AWARENESS AND PRACTICES ON HOUSEHOLD SOLID WASTE MANAGEMENT AND IMPLICATIONS TO COMMUNITY HEALTH IN PILAR, BAUANG, LA UNION

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Abstract

Effective solid waste management (SWM) is vital for environmental sustainability and public health. This descriptive-correlational study examined the awareness and practices of 96 household heads in Barangay Pilar, Bauang, La Union, Philippines, and explored their implications to community health. Data were collected using a Likert-scale questionnaire measuring respondents' level of awareness, extent of SWM practices, and perceived level of community health conditions. Results revealed a very high level of awareness among residents and that the extent of solid waste management practices is always practiced. Waste segregation registered the highest level of awareness, while compliance with local waste management policies was relatively lower. In terms of practices, waste disposal is ranked highest, whereas waste reduction showed a comparatively lower level of practice. Respondents reported a low level of perceived health risks associated with improper waste management, suggesting generally favorable sanitation conditions. Statistical analysis showed a significant positive relationship between awareness and practices, and a significant negative relationship between practices and perceived health conditions. These findings highlight the importance of strengthening policy awareness and sustaining effective waste management behaviors through targeted Information, Education, and Communication interventions to promote long-term environmental sustainability and improved community health outcomes.

Keywords*: Awareness, Community health,, Environmental sanitation, Solid Waste Management, Sustainability, Waste management practices*

1. Introduction

As the community continues to grow, improving household solid waste management becomes increasingly important to maintain cleanliness and protect residents' health. However, improper waste management remains a concern in Pilar, Bauang, La Union, as the barangay ranks among the lowest in practicing proper waste segregation, reduction, recycling, and disposal, according to the Municipal Environment and Natural Resources Office (MENRO).

RA 9003 mandates proper waste segregation, recycling, composting, and LGU implementation of waste systems, but enforcement remains challenging. Assessing residents' awareness and compliance is therefore important to improve solid waste management and protect community health and the environment.

Solid waste management in the Philippines remains a challenge mainly due to insufficient practical knowledge of proper waste handling, despite existing policies and programs (Sanchez, 2023). Although many people are aware of RA 9003, studies show a gap between awareness and actual practice, as most residents who know the law still fail to properly segregate and dispose of waste (Catiil & Daud, 2025). This highlights that while knowledge is not enough on its own, it is still essential in strengthening community participation and improving waste management efforts (Lalamonan & Comighud, 2020). Similar patterns are observed among students, who generally understand basic waste concepts but often lack knowledge of specific laws and rely more on informal sources like media and family for information (Catan & Molina, 2020; Balaba 2024.)

Gaps in understanding are also present in rural areas. A study by Limon, Vallente, and Corales (2020) showed that many households in Ilocos Norte lack sufficient information about proper waste management, leading to improper disposal and highlighting the ongoing disconnect between policy and community knowledge. Lastly, Pimienta, Tubon, and Dela Rosa (2024) found that while residents were well-informed about aspects such as segregation and reuse, this knowledge did not extend to other aspects of waste management. Their study stresses the need to enhance public understanding through targeted efforts.

Household solid waste management practices differ across communities and are shaped by resources, infrastructure, and local program support. Although people generally show positive attitudes toward proper waste handling, their actual practices are often inconsistent due to weak systems and limited facilities (Konstantinidou et al., 2024). Reuse and recycling depend on access to facilities, while segregation is more likely when clear guidance and convenient disposal systems are available (Sultana et al., 2021). Overall, studies show that even with high awareness, consistent waste management practices remain limited when community implementation, cultural habits, and infrastructure support are inadequate (Catan & Molina, 2020; Verzosa et al., 2024).

In the Philippines household waste management practices are often limited by weak systems, as seen in Sto. Domingo, Ilocos Sur where inconsistent collection and lack of support led to irregular and unsustainable waste habits (Pimienta et al., 2020). Similarly, coastal residents show only moderate awareness of proper waste practices and limited understanding of related laws and long-term impacts, resulting in low compliance and weak participation in environmental programs (Pecho et al., 2024). Overall, these findings highlight the need for stronger local systems and improved awareness to support sustainable waste management behaviors.

Household solid waste management is a global public health issue, as improper waste handling leads to pollution and disease risks, worsened by urbanization, population growth, low awareness, and weak recycling systems (Ravichandran & Venkatesan, 2021; Abubakar et al., 2022; Mmereki et al., 2020). Increasing waste generation and rapid urbanization further strain waste services, resulting in poor sanitation, environmental degradation, and reduced quality of life

(Raphela et al., 2024; Archana et al., 2025; Jebaranjitham et al., 2022). Households generate increasing amounts of waste, and improper disposal such as open dumping, burning, and mixing hazardous materials causes pollution and health problems, including disease risks (Roba et al., 2025; Abubakar et al., 2022). These impacts are more severe in areas with weak waste systems, where vulnerable groups are most affected.

