Sociality
Journal of Public Health Service
p-ISSN 2962-3472 | e-ISSN 2962-181X
Volume 4, Issue 2, March-August 2025
Page 161-167

Household waste management behavior: A study of community practices in Barrang Lompo Island, South Sulawesi

Muhammad Ridwan[1], Munawir Amansyah*[2], Syarfaini Syarfaini[3]

[1, 2, 3] Department of Public Health, Faculty of Medicine and Health Sciences, Universitas Islam Negeri Alauddin Makassar, Makassar, Indonesia

Disclosure: The author(s) declare no potential conflict of interest with respect to the research, authorship, or publication

ABSTRACT

Previous studies on household waste management have predominantly focused on urban settings with established infrastructure, leaving a gap in the understanding of waste-related behaviors in remote island communities. This study explores the behavior of residents toward household waste management on Barrang Lompo Island, Kecamatan Sangkarrang, South Sulawesi. Employing a quantitative descriptive observational design, this research surveyed 307 respondents from a total of 1,324 households using non-probability convenience sampling. The independent variables included knowledge, attitude, and practice, while the dependent variable was household waste management. The results revealed that community knowledge was predominantly good (76.6%), although attitudes were mainly less favorable (60.2%), and actions were generally poor (51.5%). These findings suggest that while awareness is relatively high, it has not translated into consistent behavior, indicating a disconnect between knowledge and practice. The study underscores the urgent need for targeted environmental education, local regulation, and collaboration with public agencies to enhance sustainable waste practices. These implications are especially vital for remote and densely populated island communities where poor waste handling poses severe environmental and public health risks.

ABSTRAK

Penelitian sebelumnya tentang pengelolaan sampah rumah tangga sebagian besar berfokus pada lingkungan perkotaan dengan infrastruktur yang mapan, sehingga menyisakan kesenjangan dalam pemahaman tentang perilaku terkait sampah di masyarakat pulau terpencil. Penelitian ini mengeksplorasi perilaku penduduk terhadap pengelolaan sampah rumah tangga di Pulau Barrang Lompo, Kecamatan Sangkarrang, Sulawesi Selatan. Dengan menggunakan desain observasional deskriptif kuantitatif, penelitian ini mensurvei 307 responden dari total 1.324 rumah tangga dengan menggunakan metode non-probability convenience sampling. Variabel independen meliputi pengetahuan, sikap, dan praktik, sedangkan variabel dependen adalah pengelolaan sampah rumah tangga. Hasil penelitian menunjukkan bahwa pengetahuan masyarakat sebagian besar baik (76,6%), meskipun sikap sebagian besar kurang baik (60,2%), dan tindakan umumnya buruk (51,5%). Temuan ini menunjukkan bahwa meskipun kesadaran masyarakat relatif tinggi, namun belum diterjemahkan ke dalam perilaku yang konsisten, yang mengindikasikan adanya kesenjangan antara pengetahuan dan praktik. Studi ini menggarisbawahi kebutuhan mendesak akan pendidikan lingkungan yang ditargetkan, peraturan daerah, dan kolaborasi dengan lembaga-lembaga publik untuk meningkatkan praktik-praktik persampahan yang berkelanjutan. Hal ini sangat penting terutama bagi masyarakat pulau terpencil dan padat penduduk di mana penanganan sampah yang buruk dapat menimbulkan risiko lingkungan dan kesehatan masyarakat yang parah.

ARTICLE INFO

Keywords
attitude; behavior; household waste; knowledge; waste management

Article History
Submit : 18 July 2025
In Review : 23 July 2025
Accepted : 27 July 2025

AUTHOR(S) INFO

Correspondence Email
munawir.amansyah@gmail.com

Address
Jl. Sultan Alauddin No.63, Romangpolong, Kec. Somba Opu, Kabupaten Gowa, Sulawesi Selatan 92113, Indonesia

INTRODUCTION

The The generation of household waste is an inevitable consequence of human activity and population growth, posing substantial environmental and public health challenges when not managed effectively. Waste management is a critical component of environmental preservation, as underscored by increasing waste volumes driven by population growth and rising consumption patterns (Economics et al., 2020; Nggilu et al., 2022). Globally, the World Bank projects annual waste generation to surge to 3.4 billion tons in the next 30 years, with Asia, particularly East Asia, experiencing the fastest growth. Countries such as China, Indonesia, and Vietnam are among the largest producers of plastic waste (Mintarsi et al., 2021; Bintara Birawida, 2021). In Indonesia, approximately 24% of waste remains unmanaged, with the country generating up to 67 million tons of waste in 2019, 60% of which is organic (Safitri & Sari, 2021).

