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The Relationship between Exclusive Breastfeeding and Clean Water with Stunting in Toddlers

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Abstract
Introduction: *Stunting is an acute nutritional problem where a child's height does not match their age. Stunting is caused by a variety of factors. The incidence of stunting in Jambi Province is still quite high, especially in East Tanjung Jabung Regency, namely at the Simpang Pandan Community Health Center, with a prevalence of 24.58%.* ***Objective****: This research aims to determine the relationship between exclusive breastfeeding and clean water and the incidence of stunting.* ***Method:*** *This study aims to determine the relationship between exclusive breastfeeding and clean water and the incidence of stunting.* ***Results and Discussion****: The results of the research show that there is no relationship between exclusive breastfeeding and the incidence of stunting in toddlers, and there is a relationship between access to clean water and the incidence of stunting in toddlers in the working area of the Simpang Pandan Jambi Community Health Center.* ***Conclusions:*** *There is a relationship between access to clean water and the incidence of stunting in toddlers.*
Keywords: Stunting; Exclusive Breastfeeding; Clean Water; Toddlers;

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Introduction

Stunting is one of the many nutritional problems often found in Indonesia. According to data collected from the Nutritional Status Monitoring (PSG), the prevalence rate of stunting is at the top when compared with other toddler problems such as malnutrition, underweight toddlers, and obese toddlers (Kementerian Kesehatan RI, 2018) (Subratha & Peratiwi, 2020)

Based on the results of the SSGI at the national level, the stunting rate has decreased, with a prevalence of 24.4%. In Jambi Province, the prevalence of stunting in 2021 will be 22.4% (Kementerian Kesehatan RI, 2021a) (Fikri, 2023). The annual average achievement of reducing stunting in Indonesia is 2.0% (2013–2021), with a stunting prevalence rate in 2021 of 24.4%, so efforts and innovation are still very much needed to achieve 2.7% per year (Kementerian Kesehatan RI, 2021b).

Based on SSGI data (2021), in Jambi Province, the highest prevalence of stunting is in Muaro Jambi Regency (27.2%), Kerinci Regency (26.7%), Tebo Regency (26.2%), East Tanjung Jabung Regency (25.6%), and Sungai Banyak Regency (25%) (Kementerian Kesehatan RI, 2021a). One of the districts or cities that is included in the 5 districts or cities with the highest stunting rate is East Tanjung Jabung Regency. According to data from the East Tanjung Jabung District Health Service in 2021, of the total number of toddlers who have been measured in 11 sub-districts, the prevalence of stunted toddlers is 25.6%, or the same as 973 toddlers who are stunted. The areas with the highest incidence of stunted toddlers are in Nipah Panjang, Muara Sabak Timur, and Geragai (Dinas Kesehatan Tanjung Jabung Timur, 2021).

Children who have short bodies are at risk of being more susceptible to infections and infectious diseases when they grow up (Kementerian Kesehatan RI, 2018). Cognitive delays in children are closely related to those that occur in children who suffer from stunting in the first two years of life. If left unchecked, this will have a long-term impact on the quality of human resources. About 70% of the formation of brain cells occurs from the time the middle child is in the womb until he is 2 years old. A decrease in the number of cells, cell fibers, and cell connections will occur when the brain is disturbed; this can later result in a decrease in intelligence (Departemen Kesehatan RI., 2012).

Exclusive breastfeeding for less than six months is also one of the factors causing stunting. Exclusive breast milk is able to reduce child morbidity and mortality. It is given to babies from birth for six months without adding or replacing it with other foods or drinks (Septikasari, 2018). Breast milk has many benefits, for example, increasing a child's immunity to disease, ear infections, reducing the frequency of diarrhea, chronic constipation, and so on. Based on the results of research conducted by Riza Savita and Fitra, there is a significant relationship between toddlers who receive exclusive breast milk and the incidence of stunting; those who receive non-exclusive breast milk are three times more likely to be stunted than toddlers who receive exclusive breast milk (Savita & Amelia, 2020)

