The Effectiveness of Community-Based Total Sanitation Triggers in Preventing Environment-Based Diseases in Lampisang Village, Aceh Besar District

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Abstract

Community-Based Total Sanitation (CBTS), which consists of five pillars, is one of the government programs aimed at preventing the emergence of environment-based diseases. However, the implementation of CBTS is still quite low, especially in Aceh Province, with an achievement of only 75.9%, which is below the national target. The purpose of this study was to carry out CBTS triggering activities and measure the effectiveness of extension-based triggering activities as a key measure for preventing environment-based diseases in Lampisang Village, Aceh Besar District. The research method used was a pre-experimental design with a One-Group Pretest-Posttest Design. The study was conducted in July 2025 in Lampisang Village, which is part of the working area of the Sukamakmur Community Health Center in Aceh Besar District. The research population consisted of 30 people from Lampisang Village. The research variable was the community's knowledge before and after the triggering intervention in the form of education. Data analysis was performed using the Paired T-test. The results of the analysis of the research variable using the Paired T-test showed a sig value of 0.000 < 0.05 α with a mean of -30.6. The analysis results showed that the triggering action in the form of education was proven to be effective in increasing community knowledge related to CBTS and showed a significant increase in the mean value of 30.6 points from the pre-test and post-test values. The implementation of CBTS triggering activities in the form of health education in the context of preventing environment-based diseases in the community in Lampisang Village, Aceh Besar Regency, has proven to be effective in increasing community knowledge related to CBTS and its implementation. This activity has proven to be effective in increasing community knowledge by >30%.

Keywords: CBTS; Community; Effectiveness; Health Education; Triggering

Introduction

Community-Based Total Sanitation (CBTS) is one of the programs launched by the government with the main objective of developing basic sanitation for the community, starting with encouraging changes in community hygiene behavior and improving environmental sanitation through community empowerment. (Wardini et al., 2024). One of the main keys to the successful implementation of the CBTS program is active community participation, as the main approach of CBTS is Participatory Rural Appraisal (PRA). The use of this approach places the community at the center of CBTS program activities. (Fithri et al., 2024). The CBTS program consists of five main pillars, namely stopping

open defecation, washing hands with soap, managing drinking water and safe food management practices, proper household waste management, and household liquid waste management. (Rany et al., 2023). The CBTS program launched by the government is a revolutionary concept that combines sanitation, health, and behavioral aspects in an effort to achieve sustainable community sanitation. (Fajar et al., 2024).

CBTS is one of the programs that has been implemented by the government through CBTS, which has been officially declared as a national policy through the Decree of the Minister of Health of the Republic of Indonesia Number 3 of 2014. Referring to Minister of Health Regulation No. 3 of 2014, the CBTS implementation strategy includes three mutually supportive components, known as the three components of total sanitation, as follows: 1.) Creating an enabling environment, 2.) Increasing sanitation demand, 3.) Improving sanitation access (Rangkuti et al., 2020).

The number of subdistricts implementing CBTS in Indonesia in 2022 reached 70,637 (87.3%), a significant increase from 69.43% in 2019. One of the provinces with a relatively low CBTS implementation rate is Aceh Province, which ranked fifth lowest among all provinces in Indonesia in 2022 (Kementerian Kesehatan Republik Indonesia, 2023). In 2022, Aceh Province's CBTS achievement was only 75.9%. This achievement is quite far behind when compared to provinces located near Aceh Province, such as North Sumatra Province (98.7%) and Riau Province (93%) (Dinas Kesehatan Provinsi Aceh, 2023).

One of the impacts of low CBTS achievement is increased community vulnerability to environment-based diseases such as diarrheal syndrome caused by exposure to pathogenic microorganisms such as *E. coli* and *S. typhi*. Exposure to these pathogenic microorganisms is caused by bacterial contamination entering water bodies due to open defecation, poor personal hygiene such as not washing hands with soap, and poorly treated household wastewater (Maliga et al., 2022).

The low achievement of the CBTS program in Aceh Province is due to multidimensional factors that are not only caused by infrastructure limitations, but also by socio-cultural factors, including the community's low level of awareness and knowledge regarding the CBTS program itself. The community may have basic knowledge about waterborne diseases, but they do not fully internalize the causal relationship between open defecation and increased incidence of diarrhea, stunting, or other infectious diseases. (Putra et al., 2021; Utama et al., 2024).

