

A Case Study of The Level of Public Awareness Regarding Household Waste Segregation in Urban Areas Was Conducted in Tonja Subdistrict, Denpasar City

Ni Made Dwi Primadani*, Nyoman Diah Utari Dewi, & Ida Ayu Putu Sri Widnyani

Magister Administrasi Publik, Universitas Ngurah Rai, Bali, Indonesia

Abstract

Public awareness regarding the sorting of household waste is a critical component of sustainable environmental management initiatives. The objective of this study is to utilize a logistic regression analysis to examine the factors that influence the level of public awareness in sorting household waste. The independent variables that were the focus of the study included age, gender, education level, and employment status. The findings of the analysis indicate that gender, education level, and employment status exert a substantial influence on awareness of sorting waste (p-value <0.05). The probability that a woman will sort waste is 5.5 times greater than that of a man. As demonstrated in Figure 1, respondents with high school and college education levels exhibited a 11.3- and 13.9-fold increased likelihood of sorting waste, respectively, compared to respondents with junior high school education. The presence of both student status and employment was found to have a substantial impact on the probability of waste segregation, with odds ratios of 62.44 and 34.08, respectively. In contrast, the age variable did not demonstrate a statistically significant effect; however, a tendency was observed indicating that the productive age group exhibits a greater degree of awareness regarding waste sorting in comparison to the elderly. The Hosmer and Lemeshow test demonstrated that the logistic regression model employed was appropriate (p-value = 0.072). This finding emphasizes the importance of educational, occupational, and gender-based approaches in developing strategies to enhance public awareness regarding household waste segregation.

Keywords: Waste Sorting Awareness, Age, Education, Employment Status, Gender

1. Introduction

Waste represents a pivotal environmental concern, particularly in metropolitan regions undergoing substantial population and economic growth. Denpasar, as the capital city of Bali Province, faces significant challenges in waste management, particularly with regard to the sorting of household waste, which remains suboptimal (Atmaja et al., 2022). A strategic approach to reducing waste involves enhancing public awareness to facilitate the sorting of waste at the source, specifically in households (Posmaningsih, 2016; Putra et al., 2023).

The Denpasar City Government has implemented a series of programs, including TPS3R, a self-management program for waste management, and culture-based programs. Nevertheless, the level of community participation continues to present a substantial challenge (Carissa & Sampara, 2024).

Denpasar Mayor Regulation (2023); Widiantara (2023). A dearth of comprehension regarding the significance of waste segregation, coupled with a paucity of awareness concerning its environmental ramifications, have culminated in suboptimal outcomes in this regard (Posmaningsih, 2016; Yudha & Indiani, 2024). Conversely, research findings indicate that when communities are incorporated through educational initiatives and active participation, there is a substantial enhancement in environmentally conscious behaviors, including waste sorting (I. G. N. Agung et al., 2024; Atmaja et al., 2022; Posmaningsih, 2016).

The implementation of waste segregation at the household level constitutes a critical component of a sustainable waste management system. The implementation of the 3R (reduce, reuse, recycle) concept through the waste bank program has been demonstrated to be effective when the community is informed of the economic and environmental advantages of sorting (Murdiman et al., 2017; Putra et al., 2023). However, this awareness is strongly influenced by predisposing factors, such as knowledge and attitudes, as well as supporting factors, such as facilities and the role of

* Corresponding author.

E-mail address: dwi.primadani87@gmail.com

local institutions (Posmaningsih, 2016).

Tonja Village, classified as one of the urban areas within Denpasar City, exhibits significant economic potential and a high population density. In this area, the municipal government has initiated the "Zero Waste, Full Impact" program, which is designed to enhance public cognizance of waste management through educational initiatives and participatory approaches. The program has been documented as a catalyst for heightened community participation in the waste bank initiative. However, the extent to which it has enhanced community awareness regarding independent household waste sorting practices remains to be fully elucidated (Yudha & Indiani, 2024).