In the Philippines, solid waste remains a major concern despite RA 9003, with households contributing most municipal waste and urbanization further increasing the problem (Sampulna, 2022). Although the law promotes segregation, recycling, and proper disposal, implementation is limited by inadequate infrastructure. A 2023 Philippine Institute for Development Studies (PIDS) report noted that only 11,625 barangays have functional MRFs and the country has just 237 sanitary landfills, leading many communities to still rely on open dumping and burning (COA, 2023; PIDS, 2023). These practices contribute to air pollution and health risks (Verzosa et al., 2024; Paigalan et al., 2025). In Bauang, La Union, including coastal barangays like Pilar, waste management challenges persist due to weak enforcement, limited facilities, and low compliance despite existing policies. These issues result in improper segregation, underutilized MRFs, and continued environmental and health risks (JVOFI, 2021; JVOFI, 2022).

Due to gaps in waste management, low awareness, and weak policy enforcement, environmental sustainability has become more important. UNESCO (2023) stresses that environmental education is key to conserving natural resources for future generations (Team O, 2024). Sustainable practices such as waste reduction, recycling, and resource conservation are essential for a healthier environment (Andrew, 2024). In the Philippines, sustainability is promoted through government programs like environmental awareness campaigns and ecosystem rehabilitation efforts (Standard Insights, 2025). Overall, achieving sustainability requires stronger education, behavior change, and active community participation (Dhalog, 2023).

2. Statement of Problem

The study aimed to assess the awareness and practices of residents regarding household solid waste management and determine their implications for community health in Pilar, Bauang, La Union.

Specifically, it sought to answer the following questions:

1. What is the level of awareness of residents regarding proper household solid waste management in Pilar, Bauang, La Union in terms of:
   a. Segregation
   b. Reuse/Recycle
   c. Reduction
   d. Disposal
   e. Compliance with local solid waste management policies
2. What is the extent of practices of residents in managing household solid waste in Pilar, Bauang, La Union in terms of:
   a. Segregation
   b. Reuse/Recycle
   c. Reduction
   d. Disposal
   e. Participation in community waste management policies
3. What are the perceived level of community health conditions on household solid waste management in terms of:

a. Sanitation status
b. Presence of disease vectors
c. Incidences of waste-related health conditions

4. Is there a significant relationship between residents' level of awareness and the extent of practices on household solid waste management?
5. Is there a significant relationship between residents' extent of practices and perceived level of community health conditions related to solid waste management?
6. What sustainable waste management measures can be proposed to promote sustainability and environmental protection?

Hypotheses

1. There is no significant relationship between residents' level of awareness and extent of practices on solid waste management.
2. There is no significant relationship between residents' extent of practices and perceived level of community health conditions related to solid waste management.

3. Materials and Methods

The study used a descriptive-correlational research design to evaluate residents' awareness and practices regarding household solid waste management and their perceived effects on community health. The descriptive aspect assessed awareness and practices in waste segregation, reuse/recycling, reduction, disposal, and policy compliance, while the correlational aspect examined the relationship between awareness, practices, and perceived community health effects. This non-experimental design allowed the researchers to analyze existing conditions without manipulating variables.

The study was conducted in Barangay Pilar, Bauang, La Union, a coastal community identified with solid waste management issues such as waste burning, burying, and limited sanitation facilities. The respondents were 96 household heads selected through total enumeration, who were required to be residents for at least 6 months to 1 year and to provide informed consent.

A validated researcher-made questionnaire was used, with high validity (4.27) and excellent reliability (Cronbach's alpha = 0.915). Data were collected through house-to-house surveys with the assistance of Barangay Health Workers, following ethical standards such as informed consent, confidentiality, and voluntary participation.

Data were analyzed using weighted mean and Pearson r correlation to determine levels of awareness, practices, and perceived health conditions, as well as the relationships between awareness and practices as well as practices and community health conditions. A 4-point scale and standard interpretation ranges were used, and a 0.05 level of significance guided hypothesis testing.

The data gathered from the questionnaires were encoded, organized, and statistically analyzed in accordance with each research question. The weighted mean was used to determine the level of awareness, extent of practices, and perceived level of community health conditions.

A 4-point scale (1.00–4.00) was used to measure the respondents' awareness, practices, and perceptions regarding solid waste management. The Pearson Product-Moment Correlation Coefficient (r) was applied to determine the strength and direction of the relationship between awareness and solid waste management practices, as well as between practices and perceived community health conditions.

