

(RESEARCH ARTICLE)



## The relationship between housewife's characteristics and waste-sorting behavior

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### Abstract

The world is increasingly pushing efforts to reduce the dangers of waste, and society needs to take wise actions against waste. Women, particularly housewives, are vital in managing household waste. Environmental maintenance programs are also carried out in PKK groups, which are groups that exist in all Neighboring area/Rukun Tetangga (RT) level areas in Indonesia. This review describes the understanding and behavior of housewives towards the litter produced daily, as well as its correlation with internal characteristics. This study obtained primary data from interviews with 47 Family Welfare Empowerment (PKK) members from three Neighboring areas (RT) in Salatiga City. The analysis method uses Spearman correlations to look at levels of comprehension and behavior as well as their relationship to respondents' internal characteristics. The study found that almost all respondents produce plastic waste, food scraps, and kitchen waste while cooking in daily activities. The analysis results concluded that there was no correlation between internal characteristics and understanding of waste and behavior of waste sorting. However, there was a correlation between increased understanding of waste and waste sorting behavior.

**Keywords:** Waste; Housewives; Behavior; Family Welfare Empowerment (PKK) group; Salatiga

### 1. Introduction

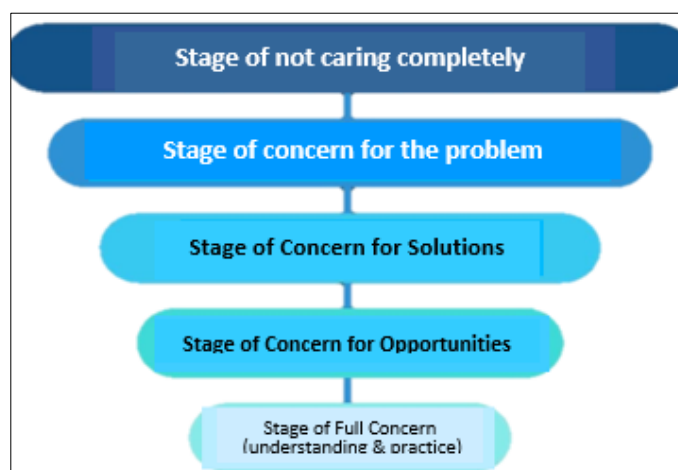
The dangers of waste continue to be raised globally so that all humanity can take action to reduce it. The United Nations estimates that by 2025, the world's cities will produce 2.2 billion tons of waste yearly, more than three times the amount produced in 2009. Data from the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry shows that Indonesia generated 35.93 million tons of waste per month in 2022. According to data, in 2023, about 41.6% will be food waste, and 40% of waste will come from households. Plastic waste accounts for the second largest share of 17.3%, and business centers are the second largest source of waste. Based on the available data, Central Java Province is the largest waste producer in Indonesia, with 5.76 million tons or 16.03% of the total national waste per month.

The city of Salatiga also accounts for a relatively high amount of waste in Central Java province, according to the data of the Communication and Information Service of the City of Salatiga in 2018, mainly organic waste (reaching approximately 70% of the total waste), plastic (reaching approximately 19%) and paper (reaching approximately 7%) were recorded. Based on data from the Department of Environment (DLH) of Salatiga Municipality, the population of Salatiga Municipality is about 175,000 inhabitants spread over four districts with an area of about 56,781 km<sup>2</sup> and generates 109.8 tons of waste per day. The volume of waste transported to the Final Landfill (landfill) amounted to 309.96 cubic meters per day (conditions in 2018). Urging the reduction of waste prompted the issuance of Salatiga Mayor Regulation No. 27 of 2018 on the Management System of Household Waste and similar household waste through partnership patterns.

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Urban areas have the potential to contribute to waste due to the consumptive behavior of urban communities. Aprilia (2021) mentions that large urban centers in Indonesia generate up to 8 million tons of waste daily. The high danger of waste prompted the government to issue regulations related to waste management. The Salatiga Municipal Government addresses the concern of waste through 3 NG programs, namely lengthen (reduce), mango (reuse), and recycle (process into value-added products/sell). To improve the 3 NG program, the Salatiga City Environment Department facilitated the Trash Bank program to encourage people to care more about waste. Citing research from Septiani et al. (2019), the waste issue in Salatiga City involves various parties that have the potential to explore waste management partnerships, such as the Parent Waste Bank, the government (Department of the Environment), or waste treatment agencies, and educational institutions.

