p-ISSN: 2598-1218
e-ISSN: 2598-1226
Volume 9 Nomor 11 Tahun 2026
DOI : 10.31604/jpm.v9i11.4444-4450

EDUCATION ON FOOD SORTING AND MANAGEMENT TO IMPROVE PUBLIC KNOWLEDGE AND ATTITUDES

Riyana Husna[1)], Vebby Amellia Edwin[1)], Ikhsan Surya[1)], Welly[2)], Nurlelasari Harahap[2)], Deri Andika Putra[3)], Reza Olyverdi[4)]

[1)] Department of Environmental Health, Poltekkes Kemenkes Padang, Indonesia
[2)] Nursing Department, Ministry of Health Polytechnic of Padang, Indonesia
[3)] Nutrition Departments, Padang Ministry of Health Polytechnic
[4)] Department of Physiotherapy, Fort De Kock University Bukittinggi
riyanahusna31@gmail.com

Abstract

Household food waste is a significant component of domestic waste that requires management at the source. This community service program aims to improve public knowledge and attitudes regarding food waste segregation and management at the household level. Program planning was based on a baseline assessment of 50 household representatives in the Karakah Community Health Center (Puskesmas) service area; the results showed that 52.0% had poor knowledge, 62.0% held positive attitudes, and 60.0% demonstrated poor waste management behavior. Respondents participated in the program and completed both pre- and post-tests. The program was implemented in Padang City in 2026, consisting of preparation, implementation, and evaluation phases. Activities combined health education, interactive discussions, practical demonstrations on waste segregation at the source and simple food waste management techniques, and the use of printed educational materials. Short-term outcomes were assessed descriptively by comparing average scores before and after the activities. Following the intervention, the knowledge score regarding food waste segregation rose from 60 to 88, reflecting a 46.7% increase. Knowledge regarding food waste management also improved from 58 to 85, a rise of 46.6%. Additionally, the attitude score regarding household waste management increased from 65 to 90, representing a 38.5% rise. These findings indicate that the activity successfully improved participants' knowledge and attitudes. Continuous mentoring and direct measurement of waste generation are recommended to determine whether these improvements translate into consistent practices and measurable waste reduction.

Keywords: food residues, waste sorting, community education, household waste, attitude.

Abstrak

Sisa makanan rumah tangga merupakan komponen penting dari limbah domestik yang memerlukan pengelolaan sejak dari sumbernya. Program pengabdian masyarakat ini bertujuan untuk meningkatkan pengetahuan dan sikap masyarakat terkait pemilahan sisa makanan serta pengelolaannya di tingkat rumah tangga. Perencanaan program didasarkan pada penilaian awal terhadap 50 perwakilan rumah tangga di wilayah kerja Puskesmas Karakah; hasil penilaian menunjukkan bahwa 52,0% memiliki pengetahuan yang kurang, 62,0% memiliki sikap positif, dan 60,0% menunjukkan perilaku pengelolaan sampah yang kurang baik. Responden yang terlibat dalam kegiatan pengabdian masyarakat ini dan mengikuti pre-test serta post-test. Program dilaksanakan di Kota Padang pada tahun 2026 melalui tahapan persiapan, pelaksanaan, dan evaluasi. Kegiatan ini memadukan penyuluhan kesehatan, diskusi interaktif, demonstrasi praktis mengenai pemilahan sampah di sumbernya dan pengelolaan sederhana sisa makanan, serta penggunaan media edukasi cetak. Hasil jangka pendek dinilai secara deskriptif dengan membandingkan skor rata-rata sebelum dan sesudah kegiatan. Setelah intervensi, skor pengetahuan mengenai pemilahan sisa makanan meningkat dari 60 menjadi 88, yang mencerminkan peningkatan sebesar 46,7%. Pengetahuan tentang pengelolaan sisa makanan juga meningkat dari 58 menjadi 85, atau naik sebesar 46,6%. Selain itu, skor sikap terhadap pengelolaan sampah rumah tangga meningkat dari 65 menjadi 90, setara dengan kenaikan sebesar 38,5%. Temuan ini menunjukkan bahwa kegiatan tersebut berhasil meningkatkan pengetahuan dan sikap peserta. Pendampingan berkelanjutan dan pengukuran

langsung terhadap timbulan sampah disarankan untuk menilai apakah peningkatan tersebut berlanjut menjadi praktik yang konsisten dan pengurangan sampah yang terukur.

