Original Research

Knowledge, Attitude, and Practices of Home Waste Management Among Residents in a Barangay in Manila

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ABSTRACT

Using a quantitative correlational method and a quota sampling technique with a total of 100 participants.This study investigated the knowledge, attitude, and practices (KAP) of residents concerning home waste management in a barangay in Manila, aiming to assess their current efforts to reduce waste and mitigate associated health and environmental risks. Using a quantitative correlational design and quota sampling, data were collected from 100 participants via a survey instrument adapted and modified from a solid waste management study in Davao del Sur. Statistical analysis involved the use of median scores to describe KAP levels and Spearman's rank correlation to explore relationships between variables. The findings revealed that: (1) the majority of residents are knowledgeable about home waste management; however, they are unaware of Republic Act 9003 and have never attended any waste management programs; and (2) the majority of residents have never attended any waste management programs. (3) The level of attitude is very high, which implies good behavior towards waste management. (4) The residents' level of practice is high, which implies that they often practice home waste management. (5) The majority of the residents agreed to adopt a positive attitude towards effective waste collection. (6) It implies that the level of home waste management increases, the attitude of the residents about it increases as well, and vice versa. (7)The relationship between the level of home waste management and the practices of the residents has a strong positive trend towards it. Residents of Manila should be aware of or have knowledge of the Ecological Solid Waste Management Act (Republic Act 9003) and attend awareness programs conducted by the local authorities and barangay regarding household waste management.

Keywords: Knowledge, Attitude, Practice, Home Waste Management

INTRODUCTION

Solid waste is everywhere, mostly everyone is living in a modern and technologically advanced world where it was taught from childhood, the importance of solid waste management and how it can affect daily life by reducing the damage people did and still doing on this planet. By staying in touch with the neighborhood residents, nurses can play a

significant part in preventing environmental related risk and illness. The nurse is a key player in preventing health issues related to the environment, such as preventing entry into health care facilities, of materials that can be ecologically hazardous and related to solid, health biohazards and chemical wastes. Florence Nightingale and subsequent nurse scholars have written about the effect of the environment on human health. In order to create the best conditions for recovery, Nightingale outlined and staked out the duty of the nurse. Numerous academics have shown that ever since Nightingale, environmental factors have had a significant impact on people and populations' health. Nurses will be better able to advocate for environmental conditions that support health as they become more knowledgeable about how the environment affects human health.

Currently, the amount of waste is increasing as the population grows. Furthermore, this increase is having an impact on the lives of many people. Waste management is essential for the preservation of living beings' health as well as the creation of a strong environment for future generations. As Paghasian (2017) points out, Solid Waste Management is the collection, transport, or removal and dissolving of waste materials.Waste in barangay levels stipulates the separation of sources, the individual collection and individual determination of waste, and the establishment of a Material Recovery Facility in each barangay or barangay cluster. With particular emphasis on theories and practices of waste management standards such as source segregation, reduction, recycling, reuse and composting, environmental consciousness, and action among students. This, in turn, promotes growing awareness of Solid Waste Management Practices by that of the general public.

This study was conducted to look into the significant relationship between the knowledge, attitude and practices of proper and improper waste management. In the same manner, identifying and analyzing these practices is critically important for students and people living in Barangay in Manila. Nevertheless, it is regarded as a global concern to be highly aware of adequately managing our waste products and solving the environmental- related problems that we face in the present. To achieve effective and sustainable implementation of proper waste management practices, awareness and participation are the keys to having a healthy environment. In this relation, the researcher has decided to seek this study to investigate the knowledge, attitude, and practices correlation to home waste management among residents of Barangay in Manila. In addition, this study aims to determine whether or not the people living in Barangay in Manila are actively conducting proper waste management.

METHODOLOGY

Data Analysis

The data collected through the survey was analyzed using descriptive and inferential statistics. The Median and Spearman Rank Correlation, a type of non-parametric test that is used to measure the degree of association between two variables.

RESULTS AND DISCUSSION

A total of 100 respondents were gathered from a selected barangay in the City of Manila.

Level of knowledge of the residents regarding waste management

Table 1. Awareness & Practice Waste Management Program Median Score

I.	Awareness & Practice Waste Management Program	NEVER	RARELY	SOMETIME	OFTEN	ALWAYS	Median	Verbal Interpretation
		1	**2**	**3**	**4**	**5**		
		Frequency						
1.	Are you aware of the Ecological Solid Waste Management Act (RA 9003)?	43	12	11	3	12	1	NEVER
2.	Did you ever attend any awareness program conducted by the local authority/barangay regarding household waste management?	46	13	5	5	12	1	NEVER
3.	Do you know the principle of waste characterization?	12	2	5	12	50	5	ALWAYS
4.	Do you know the principle of solid waste minimization?	5	1	6	17	52	5	ALWAYS
5.	Do you know the solid waste management program in your barangay or household waste management?	3	0	4	10	64	5	ALWAYS
6.	Do you think that the barangay official has an important role to play in the implementation of solid waste management at your barangay?	2	0	1	1	77	5	ALWAYS
7.	Do you know about segregation of waste?	0	0	3	3	75	5	ALWAYS

