

## The Utilization of Hand Soap for Hand Washing and Family Latrine Ownership as Preventive Measures Against Stunting in Infants and Toddlers in the Parigi Moutong District of Central Sulawesi Province

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### ABSTRACT

Stunting is a malnutrition condition in children under five, characterized by delayed growth and inappropriate height. Environmental factors, such as nutrition, digestive infections, low birth weight, and poor environmental sanitation, indirectly impact the health of children under five, affecting their nutritional status. This research aims to determine the level of knowledge, ownership of toilets, and hand washing habits as factors for preventing stunting in the working area of the Ampibabo Community Health Center. The study used an analytical observational research with a case-control design, with 70 respondents consisting of mothers of babies and toddlers. The results showed a relationship between knowledge, latrine ownership, and hand washing habits and stunting incidence in babies and toddlers. This suggests that community health centers should provide regular and continuous assistance to cadres in providing education about stunting prevention at all levels of society, especially those without family toilets and without soap-washing habits.

**Keywords:** *Stunting, Hand Washing Habits, Toilet Ownership*

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### INTRODUCTION

Stunting is a condition of malnutrition in children under five which is characterized by delayed growth, height not appropriate for age, and can be influenced by several factors such as nutrition, digestive infections, low birth weight, and environmental health (Mediani, Hendrawati, Pahria, Mediawati, & Suryani, 2022). Stunting is an indicator of success, welfare, education and community income. Food intake, parenting and health factors obtained by mothers and their children have a major impact on their health and welfare in the future (Suratri et al., 2023). Stunting has a very broad impact starting from the economic side, intelligence and quality which affects the child's future. Studies that have been conducted show that short children are closely related to poor school performance. Short

children have a greater risk of growing into older adults who are less educated and more susceptible to infectious diseases.

According to the World Health Organisation (WHO), the threshold for stunting prevalence is below 20%. However, in the context of Indonesia, only seven districts/cities—Wakatubi Sura, Klungkung-Bali, Tana Tidung-Kaltara, and Pangkalpinang-Babel—maintain this threshold. Bitung, Sulut, Salatiga, Central Java, and Tanjungpinang—Riau. Approximately 23.09% of the Indonesian population engages in open defecation, 9.37% utilise dock-style defecation facilities, and a mere 67.5% possess sanitation facilities. Sufficient infrastructure in the shape of septic containers (Sadler et al., 2022). According to the 2017 Nutritional Status Monitoring (PSG), the incidence of malnutrition in the province of Central Sulawesi was 36.1%. In contrast, according to data from the Risk and Safety Evaluation System for Basic Health (RISKESDAS), the incidence of malnutrition in Central Sulawesi Province decreased by 32.3% in 2018. Nonetheless, the reduction in stunting prevalence in the province of Central Sulawesi has not met WHO standards. Baggai Islands, Donggala, and Morowali are among the districts where notable levels of stunting have been identified. Baggai Islands, Donggala, and Morowali are among the districts where notable levels of stunting have been identified. Persistency in Indonesia is 30.8%, according to the 2018 Riskesdas results, indicating that stunting is a significant nutritional issue. At 42.5%, Parigi Moutong Regency is a region of particular concern in terms of stunting control. (Chowdhury, Chakrabarty, Rakib, Winn, & Bennie, 2022).

Stunting is a potential consequence of the growth and development process of infants, which can be influenced by environmental factors. Children under the age of five are indirectly impacted by inadequate environmental sanitation, which can subsequently have repercussions on their nutritional status. (Suratri et al., 2023). Conversely, if the physical environment and sanitation of the family are in excellent condition, then the health of the family members will also be satisfactory. Ensuring the proper sanitation of wells and water sources will reduce the likelihood of infectious disease transmission. Additionally, having a well-maintained lavatory is crucial for preventing illnesses like diarrhoea, worms, and malnutrition.

## **METHOD**

This research is an analytical observational study with a case-control design (Jubaedah, Hermayanti, & Erniati, 2023). The research was conducted from January to April 2023 in the working area of the Ampibabo Community Health Center, Tombi Village. With a pretest and posttest model on mothers of infants and toddlers. Population and Sample in this study The sample size used a ratio of 1 case: 1 control. So the case sample becomes 35 and the control sample becomes 35, so the total sample is 70 respondents. Data processing and analysis will use statistical software. The statistical analysis that will be used is descriptive analysis in the form of tables and graphs, and inferential analysis to analyze the relationship between stunting incidents and risk factors, and in the final stage of the analysis logistic regression analysis will be carried out to develop a mathematical model for predicting stunting incidents. Research Instruments in this study used an interview guide

instrument created by the researcher to explore qualitative data. The data collection technique in this research was carried out by filling in a questionnaire (Khanna, 2022). This research data analysis uses qualitative data using thematic analysis using the SPSS application.