Statistical Range	Level of Awareness	Extent of Practices	Perceived Level of Community Health Conditions
3.25 - 4.00	Very Highly Aware (VHA)	Always Practiced (AP)	Very Highly Perceived (VHP)
2.50 - 3.24	Highly Aware (HA)	Often Practiced (OP)	Highly Perceived (HP)
1.75 - 2.49	Moderately Aware (MA)	Sometimes Practiced (SP)	Moderately Perceived (MP)
1.00 - 1.74	Poorly Aware (PA)	Rarely Practiced (RP)	Low Perceived (LP)

Correlation Coefficient (r)	Direction	Description	Strength of Relationship
±0.80 to ±1.00	Positive / Negative	Very high correlation	Very strong relationship
±0.60 to ±0.79	Positive / Negative	High correlation	Strong relationship
±0.40 to ±0.59	Positive / Negative	Moderate correlation	Noticeable relationship
±0.20 to ±0.39	Positive / Negative	Low correlation	Weak relationship
±0.01 to ±0.19	Positive / Negative	Very low correlation	Slight relationship

The researchers used a significance level of 0.05 as the basis for decision-making. If the computed p-value was less than 0.05, the null hypothesis was rejected, indicating a significant relationship between the variables; otherwise, it was accepted.

4. Results

Level of Awareness Regarding Solid Waste Management

Level of Awareness Regarding Solid Waste Management Along Segregation

Table 1 shows that the respondents have a very high level of awareness regarding solid waste management along segregation, with a composite mean of 3.66. The highest level of awareness was observed in understanding the difference between biodegradable and non-biodegradable waste (WM = 3.73), while the lowest was in awareness that improper segregation can cause environmental pollution (WM = 3.53), though still interpreted as Very Highly Aware.

Table 1

Level of Awareness Regarding Solid Waste Management Along Segregation

Indicators	*WM*	DI
1. I understand the difference between biodegradable waste and non-biodegradable waste.	3.73	Very Highly Aware
2. I know how to segregate household waste into appropriate categories (biodegradable, non-biodegradable, recyclable)	3.70	Very Highly Aware
3. I recognize that effective waste segregation not only promotes cleanliness but also reduces the risks of diseases.	3.72	Very Highly Aware
4. I am aware that improper waste segregation can cause environmental pollution.	3.53	Very Highly Aware
5. I know that proper waste segregation helps improve waste collection and disposal processes.	3.61	Very Highly Aware
Composite Mean	**3.66**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; WM – Weighted Mean.

Level of Awareness Regarding Solid Waste Management Along Reuse/Recycle

Table 2 shows that the respondents have a very high level of awareness regarding solid waste management in terms of reuse and recycling, with a composite mean of 3.53. The highest awareness was observed in recognizing the importance of recycling household materials such as paper, plastics, and metals (WM = 3.61), while the lowest was in awareness that some items can be reused instead of being discarded (WM = 3.45).

Table 2

Level of Awareness Regarding Solid Waste Management along Reuse/Recycle

Indicators	*WM*	DI
1. I am aware of the importance of recycling household materials such as paper, plastics, and metals.	3.61	Very Highly Aware
2. I am aware of the importance of reusing household materials such as containers, bags, and packaging.	3.58	Very Highly Aware
3. I understand which household items can be recycled and the proper ways to separate them for recycling.	3.50	Very Highly Aware
4. I am aware that recycling helps reduce the amount of waste sent to landfills.	3.50	Very Highly Aware
5. I am aware that some items can be used again instead of being thrown away.	3.45	Very Highly Aware
Composite Mean	**3.53**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; WM – Weighted Mean.

Level of Awareness Regarding Solid Waste Management Along Reduction

Table 3 shows that the respondents have a very high level of awareness regarding solid waste management in terms of reduction, with a composite mean of 3.50. The highest awareness was on understanding that reducing household waste helps decrease environmental pollution (WM = 3.59), while the lowest was on avoiding single-use items to lessen waste (WM = 3.35).

Table 3

Level of Awareness Regarding Solid Waste Management along Reduction

Indicators	*WM*	DI
1. I am aware of ways to reduce household waste, such as buying only what is needed and avoiding single-use items.	3.52	Very Highly Aware
2. I understand the importance of minimizing waste at the source to protect community health and the environment.	3.49	Very Highly Aware
3. I am aware that reducing household waste helps decrease environmental pollution.	3.59	Very Highly Aware
4. I am aware that avoiding single-use items helps lessen waste.	3.35	Very Highly Aware
5. I am aware that buying only what is needed helps reduce waste.	3.55	Very Highly Aware
Composite Mean	**3.50**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; WM – Weighted Mean.

Level of Awareness Regarding Solid Waste Management Along Disposal

Table 4 shows that respondents have a very high level of awareness regarding solid waste management in terms of disposal, with a composite mean of 3.55. The highest awareness was on knowing proper methods of waste disposal to prevent pollution and health hazards (WM = 3.64), while the lowest was on awareness of illnesses caused by improper garbage disposal (WM = 3.47).