To improve the implementation of the CBTS pillars, it is necessary to trigger the community as the core of the program. One form of triggering activity is to conduct outreach activities related to strengthening the implementation of the 5 pillars of CBTS to the community. (Hardestyariki et al., 2023). One of the villages that has implemented CBTS quite well but has not yet achieved the specified target is Lampisang village, located in the working area of the Lampisang Community Health Center. This fairly good implementation needs to be triggered so that the target of implementing the 5 pillars that has been announced can run well so that it can reduce the impact of environmental-based diseases. With these conditions, this study aims to measure the Effectiveness of Community-Based Total Sanitation Education as a Major Step in Preventing Environmental-Based Diseases in Lampisang Village, Aceh Besar Regency.

Methods

This study used an experimental research design with a One-Group Pretest-Posttest Design. This study was conducted to measure the effectiveness of the health education activities that had been carried out. The study was

conducted on the same population group by measuring the difference in knowledge before and after the intervention activity in the form of health education was carried out.

The research was conducted in Lampisang Village, Aceh Besar Regency. The research was conducted in July 2025. The research population consisted of 30 people from Lampisang Village. The research population consisted of people with the following criteria: residing in the research location, attending the health education activities, and filling out the pretest and posttest forms distributed by the research team.

The research variables consisted of the respondents' level of knowledge before the health education was conducted and their level of knowledge after the health education was conducted. The research variables were measured using a questionnaire prepared by the research team. The questionnaire was prepared independently by the research team with the definition and objectives of CBTS, the pillars of CBTS, the impact of CBTS, the role of the community in CBTS, and the implementation of CBTS.

Data analysis was carried out using two methods, namely descriptive and analytical analysis. Descriptive analysis was carried out using graphs and trends in changes in values before and after the intervention. Further analysis used the Dependent T-test to measure whether there was a difference in knowledge before and after the health education activity was carried out.

Results

The results of the analysis conducted on the respondents' knowledge indicators, which consisted of the definition and objectives of CBTS, the pillars of CBTS, the impact of CBTS, the role of the community in CBTS, and the implementation of CBTS, showed that the respondents' lowest level of understanding before the intervention was carried out was regarding the definition and objectives of CBTS, with an average score of 16.7. The highest level of understanding among respondents before the intervention was about the role of the community in CBTS, with a score of 93.3%. These analysis results show that the community has indirectly understood its role in implementing the pillars of CBTS in their daily lives, but the community does not know that the activities they carry out are pillars of CBTS. This is supported by the community's CBTS implementation indicator before the intervention, which reached a score of 71.43%.

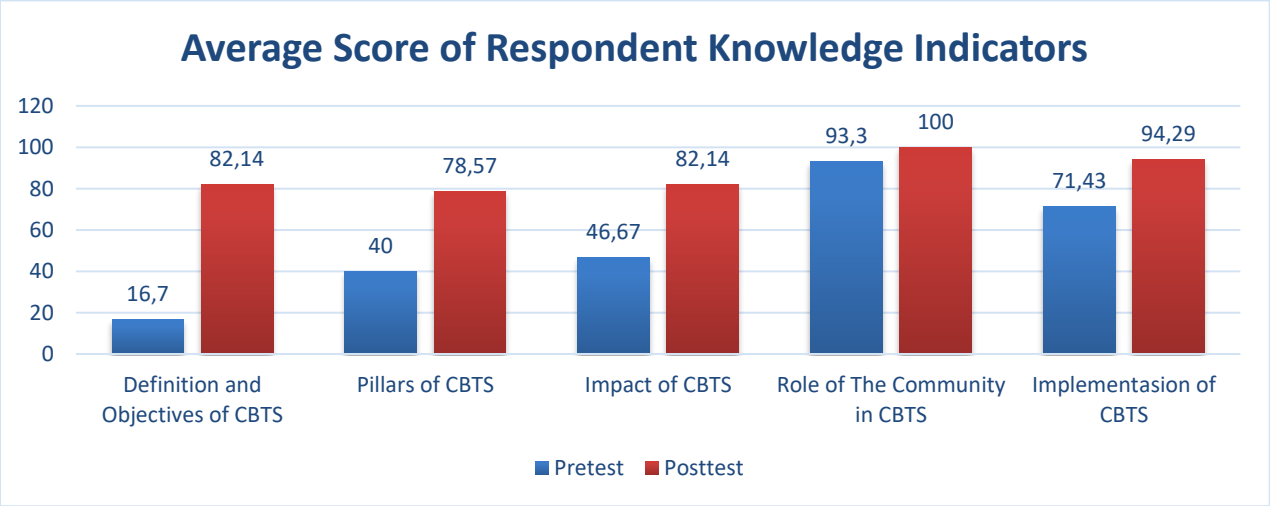

Figure 1. Average Score of Respondent Knowledge Indicators

The results of the analysis of respondents' knowledge indicators after the intervention in the form of health education

