



THE RELATIONSHIP BETWEEN SANITATION AND CLEAN AND HEALTHY BEHAVIOR (PHBS) TO STUNTING

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ABSTRACT

Indonesia is one of the countries with quite high cases of stunting, making it a serious concern for the government. Stunting must be addressed on multiple levels, not just in terms of nutrition as it is also influenced by inadequate hygiene and unhealthy lifestyle choices. Toddlers who eat unhygienically prepared meals run the risk of contracting infectious diseases. Objective: This study aimed to investigate the between clean and healthy behavior (PHBS) and sanitary conditions on the prevalence of stunting in the Tampa Padang Health Center's operating area. This study used an observational design with a case-control approach. Method: This study was carried out in five villages in the Tampa Padang Health Center's service area. 282 toddlers with stunting served as the study's cases, and 282 toddlers served as controls. Samples were taken from a proportion of 5 villages so that 282 stunted families were obtained. Then interviews using a questionnaire were carried out to stunted and non-stunted families using simple random. Data from interviews then analyzed using case control method analysis. sampling. Result: The study's findings demonstrate that the PHBS and Sanitation variables pose no risk of stunting in the Tampa Padang Health Center's work area since a p-value > 0.05 was obtained from the results of the bivariate analysis with the chi-square test. Conclusion: Sanitation and community PHBS are not risk factors for stunting in the Tampa Padang Health Center's work area.

Keywords: clean water; hand washing; healthy behaviour; sanitation; stunting

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INTRODUCTION

In recent years, stunting in toddlers has drawn international attention, particularly in low- and middle-income nations like Indonesia (Bukusuba et al., 2017; Hossain et al., 2017; Republic of Indonesia Ministry of Health, 2018). Stunting indicates a linear growth disorder (body length/height for age) which is below -2 Standard Deviation (<-2SD) according to the World Health Organization (WHO) median standard, which occurs due to chronic malnutrition and repeated infections during the first 1000 days of life (HPK)(Vilcins et al., 2018). Globally, 155 million children under five years of age (toddlers) experience stunting (Vonaesch et al., 2018). Based on WHO data (2018), Indonesia is one of the nations with the highest stunting rates, third in Southeast Asia, with a rate of 36.4% between 2005 and 2017 (Wandini & Marina, 2022). The prevalence of stunting under five in Indonesia based on basic health research reports, increased from 2016 to 2018. It gained a 27.5% increase in 2016, 29.6% in 2017, and an increase of 30.8% in 2018 (Sugawara & Nikaido, 2014). Given that it is categorized as a high problem by WHO standards reaching 30–39% stunting in Indonesia is a national public health issue that requires urgent intervention. According to basic health

research reports from 2018, the frequency of stunting varies among 34 Indonesian provinces. Referring to WHO criteria, two provinces East Nusa Tenggara (42.7%) and West Sulawesi (41.6%) had very high incidence rates of stunting exceeding 40%, while 17 other provinces are in the high category between 30 and 39% (Olo et al., 2021).

Since over a decade ago, there has been little change in the prevalence of stunting in Indonesia. It is still one of the country's biggest nutritional issues today. In comparison to other nutritional issues like undernutrition, underweight, and obesity, stunting has the highest prevalence, according to Nutrition Status Monitoring data for the recent three years. The prevalence of short toddlers increased from 27.5% in 2016 to 29.6% in 2017 (Sugawara & Nikaido, 2014). Stunting is also influenced by inadequate hygiene and unhealthy lifestyle choices. Toddlers who eat food that has not been properly sanitized may get infectious illnesses. These illnesses reduce their appetites as they are frequently accompanied by disturbances like nausea and vomiting. This condition may worsen toddlers' nutritional status and have an adverse effect on their growth (Millennium Challenge Account Indonesia, 2013).