Tanau et al. (2023) state the need for increased knowledge and experience to foster environmental concern. Referring to the results of the research, Saptanno et al. (2023) showed that the formation of attitudes towards awareness and behavior towards waste in the Ambon Bay water area of Ambon City, but knowledge does not affect behavior, in the sense that knowledge of waste management will undoubtedly change the behavior of waste management. A positive attitude toward household waste management will make one aware of the importance of household waste management, including in public places such as restaurants (Coşkun & Özbük, 2020; Savelli et al., 2019). Awareness of something will influence concern and, subsequently, real behaviors or actions, according to those put forward by Morin (2011). According to Morin (2011), awareness is a moment when a person is aware of the object being seen.



**Figure 1** The stage towards Awareness

The potential of women in waste management, concluded from various studies, among others, Yuliati's (2019) research stated that 50.7% of the total respondents interviewed in Batu City said that housewives collect household waste, and 23.3% who collect waste are fathers, the rest is the result of family cooperation. Research by Zulkipli et al. (2022) concluded that women have higher Awareness, knowledge, and waste management practices than men. Women are responsible for managing household waste as part of their daily duties. The UN sees a trend towards women's potential in better waste management jobs, not just as waste collectors and polishers. Various waste management programs target women, including through the Family Welfare Empowerment (PKK) group. Nugroho's research (2017) mentioned that the training on waste treatment organized by the PKK is a solution to realize community empowerment and can result in changing people's behavior to care for the environment and use waste to create economically valuable products. This study aimed to understand women's behavior, especially homemakers' behavior towards the waste produced daily, as well as its correlation with their internal characteristics.

## 2. Material and method

The RT 6 and 10 research sites, RW 5 Kelurahan Dukuh Kecamatan Sidomukti and RT 8, Kelurahan Salatiga, Sidorejo Subdistrict, Salatiga City, Central Java Province, Indonesia, have received a waste management extension. The study was conducted from October to November 2023. The sampling technique was random, with 47 respondents being members of the PKK group from three Neighboring Rukun (RT) in Salatiga City. The total number of samples is determined through the Slovin formula:

$$n = N / (1 + Ne^2)$$

$$n = 90 / (1 + (90 * (0,1^2)))$$

$$n = 47.3$$

The analysis technique of this study used the Spearman Rank correlation test. This study's decision-making basis was determined with criteria at 95% confidence level or test level  $\alpha=0.05$ . The statistical hypothesis is as follows: if the significance value  $\alpha \leq 0.05$ , then there is a significant relationship, whereas if the significance value  $\alpha \geq 0.05$ , then there is no significant relationship. Referring to Sugiyono (2007), the relationship strength criteria are: if the correlation is 0.00-0.019 = the relationship is very weak; 0.20-0.39 = the relationship is weak; 0.40- 0.59 = the relationship is strong enough; 0.60- 0.79 = the relationship is strong; 0.80  $\pm$ 1.00 = the relationship is very strong.

### 3. Result and discussion

#### 3.1. The characteristics of the Respondent

Housewives have an essential role in managing waste in the home. The role of women, especially housewives, in the home is dual: as caregiver, educator, companion, and social role; the housewives largely determine their role in initiating and deciding on the various activities of family members. The critical role of women in waste management is explained in the International Environmental Technology Centre-United Nations publication “Gender and Waste Management” (2022) that women are often involved in voluntary community cleanups, road sweeps, and even primary waste collection.