## RESULT

### Statistic analysis

Based on the results of statistical analysis based on age, gender and status.

Table 1 Age Distribution of Respondents regarding Stunting Incidents in the Ampibabo Community Health Center Working Area

Age (Epidemic)	Stunting events				Amount	
	Case		Control		N	%
	n	%	N	%		
20-25	6	8.6	4	5.8	10	10.0
26-30	9	12.8	19	27.1	28	40.0
31-35	11	15.8	7	10.0	21	30.0
36-45	9	12.8	5	7.1	14	20.0
Total	35	50	35	50	70	100

Source: Primary Data, 2023

Table 2 Gender Distribution of Respondents regarding Stunting Incidents in the Ampibabo Community Health Center Working Area

Gender	Stunting events				Amount	
	Case		Control		N	%
	n	%	N	%		
Man	1	1.4	0	0.0	1	1.4
Woman	34	48.6	35	50.0	69	98.6
Total	35	50	35	50	70	100

Source: Primary Data, 2023

Table 3 Relationship between Respondents' Knowledge Level and Stunting Incidents in the Ampibabo Community Health Center Working Area

Knowledge level	Stunting events				Amount		P-Value	OR
	Case		Control		N	%		
	n	%	N	%				
Good	12	17.2	22	31.4	34	48.6	0.017	0.308
Enough	23	32.8	13	18.6	36	51.4		
Total	35	50	35	50	70	100		

Source: Primary Data, 2023

Twelve (17.2%) of the seventy respondents with a high level of knowledge were found to have experienced stunting, while the remaining twenty-two (31.4%) did not. Based on the chi-square test results ( $p = 0.017, \leq 0.05$ ), it can be concluded that there exists a correlation between the level of knowledge and the prevalence of stunting within the Ampibabo Community Health Center's operational vicinity. Based on the obtained OR value of 0.308 ( $< 1$ ), it can be inferred that individuals with a higher level of knowledge are better equipped to mitigate risk factors associated with stunting, or that these factors serve as a preventive measure, in comparison to those with an adequate level of knowledge.

Table 4 Relationship between Toilet Ownership and Stunting Incidents in the Ampibabo Community Health Center Working Area

Toilet Ownership	Stunting events				Amount		P-Value	OR
	Case		Control		N	%		
	n	%	n	%				
Has a Toilet	13	18.6	30	42.8	43	61.4	0,000	0.031
Doesn't have a toilet	22	31.4	5	7.2	27	38.6		
Total	35	50	35	50	70	100		

Source: Primary Data, 2023

Table 4 presents the results for the seventy respondents who were provided with restrooms that fulfilled the necessary standards. Among them, thirty individuals (42.8%) did not experience stunting, while thirteen individuals (18.6%) did. Based on the chi-square test results ( $p = 0.000; \leq 0.05$ ), it can be concluded that there is a significant association between latrine ownership and the prevalence of stunting within the Ampibabo Community Health Center's operational vicinity. Therefore, based on the OR value of 0.031 ( $< 1$ ), it can be concluded that individuals with latrines that satisfy the aforementioned criteria are better able to prevent the development of stunting or reduce risk factors associated with it, in comparison to those lacking such latrines.

Table 5 Relationship between hand washing habits and incidence of stunting in the Ampibabo Community Health Center working area

Hand Washing Habit	Stunting events				Amount		P-Value	OR
	Case		Control		N	%		
	n	%	n	%				
Qualify	14	20.0	33	47.1	47	67.1	0,000	0.040
Not eligible	21	30.0	2	2.9	23	32.9		
Total	35	50	35	50	70	100		

Source: Primary Data, 2023

According to the data presented in Table 5, out of the seventy respondents who adhere to the prescribed hand hygiene practices, fourteen individuals (20.0%) suffer from stunting while 33 individuals (47.1%) remain unaffected. The chi-square test yielded a p-value of 0.000 ( $\leq 0.05$ ), indicating that a correlation exists between hand hygiene practices and the prevalence of stunting within the Ampibabo Community Health Center's operational vicinity. The obtained value of OR = 0.040 ( $< 1$ ) suggests that individuals whose hand washing practices comply with the criteria are more likely to reduce risk factors associated with stunting, or that these factors serve as a preventive measure against the development of the condition, in comparison to those whose hand washing practices fail to meet the criteria.

