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The Relationship of Environmental Sanitation and Hygiene Behavior with Stunting Incidents in Adults in 2024

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ABSTRACT

The incidence of stunting (short) toddlers is the main nutritional problem faced by Indonesia based on Nutrition Status Monitoring (PSG) data for the last three years. This research aims to determine the distribution of environmental sanitation and hygiene behavior on the incidence of stunting in toddlers. This research uses a quantitative approach with the technique of distributing questionnaires containing statements for each research variable. The research sample consisted of 44 mothers of toddlers who had children with stunting. The results of the research show that there is no relationship between environmental sanitation and the incidence of stunting in Baduta in the Industrial Area of the Citangkil II Health Center, Cilegon City, with a value of p = 0.054 which is greater than α = 0.05, which can be interpreted as meaning that there is no relationship. significant relationship between environmental sanitation and the incidence of stunting in Baduta with value Odds Ratio amounting to (OR) = 4.048, and there is a relationship between hygiene behavior and the incidence of stunting in Baduta in the Industrial Area of the Citangkil II Health Center, Cilegon City. The value of p = 0.008 is smaller than α= 0.05, which can be interpreted as that there is a relationship significant relationship between hygiene behavior and the incidence of stunting in Baduta with value Odds Ratio of (OR) = 1.929. The conclusion in this study is that hygiene behavior factors are related to the incidence of stunting but vice versa with environmental sanitation. Several things that can be suggested based on the research results are socializing hygiene practices in the community.

Keywords: environmental sanitation; hygiene behavior; stunting incidents

INTRODUCTION

Stunting is a disruption in the growth and development of children due to chronic nutrition and recurrent infections, which is characterized by their body length or height being below the standards set by the minister who handles government affairs in the health sector (Ministry of Health of the Republic of Indonesia, 2021).

Global data shows that 149.2 million children under the age of 5 are stunted, 45.4 million are underweight, and 38.9 million are overweight (UNICEF, 2021). The world has made progress in nutrition but significant challenges remain. There has been a global decline in stunting (high-to-low age ratio) between 1990 and 2018; the prevalence of stunting in children under 5 years decreased from 39.2% to 21.9%, or from 252.5 million to 149.0 million children, although progress has been much slower in Africa and Southeast Asia (WHO, 2019).

The incidence of stunted (short) toddlers is a major nutritional problem facing Indonesia. Based on Nutritional Status Monitoring (PSG) data for the last three years, shortness has the highest prevalence compared to other nutritional problems such as malnutrition, thinness, and obesity. The prevalence of short toddlers has increased from 2016, namely 27.5% to 29.6% in 2017. The prevalence of short toddlers in Indonesia tends to be static. The prevalence of stunting in Indonesia is ranked 108th out of 132 countries. Data shows that the decline in stunting prevalence at the national level was 6.4% over 5 years, from 37.2% in 2013 to 30.8% in 2018. Then it became 27.7% in 2019 and 26.9% in 2020, then 24.4% in 2021 (Riskesdas, 2018).

The Ministry of Health's 2020 performance report shows that the prevalence of stunting in Banten Province is ranked 19th out of 34 provinces in Indonesia (Ministry of Health of the Republic of Indonesia, 2021). The 2018 Basic Health Research (Riskesdas) conducted by the Ministry of Health stated that the percentage of very short toddlers among toddlers aged 0-59 months in Banten Province was 31.15%, while the percentage of stunted toddlers was 20.6% (Indonesian Ministry of Health, 2021). Cilegon City is one of the cities in Banten Province. Based on district/city health profile data, it

is reported that the percentage of stunting under five children, which is a nutritional status based on the height index for age (TB/U) in 2019, was 8.0%. (Banten Province Health Office, 2021)

The trend of decreasing stunting prevalence in Cilegon City for the 2019-2022 period decreased by 9.9% over a period of 4 years, namely from 36.1% in 2019 to 32.96 in 2020 then to 27.3% in 2021 and decreased to 26.2% in 2022. If the prevalence of stunting is targeted at 14% in 2024, then Cilegon City must be able to reduce the stunting rate by at least 6.1% every year during the 2022-2024 period (Cilegon City Health Service, 2021)