At the national level, the Indonesian government has enacted laws and regulations to address this issue, including Law No. 18/2008 and Government Regulation No. 81/2012 concerning household waste management. Local governments have also adopted regional policies, such as Makassar City's Regulation No. 4/2011. Data from SIPSN (2021) show that household sources contribute nearly half of the national waste volume. In Makassar, waste volumes increased from 700,178 tons in 2020 to 767,002 tons in 2021 before slightly decreasing in 2022. Nevertheless, 410 m^3 of daily waste remained untreated (DLHK, 2023; Saparuddin et al., 2021). Poorly managed waste leads to severe ecological impacts including water, air, and soil contamination, and poses health risks such as diarrheal diseases, which are a leading cause of mortality among children under five (Axmalia & Mulasari, 2020; Kemenkes RI, 2021).

Despite national and local regulatory frameworks, waste management practices remain suboptimal in several Indonesian regions, particularly in densely populated coastal and island areas. Poor infrastructure, limited access to waste processing facilities, and inadequate public awareness significantly hinder effective waste management. This problem is evident in Makassar, where a sizable proportion of household waste remains untreated, with severe environmental and health implications. A sustainable solution requires enhancing community behavior towards waste management through education, provision of facilities, and integrated support systems (Wetangamarang et al., 2023; Saparuddin et al., 2021).

Effective waste management in Indonesia requires a multi-dimensional approach combining infrastructure development and behavioral change. Studies indicate that knowledge and awareness significantly influence household waste management behaviors. For instance, Ilma (2021) and Fadlilah & Setiani (2021) found that mothers' knowledge levels directly impacted waste sorting practices. Syahrial (2021) further confirmed that knowledge, outreach programs, community involvement, and adequate facilities correlate strongly with improved household waste handling, based on logistic regression analysis from Pangkep.

Urban areas typically benefit from better infrastructure such as scheduled waste collection and formal landfill sites, contributing to more efficient waste handling. In contrast, rural and island regions often face logistical and infrastructural constraints. Research conducted in metropolitan settings (Dharma et al., 2023; Tampubolon et al., 2023; Andaryani et al., 2023; Miranda, 2023) highlighted these disparities, emphasizing that rural or remote communities, including islands like Barrang Lompo, require context-specific strategies that integrate community-based waste management and accessible waste processing infrastructure.

Although numerous studies have examined waste management in urban Indonesia, there remains a significant gap in understanding waste behaviors in isolated or densely populated island communities. Current literature lacks detailed assessments of public behavior, available facilities, and governmental roles in such settings. Preliminary surveys conducted by DLHK Makassar reveal that waste management in Barrang Lompo Island remains ineffective, with the existing waste bank non-operational due to poor community awareness and insufficient facilities.

Given Barrang Lompo's status as one of the most densely populated islands in the region, the increasing volume of unmanaged waste poses a critical concern. This study aims to investigate

community behavior toward household waste management in Barrang Lompo, Kecamatan Sangkarang, Kota Makassar. By identifying behavioral patterns and infrastructural limitations, the research seeks to propose actionable recommendations for enhancing sustainable waste management in similar island settings.

Figure 1
Barrang Lompo Island

METHODS

This study utilized a quantitative research design with a descriptive observational approach to explore the behavior of the community toward household waste management in Barrang Lompo Island, Kecamatan Sangkarrang, Makassar City. The descriptive observational method was selected to objectively describe the variables in the observed population without manipulating the environment. The independent variables included knowledge, attitude, actions, infrastructure, and community leader support, while the dependent variable was household waste management behavior. The study was conducted in Barrang Lompo Island, Kecamatan Sangkarrang, Makassar City, from January 19, 2024, until the data processing was completed on May 29, 2024.

The population comprised all households in Kelurahan Barrang Lompo, totaling 1,324 households across 4 neighborhood units (RT) and 21 community units (RW). The sample consisted of 307 respondents determined using Slovin's formula. The sampling technique employed was non-probability convenience sampling, specifically accidental sampling, which involved selecting respondents based on accessibility at the time and place of data collection.

Primary data were collected directly through observation, interviews, and the administration of structured questionnaires. Secondary data were obtained from literature reviews, previous research, and official sources such as the Ministry of Environment and Forestry's SIPSN website, and Statistics Indonesia (BPS) for South Sulawesi.

The main instrument used was a structured questionnaire, developed and modified by the researchers based on existing literature. The questionnaire was designed to gather data on community behavior regarding household waste management. It included both positively and negatively worded closed-ended questions to facilitate respondent understanding and accurate data collection. The questionnaire was constructed through the following stages: a) Defining the objective of obtaining an overview of community behavior toward household waste management in Barrang Lompo Island. b) Determining the type of closed-ended questions. c) Developing the questionnaire items based on operational definitions of the research variables.

