significantly proven with *a p-value* of 0.023. This study is in line with research conducted by [21] which states that toddlers with a history of non-exclusive breastfeeding are 0.5 times greater than those who are under a history of exclusive breastfeeding. The breastfeeding period is an excuse for mothers who do not exclusively breastfeed their children. Mothers consider that it is normal to give foods other than breast milk before the age of 6 months. Mothers tend to think that if they are only given breast milk for the first 6 months, the child will be more susceptible to stunting because the child will feel hungry if only breastfeeding is given. This condition results in children becoming non-exclusive which can lead to stunting.

Maternal knowledge is one of the factors that affect breastfeeding given exclusively to toddlers. The higher the mother's knowledge about the benefits of breastfeeding and the duration of breastfeeding, the better the history of exclusive breastfeeding for toddlers. Mother's work is also one of the things that can affect exclusive breastfeeding. Mothers who work from morning to evening will hinder breastfeeding to babies. This condition will result in a history of breast milk being non-exclusive so that it can cause stunting.

The results of the study were not in line with the study [22] which stated that there was no meaningful relationship between the history of breastfeeding and the incidence of stunting p-value 0.536. There is no relationship between the history of exclusive breastfeeding and stunting, although there is still a risk, but if the child's nutritional status is still sufficient, it will be able to reduce the risk of stunting.

The Relationship between Parenting and Stunting Incidence in Toddlers

The results of the study found a relationship between the parenting variable and the incidence of stunting in toddlers (PR: 4,213 95%CI: 1,147-15,470) and the results were significantly proven with a p-value of 0.041. In line with research conducted by [27] which states that toddlers with poor parenting are 3.9 times greater at risk than toddlers with good parenting. Mothers' habits of preparing food sometimes prefer to buy food outside rather than preparing it themselves. Mothers who prefer to buy food outside rather than prepare themselves are more at risk of having toddler stnting.

The inadequate parenting factor that mothers give to children is a factor that can cause nutritional problems. In this case, the parenting style that mothers can give, namely how often the mother supervises, feeds the child, feeds the child, persuades the child, and prepares the child's food. A mother's greater attention to children will support the fulfillment of the physical, mental and social needs of children who are in the period of growth and development. Parents' work is one of the obstacles to child-rearing, the tight working hours make mothers not have time to give more time to take care of their children. Often leaving children with the family of grandparents or siblings is a solution to parents' busyness with their work.

The results of this study are not in line with the study [28] which states that parenting is not related to the incidence of stunting *p-value* of 0.622. The results of the study stated that parenting is not related to the incidence of stunting, although it still has risks, but most mothers of toddlers prefer to wait for their children to ask for food because the child is too happy to play, this condition causes the child's diet to be not good.

The Relationship between Economic Level and Stunting Incidence

The results of the study found a relationship between economic level variables and the incidence of stunting in toddlers (PR: 3,556 95%CI: 1,109-11,402) and the results were significantly proven with a p-value of 0.048. The results of this study are in line with a study conducted by [29] which states that low-income families are 5,421 times greater at risk than high-income families. The high economic status of a person is influenced by the type of job he has. Most parents have jobs only as freelance day laborers, working as construction workers in several construction projects. Meanwhile, on the one hand, mothers or wives only work as housewives. This condition results in pure family income from the salary of the father or head of the family so that the family's income per month becomes low.

Some of the factors that cause nutritional problems are poverty. Poverty is considered to have an important role that is reciprocal as a source of nutritional problems, namely poverty causes malnutrition, on the other hand, undernourished individuals will slow down economic growth and encourage the poverty process. The level of income is a benchmark for the economic status of the family. Low income levels can result in a decrease in family purchasing power. Income that is sufficient to meet the needs of a family is generally obtained from working family members or from their own sources of income such as benefits and retirement money. Low-income families have a prevalence of illness, weakness, chronicle of illness and limited activities due to health problems, so poverty problems are likely to lead to deteriorating

nutritional conditions and unhealthy housing.

The results of this study are not in line with [30] which states that the economic level is not related to the incidence of stunting in toddlers with a p-value of 0.720. The absence of an economic level relationship with stunting can be caused because the income received is not fully spent on basic food needs, but on other needs. A high level of income does not necessarily guarantee good nutritional status in toddlers, because the level of income is not necessarily allocated enough for food needs. If low-income families are able to manage nutritious food with simple and cheap ingredients, the baby's growth will also be good.

Conclusion

The proportion of stunting incidence in the work area of the Pondok Meja Health Center is 35.6%. Factors related to the incidence of stunting in toddlers in the Pondok Meja Health Center Work Area are the availability of latrines, the availability of clean water facilities, waste management, housing density, diet, infectious diseases, exclusive breastfeeding, parenting and family income. Meanwhile, factors that are not related to the incidence of stunting in the Work Area of the Pondok Meja Health Center are waste management, personal hygiene and maternal knowledge. For this reason, it is hoped that the community, especially mothers who have stunted toddlers, should start maintaining a better diet and lifestyle, as well as utilizing technology such as the internet to find sources of information related to stunting.

