

EXPLORING HOUSEHOLD BEHAVIORS: A STUDY ON KNOWLEDGE, ATTITUDES, AND PRACTICES TOWARDS DISPOSING OF PLASTIC SACHET PACKAGING

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ABSTRACT: This study aimed to determine the community's knowledge, attitudes, and practices about proper disposal of plastic sachet packaging and information education campaigns. This paper discusses the results and discussions of a study conducted in Macabalan, Philippines, aimed to assess the sociodemographic characteristics, knowledge, and concerns about solid waste management among residents. The study found that 58% of the respondents were female, and 40% were below 30 years old. The majority of the respondents (72%) were already working, with a salary of less than 10,000 pesos. The study also found that more than half of the respondents (52%) believed that everyone should be responsible for waste disposal at home. Moreover, 56% of the respondents knew about RA 9003 or the Ecological Solid Waste Management Act, but only 10% of them used covered trash bins for waste disposal. All respondents had known about the effects of sachet disposal, but only 1% considered recycling as a means of waste disposal. The study also revealed that the majority of the respondents' knowledge was concerned about the health risks brought by sachets, whether burned or related to improper storage, and the illegal dumping of sachets that pollute rivers, streams, and wells. Based on the findings, the authors suggest that awareness campaigns should be conducted to educate residents about the proper disposal of waste and the effects of sachet use. The local government should also implement programs promoting recycling and provide residents with covered trash bins. The study emphasizes that everyone should take responsibility for waste disposal and proper waste management practices to ensure a cleaner and healthier environment.

Keywords: Household behaviors, Knowledge, Plastic sachet packing

INTRODUCTION

Plastic garbage from single-use items has grown ubiquitous in the natural world. The majority of us have become reliant on sachets for packing necessities. As a result, the amount of single-use plastic waste littering the environment has risen. A report commissioned by Senate Economic Planning Office [1] stated that improper waste disposal, ineffective waste collection, and a lack of disposal facilities are among the Philippine's solid waste management major challenges. In the Philippines, single-use plastics are becoming increasingly problematic, but sachets—small, sealed packages—are particularly concerning. Sachets have been collected in the environment, where they pollute the natural landscape, clog streams, hurt wildlife, and jeopardize livelihoods such as tourism and fisheries, accounting for an estimated 52 percent of the residual plastic waste stream. Sachet, as described in a report by Global Alliance for Incinerator Alternatives [2], is a "tiny thing"-sized, a type of small, sealed packaging made of single or multiple layers of plastics, intended for one-time use, whether by an individual or a family. Sachets are typically made up of a laminated film of plastic and aluminum. Often used in shampoo, toothpaste, bath soap, soy sauce, cooking oil, vinegar, and many other products. In 2015, it accounted for about 42% of the world's total plastic production. Not only is it the most produced plastic, but it also has the shortest lifespan, making it the biggest contributor to the global plastic waste problem. It is endorsed as cheap and convenient whereas the problem it causes does not account for the industries. According to the Global Alliance for Incinerator Alternatives [3], the Philippines uses almost 163 million pieces or 60 billion sachets a year. According to Rola [4], there are no regulatory policies for manufacturers that merchandise sachet-packaged products, thus manufacturers should be obligated to ensure the impacts of the sachet products.

The study's general objective is to provide baseline information about the knowledge, attitude, and practice of the people in Barangay Macabalan, Cagayan de Oro City pertaining to the disposal and management of plastic sachet packaging. Hence, it specifically intends to pursue the following objectives:

- To determine the community's comparative level of knowledge pertaining to the use, disposal, and management of plastic sachet and its impacts on the environment.
- To determine the knowledge, attitudes, and practices about the proper disposal of plastic sachet packaging and information education campaigns.
- To determine if the community is following preventive measures that have been implemented among the public.

MATERIALS AND METHODS

Study Design and Study Setting

This cross-sectional descriptive study was conducted in a face-to-face setting on May 30, 2022, at Macabalan, Cagayan de Oro City. Macabalan is a barangay in Cagayan de Oro City. Its population, as determined by the 2020 Census, was 19,562. This represented 2.69% of the total population of Cagayan de Oro. Macabalan is at approximately 8°30'01.7"N 124°39'40.2"E and is estimated at 3.2 meters or 10.5 feet above mean sea level.