Prior to deployment, the research instrument underwent validity and reliability testing. Construct validity was assessed through expert judgment to ensure that each item accurately measured the intended variables. The instrument was revised based on expert feedback and further

refined before field testing. Validity testing employed internal validity measures, particularly construct validity, to ensure the instrument's theoretical alignment with the variables under study.

This study adhered to ethical research principles. Informed consent was obtained from all participants before data collection. Participants were informed about the study's purpose, procedures, voluntary nature of participation, and confidentiality of their responses.

RESULTS AND DISCUSSION

Barrang Lompo Island is one of the Spermonde archipelago, which is characterized by the presence of a large expanse of coral reefs (See Figure 1). On the southern side of the island there is a white sandy beach and the rest of the island is surrounded by an embankment. Visitors can circumnavigate the island on foot for 30 to 45 minutes.

Table 1
Characteristics of Respondents

Category	Frequency (n)	Percentage (%)
Age		
Early adulthood (21–35 years)	115	37.5
Late adulthood (36–45 years)	89	29
Young elderly (46–55 years)	66	21.5
Older elderly (56–70 years)	37	12.1
Gender		
Male	73	23.8
Female	234	76.2
Occupation		
Housewife	213	69.4
Fisherman	62	20.2
Trader	6	2
Entrepreneur	2	0.7
Sanitation worker	10	3.3
Self-employed	14	4.6
Knowledge		
Good	235	76.5
Poor	72	23.5
Attitude		
Good	123	40.1
Poor	184	59.9
Practice		
Good	149	48.5
Poor	158	51.5
Waste Management		
Practicing	73	23.8
Not practicing	234	76.2

Table 1 illustrates the demographic and behavioral data collected from 307 respondents on Barrang Lompo Island reveal that the majority were women (76.2%) and primarily housewives (69.4%). Most respondents were in early adulthood (37.5%) and late adulthood (29.0%). While a substantial portion of the population exhibited good knowledge regarding household waste management (76.5%), this was not reflected in their attitudes (only 40.1% with good attitudes) or actions (48.5% with good practices). Moreover, actual waste management implementation remained low, with only 23.8% of respondents engaging in proper household waste practices. This discrepancy highlights the critical need for targeted interventions to bridge the gap between awareness and behavior.

Table 2
Relationship between Knowledge, Attitude, Action, and Household Waste Management

Variable	Waste Management				Total (n)
	Good		Poor		
	n	%	n	%	
Knowledge					
Good	64	88.9	8	9.7	72
Poor	170	72.3	65	27.7	235
Attitude					
Good	116	94.3	7	5.7	123
Poor	118	64.1	66	35.9	184
Practice					
Good	156	98.7	2	1.3	158
Poor	78	52.3	70	47.7	149

Table 2 show the cross-tabulation analysis reveals a significant relationship between knowledge, attitude, and action with household waste management behavior. Among respondents with poor knowledge, 88.9% exhibited poor waste management, while only 9.7% managed waste properly. Similarly, 94.3% of those with poor attitudes did not manage waste adequately, in contrast to 35.9% with good attitudes who demonstrated good waste practices. Notably, action showed the strongest correlation, with 98.7% of respondents who took poor actions also showing poor waste management behavior, while 47.7% of those who demonstrated good actions effectively managed their household waste. These findings underscore the crucial role of practical behavior change in improving community waste management outcomes.

The findings show that the majority of respondents (76.5%) possessed good knowledge of household waste management, while 23.5% were categorized as having poor knowledge. However, when cross-tabulated with actual waste management practices, only 27.7% of those with good knowledge demonstrated proper waste management behavior, while 72.3% still exhibited poor practices. Among respondents with poor knowledge, 88.9% also had poor waste management behavior. These results reveal a significant disparity between knowledge and practice.

These findings are consistent with the study by Eshete et al. (2023) in Tehran, which indicated that increased knowledge can drive improved waste management behavior, though not always directly. Similarly, Setiajaya et al. (2023) found in Bandar Lampung that while awareness exists, implementation remains inadequate without stakeholder engagement. Abubakar et al. (2022) also highlighted that knowledge alone is insufficient when urbanization, institutional limitations, and financial constraints hinder practical implementation. These comparisons affirm that knowledge must be accompanied by systemic support and community engagement to produce behavior change.