Consequently, it is imperative to assess the public's awareness of household waste segregation in urban environments, particularly in Kelurahan Tonja. The present study hypothesizes that its findings will provide a more in-depth picture of the factors that influence public awareness and will serve as input in the formulation of waste management policy strategies. This research constitutes a quantitative study with a descriptive and analytical approach, conducted in Tonja Village, Denpasar City, in March 2025. The objective of this study is to ascertain the impact of individual characteristics on the level of public awareness concerning the sorting of household waste. The present study is concerned with addressing two fundamental inquiries.

- a. The present study seeks to examine the impact of individual characteristics, including age, gender, education level, and employment status, on the level of public awareness concerning the sorting of household waste in Tonja Village, Denpasar City.
- b. The primary objective of this study is to ascertain the sociodemographic factors that exert a substantial influence on the level of public awareness concerning the sorting of household waste in urban areas?

2. Literature Review

2.1. Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was developed by Icek Ajzen in 1991 as a subsequent development of the Theory of Reasoned Action. This theoretical framework is employed to predict and comprehend individual behavior, with said behavior being influenced by three primary components: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991).

Attitude towards behavior is defined as an individual's evaluation of an action, determining whether the action is considered good or bad. Subjective norms are defined as the social pressures or the views of others that influence individual decisions in performing a behavior. Meanwhile, perceived behavioral control is defined as an individual's perception of their ability to perform a behavior, which is influenced by both internal and external factors (Ajzen, 1991).

Within the paradigm of household waste segregation, the TPB can elucidate the factors that influence individuals' propensity to engage in waste segregation practices. Recent research indicates that the three components of the TPB can influence people's intention to take action to sort waste, especially if supported by knowledge and positive attitudes towards the environment (Zhang et al., 2020). Another study also states that even though individuals have a positive attitude, without adequate perceived control, such as available waste sorting facilities, waste sorting behavior is difficult to implement consistently (Li et al., 2020).

The application of the SDGs in an urban context such as Denpasar City is particularly relevant, given the high level of heterogeneity of the community and the variation in sociodemographic factors that influence the formation of environmental intentions and behaviors. Therefore, a TPB-based approach has the potential to provide a robust theoretical foundation for understanding the level of awareness and behavior regarding household waste segregation in urban environments.

2.2. Level of Public Awareness in Waste Sorting

The level of public awareness regarding waste segregation serves as a critical indicator of the efficacy of participation-based waste management initiatives. This awareness is indicative of the extent to which individuals understand the importance of sorting waste from the source, have concern for the environment, and are willing to take concrete actions to support environmental sustainability (Rousta et al., 2020). Household waste segregation, a practice that is conducive to environmental stewardship, necessitates not only technical expertise but also robust internal motivation and social reinforcement.

Public awareness is shaped by a complex interplay of knowledge, values, and attitudes concerning environmental issues. Individuals with a comprehensive understanding of the detrimental consequences of waste mismanagement demonstrate a heightened level of awareness and a greater propensity to engage in independent waste sorting practices (Li et al., 2020). Furthermore, personal experiences, such as residing in a locale with a robust waste management system, have been demonstrated to enhance collective awareness within society (Anwar et al., 2024).

However, in practice, awareness does not always directly translate into behavior modification. While many individuals are cognizant of the significance of waste segregation, they often refrain from practicing it due to the scarcity of adequate facilities, the constraints of time, or the ambiguity of waste management systems within their respective environments (Wulandari & Mulasar, 2019). This discrepancy indicates a disparity between awareness and tangible action, which, within the framework of the Theory of Planned Behavior, is attributed to the influence of perceived behavioral control. A study conducted by Septiani et al (2023) also demonstrated that, although respondents exhibited a high level of awareness regarding the significance of waste segregation, only a small proportion of them routinely engaged in this practice. This underscores the significance of structural support, including the establishment of sorting facilities and the implementation of continuous education, in transforming awareness into consistent action.

2.3. Sociodemographic Factors and Their Relationship with Waste Sorting Behavior

A plethora of studies have examined the impact of sociodemographic factors, such as age, gender, education level, and employment status, on environmental behavior, including household waste segregation behavior. These variables influence the extent to which individuals have the awareness, knowledge, and motivation to participate in responsible waste management practices (Nguyen et al., 2015). One of the critical factors that influence the behavior of individuals in regard to waste sorting is age (X1). Studies have shown that younger individuals tend to be more receptive to new information and are more frequently exposed to environmental education programs. However, research also indicates that the middle-aged group, ranging from 30 to 45 years of age, exhibits greater consistency in implementing environmentally friendly behaviors. This tendency can be attributed to the fact that individuals in this age group often shoulder more household responsibilities and exhibit higher levels of social awareness (Rifai, 2025).

