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Environmental Practices in Philippine Coastal Tourism: Waste Segregation Behavior Among Beach Resorts in San Dionisio, Iloilo

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ABSTRACT: This study investigated the extent of waste segregation practices among beach resorts in the municipality of San Dionisio, Iloilo, Philippines, focusing on the influence of demographic factors and institutional settings. Using a descriptive-comparative research design, data were collected from 100 resort staff across ten beach resorts through structured questionnaires and direct observation. Statistical analyses, including the Mann–Whitney U Test and Kruskal–Wallis H Test, were employed to examine differences in waste segregation practices, knowledge, attitudes, perceived barriers, and observable behaviors based on respondents' sex, age, educational attainment, and resort affiliation. Results indicated that sex and age did not significantly influence respondents' waste segregation practices, attitudes, or perceived challenges. In contrast, educational attainment significantly affected actual practices and observational awareness, while differences among resorts were significant across all indicators—practices and behavior, knowledge and awareness, attitude and perception, barriers and challenges, and observation. These findings highlight that organizational policies, staff training, and resource allocation play a more critical role than individual demographic characteristics in shaping waste management practices. The study underscores the importance of implementing standardized waste segregation protocols and continuous staff education to ensure consistent environmental sustainability across beach resorts.

KEYWORDS: Waste segregation, Beach resorts, Environmental practices, Sustainable tourism, Tourism management

INTRODUCTION

Rapid tourism development has brought considerable economic benefits to coastal communities, yet it has simultaneously increased environmental pressures, particularly through the generation of solid waste (Sharif et al., 2021). In beach destinations, ineffective waste management—especially poor waste segregation—can degrade coastal ecosystems, threaten biodiversity, and undermine the attractiveness of tourism sites, which many local economies heavily rely on (Gössling et al., 2023). Waste segregation, defined as the systematic separation of waste streams at the source, is a foundational practice for sustainable waste management, facilitating recycling, composting, and reducing landfill use (Kaza et al., 2018; UNEP, 2022).

Globally, the integration of circular economy principles into tourism has gained momentum, emphasizing waste reduction, reuse, and recycling to promote sustainability in destination management (Avila et al., 2022). Despite these initiatives, many tourism establishments in developing countries continue to face challenges in implementing effective waste segregation due to limited infrastructure, weak policy enforcement, and lack of technical capacity (Agyeman et al., 2020; Yartey & Adjei, 2023). Evidence suggests that successful segregation practices depend not only on environmental knowledge but also on organizational support, employee training, and community engagement (Munganga et al., 2021; Taufique & Mujtaba, 2020).

In the Philippine context, solid waste management is guided by the Ecological Solid Waste Management Act of 2000 (Republic Act No. 9003), which mandates segregation at the point of generation and prioritizes waste reduction, reuse, and recycling. However, compliance among small-scale tourism businesses, particularly beach resorts in rural municipalities, remains underexplored (Delos Reyes & Roxas, 2022; Mateo & Ignacio, 2021). Most studies have focused on urban centers or large-scale tourism hubs, leaving a gap in understanding how smaller coastal destinations adopt and maintain waste segregation practices.

The Municipality of San Dionisio, Iloilo, is a coastal tourism community where beach resorts contribute significantly to local livelihoods and environmental stewardship. Yet, there is limited empirical evidence regarding the current state of segregation practices in these establishments. Examining the extent to which resort staff adhere to proper segregation protocols—considering demographic characteristics such as sex, age, and educational attainment, as well as differences among resorts—can provide critical insights for policymakers, tourism managers, and sustainability advocates.

Therefore, this study aims to investigate the waste segregation practices among beach resorts in San Dionisio, Iloilo, Philippines. Specifically, it seeks to determine the extent of segregation practices in terms of behavior, knowledge, attitudes, perceived barriers, and observable implementation, and to examine whether these practices differ based on demographic factors and resort affiliation. Findings from this study can help inform targeted interventions, staff training programs, and policy measures to improve waste management and promote environmental sustainability in coastal tourism areas.

METHODOLOGY

This study employed a descriptive-comparative research design to assess the extent of waste segregation practices among beach resorts in the Municipality of San Dionisio, Iloilo, Philippines. The design was chosen because it allows the comparison of existing differences in practices, knowledge, attitudes, and perceived barriers among respondents without manipulating any variables, providing a clear understanding of the current state of waste management across multiple resorts (Cantrell, 2008). The study focused on five key indicators of waste segregation practices: Practices and Behavior, Knowledge and Awareness, Attitude and Perception, Barriers and Challenges, and Observation.

The respondents consisted of 100 staff members from ten selected beach resorts in San Dionisio, with each resort contributing ten participants. Respondents were purposively sampled based on their direct involvement in waste management activities, ensuring that the data collected reflected actual practices and perceptions related to waste segregation. Demographic variables, including sex, age, and educational attainment, were recorded to examine potential differences in waste segregation practices across groups. Ethical considerations, such as informed consent and confidentiality, were strictly observed throughout the data collection process.

Data were collected using a structured questionnaire and observation checklist, which were validated through expert review and pilot testing to ensure clarity, relevance, and reliability. The questionnaire assessed self-reported practices, knowledge, attitudes, and perceived barriers, while the observation checklist provided an objective measure of actual waste segregation behavior within the resorts. A five-point Likert scale was used to quantify responses, allowing the calculation of mean scores for each indicator.

For data analysis, non-parametric statistical tests were employed due to the ordinal nature of the data and the sample size. The Mann-Whitney U Test was used to determine significant differences in waste segregation practices between male and female respondents, while the Kruskal-Wallis H Test was employed to examine differences among age groups, educational levels, and among the ten beach resorts. A significance level of 0.05 (two-tailed) was used to determine whether observed differences were statistically significant.