The findings suggest that while community knowledge in Barrang Lompo is generally high, it is not adequately translating into effective behavior. This gap underscores the need for sustained education programs, involvement of local authorities, and infrastructure improvements. Behavioral interventions must go beyond information dissemination and incorporate community-based enforcement, incentives, and consistent monitoring to bridge the gap between awareness and action in household waste management.

Analysis of respondents' attitudes revealed that 59.9% had poor attitudes toward household waste management, while 40.1% displayed a positive attitude. When correlated with waste management behavior, 35.9% of those with good attitudes exhibited good waste management practices, whereas 64.1% did not. Among those with poor attitudes, 94.3% also had poor waste management practices. These findings highlight a strong association between attitude and behavioral outcomes.

This result resonates with Izzati (2021), who emphasized that attitude—whether positive or negative—affects one's willingness to engage in socially responsible behavior. Dewi et al. (2021) found that effective community-based waste management systems like 3R depend heavily on community involvement, which often lags due to weak internal motivation. Similarly, Fadhullah et al. (2022) in coastal Malaysia reported that even with adequate facilities, poor public attitudes hinder effective

waste management. The findings suggest that community reliance on local authorities and lack of personal accountability limit engagement, even when attitudes are relatively positive.

Although a proportion of the community holds a good attitude, it has not sufficiently translated into behavioral change. This points to a dependency mindset, where residents expect municipal agents to handle waste issues. To address this, local governments must promote civic responsibility and enforce local regulations. Strengthening community ownership through participatory programs and education campaigns will be vital in transforming passive attitudes into proactive behaviors.

Data show that 51.5% of respondents displayed poor action in waste management, while 48.5% showed good action. The cross-tabulation with waste management practices revealed that 98.7% of those with poor actions also demonstrated poor waste management behavior, whereas 47.7% of those with good actions practiced appropriate waste management. These figures underscore action as the most significant determinant among the variables studied.

These results align with the conceptual framework by Rubenfeld (2007), stating that action is a culmination of knowledge and attitude influenced by external support. Despite the availability of waste banks and waste sorting facilities, behavioral practices remain weak due to lack of effective education and personal accountability. Eshete et al. (2023) and Fondzenyuy et al. (2024) similarly reported that practical shortcomings often persist in communities even when knowledge and facilities are in place, largely due to low motivation and limited community cohesion. Social norms and peer behavior significantly influence individual actions, further complicating waste management efforts.

This study highlights action as the critical bottleneck in achieving effective household waste management. Bridging the gap between intention and behavior will require more than facilities—it demands consistent behavioral reinforcement, community leadership, and integrated waste systems. Programs that promote habit formation, accountability, and visible communal success stories are crucial to shifting action patterns in dense island populations like Barrang Lompo.

CONCLUSION

This study examined community behavior regarding household waste management on Barrang Lompo Island, Kecamatan Sangkarrang, Makassar City. The results revealed that while the majority of respondents possessed good knowledge (76.5%) and a fair proportion showed positive attitudes (40.1%), these cognitive and affective components were not consistently reflected in actual practices. A considerable proportion of respondents (51.5%) still demonstrated poor actions toward household waste management, with 76.2% not engaging in proper waste handling. The study found a strong association between action and waste management outcomes, suggesting that behavioral implementation is the most critical and challenging aspect.

The findings contribute to the growing body of knowledge emphasizing that knowledge and attitude alone are insufficient without supportive environments and systems that facilitate behavior change. Practical implications include the need for localized policies, sustained education programs, and strengthened community involvement. The government and related institutions must prioritize integrated waste management strategies that address both infrastructure and community behavior, particularly in isolated and densely populated island communities.

This research is limited by its reliance on self-reported data and focus on a single geographic area, which may affect generalizability. Future research should explore longitudinal impacts of community-based interventions and assess the role of regulatory enforcement in shaping sustainable waste behaviors. By addressing these gaps, more effective, context-sensitive strategies can be designed to support environmental health in similar rural and island populations.

REFERENCES

Abubakar, I. R., Maniruzzaman, K. M., Dano, U. L., AlShihri, F. S., AlShammari, M. S., Ahmed, S. M. S., Al-Gehlani, W. A. G., & Alrawaf, T. I. (2022). Environmental sustainability impacts of solid waste management practices in the Global South. *International Journal of Environmental Research and Public Health, 19*(19). https://doi.org/10.3390/ijerph191912717

Addahlawi, H. A., Mustaghfiroh, U., Ni'mah, L. K., Sundusiyah, A., & Hidayatullah, A. F. (2020). Implementasi prinsip good environmental governance dalam pengelolaan sampah di Indonesia. *Jurnal Green Growth dan Manajemen*