**Table 1** Characteristics of the Respondent

No	Characteristics	Total	%
1	<b>Age</b>		
	Below 30	4	8.5%
	Age 30 - 40	15	31.9%
	Age 41 - 50	8	17.0%
	Age 51 - 60	11	23.4%
	Age 61 - 70	6	12.8%
	Above 70	3	6.4%
	Total	47	100.0%
2	<b>Education</b>		
	Never had a formal education	0	0.0%
	Graduate elementary school	2	4.3%
	Graduate junior high school	3	6.4%
	Graduate high school	13	27.7%
	Graduate Diplome degree	5	10.6%
	Graduate Bachleor degree	21	44.7%
	Graduate Master degree	1	2.1%
	Graduate Doctor degree	2	4.3%
	Total	47	100.0%
3	<b>Work</b>		
	Housewives	23	48.9%
	housewife working as an entrepreneur	8	17.0%
	housewife working as an employee	16	34.0%
	Total	47	100.0%

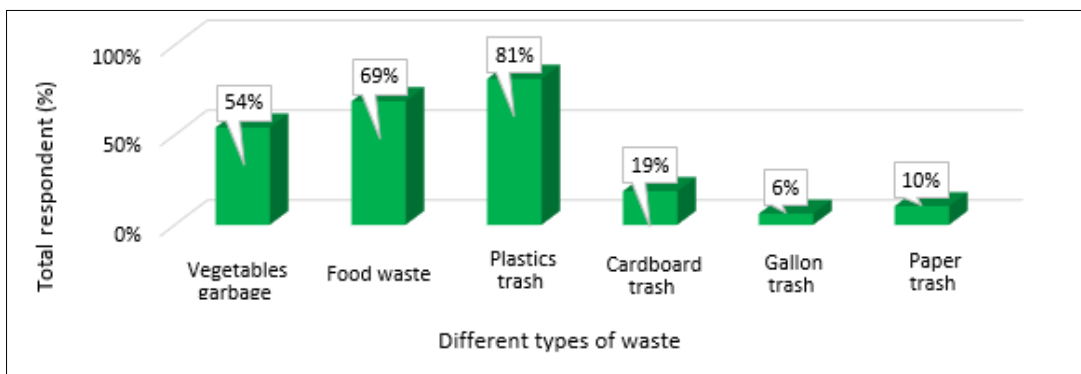
Source : primary data (2023)

The high potential of urban waste requires more attention and roles from society, including the role of women—characteristics of housewives in this study, described in Table 1. Respondents were predominantly housewives aged 30-40 years by 31.9% and 51-60 years by 23.4%. The majority of the respondents had undergraduate education (44.7%) and 27.7% of high school (high school); in addition, some were working housewives (51%).

The number of family members from each household of the respondents varied, the lowest being several two people, the highest being up to 10 people in one house, but the majority consisted of 4 people.

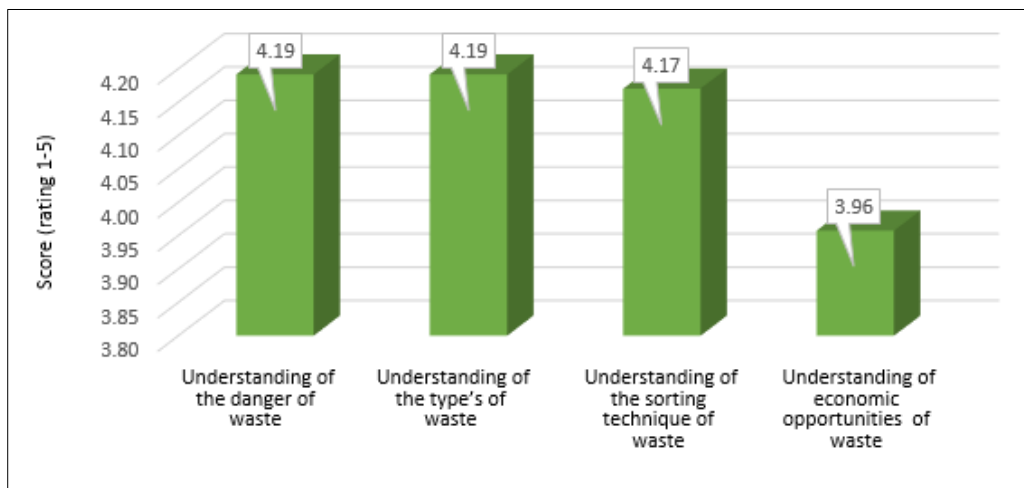
### 3.2. Understanding and Behavior about Waste

