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# ANALYSIS OF WASTE SORTING BEHAVIOR AMONG RESIDENTS OF PESANTREN PERTANIAN DARUL FALLAH BOGOR

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**Abstract**

Based on the results of observations and interviews with administrators, currently there has been no waste sorting carried out by residents of the Pesantren Pertanian Darul Fallah. In fact, if residents of Darul Fallah implement waste sorting behavior, the waste can be utilized as a resource that has economic value. The purpose of this study was to determine the factors related to waste sorting behavior among residents of Darul Fallah. This study is a quantitative study with a cross-sectional research design. The population were all residents of Darul Fallah with a sample size of 89 people taken using the accidental sampling method. The researcher used a questionnaire instrument which contained statements regarding knowledge, attitude, availability of facilities and waste sorting behavior. Data analysis conducted in this study included univariate and bivariate analysis using the chi square test with a significance level of 95%. Based on the results of the analysis, it is known that the attitude variable has a relationship with waste sorting behavior, while the other two variables (knowledge and availability of facilities), have no relationship with waste sorting behavior. Based on the results of the study, it is recommended that Darul Fallah carry out education regarding waste sorting followed by the implementation of regulations regarding waste sorting and the provision of the facilities needed to implement waste sorting behavior.

**Keywords**: Attitude, Facility, Knowledge, Waste Sorting Behavior

## Introduction

Waste that is not managed properly can have a negative impact on the environment and human health. If waste is thrown away carelessly or piled up without proper management, it will cause environmental pollution and various serious health impacts. Piles of household waste that are left unattended will attract sewer rats and insects (flies, cockroaches, fleas, etc.) which carry disease germs (Rizal, 2018).

In most areas in Indonesia, waste management is still carried out conventionally (collection, transfer and final disposal at at a rubbish dump). Law number 18 of 2008 concerning Waste Management and Government Regulation number 81 of 2012 concerning Management of Household Waste and Waste Similar to Household Waste mandate the need for a fundamental paradigm change in waste management, from the collect-transfer-dispose paradigm to management that relies on waste reduction and waste management. Waste reduction activities aim for all levels of society (both government, business world, and the wider community) to carry out Reduce, Reuse and Recycle (3R) activities through intelligent, efficient and programmed efforts. However, these 3R activities still face major obstacles, namely the low level of public awareness about sorting waste (Suryani, 2014).


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Pesantren Pertanian Darul Fallah is an Islamic boarding school located on Jalan Raya Ciampea KM 12 Bogor, West Java. There are many programs and activities offered by Darul Fallah, some of which are educational programs such as kindergarten, elementary school, middle school, and high school. There are also training, agribusiness and community development centers (Pesantren Pertanian Darul Fallah, 2019). Of course, from the many activities carried out in Darul Fallah, a lot of waste will be produced which needs to be managed intelligently, efficiently and programmatically so that it does not have a negative impact on the environment or health and can provide economic benefits.

Based on the results of observations and interviews with Darul Fallah administrators, currently waste management at the Darul Fallah is still carried out conventionally (collection, transport and final disposal at the rubbish dump) and waste sorting has not been carried out by the residents of the boarding school. In fact, if the waste is managed properly, it can be used as a resource that has economic value. Based on this background, researchers are interested in conducting research on the analysis of waste sorting behavior among residents of the Pesantren Pertanian Darul Fallah Bogor.

**Method**

This study is a quantitative study with a cross-sectional research design, namely a research design that studies the dynamics correlation between risk factors (independent) and consequences (dependent), with data collection carried out simultaneously at the same time between the independent and dependent variables (point time approach) (Masturoh & Temesvari, 2018). The purpose of this study was to determine the factors related to waste sorting behavior among residents of the Pesantren Pertanian Darul Fallah. This research was conducted at the Pesantren Pertanian Darul Fallah located at Jalan Raya Ciampea KM 12 Bogor, West Java in August 2023. The population in this study were all residents of the Darul Fallah (administrators, teachers, students, and parents/guardians of students). The sampling method used in this study was accidental sampling with a sample size of 89 people.

