



## Implementation Of Pillar 1 And Pillar III Community-Led Total Sanitation (CLTS) in Reducing the Incident of Stunting in Pangkep District

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### Abstract

Community-Led Total Sanitation (CLTS) is an approach to changing hygiene and sanitation behavior through community empowerment activities by triggering. The purpose of this study was to determine the application of pillars 1 and 3 of CLTS in reducing the incidence of stunting in the Pangkep Regency. The research method used an observational study with a cross-sectional approach. The study was conducted in 2023 and the population of this study were all heads of families in the subdistrict that have stunting incidence in Pangkep Regency. Sampling using accidental sampling technique was taken in Taraweang Village, Labakkang District as many as 63 heads of families, and in Buwong Cindea Village, Bungoro District as many as 78 heads of families. The research instrument used a questionnaire based on the guidelines of the Ministry of Health of the Republic of Indonesia. The results showed that there was a relationship between the implementation of Pillar 1 and Pillar 3 of Community-Led Total Sanitation (CLTS) in reducing the incidence of stunting in Taraweang Village, Labakkang District, and Buwong Cindea Village, Bungoro District, Pangkep Regency with the results of statistical tests obtained at  $(0.05 < 0.05)$  and  $(0.002 < 0.05)$ . It is necessary to implement CLTS comprehensively so that the results of public health achievements can be maximized and the incidence of stunting can be prevented.

### Introduction

Children's nutritional status is a key aspect of their development as it determines their mental health, physical growth and maturity, and future academic performance. Globally, stunting is responsible for more than one-third of under-five deaths. One in every five children under five years old is stunted (Abdulahi *et al.*, 2017). Children's body growth especially abnormal is irreversible in human resource development (Victora *et al.*, 2008). Stunting (low height for age) is a chronic restriction of a child's growth potential. Stunting refers to children from 24 to 59 months of age who have a height below 2 standard deviations of the mean height-for-age as determined by the World Health Organization (WHO) child growth standards (Nutrition, 2013). WHO and UNICEF (2017) reported that in 2015 there

were 2.3 billion people in the world without adequate basic sanitation services, and of these, 892 million were still practicing open defecation. WHO/UNICEF also pointed out that almost all inability to obtain basic sanitation services is experienced by vulnerable and poor communities, who generally live in rural areas or urban slums. Access to proper sanitation services is very important and fundamental to the life of every human being, so water and sanitation are part of human rights that must be facilitated (WHO & UNICEF, 2017).

The use of improved sanitation and excreta disposal were significantly associated with lower odds of diarrhea (Hurliman *et al.*, 2018). An estimated 85% of diarrhea mortality is attributed to unsafe drinking water, inadequate

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sanitation, and substandard hygiene practices (Dreibelbis *et al.*, 2014). The practice of open defecation is thought to be a major cause of the persistent worldwide burden of diarrhea and enteric parasite infection among children less than 5 years old. Reducing open defecation requires access to and use of improved sanitation facilities, which are defined as facilities that prevent human feces from re-entering the environment (Patil *et al.*, 2014). Indonesia has problems in the fields of sanitation, nutrition, and the condition of children and pregnant women. Stunting in children has a chronic impact. Environmental problems and infectious diseases contribute to the emergence of stunting cases. Poor hygiene practices can cause toddlers to suffer from diarrhea which in turn can cause children to lose nutrients that are important for growth. Community health and nutrition development 2015 – 2019 is directed at supporting the Healthy Indonesia Program by improving the health and nutritional status of the community through health and community empowerment efforts. One of the main target indicators of the 2015-2019 National Medium Long-Term Plan is to improve the nutritional status of the community, including reducing the prevalence of stunting. The target for reducing the prevalence of stunting (short and very short) in children under two years old (under two years) is 28% (RJPMN, 2019).