Table 4

Level of Awareness Regarding Solid Waste Management along Disposal

Indicators	*WM*	DI
1. I know the proper methods of disposing household waste to prevent pollution and health hazards.	3.64	Very Highly Aware
2. I am aware of the proper disposal methods for hazardous wastes (e.g., batteries, chemicals, broken glass) to prevent harm to health and the environment.	3.50	Very Highly Aware

3.	I am aware of the possible illnesses that may result from improper garbage disposal.	3.47	Very Highly Aware
4.	I am aware that proper waste disposal prevents contaminated soil, water, and air.	3.55	Very Highly Aware
5.	I am aware that proper waste disposal helps prevent flooding in the community.	3.57	Very Highly Aware
	Composite Mean	**3.55**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; WM – Weighted Mean.

Level of Awareness Regarding Solid Waste Management Along Compliance with Local Solid Waste Management Policies

Table 5 shows that respondents have a very high level of awareness regarding compliance with solid waste management policies, with a composite mean of 3.46. The highest awareness was on recognizing the role of local authorities in implementing waste management in the barangay (WM = 3.54), while the lowest was awareness of Republic Act 9003 (WM = 3.36).

Table 5

Level of Awareness Regarding Solid Waste Management along Compliance with Local Solid Waste Management Policies

Indicators		***WM***	**DI**
1.	I am aware of Republic Act 9003 (Ecological Solid Waste Management Act of 2000).	3.36	Very Highly Aware
2.	I am aware that local authorities play an important role in implementing household solid waste management policies in our barangay.	3.54	Very Highly Aware
3.	I am informed of the barangay ordinances related to household solid waste management.	3.46	Very Highly Aware
4.	I am aware that it is my role and responsibility to practice proper solid waste management.	3.40	Very Highly Aware
5.	I am aware that proper waste management requires cooperation between residents and local authorities.	3.52	Very Highly Aware
	Composite Mean	**3.46**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; WM – Weighted Mean.

Overall Level of Awareness Regarding Solid Waste Management

Table 6 shows that respondents have an overall very high level of awareness on solid waste management, with an average weighted mean of 3.54. Among the domains, segregation obtained the highest awareness (CM = 3.66), while compliance had the lowest (CM = 3.46), though both are still interpreted as very highly aware.

Table 6

Overall Level of Awareness Regarding Solid Waste Management

Indicators	*CM*	DI
Segregation	3.66	Very Highly Aware
Reuse/Recycle	3.53	Very Highly Aware
Reduce	3.50	Very Highly Aware
Disposal	3.55	Very Highly Aware
Compliance	3.46	Very Highly Aware
AWM	**3.54**	**Very Highly Aware**

Legend. Scoring Range: 3.25-4.00 (Very Highly Aware); 2.50-3.24 (Highly Aware); 1.75-2.49 (Moderately Aware); 1.00-1.74 (Poorly Aware). DI – Descriptive Interpretation; CM – Composite Mean; AWM – Average Weighted Mean.

Extent of Practices in Solid Waste Management

The extent of practices of residents in managing household solid waste in Pilar, Bauang, La Union was assessed across five (5) domains: Segregation, Reuse/Recycle, Reduce, Disposal, and Participation in Community Waste Management Policies. Each variable was also evaluated using weighted mean (*WM*).

Extent of Practices in Solid Waste Management Along Segregation

Table 7 shows that respondents have a high extent of practices in solid waste management along segregation, with a composite mean of 3.49 interpreted as Always Practiced. The most practiced activity was segregating biodegradable and non-biodegradable waste (WM = 3.60), while the least practiced was composting organic waste (WM = 3.36).

Table 7

Extent of Practices in Solid Waste Management along Segregation

Indicators	*WM*	DI
1. I segregate my household wastes into biodegradable and non-biodegradable.	3.60	Always Practiced
2. I compost food, kitchen, and other organic waste (e.g., fruit and vegetable scraps) at home or in a community compost.	3.36	Always Practiced
3. I use label containers for different types of household waste (biodegradable, non-biodegradable, and recyclable)	3.47	Always Practiced
4. I make sure to follow segregation rules consistently, even when no one is watching (e.g., separating biodegradable, non-biodegradable, and recyclable waste at home).	3.54	Always Practiced
5. I keep hazardous household waste (e.g., broken glasses, batteries, chemicals etc.) separate from other garbage.	3.49	Always Practiced
Composite Mean	**3.49**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; WM – Weighted Mean.

Extent of Practices in Solid Waste Management Along Reduction

Table 8 shows that respondents have a high extent of practices in solid waste management along with reuse and recycling, with a composite mean of 3.44 interpreted as *always practiced*. The most practiced activity was reusing old clothes or fabrics as rags (WM = 3.52), while the least practiced was disposing recyclable items to junk shops or collectors (WM = 3.36).

Table 8

Extent of Practices in Solid Waste Management along Reuse/Recycle

Indicators	*WM*	DI
1. I reuse containers and bags and not throw them away.	3.46	Always Practiced
2. I choose to reuse old items instead of buying new ones whenever possible	3.38	Always Practiced
3. I reuse old clothes or fabrics by turning them into rags.	3.52	Always Practiced
4. I reuse old notebooks by using the unused pages and I resume the unfilled back of papers as scratch	3.49	Always Practiced
5. I dispose of the recyclable items to junk shops or their collectors.	3.36	Always Practiced
Composite Mean	**3.44**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; WM – Weighted Mean.