The researcher used a questionnaire instrument that contained statements regarding knowledge, attitude, availability of facilities and waste sorting behavior. Data analysis conducted in this study included univariate and bivariate analysis. Univariate analysis aims to see the frequency distribution of each variable. This analysis was conducted to see the number of respondents based on their demographic characteristics, including: age, gender, and education level. In addition, the researcher also looked at the frequency distribution of the independent and dependent variables of the study. Bivariate analysis was conducted to determine the relationship between two variables. The use of bivariate analysis in this study was to determine whether there was a significant relationship between the independent variables, namely knowledge, attitude, and availability of facilities with the dependent variable, namely waste sorting. Bivariate analysis in this study used the chi square test with a significance level of 95%. The chi square test was used to see the relationship between two categorical variables.

To see whether or not there is a relationship between the independent variable and the dependent variable and whether the resulting relationship is meaningful, a comparison of the p-value with $\alpha = 0.05$ is used. If the p-value $< 0.05$ then the statistical calculation results are meaningful which means there is a significant relationship between the independent variable and the dependent variable, while if the p-value $\geq 0.05$ then the statistical calculation results are not meaningful which means there is no relationship between the two (Hastono, 2016).

## Results

### 1. Respondent Characteristics

**Table 1. Respondent Characteristics**

| Characteristic | Frequency | Percentage (%) |
|---|---|---|
| **Age** | | |
| <20 years | 55 | 61.8 |
| 20-39 years | 13 | 14.6 |
| 40-59 years | 18 | 20.2 |
| 60-79 years | 3 | 3.4 |
| **Gender** | | |
| Male | 40 | 44.9 |
| Female | 49 | 55.1 |
| **Education Level** | | |
| Elementary school | 5 | 5.6 |
| Junior high school | 32 | 36.0 |
| High school | 26 | 29.2 |
| College | 26 | 29.2 |
| **Total** | **89** | **100.0%** |

Based on table 1 above, it can be seen that most respondents are under 20 years old, which is 55 people or 61.8% of the total respondents. Based on the gender of the respondents, 49 respondents (55.1%) are female and 40 respondents (44.9%) are male. In addition, based on the level of education of the respondents, most respondents have a junior high school education, which is 32 people or 36% of the total respondents.

### 2. Univariate Analysis

**Table 2. Results of Univariate Analysis of Independent and Dependent Variables**

| Variable | Frequency | Percentage (%) |
|---|---|---|
| **Knowledge** | | |
| Poor | 43 | 48.3 |
| Good | 46 | 51.7 |
| **Attitude** | | |
| Poor | 33 | 37.1 |
| Good | 56 | 62.9 |
| **Availability of Facilities** | | |
| Poor | 40 | 44.9 |
| Good | 49 | 55.1 |
| **Waste Sorting Behavior** | | |
| Poor | 40 | 44.9 |
| Good | 49 | 55.1 |
| **Total** | **89** | **100.0%** |

Based on table 2 above, it can be seen that for the knowledge variable, out of 89 respondents, 43 respondents (48.3%) had poor knowledge regarding waste sorting behavior, while 46 other respondents (51.7%) had good knowledge. For the attitude variable, 33 respondents (37.1%) had poor attitudes regarding waste sorting behavior, while 56 other respondents (62.9%) had good attitudes. For the availability of facilities variable, 40 respondents (44.9%) had the perception that the availability of

waste sorting facilities was poor, while 49 other respondents (55.1%) had the perception that the availability of waste sorting facilities was good. And for the waste sorting behavior variable, 40 respondents (44.9%) implemented poor waste sorting behavior, while 49 other respondents (55.1%) implemented good waste sorting behavior.