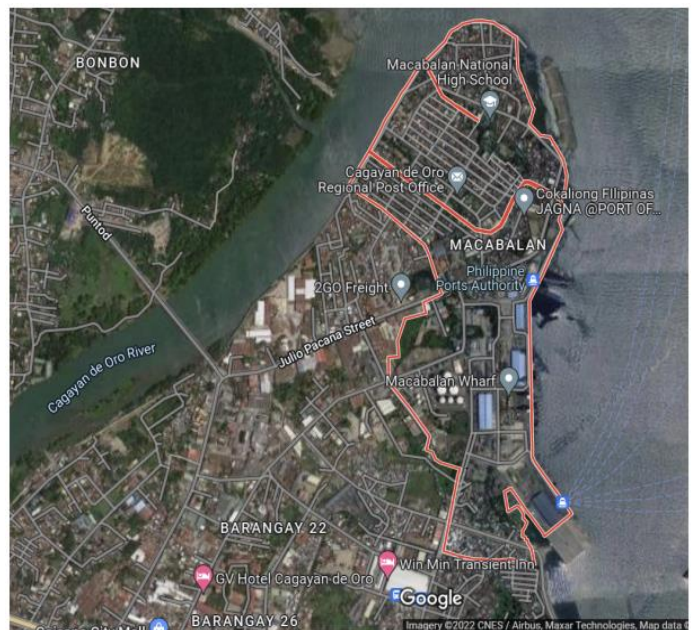


Figure 1. Map of Macabalan, Misamis Oriental Cagayan de Oro City, Philippines.

Participants. Face-to-face surveys and interviews with selected sampling approaches were applied for subject recruitment in the households of Barangay Macabalan. In this regard, the researchers sought families as participants to meet the required sample size of 50 respondents.

Measures. In accordance with the study's objectives, a self-administered questionnaire based on national and international guidelines and literature on solid waste management and disposal was used. The questionnaire included socio-demographics as well as various perception and attitude-related questions.

Data Collection. The data from the selected household along the five (5) clustered parts of the Barangay was collected via survey and interviews. It was then tallied and analyzed to make interpretations.

Statistical Analysis. The data gathered were organized in an excel and subsequent separate cross-checking was done by ten (10) individuals. All the data were tabulated to facilitate data transfer and analyses. Actual counts, relative frequencies, and percentages were used in the descriptive analysis of the sample population under study.

RESULTS AND DISCUSSIONS

Sociodemographic Characteristics of the Respondents

There were more female (58%) respondents and the rest were male (42%). Forty (40) percent of the age of the respondents were below 30. Followed by ages between 41-50 (26%), 51-60 (14%), and ages 31-40, and 61-70 10% respectively in (Table 1).

Table 1. Socio-Demographic Characteristics of the Respondents

Socio-Demographic Characteristics	Frequency	Percentage
Sex		
Female	29	58
Male	11	42
Age range		
less than 30	20	40
31-40	5	10
41-50	13	26
51-60	7	14
61-70	5	10
Level of education		
Elementary Graduate	8	16
High School Undergraduate	14	28
High School graduate	10	20
College level	9	18
College Graduate	9	18
Work status		
working individual	36	72
Non-working individual	10	20
student	4	8
Salary range (Monthly)		
No salary	3	6
less than 10,000	44	88
10,000-20,000	2	4
20,000-30,000	1	2

When it comes to the respondent's educational attainment, the majority were Highschool undergraduates (28%), followed by HS Graduates with 20%, college level, and graduate (18%), Elementary graduates (16%), and none for elementary level. Regarding the respondents' status of work, more than half (72%) were already working, (20%) who are not working, and (8%) were current students. As for the respondents' monthly income, the majority of the respondents (88%) had a salary of less than 10,000 and 6% had no salary at all. Moreover, the respondents with a higher salary of 20,000-30,000 are only 1 respondent. This finding shows that sociodemographics affects the disposal habits of the respondents, especially with their monthly income and their social status. According to Liamson, Benosa, et.al [5], sachet purchase and use tend to be higher among lower socioeconomic brackets. The key factors driving sachet buying are affordability and convenience, particularly in terms of portion controllability owing to predetermined amounts of product. Because of its cheap price points, sachets have enabled low-income households to acquire branded quality items such as shampoo, toothpaste, conditioner, and other commodities, although in little amounts. Sachets have also assisted customers in better rationing their usage of a product than large containers, decreasing product waste.