The impacts or consequences that will arise due to Stunting include being susceptible to disease, reduced intelligence, less than optimal brain growth and development, when you are old you are at risk of developing diseases related to diet such as heart disease, obesity, blood vessels, cancer, stroke and diabetes mellitus, function -Body functions are unbalanced, resulting in economic losses because human resources are low, and body posture is not optimal as an adult, i.e. height is shorter than peers of the same age. Stunting also contributes 15 – 17% of all child deaths. (Sa'adah, 2020). The role of health cadres in the surrounding environment will also support good and healthy behavior, such as consuming healthy and nutritious food (Ardiana et al., 2019; Ardiana et al., 2021). Efforts to improve children's nutritional status can be achieved through providing appropriate food ingredients and menus, which require adequate nutritional knowledge on the part of the mother (Ardiana et al., 2021; Kurniyawan et al., 2023).

Direct and fundamental factors that cause stunting include infant and child care practices, namely limited hygiene and food security among the poorest households, maternal reproduction and nutrition and are often determined in utero by the mother's social status and level of education, as well as traditional beliefs related to nutritional intake. diet and quality of care for adolescent girls and women during pregnancy and breastfeeding (UNICEF, 2018)

WHO (Word Health Organization) data explains that the causes of shortness are direct and indirect. Directly, the causes of shortness are related to 4 main factors: infectious diseases, breastfeeding practices, food availability, and the household and family environment. Meanwhile, indirectly, the causes of shortness are community and social factors, namely political economy, health and health services, education, social and cultural, agriculture and food systems, water, sanitation and the environment (WHO, 2021)

Factors thought to be related to the incidence of stunting in toddlers are environmental factors and health which have a mutually influencing relationship. Environmental health is one aspect of public health which is related to the form of the living, physical, biological and social environment that can lead to a healthy life, one of which is influenced by a proper sanitation system, without a system affecting human health and well-being. In a proper sanitation environment, waste resulting from human activities can pollute groundwater and surface water. Environmental sanitation is the health status of an environment, which includes housing, waste management, and the provision of clean water (Notoatmodjo, 2018; Kurniyawan et al., 2024).

The incidence of stunting is influenced by many factors, for example natural disinfection, food care, and maternal data about self-control. Non-environmental factors related to the incidence of editing in toddlers are hygiene behavior. Hygiene practices are important things that must be done by mothers so that they influence the nutritional status of children. Practices related to maternal hygiene in this case are hand washing behavior which needs to be done not only when hands look dirty, but is recommended when preparing food, before eating, before feeding the child, after defecating and after cleaning the child's anus. Toddlers who are given food resulting from poor hygiene practices, such as poor maternal hygiene in choosing, cooking, and serving food, can increase the risk of contracting infectious diseases, which can impact the incidence of stunting in toddlers (Trihono, 2015; Rosyidah et al., 2024).

An unclean environment and poor hygiene practices can expose toddlers to germs or bacteria. This bacterial infection results in the body having to use nutritional intake for the toddler's growth to fight bacterial infections so that the toddler's growth becomes stunted. Bacteria can originate from an unclean environment, for example, due to open defecation due to not having a latrine or the family not having a proper source of clean water. (Suryani, 2019; Kurniawan et al., 2023).

The results of the 2018 Basic Health Research (RISKESDAS) show that in Cilegon City 23.3% of toddlers suffer from stunting. Meanwhile, the SSGI results in 2021 show that stunting in toddlers in Cilegon City is 20.6%, and in 2022, it is 19.1%. In the Citangkil sub-district, it suffered 27.43%, the Lebak Denok sub-district 2.29%, and the Samangraya sub-district 9.61%. Based on Community-Based Nutrition Recording and Reporting (E-PPGBM) data from the Cilegon City Health Service (Dinkes) as of January-August 2023, there were 207 cases of stunting in Citangkil District. From this data, Citangkil District is in first place, followed by Cibeber District with 140 cases, Pulomerak District is in third place with 119 cases, and the lowest is Purwakarta District with 51 cases of stunting.