Extent of Practices in Solid Waste Management Along Reduction

Table 9 shows that respondents have a high extent of practices in solid waste management along reduction, with a composite mean of 3.35 interpreted as *Always Practiced*. The most practiced activity was reducing the use of single-use sachets by buying refill packs or larger containers (WM = 3.39), while the least practiced was packing lunch in a reusable lunchbox instead of buying packaged food (WM = 3.28).

Table 9

Extent of Practices in Solid Waste Management along Reduction

Indicators	*WM*	DI
1. I avoid buying products with too much packaging and prefer those with eco-friendly packaging.	3.34	Always Practiced
2. I pack my lunch in reusable lunchbox so that I can't buy wrapped/packed food	3.28	Always Practiced
3. I avoid using single-use plastics (like straws, spoons, or cups).	3.35	Always Practiced
4. I use tumblers instead of bottled water.	3.38	Always Practiced
5. I reduce the use of single-use sachets by buying refill packs or larger containers.	3.39	Always Practiced
Composite Mean	**3.35**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; WM – Weighted Mean.

Extent of Practices in Solid Waste Management Along Disposal

Table 10 shows that respondents have a high extent of practices in solid waste management along disposal, with a composite mean of 3.53 interpreted as Always Practiced. The most practiced activity was putting out garbage for collection as scheduled (WM = 3.56), while the least practiced was disposing biodegradable waste into a compost pit (WM = 3.49).

Table 10

Extent of Practices in Solid Waste Management along Disposal

Indicators	*WM*	DI
1. I dispose of my waste in proper garbage collection areas instead of throwing it in open fields.	3.51	Always Practiced
2. I bring my garbage to the proper waste collection area instead of burning it.	3.54	Always Practiced
3. I dispose biodegradable wastes into a compost pit	3.49	Always Practiced
4. I practice proper disposal of hazardous waste (e.g., batteries, chemicals).	3.55	Always Practiced
5. I put out my garbage for collection as scheduled	3.56	Always Practiced
Composite Mean	**3.53**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; WM – Weighted Mean.

Extent of Practices in Solid Waste Management Along Participation in Community Waste Management Policies

Table 11 shows that respondents have a high extent of practices in solid waste management along with participation in community waste management policies, with a composite mean of 3.39 interpreted as *always practiced*. The most practiced activity was consistently following barangay ordinances on segregation, reduction, recycling, and disposal (WM = 3.49), while the least practiced was encouraging other household members to comply with waste management rules (WM = 3.31).

Table 11

Extent of Practices in Solid Waste Management along Participation in Community Waste Management Policies

Indicators	*WM*	DI
1. I attend barangay meetings or workshops on household solid waste management.	3.36	Always Practiced
2. I participate in community clean-up drives or environmental campaigns.	3.33	Always Practiced
3. I encourage other members of my household to comply with waste management rules.	3.31	Always Practiced
4. I consistently follow the barangay's ordinances on segregation, reduction, recycling, and disposal.	3.49	Always Practiced

5.	I report problems like illegal dumping, mixing hazardous and household waste or burning of garbage to barangay authorities	3.44	Always Practiced
	Composite Mean	**3.39**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; WM – Weighted Mean.

Overall Extent of Practices in Solid Waste Management

Table 12 shows that respondents have a high overall extent of practices in solid waste management across all domains, with an average weighted mean of 3.44 interpreted as Always Practiced. Among the domains, disposal obtained the highest weighted mean of 3.53, indicating that respondents are most consistent in proper waste disposal practices, largely due to structured collection systems and established community guidelines. In contrast, reduction recorded the lowest weighted mean of 3.35, although still interpreted as *Always Practiced*, suggesting that waste minimization behaviors are comparatively less consistent because they require more deliberate behavioral change.

Table 12

Overall Extent of Practices in Solid Waste Management

Indicators	***CM***	**DI**
Segregation	3.49	Always Practiced
Reuse/Recycle	3.44	Always Practiced
Reduce	3.35	Always Practiced
Disposal	3.53	Always Practiced
Participation in Community Waste Management Policies	3.39	Always Practiced
AWM	**3.44**	**Always Practiced**

Legend. Scoring Range: 3.25-4.00 (Always Practiced); 2.50-3.24 (Often Practiced); 1.75-2.49 (Seldom Practiced); 1.00-1.74 (Rarely Practiced). DI – Descriptive Interpretation; CM – Composite Mean; WM – Average Weighted Mean.

Perceived Level of Community Health Conditions

The perceived level of community health conditions on household solid waste management was assessed across three (3) domains: Sanitation Status, Presence of Disease Vectors, and Incidences of Waste-Related Health Condition.

