

Waste Management Awareness and Practices among Overseas Filipino Workers in Bahrain

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Abstract

The study aimed to assess levels of waste management awareness and practices among the Overseas Filipino Workers (OFWs) in Bahrain. The respondents consisted of 61 OFWs using the quota sampling method. Responses were collected using the snowball sampling method wherein 38 females and 23 males answered the survey. A questionnaire was utilized to determine the profile of the respondents, while their waste management awareness and practice levels were interpreted using a 4-point Likert Scale. The Measure of Central Tendency mode was used to determine the age and gender of the OFWs, while the mean was used to determine their waste management awareness and practice levels. The correlation between the levels of waste management awareness and practices was determined using Spearman's Rank Correlation. An Independent Sample T-test and ANOVA test were used in determining the significant difference in the OFW's level of waste management awareness when grouped according to profile. The results of the data revealed a strong significant relationship between the level of awareness of OFWs and their level of practices on waste management. It is recommended that various forms of information dissemination should be held to educate the OFW community further and that more studies should focus on the level of awareness and practice with profiles such as occupation and years of residency. Additionally, the government may consider enforcing strict waste management policies in the country.

Keywords: Waste Management, Awareness, Practice, 3Rs, Segregation

1. INTRODUCTION

It has been known since the middle of the 1980s that waste is a global issue, just like any other environmental issue. Waste pollution has been around since the emergence of early humans. According to Rihn [16], It has been over a million years since then and pollution only got worse despite efforts to minimize its risk. Although pollution can be produced naturally by the Earth, human activities are the leading factors that worsen Earth's situation. For over a million years since the days of the earliest human ancestors, waste in any form has increased and worsened as time passed by. These are not only harmful to the environment but also a threat to human life, especially for the generations to come.

Waste Management refers to the various methods used to dispose of waste. The main goal of this practice is to reduce the amount of unwanted waste, and unsafe materials as well as avoid potential life hazards and environmental hazards [6].

There are many waste management strategies and practices that help to tackle the problem. These practices include waste prevention, waste reduction, composting, reducing, reusing, recycling, and repurposing. By involving these practices in everyday life, the amount of unnecessary waste produced will be reduced,

including the toxic greenhouse gases emitted into the atmosphere due to the incineration of products and hazardous materials.

In Bahrain [24], more than 1.2 million tons of solid garbage are annually produced and the daily produced garbage across this nation exceeds 4500 tons. With the rate of waste accumulation increasing, it is anticipated that the only landfill in this country will reach its capacity in the coming years posing substantial risks to the area's groundwater, soil, and air quality. Nidukki is a company, in the same scenario, responsible for thorough waste management services in the country such as cleaning and recycling services. In addition to this, Bahrain also has the Gulf City Cleaning Company (GCCC) [20], which is responsible for waste management services including the collection of household and commercial waste, the transport of hazardous waste, as well as the maintenance and cleaning of drains. However, the country still suffers from the effects of improper waste management which is evident in the cluttered garbage conditions of streets in the country. To name some: improper waste management is an extremely dangerous practice since it can result in serious health risks. This can occur through water, soil, and air pollution and can have a major impact on society if not dealt with as soon as possible. The diseases that are spread can affect vulnerable groups like children, pregnant women, elderly people, and society as a whole. In addition to health risks, inadequate waste management poses a major threat to the environment. It increases the amount of environmental pollution and marine pollution as well. When solid waste is not properly disposed of and enters the sewage system, the water becomes contaminated with various diseases like cholera which can be spread, thus infecting and sickening more people. Solid waste buildup in landfills also takes up a lot of space that can be used for more environmentally sustainable practices. Despite the government's efforts in improving the waste management scenario through different environmental initiatives and projects, the real effort to effective waste management must start with the people.

Putting them onto accounts, proper waste management is one approach to benefit the environment. It protects the environment from hazardous compounds released by inorganic and biodegradable waste components. Being aware that managing trash is a key component of having a sustainable future will empower people to take action to make the world a cleaner place. In addition to protecting the environment, this practice will lower the cost or expenses associated with garbage disposal activities. By using less energy, proper waste management also enhances the quality of the air and water while lowering greenhouse gas emissions that cause climate change. A country's population's health as well as the preservation of the environment are two of the biggest advantages of effective waste management.

In addition, unnecessary waste is one of the biggest contributors to pollution and a majority of people who do produce these large amounts of waste do not know how to safely dispose of them, due to lack of awareness and practice of waste management. The lack of studies in this field of environmental science probes questions concerning the awareness of people on waste management and its practices.

This study aimed to assess the awareness of Overseas Filipino Workers in Bahrain on proper waste management. This research gives an insight into the practices that Overseas Filipino Workers apply to their daily waste management and the different strategies applied.