Based on the results of a preliminary study conducted by researchers conducting interviews with 10 mothers of toddlers who experienced stunting in the Citangkil Community Health Center working area, information was obtained that

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there was minimal knowledge about stunting incidents so the three mothers of toddlers did not realize that their babies had problems. Development needs to pay attention to environmental health and poor hygiene practices.

Researchers also received information that many children who live in poor sanitation environments become stunted due to chronic diarrhea. Home environmental factors: mothers of toddlers do not pay attention to the quality of water, tub water, or drinking water, thus affecting sanitation conditions, such as waste and wastewater management. Garbage piled up near residences. Based on Posyandu Information System data, it was recorded that there were 22 (10%) cases of stunting out of a total population of 212 children under five in 2021 in Citangkil Village.

The implementation of hygiene behavior among mothers of toddlers still needs improvement. This is because researchers see that mothers do not understand washing hands with soap, whereas washing hands with soap is a hygiene activity, namely cleaning hands with running water and soap so that they are clean and can break the chain of germs.

According to research conducted (Kusnoputro, 2018), poor environmental sanitation affects the nutritional status of children under five through the infectious diseases they experience. One of them is a healthy toilet, which is a good means of disposing of feces to stop the chain of disease spread.

Based on the preliminary study problems above, which describe the conditions of factors related to the incidence of stunting in toddlers with samples in the industrial area of the Citangkil II Community Health Center working area, researchers are interested in researching the incidence of stunting.

METHOD

This research visualizes analytical research with a study design cross-sectional. This research intended to see the relationship between environmental sanitation and hygiene behavior with the incidence of stunting among toddlers at Citangkil II Community Health Center in 2024. Data collection was carried out using a questionnaire through interviews with respondents. This research was carried out in August 2024 in the working area of Citangkil II Health Center.

A population is a group of individuals with the same characteristics who are the center of attention and become a source of research data to solve research problems. The population in this study were mothers of toddlers who experienced stunting at the Citangkil II Health Center in 2024. The population in this study was 50 people.

A sample is a portion of the population taken according to a certain procedure so that it can represent the population. In determining the sample size to be studied in this study, sampling was calculated using the Slovin formula, and a sample of 50 patients/respondents was obtained.

RESULTS

Univariate Analysis Results

Table 1. Frequency distribution of the relationship between environmental sanitation and hygiene behavior and the incidence of stunting in toddlers

Variable	Amount	(%)
Stunting events		
Very short	24	54.5%
Short	20	45.5%
Environmental Sanitation		
Not good	13	29.5%
Good	31	70.5%
Hygiene Behavior		
Bad	29	65.9%
Good	15	34.1%

Based on the table above, it is known that the highest incidence of stunting in toddlers is very short with a total of 24 people or a percentage of 54.5% and the number of short category is 20 people or 45.5%. However, this frequency still explains the occurrence of stunting in all respondents. environmental sanitation of the respondents was highest in the good category with a total of 31 respondents with a percentage of 70.5% more than the bad category with 13 people with a percentage of 29.5%. Hygiene behavior was the highest in the bad category with a total of 29 respondents with a percentage of 65. 9%, greater than the good category with 15 people or 34.1%, so based on this category, the distribution of respondents' hygiene behavior variables is poor.

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Bivariate Analysis Results

Table 2. The relationship between environmental sanitation and the incidence of stunting among toddlers

Environmental sanitation	Stunting incidents				Total		p-Value	OR
	Very short		Short					
	N	%	N	%	N	%		
Not good	10	76.9%	3	23.1%	13	100%	0.054	4.048
Good	14	45.2%	17	54.8%	31	100%		
Amount	24	54.5%	20	45.5%	44	100%		

Showing the relationship between environmental sanitation variables and the incidence of stunting in Baduta shows that respondents with good sanitation experienced short stunting as many as 17 people and very short stunting as many as 14 people, while with poor sanitation there was short stunting as many as 3 people and very short stunting as many as 10 person.

The results of the bivariate analysis test between environmental sanitation and the incidence of stunting in Baduta were obtained p = 0.054 is greater than α= 0.050 which can be interpreted as meaning that there is no significant relationship between environmental sanitation and the incidence of stunting among toddlers in the industrial area of the Citangkil II Health Center, Cilegon City in 2024 with the value Odds Ratio equal to (OR) = 4.048.