Another factor causing stunting is the availability of clean water. The results of research by Adriany et al. show that children under five who are at risk of stunting and their families do not have access to clean water 0.088 times compared to those who have access to clean water. Water that does not meet the requirements will indirectly affect the growth and development of babies, which will later cause stunting (Adriany, Hayana, Nurhapipa, Septiani, & Sari, 2021). Difficulty in sanitation and access to clean water, as well as a lack of access to medical services, can place children at high risk of infection. For this reason, it is necessary to have the habit of washing hands with soap and running water and not defecating in the open (Kementerian Kesehatan RI, 2018).

Method

This type of research is quantitative and has a cross-sectional design. The total population is 1066 mothers who have toddlers in the Simpang Pandan Community Health Center area, with a sample of 73 respondents. Sampling was carried out using the stratified proportional sampling technique. The research instrument used was a questionnaire developed through interviews. Then data processing and analysis were carried out using the chi-square test on the SPSS for Windows version 23 application with a confidence level of 95% ($\alpha = 0.05$).

Result and Discussions

Result

This research was conducted on 73 respondents. The results of the univariate analysis regarding the characteristics of respondents consisting of the variables age, education, incidence of stunting, exclusive breastfeeding, and availability of clean water can be seen in Table 1 below.

Table 1
Frequency Distribution of Respondents

Respondent Characteristics	F	%
Age (years)		
< 25	8	11
25-35	44	60,3
36-45	19	26
> 45	2	2,7
Total	**73**	**100**
Education		
Elementary school	11	15,1
Junior high school	21	28,8
Senior high school	33	45,2
College	8	11
Total	**73**	**100**
Stunting Incident		
Stunting	40	54,8
Not Stunting	33	45,2
Total	**73**	**100**
Breastfeeding		
Not exclusive breastfeeding	59	80,8
Exclusive breastfeeding	14	19,2
Total	**73**	**100**
Availability of Clean Water		
Not feasible	50	68,5
Feasible	23	31,5
Total	**73**	**100**

Based on Table 1, it is known that of the 73 respondents, most were in the 25–35-year age group (60.3%). Most of the respondents' education was that of high school graduates—33 people (45.2%). As for the incidence of stunting among toddlers, out of 73 toddlers, 40 (54.8%) experienced stunting. Of the 73 respondents, it is also known that most toddlers are not given exclusive breast milk, namely 59 toddlers (80.8%). Furthermore, regarding the availability of clean water, it is known that only 23 people (31.5%) have access to adequate clean water. The majority, namely 50 people (68.5%), do not have adequate access to clean water.

The results of the bivariate analysis regarding the relationship between exclusive breastfeeding and clean water and the incidence of stunting in toddlers using the chi square test can be seen in tables 2 and table 3 below

Table 2
The Relationship between Exclusive Breastfeeding and Stunting

Breastfeeding	Stunting Incident				Total		*P – Value*	PR (95% CI)
	Stunting		Not Stunting					
	n	%	n	%	N	%		
Not exclusive breastfeeding	36	49,3	23	31,5	59	80,8	0,058	3,913 (1,097-13,963)
exclusive breastfeeding	4	5,5	10	13,7	14	19,2		
Total	40	54,8	33	45,2	73	100		

From the results of table 2 above, the p value = 0.058 > α=0.05, which means that there is no relationship between exclusive breastfeeding and the incidence of stunting in toddlers; however, the PR value = 3.913 is obtained, meaning that respondents who give exclusive breastfeeding to children can reduce the risk of it occurring. Stunting in children is 3,913 times higher than in mothers who do not provide exclusive breastfeeding.

