Determinant Analysis of Public Perception of Waste Bank As An Alternative of Settlement Waste Management

By Rahmi Susanti

Research Paper

Determinants Analysis of Public Perception of Waste Bank As An Alternative of Settlement Waste Management

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Abstract

The activities of the waste bank is giving a positive impact on environment and increasing the public economy. This research aims to analyze the public perception of Kebumen Gemilang Sejahtera (KGS) waste bank in Kampung Iklim 2 Ilir, Palembang. The population of this study was 639 households and there were 90 households as respondents. This study used a quantitative method by cross-sectional design. The data collection instrument was a questionnaire, observations, interviews, and documentation. Data were analyzed by using multiple logistic regression. The results showed that the perception of the public (52.2%) of the waste bank categorized as good. Characteristics of the community are mostly aged ≤42 years old (53.3%), mostly female (63%), highly educated (>SMA) of 87.8%, good knowledge (70.0%), including the length of stay at the old enough category (57.8%), and has the highest employment as a housewife (42.2%). The results of multiple logistic regression showed that the length of stay variable (OR=0.701) affects the public perception of the waste bank.

Keywords

Waste, Waste Bank, Public Perception

1. INTRODUCTION

Waste is the rest of human daily activities and or solid natural processes (Nugraha et al., 2018). Waste management has become a complex problem. Most of these wastes enter the landfill in a state of mixing between organic and inorganic waste (Jimmyanto et al., 2018). The data shows that, so far waste management has not applied the principle of reduce, reuse, and recycle (3R) by involving optimal public participation. Based on these problems, waste management is still concentrated in landfill (Nugraha et al., 2018). So, a new paradigm in waste management is needed. Changes to the new paradigm with the 3R concept can be integrated into community-based waste bank projects (Asteria and Heruman, 2016).

A waste bank is a place for selecting and collecting waste that can be recycled and or reused that has economic value, which is a waste management concept integrating the 3R principle of reduce, reuse and recycle which carried out from, by and for the community (Nugraha et al., 2018). The

development of waste bank aims to assist the government in empowering the community to manage community-based waste wisely and can reduce the waste which transported to the landfill (Purba et al., 2014). One of the waste bank that has been actively operating in Palembang is the Kebumen Gemilang Sejahtera (KGS) waste bank.

KGS waste bank is a part of climate mitigation or prevention activities contained in the Kampung Iklim program in Palembang. So far, public participation is still not optimal. There have only been around 15 people who have joined as active customers of the KGS waste bank. Public participation also does not meet the standards of waste bank management as stipulated in Minister of Environment Regulation No. 13, 2012 related to the role of waste savers or waste bank customers, which is sorting activities and efforts to reduce waste. Public participation that has not been optimal in the KGS waste bank project can be further reviewed through the public perception of the existence of the waste bank.

Perception is the stage of a person's assessment of an

object (Pasek, 2013). Public perception of the KGS waste bank project is important because it can be the way to find out which components are the main problem of low public's participation in the waste bank, so can get some solutions which can be obtained as a key to the success of the KGS waste bank as a community partner to reach a residential environment active in adaptation and mitigation efforts to climate change as stipulated in the Kampung Iklim program.

2. EXPERIMENTAL SECTION

2.1. Location and Schedules

This research was carried out in February 2020 in the settlement area of Kampung Iklim 2 Ilir Palembang. The location of this study was carried out in four RT areas, namely RT 27, RT 28, RT 30, and RT 31. The selection of research sites is based on the existence of Kampung Iklim 2 Ilir which has a Kebumen Gemilang Sejahtera (KGS) waste bank that has been actively operating, but the public participation in the KGS waste bank is still not optimal yet.

2.2. Design of Study

This study used a quantitative method by cross-sectional design. Data collected to measure several variables is carried out by distributing questionnaires and interviews.

2.3 Data and Sourcesy

Data collected in this study are primary and secondary data. Primary data in this study are respondents's perceptions of KGS waste bank obtained from questionnaire and interview data and also data acquisition of respondents' knowledge of waste and waste bank obtained from filling multiple-choice questions which answered by respondents. The secondary data in this study is the number population of RT 27, 28, 30, and 31 totaling 639 households obtained from Kelurahan 2 Ilir Palembang.

2.4. Methods

This study used an analytic observational method with a cross-sectional design that aims to analyze the public perception of KGS waste bank in Kampung Iklim 2 Ilir Palembang by quantitative methods. The total population in that study was 639 households with a total sample was 90 respondents. Variable in that study consist of dependent and independent variable. The dependent variable is public perception while the independent variables consist of age, gender, education level, knowledge, length of stay, and employment status.

