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Original Article

The Relationship Among Exclusive Breastfeeding, Complementary Feeding (MP-ASI), and Infectious Diseases in Children Aged 7 to 24 Months

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ABSTRACT

Stunting is the state of height of a person, not by age. Numerous risk factors, such as complementary feeding, viral illnesses, and exclusive breastfeeding, contribute to the high prevalence of stunting. Breast milk consists of fats, carbohydrates, calories, proteins, and vitamins that can support the development and growth of a healthy child. Complementary feeding must be adequate, nutritious, and appropriate in the type, time, frequency, portion, and menu variations in addition to breast milk. These variations that are not quite right will cause growth failure and infectious diseases. This study aimed to ascertain the relationship between exclusive breastfeeding, complementary feeding, infectious diseases, and the incidence of stunting in children between the ages of 7 and 24 months at the Sawah Lebar Health Center in Bengkulu City in 2023. This study used a cross-sectional method. The population in this study were all children aged 7-24 months in Sawah Lebar Public Health Center, while the sample for this study was 52 people taken by random sampling. The study finds a relationship among exclusive breastfeeding, complementary feeding, infectious diseases, and the prevalence of stunting in children aged 7 to 24 months at the Sawah Lebar Public Health Center in Bengkulu City with a p-value (<0,05). This study is recommended to continue by adding any variable such as a variety menu, texture, and appropriate time giving complementary feeding.

Keywords: Exclusive Breastfeeding, Complementary Feeding, Infectious Diseases, Stunting

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INTRODUCTION

Stunting is the most typical dietary issue in children. The issue of short toddlers illustrates the persistent dietary issues that are impacted by the health of the expecting woman, the fetus, and the time of infancy and toddlerhood, as well as illnesses experienced during childhood and other issues that indirectly negatively impact health[1].

When a person's height (TB) and age (TB/U), which are established by computing the Z-index score for Height by Age (TB/U), do not Match is referred to as stunting. If a child's Z-index score for TB/U is less than -2 SD, they are said to be stunted. 2018's Boucot & Poinar Jr. Toddler stunting requires special attention since it might impede a child's physical and mental development [2].

Stunting is linked to a higher risk of mortality and delayed brain and body development. Additionally, it increases the chance of developing degenerative illnesses and lowers productivity and intellectual capacity. Additionally, because stunted children are more likely to contract infectious infections, their learning may suffer over time, costing Indonesia money in the long run [3].

According to the data from 2020, Asia has the largest percentage of stunted children worldwide (53%), followed by Africa (41%). The largest percentage, 30.7%, came from South Asia, followed by Southeast Asia, with 27.4%, and East Asia, with 4.9%, with the smallest percentage. Timor Leste had the top spot in the south-eastern Asia Regional in 2005–2007, with a prevalence of 48.8%, followed by Indonesia in second place with a frequency of 31.8% [4].

The prevalence of stunting in children under five is 30.8% according to the 2018 Riskesdas findings (Ministry of Health, 2018); the prevalence is 21.6% according to the 2022 Indonesian Toddler Nutrition Status Survey (SSGI) statistics (RI Ministry of Health, 2022). According to the results of the 2022 SSGI, the prevalence of stunting in children under the age of five (TB/U) in Bengkulu Province was 19.8%, while in Bengkulu City, it was 12.9% [5].

The high prevalence of stunting is caused by various risk factors, both directly, including history of maternal intake during pregnancy, birth weight, infectious diseases, parental education, exclusive breastfeeding, and early complementary breastfeeding and indirectly such as income factors and economic inequality, food system, and others [6].

Parenting has a significant role in avoiding stunting in order to stop this from happening. Exclusive breastfeeding is a practical part of parenting. Nutrition increased physical stamina, improved mental and emotional intelligence, healthy social development, immunity to infectious illnesses, and allergy prevention are all advantages of nursing exclusively for infants. Antibodies found in breast milk stimulate the brain and nerves, enhancing health and intellect to their full potential. Additionally, the composition of breast milk includes fats, carbs, calories, proteins, and vitamins that can support healthy development and growth [3].

Another influential factor in the growth of children is the provision of food or drink without paying attention to the frequency of administration, nutritional quality, type, and texture of food and inappropriate feeding methods will result in growth failure and infectious diseases[7].