## DISCUSSION

Human resource development comprises mobility, quality, and quantity as its three components. In the meantime, the standard of health and nutrition is among the aspects of society that are reflected in the level of population welfare. The degree of health pertains to the health profile of a specific individual or a community of individuals residing in a given geographical region (Schmitt, 2023). Stunting is a prevalent condition that impacts an estimated 160 million children worldwide who are below the age of five. While the correlation between nutrition and stunting is widely recognised, additional research is required to examine the impact of environmental factors, including sanitation and water quality, on feeding practices and the potential introduction of infection vectors. The present study investigates the correlation between sanitation and hygiene factors and stunting, an area that has received limited attention in academic research (García-Alberti, Suárez, Chiyón, & Feijoo, 2021).

The hygiene and sanitation of the environment in Indonesia is an urgent matter that demands immediate attention. According to a 2013 report by Basic Health Research, a mere 59.8% of families in Indonesia had enhanced sanitation facilities, 12.9% lacked access to adequate toilets, and 66.8% did not have access to potable water. The objective of this

study is to ascertain the correlation between stunting and sanitation, hygiene, and child mortality among Indonesian children aged two and below (Sazali et al., 2023).

### **1. Level of Knowledge**

The development of an individual's life behaviour is significantly influenced by cognitive processes and knowledge (Tamir, Techane, Dessie, & Atalell, 2022). Cadres hold significant importance due to the fact that they are accountable for each posyandu programme. Lack of cadre engagement may impede the effective execution of the posyandu, potentially leading to delayed detection of nutritional abnormalities in infants and toddlers. Posyandu cadres' stunting prevention actions affect knowledge and dispositions in the direction of health promotion, according to research findings. This assertion is substantiated by a study conducted by Demsa Simbolon, which reports that cadres' knowledge scores increased by 19.36 points ( $p=0.0001$ ) subsequent to mentoring and training (West et al., 2018).

Mila et al. (2020) found that efforts to prevent stunting in children under the age of five are significantly correlated with the level of knowledge preschool mothers possess regarding the condition. This finding is consistent with that research. The primary responsibilities of a mother are domestic duties and the upbringing of her infant. Parental guidance is an essential requirement for the optimal growth and development of children. Hence, it is imperative that a mother possesses extensive knowledge regarding child care, as infants are particularly reliant on her for support during this developmental stage. In order to optimise the growth and development of toddlers and prevent stunting, it is anticipated that stay-at-home mothers will prioritise the provision of nutritious food, devote their time to loving and affectionate activities, and ensure their children receive adequate nourishment (West et al., 2018).

One form of intensive care that can be provided by health workers is holding consistent training for cadres as an effort to increase their knowledge so that posyandu services can be more optimal. This training is a form of non-financial incentive for cadres because there is a sense of self-esteem and cadres feel that the knowledge gained from the training can be useful for themselves and their families. Research conducted by (Walker, Chang, Wright, Osmond, & Grantham-McGregor, 2015) in the city of Surabaya shows that cadres have high confidence and interest in the rewards they receive as volunteer officers in the health sector. These rewards are in the form of incentives or transport money, praise for work success, recognition and appreciation as well as opportunities to develop oneself. This makes cadres more motivated so that cadre performance increases in efforts to prevent stunting (Yulianti, Nurasmi, & Padlilah, 2022).

### **2. Toilet Ownership**

One important effort to improve health status is to provide a healthy physical environment for the community, latrines in general and family latrines in particular are one of the facilities needed to create a clean and healthy environment. By providing latrines that meet health requirements, the spread of disease can be avoided. The influence of unhealthy

latrines on diarrheal disease has the effect of reducing the level of health (Alison Vaux-Bjerke, Deborah H. John, & Katrina L. Piercy, 2023).

Health standards and requirements for latrine buildings consisting of a latrine upper structure in the form of walls and a roof must function to protect users from weather disturbances and other disturbances. Latrines are made of waterproof material, are not slippery and have channels for wastewater disposal, and substructures that function to prevent pollution or contamination from feces through disease-carrying vectors, either directly or indirectly (Sun & Lu, 2022).

Latrines that fail to meet established standards possess the potential to facilitate the growth of infectious diseases (e.g., diarrhoea and worms) as a result of inadequate hygiene and sanitation. Such diseases can impede the digestion of nutrients. Certain infectious diseases that infants contract may result in weight loss. Stunting may result if this condition persists for an extended period of time without appropriate nutrition to support its healing process.

Latrines in good condition operate efficiently in disrupting the cycle of disease transmission. Latrines that are conducive to good health should be constructed, possessed, and utilised by the family, with a convenient placement that allows for easy access by the householder (Yang, Shi, & Runeson, 2023). Each household member is required to utilise a restroom for defecation and urination. Utilising a latrine will aid in maintaining a sanitary, odourless, and healthy environment. Latrines serve the purpose of averting contamination of adjacent water sources. Insects and flies, which are known to transmit maladies affecting the digestive tract, skin, and poisoning, are also prohibited from entering latrines (Silfee, Rosal, Sreedhara, Lora, & Lemon, 2016).