Lingkungan, 8(2), 106–118. https://doi.org/10.21009/jgg.082.04
Axmalia, A., & Mulasari, S. A. (2020). Dampak tempat pembuangan akhir sampah (TPA) terhadap gangguan kesehatan masyarakat. *Jurnal Kesehatan Komunitas, 6*(2), 171–176. https://doi.org/10.25311/keskom.vol6.iss2.536
Bintara Birawida, A. (2021). Perilaku masyarakat dalam pengolahan sampah di Kepulauan Spermonde Kota Makassar. *[Journal name if available]*, *4*, [Pages if available].
Dewi, N. P. A. P., Madrini, I. A. G. B., & Tika, I. W. (2021). Efektivitas sistem pengelolaan sampah berbasis masyarakat (studi kasus: Desa Sanur Kaja Kota Denpasar). *Jurnal BETA (Biosistem dan Teknik Pertanian),* 9(2), 280. https://doi.org/10.24843/jbeta.2021.v09.i02.p15
DLHK. (2023). *Dinas Lingkungan Hidup Kota Makassar*. [Source/Website if available]
Eshete, H., Desalegn, A., & Tigu, F. (2023). Knowledge, attitudes and practices on household solid waste management and associated factors in Gelemso town, Ethiopia. *PLoS ONE, 18*(2), 1–13. https://doi.org/10.1371/journal.pone.0278181
Fadhullah, W., Imran, N. I. N., Ismail, S. N. S., Jaafar, M. H., & Abdullah, H. (2022). Household solid waste management practices and perceptions among residents in the East Coast of Malaysia. *BMC Public Health,* 22(1), 1–20. https://doi.org/10.1186/s12889-021-12274-7
Fadlilah, U., & Setiani, V. (2021). Analisis pemahaman tentang pengelolaan sampah komunitas bank sampah induk Surabaya (BSIS) melalui transfer knowledge. *JST (Jurnal Sains Terapan), 7*(1). https://doi.org/10.32487/jst.v7i1.1131
Ilma, N., Nuddin, A., & Majid, M. (2021). Perilaku warga masyarakat dalam pengelolaan sampah rumah tangga di zona pesisir Kota Parepare. *Jurnal Ilmiah Manusia dan Kesehatan, 4*(1), 24–37.
Izzati, F. A. (2021). Pentingnya sikap toleransi dan empati dalam mewujudkan warga negara yang baik (good citizenship) di masa pandemi. *Jurnal Kalacakra: Ilmu Sosial dan Pendidikan, 2*(2), 85. https://doi.org/10.31002/kalacakra.v2i2.4368
Kemenkes RI. (2021). *Rencana aksi program pencegahan dan pengendalian penyakit*. Rencana Aksi Program P2P, 2021, 86. http://www.jikm.unsri.ac.id/index.php/jikm
Miranda, B. (2023). Analisis willingness to pay (WTP) masyarakat terhadap peningkatan pengelolaan sampah melalui taman edukasi sampah Kelurahan Perumnas Waykandis, Kota Bandar Lampung. *[Journal name if available], 7*(March 2022), 83–90. https://doi.org/10.35472/jsat.v7i2.911
Nggilu, A., Raffi Arrazaq, N., & Thayban, T. (2022). Dampak pembuangan sampah di sungai terhadap lingkungan dan masyarakat desa Karya Baru. *Jurnal Normalita, 10*(3), 196–202.
Saparuddin, S., Juharni, J., & Nurkaidah, N. (2021). Implementasi kebijakan pengelolaan persampahan di Kecamatan Ujung Tanah Kota Makassar. *Jurnal Paradigma Administrasi Negara, 3*(1), 27–36. https://doi.org/10.35965/jpan.v3i1.596
Setiajaya, A., Lewis, H. F. A., Hasiany, S., & Zulaicha, A. S. (2023). Strategi pengelolaan sampah rumah tangga Kota Bandar Lampung (Studi kasus: Kelurahan Sukaraja). *Jurnal Ilmu Lingkungan, 21*(4), 807–818. https://doi.org/10.14710/jil.21.4.807-818
Syahrial, A., et al. (2021). Pengetahuan, ketersediaan fasilitas dan tradisi (kebiasaan) berhubungan dengan penanganan sampah rumah tangga di Pulau Balang Lompo Kabupaten Pangkajene Kepulauan. *[Journal name if available], 2*(6), 985–990.
Wetangamarang, W. J., Imamastri, M., Tang, P., Daik, T., & Tiansi, R. (2023). Dampak pembuangan sampah di pesisir pantai terhadap lingkungan. *[Journal name if available], 1*(5).