Ethics approval

The ethical approval of this research was issued by the Faculty of Public Health, University of Jambi.

Acknowledgments

Thank you to Mrs. Ummi Kalsum as the supervisor and Mrs. Fajirna Hidayati for this research.

References

1. UNICEF. Situasi Anak di Indonesia - Tren, peluang, dan Tantangan dalam Memenuhi Hak-Hak Anak. Unicef Indones. 2020;8–38.
2. Kemenkes RI. Situasi Balita Pendek (Stunting) di Indonesia. Pus data dan Inf Kementrian Kesehat RI. 2018;301(5):1163–78.
3. Kemenkes RI. Laporan Kemajuan Akses Nasional Tahun 2021. Pap Knowl Towar a Media Hist Doc. 2021;7(2):107–15.
4. SSGI. buku saku hasil studi status gizi indonesia (SSGI) tingkat nasional, provinsi, dan kabupaten/kota tahun 2021. Angew Chemie Int Ed 6(11), 951–952. 2021;2013–5.
5. Jambi DM. Laporan Kinerja Dinas Kesehatan Kabupaten Muaro Jambi. Laporan. 2021;6.
6. Sukmawati, Urwatil Wusqa Abidin H. Hubungan Hygiene Dan Sanitasi Lingkungan Terhadap Kejadian Stunting Pada Balita Di Desa Kurma. J Peqguruang Conf Ser. 2021;3(2):494.
7. Martina Pakpahan dkk. Webinar Edukasi Peran Orang Tua Dalam Tumbuh Kembang Anak Dan Well-Being Keluarga. 2021;4:1434–47.
8. The United Nations Children's Fund (UNICEF). UNICEF Annual Report, 2019 [Internet]. UNICEF Annual Report 2019. 2020. 68 p. Available from: https://www.unicef.org/media/74016/file/UNICEF-annual-report-2019.pdf
9. Zarkasyi R R, Nurlinda N, Wahyuni Sari R, Anggraeny R. Faktor Risiko Lingkungan yang Berhubungan dengan Kejadian Stunting di Wilayah Kerja Puskesmas Cangadi. Media Publ Promosi Kesehat Indones. 2021;4(3):377–82.
10. Atik Nurhayati, Lely Wahyuniar, Rossi Suparman DLB. Hubungan Antara Faktor Air Minum, Sanitasi Dan Riwayat Diare Dengan Stunting Pada Anak Baduta Di Kecamatan Rancakalong Kabupaten Sumedang 2021 Atik. J Heal Res Sci. 2022;2(2):104–14.
11. Mariana R, Nuryani DD, ... Hubungan sanitasi dasar dengan kejadian stunting di wilayah kerja puskesmas Yosomulyo kecamatan Metro pusat kota Metro tahun 2021. J Community http://e-jurnal.iphorr.com/index.php/chi/article/view/99