8.	Do you think waste segregation is important in the barangay or household?	0	0	1	10	70	5	ALWAYS
9.	Do you know the effective mechanism for the barangay or for the household waste management?	1	0	4	9	67	5	ALWAYS
10.	Do you know the effects of improper waste management?	6	8	12	4	51	5	ALWAYS
11.	Do you know the penalties for violation of solid waste management?	21	3	20	8	29	3	SOMETIMES
12.	Are you aware of e-waste?	13	14	6	13	35	4	OFTEN
13.	Do you know how to dispose the e-waste?	6	9	13	12	41	5	ALWAYS
14.	Does the barangay conduct health teaching about waste management or post posters about it?	4	8	7	12	49	5	ALWAYS
15.	Are you willing to know about environmental issues and concerns?	1	1	4	14	61	5	ALWAYS
16.	Are you committed to minimize the waste?	2	4	6	13	56	5	ALWAYS
17.	Do you segregate solid waste in the barangay or household wastes	18	17	9	4	33	3	SOMETIMES
18.	Do you use kitchen waste as compost?	22	12	13	3	31	3	SOMETIMES
19.	Do you throw your solid waste outside your room or household?	11	7	8	16	39	4	OFTEN
20.	Do you see garbage on the roadside in your barangay?	3	3	40	10	25	3	SOMETIMES
Overall Median							**5**	**ALWAYS**

Interpretation: Scores range from 1 to 5, corresponding to value ranges as follows: 1 (1–20) = Very Low, 2 (21–40) = Low, 3 (41–60) = Average, 4 (61–80) = High, and 5 (81–100) = Very High.

Table 1 shows the level of knowledge of the respondents regarding waste management using the Median. The responses got an overall median of 5, which corresponds to the verbal interpretation "always". This implies that the residents in Barangay are always aware and practice waste management. However, most of the respondents do not know about the Republic Act 9003 and never attended a seminar regarding home management. Based on the median scores with the value of 100, very high in the level of knowledge, shows that the majority of the residents in Barangay are knowledgeable in home waste management. In the study of Shahzadi et al. (2018), 72% of those surveyed were knowledgeable of the negative implications of home waste management. This implies that the majority's knowledge on what they see and practice in their barangay, even without attending home waste management seminars. As eloquently, in the case of Tshivase and Mashau (2020), poor educational knowledge is one factor that affects indiscriminate garbage removal techniques. Thus, knowledge and public awareness are important in managing waste due to the risk issue associated with incorrect waste management is disease breakout, which results from solid domestic waste management (Charles et. al., 2022).

Table 2. Attitude towards Solid Waste Management Median Score

II. Attitude towards Solid Waste Management	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS	**Median**	**Verbal Interpretation**
	1	**2**	**3**	**4**	**5**		
	Frequency						
1. Improper waste disposal is a threat to the environment.	2	5	5	14	55	5	ALWAYS
2. Waste segregation is beneficial at my barangay and household	11	0	3	10	57	5	ALWAYS
3. Household waste management is the sole responsibility of my parents.	31	0	9	21	20	4	ALWAYS
4. The waste management program should be spearheaded by the barangay officials.	7	6	8	14	46	5	OFTEN
5. Solid waste collection and disposal is the sole responsibility of the barangay officials or local authorities/street sweepers	8	1	12	14	46	5	ALWAYS

6.	I am also responsible for the generation of the barangay's solid waste or household waste	3	2	8	4	64	5	ALWAYS
7.	I also have a role to minimize the barangay's and household waste	4	0	9	5	63	5	ALWAYS
OVERALL MEDIAN							**5**	**ALWAYS**

Interpretation: Scores range from 1 to 5, with corresponding values as follows: 1 (1–7) = Very Low, 2 (8–14) = Low, 3 (15–21) = Average, 4 (22–28) = High, and 5 (29–35) = Very High.

Table 2 shows the level of attitude of the respondents regarding waste management using the Median. It can be seen on the table that the respondents got an overall median of 5, which corresponds to the verbal interpretation "always". A score of 35, this implies that the residents in Barangay always show a positive attitude towards waste management. The residents had a positive attitude towards the home waste management similar to the study in rural areas of Northern Kerala, 93.8 percent of the study participants had a positive attitude, while 6.2 percent had a negative attitude (Kaithery & Karunakaran, 2019). This section's willingness to pay attention to home waste management.