The methodological approach ensured a comprehensive assessment of waste segregation practices while accounting for demographic variations and organizational differences among resorts. By combining self-reported measures with direct observation, the study provides both perceptual and behavioral insights, contributing to a more robust understanding of environmental practices in coastal tourism settings. The findings aim to inform targeted interventions, policy recommendations, and strategies to enhance sustainable waste management in beach resorts across San Dionisio.

RESULTS

The findings of this study reveal the extent of waste segregation practices among beach resorts in the Municipality of San Dionisio, Iloilo, Philippines, highlighting differences across demographic variables and resort characteristics. The Mann-Whitney U Test results indicate that there is no significant difference in the overall waste segregation practices between male and female respondents ($Z = -0.035$, $p = .972$). Similarly, when analyzed across specific indicators—Practices and Behavior, Knowledge and Awareness, Attitude and Perception, Barriers and Challenges, and Observation—none showed statistically significant differences between sexes, with p-values ranging from .272 to .881. These results suggest that gender does not significantly influence waste segregation behavior, knowledge, attitudes, or perceived barriers among beach resort staff. Both male and female respondents appear to participate equally in waste management practices, likely due to uniform training and environmental protocols implemented across the resorts.

Analysis of age groups using the Kruskal-Wallis H Test showed that young, middle-aged, and older respondents exhibit no statistically significant differences in their waste segregation practices, knowledge, attitudes, perceived barriers, or observed behavior. For Practices and Behavior, Knowledge and Awareness, Attitude and Perception, Barriers and Challenges, and Observation, p-values ranged from .080 to .908, all exceeding the 0.05 significance level. These findings indicate that age is not a determining factor in the adoption of proper waste management practices. This suggests that environmental practices in the resorts are shaped more by shared organizational policies, situational factors, and community norms rather than individual demographic characteristics.

In contrast, significant differences were observed when respondents were grouped according to educational attainment. The Kruskal-Wallis H Test results show that educational level significantly influences Practices and Behavior ($\chi^2 = 8.348$, $p = .015$) and Observation ($\chi^2 = 5.060$, $p = .040$). Respondents with higher educational attainment demonstrated better compliance with waste segregation protocols and were more likely to notice or recognize proper waste management practices in their workplaces. However,

Knowledge and Awareness, Attitude and Perception, and Barriers and Challenges did not show significant differences, indicating that these aspects are likely shaped more by standardized organizational training and environmental culture than formal education alone.

Differences across the ten selected beach resorts were also significant for all indicators. For Practices and Behavior ($\chi^2 = 42.670$, $p = .000$), Knowledge and Awareness ($\chi^2 = 22.997$, $p = .006$), Attitude and Perception ($\chi^2 = 26.412$, $p = .002$), Barriers and Challenges ($\chi^2 = 28.715$, $p = .001$), and Observation ($\chi^2 = 29.333$, $p = .001$), the results indicate substantial variation among resorts. These differences suggest that certain resorts implement waste segregation practices more effectively than others, reflecting disparities in management commitment, availability of facilities, staff training, and internal environmental policies. Resorts with stronger enforcement of waste management protocols tend to exhibit higher levels of compliance, awareness, and positive attitudes among staff, whereas those with limited resources or less organizational focus show lower performance in these areas.

Overall, the results demonstrate that while demographic factors such as sex and age do not significantly affect waste segregation practices among beach resort staff, educational attainment and organizational factors at the resort level play a critical role. These findings underscore the importance of consistent training programs, resource allocation, and standardized environmental policies to improve waste segregation practices uniformly across all beach resorts in San Dionisio. By addressing organizational disparities and leveraging staff education, resorts can enhance both the behavior and observation of sustainable waste management practices, ultimately contributing to improved environmental sustainability in coastal tourism areas.

CONCLUSIONS

The study revealed that waste segregation practices among beach resorts in the Municipality of San Dionisio, Iloilo, Philippines are influenced primarily by educational attainment and resort-specific organizational factors, rather than demographic characteristics such as sex or age. Both male and female respondents, as well as respondents across different age groups, displayed similar levels of knowledge, attitudes, and behaviors toward waste segregation, indicating that demographic variables do not significantly affect environmental practices within the resorts. In contrast, respondents with higher educational attainment exhibited better compliance with waste segregation protocols and were more observant of proper waste management practices. Additionally, significant differences were observed across the ten beach resorts, reflecting variations in management commitment, availability of resources, staff training, and internal environmental policies. These findings highlight that while individual characteristics have limited impact, organizational strategies and educational background play a decisive role in shaping sustainable waste management behaviors.

Recommendations

Based on the findings, it is recommended that beach resorts in San Dionisio implement standardized waste segregation policies and training programs to ensure consistent environmental practices across all establishments. Resorts should prioritize staff education and regular workshops to improve both awareness and practical compliance with waste management protocols. Strengthening monitoring systems and providing adequate facilities, such as clearly labeled bins and waste disposal infrastructure, can address operational barriers and improve overall performance. Municipal authorities should consider establishing regulatory frameworks and periodic audits to ensure resorts adhere to environmental standards, fostering accountability and uniformity in waste segregation practices. Further, collaborative initiatives among resorts, such as shared training programs or resource pooling, can promote best practices and reduce discrepancies in environmental compliance. Finally, future research may examine the impact of specific organizational interventions, visitor behavior, and policy enforcement on sustainable waste management to provide deeper insights into improving environmental sustainability in coastal tourism areas.

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