12. Alfadhila Khairil Sinatrya, Lailatul Muniroh. Hubungan Faktor Water, Sanitation, and Hygiene (WASH) dengan Stunting di Wilayah Kerja Puskesmas Kotakulon, Kabupaten Bondowoso . Amerta Nutr. 2019;3(3):164–70.
13. Rezki AIC. Hubungan Faktor Kesehatan Lingkungan Terhadap Kejadian Stunting Pada Balita di Wilayah Puskesmas Kassi Kassi Kota Makassar Tahun 2021. Kesehatan. 2022;33(1):1–12.
14. N M, M W. Hubungan Kondisi Lingkungan dengan Kejadian Stunting pada Balita di Rt 08 , 13 dan 14 Kelurahan Mesjid Kecamatan Samarinda Seberang 2019. Borneo Student Res. 2020;1(2):750–4.
15. Shinta Roma Uli Pangaribuan, Dompak MT.Napitupulu UK. Hubungan Sanitasi Lingkungan, Faktor Ibu dan Faktor Anak Dengan Kejadian Stunting Pada Anak Usia 24 – 59 Bulan di Puskesmas Tempino Kabupaten Muaro Jambi. J Pembang berkelanjutan. 2021;3(1):54–63.
16. Pramono JS, Wiyadi W. Hubungan Lingkungan Fisik Rumah dan Kepadatan Hunian dengan Prevalensi Tuberkulosis di Kecamatan Sungai Kunjang Kota Samarinda. J Kesehat Masy Indones. 2021;16(1):42.
17. Nahdah HH. Hubungan Kondisi Lingkungan Rumah Dengan Kejadian Tuberkulosis Pada Balita Stunting. Keseatan Masy. 2022;
18. Fitriani A, Friscila I, Mauyah N, Elvieta E, Fatiyani F. Faktor-Faktor yang Berhubungan dengan Stunting di Puskesmas Syamtalira Aron. J Med (Media Inf Kesehatan). 2022;9(1):47–56.
19. Yulnefia MS. Hubungan Riwayat Penyakit Infeksi Dengan Kejadian Stunting Pada Balita Umur 24-59 Bulan Di Wilayah Kerja Puskesmas Marawola Kabupaten Sigi. J Bidan Cerdas. 2022;4(1):10–7.
20. Astuti DD. Hubungan Riwayat Penyakit Infeksi, Pemberian Asi Eksklusif, Pemberian Mp-Asi Dengan Kejadian Stunting Pada Anak Usia 6-24 Bulan Di Wilayah Kerja Puskesmas Pengasih Ii Kabupaten Kulon Progo. Kesehat Masy. 2019;(April 2019):44–55.
21. Mirza Refky Pratama SI. Hubungan Pemberian ASI Eksklusif dengan Kejadian Stunting di Wilayah Puskesmas Hinai Kiri, Kecamatan Secanggang, Kabupaten Langkat. J Kedokt STM(Sains dan Teknol Med [Internet]. 2021;IV(I):17–25. Available from: https://jurnal.fk.uisu.ac.id/index.php/stm/article/view/65/40
22. Novayanti LH, Armini NW, Mauliku J. Hubungan Pemberian ASI Eksklusif dengan Kejadian Stunting pada Balita Umur 12-59 Bulan di Puskesmas Banjar I Tahun 2021. J Ilm Kebidanan (The J Midwifery). 2021;9(2):132–9.
23. Astri Widiarti1, Ni Nyoman Sri Yuliani IA. Hubungan Perilaku Personal Hygiene Terhadap Kejadian Kecacingan Dan Stunting Pada Siswa Kelas I-Iii Di Sdn Pematang Limau, Kabupaten Gunung Mas. J Surya Med [Internet]. 2020;2(1):1–12. Available from: http://clik.dva.gov.au/rehabilitation-library/1-introduction-rehabilitation%0Ahttp://www.scirp.org/journal/doi.aspx?DOI=10.4236/as.2017.81005%0Ahttp://www.scirp.org/journal/PaperDownload.aspx?DOI=10.4236/as.2012.34066%0Ahttp://dx.doi.org/10.1016/j.pbi.201
24. Rusdi PHN. Hubungan Personal Hygiene dengan Kejadian Stunting pada Balita. Hum Care J. 2022;7(2):369–74.
25. Arnita S, Rahmadhani DY, Sari MT. Hubungan Pengetahuan dan Sikap Ibu dengan Upaya Pencegahan Stunting pada Balita di Wilayah Kerja Puskesmas Simpang Kawat Kota Jambi. J Akad Baiturrahim Jambi. 2020;9(1):7.
26. Paramita LDA, Devi NLPS, Nurhesti POY. Hubungan Pengetahuan Dan Sikap Ibu Mengenai Stunting Dengan Kejadian Stunting Di Desa Tiga, Susut, Bangli. Coping Community Publ Nurs. 2021;9(3):323.
27. Indah Nurdin SS, Octaviani Katili DN, Ahmad ZF. Faktor ibu, pola asuh anak, dan MPASI terhadap kejadian stunting di kabupaten Gorontalo. J Ris Kebidanan Indones. 2019;3(2):74–81.
28. Ramadhani FN, , BJ. Kandarina IMAG. Pola Asuh dan Pola Makan Sebagai Faktor Risiko Stunting Balita Usia 6-24 Bulan Suku Papua dan non- Papua. Home Econ. 2019;35(5):175–83.
29. Evitasari LN dan D. Perbedaan Pemberian Asi Eksklusif, Status Sosial Ekonomi, Riwayat Penyakit Ispa Pada Balita Stunting Dan Non Stunting. Molecules [Internet]. 2020;2(1):1–12. Available from: http://clik.dva.gov.au/rehabilitation-library/1-introduction-rehabilitation%0Ahttp://www.scirp.org/journal/doi.aspx?DOI=10.4236/as.2017.81005%0Ahttp://www.scirp.org/journal/PaperDownload.aspx?DOI=10.4236/as.2012.34066%0Ahttp://dx.doi.org/10.1016/j.pbi.201
30. Efrizon Hariadi, Tonny C.Maigoda Eb. Pengaruh Riwayat Pengobatan Tb Anak, Umur, Status Ekonomi Dengan Kejadian Stunting Di Kota Bengkulu Dan Bengkulu Utara Tahun 2021. J Nurs Public Heal. 2022;10(2):1–19.