

Improving Home Sanitation and Personal Hygiene as a Stunting Prevention Effort in Liliba Village, Oebobo District, Kupang City

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Abstract: This Community Service (PKM) activity aims to improve home environmental sanitation and personal hygiene as an effort to prevent stunting in Liliba Village, Kupang City, an area with a relatively high stunting rate. The activity was carried out at the Melati 11 Integrated Health Post (Posyandu) and targeted mothers with stunted toddlers and Posyandu cadres. The intervention was carried out through health education on home sanitation and personal hygiene, knowledge assessments using pre- and post-tests, and the repair of one family toilet unit that previously did not meet environmental health requirements. The results of the activity showed an average increase in knowledge of participating mothers by 7–8% after the education, accompanied by an increased understanding of clean and healthy living practices (PHBS). The enthusiasm of the participants in the discussion indicated a good receptivity to the material. In addition, the toilet repair has resulted in a sanitation facility that meets healthy toilet standards and is expected to serve as a model for other families. Overall, this program is effective in increasing the knowledge, awareness, and quality of sanitation of families at risk of stunting. This activity also supports the achievement of the STBM pillars, especially Stop Open Defecation (BABS), and provides a real and sustainable impact on the community.

Keywords: Disease prevention, Healthy Toilets, Hygiene, Sanitation, Stunting.

Introduction

Stunting is one of the main indicators of chronic nutritional problems in children which has a significant impact on the quality of human resources in the future. The World Health Organization (WHO) defines stunting as a condition of failure to thrive due to chronic malnutrition and recurrent infections that occur in the first 1,000 days of life (WHO, 2018). The impact is not only visible on physical growth, but also on cognitive development, immune system, learning ability, and economic productivity in adulthood (Semba & Bloem, 2002). At the global level, stunting is still a serious challenge, especially in low and middle income countries, including Indonesia (UNICEF, 2021)

Indonesia still records stunting prevalence above the WHO threshold (Kementerian kesehatan RI, 2019). Even though they show a downward trend, several provinces still

have figures that are much higher than the national average. East Nusa Tenggara (NTT) Province is one of them, with a stunting prevalence that was above 40% and was one of the highest in Indonesia (Bapennas, 2019). Kupang City, as the center of economic and government activity in the province, also faces similar problems. One area of concern is Liliba Village, especially the Posyandu Melati 11 working area, which has a fairly high number of stunted toddlers.

Various studies show that sanitation and hygiene play a major role as indirect factors causing stunting (Silva et al., 2023). An unhealthy home environment, unavailability of proper toilets, low water quality, and poor personal hygiene practices increase the risk of diarrhea and worm infections, which ultimately hinder children's nutritional absorption (Herawati et al., 2023). UNICEF and WHO

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emphasize that Water, Sanitation, and Hygiene (WASH) interventions are an important component in long-term stunting prevention strategies (WHO, 2018), thus, efforts to improve household sanitation and clean and healthy living behavior (PHBS) are very relevant to reducing the risk of stunting (Hutton & Haller, 2004).

Liliba Village faces various WASH challenges, including limited access to healthy latrines, inadequate availability of clean water, and low community knowledge about sanitation (Daniel, 2021). Some households still use simple latrines that do not meet health requirements or even practice open defecation (BABS). This condition increases fecal contamination in the environment and becomes a route for transmission of various diseases. In addition, personal hygiene practices such as washing hands with soap at important times are still not implemented consistently (Fajar et al., 2024)

Universities have a strategic role in supporting government efforts through empowerment-based community service activities. Through educational approaches, behavioral assessments, and physical interventions such as improving sanitation facilities, the Community Partnership Program (PKM) can be an applicable intervention model and have a direct impact on improving the quality of community health (Ramesh et al., 2015). This intervention also provides a demonstration effect which motivates people to change their behavior and improve sanitation facilities independently (Hutton & Haller, 2004)

Based on this urgency, this article examines the results of PKM activities in the form of education on home sanitation, personal hygiene, and toilet repairs for families with stunted toddlers in Liliba Village. It is hoped that this activity will provide an overview of the effectiveness of WASH-based interventions in preventing stunting and become a reference for developing similar programs in other regions.