Table 3
The Relationship between Clean Water and Stunting

Availability of Clean Water	Stunting Incident				Total		*P – Value*	PR (95% CI)
	Stunting		Not Stunting					
	n	%	n	%	N	%		
Not feasible	34	46,6	16	21,9	50	68,5	0,002	6,021 (1,996-18,164)
Feasible	6	8,2	17	23,3	23	31,5		
Total	40	54,8	33	45,2	73	100		

Based on table 3, a value of p = 0.002 is obtained, which is smaller than α = 0.05 (p<0.05), meaning that there is a relationship between the availability of clean water and the incidence of stunting among toddlers in the Simpang Pandan Jambi Health Center Working Area, with a value of PR = 6.021 (95% CI = 1.996–18.164), meaning that respondents with inadequate availability of clean water have a 6.021 times greater chance of causing children to experience stunting compared to respondents with adequate availability of clean water.

Discussion

The research results, it is known that there is no relationship between giving exclusive breastfeeding and the incidence of stunting in toddlers in the Simpang Pandan Community Health Center Working Area (p-value = 0.058). Many mothers do not give exclusive breastfeeding to children in the first 6 months of life. Children who receive exclusive breast milk also experience stunting. Misperceptions regarding exclusive breastfeeding in mothers also influence not giving exclusive breast milk to children because mothers give other additional foods to children. In line with research conducted by (Herry Novayanti, 2021), based on the results of the analysis, it is known that the p value is 0.536, meaning there is no significant relationship between exclusive breastfeeding and the incidence of stunting (p-value = 0.536).

It is also known that there are toddlers who get exclusive breastfeeding for those experiencing stunting. The results are the same as research by Safira Khairani et al. (2022) that exclusive breastfeeding is not related to the incidence of stunting in toddlers (p-value = 0.143) (Khairani & Soviana, 2022). Exclusive breastfeeding for children. However, the results differ from research by Anita et al. (2020) that found a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. Breast milk given to children up to 6 months of age in this case does not provide other additional food to the child (SJMJ, Toban, & Madi, 2020).

Based on the research results, it is known that there is a relationship between the availability of clean water and the incidence of stunting among toddlers in the Simpang Pandan Jambi Health Center Working Area (p-value = 0.002). It is also known that the availability of inadequate clean water has a 6.021 chance of causing children to experience stunting because the physical condition of water in many areas is classified as inadequate. The average community collects rainwater and well water as a water source. Some of the water is colored and oily; this could be because the residential area is an oil mining operation area, so this affects the physical condition of the water. While some people use this water for consumption, because of consuming it, some children have a history of experiencing diarrhea. If a child continues to experience diarrhea, the child can experience stunting.

The research results are in line with research by Adriany et al. (2021) showing that there is a significant relationship between clean water and the incidence of stunting (p 0.000). In this case, families who do not have access to clean water have a 0.088 higher risk of suffering from stunting in their children than families who have access to clean water. This is because many people do not have access to clean water that is suitable according to their physical health requirements to be used as drinking water.

Research by Apriluana and Fikawati (2018) shows that toddlers who have inadequate water have a 1.09-fold chance of experiencing stunting (Apriluana & Fikawati, 2018). However, this is different from research by (Nisa & Sukesi, 2022) which states that there is no relationship between clean water and the incidence of stunting, as shown by the result of p = 1,000. Most people already have a source of clean water that meets the requirements, and the physical quality of the water is adequate, but the incidence of stunting is greatest among respondents in this classification. The cause of stunting can occur due to several factors; the source of clean water in this study was not the main factor causing stunting. Clean water that does not meet health requirements can cause stunting. This is because toddlers are a group that is vulnerable to disease infections, especially diarrheal diseases, which can affect the growth and development of toddlers.

Conclusion

Based on the results and discussion, it is known that there is no relationship between exclusive breastfeeding and the incidence of stunting in toddlers (p = 0.058) and there is a relationship between the availability of clean water and the incidence of stunting in

children aged 0-59 months (p = 0.002). It is hoped that the role of health officers will be to promote and educate the community to provide exclusive breastfeeding for toddlers, and there is a need for cross-sector collaboration in efforts to provide adequate clean water facilities for the community.

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