Table 3. Relationship between hygiene behavior and the incidence of stunting in toddlers

Hygiene behavior	Stunting incidents				Total		p-Value	OR
	Very short		Short					
	N	%	N	%	N	%		
Poor	16	55.2%	13	44.8%	29	100%	0.008	1.929
Good	8	53.3%	7	46.7%	15	100%		
Amount	24	54.5%	20	45.5%	44	100%		

Showing the relationship between hygiene behavior variables and the incidence of stunting in Baduta shows that respondents with poor hygiene behavior had short stunting as many as 13 people and very short stunting as many as 16 people, while those with good hygiene behavior had short stunting as many as 7 people and very short stunting as many as 8 people.

The results of the bivariate analysis test between hygiene behavior and the incidence of stunting in Baduta were obtained p = 0.008 is smaller than α= 0.050 which can be interpreted as meaning that there is a significant relationship between hygiene behavior and the incidence of stunting in toddlers in the industrial area of the Citangkil II Health Center, Cilegon City in 2024 with the value Odds Ratio of (OR) = 1.929.

DISCUSSION

The relationship between environmental sanitation and the incidence of stunting in toddlers in the industrial area of the Citangkil II Health Center working area

Based on research results from the processing of the questionnaire results that were distributed, it shows that the relationship between environmental sanitation variables and the incidence of stunting shows that respondents with good sanitation experienced short stunting as many as 17 people and very short as many as 14 people, while with poor sanitation there was short stunting as many as 17 people. 3 people and very short stunting as many as 10 people. This shows that respondents with good environmental sanitation experienced stunting among toddlers.

The results of the bivariate analysis test between environmental sanitation and the incidence of stunting were found to be p = 0.054, greater than α = 0.050, which means that there is no significant relationship between environmental sanitation and the incidence of stunting among toddlers in the industrial area of the Citangkil II Health Center, Cilegon City in 2024. with an Odds Ratio value of (OR) = 4.048.

Environmental sanitation is an effort carried out by the government or community to deal with pollution that occurs on land, water and air which contributes to preserving the environment and plays a role in eliminating sources of vectors

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and reservoirs of disease and breaking the chain of transmission, so that environmental sanitation places more emphasis on supervision and control. / control on human environmental factors. (Ministry of Health, 2018).

The results of the research above are not in line with the results of research in Vietnam which found that poor sanitation (a combination of unimproved sanitation and open defecation) caused children's height not to match their age. On average, children under five who live in environments that do not use unimproved sanitation reach a critical level of stunting (Z-score -2) (WHO, 2019).

The results of the research above are in line with the results of research conducted by Arwinda Arsa et al, with the results of research on the frequency of stunting incidents among respondents whose environmental sanitation was not good at (30.4%). After conducting a bivariate correlations p-value analysis (≥ 0.05), it was found that there was no significant relationship between environmental sanitation and the incidence of stunting in children under five in Nagari Balingka.

The research results show that good sanitation can enable stunting to occur in children. This is obtained from the results of the analysis which shows that there is no relationship between environmental sanitation and stunting incidents, where information about environmental sanitation is in good condition but stunting occurs. This is most likely caused because environmental sanitation is an indirect cause of stunting in children, this is in accordance with the theory of the Indonesian Ministry of Health 2022 which explains that environmental health is an indirect cause of stunting, because poor environmental sanitation conditions allow various types of stunting to occur. diseases include diarrhea, worms, and digestive tract infections. In this research, four (4) measurement indicators, namely air circulation in the house, residential density, lighting and humidity in the house, allow for no direct influence on the incidence of stunting of toddlers in the Citangkil II Community Health Center working area. Many other factors are directly related to the incidence of stunting in toddlers, such as poor nutrition, the condition of health services, access to ANC-Ante Natal Care health services.

The results of the researcher's observations, environmental sanitation in the working area of the Citangkil II Community Health Center, with four indicators measuring environmental sanitation in this study, namely: house air circulation, residential density, lighting and house humidity, was found in the house humidity category to get a worse score than other indicator scores, so that it can be concluded that the environmental sanitation conditions in the Citangkil II Health Center working area are in good condition.