Data is then analyzed by univariate, bivariate, and multivariate analysis. Univariate analysis was performed to obtain a description of the frequency distribution and the percentage of the independent and dependent variables (Ferosandi, 2018).

Bivariate analysis is used to examine the correlation or influence between independent and the dependent variable (Ferosandi, 2018). The correlation between independent and dependent variables in this study is evidenced by the Chi-Square test with a confidence level of 95% (α=0.05 (Zulkifli et al., 2019).)

Multivariate analysis is an analysis used to test more than two variables. Public perception as dependent variable and age, gender, and length of stay variables as confounding variables were analyzed with multiple logistic regression analysis to determine the independent variables that are most related or influenced to the dependent variables based on the largest OR values at the final modeling stage (Ferosandi, 2018).

3. RESULTS AND DISCUSSION

The results of the univariate analysis show that most respondents are $\leq$ 42 years old (53.3%), and 70% are dominated by female respondents. The highest education of respondents was the high level of education ($\geq$SMA) of 87.8%, with a high level of knowledge which amounted to 70%. Besides that, most of the respondents were people who had lived for a long time enough ($\leq$ 30 years) in the Kampung Iklim KGS (57.8%) with the most employment status as a housewife (42.2%). Meanwhile for the perception variable, it is known that 52.2% of respondents have a good perception of waste management and also the KGS Palembang waste bank. The frequency distribution of the characteristics of respondents can be seen in Table 1.

The results of the bivariate analysis of the correlation of age to public perception can be seen in Table 2.

Based on Table 2, respondents >42 years old with good perception was 45.2%, while respondents with $\leq$42 years old with good perception was 58.3%. Statistical results showed the p-value was 0.303. It is indicated that the p-value >α, which means that the age variable does not have a significant correlation to the respondents' perception. The results showed that respondents >42 years old, tend to have a less favorable perception of KGS waste bank compared to respondents with $\leq$42 years old. The elderly group experiences a decrease in memory and understanding so that it can affect perception (Afandi et al.).

The results of the bivariate analysis of the correlation of gender to public perception can be seen in Table 3.

Based on Table 3, the number of male respondents with good perception was 33.3%, while the number of female respondents with good perception was 60.3%. The statistical results showed the p-value was 0,034. It is indicated that the p-value<α, which means that the gender variable has a significant correlation to the respondents' perception. Female respondents in this study had a better perception of waste and waste bank compared to male respondents. This is because most of those who are active in managing household waste and are also heavily involved in the activities of the waste bank are female respondents, so female respondents are more familiar with and have a good understanding of KGS waste bank. Differences in values and traits based

Table 1. Frequency Distribution Characteristics of KGS Waste Bank Respondents

Number	Variables	n	%
1	Age		
	>42 years	42	46.7
	≤42 years	48	53.3
2	Gender		
	Male	27	30
	Female	63	70
3	Education Level		
	High (≥SMA)	79	87.8
	Low (<SMA)	11	12.2
4	Knowledge		
	High (>10)	63	70
	Medium (5-10)	23	25.6
	Low (<5)	4	4.4
5	Length of Stay		
	Old (>30 years)	38	42.2
	Old enough (≤ 30 years)	52	57.8
6	Employment Status		
	Housewifes	38	42.2
	self-employed	16	17.8
	BUMN	3	3.3
	Civil servants	5	5.6
	Others	28	31.1
7	Perception		
	Good (>47)	47	52.2
	Bad (≤47)	43	47.8

Table 2. The Correlation of Age to Public Perception

Age	Public Perception				Total	%	p- value
	Good		Bad				
	n	%	n	%	n		
>42 years	19	45.2	23	54.8	42	100	0.303
≤42 years	28	58.3	20	41.7	48	100	

Table 3. The Correlation of Gender to Public Perception

Gender	Public Perception				Total	%	p- value
	Good		Bad				
	n	%	n	%	n		
Male	9	33.3	18	66.7	27	100	0.034
Female	38	60.3	25	39.7	63	100	

on gender will usually affect men and women in making decisions (Hastuti, 2012).

The results of the bivariate analysis of the correlation of education level to public perception can be seen in Table 4.

Table 4. The Correlation of Education Level to Public Perception

Education Level	Public Perception				Total	%	p- value
	Good		Bad				
	n	%	n	%	n		
High	43	54.4	36	45.6	79	100	0.423
Low	4	36.4	7	63.6	11	100	

Table 4 shows that the number of the high education levels of respondents with good perception was 54.4%, while the number of the low education levels of respondents with good perception was 36.4%. The statistical results showed the p-value was 0.423. It is indicated that the p-value>α, which means that the education level variable does not have a significant correlation to the respondents' perception. So, as higher as the respondent's education level did not affect on the higher perception.