Waste Management Awareness

Reducing the amount of unwanted waste, and avoiding potential health and environmental risks, are the primary goals of waste management. People's awareness of the increasing number of waste on the planet is an important aspect of their willingness to help the environment through waste management practices. In their study, Marelló & Helwege [10] claimed in 2014 that public cooperation and involvement are necessary for the government to effectively manage waste. However, in the study by Ahsan et al. [3], most

developing countries have thus far ignored solid waste management. Therefore, educating people on properly managing waste through information dissemination is essential. On the other hand, Nolasco et al. [12] mentioned in their research that ineffectively disseminating information on properly handling waste will reduce public awareness and decrease the public's willingness to practice waste management. The level of awareness and knowledge of the respondents in the study by Kapoor et al. [8] about waste management is inadequate due to significant variations in practice and management in several aspects as a result of the variable sample size and various study settings.

A healthy material-cycle and resource-efficient society starts with a public knowledge of the 3Rs: Reduce, Reuse, and Recycle. Awareness of this is the primary component of achieving such a society. A broad definition of public awareness includes knowledge, experience, understanding, and motivation regarding the 3Rs, resource efficiency, or the environment. Therefore, having knowledge regarding these practices indicates a good level of public awareness of waste management as well as environmental sustainability [1].

Waste Management Practice

The urge and willingness to practice waste management strategies highly depend on the level of awareness of people on such practices. In various case studies in developing countries, community involvement has been linked with the success of the waste management services that have been established. To encourage individuals to get involved in the practice of waste management, for instance, raising awareness on the issue is necessary yet insufficient [17]. The findings of a study on Municipal Solid Waste Management in households [13] showed that having easy access to waste facilities and efficient waste collection methods are the main barriers to household waste management. In contradiction to the aforementioned study, it is revealed in the study by Yoda et al. [23] that 61.0% of households use public trash bins or rely on private contractors to collect rubbish from their residences to implement proper waste management. The study conducted by Molina & Catan [11] indicates that students who have a very high or high level of awareness of various prohibited activities done against the environment are more likely to perform good waste management techniques. Moreover, this study revealed good practice in terms of segregating, reducing, reusing, recycling, and disposing of waste among the participants.

Relationship of Awareness and Practice of Waste Management

Awareness of waste management may or may not affect the waste management practices of people. In a study conducted by Lalamonan & Comighud [9], the level of awareness of the respondents on solid waste management and the extent of implementation of these practices showed positive results and a significant relationship was found. Furthermore, the author of the study concluded that the participants' level of awareness significantly influenced their extent of implementation of waste management practices. On the contrary, a study by Paghastian [14] found that the disposal practices of the participants were unaffected by their awareness of waste management. However, the participants' increased awareness had a positive impact on their practice, particularly with regard to segregating, reducing, reusing, and recycling except for disposal.

2. METHODOLOGY

Research Design: A non-experimental qualitative study using the descriptive-comparative-correlational approach was used in this study.

Sampling and Participants: A non-probability snowball sampling method was used by the researchers to reach the participants of this study. The respondents were Overseas Filipino Workers (OFWs) residing

in Bahrain.

Data Collection Techniques and Procedures: A structured survey questionnaire adapted from several studies was utilized for data gathering. The researchers administered the questionnaire by sending a Google form link to participants they could reach and asked those participants to forward the questionnaire to other OFWs they knew. Before the actual data gathering, a letter explaining the purpose of the survey, ensuring their safety and anonymity, while asking for consent for their participation in the study was noted on the first page of the Google form as per ethical considerations.

Analysis of the Data: Statistical tools were utilized to analyze and interpret the data collected through the survey. The profile of the respondents was determined using the Measure of Central Tendency, specifically mode. To determine the level of waste management awareness as well as the level of waste management practices of the OFWs, the same statistical tool, the measure of central tendency, was used, specifically mean. Spearman's Rank Correlation was utilized to analyze the relationship between levels of waste management awareness and waste management practices of the OFWs). The Spearman's test utilized ranks rather than assuming normality, therefore it can be used to analyze data at both the ordinal level and the continuous level. To determine the difference in the level of waste management awareness of OFWs in terms of their gender, an Independent Sample T-test was used. The ANOVA (Analysis of Variance) test was utilized to determine the difference in the level of waste management awareness in terms of their age.

3. RESULTS AND DISCUSSION

This section presented the findings and discussions aimed at addressing the problems of this study. Statistical treatment was utilized to provide quantitative evidence for the responses.

Table 1 displays the level of Overseas Filipino Workers' awareness regarding waste management. The area of waste management that the OFWs are most aware of is indicated by the mean values of their level of awareness. The table demonstrates that the respondents have a very high awareness on the importance of waste management reflected in the mean value of 3.66. Additionally, the respondents also displayed a very high level of awareness in terms of the effect of waste management on the environment, with a mean value of 3.61. The respondents' overall awareness is also found to be very high, with an average value of 3.41.

