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***EFFECTIVENESS OF B3 WASTE MANAGEMENT OF
CORONAVIRUS DISEASE 2019 (COVID-19) SELF-QUARANTINE***

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Abstract

Patients who self-quarantine were carried out to break the chain from the spread of the COVID-19 virus, but a new problem arose: solid medical B3 waste originating from these patients. If this B3 medical waste is not managed properly, it can potentially transmit and be contaminated by infectious substances. Management of infectious waste from self-quarantine patients was minimal because most people did not know about it, and there was a lack of infrastructure from the government. Therefore the researchers were interested in researching the management of B3 waste, substantial B3 waste, from people who carried out Covid-19 self-quarantine. This study aimed to determine the community's effectiveness in managing solid medical B3 waste from COVID-19 self-quarantine activities. Using the snowball sampling method and cross-sectional design, the results showed that there was a significant relationship between Attitude (P Value = 0.000), Knowledge (P value = 0.006), Age (P Value = 0.019), Gender (P value = 0.000), Occupation (P value = 0.000) and Education (P value = 0.04) on community behavior in managing B3 medical waste during the Covid-19 self-quarantine period. Management of Solid B3 Medical Waste from self-quarantine has not been effective since its application is still low, and local drop boxes were not available as temporary shelters for B3 waste.

Keywords: Covid19; B3 Waste; Self-Quarantine

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INTRODUCTION

At the end of 2019, patients were found to be treated with symptoms of Acute Respiratory Distress Syndrome (ARDS). Until early 2020, this case experienced a rapid increase, within one month the disease had spread to various provinces of China and even worldwide. The research carried out explains the type of etiology of the new coronavirus. Then WHO announced that the name of the disease was corona virus (COVID-19) caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (Webster *et al.*, 2020; Susilo *et al.*, 2020).

Based on the Decree of the Minister of Health No. HK.01.07/Menkes/537/2020 states that solid medical B3 waste (Hazardous and Toxic Materials) is material or leftover goods from medical activities that cannot be reused, due to its infectious nature (Putri, 2020; William, 2021). The solid medical B3 waste from patients in self-quarantine activities includes patient food and drink containers, Personal Protective Equipment, leftover masks, gloves, medicines, used infusion sets, etc. Based on the results of a survey of researchers in the field, knowledge, attitudes, and behavior of the middle and lower class people were still very low in managing B3 waste, especially the waste of self-quarantined patients. This method of waste management must be sorted first,

separated from domestic waste and then sanitized or given a disinfectant (Chaerani *et al.*, 2020; Suprpto *et al.*, 2021).

One of the causes of public ignorance in managing this waste was due to the minimum educational facilities, socialization and facilities and infrastructure such as drop boxes which must be provided by the government of each region, both RT to RW. To protect the community and break the chain of the spread of Covid-19, it is necessary to carry out the effective waste management by applying the principles of clean and healthy living (Budhiati, 2011). Providing education, counselling and providing community facilities and infrastructure to dispose of the remaining self-quarantine waste collected into special drop boxes, then special officers who pick up the waste to be immediately destroyed. This study aimed to find out how effective the community is in managing medical B3 waste from Covid-19 self-quarantine activities. Knowing the provision of solid B3 medical waste management facilities at home or self-quarantine/isolation facilities in handling COVID-19.

MATERIALS AND METHODS

This study was conducted using the snowball sampling method which was carried out by interviewing patients who were and who had been in self-isolation,

with a total sample of 143 respondents. The interview was conducted with the aim of seeing the level of effectiveness of solid B3 medical waste management from community isolation or self-quarantine activities in handling COVID-19. Statistical analysis used in this study using the chi square test, namely this study was made to explain the relationship between attitudes, knowledge and behavior of people undergoing isolation/self-quarantine at home in B3 waste management, especially solid waste such as masks, PPE, syringes, gauze, tissue, cotton, diapers, sanitary napkins, infusion devices, rapid tools etc. The variables used in this study were Independent (attitude, knowledge, gender, age, education and occupation) and Dependent (Behavior).

