



## THE RELATIONSHIP BETWEEN EXCLUSIVE BREASTFEEDING AND THE INCIDENCE OF STUNTED GROWTH IN INFANTS IN THE VILLAGE OF TALANGKUSKO, TUREN DISTRICT, MALANG

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### Abstract

**Background:** Stunted is a chronic malnutrition problem caused by malnutrition in the first 1,000 days of life. One of the risk factors for stunted growth is suboptimal exclusive breastfeeding. This study aimed to determine the relationship between exclusive breastfeeding and stunted growth incidence in infants in Talangsuko Village, Turen District, Malang. **Methods:** This study used an analytical observational research design with a cross-sectional approach. The research sample was 118 respondents of mothers with infants aged 6-24 months in Talangsuko Village, Turen District, Malang. The measured variables are stunted status and exclusive breastfeeding. Data was collected through questionnaires and height measurements. The research data was processed using SPSS with Chi-square analysis. **Results:** The results showed that 16 (13,6%) child stunted, 73 respondents (61.9%) received exclusive breastfeeding, while 45 respondents (38.1%) did not receive exclusive breastfeeding. The results of the chi-square test showed that there was a significant relationship between exclusive breastfeeding and stunted growth incidence ( $p=0,000$ ). **Conclusion:** The conclusion of this study is that there is a significant relationship between exclusive breastfeeding and stunted growth incidence in infants in Talangsuko Village, Turen District, Malang. Therefore, exclusive breastfeeding is one of the important efforts to prevent stunted growth in infants.

keywords: Exclusive breastfeeding, stunted growth, infants

### INTRODUCTION

Stunted growth in infants and children is one of the most pressing public health issues in many countries, including Indonesia. Being stunted is characterized by low height for age and is often the result of chronic malnutrition, which can affect a child's cognitive and physical development (Al-Taiar *et al.*, 2020). Stunted is the result of a combination of factors working together over a long period of time. This includes insufficient nutritional intake, particularly of protein and essential nutrients, recurrent infections that disrupt nutrient absorption, inappropriate feeding practices, environmental factors such as poor sanitation, genetic factors, and the influence of poverty and economic inequality within society. Being stunted often



arises from the complex interaction of these factors and requires a holistic approach for prevention and management (McMaughan, Oloruntoba and Smith, 2020).

Exclusive breastfeeding for the first six months of life has been recognized by numerous studies as a key factor in supporting healthy growth and development in infants. Suboptimal or inhibited breastfeeding practices can be a risk factor associated with the etiology of child stunting. Insufficient exclusive breastfeeding or early cessation of breastfeeding can result in malnutrition in infants, which is one of the primary causes of stunting. Factors influencing breastfeeding practices include a lack of knowledge and support from family and society, maternal health issues that may hinder breastfeeding capacity, workplace policies that do not support breastfeeding, cultural and social norms that may favor formula milk use, gender inequality that burdens mothers, aggressive promotion of formula milk by companies, and a lack of healthcare support during prenatal and postnatal care (Danty, Anwar and Rachman, 2023). Additionally, breast milk contains antibodies that help protect infants from various diseases and infections (Millward, 2017). Therefore, exclusive breastfeeding plays a crucial role in preventing being stunted.

However, there is still uncertainty regarding how significant the impact of exclusive breastfeeding is on reducing the risk of being stunted. Although some studies have shown a positive relationship between exclusive breastfeeding and better growth in infants, other studies have found less consistent results (Hikmahrachim, Rohsiswatmo and Ronoatmodjo, 2020). This could be due to differences in research methodology, geographical context, socioeconomic factors, and environmental conditions. This research aims to investigate the relationship between exclusive breastfeeding and the incidence of being stunted in infants. It will provide a deeper understanding of the extent to which exclusive breastfeeding can reduce the risk of being stunted, as well as its implications for health policy and breastfeeding practices in Indonesia.

## **METHOD**

This research was an observational analytical study with a cross-sectional approach. The population in this study consists of all infants aged 6-24 months in Talangsuko Village, Turen District, Malang Regency. The sample in this study

includes all infants aged 6-24 months who met the inclusion criteria, healthy infants aged 6-24 months, having a normal birth weight, and born at term. The exclusion criteria applied were infants aged 6-24 months with a history of comorbid diseases. The sample size calculation for the study used the Slovin formula with a margin error of 0.1%, resulting in a minimum sample of 63 respondents. The sampling technique used was accidental sampling.