Table 2. Responsible for waste disposal at home

In-charge	Frequency	Percentage
Mother	14	28
Father	10	20
Individual	26	52

More than half of the respondents (52%) said that everyone should be responsible when it comes to waste disposal at home. 28% answered that mothers are responsible and the remaining (20%) had to be the father. Since waste is a problem globally, everyone should act on this according to a study conducted by Holmes [6], we all create it and that means we are all responsible for what happens to it. Even as homeowners, it is our responsibility to do so. Typically, placing out the rubbish and recycling for collection even a sachet thing makes a big problem. In addition, when everyone.

Table 3. Knowledge on Waste Collection Management

Response	Frequency	Percentage
Knows RA 9003		
Yes	22	44
No	28	56
Waste Storage		
Trashbin		
Covered	5	10
Just Open	15	30
Plastic Bag	30	60
Pile in the Yard	0	0
Disposal Method of Solid Waste	2	4

Throwing in dumpsite		
Garbage Collectors	47	94
Recycle	1	2
Knows what segregation is		
Yes	46	92
No	4	8
Knows the Effect of disposing of sachet		
Yes	50	100
No	0	0

Table 3 shows the knowledge of the respondents when it comes to solid waste management. As for RA 9003 or the Ecological Solid Waste Management Act [7], 56% of the respondents know what the republic act is, and 44% do not know what it is. When it comes to the storage of their waste, 60% of the respondents prefer to use plastic bags, 30% use open trash bins, and only 10% of them use covered trash bins. The majority of the respondents (94%), dispose of their solid waste through the garbage collectors, 4% of them throw their waste to the dumpsite and only a percent do the recycling method. The respondents show that 92% of them know what segregation is and only 8% do not know what segregation is. As for the effect of sachet disposal, 100% or all of the respondents are aware of its effects. Based on the data, all respondents have known the effect of sachet disposal and had common knowledge about segregation. However, the majority of the population was still not aware of RA 9003 or the Ecological Solid Waste Management Act. It is clear that the lack of knowledge about the act can be reflected in the waste storage practices and solid waste disposal methods of the residents. A study by Laor et. al [8], supported the results by stating that respondents with low knowledge or who do not receive information, had a low level of practice in terms of proper waste disposal. It was shown that the majority of the population preferred their trash bins open which can contaminate air surroundings and may lead to adverse respiratory health effects. Instead of proper garbage bins, the respondents used plastic bags which can only worsen solid waste disposal problems. Moreover, only a percent of the population considered recycling as a means of waste disposal. Direct dumpsite disposal is also not practiced in the area because they are away from the site of the landfill. Macabalan has designated workers responsible for garbage collection which is why it is preferred as the primary method of waste disposal by the residents.

Table 4. Concerns About Solid Waste Management (Attitudes)

Questions	Concerned	Not concerned	Not sure
	n (%)	n (%)	n (%)
1. How concerned are you about the health risks of burning a sachet?	49 (98%)	1 (2)	0 (0%)
2. How concerned are you about sachet polluting rivers, streams, and wells	49 (98%)	1 (2)	0 (0%)
3. How concerned are you about flooding due to garbage blocking drains and gullies	48 (96%)	2 (4)	0 (0%)
4. How concerned are you about the reduction of natural resources that are used to make the products we buy and use (such as sachet)	41 (82%)	4 (8)	5 (10%)
5. How concerned are you about the reduction of natural resources that are used to make the products we buy and use (such as sachet)	45 (90%)	4 (8)	1 (2%)
6. How concerned are you about litter in this area?	47 (94%)	3 (12)	0 (0%)
7. How concerned are you about illegal dumping in this area?	48 (96%)	2 (4)	0 (0%)
8. How concerned are you about the suggestion on how to improve SWM in your areas?	46 (92%)	4 (8)	0 (0%)

The majority of the respondents are concerned about the health risks brought by sachets, whether burned (98%) or related to improper

storage (96%). Consumption of sachet products is higher in urbanized areas such as in Macabalan, a report from Global Alliance for Incinerator Alternatives [9] stated. Therefore, health risks arise from the burning of plastics such as increasing heart disease, aggravating respiratory ailments, and causing damage to the nervous system affirmed and reported by United Nations Environmental Program [10]. Single-use sachets have an undesirable smell when burned. For this reason, the residents might avoid burning as the houses are closely situated from each other and might receive complaints.