Perceived Level of Community Health Conditions Along Sanitation Status

Table 13 shows that respondents have a low perceived level of community health conditions along sanitation status, with a composite mean of 1.36 interpreted as low perceived. Among the indicators, piles of garbage that attract stray animals that scatter waste further obtained the highest weighted mean of 1.41, indicating that this is the most noticeable sanitation-related concern among respondents, although still at a low perceived level. In contrast, uncollected wastes that have caused bad odors or unsanitary conditions in my house recorded the lowest weighted mean of 1.28,

also interpreted as low perceived, suggesting that household-level sanitation problems are least experienced.

Table 13

Perceived Level of Community Health Conditions along Sanitation Status

Indicators	*WM*	DI
1. Uncollected wastes have caused bad odors or unsanitary conditions in my house.	1.28	Low Perceived
2. Improper waste disposal caused drainage and occasional flooding in the community.	1.39	Low Perceived
3. Lack of garbage collection services affects the cleanliness and sanitation of the barangay.	1.40	Low Perceived
4. Improper waste segregation and disposal contribute to an unclean and unhealthy environment.	1.35	Low Perceived
5. Piles of garbage attract stray animals that scatter waste further.	1.41	Low Perceived
Composite Mean	**1.36**	**Low Perceived**

Legend. Scoring Range: 3.25-4.00 (Very Highly Perceived); 2.50-3.24 (Highly Perceived); 1.75-2.49 (Moderately Perceived); 1.00-1.74 (Low Perceived). DI – Descriptive Interpretation; CM – Composite Mean; WM – Weighted Mean.

Perceived Level of Community Health Conditions Along Presence of Disease Vectors

Table 14 shows that respondents have a low perceived level of community health conditions along the presence of disease vectors, with a composite mean of 1.53 interpreted as Low Perceived. Among the indicators, cockroaches thrive in garbage piles and spread bacteria in households obtained the highest weighted mean of 1.60. In contrast, improper waste disposal in the community contributes to the spread of mosquitoes that cause dengue recorded the lowest weighted mean of 1.39, also interpreted as low perceived.

Table 14

Perceived Level of Community Health Conditions along Presence of Disease Vectors

Indicators	*WM*	DI
1. Improper waste disposal in the community contributes to the spread of mosquitoes that cause dengue.	1.39	Low Perceived
2. I have noticed more rats, flies, and cockroaches in places where waste garbage was dumped.	1.52	Low Perceived
3. Cockroaches thrive in garbage piles and spread bacteria in households.	1.60	Low Perceived
4. I have seen that flies from nearby garbage piles contaminate food or surfaces in my household.	1.59	Low Perceived
5. I have experienced or seen rats, flies, or cockroaches entering homes near improperly disposed garbage.	1.54	Low Perceived
Composite Mean	**1.53**	**Low Perceived**

Legend. Scoring Range: 3.25-4.00 (Very Highly Perceived); 2.50-3.24 (Highly Perceived); 1.75-2.49 (Moderately Perceived); 1.00-1.74 (Low Perceived). DI – Descriptive Interpretation; WM – Weighted Mean.

Perceived Level of Community Health Conditions Along Incidences of Waste-Related Health Conditions

Table 15 shows a low perceived level of waste-related health conditions with a composite mean of 1.53. Diarrhea and gastrointestinal illnesses (WM = 1.70) were the most recognized concern, while beliefs on health risks from improper waste practices and respiratory effects of burning garbage (WM = 1.45) were the least recognized.

Table 15

Perceived Level of Community Health Conditions along Incidences of Waste-Related Health Conditions.

Indicators	*WM*	DI
1. The presence of open garbage sites makes me ill and my family unsafe.	1.49	Low Perceived
2. I believe that failing to improve household waste practices increases health problems in the community.	1.45	Low Perceived
3. Smoke from burning garbage causes coughing, difficulty breathing, asthma or other lung problems in my household.	1.45	Low Perceived
4. I or my family have had diarrhea or other gastrointestinal illnesses linked to improper waste disposal.	1.70	Low Perceived
5. Skin rashes or infections have occurred due to contact with uncollected or improperly disposed waste.	1.55	Low Perceived
Composite Mean	**1.53**	**Low Perceived**

Legend. Scoring Range: 3.25-4.00 (Very Highly Perceived); 2.50-3.24 (Highly Perceived); 1.75-2.49 (Moderately Perceived); 1.00-1.74 (Low Perceived). DI – Descriptive Interpretation; WM – Weighted Mean.

Overall Perceived Level of Community Health Conditions

Table 16 shows a low perceived level of community health conditions with an average weighted mean of 1.47. Disease vectors and waste-related health conditions (WM = 1.53) were the most recognized concerns, while sanitation status (WM = 1.36) was the least perceived issue.