The results of the bivariate analysis of the correlation of knowledge to public perception can be seen in Table 5.

Table 5. The Correlation of Knowledge to Public Perception

Knowledge	Public Perception				Total	%	p- value
	Good		Bad				
	n	%	n	%	n		
High	34	54	29	46	63	100	0.446
Medium	10	43.5	13	56.5	23	100	
Low	3	75	1	25	4	100	

The number of the high knowledge of respondents with good perception was 54.0%, the medium knowledge of respondents was 43.5%, while the low knowledge of respondents was 75.0%. The statistical results showed the p-value was 0.446. It is indicated that the p-value >α, which means that the knowledge variable does not have a significant correlation to the respondents' perception. Based on the results of observations and interviews conducted, there are some respondents with good knowledge about waste and its management, but respondents stated that the information they received about the waste bank tends to be not optimal. The availability of information significantly affects the level of public perception (Irwan Sukri Banuwa et al., 2017). Besides that, the activities and services provided by the waste bank also do not reach all people in that region yet. This causes even though respondents have good knowledge, but it raises a negative perception of the waste bank. In addition to functional factors, people's perceptions can also

be influenced by other factors, such as services obtained by respondents (Zulkifli et al., 2019).

The results of the bivariate analysis of the correlation of length of stay to public perception can be seen in Table 6.

Table 6. The Correlation of Length of Stay to Public Perception

| Length of Stay | Public Perception | | | | Total | % | p- value |
| | Good | | Bad | | | | |
	n	%	n	%	n		
Old	17	44.7	21	55.3	38	100	0.317
Old Enough	30	57.7	22	42.3	52	100	

Based on Table 6, the number of the length of stay of respondents of more than 30 years with good perception was 44.7%, while the length of stay of fewer than 30 years with good perception was 57.7%. The statistical results showed the p-value was 0.317. It is indicated that the p-value$>\alpha$, which means that the length of stay variable does not have a significant correlation to the respondents' perception. So, as higher as respondent's length of stay did not affect on the higher perception.

The results of the bivariate analysis of the correlation of employment status to public perception can be seen in Table 7.

Table 7. The Correlation of Employment Status to Public Perception

| Employment Status | Public Perception | | | | Total | % | p- value |
| | Good | | Bad | | | | |
	n	%	n	%	n		
Housewifes	21	55.3	17	44.7	38	100	0.883
self-employed	7	43.8	9	56.3	16	100	
BUMN	1	33.3	2	66.7	3	100	
Civil Servants	3	60	2	40	5	100	
Others	15	53.6	13	46.4	28	100	

Based on Table 7, the highest good perception was obtained from employment status was housewives which were 21%. The statistical results showed the p-value was 0.883. It is indicated that the p-value$>\alpha$, which means that the employment status variable does not have a significant correlation to the respondents' perception. Based on the results of observations and interviews conducted, the housewives often involved in the process of managing newspaper waste and plastic packaging to make new products in the KGS waste bank. This management activity can provide additional income which is very useful for them. The people will consciously participate in an activity if they feel there is a benefit for themselves, both directly and indirectly. Conversely, individuals will not participate if that activities to be carried out are detrimental or do not provide any benefit (Mohammadi et al., 2011). Someone's perception of an object will be positive if it suits their needs, on the contrary perception will be negative if it is not suited with their needs (Irwan Sukri Banuwa et al., 2017).

The results of multivariate analysis showed that the independent variable that most influenced the dependent variable was the length of stay variable because it had the highest OR value, which was 0.701. This means that respondents with a length of stay in the old enough category can increase their perception of waste and KGS waste bank by 0.7 times higher than respondents with the length of stay in the old category in Kampung Iklim 2 Ilir Palembang. Meanwhile, the age and length of stay variables have OR change > 10% with p-value > 0.05 so that it is classified as a confounding variable. The result of final model can be seen in Table 8.

Table 8. Final Model

| Variables | B | p-value | OR | 95% C.I. for EXP (B) | |
				Lower	Upper
Age	-0.496	0.321	0.609	0.229	1.662
Gender	-1.198	0.016	0.302	0.114	0.798
Length of Stay	-0.355	0.479	0.701	0.263	1.871

4. CONCLUSIONS

This study showed that the characteristics of the community are mostly aged ≤ 42 years old (53.3%), mostly female (63%), highly educated ($\geq$SMA) of 87.8%, good knowledge (70.0%), including a length of stay in the old enough category (57.8%), and has the highest employment as a housewife (42.2%). The majority of the public had a good perception of KGS waste bank (52.2%) and 47.8% of others were categorized as bad perception. The variable that has a significant relation to perception is the length of stay variable.

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