Researchers assume that environmental sanitation which focuses on residential health conditions is not directly related to the incidence of stunting, because it is not felt directly by the toddlers. mark the slow growth and development of the baby or child.

The relationship between hygiene behavior and the incidence of stunting in toddlers in the industrial area of the Citangkil II Health Center working area

Based on research results from processing the results of questionnaires distributed to respondents, it shows that the incidence of stunting with poor hygiene behavior was short stunting as many as 13 people and very short stunting as many as 16 people, while with good hygiene behavior there was short stunting as many as 7 people and very short stunting as many as 8 people. person. And the results of the bivariate analysis test between hygiene behavior and the incidence of stunting were found to be p = 0.008, which is smaller than α = 0.050, which can be interpreted as meaning that there is a significant relationship between hygiene behavior and the incidence of stunting in toddlers in the Industrial Area of the Citangkil II Health Center, Cilegon City in 2024. with an Odds Ratio value of (OR) = 1.929.

This study's results align with the results of the bivariate test research by Irmi (2020) which states that hygiene habits have a significant relationship with the incidence of stunting. Personal and environmental hygiene play an important role in children's growth and development. Cleanliness of the body, food and environment plays a major role in maintaining health which will prevent infectious diseases as factors causing a decline in the nutritional status of children.

The research results are also in line with the results of research conducted (Kwami, 2020) which states that the stunting toddler group tends to have worse hygiene behavior and environmental sanitation conditions than the non-stunting group. This is due to the low level of awareness of mothers or families in maintaining personal hygiene and environmental cleanliness. This research proves that poor hygiene behavior can increase the risk of toddlers experiencing stunting.

The results of this research are supported by the theory of healthy behavior, where one of the behaviors mentioned is that a person prevents a disease because of the individual's response to preventing a disease, which also includes actions not to transmit the disease to other people. Meanwhile, hygiene is a health effort by maintaining and protecting the cleanliness of the subject, such as washing hands with clean water and soap, washing dishes to keep the plates clean, throwing away damaged parts of food to protect the integrity of the food as a whole.

Hygiene is a health effort to maintain and protect individual cleanliness, so that poor hygiene causes malnutrition and malnutrition makes the body susceptible to infectious diseases. Poor hygiene risks causing gastrointestinal infections,

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thereby disrupting the absorption of nutrients which can have an impact on the incidence of stunting in toddlers. Personal hygiene is an effort made by a person to maintain and maintain personal hygiene so that individual comfort is maintained (Nadiyah, 2014).

The researcher assumes that mothers must practice hygiene practices so that they can influence the nutritional status of children. Based on the statement items in the questionnaire distributed, in this study, hygiene behavior includes indicators of house cleanliness, child and family cleanliness by providing healthy waste disposal and food management from storage to cooking, so that these indicators lead to children's nutritional status and cleanliness, children with good nutritional status and hygiene, the child will avoid infections or viruses which can cause problems with child growth such as stunting. So, good hygiene behavior will have an impact on the incidence of stunting in toddlers.

CONCLUSION

There is a relationship between environmental sanitation and hygiene behavior and the incidence of stunting in Baduta in the Industrial Area of the Citangkil II Health Center, Cilegon City, there is a relationship between hygiene behavior and the incidence of stunting in Baduta and conversely there is no relationship between environmental sanitation and the incidence of stunting in Baduta.

In future research, we want to expand the research location because by expanding the research location, we will get a better picture of the conditions in the field regarding the causes of stunting. Apart from expanding the research location, variables can also be developed and added, this is considering that many factors cause stunting in toddlers. The Cilegon City Health Service should hold outreach regarding hygiene behavior practices in implementing children's health, considering that children's health status is a benchmark for health status in the region; apart from that, children's health, especially children with stunting cases, can be an indirect cause of child deaths in the region. Suggestions for academics are to explore further research development strategies for students, specifically related to theories about the factors that cause stunting in toddlers or health promotion. Learn more about research stages that comply with research principles or provide in-depth research methods worthy of being developed academically.

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