The majority of the respondents are also concerned about the illegal dumping of sachets that pollutes rivers, streams, and wells which accounted for about 98% of the total number of respondents. Sachets account for 52 percent of the residual plastic in the waste stream. They are compact, sealed packages that come in a range of sizes and shapes. Moreover, according to a report by Global Alliance for Incinerator Alternatives [11], Filipinos use an estimated 164 million sachets every day, Single-layer or multi-layered sachets are often used for liquids like shampoo and powdered drinks like milk, juice, and coffee. They are especially disturbing since they pollute the environment, kill wildlife, clog streams, and jeopardize livelihoods such as fishing and tourism.

Moreover, 96% of the respondents show a positive attitude toward the present solid waste management in the area and are open to suggestions on how to improve SWM in the Barangay (92%). This implies they observed cleanliness or effective SWM of the LGUs with the cooperation of the residents. On the other hand, only a few who are not satisfied gave low ratings of the effectiveness of SWM. Similar results are found in other studies by Nguyen et.al [12] & Lapie et.al, [13]. Furthermore, a study conducted Kabito et. al [14] also argued that residents with a positive attitude about human health and environmental consequences are more likely to result in proper waste management by handling waste from home or in nearby areas.

Table 5. Willingness to Participate

Questions	Agree n (%)	Disagree n (%)	Not sure n (%)
1. Have you ever heard about recycling?	49 (98%)	1 (2)	0
2. If a recycling program was set-up, up that collected materials like plastics, papers, metals, etc. Would you be willing to separate these into separate bags for collection purposes	49 (98%)	1 (2)	0
3. Would you be willing to pay for the pick-up of these recycling materials from your home	48 (96%)	2 (4)	0
4. Would you like more information about how and what types of garbage you can compost, reuse, and recycle in order to reduce the amount of garbage that you need to get rid of?	41 (82%)	4 (8)	5 (10%)

The table above shows the willingness of participants to participate. Four questions were formulated; 1.) Have you ever heard about recycling? 2.) If a recycling program was set up that collected materials like plastic, paper, metals, etc. Would you be willing to separate these into separate bags for collection purposes? 3.) Would you be willing to pay for the pickup of these recycling materials from your home? 4.) Would you like more information about how and what types of garbage you can compost, reuse and recycle in order to reduce the amount of garbage that you need to get rid of? Participants are to respond by answering whether they agree, disagree, or if they are not sure.

According to Kihila, J. Wernsted, K. & Kaseva, M. [15], waste segregation is an important component in the waste management chain as it makes it possible to realize effective Reuse, Recycling, and Recovery. Based on the tabulated data gathered from the survey, 100% of the participants have heard about recycling. The majority of these participants stated that they would be willing to help in the segregation of waste given that separate waste containers would be provided by the LGU to minimize plastic sachet pollution. When asked if people would be willing to pay for the pickup of the recycled waste from their household, the majority stated they would comply. However, a significant minority disagreed on the payment for the said recycled waste collection, while a fragment of the population remained undecided. The majority of the population is looking forward to an information drive that would educate them to know which types of garbage can be composted, reused, and recycled while

only a fragment of the population disagrees with the idea. These results are clearly showing the willingness of the population to help and clean their surroundings by trying to minimize and participate in segregation and proper waste disposal, however, this enthusiasm will decrease in an event when they would need to pay for the pickup service of the garbage. This could be due to the idea that the LGU must be collecting the segregated materials regularly for free since it is a government responsibility. The survey population is knowledgeable about recycling and willing to participate in recycling activities however they would not be as enthusiastic to pay for garbage collection.