One of the direct causes of stunting is infectious illness. Stunting is more likely to occur in kids who have infectious infections for a longer period of time. Toddlers who consume food handled carelessly have a greater risk of contracting infectious illnesses. This contagious illness is typically marked by nausea and vomiting, which prevents the youngster from getting enough to eat. Such circumstances will subsequently have detrimental effects on children's development [8].

Based on this background and phenomenon, researchers are interested in the correlation between exclusive breastfeeding, MP-ASI, and infectious diseases with stunting in children aged 7-24 months in Bengkulu, particularly in Sawah Lebar Health Center in Bengkulu.

METHOD

A cross-sectional design with a descriptive methodology was employed in this investigation. This investigation will take undertaken in March 2023 at the Sawah Lebar Public Health Center in Bengkulu. Total of 52 kids make up the sample, and the sampling method employed is random sampling. Interviews and questionnaires were employed as the data-gathering methods in this study. In this study, both univariate and bivariate data analysis were employed. To as certain the significance of the association between the independent factors and the dependent variable, the Chi-Square test with a 95% confidence level was utilized in bivariate analysis. This research has met the ethical requirements dated May 14, 2023 No.KEPK.BKL/208/05/2023.

RESULTS

Table 1. Distribution of Individual Characteristics by Frequency

Characteristic	Variables	Frequency	
		n	%
Child Age	7-12 month	22	42,3
	13-19 month	26	50,0
	20-24 month	4	7,7
Childbirth length	Normal	5	9,6
	Short	47	90,4
Child gender	Man	23	44,2
	Woman	29	55,8
Mother's job	Doesn't work (IRT)	48	92,3
	Work	4	7,7

Mother's education	Low	10	19,2
	Intermediate	30	57,7
	Tall	12	23,1
Family income	IDR< 2500.000	13	25,0
	IDR >2500.000	39	75,0

Table 1 above shows the results for children aged 7-12 months (42.3%), aged 13-19 months as many as 26 children (50.0%) aged 20-24 months (7.7%). Pbl normal children as many as 47 children (90.4%). The sex of the boys was 23 children (44.2%) and the girls were 29 children (55.8%). Meanwhile, the characteristics of mothers based on their work were mostly unemployed (92.3%) and only (7.7%) working mothers. In terms of mother's education, there were (19.2%) mothers with low education, (57.7%) middle education and (23.1%) mothers with high education. In terms of family income, there are (25%) families whose income is below the UMR and (75%) families whose income is above the UMR.

Table 2. Overview of exclusive breastfeeding with the incidence of stunting

Variable		Frequency	
		n	%
Exclusive breastfeeding	No	9	17,3
	Yes	43	82,7

Table 2 It is known that out of 52 children, (82.7%) are exclusively breastfed, and (17.3%) are children who are not receiving breastfed.

Table 3. Overview of complementary feeding with the incidence of stunting

Variable		Frequency	
		n	%
Complementary Feeding	Incompatible	12	23,1
	In accordance	40	76,9

Table 3 shows that out of 52 children, there were (76.9%) children whose complementary feeding was appropriate and (23.1%) children whose complementary feeding was not appropriate.

Table 4. Overview of infectious diseases with stunting

Variable		Frequecy	
		n	%
Infectious Disease	No	47	92,3
	Yes	4	7,7

Table 4 shows that out of 52 children, there were (92.3%) children with no history of infectious diseases and (7.7%) children with a history of infectious diseases.

Table 5. Description of the incidence of stunting

Variable		Frequecy	
		n	%
Stunting	No	47	90,4
	Yes	5	9,6

Table 5 above shows that out of 52 children, there are (90.4%) children who are not stunted and (9.6%) children who are stunted.

Table 6. The relationship between the prevalence of stunting in children aged 7 to 24 months at the Sawah Lebar Public Health Center in Bengkulu City and exclusive breastfeeding

Exclusive Breastfeeding	Stunting				Total		Or (95% CT)	p-value
	No		Yes					
	n	%	n	%	n	%		
No	6	11.5%	3	5.7%	9	17.3%	10.25 (1.4-74.5)	0.31
Yes	41	78.%	2	3.8%	43	82.6%		

Fisher's Exact Test.