### 3. Bivariate Analysis

### A. Relationship between Knowledge and Waste Sorting Behavior

**Table 3. Relationship between Knowledge and Waste Sorting Behavior**

| Knowledge | Waste Sorting Behavior | | | | Total | | *P-value* |
|---|---|---|---|---|---|---|---|
| | Poor | | Good | | | | |
| | n | % | n | % | n | % | |
| Poor | 24 | 55.8 | 19 | 44.2 | 43 | 100.0 | 0.075 |
| Good | 16 | 34.8 | 30 | 65.5 | 46 | 100.0 | |
| **Total** | **40** | **44.9** | **49** | **55.1** | **89** | **100.0** | |

Table 3 above is a table of analysis of the relationship between knowledge and waste sorting behavior. It can be seen that out of 43 respondents who have poor knowledge, there are 24 respondents (55.8%) who have poor waste sorting behavior. While out of 46 respondents who have good knowledge, there are 16 respondents (65.5%) who have poor waste sorting behavior. After the chi-square test was conducted, it was found that the p-value was 0.075 (≥ 0.05). So, it can be stated that there is no significant difference in the proportion of waste sorting behavior between respondents who have good knowledge and respondents who have poor knowledge. In other words, it can be concluded that there is no significant relationship between knowledge and waste sorting behavior among residents of the Darul Fallah.

### B. Relationship between Attitude and Waste Sorting Behavior

**Table 4. Relationship between Attitude and Waste Sorting Behavior**

| Attitude | Waste Sorting Behavior | | | | Total | | *P-value* | OR (95% CI) |
|---|---|---|---|---|---|---|---|---|
| | Poor | | Good | | | | | |
| | n | % | n | % | n | % | | |
| Poor | 21 | 65.6 | 12 | 36.4 | 33 | 100.0 | 0,012 | 3.408 (1.386-8.378) |
| Good | 19 | 33.9 | 37 | 66.1 | 56 | 100.0 | | |
| **Total** | 40 | 44.9 | 49 | 55.1 | 89 | 100.0 | | |

Table 4 above is a table of analysis of the relationship between attitude and waste sorting behavior. It can be seen that out of 33 respondents who have poor attitudes, there are 21 respondents (65.6%) who have poor waste sorting behavior. While out of 56 respondents who have good attitudes, there are 19 respondents (33.9%) who have poor waste sorting behavior. After conducting a chi-square test, it is known that the p-value is 0.012 (< 0.05). So, it can be stated that there is a significant difference in the proportion of waste sorting behavior between respondents who have good attitudes and respondents who have poor attitudes. In other words, it can be concluded that there is a significant relationship between attitude and waste sorting behavior among residents of the Darul Fallah. From the results of the statistical test, an OR value of 3.408 was also obtained, which means that respondents who have poor attitudes towards waste sorting behavior have a 3.408 times greater chance of having

poor waste sorting behavior compared to respondents who have good attitudes towards waste sorting behavior.

### C. Relationship between Availability of Facilities and Waste Sorting Behavior

**Table 5. Relationship between Availability of Facilities and Waste Sorting Behavior**

| Availability of Facilities | Waste Sorting Behavior | | | | Total | | *P-value* |
|---|---|---|---|---|---|---|---|
| | Poor | | Good | | | | |
| | n | % | n | % | n | % | |
| Poor | 22 | 55.0 | 18 | 45.0 | 40 | 100.0 | 0.131 |
| Good | 18 | 45.0 | 31 | 63.3 | 49 | 100.0 | |
| **Total** | 40 | 44.9 | 49 | 55.1 | 89 | 100.0 | |

Table 5 above is a table of analysis of the relationship between the availability of facilities and waste sorting behavior. It can be seen that out of 40 respondents who have a poor perception of the availability of infrastructure, there are 22 respondents (55%) who have poor waste sorting behavior. While out of 49 respondents who have a good perception of the availability of infrastructure, there are 18 respondents (45%) who have poor waste sorting behavior. After the chi-square test was conducted, it was found that the p-value was 0.131 ($\geq 0.05$). So, it can be stated that there is no significant difference in the proportion of waste sorting behavior between respondents who have a good perception of the availability of facilities and respondents who have a bad perception of the availability of facilities. In other words, it can be concluded that there is no significant relationship between the availability of facilities and waste sorting behavior among residents of the Darul Fallah.