Table 6 presents the data that has been gathered about the Solid Waste Management Attitude Scale among the residents of Barangay Macabalan, Cagayan de Oro City. In terms of the significance of public education about proper waste management, particularly about recycling laws, 49 out of 50 respondents (98%) agree that it is critical to resolving the garbage situation. In terms of people who appropriately manage their garbage at home and in the community, 47 out of 50 (94%) have done so. Of the 50 responders, 46 (92%) take responsibility for picking up trash in their neighborhood. On the other hand, 44 out of 50 respondents (88%) believe that regular garbage collection is the only way to solve the community's garbage problem. Appropriate waste management alone should not be taught at school, according to 31 out of 50 respondents (62%), who agree with the next question, which indicates that environmental education should be taught at school, which 48 out of 50 respondents agree with. On the other hand, more than 50% of the respondents think that effective waste management in their barangay should not be ignored since it affects the health of the residents and, most importantly, the environment.

Table 6. Attitude toward Solid Waste Management

Statement	Agree n (%)	Disagree n (%)	Not sure n (%)
1. I play an important role in the management of garbage in my community	47 (94%)	3 (6%)	0
2. Environmental education should be taught in schools	48 (96%)	2 (4%)	0
3. The purchase decisions that I make can increase or decrease the amount of garbage my household must get rid of (dispose of)	47 (94%)	1 (2%)	2 (4%)
4. I don't care that burning garbage can be bad for my health and the health of others	4 (8%)	45 (90%)	1 (2%)
5. People throw garbage on the streets and in the drains and gullies because they have no other means of getting rid of (disposing of) their garbage.	24 (48%)	26 (52%)	0
6. The Local government is not doing enough to fix the garbage problem	16 (32%)	33 (66%)	1 (2%)
7. collection garbage management should not be taught in schools.	31 (62%)	17 (34%)	2 (4%)
8. Other personal issues (like crime, unemployment, and cost of living are more important to me than a garbage-free community.	17 (34%)	31 (62%)	2 (4%)
9. Regular collection of garbage is the only solution to the garbage problem	44 (88%)	6 (12%)	0
10. Picking up garbage around my community is my responsibility as a resident	46 (92%)	4 (8%)	0
11. Public education about proper garbage management is one way to fix the garbage crisis.	49 (98%)	1 (2%)	0
12. It is very important that the barangay Macabalan local government put recycling laws and programs in place	49 (98%)	1 (2%)	0

The acquisition of values and feelings of concern for something is defined as attitude. Residents would become more involved in environmental conservation if they were instilled with positive attitudes toward solid waste management. According to the United Nations Human Settlements Programme [16], attitude is a state of organized mental alertness that directs an individual's behavior

toward something through experience. A person's attitude greatly influences how they perceive something or a situation. Because it shares deep feelings and emotions, it influences an individual's reaction. This explains why people react differently to the same situation. While some may value a clean environment, others may not, not because they are unaware of its importance, but because they simply do not care. Residents' attitudes toward solid waste management were derived in the study, and the way to measure attitudes is by focusing on a person's assessment of whether the participation in the data was positive or negative.

CONCLUSIONS AND RECOMMENDATIONS

Plastic sachets are difficult to recycle, and when they end up in the environment, they can take hundreds of years to break down. They also pose a significant threat to wildlife, which can mistake them for food or become entangled in them. The results show that the level of knowledge on waste collection management is crucial to the waste disposal practices of the residents. It was observed that the majority of the respondent's lack information about RA 9003 which led to poor waste management practices. This issue can be addressed by conducting a barangay awareness campaign. Educating the residents about the provisions of the act helps improve their solid waste management practices and reduces solid waste problems in the area. The data gathered reflects the current state of waste disposal of sachets, even though the majority of the respondents are concerned about the illegal dumping of garbage that pollutes rivers, streams, and wells, the effects of waste disposal in Macabalan are still evident. The survey population is knowledgeable about recycling and willing to participate in recycling activities however they would not be as enthusiastic to pay for garbage collection. Plastic sachets are small, single-use packages made of plastic that are commonly used for packaging food, cosmetics, and other consumer products. While they are convenient and inexpensive, plastic sachets have negative environmental impacts.

To minimize the environmental impact of plastic sachets, it is best to avoid using them whenever possible. You can opt for products that are packaged in more sustainable materials, such as glass, metal, or paper. If you must use plastic sachets, it's important to dispose of them properly in the trash, rather than littering them. Ultimately, reducing the use of single-use plastic items like sachets is essential to protect the environment and reduce plastic pollution. Governments, businesses, and individuals can all play a role in reducing plastic waste by promoting sustainable practices and policies, using eco-friendly alternatives, and properly disposing of plastic waste.

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