The influence of gender (X2) on waste sorting behavior is also a subject of interest. A multitude of studies have demonstrated that women exhibit a heightened sense of environmental concern and demonstrate greater engagement in waste management practices compared to men (Wang et al., 2020). This phenomenon can be attributed to gender roles in household management and social perceptions of domestic responsibilities.

Education level (X3) has been demonstrated to play a significant role in shaping understanding of the environmental impact of waste management. Individuals with higher levels of education tend to have better knowledge of environmental issues and are more aware of the consequences of not segregating waste (Marquart-Pyatt, 2012). Education has been demonstrated to have a significant impact on an individual's capacity to comprehend technical information and to follow the proper procedures for waste segregation.

The employment status of the individual (X4) has been demonstrated to exert influence on both the access to information that individuals have and the behaviors that they exhibit. Those engaged in gainful employment are likely to have access to a more expansive social milieu and may be exposed to workplace policies or training related to waste management. However, time constraints and workload can also impede the consistent implementation of waste segregation for some individuals (Chaerul & Zatadini, 2020). The present study explores the intricate interplay among these four sociodemographic factors, which collectively serve as the foundation for understanding individual behavior concerning waste segregation. It is imperative to comprehend the impact of these variables in order to formulate targeted interventions and education programs.

2.4. Framework of Thought

The efficacy of household waste management is significantly influenced by community behavior, particularly the awareness of waste sorting at the source. In an urban context, the success of a waste segregation program is contingent upon the extent to which the community comprehends, prioritizes, and is willing to engage in the process. According to the Theory of Planned Behavior (TPB), the intention to engage in a particular behavior, in this case the sorting of waste, is influenced by three primary components: attitude towards behavior, subjective norms, and perceived behavioral control. The formation of these traits is influenced by a combination of experiential factors, the individual's social environment, and their unique characteristics. A multitude of sociodemographic factors, including age (X1), gender (X2), education level (X3), and employment status (X4), have been identified as influential in shaping attitudes and intentions towards waste sorting behavior. Individuals within the productive-age demographic, possessing higher education, and engaged in gainful employment are more likely to have superior comprehension and

access to information, consequently exhibiting heightened levels of awareness. The present study analyzes the influence of age (X1), gender (X2), education level (X3), and employment status (X4) on the level of public awareness in sorting household waste (Y). The objective is to produce appropriate intervention recommendations based on the characteristics of the local population. The research model diagram is shown in Figure 1.