The types of waste that households produce are pretty diverse, including paper, cardboard, plastic mineral bottles, beverage glass plates, books, bottles, junk (used oil), leftover toys, gallons of water, food scraps, fresh vegetable scraps, as well as sachet waste types and others. Among the various types of waste, plastic waste is a type of waste that many families of respondents produce. The waste generated comes from hawker behavior, one of the features of consumptive urban community activities; moreover, it is supported by online shopping and online food delivery services that increase plastic waste and other types of waste. The type of waste the respondents generated is summarized in Figure 1.



**Figure 1** Types of Waste generated at household level

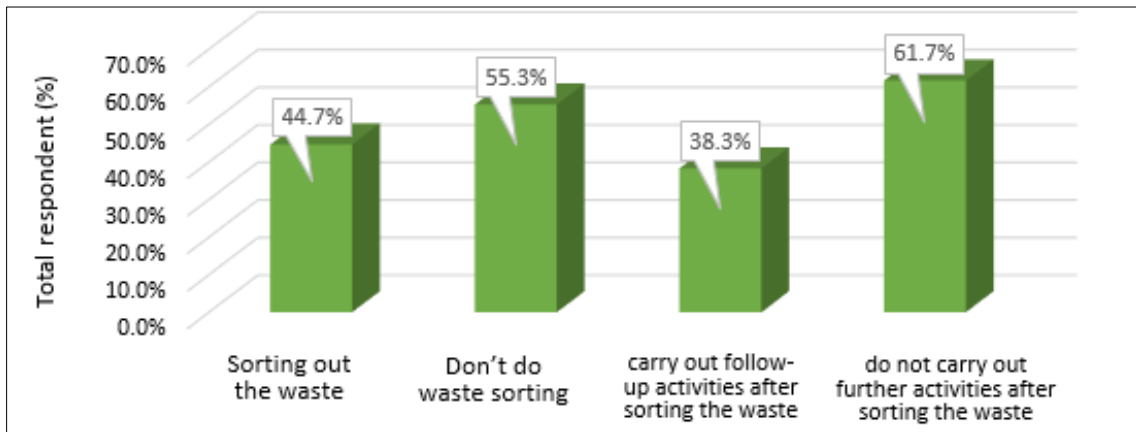
Housewives’ understanding of the waste studied includes understanding of the dangers posed by waste, understanding different types of waste, how to sort waste and understanding of the economic opportunities of waste. From the analysis results, the understanding of waste is relatively high; from a score scale of 1 (lowest) to 5 (highest) using the Likert scale, an average score of understanding of waste hazards and types of waste of 4.19 was obtained. In contrast, an understanding of how to sort on a score scale of 4.17 and an understanding of the economic opportunity of waste showed a score of 3.96. The graph of understanding of waste appears in Figure 2.



**Figure 2** Understanding about waste

The understanding of women in this research area in Salatiga City is better than the study in the Pauh District of Kota Padang (Ernawati research, 2020), which found that few housewives know how to sort waste, recycle, and utilize it into valuables. The understanding of homemakers in this study was similar to the findings of Zunianto and Mulasari's (2019) research; the knowledge of women on waste management was good, 86.5%, and not good, 13.5%.

The study found that the ease of access to information by women, whether through mobile phones, television, or other mass media, increases the understanding of waste; on the other hand, every women at the level of Rukun Neighborhood (RT) is usually included in the PKK group, which encourages understanding of environmental issues that may arise from parties related to the development of the PKK group. The behavior of homemakers in waste management in this study was seen from her behavior of sorting waste and follow-up activities after waste sorting. Based on the analysis results, it was found that most respondents did not do waste sorting, but it is encouraging that 44.7% of respondents do waste sorting at home. Of the 44.7% of housewivess who did the waste sorting, it turned out that not all of them continued with continued activities after sorting; 38.3% of housewivess continued the sorting activities with advanced activities.