In 2017, 22.2% or around 150.8 million children under five in the world experienced stunting, of which more than half of the stunted children in the world came from Asia (55%) and another third lived in Africa (39%). Of the 86.3 million stunted children under five in Asia, the largest proportion comes from South Asia (58.7%), and the least comes from Central Asia (0.9%). When compared with the stunting rate in 2000 which was 32.6%, it can be said that there has been a reduction

in stunting because the stunting rate in 2017 was 22.2% (Dietz, 2017). Stunting will have an impact on the quality of human resources (HR). In the short term, stunting causes failure to grow, obstacles to cognitive and motor development, and suboptimal physical body size and metabolic disorders. In the long term, stunting causes a decrease in intellectual capacity. Disorders and functions of nerves and brain cells that are permanent cause a decrease in the ability to absorb lessons at school and will affect productivity in adulthood. Apart from that, stunting also increases the risk of non-communicable diseases such as diabetes mellitus, hypertension, coronary heart disease, and stroke (Ministry of National Development Planning/Bappenas, 2018).

Good sanitation correlates with human and environmental health. Previous studies have reported that poor hygiene and sanitation are associated with poor health outcomes. Lawrence, Yeboah-Antwi, Biemba *et al.* (2016) reported that high mortality rates in adults and infants are influenced by the poor quality of health and environmental hygiene. Bacterial contamination of food and drinking water and unsanitary human behavior contribute to the spread of viruses, bacteria, and parasites that cause diarrhea (Mara *et al.*, 2010; Walker *et al.*, 2011; Carlton *et al.*, 2012; Adane *et al.*, 2017). Water quality, nutrition, sanitation, and handwashing habits play an important role in supporting child growth and development such as stunting, anemia, and diarrhea (Larsen *et al.*, 2017). Long and repetitive experiences of diarrhea are likely to affect children's cognition (Tofail *et al.*, 2018).

Community-Led Total Sanitation (CLTS) is an approach that focuses on sustained behavioral change through motivation and mobilization to facilitate and enhance community knowledge and understanding of the risks associated with open defecation. In Ethiopia, CLTS was

the precursor to CLTSH (Community Led Total Sanitation and Hygiene), a modified version that has an added hygiene component. As with its predecessor, CLTSH functions without subsidies and has as its primary goal the achievement of Open Defecation Free (ODF) status in all villages of the country. The approach is aimed at empowering the community to analyze the extent and risks of environmental pollution caused by open defecation and to construct and use toilets with their resources. (Unicef, 2016). research by Ajisukmo and Lustitiani (2020) with a qualitative method through a focus group discussion approach found that the implementation of pillars and pillar 3 is very important to prevent the occurrence of environment-based diseases such as diarrhea, cholera and even the risk of stunting in children. Based on the results of initial observations carried out, researchers saw that the sanitation conditions in Labakkang District and Buwong Ciodea District were still very minimal regarding basic sanitation facilities such as owning a latrine, apart from that, the culture of the

people in the village was defecating in any place such as gardens, rivers, rice fields, and others which are still being implemented, although there are a small number who have latrines but do not use these healthy latrines according to the provisions, thus causing the emergence of infectious diseases that often attack toddlers, such as Diarrhea, ISPA, Worms and so on which are caused by Personal hygiene still really needs to be paid attention.

### Methods

Pangkajene and Islands Regency is located in the western part of South Sulawesi Province, with the capital Pangkajene as the regional service center for Pangkajene and Islands Regency, in addition to its very strategic location with the capital of South Sulawesi Province. Based on astronomical location, Pangkajene and Islands Regency are located at 11,000 East Longitude and 040,400 and 080,000 South Latitude. Administratively, the area of Pangkajene and Islands Regency is 12,362.73 Km<sup>2</sup> for a sea area of 11,464.44 Km<sup>2</sup>, with a land area of 898.29 Km<sup>2</sup> and the length of the coastline in Pangkajene and Islands Regency



Figure 1. Map of Pangkajene Kepulauan City, South of Sulawesi

is 250 Km, which stretches from west to east. Where Pangkajene and Islands Regency consists of 13 sub-districts, of which 9 sub-districts are located in the mainland area and 4 sub-districts are located in the archipelago area.

