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Determinants of Household Waste Management in Alam Barajo District, Jambi City

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ABSTRACT

Waste that cannot be recycled and processed properly will be very dangerous for human health and the environment. Based on data from the Environmental Service of Jambi City, garbage in Jambi City reached a total of 465,693,805 kg/day, and the largest waste generation data was in Alam Barajo District where the waste generated was 75,409,004 kg/day. This research is an observational study that uses a quantitative approach with a cross sectional method. The population of Alam Barajo sub-district is 30,786 families. The sampling technique is a *disproportionate stratified random sampling technique*. Bivariate analysis using the test *Chi-Square*, the relationship between the independent variable and the dependent variable, namely knowledge ($p = 0.000$), attitude ($p = 0.122$), support from community leaders ($p = 0.607$), support from health workers ($p = 0.227$) with waste management household. There is a relationship between knowledge and household waste management in Alam Barajo sub-district and there is no relationship between attitudes, support from community leaders, support from health workers and household waste management.

Keywords : Waste Management, Knowledge, Attitude, Public Figures Support, Health-Care Provider Support

Introduction

Along with the development of the increasing population, increasing waste problems in residential and urban areas from year to year continue to occur plus it is not accompanied by improvements in infrastructure which causes this waste problem to be more serious. The impact of this waste problem will affect the structure of city infrastructure such as health and environmental aspects (1). Garbage is a material left over from human activities that is no longer used. Garbage that cannot be recycled can cause disasters such as climate warming, floods, cause bad odors, damage the beauty of cities, damage environmental sanitation, and can increase the growth of diseases.(2)

Waste management that is not treated properly will be very dangerous for human health and the environment. Some waste can be processed and recycled back into a craft that has artistic value, economic value and unique. There are three stages of activities in waste management, namely collecting, transporting, and final disposal/processing. The final stage/processing will experience both biologically, chemically and physically.(3)

Humans have made various efforts as a solution to the waste problem, both through social approaches such as increasing the number of people who dispose of waste in its place and creating a waste management system, while also taking a technological approach with efforts to recycle waste in order to produce useful goods. Examples of activities carried out in this technological approach are by converting unused waste into solid fuel (briquettes) and gas fuel or waste converted into fertilizer with a composter. (4)

Waste management is a problem in various countries in the world. Based on data from the World Bank, every year 1.3 billion tons are produced or each individual produces around 1.2 kg of waste per day. The composition of urban waste is dominated by 62% organic waste, 14% plastic waste, 2% glass, 9% paper, 25% rubber and leather, 2% iron, and 13% for other types of waste. The amount of waste that cannot be transported is 16.7 million tons and around 800,000 tons are burned and about 200,000 tons are dumped into rivers. This will certainly have an impact on public health and the environment. (5) The Ministry of Health stated that 240 cities in Indonesia are facing waste management problems. (6) The areas with the largest waste producers are in urban areas, which is around 60-70% of the total waste heap. (7). Indonesia occupies the fourth most populous country in the world, with a population of 264 million. This number is estimated to increase to reach 284.5 million people in 2025 and is estimated to produce around 66.5 million tons of waste per year. This situation will certainly be a great potential for increasing resources, but it cannot be denied that it is also a source of pollution. (4)

Indonesians tend to be less enthusiastic about sorting their own waste. To raise public awareness is not easy. Sorting waste has not become a community habit, even though the organic waste produced has reached 60% of the total household waste. Organic waste or wet waste easily emits a foul odor, that is the reason why city residents are lazy to sort it out. They are reluctant to open and stir the garbage disposal so it doesn't smell and maggots. (8) Based on Law Number 18 of 2008 concerning Waste Management, it is said that there is a need for innovation in conventional waste management systems that are changed to focus on waste reduction and processing. Article 20 states the limits on waste generation, recycling and reuse of waste or the 3R (Reuse, Reduce and Recycle). This is also contained in the Government Regulation of the Republic of Indonesia Number 81 of 2012 concerning the Management of Household Waste and Waste similar to Household Waste. (9) Community-based 3R waste management is a new innovation in waste management aimed at reducing waste, increasing community consumptive activities and increasing knowledge society against the negative effects of waste.