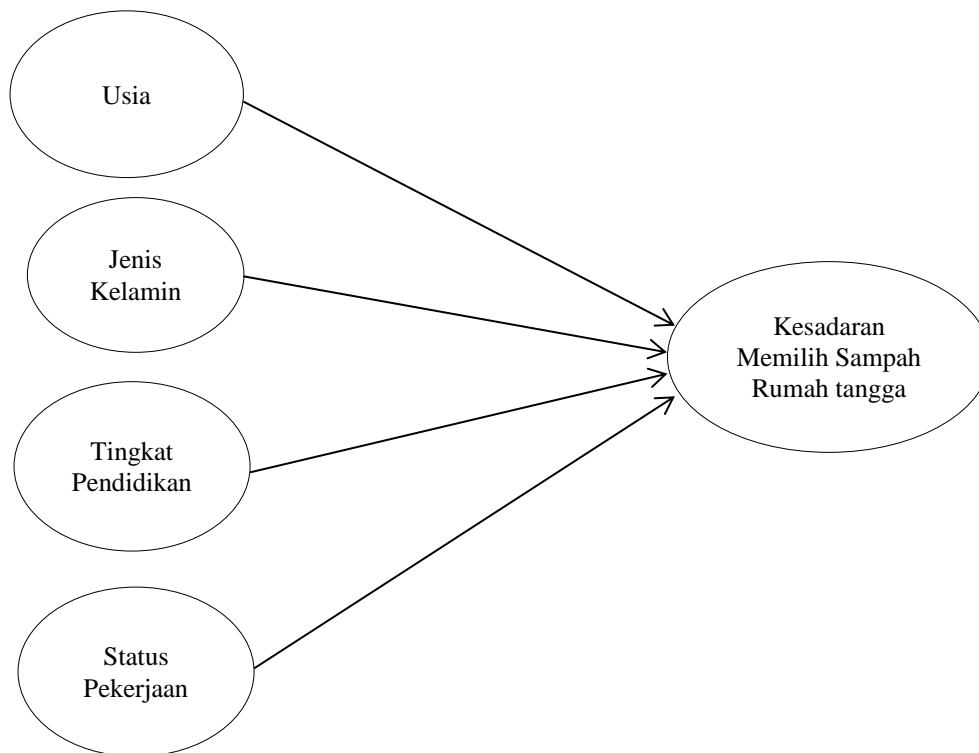


Figure 1. Diagram of the Research Model.

3. Research Method and Materials

This research constitutes a quantitative study with a descriptive and analytical approach, conducted in Tonja Village, Denpasar City. The objective of this study is to ascertain the impact of individual characteristics on the level of public awareness concerning waste sorting. The population of this study comprised all residents of Tonja Village who had reached the age of 17 years or more. A sample of 384 individuals was determined using purposive random sampling, a method of selecting a random sample from a population that meets specific criteria. The criteria for inclusion in the sample included being domiciled in Tonja Village, being over 17 years of age, and being willing to respond to the survey questions. Primary data was obtained through the administration of structured questionnaires to respondents. The questionnaire was meticulously prepared based on indicators of each variable. The independent variables in this study consist of:

- a. Age (X1): categorized into 17-30 years; 31-45 years; 46-60 years; >60 years.
- b. Gender (X2): consists of male and female.
- c. Education Level (X3): categorized into junior high school, high school/vocational school, university.
- d. Employment Status (X4): categorized into not working, student, working.

The dependent variable is the level of community awareness in waste sorting (Y), which is categorized into two levels, namely low and high, based on the total score of the questionnaire on the waste sorting awareness variable. Scores were classified using the median value as the cut-off point. Respondents with scores below the median were categorized as "low," while those at or above the median were categorized as "high." The data were then subjected to a descriptive analysis, with the objective of depicting the frequency distribution and characteristics of the respondents. In addition, the effect of independent variables on the dichotomous dependent variable was examined through the implementation of a binomial logistic regression analysis. Logistic regression is a statistical method that is employed

when the dependent variable is comprised of two categories. The objective of this method is to estimate the probability of an event occurring, in this case, high awareness in sorting waste, based on the values of the predictors.

The general model of binomial logistic regression is as follows:

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4$$

It should be noted that the following observations have been made:

- P is defined as the probability that the respondent has a high awareness of sorting waste.
- β_0 is defined as the intercept, which is a constant.
- β_i is the regression coefficient.
- X_1 : Age
- X_2 : Gender
- The third variable is designated " X_3 " and is related to the subject's educational attainment.
- The fourth item is entitled "Employment Status."

The results of the logistic regression analysis will be interpreted based on the coefficient value, the odds ratio (Exp(B)), and the statistical significance (p-value), with the significance limit set at p-value <0.05. The analysis process was executed in its entirety through the utilization of SPSS software.

4. Results and Discussion

The primary objective of the study was to assess the extent of community awareness concerning the sorting of household waste. This awareness is categorized into two groups, namely high and low, based on the total score of the questionnaire that has been designed and validated. The objective of this categorization is to facilitate the analysis of the relationship between the demographic characteristics of the respondents and the level of community awareness. The following table (Table 1) presents the frequency distribution and percentage of community awareness levels.

Table 1. Frequency distribution and percentage of waste sorting awareness.

Awareness Level	Frequency	Percentage
Low	159	41.41%
High	225	58.59%
Total	384	100%

As illustrated in Table 1, the majority of respondents demonstrated a high level of awareness; however, a considerable proportion exhibited a low level of awareness. This finding underscores the necessity for a sustainable educational approach that fosters waste-sorting behaviors within the community. In addition, a binary logistic regression analysis was conducted to ascertain the factors that influence the level of public awareness in sorting waste. The objective of this analysis is to examine the influence of the independent variables of age, gender, education level, and employment status on the likelihood of having high awareness in sorting household waste. As illustrated in Table 2, the regression coefficient (β), the significance (Sig.), and the odds ratio (Exp(β)) are presented for each category of dummy variables.