Keywords: sisa pangan, pemilahan sampah, edukasi masyarakat, sampah rumah tangga, sikap.

INTRODUCTION

Food waste is a significant environmental issue because the majority of global food waste originates from households. In 2022, approximately 1.05 billion tons of food were wasted at the retail, food service, and household levels, with households accounting for approximately 60% of this amount. This situation demonstrates that changes in management at the household level are a crucial part of waste reduction efforts and achieving sustainable consumption and production (United Nations Environment Programme 2024) . *Food loss and food waste occur at different stages in the food supply chain; food loss generally occurs before the retail stage, while food waste primarily occurs at the retail and consumption levels (Food and Agriculture Organization 2019)* .

In Indonesia, waste reduction and management have been regulated through Law Number 18 of 2008 and Government Regulation Number 81 of 2012. Both regulations place waste reduction from source, sorting, reuse, and processing as an important part of household waste management. However, implementation at the household level is still influenced by community understanding, attitudes, habits, availability of facilities, and access to waste management services. (Republic of Indonesia 2008) , (Republic of Indonesia. 2012) .

Knowledge and attitudes are two relevant factors in shaping waste management practices. Research on communities in Indonesia shows that knowledge and attitudes are related to waste sorting and management behavior, while infrastructure support can determine whether this understanding can be applied in daily life (Cristina et al. 2023) , (Fadhilah and Wijayanti 2023) . Therefore, education needs to be designed not only to provide information but also to provide opportunities for the community to observe and practice realistic waste management methods.

The team's initial assessment of 50 respondents in the Karakah Community Health Center area showed that 26 respondents (52.0%) had insufficient knowledge and 30 respondents (60.0%) demonstrated poor waste management behavior, although 31 respondents (62.0%) had positive attitudes. These findings were used as the basis for developing educational activities on food waste sorting and management.

A combined outreach approach with discussions and demonstrations has been used in various community empowerment activities related to household waste. Education and hands-on practice can increase understanding of sorting, composting, and utilizing organic waste, while also building community participation (Kresnawaty et al. n.d.) , (Nur et al. n.d.) . Activities in household groups also show that composting and eco-enzyme training can help change the community's perspective from viewing waste as a burden to a resource that can still be utilized (Ambarsari et al. n.d.) .

Based on these conditions, this community service activity was designed with a participatory educational approach that combines material delivery, discussion, demonstration, and educational media. The focus of the activity is directed at sorting food waste from its source and simple management practices that can be implemented in households. The activity aims to increase public knowledge about sorting and managing food waste and strengthen positive attitudes toward household waste management.

METHOD

The community service activity was carried out in the Karakah Community Health Center (Puskesmas) working area in Padang City, West Sumatra, in 2026. Fifty participants participated. All respondents participated in a series of educational activities and completed pre- and post-tests.

The preparation phase includes coordinating with partners, identifying educational needs, developing materials, preparing leaflets/posters, developing pre- and post-test instruments, and preparing demonstration tools and materials. Partners play a role in preparing the location, coordinating participants, and supporting the implementation of activities at the community level.

The implementation phase involved short lectures, interactive discussions, and demonstrations. The material covered types of food waste, the impacts of improper management, sorting at source, recycling, and simple processing methods such as composting. Demonstrations were used to provide participants with an overview of practices that can be implemented using household resources. Printed materials were provided as reminders of key steps after the educational sessions concluded.

The evaluation was conducted on all 50 respondents using a pre-test before the education and a post-test after the activity. The aspects assessed included knowledge about food waste sorting, knowledge about food waste management, and attitudes toward household waste management.

The data were analyzed descriptively by comparing the mean scores before and after the program. Absolute improvement was calculated from the difference between the post-test and pre-test scores, while relative improvement was calculated by dividing the difference by the pre-test score and then multiplying by 100%. This analysis was used to illustrate the program's short-term achievements and was not intended to infer causal effectiveness.

RESULTS AND DISCUSSION

Program Determination

An initial assessment of 50 respondents who later participated in the activity revealed that the main problem lies not only in knowledge but also in the implementation of waste management behaviors. A summary of the initial conditions, along with the results of the analysis of the relationship between knowledge and attitudes and waste management behaviors, is presented in Table 1.