### Discussion

Based on the results of univariate analysis, it was found that out of 89 respondents, 40 respondents (44.9%) implemented poor waste sorting behavior while 49 other respondents (55.1%) implemented good waste sorting behavior. This shows that almost half of the residents of the Darul Fallah who were respondents in this study still implement poor waste sorting behavior. According to Lawrence Green's behavioral theory in Rachmawati (2019), there are several factors that influence behavior, namely predisposing factors (factors that can facilitate and underlie changes in behavior or actions in individuals and communities such as knowledge, attitudes, beliefs, values, and perceptions), enabling factors (factors that enable or facilitate the occurrence of behavior or actions such as skills and resources needed to carry out behavior) and reinforcing factors (factors that can strengthen or sometimes even soften the occurrence of behavior such as support from officers and family). Therefore, in order to improve the implementation of waste sorting behavior, one way that can be done is to improve these factors. In this study, an analysis was conducted on predisposing factors, namely knowledge and attitudes, as well as enabling factors, namely the availability of facilities.

Based on the results of the bivariate analysis, it is known that there is no significant relationship between the knowledge and waste sorting behavior among residents of the Darul Fallah. The results of this analysis are in line with Anbarsari's (2022) research which shows no relationship between the knowledge and waste sorting behavior at SMPN Kecamatan Bekasi Timur. The results of this study are also in line with Auliana's (2024) research which shows that there is no relationship between knowledge and inorganic waste sorting behavior at the Pondok Pesantren Fadhlul Fadhlan. However, Auliana's research also shows that there is a relationship between knowledge and attitudes and there is a relationship between knowledge and attitudes towards waste sorting behavior. This means that

knowledge is not directly related to behavioral changes, but knowledge will influence attitudes which in turn will influence behavior. Thus, efforts need to be made to increase the knowledge of Darul Fallah residents regarding waste sorting behavior, for example by providing education or counseling.

For the attitude variable, based on the results of the bivariate analysis, it is known that there is a significant relationship between the attitude and waste sorting behavior among residents of the Darul Fallah. The results of this analysis are in line with Anbarsari's (2022) research which shows a significant relationship between attitudes and waste sorting behavior at SMPN Kecamatan Bekasi Timur. The results of this study are also in line with Auliana's (2024) research which shows that there is a relationship between attitudes and behavior in sorting inorganic waste at the Pondok Pesantren Fadhlul Fadhlan. The results of this study indicate that efforts need to be made to improve the attitudes of Darul Fallah residents regarding waste sorting behavior, for example by enforcing regulations regarding waste sorting. This is recommended because based on Marbun's (2024) research, it is known that Indonesian society needs standardized rules to strengthen waste sorting behavior.

For the availability of facilities variable, based on the results of the bivariate analysis, it is known that there is no significant relationship between the availability of facilities and waste sorting behavior among residents of the Darul Fallah. However, efforts need to be made to complete the availability of waste sorting facilities because based on research conducted by Nurdiani (2022) at the Pondok Pesantren Ibnul Qoyyim Putri, it shows that providing waste sorting bags in strategic places such as in front of the classroom, dormitory, teacher's office, musyrifah's room and others can raise awareness among residents of the Islamic boarding school to sort waste. In addition, the results of Andina's (2019) study regarding the Analysis of Waste Sorting Behavior in the City of Surabaya also concluded that waste sorting behavior needs to be formed with three strategies, namely strengthening policies, providing ergonomic facilities, and involving the community in changing behavior.

**Conclusion**

Based on the results of the study on the analysis of waste sorting behavior among residents of the Pesantren Pertanian Darul Fallah, it is known that the attitude variable has a significant relationship with waste sorting behavior, while the other two variables, namely knowledge and availability of facilities, do not have a significant relationship with waste sorting behavior. Based on the results of the study, it is recommended that residents of the Pesantren Pertanian Darul Fallah carry out education or counseling on waste sorting followed by the implementation of regulations on waste sorting and the provision of facilities needed to implement waste sorting behavior, considering the great benefits that will be felt by implementing waste sorting behavior as an initial step in good waste management in the Darul Fallah.

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