According to the data presented in Table 2, the logistic regression model in logit form is as follows:

$$\begin{aligned} \text{logit}(p) &= -5.096 + 1.269(Usia_1) + 0.434(Usia_2) - 1.017(Usia_3) \\ &= \ln\left(\frac{p}{1-p}\right) + \\ &= 1.705(\text{Jenis Kelamin}_1) + 2.421(\text{Pendidikan}_1) + \\ &\quad 2.630(\text{Pendidikan}_2) + 4.134(\text{Pekerjaan}_1) \\ &\quad + 3.529(\text{Pekerjaan}_2) \end{aligned}$$

The findings of the logistic regression analysis indicate that certain independent variables possess a substantial impact on the extent of awareness concerning the sorting of household waste. Concurrently, the age variable does not

demonstrate a significant effect on awareness of sorting waste (p -value > 0.05). The odds ratio for respondents in the 31–45 age group is 3.56. This suggests that individuals between the ages of 31 and 45 have approximately three times more likelihood of sorting waste compared to those between the ages of 17 and 30. However, this difference did not reach statistical significance (p -value=0.067). The 46-60 age group exhibited an odds ratio of 1.54, signifying a higher probability compared to the 17-30 age group. This phenomenon may be attributed to the accumulation of maturity, experience, and social responsibility over time. However, the age group above 61 years old has been found to have a β value of -1.02 and an odds ratio of 0.36. The negative direction of the coefficient suggests that older respondents exhibit a reduced probability of sorting waste when compared to younger age groups. However, this effect does not attain statistical significance. Study by Agung et al (2021) found that although older age is often associated with decreased physical mobility which can hinder waste sorting, other factors such as social norms and the availability of recycling facilities in the residential environment also play an important role.

Table 2. Binary Logistic Regression Analysis Results.

Variables	Dummy Variable	B(β)	SE	Wald	p-value	Exp(B)
Age				13.396	0.004	
	Age 31-45 years	1.269	0.692	3.360	0.067	3.556
	46-60 years old	0.434	0.837	0.269	0.604	1.543
	Age >61 years	-1.017	0.881	1.331	0.249	0.362
Gender	Gender (Female)	1.705	0.438	15.176	0.000	5.499
				24.973	0.000	
Education	Education (high school)	2.421	0.630	14.764	0.000	11.259
	Education (College)	2.630	0.543	23.480	0.000	13.881
				42.642	0.000	
Jobs	Occupation (Student)	4.134	0.891	21.534	0.000	62.438
	Occupation (Working)	3.529	0.568	38.547	0.000	34.084

Reference category: 17-30 years old; Gender: Male; Education: Not in school; Occupation: Not working

The influence of gender on awareness of sorting household waste was found to be statistically significant (p -value < 0.05). The findings of the analysis indicate that women possess an odds ratio of 5.5, signifying that women are 5.5 times more prone to engage in waste sorting behaviors compared to men. This finding aligns with the conclusions of several previous studies, which have demonstrated that women tend to exhibit higher levels of environmental awareness, including in their household waste management behaviors. Women are more involved in domestic activities, including waste management. Furthermore, women are regarded as being more susceptible to environmental concerns due to emotional and sociocultural influences. Study by Utami & Wijayanti (2024) supports these findings, by showing that women are more likely to internalize environmental values and feel responsible for environmental sustainability. In addition, a study by Shahreza (2022) highlighting the role of women as agents of change in families and communities regarding waste management practices.