Table 1. Results of Analysis of Knowledge, Attitudes, and Behavior

Indicator	n	%	OR (95% CI)	Sig. (p-value)
Good knowledge	24	48.0	18.62 (4.19–82.67)	<0.001
Lack of knowledge	26	52.0		
Positive	31	62.0	28.50	<0.001

attitude			(3.36–242.10)	
Negative attitude	19	38.0		
Good waste management behavior	20	40.0	–	–
Bad waste management behavior	30	60.0	–	–

Fisher's exact test results showed a significant relationship between knowledge and waste management behavior (OR=18.62; 95% CI: 4.19–82.67; p<0.001), as well as between attitude and behavior (OR=28.50; 95% CI: 3.36–242.10; p<0.001). These findings strengthen the basis for implementing education that targets knowledge, attitudes, and implementation of household waste management practices.

Implementation of Activities

The activities were carried out according to the planned stages. The educational session began with an introduction to the problem of food waste and its relationship to household waste, followed by a discussion of the principles of sorting. Participants were encouraged to distinguish between usable food waste and residue that must be discarded, ensuring that waste management does not stop at moving waste from homes to landfills.

During the demonstration session, participants were shown simple examples of sorting and management using readily available materials. This approach was chosen because practice-based learning can bridge the gap between conceptual understanding and everyday practice. Experience with other household waste management programs also demonstrates that discussion and hands-on practice are essential components in building community understanding and participation (Kresnawaty et al., 2025; Afraah et al., 2025).

Changes in Knowledge and Attitudes

All 50 participants completed the pre- and post-tests. The evaluation showed improvements in all measured aspects. The comparison of mean scores before and after the activity is presented in Table 2.

Table 2. Changes in Participants' Pre-test and Post-test Scores

Assessment Aspects	Pre-test Average	Post-test Mean	Δ points; Δ (%)
Knowledge of sorting food waste	60	88	28; 46.7
Knowledge of food waste management	58	85	27; 46.6
Household waste management attitudes	65	90	25; 38.5

The largest absolute increase occurred in knowledge of food waste sorting, increasing by 28 points, from 60 to 88. Relatively, the increase was 46.7%. This change indicates that the material on sorting from source can be understood well after participants received a structured explanation and examples close to household activities. Similar results were reported in a home waste management program that combined counseling, discussion, and direct practice and resulted in increased community understanding of waste sorting (Kresnawaty et al. nd) .

Knowledge regarding food waste management increased from 58 to 85, or an increase of 27 points (46.6%). This similar increase in sorting indicates that participants not only gained an understanding of waste classification but also alternative ways to handle it. Organic waste management training,

which combines outreach, practice, and mentoring, has also been reported to improve community understanding and skills in utilizing organic waste (Nur et al. nd) , (Sulthoni et al. nd) .

The attitude score toward household waste management increased from 65 to 90, a 25-point increase (38.5%). This change in attitude is important because acceptance of sorting and managing waste at source can form the basis for readiness to change household routines. Training programs for processing waste into compost and eco-enzymes for households also demonstrated a change in people's perspectives on waste after outreach and demonstrations (Ambarsari et al. nd) .

While improved scores indicate positive educational outcomes, knowledge and attitudes do not always translate into consistent behavior. The availability of facilities, ease of collection, practical experience, and environmental support can influence the implementation of waste management in daily life (Fadhilah and Wijayanti 2023) . Experience with implementing mini composters also showed that some participants still needed support due to concerns about odor and technical failures, making post-training follow-up crucial (Afraah et al. 2024) .

From a program design perspective, the combination of lectures, discussions, demonstrations, and educational media provides multiple learning pathways simultaneously. Lectures serve to establish a common understanding, discussions create a space for connecting the material to participants' habits, and demonstrations provide examples of actions that can be immediately tried. This participatory approach aligns with community service activities in organic waste management, which position the community as the primary actors, not merely recipients of information (Sulthoni et al. nd) , (Kresnawaty et al. nd) .