Table 3. Status of Solid Waste Management program Median Score

III. Status of Solid Waste Management program	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS	**Median**	**Verbal Interpretation**
	1	**2**	**3**	**4**	**5**		
	Frequency						
1. Waste materials are collected according to the schedule of the barangay or in the home.	6	9	13	16	37	4	OFTEN
2. Waste materials are collected during weekends and even during holidays.	5	10	10	20	36	4	OFTEN
3. Solid wastes are collected once a week only.	16	11	9	20	25	4	OFTEN
4. Residents are informed on the days when garbage is to be collected.	6	12	7	7	49	5	ALWAYS

5.	Solid waste designated area or material recovery facility is used in the barangay management system	5	3	15	17	41	5	ALWAYS
6.	No garbage are left uncollected in designated area.	19	4	23	15	20	3	SOMETIMES
7.	Waste materials are collected in designated area	4	6	10	18	43	5	ALWAYS
8.	Waste are collected by the maintenance staff	6	1	15	9	50	5	ALWAYS
9.	Infectious waste, chemical waste, toxic substances are collected together, regardless of whether or not they are contaminated (if applicable).	25	7	18	10	21	3	SOMETIMES
10.	Grease trap, kitchen waste, are collected by authorized staff in strong, leak proof containers that are clearly labeled.	15	5	17	8	36	4	OFTEN
OVERALL MEDIAN							**4**	**OFTEN**

Interpretation: Scores range from 1 to 5, with values as follows: 1 (1–10) = Very Low, 2 (11–20) = Low, 3 (21–30) = Average, 4 (31–40) = High, and 5 (41–50) = Very High.

Table 3 shows the level of practices of the residents regarding waste management using the Median. It can be seen on the table that the responses got an overall median of 4, which corresponds to the verbal interpretation “often”. Based on the median score that interpreted value of 40 or at least 80% of the residents are practicing home waste management. To correlate with the results in the study of Abdullah et al. (2022), 61% of households used community trash bins and/or the collection of trash bags is done weekly. This means that practicing management at home can reduce the amount of garbage that needs to be disposed of, frees up landfill space, and protects natural resources (Salonga, 2021). Also, 83% of households were aware that poor waste management practices contribute to disease causation. In contrast with this results, the study from district hospital in KwaZulu-Natal by Govender et. al (2018), eloquently several South African hospitals have been cited for having inadequate practices; hence, necessary training needs to be enhanced or introduced at the undergraduate level

Table 4. Effectiveness of Solid Waste Management program Median Score

IV. Effectiveness of Solid Waste Management Program	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS	**Median**	**Verbal Interpretation**
	1	**2**	**3**	**4**	**5**		

		Frequency						
1.	Waste materials are collected according to the schedule of the barangay or in the home.	2	12	11	10	46	5	ALWAYS
2.	Waste materials are collected during weekends during holidays.	9	14	6	10	42	5	ALWAYS
3.	Solid wastes are collected once a week only.	20	16	15	6	24	3	SOMETIMES
4.	Residents are informed on the days when garbage is to be collected.	6	3	16	5	51	5	ALWAYS
5.	Solid waste designated area or material recovery facility is used in the barangay management system	9	5	14	10	43	5	ALWAYS
6.	No garbage are left uncollected in designated area.	9	11	22	11	28	3	SOMETIMES
7.	Waste materials are collected in designated area	1	9	14	4	53	5	ALWAYS
8.	Waste are collected by the maintenance staff	4	9	9	9	50	5	ALWAYS
9.	Infectious waste, chemical waste, toxic substances are collected together, regardless of whether or not they are contaminated (if applicable).	19	6	26	3	27	3	SOMETIMES
10.	Grease trap, kitchen waste, are collected by authorized staff in strong, leak proof containers that are clearly labeled.	7	11	24	10	29	3	SOMETIMES
OVERALL MEDIAN							**5**	**ALWAYS**

Interpretation: Scores are classified as follows: 1 (1–10) = Very Low, 2 (11–20) = Low, 3 (21–30) = Average, 4 (31–40) = High, and 5 (41–50) = Very High.

Table 4 shows the level of home waste management of the residents using the Median. It can be seen on the table that the responses got an overall median of 5, that corresponds to the verbal interpretation “always”. This implies that the residents in one of Barangay in Manila always do

home waste management. The study of Torres (2020), shows that the majority of the residents agreed to adopt positive attitudes, such as allocating time to efficiently manage household garbage, and taking part in advocacy for efficient and effective waste collection. This study means that the respondents show the effectiveness of solid waste management results in interpretation of the table "always". Additionally, the increase of public garbage cans and waste collection by garbage collectors could help people to avoid infecting their residents with diseases (Abdullah et.al., 2022).