The community is one of the important factors in the effort to create a new model of waste management. The factors that complicate the waste problem are the increase in people's living standards that are not balanced with knowledge about waste and people who dispose of waste in inappropriate places. Every individual and household every day will certainly produce waste regardless of their activities. In particular, household waste is also caused by the amount of income of each community, education and knowledge, attitudes, and actions, and the number of families in one house. (10)

According to Basic Health Research data, it is known that the percentage of waste management methods based on districts/cities in Jambi Province is dominated by burning 60.5%, transported by officers as much as 18.4%, dumped into ditches/times/sea 11.2%, disposed of indiscriminately 3.7 %, 6% was filled with soil and the rest was made into compost only 0.3%. Waste management per each district/city is seen from the people who throw garbage into the river with the largest number in Kerinci Regency amounting to 38.3%, Sungai Penuh City at 25%, followed by Tanjabtim 22.2%, Bungo 14% slightly different from Batanghari at 13%, Merangin 11.5%, Tanjabbar 9.7%, and Jambi City only at 4.1%, then Muaro Jambi 3.6% and the lowest are Tebo and Sarolangun. And for people who dispose of garbage, the largest is occupied by East Tanjung Jabung Regency, which is 17.6% and the most transportation by officers is in Jambi City and Sungai Penuh City because it is above 50 percent. (11)

According to data on the Regional Environmental Status of Jambi Province, the problem of waste becomes one of the main focuses every year because it is one of the causes of environmental pollution. Basically, a clean and healthy environment is a shared right and responsibility. Unfortunately, the environmental conditions in Indonesia, especially in Jambi Province, are increasingly threatened due to human behavior itself. Garbage is a source of pollution that can disturb and become a source of disasters such as clean water sources being polluted, becoming a source of disease, damaging the city's aesthetics and cleanliness to cause damage to the social order. (12)

Jambi City produces 423,446.09 kg of waste per day but the transportation of waste to the Final Disposal Site (TPA) is only 316,175.92 kg of waste per day (13). The amount of waste in Jambi City comes from household waste by 45.25%, then trade and market waste as much as 37.17% and waste from tourist areas amounting to 6.15%. With a number that is not small, of course, requires adequate shelter. Community participation is one of the important factors as a solution to the waste problem in urban areas (14)

Based on data from the Jambi City Environmental Service, garbage in the city of Jambi reached a total of 465,693,805 kg/day, and the most waste generation data was located in Alam Barajo District where the

waste generated was 75,409,004 kg/day, and in 2019 data on waste generation in the city Jambi totals 423,446,087 kg/day, based on these data, Alam Barajo sub-district is in first position with a total of 68,567,905 kg/day.(15)

According to data from the Jambi City Environmental Service, waste generation in the Alam Barajo sub-district is the place with the largest waste generation and where the Public Health Center in the Alam Barajo Sub-district should conduct a survey on waste management in the Alam Barajo sub-district as one of the data on environmental health, but this was not done. by the puskesmas so that waste management in the Alam Barajo sub-district is still unknown (13)

Some of the determinants that make the waste problem so complicated are the increase in the standard of living of the community followed by the harmony of knowledge about waste and people who do not pay attention to cleanliness by disposing of waste in the wrong place. If the community can participate in waste management, the number of people who are aware of the importance of keeping the environment clean and build community creativity in maintaining the environment will also increase. In addition, the community's contribution to waste management is very dependent on the income of the community, especially the City of Jambi.

In Alprindo Sembering's research, DKK (2020) in Sibolga Selatan District, Sibolga City stated that in the results of their research, there was a significant relationship between knowledge and handling household waste. Another study which states that knowledge is related to waste processing actions is the research by Sanggah Saputra N.A (2017) in Yogyakarta. Another study also states that knowledge is related to waste management, namely Afzahul Rahmi's research (2018) in Kurao Pagang Village.

Research conducted by Afzahul Rahmi (2018) in Kurao Pagang Village stated that in the results of his research there was a relationship between attitudes and waste management. Another study by Triana Srisantyorini, (2018) in the area around the rubber rail, Jombang Village, Ciputat District, Tangerang City stated that in the results of his research there was a relationship between attitudes and handling household waste.