Poor hand washing techniques, using unhygienic restrooms, and limited access to clean water are all contributing factors to poor environmental sanitation. The prevalence of infectious disorders such as diarrhea, environmental enteric dysfunction (EED), and intestinal worms may rise as a result of them. These issues can lead to linear growth disorders and raise infant death rates (Vonaesch et al., 2018). Environmental elements like the availability of clean water, defecation habits, and waste management might contribute to the spread of infectious diseases like diarrhea and helminthiasis. These contagious diseases can worsen a child's nutritional status and have negative effects on a child's ability to grow. A study by Apriani (2018) at Pucang Sawit Health Center found a relationship between unclean and unhealthy behavior and stunting in two years old (p -value = 0.001, $C = 0.575$) (Apriani et al., 2018). The prevalence of stunting in 2016 in West Sulawesi increased from 38.4% to 39.7% (Dinas Kesehatan Provinsi Sulawesi Barat, 2018). According to the data, the prevalence of stunting in West Sulawesi in 2019 was 40.4% and decreased to 33.8% in 2021. However, West Sulawesi Province is the province with the second-highest stunting incidence in Indonesia (Kemenkes RI, 2018). The data on the stunting prevalence in the Tampa Padang Health Center area in 2021 was 26%; 507 toddlers suffered from stunting. This serves as the foundation for the researchers to conduct research on the relationship between sanitation and PHBS on stunting in the Tampa Padang Health Center work area.

METHOD

An analytical observational study with a case-control approach was employed. The population in this study were toddlers in the Tampa Padang Health Center work area. Specifically, 564 toddlers were involved consisting of 282 stunted toddlers as cases and 282 normal toddlers as controls. Samples were taken from a proportion of 5 villages so that 282 stunted families were obtained. Then interviews using a questionnaire were carried out to stunted and non-stunted families using simple random. Data from interviews then analyzed using case control method analysis

RESULTS

Table 1.
Distribution of Respondents Based on Education Level In the Tamba Padang Health Center Work Area (n=564)

Education Level	f	%
Incomplete	59	10
Primary School	199	35
Junior High School	111	20
Senior High School	148	26
University	47	8

Table 2.
Distribution of Respondents by Type of Clean Water Facilities In the Tamba Padang Health Center Work Area (n=564)

Water Facilities	f	%
Surface water	60	11
Refill water	2	4
Tap water	114	20
Borehole water	87	15
Protected dug wells	177	31
Unprotected dug wells	38	7
Protected springs	73	13
Unprotected springs	13	2

Table 3.
Distribution of Respondents Based on Wastewater Disposal Sites In the Tamba Padang Health Center Work Area (n=564)

Wastewater Disposal	f	%
Closed water reservoir	60	11
Open water reservoir	133	24
Without a reservoir (soil)	168	30
Ditches/ivers	203	36

Table 4.
Distribution of Respondents Based on Defecation Types/Location In the Tamba Padang Health Center Work Area (n=564)

Defecation Types/Location	f	%
Restroom	467	83
River	63	11
Garden	10	2
Yard	24	4

Table 5.
Distribution of Respondents Based on Households Waste Management in the Tampa Padang Health Center Work Area (n=564)

Household Waste Management	f	%
Transported by officers	5	1
Dumped into disposal sites	9	2
Buried in the ground	28	5
Burned	346	61
Rivers/ditches/seas	93	16
Any place	83	15

Table 6.
The Relationship of Independent Variables to Stunting In the Tampa Padang Health Center Work Area (n=564)

Variables	Stunting				Total		p value	OR
	Case		Control		f	%		
	f	%	f	%				
Consumption of drinking water								
Risk	98	35	106	37	204	36	0.540	1,131
No risk	184	65	176	63	360	64		
Restroom								
Risk	54	19	43	15	97	17	0.264	0.760
No Risk	228	81	239	85	467	83		
Distance to water source								
Risk	79	28	94	33	173	31	0.201	0.778
No risk	203	72	188	67	391	69		
Wastewater sewer								
Risk	249	88	255	90	504	89	0.495	1.252
No risk	33	12	27	10	60	11		
Hand washing								
Risk	4	1	4	1	8	1	1.000	1.000
No risk	278	99	278	99	556	99		
Exclusive breastfeeding								
Risk	59	21	61	22	120	21	0.918	1.043
No risk	223	79	221	78	444	79		

DISCUSSION

The study found that clean water, waste management, defecating behavior, hand washing, and exclusive breastfeeding were not at risk of causing stunting to the community in the work area of Tampa Padang Health Center. After conducting the chi-square statistical test, a p-value greater than 0.05 was obtained for all variables, indicating no relationship between the variables studied and the incidence of stunting. One of the causes of stunting is poor environmental sanitation, which will negatively impact children's and toddlers' health and ultimately their nutritional condition (Adriany et al., 2021). Water is the most essential molecule for living, hence it cannot be substituted (Soerachmad et al., 2019). In environmental health considerations, there is a relationship between clean water sources that

are protected and those that are not. Poor personal hygiene habits and contaminated water sources contribute to diarrhea, which can be fatal. Rates of diarrhea were recorded to be higher in children whose households used open wells for drinking water than those who used tap water (Sinatrya & Muniroh, 2019).