Table 16

Overall Perceived Level of Community Health Conditions

Indicators	CM	DI
Sanitation Status	1.36	Low Perceived
Presence of Disease Vectors	1.53	Low Perceived
Incidences of Waste-Related Health Condition	1.53	Low Perceived
AWM	**1.47**	**Low Perceived**

Legend. Scoring Range: 3.25-4.00 (Very Highly Perceived); 2.50-3.24 (Highly Perceived); 1.75-2.49 (Moderately Perceived); 1.00-1.74 (Low Perceived). DI – Descriptive Interpretation; CM – Composite Mean; AWM – Average Weighted Mean.

Relationship Between Awareness and Practices in Solid Waste Management

Table 17 shows that there is a significant relationship between awareness regarding solid waste management and practices in solid waste management, with a Pearson's r value of 0.742 and a p-value of less than 0.001. This indicates a positively strong correlation between the two variables. The result implies that higher levels of awareness are associated with better solid waste management practices among the respondents.

Table 17

Relationship Between Awareness and Practices in Solid Waste Management

Independent	Dependent	Pearson's *r*	*p*-value	Degree of correlation	Decision	DI
Awareness Regarding Solid Waste Management	Practices in Solid Waste Management	+ .742	< .001	Positively Strong	Reject H_0	Significant

Legend. Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong) (Evans, 1996).

Relationship Between Practices and Community Health Conditions in Solid Waste Management

Table 18 shows that there is a significant relationship between practices in solid waste management and community health conditions, with a Pearson's r value of -0.729 and a p-value of less than 0.001. This indicates a negatively strong correlation between the two variables. The result implies that higher levels of solid waste management practices are associated with lower perceived community health problems such as sanitation issues, disease vectors, and waste-related illnesses among the respondents.

Table 18

Relationship Between Practices and Community Health Conditions in Solid Waste Management

Independent	Dependent	Pearson's *r*	*p*-value	Degree of correlation	Decision	DI
Practices in Solid Waste Management	Community Health Conditions	-.729	< .001	Negatively Strong	Reject H_0	Significant

Legend. Correlation: 0.00 – 0.19 (very weak); 0.20 – 0.39 (weak); 0.40 – 0.59 (moderate); 0.60 – 0.79 (strong); 0.80 – 1.00 (very strong) (Evans, 1996).

Proposed Information, Education, and Communication Materials to Promote Sustainability and Environmental Protection

The IEC material *"Promoting Sustainability for a Greener Future"* aims to reinforce and sustain the community's high level of awareness and practices on solid waste management. It focuses on maintaining proper waste segregation, recycling, reduction, and environmental protection to prevent complacency and ensure long-term sustainability. The brochure is written in

simple language and distributed through community activities and barangay coordination. Overall, it serves as a reinforcement tool to support continued environmental responsibility and sustainable practices in the community.

5. Discussion

The study found that respondents have a very high **level of awareness on solid waste management**, with segregation as the most dominant area. This indicates that awareness is strongly shaped by routine household practices and barangay enforcement systems. Capistrano (2026) supports this, noting that segregation becomes highly familiar due to continuous practice, while Badua (2022) emphasized that "no segregation, no collection" policies and IEC campaigns strengthen awareness and compliance. However, lower awareness in policy compliance, particularly RA 9003, suggests a gap between practical and legal knowledge. Asia and Baybay (2022) found similar results, where residents showed stronger practice-based awareness than legal awareness, while Carmen (2026) noted higher awareness of practices than environmental laws. Overall, the findings indicate strong behavioral awareness but a need to strengthen policy literacy.

In the **extent of practices in solid waste management**, The findings show that respondents demonstrate a high level of solid waste management practices, with disposal as the most consistently performed behavior due to structured waste collection systems. Del Rosario (2023) emphasized that organized collection services improve household compliance and routine disposal practices. In contrast, waste reduction was the least practiced, indicating that it depends more on personal behavior and motivation. Ertz et al. (2021) and Leslie et al. (2021) explained that reduction requires lifestyle changes and sustained discipline. This suggests strong routine compliance but limited behavioral shift toward waste minimization.

In **perceived community health conditions related to solid waste management**, respondents generally perceived favorable community health conditions, with low levels of sanitation issues, disease vectors, and waste-related illnesses. This suggests that existing waste management practices are effective in reducing environmental risks. Teslim (2023) and Chaudhary et al. (2025) noted that proper waste management reduces disease transmission and environmental hazards. However, slightly higher perception of disease vectors suggests minor localized issues, possibly linked to informal activities and limited waste infrastructure. Thevar and Shinde (2025) and Grangxabe et al. (2024) explained that inadequate disposal systems and informal economic activities can still create localized sanitation concerns. Overall, conditions remain generally favorable but require continued attention.

The study revealed a strong positive relationship **between awareness and practices**, indicating that higher awareness leads to better solid waste management behavior. This supports the KAP framework, where knowledge drives behavioral change. Paigalan et al. (2025) and Verzosa (2024) similarly found that higher awareness improves compliance and waste management practices, highlighting the importance of continuous environmental education and information campaigns.