The degree of education exhibited a substantial impact on individuals' propensity to differentiate between categories of household waste (Wald = 24.973; p -value < 0.05). The regression coefficient of respondents with a high school education was found to be 2.42 ($p < 0.05$), which corresponds to an odds ratio of 11.26. This indicates that respondents with a high school education were 11.3 times more likely to segregate waste compared to those with a junior high school education. The findings of the study indicate that respondents with a tertiary education have a β value of 2.63, with a p -value less than 0.05. This is accompanied by an odds ratio of 13.88, suggesting that these respondents are approximately 13.9 times more likely to engage in waste segregation compared to respondents with a junior high school education. The findings of this study indicate a positive correlation between education level and awareness of the significance of household waste segregation, suggesting that as educational attainment increases, there is a concomitant increase in awareness of the importance of waste management practices. This phenomenon can be attributed to the fact that higher education has been shown to enhance an individual's comprehension of environmental concerns, while concomitantly facilitating access to information and promoting literacy in the domain of waste management. Consequently, education level emerges as a pivotal factor in the cultivation of environmentally

conscious behaviors. Interventions aimed at enhancing public awareness regarding waste segregation can be strategically implemented in communities with fundamental educational levels, where access to information may be constrained and engagement in extension programs focused on waste management may be limited. In line with these findings, a study by Saptanno et al (2022) found that formal education provides a strong knowledge base about the environmental impacts of waste and the benefits of sorting. Furthermore, research by Rezeki et al (2024) shows that individuals with higher levels of education are more likely to seek information about waste management and participate in recycling programs.

The employment status of the subjects exhibited a highly significant influence on their awareness of proper waste sorting practices (Wald = 42.64; p-value <0.05). The regression coefficient of respondents with student status was found to be 4.13 ($p < 0.01$), and the odds ratio was determined to be 62.44. This indicates that respondents with student status were 62.4 times more likely to segregate waste compared to those who were not employed. Conversely, employed respondents exhibited a significantly higher probability of waste segregation, as evidenced by an odds ratio of 34.08 ($p < 0.05$). This finding indicates that employed individuals were 34 times more likely to engage in waste segregation compared to their non-employed counterparts. This finding suggests that employment status plays an important role in shaping environmentally conscious behavior. It has been demonstrated that students are more likely to encounter environmental education through institutions of learning, social media, and campus-based programs, consequently leading to heightened awareness. Conversely, working individuals may have access to information, involvement in corporate social responsibility programs, or the habit of sorting waste in the work environment that carries over to the household. Conversely, the unemployed group may encounter limited exposure to information or waste-sorting habits, potentially attributable to constrained sources of information, motivation, or environmental support. This finding underscores the significance of educational interventions and environmental promotion initiatives targeting the unemployed population, with the aim of fostering widespread awareness of waste segregation practices. Research by Febriani et al (2020) Highlighting the institutional role of education in shaping pro-environmental behavior among students. In addition, studies by Ibrohim (2019) found that corporate social responsibility (CSR) programs focused on waste management can increase employee awareness and participation in waste sorting practices. Furthermore, according to Silitonga et al (2023) shows that unemployment is often associated with more pressing economic priorities, which can distract attention from environmental issues.

Subsequent to the procurement of the results of the logistic regression model, the Hosmer and Lemeshow test is conducted to ascertain the appropriateness of the model under consideration. The results of the statistical analysis, which included a Chi-square value of 14.3 and a p-value of 0.072 (>0.05), indicated that the model is suitable for use. The model is regarded as suitable for the task and is capable of elucidating the correlation between the variables of age, gender, education, and employment status with the level of public awareness in the sorting of household waste..

5. Conclusion

The findings of the logistic regression analysis indicate the presence of several variables that exert a substantial influence on the extent of public awareness concerning the sorting of household waste. These variables include gender, education level, and employment status. The following assertion is made:

- a. A study of gender and waste sorting behavior revealed that women are more likely to engage in waste sorting activities compared to men.
- b. The correlation between educational attainment and waste sorting practices is evident; respondents with higher levels of education demonstrate a higher propensity for sorting household waste.
- c. The employment status of the subjects exhibited a significant effect on their propensity to segregate waste. Students and workers demonstrated a higher propensity for waste segregation compared to their non-employed counterparts.
- d. The analysis revealed that the age variable exhibited a non-statistically significant effect; however, it demonstrated a tendency for the productive age group to exhibit a higher propensity for waste sorting in comparison to the elderly population.

The logistic regression model utilized in this study has undergone a Goodness-of-Fit test, the results of which indicate that the model is indeed feasible for use in elucidating the relationship between the independent variables and the level of awareness concerning waste sorting.