**Figure 3** Housewives behavior towards waste

Continued activities carried out by respondents after waste sorting, namely depositing waste into the Master Waste Bank and processing kitchen waste into compost. The activities of depositing to the Waste Bank are more carried out by housewivess who sort waste, apparently due to the practicality of the time to “throw away” piles of goods at home and the economic aspects obtained. Waste Bank activities are quite popular in urban areas such as the City of Salatiga, which has launched the 3NG program as an environmental program.

**3.3. Correlation of Internal Characteristics with Understanding of Waste and Waste Sorting Behavior**

Awareness of waste hazards is the beginning of proper waste management behavior. Hasan (2004) wrote that the public should be made aware of waste management issues to understand the consequences of improper waste management and how it can ultimately pose a serious threat to the lives and well-being of the community. Awareness of waste hazards needs to continue with complete waste management; according to Musbaslat (2022), full implementation of waste management includes waste prevention, reuse, and recycling wherever possible. Various things, including knowledge and attitudes, influence consciousness.

The results of the analysis of the correlation between housewife’s characteristics and the understanding of waste are described in Table 2.

**Table 2** Analysis of the correlation of housewives characteristics with Understanding of waste

No	Variable	Correlation coefficient	Significance	strength of relationship
1	Age	-0.170 <sup>ns</sup>	0.254	Weak
2	Education	0.105 <sup>ns</sup>	0.482	Very weak
3	Number of family	0.173 <sup>ns</sup>	0.244	Very weak
4	Works	-0.115 <sup>ns</sup>	0.482	Very weak

Source: primary data analysis (2023); Remarks: <sup>ns</sup> non-significant

The analysis of this study showed that maternal characteristics were not significantly correlated with knowledge/understanding of litter, good life, education, family members, and housewives' occupation. These results show that understanding environmental management does not require a specific character of society since the intention to maintain the environment requires a commitment that can arise in anyone, even in a person from a young age to adulthood. Based on the analysis, non-working housewives or working housewives did not correlate with understanding waste. More intensive working time in domestic or household tasks in housewives did not affect the increased understanding of litter. Similarly, with working housewives, although the time for domestic tasks is little, terms but work do not correlate with an understanding of waste.

Analysis of the correlation between housewives's characteristics and understanding of waste with waste-sorting behavior is shown in Table 3.

**Table 3** Correlation analysis of housewives's characteristics and Understanding of the waste with Waste Sorting Behavior

No	Variable	Correlation coefficient	Significance	strength of relationship
1	Age	0.225 <sup>ns</sup>	0.128	Very weak
2	Education	-0.062 <sup>ns</sup>	0.678	Very weak
3	Number of family	0.120 <sup>ns</sup>	0.420	Very weak
4	Works	-0.109 <sup>ns</sup>	0.465	Very weak
5	Understanding about waste	0.335*	0.021	Weak

Source: primary data (2023); Remarks: <sup>ns</sup> non-significant and \* significant at 5% error

The results of this study are similar to the results of the Zuniato and Mulasari (2019) study, which stated that there is no relationship between age, education, and income with waste management behavior waste management behavior in housewives in Hamlets Janti Kidul Jatisarone, Nanggulan, Kulon Progo. In addition, Zunianto and Mulasari (2019) concluded that there is a relationship between the knowledge of housewives and the behavior of waste management. Respondent's understanding of waste was gained primarily from its involvement in the PKK group. As Ririh and Ariyani (2021) conclude, government support also plays a vital role in increasing intentions to manage household waste.

#### 4. Conclusion

The study found that almost all respondents produce plastic waste, food scraps, and kitchen waste while cooking in daily activities. The analysis results concluded that there was no correlation between internal characteristics and understanding of waste and behavior of waste sorting. However, there was a correlation between increased understanding of waste and waste sorting behavior.

#### Compliance with ethical standards

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##### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

##### *Statement of informed consent*

Prospective participants were invited and oriented on the purpose of this study. The participants consented to submitting the report to the journal before the study, and the participants were allowed to withdraw at any time.

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