A strong negative relationship was also found **between practices and community health conditions**, indicating that better waste management is associated with improved health outcomes.

This aligns with WHO (2024), which links poor waste management to infectious diseases, while Burcell Team (2025) and Jalosjos et al. (2021) emphasized that proper waste disposal reduces environmental contamination and disease risks. Overall, strengthening waste management practices contributes to better community health and environmental protection.

6. Conclusion

The findings indicate that residents are generally well-informed about solid waste management and recognize their role in promoting environmental sustainability, although awareness of specific policies such as RA 9003 is relatively lower. This awareness is reflected in their practices, as residents consistently apply proper waste management behaviors, contributing to environmental cleanliness, with waste reduction identified as the least practiced area.

Overall, the community demonstrates effective waste management and generally low perceived health risks. The results further show that higher awareness leads to better practices, and better practices are associated with fewer sanitation issues and lower perceived waste-related health conditions. This highlights the importance of knowledge in promoting responsible environmental behavior and maintaining a clean and healthy community.

7. Acknowledgement

The researchers sincerely thank God for guidance and strength throughout the study. They are deeply grateful to their adviser, Ms. Teresita A. Ferrer, instructors Mrs. Editha C. Sabalboro and Mr. Randy Sandoval, and panel members for their guidance and valuable feedback. Appreciation is also extended to the instrument validators, the Municipal Government of Bauang, MENRO, and the officials and residents of Barangay Boyutan and Barangay Pilar for their cooperation and support during data gathering. Special thanks are given to the Barangay Health Workers and Barangay Secretary for their assistance in the field.

The researchers also thank their families, friends for their encouragement, support, which contributed to the successful completion of the study.

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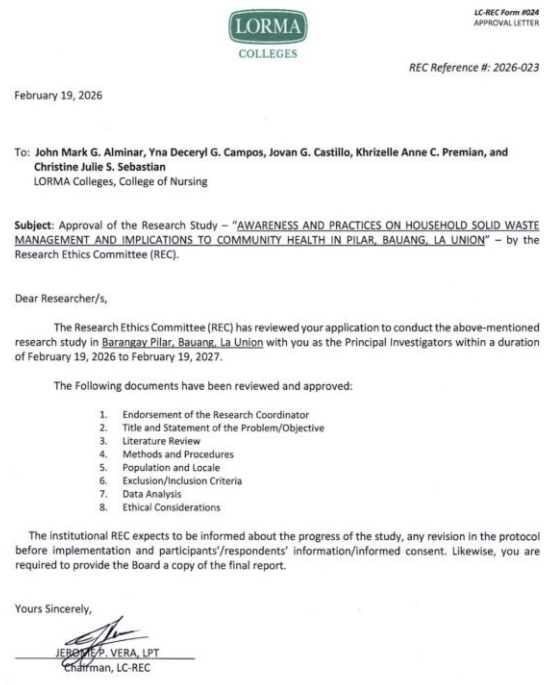
9. Appendices

APPENDIX A
Approval Sheet from the Research Ethics Committee



LORMA COLLEGES

LC-REC Form #024
APPROVAL LETTER

REC Reference #: 2026-023

February 19, 2026

To: **John Mark G. Alminar, Yna Deceryl G. Campos, Jovan G. Castillo, Khrizelle Anne C. Premian, and Christine Julie S. Sebastian**
LORMA Colleges, College of Nursing

Subject: Approval of the Research Study – "AWARENESS AND PRACTICES ON HOUSEHOLD SOLID WASTE MANAGEMENT AND IMPLICATIONS TO COMMUNITY HEALTH IN PILAR, BAUANG, LA UNION" – by the Research Ethics Committee (REC).

Dear Researcher/s,

The Research Ethics Committee (REC) has reviewed your application to conduct the above-mentioned research study in Barangay Pilar, Bauang, La Union with you as the Principal Investigators within a duration of February 19, 2026 to February 19, 2027.

The Following documents have been reviewed and approved:

1. Endorsement of the Research Coordinator
2. Title and Statement of the Problem/Objective
3. Literature Review
4. Methods and Procedures
5. Population and Locale
6. Exclusion/Inclusion Criteria
7. Data Analysis
8. Ethical Considerations

The institutional REC expects to be informed about the progress of the study, any revision in the protocol before implementation and participants'/respondents' information/informed consent. Likewise, you are required to provide the Board a copy of the final report.

Yours Sincerely,

JEROME P. VERA, LPT
Chairman, LC-REC

10. Author(s) Biodata

Ms. Yna Deceryl Campos, a dedicated Bachelor of Science in Nursing student, works together with her passionate group members under the guidance of their research adviser in conducting a study assessing community awareness, practices, and their implications to community health. Through their collaborative efforts, they aim to gain deeper insights into health-related behaviors and promote sustainable practices that contribute to the overall well-being of the community.