The type of research used in this research is descriptive with a survey / going directly to the field with a cross-sectional approach which aims to find out how the implementation of Community Led Total Sanitation pillars 1 and 3 reduces the incidence of stunting in Pangkep Regency. The population in this study were all sub-districts in Pangkep Regency that have

implemented the CLTS program and there is stunting in the sub-district. The samples in this study were villages in Pangkep Regency, namely Taraweang Village, Labakkang District, and Buwong Cindea Village, Bungoro District, which had stunting incidents. The sampling technique in this research is to use accidental sampling, as a sampling technique based on chance so that researchers can take samples from anyone they meet without prior planning.

## Results and Discussion

Table 1. Distribution of Respondents Based on Age in Pangkep Regency in 2023

| Age Group                               | Stunting  | Not Stunting | Total     |
|---|-----------|--------------|-----------|
| Taraweang Village, Labakkang District   |           |              |           |
| 1 – 2                                   | 16 (43%)  | 20 (77%)     | 36 (57%)  |
| 3 – 5                                   | 21 (57%)  | 6 (23%)      | 27 (43%)  |
| Total                                   | 37 (100%) | 26 (100%)    | 63 (100%) |
| Buwong Cindea Village, Bungoro District |           |              |           |
| 1 – 2                                   | 22 (65%)  | 20 (49%)     | 42 (54%)  |
| 3 – 5                                   | 15 (35%)  | 21 (51%)     | 36 (46%)  |
| Total                                   | 37 (100%) | 41 (100%)    | 78 (100%) |

Source: Primary Data, 2023

Table 2. Distribution of Communities Who Have Implemented Pillar I and Pillar III in Pangkep Regency in 2023

| Implementation Pillar CLTS              | Frequency (n) | Percentage (%) |
|---|---------------|----------------|
| Taraweang Village, Labakkang District   |               |                |
| Pillar I Stop BABs                      | 58            | 51             |
| Pillar III PMM-RT                       | 56            | 49             |
| Total                                   | 114           | 100            |
| Buwong Cindea Village, Bungoro District |               |                |
| Pillar I Stop BABs                      | 67            | 49             |
| Pillar III PMM-RT                       | 70            | 51             |
| Total                                   | 137           | 100            |

Source: Primary Data, 2023

Based on Table 1 above, it can be seen that the research results obtained show that 16 respondents, or 16% of respondents aged 1 - 2 years experienced stunting, and 20 respondents or 77% did not experience stunting. For ages 3 - 5, there were 21 respondents (57%) who experienced stunting and 6 respondents (23%) who did not experience stunting. It can be seen that the research results obtained show that 22 respondents, or 65% of respondents aged 1 - 2 years experienced stunting, and 20 respondents, or 49% did not experience stunting. For ages 3 - 5, there were 15 respondents (53%) who experienced stunting and 41 respondents (51%) who did not experience stunting.

Based on Table 2 above, it can be seen that the research results obtained show that as many as 58 communities have implemented CLTS Pillar I (51%), while 56 communities have implemented CLTS Pillar III (49%). It can be seen that the research results obtained

show that as many as 67 communities have implemented CLTS Pillar I (49%), while 70 communities have implemented CLTS Pillar III (51%).

Based on Table 3, shows that the implementation of CLTS pillar 1 with a reduction in stunting incidents in Taraweang Village, Labakkang District, Pangkep Regency, obtained a p-value of  $0.05 < 0.05$ , which means that there is a significant relationship between the implementation of CLTS pillar 1 and a reduction in stunting incidents in Pangkep Regency. Meanwhile, the implementation of CLTS pillar 3 with a reduction in stunting incidents in Taraweang Village, Labakkang District, Pangkep Regency, obtained a p-value of  $0.124 > 0.05$ , which means that there is no significant relationship between the implementation of CLTS pillar 3 and the reduction in stunting incidents in Pangkep Regency.