Research conducted by Ahmad Naqi Numan (2015) at Bukit Permata Puri Housing, Beringin Village, Ngaliyan District, Semarang City stated that in the results of his research there was a relationship between the role of community leaders and household waste management. Research conducted by Norfitria (2020) in the working area of the Kuin Raya Health Center Banjarmasin stated in the results of his research that the direction of community leaders had a significant effect on the management of household waste by the community.

The research of Edison et al (2019) in Padang City District in their research results stated that there is a relationship between the role of officers and community behavior in managing household waste. Another study which also stated that there was a significant relationship between the role of officers and waste management was the research of Sutikno Citro in the Halim Perdana Kusuma Special Village, Makasar District, East Jakarta. Based on the above background, preliminary data and surveys obtained by researchers, researchers are interested in conducting research on what

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Method

This research is an observational study that uses a quantitative approach with a cross sectional method. The population of Alam Barajo sub-district is 30,786 families. The sampling technique is a disproportionate stratified random sampling technique. Collecting data by interview and observation using questionnaires. Independent variables are knowledge, attitudes, community leaders, support officers. The dependent variable is household waste management.

Results

Relationship between Knowledge and Household Waste Management in Alam Barajo District in 2021

Table 1 Relationship between Knowledge and Household Waste Management in Alam Barajo District in 2021

District 2021								
Knowledge	Household Waste Management				Total		PR (95% CI)	P - Value
	Not		Good					
	Good							
	N	%	N	%	N	%		
Not Good	48	92,3	4	7,7	52	100,0	6,23	0,0005
Good	8	14,8	46	85,2	54	100,0	(3,27-11,86)	

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Total	56	52,8	50	47,2	106	100,0
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Based on the analysis between knowledge and household waste management, the proportion of poor household waste management is greater in poor knowledge (92.3%) compared to good knowledge (14.8%). From the results of the bivariate analysis, it was found that poor knowledge increased poor household waste management by 6.23 times (PR 6.23 and 95% CI 3.27-11.87) and significantly proven p-value 0.0005.

Relationship between Attitude and Household Waste Management in Alam Barajo District in 2021

Table 2 Relationship between Attitude and Household Waste Management in Alam Barajo District in 2021

Attitude	Household Waste Management				Total		PR (95% CI)	P - Value
	Not Good		Good					
	n	%	n	%	N	%		
Not Good	23	44,2	29	55,8	52	100,0	0,72 (0,49-1,05)	0,122
Good	33	61,1	21	38,9	54	100,0		
Total	56	52,8	50	47,2	106	100,0		

Based on the analysis between attitudes and household waste management, the proportion of good household waste management is greater in good attitudes (61.1%) compared to bad attitudes (44.2%). From the results of the bivariate analysis, it was found that poor attitude increased poor household waste management by 0.72 times (PR 0.72 and 95% CI 0.49-1.05) and significantly proven p-value 0.122.

Relationship between Community Leaders Support and Household Waste Management in Alam Barajo District in 2021

Table 3 Relationship between Community Leaders' Support and Household Waste Management in Alam Barajo Subdistrict in 2021

Community Leader Support	Household Waste Management				Total		PR (95% CI)	P - Value
	Noot		Good					
	n	%	N	%	N	%		
	There isn't any	6	42,9	8	57,1	14		
There is	50	54,3	42	45,7	92	100,0		
Total	56	52,8	50	47,2	106	100,0		

Based on the analysis between the support of community leaders and household waste management, the proportion of good household waste management is greater for those with support from community leaders (54.3%) compared to those without support from community leaders (42.9%). From the results of the bivariate analysis, it was found that if there was no support from community leaders, it increased poor household waste management by 0.78 times (PR 0.78 and 95% CI 0.41-1.48) and significantly proven p-value 0.607.