show that the lowest knowledge indicator is knowledge related to the CBTS pillars, with an average score of 78.57. However, even though understanding of the CBTS pillar indicator was quite low, the indicator of community role in CBTS implementation received an average score of 100. This shows that even though the community did not have a thorough understanding of the CBTS pillar, they were able to understand the pillar well, as evidenced by their understanding of their role in its implementation.

Table 1. Results of Paired T-Test Analysis

Mean	Confidencde Interval of Difference		Sig
	Lower	Upper	
-30,46	27,93	32,99	0,000

(Primary Data, 2025)

The results of the analysis show that the paired T-test indicates that there is an effect between CBTS triggering activities in the form of health education and an increase in the knowledge of respondents in Lampisang Village, Aceh Besar District (Sig 0.000 < α 0.05). The results of the analysis show that there was an increase in the average knowledge of respondents before and after the triggering activity of 30.46 points, with the smallest increase of 27.93 points and the largest increase of 32.99 points. These analysis results show that the CBTS triggering activity in the form of health education that was carried out proved to be effective in increasing the knowledge of respondents.

Figure 2. Implementation of Triggering Activities in the Form of Health education on CBTS

Discussion

The results of the analysis show that statistically, the implementation of CBTS triggering through outreach activities can increase public knowledge about CBTS. Outreach is a form of empowerment that has been proven effective in increasing public knowledge, including knowledge about CBTS (Syahrizal et al., 2022). The provision of information related to CBTS includes definitions, pillars, impacts of application and implementation of CBTS with the aim of increasing public knowledge related to environmental health efforts summarized in the 5 pillars of CBTS, namely washing hands with soap and running water, household water and food management, household waste and wastewater management (Fithri et al., 2024).

The activities carried out were able to increase knowledge, as demonstrated by the increase in respondents' knowledge before and after the intervention in the form of health education, with an average increase in knowledge scores of 30.4 points. This is in line with research conducted by Herniwanti, et al (2021), where health education related to pillar 1 of CBTS was able to increase community knowledge. (Herniwanti et al., 2021, 2022).

The results of the analysis conducted on the respondents' knowledge indicators both before and after the triggering

intervention was implemented show that all indicators experienced an increase in value, including indicators on the definition and objectives of CBTS, the pillars of CBTS, the impact of CBTS, the role of the community in CBTS, and indicators on the implementation of CBTS. The selection of appropriate media by the research team proved to be effective in increasing respondents' knowledge related to knowledge indicators. In addition, the approach and method of delivery also played a significant role in increasing respondents' understanding of the material presented (Widiyawati et al., 2025).

The results of the analysis conducted on the respondents' knowledge construct show that there are several respondents who did not optimally answer the pretest and posttest on several pillars that are rarely applied by respondents, such as household liquid waste management. Most respondents still do not implement household liquid waste management, so they do not fully understand the explanations provided by the research team. As an indicator in questions that require demonstration, respondents still did not optimally answer the questions provided. (Hasibuan, 2023; Musfirah et al., 2020).

Conclusion

The implementation of CBTS triggering activities in the form of health education in the context of preventing environment-based diseases in the community in Lampisang Village, Aceh Besar Regency, has proven to be effective in increasing community knowledge related to CBTS and its implementation. This activity has proven to be effective in increasing community knowledge by >30%, and statistical analysis shows significant results ($\alpha > p$). This triggering activity can improve the implementation of the five pillars of CBTS in the community, the outcome of which is expected to reduce the incidence of environment-based diseases. To increase the impact of this triggering activity, it is necessary to carry out continuous follow-up triggering actions by the Lampisang Village government and the Sukamakmur Community Health Center to ensure that the implementation of the five pillars of CBTS in the village is comprehensive, consistent, and effective in preventing the incidence of environment-based diseases.

Acknowledgment

Thank you to the Sukamakmur Community Health Center and Lampisang Village in Aceh Besar Regency for supporting the implementation of this activity. To the Head of Lampisang Village, the people of Lampisang, and the health cadres who have accompanied the implementation of this activity so that all stages of implementation can run well and successfully achieve the objectives that have been determined.

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