**Table 3.** The Relationship Between the Implementation of CLTS Pillar 1 and Pillar III with Stunting Incidents in Taraweang Village, Labakkang District, Pangkep Regency in 2023

| Variable                            | Incidents Stunting        |                       |                       | Total |  |
|-------------------------------------|---------------------------|-----------------------|-----------------------|-------|--|
|                                     | Not Experiencing Stunting | Experiencing Stunting | Experiencing Stunting |       |  |
| Not Implementing Pillar 1 of CLTS   | 0 (0%)                    | 5 (100%)              | 5 (100%)              | 0.05  |  |
| Implementing Pillar 1 of CLTS       | 26 (44.8%)                | 32 (55.2%)            | 58 (100%)             |       |  |
| Not implementing Pillar III of CLTS | 1 (14.3%)                 | 6 (85.7%)             | 7 (100%)              | 0.124 |  |
| Implementing Pillar III of CLTS     | 25 (44.6%)                | 3 (55.4%)             | 56 (100%)             |       |  |

Source: Primary Data, 2023

**Table 4** The Relationship between the Implementation of CLTS Pillar 1 and Pillar III with Stunting Incidents in Buwong Cindea Village, Bungoro District, Pangkep Regency in 2023

| Variable                            | Incidents Stunting        |                       | Total     |      |
|-------------------------------------|---------------------------|-----------------------|-----------|------|
|                                     | Not Experiencing Stunting | Experiencing Stunting |           |      |
| Not Implementing Pillar 1 of CLTS   | 3 (27.3%)                 | 8 (72.7%)             | 11 (100%) | 0.07 |
| Implementing Pillar 1 of CLTS       | 38 (56.7%)                | 29 (43.3%)            | 67 (100%) |      |
| Not Implementing Pillar III of CLTS | 0 (0.0%)                  | 8 (100%)              | 8 (100%)  |      |
| Implementing Pillar III of CLTS     | 41 (58.6%)                | 29 (41.4%)            | 70 (100%) |      |

Source: Primary Data, 2023



Based on Table 4, shows that the implementation of CLTS pillar 1 with a reduction in stunting incidents in Buwong Cindea Village, Bungoro District, Pangkep Regency, obtained a p-value of  $0.07 > 0.05$ , which means that there is no significant relationship between the implementation of CLTS pillar 1 and the reduction in stunting incidents in Pangkep Regency. Meanwhile, the implementation of CLTS pillar 3 with a reduction in stunting incidents in Buwong Cindea Village, Bungoro District, Pangkep Regency, obtained a p-value of  $0.002 < 0.05$ , which means that there is a significant relationship between the implementation of CLTS pillar 3 and the reduction in stunting incidents in Pangkep Regency. Based on the research results, show that the implementation of CLTS pillar 1 with a reduction in stunting incidents in Taraweang Village, Labakkang District, Pangkep Regency, obtained a p-value of  $0.05 < 0.05$ , which means that there is a significant relationship between the implementation of CLTS pillar 1 and the reduction in stunting incidents in Pangkep Regency.

Globally, community-based platforms are a promising channel through which to deliver these types of interventions to poor and remote populations (Bhutta et al., 2013). These platforms, which often rely on community health providers operating in the existing local health system, are conducive to delivering nutrition-related interventions as a package, an approach that has the greatest potential to reduce stunting (Bhutta et al., 2013; Dewey, 2016; Hossain et al., 2017). At the same time, broader investments in population health, education, and social development are crucial in providing a supportive context for improvements in stunting and other nutrition-related outcome (Bhutta et al., 2013, 2020; Hossain et al., 2017).

The results of this study show a strong correlation between stunting and pilar 1 and 3. Stunting is more prevalent as people get older. This result is in line with research from Aferwork (2017) and Irenso (2020). Inappropriate food supplementation during the weaning stage, when infants should move from exclusively breastfeeding to supplementary meals in their diet, can be the cause of the steady increase in

stunting among children aged 24 to 59 months (Ashebir & Yimer, 2021; Njuguna, 2016). Open defecation behavior and ownership of healthy toilets with the incidence of stunting among toddlers in Labuan District, it can be explained that open defecation behavior (BABS) is due to not having healthy toilet facilities, which is closely related to the high incidence of diarrhea which can affect the growth and development of toddlers. Therefore, every family needs to have a healthy toilet. This is because open defecation behavior can result in the emergence of environmental enteropathy, which is the main cause of child malnutrition in the form of subclinical conditions of the small intestine. Environmental enteropathy causes damage to the protrusions or villi of the large intestine, making it difficult to absorb nutrients. Then, chronic diarrhea is prone to occur, which can cause a lack of nutritional intake. This is what causes malnutrition for a long time, namely stunting (Crocker et al., 2017; Spears et al., 2013).

