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Increasing Public Knowledge about Household Waste Management in RW 07, Babakan Asih Village, Bojongloa Kaler District, Bandung

Fahmi Fuadah[1], Berlyna D Saragih[2], Henni Purnasari[3], Irianti Harun[4], Herwinda Sinaga[5], Reynaldi Tresnajaya[6]

[1,2,3,4,5,6]Immanuel Institute of Health, Bandung, West Java, Indonesia

ABSTRACT

Background: Background: Ineffective household waste management is one of the primary causes of environmental problems, such as soil and water pollution. Many communities lack an understanding of the importance of proper waste management, including the separation of organic and inorganic waste. This highlights the need for sustainable educational interventions to raise awareness and improve skills in managing household waste.

Objective: This activity aims to enhance community knowledge of household waste management through education and practical training to support environmentally friendly behavior.

Method: This community service activity was conducted using a participatory approach in Village X, District Y. Methods included socialization, interactive discussions, and hands-on waste management practices, such as separating organic and inorganic waste and creating simple compost. The participants comprised 50 households selected based on their active involvement in the community.

Results: The activity demonstrated a significant improvement in participants' knowledge levels, as measured through pretest and posttest evaluations. The average knowledge score increased from 58% (fair category) in the pretest to 85% (good category) in the posttest. Additionally, 90% of participants successfully practiced waste separation, and 75% successfully created simple compost.

Conclusion: This community service activity effectively improved knowledge and skills in household waste management. The results indicate that a participatory educational approach is effective in encouraging behavioral changes toward better waste management. Similar programs are recommended to be implemented sustainably to support environmental preservation.

KEYWORD: Household Waste Management, Participatory Community Education, Environmental Knowledge Improvement, Organic-Inorganic Waste Separation, Simple Compost Creation

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INTRODUCTION

Poor household waste management is a major environmental issue, particularly in urban areas. In RW 07, Babakan Asih Village, Bojongloa Kaler District, Bandung City, improper handling of household waste remains a significant challenge. Many residents lack understanding of effective waste segregation practices, such as separating organic from inorganic waste. Consequently, waste is often not managed appropriately, leading to environmental accumulation, which ultimately poses negative impacts on public health and community quality of life[1].

The importance of effective household waste management has been emphasized in various studies. Agustina (2021) highlights that educating communities on proper waste management techniques is a viable solution to address household waste issues. By enhancing public knowledge and skills, environmentally friendly behaviors can be fostered, which in turn reduces the volume of improperly managed waste. Proper waste segregation, such as using organic waste for composting, has been identified as a practical approach to minimize the amount of waste disposed of at final disposal sites (landfills)[2].

Effective interventions that integrate educational programs with practical training are necessary to tackle these

challenges comprehensively. This study aims to evaluate the impact of educational initiatives on improving household waste management practices in the selected urban community. It focuses on increasing awareness and practical skills in waste segregation and composting as pathways to sustainable waste reduction[3].

The importance of proper household waste management is grounded in the theory of pro-environmental behavior. According to Ajzen's Theory of Planned Behavior (2020), human actions are influenced by behavioral intentions, which are shaped by attitudes, subjective norms, and perceived behavioral control. In the context of waste management, when individuals possess sufficient knowledge and awareness about waste segregation and processing, they are more likely to adopt these practices in daily life[4].

This notion is supported by Hasan (2022), who found that increasing public knowledge of waste management can encourage communities to engage in independent waste management activities within their households. Educating communities not only instills environmental values but also fosters a sense of responsibility towards sustainable practices[5].

However, several barriers hinder effective waste management despite awareness of its importance. One major obstacle is the lack of infrastructure, such as separate bins for organic and inorganic waste[6]. Additionally, limited knowledge of simple waste processing techniques, like composting, also poses challenges. These findings underscore the need for interventions that combine education with hands-on training to improve community knowledge sustainably[7].