The dependent variable in this study was the stunted status of the children. Stunted is defined based on the length or height of children aged 6-24 months relative to their age (Height-for-Age). A child is considered stunted if their measurement is less than -2 Standard Deviations (SD) from the expected height. Stunted measurements were conducted using anthropometry. The independent variable in this study is exclusive breastfeeding, which refers to the history of exclusive breastfeeding during the age of 0-6 months without additional food. Data collection for breastfeeding was carried out using a questionnaire. Data processing in this study was conducted using SPSS software, where the Chi-square correlation test was applied with a significance level ( $\alpha$ ) of 0.05. This research has undergone ethical clearance with ethical clearance number No.244/EC/KEPK/FKUA/2023.

## **RESULT AND DISCUSSION**

Talangsuko Village is one of the villages located in the Turen District, Malang Regency. Talangsuko Village has 10 active Posyandu (integrated health service posts) with a routine schedule for monitoring child growth and development conducted every month. The number of infants aged 6-24 months in Talangsuko Village, Malang is 167, with a proportion of 86 male infants and 81 female infants. During the data collection process at the 10 Posyandu, this study obtained 118 mother respondents and 118 infants who met the criteria for research subjects.

**Table 1 Frequency distribution of respondent characteristics**

Characteristic	Category	Frequency	%
Mother's Age	15-19 years	22	18.6
	20-30 years	59	50.0
	>30 years	37	31.4
Education	Elementary School	9	7.6
	Junior High School	61	51.7
	Senior High School	42	35.6
	Higher Education	6	5.1
Employment Status	Employed	39	33.1
	Unemployed	79	66.9
Household Income per Month	> Minimum Wage of Malang Regency	36	30.5
	< Minimum Wage of Malang Regency	82	69.5
Child's Age	6-12 months	43	36.4
	13-24 months	75	63.6
Child's Gender	Male	61	51.7
	Female	57	48.3
Breastfeeding Status	Exclusive	73	61.9
	Non-Exclusive	45	38.1
Stunted Status	Not Stunted	102	86.4
	Stunted	16	13.6

Table 1 explains the frequency distribution of respondent characteristics. The majority of the mother respondents are aged between 20-30 years. Most respondents have completed junior high school, and the majority are housewives. Some studies have associated low education with the failure of exclusive breastfeeding (Neves *et al.*, 2021). Mothers with lower education levels may have difficulty receiving information and guidance on exclusive breastfeeding, which can lead to failure in providing exclusive breastfeeding (Goodman *et al.*, 2016; Laksono *et al.*, 2021).

The minimum wage in Malang Regency in 2023 is IDR 3,194,143.98. In this study, it was found that the monthly household income of most respondents is still below the minimum wage of Malang Regency (69.5%). This data reflects the daily situation experienced by mothers and children in Talangsuko village. There are many factors that influence the failure of exclusive breastfeeding and the high incidence of stunting, one of which is the low household income. Higher income enables families to better meet living needs, including health aspects. Additionally, employment status also affects the family's social status, allowing greater access to quality health services. The social and economic welfare of the family also plays a

role in improving health quality, with better access to medical services, healthy food, decent housing, and quality education (McMaughan, Oloruntoba and Smith, 2020; Kustanto, 2021).

The percentage of infants receiving exclusive breastfeeding in Talangsuko village is quite high, at 61.9%. However, this percentage is still below the national exclusive breastfeeding achievement rate, where the percentage reached 67.96% in 2022 (WHO, 2023). Some studies indicate that one of the barriers to exclusive breastfeeding is sociodemographic factors. Some demographic characteristics that have an impact include the mother's age, the educational level of both the mother and father, parity, place of residence, employment status, and socio-cultural factors (Thet *et al.*, 2016; Patil *et al.*, 2020).

The stunted status variable is determined through a Z-Score assessment obtained from the measurement of (Height-for-Age)/Age of the child. In this study, data showed that 16 children experienced stunting (13.6%). Poverty has been identified as a very significant factor in the occurrence of stunting in toddlers (Siddiqui *et al.*, 2020). This is supported by household income data, which is mostly below the minimum wage. Households facing limited economic conditions tend to struggle in meeting the necessary nutritional intake for their children's growth and development. When financial resources are limited, the likelihood for children to receive adequate nutrition is reduced, which can contribute to abnormal growth, known as stunting (Goudet *et al.*, 2019). Parental education can also influence stunted status. Mothers with higher education levels tend to have better nutritional knowledge, thereby providing proper nutrition for their children (Beal *et al.*, 2018; Titaley *et al.*, 2019).