Implementation of Pillar III Community-Based Total Sanitation (CLTS) in reducing the incidence of stunting in Pangkep Regency. Based on the research results, show that the implementation of CLTS pillar 3 with a reduction in stunting incidents in Buwong Cindea Village, Bungoro District, Pangkep Regency, obtained a p-value of  $0.002 < 0.05$ , which means that there is a significant relationship between the implementation of CLTS pillar 3 and the reduction in stunting incidents in Pangkep Regency. The research results show that there is a relationship because the average respondent when interviewed had implemented a community-based total sanitation program (CLTS), especially pillar 3, namely household food and drink management (PAMM-RT). For example, when managing food, the food ingredients are washed first and for drinking water, the average respondent cooks/boils the water first before consuming it and some use bottled water.

This research is also in line with research by Berhe et al. (2019), who found that many risk factors lead to stunting, such as maternal parenting and adequate sanitation facilities. This is in line with (Dake et al., 2019) that the management of drinking water and food is

carried out to obtain water with drinking water quality, water that has been processed into drinking water which is used and consumed regularly every day 80 and stored in closed containers to avoid from disease problems due to untreated and unsecured water, as well as food that has been cooked and served always covered and the containers used are always clean, which are important indicators in serving household food and drinks. People use well water for daily needs such as cooking, washing clothes, dishes, and cleaning the house, while for drinking, they use boiled water., water used as drinking water must be safe and meet various health requirements. Good drinking water must meet physical requirements, bacteriological requirements, and chemical requirements. The physical requirements used as standards to determine healthy drinking water are colorless, tasteless, odorless and the temperature is below the temperature of the surrounding environment. Bacteriologically, healthy drinking water must be free from all bacteria, especially bacteria that have pathogenic properties and are dangerous for drinkers. Informants stated that contaminated drinking water and food would cause diarrhea, especially in children. (Wolf et al., 2014)

Aspects of personal hygiene and environmental sanitation have an important role in the problem of malnutrition, including stunting. Sanitation is related to environmental health which influences the level of public health. Poor sanitation conditions will harm many aspects of life, starting from the decline in the quality of the community's living environment, contamination of drinking water sources for the community, and the emergence of several diseases (Ministry of Health of the Republic of Indonesia, 2018). Aspects of environmental sanitation and personal hygiene play an important role in the incidence of stunting, such as the frequency of children being exposed to infectious diseases, and the low habit of washing hands properly with soap which can increase the incidence of diarrhea. Things that are considered minor, such as open defecation, can have a broad impact on health (Mushda et al., 2018).

Based on research results, the availability of clean drinking water determines the health

status of the family. Even though the source of drinking water consumed comes from a gallon or spring and the physical quality of the water is good, it is best to boil the water before consuming it to ensure that the water to be consumed is free from bacteria that can cause disease for children under five and their families. The correlation between the incidence of stunting and poor sanitation management in the community is mediated by the increasing incidence of infections in children under five, such as diarrhea, cholera, typhoid fever and paratyphoid fever, dysentery, hookworm disease, ascariasis, hepatitis A and E, skin diseases, trachoma, schistosomiasis, cryptosporidiosis, malnutrition, and diseases related to malnutrition. Many factors affect the degree of human health such as poor water, soil, and air conditions (Suryadi *et al.*, 2022).

## Conclusion

There is a significant relationship between the implementation of CLTS pillar I and a reduction in the incidence of stunting in Taraweang Village, Labakkang District, and Pangkajene and Islands Regency. There is no significant relationship between the implementation of CLTS pillar I and the reduction in stunting incidents in Taraweang Village, Labakkang District, and Pangkajene and Islands Regency. There is no significant relationship between the implementation of CLTS pillar I and the reduction in stunting incidents in Buwong Cindea Village, Bungoro District, and Pangkajene and Islands Regency. There is a significant relationship between the implementation of CLTS pillar III and a reduction in the incidence of stunting in Buwong Cindea Village, Bungoro District, and Pangkajene and Islands Regency.

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