Activity results need to be interpreted based on the outcomes actually measured. The evaluation of 50 participants did not include direct measurements of food waste weight or volume before and after the activity, nor did it include long-term behavioral monitoring. Therefore, improvements in knowledge and attitude scores should not be used to claim that household waste volume has decreased. Measurement of waste generation and regular follow-up are necessary to link changes in knowledge to sustained practices and measurable environmental impacts. Consistent food waste measurement is also a crucial part of any waste reduction strategy, providing a baseline and allowing progress to be monitored over time (United Nations Environment Programme 2024) .

Program Sustainability

Sustainability of the activity is focused on regular mentoring, strengthening the role of local partners, and providing simple sorting facilities. The educational materials provided can be reused by residents as a guide, while demonstrations can be replicated at community meetings or cadre activities. Follow-up activities should also prioritize monitoring practices, such as the number of households sorting, the frequency of composting, and the amount of food waste diverted from mixed waste.

With this strategy, community service activities do not stop at improving scores after outreach, but are directed toward more stable changes in practice. Community empowerment in organic waste management will be stronger if education, simple technology, mentoring, and institutional

support are carried out simultaneously (Nur et al. nd) , (Sulthoni et al. nd) .

CONCLUSION

The food waste sorting and management education activity, attended by 50 participants and implemented through material delivery, interactive discussions, demonstrations, and educational media, resulted in improved scores across all evaluation aspects. Knowledge of food waste sorting increased from 60 to 88, knowledge of food waste management increased from 58 to 85, and attitudes toward household waste management increased from 65 to 90. These findings indicate positive short-term achievements in the knowledge and attitude aspects. Future programs need to be complemented by ongoing mentoring and direct measurement of food waste generation to objectively assess behavioral changes and the impact of waste reduction.

THANK-YOU NOTE

The community service team would like to express its gratitude to the Padang Ministry of Health Polytechnic of Health, the Center for Research and Community Service, community service partners, participating communities, and students involved in the preparation, implementation, documentation, and evaluation of the activity.

BIBLIOGRAPHY

Afraah, et al. 2024. “Household-Based Waste Management Training Through the Implementation of Mini Composter in PKK Groups in Bantul.” *Journal of Approriate Technology for Community Services* 6(1): 29–39. doi:10.20885/jattec.vol6.iss1.art4.

Ambarsari, Arum, et al. “Changing Citizens’ Mindsets Towards Waste Through Training on Processing Household Waste into Compost and Eco-Enzymes.” doi:10.31604/jpm.v9i2.889- 897.

Cristina, et al, Department of Health, Environment Poltekkes, and Ministry of Health Denpasar. 2023. 13 Journal of Environmental Health *Level of Knowledge, Attitudes and Behavior of the Community in Sorting Household Waste in Gunaksa Village, Klungkung* .

Fadhilah, et al. 2023. “Knowledge, Attitude, Facilities and Waste Management Behavior in the Karanganyar Community Health Center Work Area.” *Higeia (Journal of Public Health Research and Development)* 7(3): 407–17. doi:10.15294/higeia.v7i3.64641.

Food and Agriculture Organization. 2019. *Food Loss and Waste: What's the Difference?*

Kresnawaty, Anita, Isma Lutfiah, Yasmin Inayah, Nata Buwana, Abdul Fadzar, and Wina Anjelita. “Waste Management from Home for a Friendly Village, Community Service Program (Kkn) in Babakan Peuteuy Village.” doi:10.31604/jpm.v8i9.3648-3657.

Nur, et al. Program, Agrotechnology Study, Faculty of Agriculture, and Riau Islamic University. “Training on Converting Organic Waste into Organic Fertilizer for the Bina Usaha Mandiri Farmers Group, Pematang DUKU-BENGKALIS REGENCY.” doi:10.31604/jpm.v8i6.2533-2542.

Republic of Indonesia. 2012. *Government Regulation of the Republic of Indonesia Number 81 of 2012 Concerning Management of Household Waste and Waste Similar to Household Waste* .

Republic of Indonesia. 2008. *Law of the Republic of Indonesia Number 18 of 2008 concerning Waste Management.*

Sulthoni, et al. "Strengthening Organic Waste Management Through Community Participation-Based Composting Assistance in Gambuhan Village, Lamongan." doi:10.31604/jpm.v9i9.3329-3343.

United Nations Environment Programme. 2024. *Food Waste Index Report 2024. Nairobi: United Nations Environment Programme* .