The findings of this study suggest that educational interventions and extension programs should be focused on communities with basic education levels and those who are unemployed. These groups demonstrate a lower level of awareness regarding waste segregation, thus necessitating a more intensive and targeted approach. Furthermore, the enhancement of women's empowerment within waste management programs is imperative, considering their pivotal role in domestic activities and their heightened propensity for environmentally sustainable practices. Educational institutions and workplaces can function as strategic media to raise awareness of waste sorting. This can be achieved through the integration of environmental issues in the curriculum and the implementation of social responsibility programs. Furthermore, public campaigns and the utilization of social media must be optimized to reach younger age groups and the broader community, thereby reinforcing the message about the significance of household waste segregation as a component of a sustainable lifestyle. To enhance the findings of subsequent research, it is advised that additional studies be undertaken to investigate the psychological, social, and cultural factors that influence waste segregation awareness. A qualitative approach can serve as a valuable complement to understanding the motivations and barriers that people encounter in their daily waste management practices.

References

- Agung, I. G. N., Widanti, N. P. T., Widnyani, I. A. P. S., & Bidul, S. (2024). The Role of Denpasar City Government in Environmental Management and Natural Resources Conservation: Policies and Strategies. *Public Administration and Government Journal*, 4(2), 312–324.
- Agung, K., Juita, E., & Zuriyani, E. (2021). Analisis Pengelolaan Sampah Di Tempat Pembuangan Akhir (TPA) Desa Sido Makmur Kecamatan Sipora Utara. *JPIG (Jurnal Pendidikan Dan Ilmu Geografi)*, 6(2), 115–124.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Anwar, M. A., Suprihatin, Sasongko, N. A., Najib, M., & Pranoto, B. (2024). Challenges and prospects of multilayer plastic waste management in several countries: A systematic literature review. *Case Studies in Chemical and Environmental Engineering*, 10(2), 20–29. <https://doi.org/10.1016/j.cscee.2024.100911>
- Atmaja, N. P. C. D., Semiaty, N. W., & Putu Agung, A. A. (2022). The Effect of Service Quality and Price Perception on Customer Satisfaction at Tegeh Sari Lestari Garbage Bank. *Journal of Management and Business Equilibrium*, 8(1), 64–73. https://doi.org/10.47329/jurnal_mbe.v8i1.841
- Carissa, D., & Sampara, L. (2024). *The Performance of The Environment and Hygiene Office In Waste Management Through The Provision of TPS3R In Denpasar City*. IPDN.
- Chaerul, M., & Zatadini, S. U. (2020). Food waste behavior and food waste management in various countries: A review. *Journal of Environmental Science*, 18(3), 455–466.
- Denpasar Mayor Regulation. (2023). *Denpasar Mayor Regulation Number 15 of 2023 concerning Culture-Based Waste Management*. Eco-Mantra.Com. <https://eco-mantra.com/blog/waste-management-in-indonesiasustainability-path/>
- Febriani, L., Siregar, Y. I., & Putra, R. M. (2020). Analisis Pengelolaan Sampah Rumah Tangga Berbasis Masyarakat Di Kecamatan Marpoyan Damai Kota Pekanbaru. *Jurnal Sains Dan Kesehatan*, 11(1), 16–26.
- Ibrohim, M. R. (2019). *Green Marketing Dan Corporate Social Responsibility Terhadap Customer Value Pengaruhnya Terhadap Keputusan Pembelian (Studi Kasus Pada Konsumen Kfc Di Surakarta)*. Institut Agama Islam Negeri Surakarta.
- Li, W., Jin, Z., Liu, X., Li, G., & Wang, L. (2020). The impact of mandatory policies on residents' willingness to separate household waste: A moderated mediation model. *Journal of Environmental Management*, 275(8), 111–121.
- Marquart-Pyatt, S. T. (2012). Contextual influences on environmental concerns cross-nationally: A multilevel investigation. *Social Science Research*, 41(5), 1085–1099.
- Murdiman, Mahendra, M. S., & Adhika, I. M. (2017). Patterns Of Community Perceptions and Participation In Household Waste Management And Waste Banks In East Denpasar Sub-District, Bali Province. *Jurnal Ecotrophic*, 11(2), 94–100.