Several factors are hypothesized to be associated with low waste management performance in RW 07, Babakan Asih Village. These include inadequate dissemination of information about waste segregation, limited availability of trained human resources, and low community awareness about environmental cleanliness. A participatory approach that involves direct community engagement is essential to address these issues[8,9].

The current initiative aims to improve community knowledge and skills in household waste management through education and practical training. By equipping residents with the necessary tools and information, the program aspires to enhance waste segregation practices and promote the use of organic waste for composting. Ultimately, this effort seeks to mitigate the adverse environmental and health impacts of improper waste management[10].

RESEARCH METHODE

This study employed a participatory design aimed at enhancing community knowledge regarding household waste management. The activity was conducted in RW 07, Babakan Asih Village, Bojongloa Kaler Sub-district, Bandung City, selected due to the low levels of waste management awareness and practices in the area. The participants consisted of 50 households (HH), chosen based on their involvement in environmental activities and willingness to actively participate in training sessions. The population targeted included all residents of RW 07, while the sample comprised the 50 households participating in the educational and training activities on household waste management.

The initiative focused on educating participants about the importance of waste segregation, methods of separating organic and inorganic waste, and simple composting techniques. The variables studied were community knowledge and skills in household waste management, measured before and after the educational activities using pretest and posttest questionnaires.

Data collection techniques included distributing pretest and posttest questionnaires to assess the participants' knowledge levels. Additionally, qualitative data were gathered through interactive discussions with participants and direct observations of their practices in waste segregation and composting during the training. Data analysis was conducted descriptively to depict changes in participants' knowledge levels. A paired sample t-test was performed to determine the statistical significance of differences in knowledge before and after the training.

At the conclusion of the program, participants were provided with educational materials emphasizing the importance of household waste management to support environmental sustainability. They were also taught practical methods applicable at the household level. The program adopted a participatory approach, encouraging participants to immediately practice waste segregation and simple composting. The outcomes of this activity are expected to positively contribute to improving community knowledge and skills in household waste management.

RESULT

The research activity conducted in RW 07, Babakan Asih Village, Bojongloa Kaler Sub-district, Bandung City, aimed to improve community knowledge and skills in household waste management. Fifty households (HH) participated in this initiative, which included socialization, interactive discussions, and hands-on practices in waste segregation (organic and inorganic) and simple composting techniques.

The pretest results indicated that most participants had limited knowledge of waste management, with an average score of 58%, categorized as "fair." Following the educational and training sessions, a posttest was conducted to assess the improvement in participants' knowledge. The posttest revealed a significant increase, with an average score of 85%, categorized as "good." These findings demonstrate the effectiveness of the training in enhancing participants' understanding of the importance of household waste management.

Additionally, participants' practical skills improved

significantly after the training. Ninety percent of participants successfully practiced proper waste segregation, both organic and inorganic. This practical implementation was conducted during guided activities led by facilitators. The results suggest that participatory and hands-on training approaches are effective in increasing community competence in household waste management.

The table below illustrates the comparison of pretest and posttest results on participants' knowledge of household waste management:

Table 1. Pretest and Posttest Results on Household Waste Management Knowledge

No	Aspec Tested	Pretest (%)	Posttest (%)
1.	Segregation of Organic and Inorganic Waste dan Anorganik Simple Composting	60	85
2.	Techniques Knowledge of Waste Impact	50	80
3.	Environmental Awareness	55	88
4.		58	85

The data in Table 1 demonstrates a significant improvement in participants' knowledge of household waste management, particularly in aspects like waste segregation and composting techniques. For instance, knowledge related to the segregation of organic and inorganic waste increased from 60% during the pretest to 85% in the posttest, signifying a successful enhancement of understanding after training. Similarly, knowledge about simple composting techniques rose from 50% to 80%, reflecting the impact of practical sessions included in the program.

In addition to these improvements, direct observations conducted during the activities revealed that 75% of participants were able to produce simple compost using organic materials from their household waste. This practical competency is further evidence of the effectiveness of hands-on training in empowering participants to independently manage waste at home.