Relationship between Officer Support and Household Waste Management in Alam Barajo District in 2021

Table 5 Relationship between Officer Support and Household Waste Management in Alam Barajo District in 2021

Support Officer	Household Waste Management				Total		PR (95% CI)	P - Value
	Not Good		Good					
	N	%	N	%	N	%		
There isn't any	46	50,0	46	50,0	92	100,0	0,70 (0,474-1,033)	0,227
There is	10	71,4	4	28,6	14	100,0		
Total	56	52,8	50	47,2	106	100,0		

Based on the analysis between staff support and household waste management, the proportion of household waste management with staff support is greater for those without official support (71.4%) compared to those with staff support (50.0%). From the results of the bivariate analysis, it was found that the absence of support from officers increased poor household waste management by 0.70 times (PR 0.70 and 95% CI 0.47-1.03) and significantly proven p-value 0.227.

Discussion

Relationship between Knowledge and Household Waste Management in Alam Barajo District, Jambi City

From the results of the analysis, the P.Value value of $0.000 < 0.05$ means that there is a significant relationship between knowledge and household waste management in Alam Barajo District, Jambi City. So, public knowledge with household waste management with a PR value of 6.231 and 95% CI of 3.271-11.868, which means that respondents with low knowledge are 6.231 times more at risk of having poor household waste management compared to respondents with high knowledge.

In line with Suryati et al's research (2018) in Muara Opu Village, Batangtoru, South Tapanuli Regency, which obtained a p-value of $0.001 < 0.05$, it means that there is a significant relationship between the knowledge of housewives and the attitude of waste management in Muara Opu Batangtoru village, South Tapanuli Regency. Research conducted by Padmita (2019) on the relationship between the level of knowledge and the presence of trash bins with the actions of housewives in sorting waste where a p-value of $0.000 < 0.05$ means that there is a significant relationship between the level of knowledge and the actions of housewives in sorting waste.

The results of this study are not in line with Ahmad's research (2015) in the Bukit Permata Puri housing, Beringin sub-district, Ngaliyan sub-district, Semarang City, which obtained p value = $0.388 > 0.05$, meaning that there is no significant relationship between knowledge and household waste management in hill housing. Gem Puri, Banyan Village, Ngaliyan District, Semarang City.

Relationship between Attitude and Household Waste Management in Alam Barajo District, Jambi City

From the results of the analysis test, it was obtained that the P.Value value was $0.122 > 0.05$, meaning that there was no significant relationship between attitudes and household waste management in Alam Barajo District, Jambi City. So, the attitude of the community with household waste management with a PR value of 0.724 and 95% CI of 0.499-1.050 which means that respondents who have a bad attitude are 0.724 times more at risk of having poor household waste management than respondents who have a good attitude.

The results of this study are in line with Ahmad's research (2015) in the Bukit Permata Puri housing, Beringin sub-district, Ngaliyan sub-district, Semarang City, which obtained a p-value of $0.287 > 0.05$, meaning that there is no significant relationship between attitude and household management in Permata Puri housing village. banyan sub-district ngaliyan semarang. In line with Fara Marwa's research (2013) in the second environment of the Istiqlal sub-district, the sub-district of the city of Manado, where the p value of the statistical test results using the Chi-square test obtained a sig (p value) $> (0.05)$ which is 0.51 which is This means that there is no significant relationship between attitudes and household waste management actions in the II Istiqlal Sub-District, Authority District, Manado City.

In contrast to the research conducted by Syaipuddin (2016) in the working area of the Paccekang Public Health Center, Makassar, the obtained p value of $0.000 < 0.05$ means that there is a significant relationship between attitudes and handling household waste at the Paccekang Health Center Makassar.

Attitude can be interpreted as a form of one's opinion, or one's belief in a thing or object that is relatively unchanged. This attitude will underlie a person to act or respond/ behave in a certain way. A bad attitude can be caused by a lack of knowledge or information.

It is recommended that a plastic waste treatment be carried out by recycling (Recycle) in order to reduce the volume of plastic waste and increase economic value. Meanwhile, food waste can be recycled into compost.

The Relationship between Community Leaders and Household Waste Management in Alam Barajo District, Jambi City

From the results of the analysis, the P.Value value of $0.607 > 0.05$ means that there is no significant relationship between the support of community leaders and the management of household waste in the natural district of Barajo, Jambi City. So, the support of community leaders with household waste management with a PR value of 0.789 and 95% CI of 0.419-1.485, which means that respondents who do not have support from community leaders are 0.789 times more likely to have poor household waste management than respondents who have support from community leaders public.