- Nguyen, T. T. P., Zhu, D., & Le, N. P. (2015). Factors influencing waste separation intention of residential households in a developing country: Evidence from Hanoi, Vietnam. *Habitat International*, 48(2), 169–176.
- Posmaningsih, D. A. (2016). Factors influencing community participation in solid waste management in East Denpasar. *Journal of Skala Husada: The Journal of Health*, 13(1), 1–8.
- Putra, I. P. T. A., Supriyanti, N. W., & Yasintha, P. N. (2023). Implementation of the Tegeh Sari Lestari Waste Bank Program in Waste Management in Tonja Village, North Denpasar District, Denpasar City. *Business and Investment Review*, 1(3), 187–194.
- Rezeki, T. I., Irwan, Rakhmat Wahyudin Sagala, R., & Helman, M. (2024). Edukasi Pengelolaan Sampah Berbasis Kearifan Lokal untuk Lingkungan Berkelanjutan. *Jurnal Pengabdian Kepada Masyarakat*, 3(2), 9–19.
- Rifai, M. K. (2025). Examining factors of household' waste sorting behaviour in an urban area: A case study in Sidoarjo, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1438(1), 012002. <https://doi.org/10.1088/1755-1315/1438/1/012002>
- Rousta, K., Zisen, L., & Hellwig, C. (2020). Household Waste Sorting Participation in Developing Countries—A Meta-Analysis. *Recycling*, 5(1), 6. <https://doi.org/10.3390/recycling5010006>
- Saptenno, M. J., Saptenno, L. B. ., & Timisela, N. R. (2022). Faktor Yang Mempengaruhi Tingkat Kesadaran Masyarakat Pesisir Terhadap Pengelolaan Sampah di Perairan Teluk Ambon Kota Ambon. *Jurnal Ilmu Lingkungan*, 20(2), 365–374.
- Septiani, R., Suryani, D., & Mulasari, S. A. (2023). Factors Associated with Waste Management Behavior in Instagram Followers of Males Nyampah. *Gorontalo Journal of Public Health*, 6(1), 1–11.
- Shahreza, M. (2022). *Strategi Komunikasi Lingkungan yang Mendukung Keberlanjutan Komunitas Pengelolaan Sampah di Kota Tangerang Selatan*. Institut Pertanian Bogor Bogor.
- Silitonga, D., Kustina, K. T., Syaifullah, & Zain, I. A. S. (2023). *Green Management Strategy*. Jakarta : Media Sains Indonesia.
- Utami, & Wijayanti, P. M. (2024). Pengembangan Life Skill Perempuan Lewat Pengelolaan Sampah Di Sariharjo, Sleman. *Pengembangan Energi Baru Dan Terbarukan Untuk Lingkungan Berkelanjutan*.
- Wang, H., Liu, X., Wang, N., Zhang, K., Wang, F., Zhang, S., Wang, R., Zheng, P., & Matsushita, M. (2020). Key factors influencing public awareness of household solid waste recycling in urban areas of China: A case study. *Resources, Conservation and Recycling*, 158(2), 104–120.
- Widiantara, P. E. (2023). *Evaluation of Self-Management Waste Management Policy in Denpasar City*. IPDN.
- Wulandari, G., & Mulasari, S. A. (2019). The Relationship Between The Level Of Knowledge, Attitude, Education, Age, Gender And Tenure Of Employees With The Volume Of Paper Waste. *Institutional Bureau Of Ahmad Dahlan University Yogyakarta*.
- Yudha, C. K., & Indiani, N. L. P. (2024). Increasing Waste Management Awareness and Digital Optimization for MSMEs in Tonja Village, North Denpasar District, Denpasar City. *Community Service Journal (CSJ)*, 7(1), 32–37. <https://doi.org/10.22225/csj.7.1.2024.32-37>
- Zhang, L., Hu, Q., Zhang, S., & Zhang, W. (2020). Understanding Chinese Residents' Waste Classification from a Perspective of Intention–Behavior Gap. *Sustainability*, 12(10), 35–41. <https://doi.org/10.3390/su12104135>