Method

This community service activity method is implemented through the Community Partnership Program (PKM) approach by combining health education, knowledge assessment, hygiene demonstrations/practices, and latrine improvement interventions in one target family. Program implementation began with coordination and agreement with the Liliba Subdistrict Government and Posyandu Melati 11 as field partners. The preparation stage includes preparing counseling materials, pre-test and post-test instruments, as well as an initial survey of the latrine conditions of the target families. Furthermore, core activities are carried out in the form of education regarding stunting, household sanitation and personal hygiene, accompanied by the implementation of pre-tests and post-tests to measure the increase in maternal knowledge. A practical

demonstration of hand washing with soap (CTPS) was carried out to train basic hygiene skills, which was then followed by a brief observation of the participants' practice.

Sanitation interventions are carried out by improving family latrine facilities with a focus on improving function, cleanliness and safety of use. The implementation of repairs is accompanied by lecturers who have expertise in the field of environmental sanitation and involve students as field assistants for documentation, observation and measurement of activity results. Evaluation of activities is carried out by comparing pre-test and post-test knowledge scores, assessing hygiene practices through direct observation, and documenting the results of latrine improvements. The activity was carried out on October 13 2025 at Posyandu Melati 11, Liliba Village, involving 11 mothers and 14 stunted toddlers. Expected outputs include increased knowledge and hygiene practices of mothers as well as the completion of one family latrine repair unit as an example of a low-cost household sanitation intervention.

Result and Discussion

Increasing Mothers' Knowledge about Home Sanitation and Personal Hygiene

The results of the implementation of outreach activities show an increase in the knowledge of mothers with stunting toddlers regarding home environmental sanitation and personal hygiene. Based on the results of the pre-test and post-test given to 11 participants, there was an increase in the average knowledge score of $\pm 7-8\%$ after the educational intervention was carried out. This increase shows that the material presented was well received and understood by the participants. The pre and post test results are as follows:

Based on Figure 1, the increase in knowledge was particularly evident in mothers' understanding of the relationship between poor sanitation and infectious diseases, such as diarrhea and gastrointestinal infections, which contribute to stunting. Participants also began to understand the importance of handwashing with soap at critical times, using clean water, and utilizing healthy latrines in their daily lives. Research by (Torlesse et al., 2016) Studies have shown that handwashing with soap can reduce stunting prevalence by up to 12% by preventing recurrent diarrheal disease in toddlers. These results align with the concept of Community-Based Total Sanitation (STBM), which emphasizes that behavioral change is key to preventing

environmentally-based diseases (Bushen et al., 2022). World Health Organization (2019) stated that WASH (Water, Sanitation, and Hygiene) interventions accompanied by education have been proven to contribute significantly to reducing the incidence of recurrent infections in toddlers, which ultimately has an impact on improving the nutritional status and growth of children (Azhim et al., 2025). Other studies also show that poor sanitation conditions are associated with Environmental Enteric Dysfunction (EED), a chronic inflammatory bowel condition that inhibits nutrient absorption and contributes to stunting.

In addition to improving knowledge scores, participants' enthusiasm during the discussion and Q&A sessions demonstrated a new awareness of the importance of sanitation and hygiene as part of stunting prevention efforts. This provides crucial social capital for encouraging sustainable changes in clean and healthy living behaviors (PHBS) at the household level (Bushen et al., 2022).