Based on table 6 above, The study's findings revealed that exclusively breastfed infants had a stunting prevention rate of 78.8%, whereas nonexclusively breastfed children had a stunting prevention rate of 5.7%. This demonstrates a connection between the prevalence of stunting and exclusive breastfeeding in the Sawah Lebar Health Center in Bengkulu, where the value ($p < 0.05$) supports the validity of the Ha hypothesis that such a connection exists. According to the OR value (95% CT), children who do not get exclusive breastfeeding are 10.2 times more likely to have stunting than those who do

Table 7. The relationship between the prevalence of stunting and complementary feeding in infant children aged 7-24 months in Sawah Lebar Public Health Center, Bengkulu City

Complementary feeding	stunting				Total		Or (95% CT)	p-value
	No		Yes					
	n	%	n	%	n	%		
It is not in accordance with	8	15.3%	4	7.6%	12	23%	9.5(1.9-98.3)	

In accordance	39	75%	1	1.9%	40	76.9%	0.08

Fisher's Exact Test.

Based on Table 7 above, the study's findings revealed that 7.6% of kids with unsuitable MP ASI were at risk for stunting, whereas 75% of kids with unsuitable MP ASI were not. The statistical analysis produced a value of p = 0.08 as a result. This demonstrates that there is a correlation between MP ASI and the prevalence of stunting in the Sawah Lebar Health Center in Bengkulu, where the value (p 0.05) demonstrates the acceptance of the Ha Hypothesis. Children whose MP ASI is unsuitable are 19.5 times more likely to experience stunting than children whose MP ASI is acceptable, according to the OR value (95% CT).

Table 8. The relationship between the prevalence of stunting and infectious disease in infant children aged 7-24 months Sawah Lebar Community Health Center, Bengkulu City

Infectious Diseases	stunting				Total		Or (95% CT)	P-values
	No		Yes					
	n	%	n	%	n	%		
There isn't any	45	86 %	2	3.8%	4	7.6%	5.0(1.5-46.9)	
There is	2	3.8%	3	5.7%	48	92.3%		0.42

Fisher's Exact Test.

Based on Table 8 above, the study's findings revealed that children with no history of infectious illnesses were not stunted by 86%, and those who did were by 3.8%, according to the statistical test results, which were achieved with a p-value of 0.42. In the Sawah Lebar Health Center in Bengkulu, this demonstrates a relationship between infectious diseases and the incidence of stunting, where the value (p 0.05) indicates that the Ha Hypothesis is accepted. Children with a history of infectious infections are 15 times more likely to experience stunting, according to the OR value (95% CT).

DISCUSSION

The relationship between the prevalence of stunting in children aged 7 - 24 months at the Sawah Lebar Public Health Center in Bengkulu City and exclusive breastfeeding

Chi-square is used in statistical testing. According to the study, 78.8% of exclusively breastfed infants did not experience stunting, compared to 5.7% of nonexclusively breastfed children at risk for stunting. The findings of the statistical analysis yielded a value of p = 0.31. Demonstrates a connection between the prevalence of stunting and exclusive breastfeeding in the Sawah Lebar Health Center, Bengkulu City, where the value (p-0.05) supports the validity of the Ha hypothesis that such a connection exists. According to the OR value (95% CT), children who do not get exclusive breastfeeding are 10.2 times more likely to have stunting than those who do.

According to this study, 9 children (11.5%) still received non-exclusive nursing while avoiding stunting. According to a study by Wardani YS et al. 9, the improper diet of moms who exclusively breastfeed can produce inadequate amounts and qualities of breast milk, which can affect the baby's growth and development. A newborn that does not receive enough breast milk is in danger of malnutrition, which manifests as a short, thin physique [9]. Breast milk consists of a mixture of whey, casein, and various peptides that provide crucial amino acids necessary for babies' growth and development, as well as bioactive proteins and important peptides with many functions [10]. The amount and quality of breast milk produced as a result of the mother's poor nutritional intake when nursing is one of the variables that affect newborn malnutrition [11].

One of the factors affecting neonatal malnutrition is the quantity and quality of breast milk produced as a result of the mother's inadequate nutritional intake while breastfeeding [12].

The relationship between the prevalence of stunting and complementary feeding in infant children aged 7-24 months in Sawah Lebar Public Health Center, Bengkulu City

According to the study's findings, Chi-square is a statistical test that shows 7.6% of kids with unsuitable complementary feeding were at risk of stunting, compared to 75% of kids with suitable complementary feeding. The statistical analysis produced a value of p = 0.08 as a result. This demonstrates a correlation between complementary feeding and the prevalence of stunting in the Sawah Lebar Health Center in Bengkulu, where the value (p 0.05) demonstrates the acceptance of the Ha Hypothesis. Children whose complementary feeding is unsuitable are 19.5 times more likely to experience stunting than children whose

complementary feeding is acceptable, according to the OR value (95% CT).