Table 1. Waste Management Awareness Level

| Level of Awareness | Mean | Interpretation |
|--|------|---------------------|
| a. Awareness on Waste Management's Effect on the Environment | 3.61 | Very High Awareness |
| b. Awareness on Waste Management Practices | 3.38 | Very High Awareness |
| c. Awareness on the Importance of Waste Management | 3.66 | Very High Awareness |
| d. Awareness on Environmental Responsibilities | 3.00 | High Awareness |
| Overall Awareness | 3.41 | Very High Awareness |

Furthermore, with a mean value of 3.38, the respondents have a very high level of awareness regarding various waste management practices. Lastly, the respondents demonstrate a high level of awareness, with a mean value of 3.00, concerning environmental responsibilities. This finding is against the study by Kapoor et al. [8], where the level of awareness and knowledge on waste management of the respondents was inadequate. Ahsan et al. [3] also mentioned in their study that most developing countries have, thus

far, ignored solid waste management, which is in support of the findings of this study as it was conducted in Bahrain. This shows how living in a developed country helps in raising the level of awareness of people in waste management.

Table 2 displays the level of waste management practice among Overseas Filipino Workers in Bahrain. The level of practice of OFWs is defined by the means of which approach to waste management they practice. The table reveals that the respondents had a good level of practice when it came to reusing and recycling waste with a mean value of 2.62 and 2.61, respectively.

Table 2. Waste Management Practice Level

| Level of Practice | Mean | Interpretation |
|-----------------------------------|------|----------------|
| a. Practices of Segregating Waste | 2.33 | Fair Practice |
| b. Practices of Reducing Waste | 2.53 | Good Practice |
| c. Practices of Reusing Waste | 2.62 | Good Practice |
| d. Practices of Recycling Waste | 2.61 | Good Practice |
| e. Practices of Disposing Waste | 2.57 | Good Practice |
| Overall Waste Management Practice | 2.53 | Good Practice |

The respondents also demonstrated good practice in disposing of waste with a mean value of 2.57. When it came to reducing waste and their overall waste management practice, the respondents have a good level of practice, with a mean of 2.53. However, the OFWs showed only a fair level of practice in segregating waste, with a mean of 2.33. Along with the findings, the study conducted by Molina & Catan in 2021 [11] revealed that having a good awareness of the negative activities against the environment will result in a good level of waste management practice. Additionally, the results of this study revealed good practice in terms of segregating, reducing, reusing, recycling, and disposing of waste among the participants.

Table 3 displays the relationship between the level of awareness and the level of practices of Overseas Filipino Workers on Waste Management. Spearman’s Rank Correlation was utilized to determine the significance of the relationship between the two variables. This table reveals that there is a strong significant relationship between the level of awareness and the different waste management practices such as segregating waste, reducing waste, reusing waste, recycling waste and disposing waste. This leads to a strong significant relationship between the level of awareness and level of practices on waste management among Overseas Filipino Workers in Bahrain.

Table 3. Relationship Between Level of Awareness and Level of Practices

| Variable | Test | Overall Awareness | Interpretation |
|--------------------------------|----------------------------|-------------------|---------------------------------|
| Practices of Segregating Waste | Spearman’s rho p- value | 0.512 < .001 | Strong Significant Relationship |

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|-----------------------------------|----------------------------|-----------------|---------------------------------|
| Practices of Reducing Waste | Spearman's rho p- value | 0.542 < .001 | Strong Significant Relationship |
| Practices of Reusing Waste | Spearman's rho p- value | 0.457 < .001 | Strong Significant Relationship |
| Practices of Recycling Waste | Spearman's rho p- value | 0.473 < .001 | Strong Significant Relationship |
| Practices of Disposing Waste | Spearman's rho p- value | 0.478 < .001 | Strong Significant Relationship |
| Overall Waste Management Practice | Spearman's rho p- value | 0.486 < .001 | Strong Significant Relationship |

The study by Lalamonan & Comighud [9] stated that the level of awareness regarding waste management has significantly influenced the application of waste management practices. Additionally, the level of awareness and practice showed positive results with a significant relationship being found. Paghastian [14], in addition, concluded that the increased awareness of the participants had a positive impact on waste management practices such as segregation, reducing, reusing, and recycling – but not disposal as it was not affected by the participants' awareness. The data obtained from this study proved the existence of a strong significant relationship between the level of waste management awareness and the level of waste management practice of Overseas Filipino Workers in Bahrain.

CONCLUSION AND RECOMMENDATIONS

The overall awareness of Overseas Filipino Workers in Bahrain on Waste Management is very high as they understand the significance of this issue in combating global problems such as environmental pollution and climate change, which are becoming increasingly prevalent in today's world. The findings also revealed that waste management practices are significantly influenced by the level of awareness on waste management. This suggests that higher awareness levels lead to better waste management such as better implementation of the 3Rs (Reducing, Reusing, and Recycling waste) as well as disposing of waste. While Overseas Filipino Workers displayed good levels of awareness and practice, it is recommended that regular seminars or other forms of information dissemination online or face-to-face be held regarding the topic of waste management. These can be initiated by companies such as Nidukki, Gulf City Cleaning Company, or even Bahrain's Supreme Council for the Environment. This collaboration between the Bahraini Government and the Filipino Community can create more opportunities for OFWs to be more aware of waste management.

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