According to the study's findings, 35% of those surveyed who drank unboiled water were at risk for stunting. There are both direct and indirect causes of stunting. The mother's diet during pregnancy, viral illnesses, and the toddlers' nutrition are the direct causes of stunting, whereas a variety of variables might contribute to stunting indirectly. Water, sanitation, and hygiene (WASH), which includes sources of drinking water, the physical quality of drinking water, ownership of restrooms, and hygiene, especially the practice of washing hands, are among the indirect factors that contribute to stunting (Nasrul et al., 2015). Utilizing water that is suitable for consumption and treating it before use helps lower the prevalence of infectious disorders like diarrhea and prevent stunting. The study's findings suggest no connection between the prevalence of stunting and clean water ($p\text{-value} > 0.05$). The study also found that protected dug wells accounted for 31.4% of respondents' sources of clean water while boiling water before consumption was a very common practice (65%).

Given that diarrhea is a risk factor and contributes to stunting, research in Sidoarjo found a relationship between clean and healthy restrooms and the incidence of diarrhea ($p = 0.014$) (Rohmah & Syahrul, 2017). This research discovered that 81% of respondents owned or used clean restrooms in their communities, hence it is not a risk factor for stunting. This outcome is consistent with a study in Bondowoso, which found that toilet ownership is not a risk factor for stunting (Sinatrya & Muniroh, 2019). Their study's findings revealed that 53% of the case group did not adequately manage toddler stools, which were dumped everywhere, increasing the possibility of disease transmission via fly vectors. Improper wastewater treatment can harm the environment and the general public's health by serving as a vehicle for the spread of numerous diseases, producing unpleasant scents and unsightly views, and polluting the water and soil. Wastewater disposal systems are designed to ensure that there is no standing water near the home, preventing it from becoming an insect breeding ground or contaminating ground and surface water. A significant amount of soap or detergent and bacteria are present in household effluent from washing and bathing activities. Sometimes it also contains human excrement and urine. Making closed sewerage treatment channels is one way to stop the spread of diarrhea by ensuring that no stagnant water exists, which could serve as a vehicle for the disease. According to our research, 12% of respondents did not have access to a sewer system and dumped their garbage on the ground. In the case group, 12% had it, while 88% did not. There was no correlation between the prevalence of stunting and water sewer use, according to the results of the bivariate test ($p\text{-value} > 0.05$). This contradicts studies done at the Rembang Health Center, which found a link between stunting and sewage water ($p\text{-value} < 0,05$) (Langit, 2016).

Stunting is a risk factor in families due to the hygiene component, namely the practice of washing hands. It is a hygienic practice to wash one's hands with soap and running water so that they are clean and able to break the chain of disease transmission. The Republic of Indonesia's Ministry of Health has established certain key times for hand washing with soap so that it becomes ingrained, including before eating, before preparing and serving food, before breastfeeding, before feeding infants or toddlers, after peeing or defecating, and after contact with animals (Syam & Sunuh, 2020). In this study, both the case group (99%) and the control group (99%) demonstrated good hand-washing behaviors. According to the findings

of the bivariate study, there is no connection between stunting and hand washing (p-value > 0.05). These findings disagree with research from Central Sulawesi, which found a connection between hand washing and stunting (p-value < 0.05).

Food imbalance is one of the causes of stunting in toddlers. An example of this is exclusive breastfeeding which is not given for six months. Breast milk, which is milk that a mother produces, supplies the nutrients that a newborn needs for health and development. During the first six months, only breast milk is provided to infants; no other liquids, such as formula milk, orange juice, honey, tea, or water, as well as no additional solid meals, such as papaya bananas, oatmeal, milk, or cookies, are offered to them (SJMJ et al., 2020). According to the bivariate analysis, there was no correlation between the prevalence of stunting and exclusive breastfeeding in this study since both the case group and the control group had high rates of exclusive breastfeeding (79% and 78%, respectively). This contradicts research by Sampe (2020), which indicates that exclusive breastfeeding can lower the incidence of stunting and that children who are not exclusively breastfed have a 61 times higher risk of having it than toddlers who are.

CONCLUSION

Sanitation and community clean and healthy behavior are not at risk of causing stunting with a p-value > 0.05. This indicates that sanitation and clean and healthy behavior are not likely to be the cause of stunting in the work area of Tampa Padang Health Center.

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