Complementary feeding is a variety of foods and drinks specifically given to babies. Complementary feeding is divided into two: those made at home (family complementary feeding) and ready-to-eat complementary feeding (manufacturers)[13]. Breast milk can only satisfy one-third of a baby's demands between 6 and 9 months and half between 12 and 18 months. The aim is to supplement the lack of nutrients because the need for nutrients increases with age, developing the ability of toddlers to accept a variety of foods with various shapes, textures, and tastes [14].

The findings of this study are consistent with those of Khasanah et al. [15] studies, which found a significant correlation (p=0.002) between the timing of the introduction of MP-ASI and the nutritional status of infants aged 6 to 23 months as measured by body length about age (PB/U) (OR=2.867, 95% CI:1.453-5.656). Stuntedness is 2.8 times more likely to occur in children who get MP-ASI when it is not recommended that they do so (z score -2). This implies that the onset of MP-ASI administration is closely connected to the prevalence of stunting.

The reason for the relationship between the provision of complementary feeding (MP-ASI) and the incidence of stunting is that the provision of complementary feeding (MP-ASI) is too early, the frequency of providing complementary feeding (MP-ASI) is also not scheduled, and the variety of complementary feeding (MP-ASI) ASI) no more than two consisting only of carbohydrates and protein in one menu given to toddlers. As for other possible factors that lead to stunting in this study, namely the non-implementation of exclusive breastfeeding and early cessation of breastfeeding consumption, this may also be due to the low awareness of mothers about the importance of providing breastfeeding to their toddlers, which is influenced by knowledge about health and socio-cultural issues, as well as limited health workers in provide counseling [14].

The relationship between the prevalence of stunting and infectious disease in infant children aged 7-24 months Sawah Lebar Community Health Center, Bengkulu City

A chi-square statistical test discovered a significant correlation between a history of infectious diseases and the incidence of stunting of 3.8% and 15 times greater risk of stunting. The results also revealed that children who did not have a history of infectious diseases were not stunted by 86%, and those who did were at risk of stunting by 3.8%.

Stunting has several direct causes, including infectious illnesses. It is impossible to separate the relationship between dietary needs and infectious illnesses. Infectious illnesses will worsen the condition if there is a shortage of nutritional intake. Children who are undernourished are more likely to get infectious infections. Therefore, managing infectious infections as soon as feasible will aid in improving nutrition by balancing the fulfillment of intake by children's under-five nutritional demands [16].

This research is in line with sutriyawan et al., [16] which says there is a relationship between infectious diseases and stunting, as 62.2% of children have a history of infectious diseases. This is because some children have a history of infectious diseases. Stunting has a relationship where infectious diseases can affect toddlers' nutritional intake, and if toddlers' nutritional intake decreases, it can occur. This study is consistent with earlier studies conducted at the Kerkap Community Health Center in the North Bengkulu Regency. Quantitative research of this kind. Analytical cross-sectional survey technique. Sampling approach with a purpose. The statistical analysis's findings showed a connection between environmental sanitation and the prevalence of stunting, with a p value of (0.008) (OR=3.8; 95% CI=1.5-10.04), and a connection between a history of infectious diseases and the prevalence of stunting, with a p value of (0.000) (OR=15.21; 95% CI=4.6-49.4) [17]. Researchers believe that one of the main contributing reasons to the prevalence of stunting in toddlers is a history of viral illnesses. A toddler's intake or appetite will be affected by an infectious sickness, and food loss from vomiting or diarrhea might impact how the body processes food. The findings of this study are consistent with studies done at Nusa Penida III Public Health Center on the impact of protein and zinc consumption, as well as a history of infectious infections, on the occurrence of stunting in toddlers. The findings of this study indicated that one of the main variables impacting child stunting was a history of viral illnesses [18].

CONCLUSION

In conclusion, there is a connection between the frequency of stunting at Sawah Lebar Public Health Center in Bengkulu City and MP-ASI, infectious illnesses, and exclusive breastfeeding. Complementary and exclusive breastfeeding and a child's history of infectious infections at 24 months of age are necessary to lower the risk of stunting in toddlers. Therefore, it is anticipated that health professionals and services will pay close attention to moms to prevent stunting. This study is recommended to continue by adding any variable such as a variety menu, texture, and appropriate time giving complementary feeding.

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