**Table 2 Crosstabulation of breastfeeding status and stunted Status**

		Breastfeeding Status * Stunted Status Crosstabulation			
		Stunted Status		Total	
Breastfeeding Status	Exclusive	Count	Not Stunted		Stunted
			<i>Expected Count</i>	63.1	9.9
Breastfeeding Status	Non-Exclusive	Count	Not Stunted	Stunted	45
		<i>Expected Count</i>	38.9	6.1	
Total		Count	102	16	118
		<i>Expected Count</i>	102.0	16.0	118.0

The bivariate analysis of the relationship between exclusive breastfeeding and the occurrence of stunting, as depicted in Tables 2 and 3, provides a comprehensive overview of how these two variables interact in the context of infant health and development. Table 2 offers a revealing look at the distribution of stunting in relation to exclusive breastfeeding among the respondents. Notably, a significant majority of respondents who fell into the Stunted category, totaling 13 individuals or 28.9%, did not receive exclusive breastfeeding. This statistic highlights a potential correlation between the lack of exclusive breastfeeding and stunted growth in infants.

On the other hand, the scenario appears quite different for the respondents in the Not Stunted category. Here, a vast majority, accounting for 70 respondents or 95.9%, were recipients of exclusive breastfeeding. This high percentage suggests a strong association between exclusive breastfeeding and normal growth patterns, contrasting sharply with the stunted group. Additionally, within the subgroup of respondents who were categorized as Not Stunted but who did not receive exclusive breastfeeding, there were 32 individuals, representing 71.1% of that subgroup. This indicates that while exclusive breastfeeding is a significant factor, it is not the sole determinant of stunted growth, suggesting the influence of other contributing factors.

Conversely, in the small subset of respondents who were categorized as Stunted yet had received exclusive breastfeeding, there were only 3 individuals, making up a mere 4.1% of that group. This low figure reinforces the notion that while exclusive breastfeeding does not categorically prevent stunting, it appears to significantly reduce its likelihood.

Importantly, Table 2 also reveals that the expected count value for each variable is above the threshold of 5, a key statistical benchmark. This detail is crucial as it underscores the validity and reliability of the data, ensuring that the Chi-Square analysis results derived from it, as detailed in Table 3, are robust and statistically sound. The significance of these findings lies in their implications for infant health practices and public health policies, emphasizing the critical role of exclusive breastfeeding in the early stages of a child's development and its potential impact on mitigating growth-related issues such as stunting.

**Table 3 Chi-Square analysis of the relationship between exclusive breastfeeding and the incidence of stunted**

Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.584 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	12.546	1	.000		
Likelihood Ratio	14.534	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	14.460	1	.000		
N of Valid Cases	118				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6,10.

The Chi-square analysis results show a p-value of 0.000 ( $0.000 < 0.05$ ), indicating a significant relationship between exclusive breastfeeding and the occurrence of stunting in infants and toddlers aged 6-24 months in Talangsuko Village, Turen District, Malang Regency. This finding suggests that the practice of exclusive breastfeeding has implications on the stunted condition of toddlers aged 6-24 months.

Breast milk plays a crucial role in providing the appropriate nutritional intake needed to support a child's growth and development. Infants who do not receive adequate breast milk intake are at risk of insufficient nutrition, which in turn can lead to growth disorders, including stunting (Goudet SM and Griffiths, 2019; Mutasa *et al.*, 2022). One of the primary benefits of exclusive breastfeeding is support for infant growth, particularly in terms of height development. The calcium content in breast milk is more efficiently absorbed compared to formula milk (Martin, Ling and Blackburn, 2016). Therefore, infants who are exclusively breastfed tend to have height growth that corresponds with the normal growth curve, unlike infants consuming formula milk.

Furthermore, breast milk contains several essential nutrients such as calcium, phosphorus, sodium, and potassium in the right amounts as per the infant's needs, while the levels of copper, cobalt, and selenium are higher in breast milk. These nutritional contents qualitatively meet the needs of the infant and play a role in supporting growth, including optimal height (Kim and Yi, 2020). In order to ensure that the infant's needs are met, and the nutritional status remains normal,

particularly in terms of height growth, exclusive breastfeeding becomes a crucial factor. Therefore, this practice plays a role in reducing the risk of stunting and ensuring optimal growth in the early stages of life.

## CONCLUSION AND SUGGESTION

There is a significant relationship between exclusive breastfeeding and stunting occurrence in infants aged 6-24 months. Promote the practice of exclusive breastfeeding, essential steps involve increasing public awareness of the benefits of exclusive breastfeeding. Furthermore, advocacy efforts are needed to create a conducive environment for exclusive breastfeeding, including the provision of breastfeeding rooms and support from various stakeholders are essential to improve child health to prevent stunted. Additionally, social and financial support aspects need accommodation to assist breastfeeding mothers in successfully practicing this method. For future researchers, it is recommended to use more robust research designs, such as longitudinal studies, to better understand the cause-and-effect relationship between exclusive breastfeeding and stunting. Future research should also consider other contributing factors to stunting, including maternal nutrition status, access to healthcare services, and family socio-economic conditions.

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