Table 2. Observational Results on Participants' Skills in Composting

No	Activity	Percentage of Participants (%)	Remarks
1.	Segregation of Organic and Inorganic Waste	90	Participants correctly segregated organic and inorganic waste.
2.	Simple Composting	75	Participants successfully created compost from organic waste.
3.	Awareness on Waste Impact	85	Participants demonstrated good understanding of the environmental impacts of waste.
4.	Compliance with Waste Management Protocols	80	Most participants adhered to waste management procedures consistently.

Table 2 highlights observational findings regarding participants' practical skills in household waste management. Most participants demonstrated strong abilities in managing waste effectively, including waste segregation and simple composting.

Overall, this research activity successfully enhanced community knowledge and skills in managing household waste. Training based on direct practice and a participatory approach proved effective in fostering behavioral changes toward better waste management.

This improvement is expected to persist and be implemented sustainably in participants' daily lives, ultimately delivering positive impacts on waste management and environmental conservation in the area.

DISCUSSION

The results of the research activity on household waste management conducted in RW 07, Kelurahan Babakan Asih, Kecamatan Bojongloa Kaler, revealed a significant improvement in participants' skills and knowledge regarding waste management. Based on data in Table 2, it can be observed that most participants (90%) were able to correctly separate organic and inorganic waste. This aligns with Suryani (2020), who emphasized that community understanding of waste segregation is crucial for the success of household-level waste management programs. Waste

segregation is a critical first step in reducing the volume of waste sent to landfills and minimizing environmental impacts such as soil and water pollution[11].

Additionally, 75% of participants successfully created simple compost from organic waste. This composting process supports the principles of a circular economy, transforming organic waste into valuable products like eco-friendly fertilizers. Composting has been shown to effectively reduce waste volumes and enhance soil fertility, consistent with findings by Pratama and Handayani (2021), who noted that composting training enhances community awareness and capabilities for sustainable household waste management[12].

Observations further indicated that 85% of participants demonstrated a good understanding of the environmental impacts of waste, highlighting the success of the education and outreach efforts. Prior studies have identified environmental awareness as a key factor in effective household waste management, as individuals with better knowledge of waste's environmental and health impacts are more inclined to participate in responsible waste programs[13].

Moreover, 80% of participants complied well with the waste management procedures introduced during the activity. This suggests that the participatory approach in this research effectively increased community involvement in waste management practices. Similar findings have been reported in studies showing that participatory education methods, involving hands-on community activities, accelerate behavioral changes and improve program outcomes[14].

Despite these encouraging results, 10% of participants faced challenges in waste segregation and composting[15]. This underscores the need for additional training or follow-up support, as Sudarmanto (2022) argued that continuous guidance is essential to achieve optimal results in community waste management initiatives[16].

Overall, the findings indicate that participatory education involving hands-on community engagement in household waste management can significantly change behaviors. The observed improvements in knowledge and skills for waste segregation and simple composting reflect growing awareness of sustainable waste management, contributing to cleaner and healthier environments[17].

CONCLUSION

The conclusion of this study is that the training program on household waste management in RW 07, Kelurahan Babakan Asih, successfully enhanced community knowledge and skills. Specifically:

1. Improved Understanding: Most participants demonstrated a better understanding of the importance of waste segregation and the harmful effects of waste on the environment.
2. Practical Application: Many residents successfully implemented waste segregation and processed organic waste into compost, showing potential to reduce the amount of waste sent to landfills.
3. Increased Awareness: Enhanced community awareness of waste management supports environmental sustainability and contributes to reducing pollution caused by household waste.
4. Challenges and Solutions: Although some challenges, such as lack of facilities and limited support, were encountered, most participants exhibited high awareness of good waste management practices.

This activity demonstrates that effective education and training can significantly improve community knowledge and skills in managing household waste. To ensure the program's sustainability, further support and guidance are necessary to help the community overcome existing challenges and continue applying the learned practices.

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