Human detritus consists of any substances or objects that have ceased to be utilised by the organism. Faeces, urine, and carbon dioxide (CO<sub>2</sub>) are examples of such substances produced during the respiratory process. Faeces are solid debris that contributes to environmental pollution, emits foul odours, and serves as a vector for disease transmission within the community. Human health issues may result from improper disposal of faeces or human refuse in any location; faeces, as an environmental medium, can produce odours and serve as a vector nesting site, among other things. The agent in question has the capability to spread via a range of routes, including faeces containing disease-causing substances that penetrate the digestive tract, contaminated equipment, contaminated food and beverages, and even other floors (Park, Park, Bahorski, & Cormier, 2019).

According to research conducted by Megaiet, et al, the combination of damaged latrines and untreated drinking water can increase the incidence of stunting in Indonesia compared to better conditions (Megahed et al., 2019). This research is also in line with research conducted by (Dessart & Duclou, 2019), et al that the provision of toilets that meet the requirements and the availability of clean water that meets the requirements are actions that are closely related to meeting nutritional needs and the incidence of diarrhea. A clean type of place to dispose of feces and the availability of clean water for activities,

especially after defecating, after throwing away the child's feces, before feeding the child and after eating will shorten the chain of disease transmission.

### **3. Hand washing habit**

Based on the results of a study of journals related to the risk factors for stunting from several journals related to the relationship between pillar II, washing hands with soap (CTPS) at important times and stunting incidents, which can act as an effort to reduce stunting rates. So, from several journals studied, it can be explained that washing hands with soap (CTPS) can play a role in efforts to reduce stunting rates.

This research is also in line with research conducted by (Rah et al., 2015), et al in 2022 that people who wash their hands with soap have a lower chance of getting stunting. Therefore, it is highly recommended to always wash your hands before carrying out activities.

CTPS is a simple, easy, cheap and useful way to prevent various diseases. Because, there are several diseases that cause death that can be prevented by washing hands properly, such as diarrhea and ARI which are often the causes of death in children. Likewise Hepatitis, Typhus and Bird Flu. Therefore, make it a habit to wash your hands with soap (CTPS) at important times, namely before eating, before handling, processing, preparing food, after defecating, and after contact with animals and the ground. On the other hand, washing hands with soap can reduce the risk of diarrhea by up to 45%. Diarrhea is a disease that often attacks children. If a child has recurring diarrhea, especially in the first 1000 days of life, it is likely that he will not get enough nutrition. Malnutrition is what causes stunting in children. (Fajrianti, Yunitasari, & Pradanie, 2020)

Children washing their hands frequently can reduce the risk of diarrhea. If diarrhea does not occur, the nutrients consumed can be properly absorbed by the body, thereby reducing the risk of stunting. This is where the connection between washing hands with soap and stunting lies. Washing hands is a sanitary action by cleaning hands and fingers using water or other liquids by humans with the aim of becoming clean from dirt and killing germs that can cause disease. In washing hands, there are seven steps that must be understood, including washing in running water, using soap, rubbing the palms of the hands, back of the hands, rinsing between the fingers until clean and drying the hands. Washing hands should also be done with clean, running water.

Flowing water will cause dirt and germs to be carried away by the water. Clean water is clear, odorless and colorless. Unclean water contains many germs and bacteria that cause disease. When used, germs are very likely to be transferred to the hands. When you eat, germs can quickly enter the body and cause disease (Darwis, Abdullah, Amaliah, Bohari, & Rahman, 2021).

The image can be seen as follows:



Figure 1. View from the front of an environmentally friendly hand washing place



Figure 2. View from the Side of an Environmentally Friendly Hand Washing Place



Figure 3 Public Toilet

## CONCLUSION

Based on the results of research conducted in Tombi Village, Ampibabo District, Parigi Moutong Regency, conclusions can be drawn, namely: 1. There is a relationship between family toilet ownership and the incidence of stunting, the level of knowledge and the incidence of stunting, and hand washing habits and stunting.

In this case, the Ampibabo Community Health Center can provide regular and continuous assistance to cadres in terms of providing education about stunting prevention at all levels of society, especially people who do not have a family toilet (JAGA) and who do not have the habit of washing their hands with soap who live in Tombi Village. Ampibabo District, Parigi Moutong Regency, Central Sulawesi. The local government, including across sectors, should include in each sector's routine program the prevention of stunting for babies and toddlers. Especially in Tombi Village, Ampibabo District.

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