The results of this study are in line with Darmawi's research (2013) on factors related to the actions of mothers in processing household waste in the Padang Timur sub-district of Padang City, which obtained a p-value of $0.073 > 0.05$, meaning that there is no significant relationship between support community leaders about waste management with the mother's actions in processing household waste in the Padang Timur sub-district, Padang City.

This study contradicts the research of Tansatrisna (2014) in Kunciran Indah Village, Pinang District, Tangerang City, where the p-value of $0.000 < 0.05$ means that there is a significant relationship between the support of community leaders in household waste management with the community's perception of household waste management.

This study also contradicts Ahmad's (2015) research on the factors that influence household waste management in the Bukit Permata Puri housing estate, Beringin sub-district, Ngaliyan district, Semarang city in 2015, which resulted in a p-value = $0.000 < 0.05$, which means that there is a significant relationship. There is a meaningful relationship between community leaders and household waste management in Bukit Permata Puri housing, Banyan Village, Ngaliyan District, Semarang City.

Community leaders should be able to become a place of information for the surrounding community, and be more active in inviting and providing information to the community for better waste management in order to reduce the total waste in the surrounding environment.

Relationship between Officer Support and Household Waste Management in Alam Barajo District, Jambi City

From the results of the analysis, the P.Value value of $0.227 > 0.05$ means that there is no significant relationship between the support of officers and household waste management in Alam Barajo District, Jambi City. So, the support of officers with the implementation of canteen sanitation hygiene with a PR value of 0.700 which means that respondents who do not receive support from officers are 0.700 times more at risk of having poor household management compared to respondents who have support from officers.

In line with the research conducted by Norfitria (2020) in the working area of the Kuin Raya Health Center Banjarmasin, where a p-value of $0.197 > 0.05$ was obtained, it means that there is a significant relationship between officer support and household waste management in the working area of the Banjarmasin Kuin Raya Public Health Center.

The results of this study are not in line with the research by Edison et al. (2019) in the Padang City sub-district, which obtained a p-value of $0.005 < 0.05$, meaning that there is a significant relationship between the role of health workers and community behavior in household waste management in Padang City in 2019

In addition, the results of this study also contradict the research of Darmawi (2013) on factors related to the actions of mothers in processing household waste in the Padang Timur sub-district of Padang City, which obtained a p-value = $0.044 < 0.05$. which means that there is a significant relationship between the support of officers regarding waste management and the actions of mothers in processing household waste in the Padang Timur sub-district, Padang City.

Based on interviews with respondents, it was found that most of the community did not receive visits from environmental health officers from the local health center because of the minimal workforce of health workers. While the number of ward in 1 Public health center working area is quite large so that the work of the officers does not run optimally.

Conclusions And Recommendations

Based on the results of the research that has been carried out, it can be concluded that respondents who have good knowledge are 54 people (50.9%), respondents who have good attitudes are 54 people (50.9%), respondents who have support from community leaders are 92 people (86.8%), Respondents who do not have support from officers are 92 people (86.8%), Respondents who have poor household waste management are 56 people (52.8%), There is a relationship between knowledge and waste management households in Alam Barajo District, Jambi City. (p-value = 0.000 < 0.05) and PR value = 6.231 and 95% CI (3.272 - 11.868), There is no relationship between attitude and household waste management in Alam Barajo District, Jambi City. (p-value = 0.122 > 0.05) and PR value = 0.724 and 95% CI (0.499 – 1.050), There is no relationship between the support of community leaders and household waste management in Alam Barajo District, Jambi City. (p-value = 0.607 > 0.05) and PR value = 0.789 and 95% CI (0.419 – 1.485), There is no relationship between staff support and household waste management in Alam Barajo District, Jambi City. (p-value = 0.227 > 0.05) and PR = 0.700 and 95% CI (0.474 – 1.033). It is hoped that the Jambi City Health Office will optimize the visitation time of officers in the context of environmental health inspections in the community at least once every 3 months in order to reduce waste generation in the Alam Barajo sub-district, Jambi City.

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