RESULTS AND DISCUSSION

Handling solid B3 medical waste from isolation or self-quarantine activities needs to be a concern from both the government and the public. Appropriate management is needed so that new mediums of corona virus transmission do not arise in preventing long-term impacts on environmental sustainability. Based on the results obtained from the chi square test results that there was a significant relationship between attitudes and behavior of the community in the

management of B3 medical waste (P-Value 0.000 <0.05). Management of B3 medical waste in the community required an integrated step and all components in the community were expected to be involved. However, it is not in line with the results obtained, indicated by the prevalence ratio of the attitudes of people who did not manage waste during self-quarantine 4, 063 times compared to the attitude of the people who manage it again. Based on the research, knowledge can be an impetus for someone to do something. As many as 61.1% of the community's behavior in implementing the 3Rs and having good knowledge in sorting solid B3 medical waste during the COVID-19 self-quarantine period, with a value (p-value 0.006 < 0.05).

Cases of transmission of the corona virus do regardless of age factor, based on (Budianto *et al.*, 2015; Honingsbaum, 2020). The results of the study stated that the ages who were susceptible to Covid-19 were 20-29 and 30-39. It is in line with the results of the study which showed that age >25 years with a percentage of 52.8% influenced people's behavior in managing solid B3 waste during self-quarantine with (p-value 0.019 < 0.05) with a prevalence ratio value of 1.624 which indicated that age over 25 years have better behavior in efforts to manage solid B3 waste compared to those under 25 years of age.

There is a significant relationship between gender and community behavior in B3 waste management during self-quarantine with (p-value 0.000 <0.05) with a prevalence ratio value of 3.012 which indicates that the female sex has good behavior in managing solid B3 waste during self-quarantine compared to other types of male genital.

There is a significant relationship between type of work and behavior in B3 waste management, namely p-value 0.000

<0.05 with a prevalence ratio of 3.182 which indicates that non-student work affects 3.182 times more than the students.

There was a significant relationship between someone's education field and someone's behavior in society. Especially in managing solid B3 waste during the COVID-19 self-quarantine with a p-value of 0.04 < 0.05 and a Prevalence Ratio value of 0.611 which indicates that higher education was more influential than low education with a percentage of 69%.

Table 1. Results of Analysis of the Relationship Between Attitude, Knowledge, Age, Education, Occupation and Gender on Community Behavior in B3 Medical Waste Management during Covid-19 Self Quarantine

Independent Variable	Behavior				Value	PR (95% CI)	
	n	Bad %	n	Well %			
Attitude	Bad attitude	50	78.1 %	14	21.9%	0.000	4.063 (2,532 - 6,519)
	Good attitude	15	19.2%	63	80.8%		
Knowledge	Bad Knowledge	23	67.6%	11	32.4%	0.006	1,739 (1,249 - 2,423)
	Good Knowledge	42	38.9%	66	61.1%		
Age	Old	44	55.0%	36	45.0%	0.019	1,624 (1,088 - 2,423)
	Young	21	33.9%	41	66.1%		
Gender	Woman	52	64.20%	29	35.80%	0.000	3.012 (1.088-5.011)
	Male	13	21.30%	48	78.70%		
Work	NON Student	47	73.40%	17	26.60%	0.000	3.182 (2,068-4,898)
	Student	18	23.10%	60	76.90%		
Education	Low	14	31.80%	30	68.20%	0.040	0.611 (0.381-0.981)
	Tall	51	52.00%	47	48.00%		

Solid B3 waste generated during self-quarantine includes masks, Personal Protective Equipment (PPE), syringes, used rapid devices, tissue, gauze, cotton, plastic food wrappers, infusion devices, etc. Infectious waste management is needed, especially on a household scale, because the waste produced can be a source of disease. The study on the management of solid B3 medical waste resulting from self-quarantine was carried out as an effort to strengthen the pillars of community-based sanitation (Axmalia & Sinanto, 2021;

Laelasari, 2021). The effectiveness of the waste management of self-quarantine patients is still relatively low due to various factors ranging from legal products, infrastructure facilities so that there is a need for urgency from the government to commit to managing infectious waste (Purwanto *et al.*, 2020).

One of the components that support the health aspect is between a person's behavior and attitude in living a healthy life .