Table 5. Knowledge, Attitudes and Practices and its correlation with home waste management

	Spearman Rho	**p-value**	**Decision**	**Remarks**
Knowledge	0.186	0.096	Fail to Reject H_0	Not Significant
Attitudes	0.468	0.000	Reject H_0	Significant
Practices	0.702	0.000	Reject H_0	Significant

*Legend: "Very weak: 0.01-0.29", "Weak: 0.10-0.29", "Moderate: 0.30-0.49", "Strong: 0.50-0.69", "Very strong: 0.70-1.00"

Table 5 above shows the relationship between the level of home waste management of the residents and their knowledge, attitude and practices about it, using Spearman Rank Correlation. It can be seen on the table that the said Knowledge variables got a p-value of 0.096, retaining the null hypothesis and implying that there is no significant relationship between the level of home waste management and the knowledge of the residents about it.

The attitude variable got a p-value of 0.000, rejecting the null hypothesis and implying that there is a significant moderately positive relationship between the level of home waste management and the attitude of the residents about it. To put it simply, as the level of home waste management increases, the attitude of the residents about it increases as well, and vice versa.

The practices of the residents got a p-value of 0.000, rejecting the null hypothesis and implying that there is a significant very strong positive relationship between the level of home waste management and the practice of the residents about it. To put it simply, as the level of home waste management increases, practices of home waste management increase as well, and vice versa. To summarize these three tables in correlation with the level of waste management, there is a positive and negative relationship between the level of home waste management. First, there is no significant relationship between the level of home waste management and the knowledge of the residents about it. Lastly the negative relationship between the attitude and practice, there is a relationship the level of home waste management.

CONCLUSION

Based on the findings of the study, the level of knowledge median scores with the value of 100, that means very high, shows that the majority of the residents in Barangay are knowledgeable in-home

waste management. This implies that the majority's knowledge is based on what they see and practice in their barangay, even without attending home waste management seminars.

The level of attitude implies that the residents in Barangay always show a positive attitude towards waste management. The residents have a positive attitude towards home waste management. This section's willingness to pay attention to home waste management and the responsibility of managing.

In the level of practices of the residents regarding waste management using the Median it scores a total of 4, which corresponds to the verbal interpretation “often”. It is interpreted as a value of 40 or at least 80% of the residents are practicing home waste management. This means that practicing management at home can reduce the amount of garbage that needs to be disposed of, frees up landfill space, and protects natural resources (Salonga, 2021).

In the level of home waste management of the residents using the Median. It can be seen on the table that the responses got an overall median of 5, which corresponds to the verbal interpretation “always”. This implies that the residents in one of Barangay in Manila always do home waste management. The majority of the residents agreed to adopt positive attitudes, such as allocating time to efficiently manage household garbage, and taking part in advocacy for efficient and effective waste collection. This study means that the respondents show the effectiveness of solid waste management results in interpretation of the table “always”

In terms of significant correlation with the level of waste management of residents in terms of knowledge using Spearman Rank Correlation the said variables got a p-value of 0.096, retaining the null hypothesis and implying that there is no significant relationship between the level of home waste management and the knowledge of the residents about it. Because there is a positive and negative results when it comes to the knowledge

In terms of attitude, the relationship between the level of home waste management of the residents and their attitude about the said variables got a p-value of 0.000, rejecting the null hypothesis and implying that there is a significant moderately positive relationship between the level of home waste management and the attitude of the residents about it.

For practice, relationship between the level of home waste management of the residents and their practices about it, the said variables got a p-value of 0.000, rejecting the null hypothesis and implying that there is a significant very strong positive relationship between the level of home waste management and the practice of the residents about it. Based on the results that we gathered it shows that the residents in Manila have a favorable attitude toward home waste management in a big way. They are aware of home waste management and the measures that must be basically followed in a big way. They need to improve their knowledge by attending seminars and other programs that the local authorities conduct. As home waste management grows, so does their practice of home waste management, and vice versa, or so they thought. By reinforcing it, the community will benefit from a safer and much cleaner environment, which generally is fairly significant.

Recommendation

Based on the findings and conclusions presented, the researchers recommend that the residents in a Barangay in Manila should have knowledge of the Republic Act 9003 or also known as Ecological Solid Waste Management Act. Understanding the Republic Act 9003 is important for the community to be able to practice waste management activities in a correct manner. It is recommended that the residents in a Barangay in Manila should attend any awareness program conducted by the local authority and barangay regarding household waste management. Attending an awareness program will help the people to have a better understanding of waste management and apply it in their daily lives to prevent health risks and hazards from occurring. Additionally, the researchers also recommend to the future researchers to use a binary variable in the research study to get the accurate and effective responses of the residents. And to avoid using a neutral response in the questions because the respondents are more likely to select a neutral response option than to report their actual opinion or stand.

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