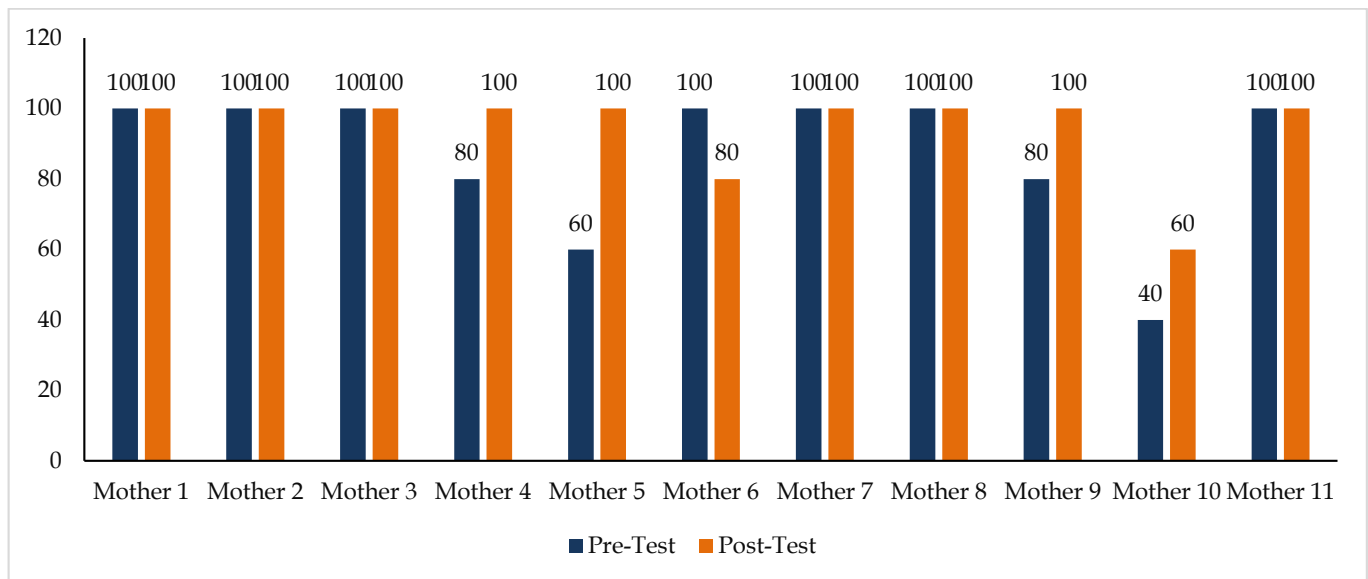


Figure 1. Comparison of Pre-Test and Post-Test Results



Figure 2. Counseling on Personal Hygiene

Toilet Repair Intervention as an Effort to Prevent Stunting

In addition to educational interventions, this PKM activity also resulted in the physical outcome of repairing a family toilet at the home of a stunted toddler that previously did not meet environmental health requirements. The repaired toilet met the criteria for a healthy toilet based on Indonesian Minister of Health Regulation Number 3 of 2014 concerning Community-Based Total Sanitation, including having a gooseneck, a

waterproof floor, permanent walls and roof, and a safe fecal disposal system that does not pollute the surrounding environment. The toilet before and after repair as shown in Figure 3.

These toilet improvements are strategically important because they directly support the first pillar of STBM, namely Stopping Open Defecation (BABS). The presence of healthy toilets at the household level plays a crucial role in breaking the chain of transmission of environmentally-related diseases, particularly diarrhea and worm infections, which are common among toddlers in environments with poor sanitation (Santoso Anna Lewi, 2024). These results are in line with various studies which state that children who live in homes with inadequate sanitation have a higher risk of experiencing stunting compared to children who live in homes with sanitation facilities that meet health requirements (Wahdaniyah et al., 2022). This is relevant as research (Cumming & Cairncross, 2016) found that sanitation interventions can reduce the risk of stunting by up to 13%. Unsanitary toilet sanitation conditions can increase exposure to pathogens in the home environment.

(Triyono et al., 2025), so that toddlers are more susceptible to repeated infections which inhibit the absorption of nutrients (Headey & Palloni, 2019).



Figure 3. Toilet Documentation: (a) before repair; (b) after repair

A study in Indonesia also showed that toddlers from households without access to proper latrines had a 19% higher prevalence of stunting than toddlers with access to adequate sanitation. This reinforces the importance of latrine improvement interventions as an integral part of stunting prevention programs (Rah et al., 2015).

In addition to the direct impact on target families, the repaired toilets are also expected to serve as role models for the surrounding community. This approach aligns with the community empowerment principle of STBM, where behavioral and environmental changes are driven through concrete examples that can be observed and emulated by other residents within the Melati 11 Posyandu area.

Conclusion

The community service program demonstrated that integrating health education on household environmental sanitation and personal hygiene with household toilet improvement is an effective approach to support stunting prevention among families with stunted children in Liliba Village. The educational intervention increased participants' knowledge by approximately 7-8%, improved their awareness of clean and healthy living practices, and encouraged greater community engagement in adopting appropriate hygiene behaviors. In addition, the renovation of one household toilet into a facility that meets healthy sanitation standards provides a practical demonstration model for promoting the first pillar of Community-Based Total Sanitation (STBM). These findings indicate that combining behavioral education with simple sanitation infrastructure improvements can strengthen

household capacity to prevent sanitation-related diseases associated with stunting. Future community service programs should expand this integrated intervention to a larger number of households and involve continuous monitoring to ensure the sustainability of behavioral and environmental improvements.

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