Table 2 Percentage of Attitude, Knowledge, Age, Gender, Education and Occupational Variables on Community Behavior in Solid Hazardous Waste Management During Covid-19 Self Quarantine

	Variable	Frequency (N)	Percentage (%)
Attitude	Good attitude	66	54.9
	Bad attitude	78	45.1
	Total	100	100
Knowledge	Good Knowledge	34	76.1
	Bad Knowledge	108	23.9
	Total	100	100
Behavior	Good Behavior	65	54.2
	Bad attitude	77	45.8
	Total	100	100
Age	Old	75	52.8
	Young	67	47.2
	Total	100	100
Gender	Male	61	43.0
	Woman	81	57.0
	Total	100	100
Work	Student	78	45.1
	Non-Student	64	54.9
	Total	100	100
Education	higher education	98	69.0
	Low education	44	31.0
	Total	100	100

In this study, a positive attitude was shown by 54.9% in solid B3 waste management. It means that the attitudes will determine behavior, although sometimes attitudes do not reflect a behaviour. The existence of an element of experience that was originally inconsistent with what is known by the individual will be arranged, rearranged or changed in such a way that it is closely related to the decision to be taken to fulfill a choice so that consistency is achieved (Christin *et al.*, 2021).

Based on the results of interviews with several respondents who have undergone Covid-19 self-quarantine, they stated that there were several obstacles faced when managing COVID-19 B3 waste including difficulty in sorting, lack of good governance, lack of education to the public, lack of coordination between the community and the government, management facilities and infrastructure were not yet available, such as the availability of local drop boxes in each region so that there was a lot of waste trapped in the environment.

The community applies the 3Rs and had good knowledge in sorting solid B3 medical waste during the COVID-19 self-quarantine period, with a value (p-value $0.006 < 0.05$). From these results it can be

concluded that the level of public knowledge in the management of solid B3 medical waste is high, but at the time of its application it is still relatively low. This is in line with study by (Juwono & Diyanah, 2021) stated that public knowledge was high in sorting organic and inorganic waste during the pandemic but in the application of waste management it was still relatively low. The difficulty of sorting household B3 medical waste was also common, people did not sort and did not dispose of B3 medical waste in accordance with procedures but were combined with other household waste.

The purpose of sorting and managing Covid-19 infectious waste from patients who carried out self-quarantine was to break the chain of transmission for families and the surrounding community (Abdi & Mirzaei, 2020).

The method for managing the waste of Covid-19 self-quarantine patients was divided into confirmed patients without symptoms and patients with mild symptoms or even no symptoms (carrier) (Beato *et al.*, 2021).

Based on (Honingsbaum, 2020) corona virus transmission cases did not consider the age factor, most of the positive patients in Jakarta come from the productive age group, namely from the age

of 20-29 and 30-39 being the second age range with the most positive cases. It is in line with the results obtained that age > 25 years with a percentage of 52.8% affects people's behavior in managing solid B3 waste during self-quarantine with (p-value $0.019 < 0.05$). The pattern of implementing clean and healthy living was a form of behavior based on awareness as a form of learning so that individuals can help themselves and the surrounding environment to live clean and healthy (PHBS). Increasing a person's age is usually accompanied by changes in behavior.

Wati & Ridho, (2020) stated in the results of his study that an individual's behavior was influenced by the knowledge and attitudes of the individual. The higher the individual's knowledge, the better the behavior will be. Likewise, his knowledge plays a role in changing his mindset.

The results of this study was proven that higher education with 69% has good behavior in solid B3 waste management compared to people with low education only 31%.

Stated in his study that there was a significant relationship between a person's education in waste management behavior, but it did not eliminate the need for support from the government in providing collection facilities and infrastructure (Beni *et al.*, 2014; Wiltshire, 2016).

Education is one of the important factors in social life (Budiarthi, 2011). If education is associated with the level of knowledge, the higher a person's education, the easier that person's ability to absorb information should be. Thus it can be concluded that the higher the level of knowledge a person can easily receive information and is expected to play an active role in applying it to the environment.

People who are still poorly educated, usually the mindset, knowledge and behavior of these people are difficult to receive information. The government is expected to be able to socialize, provide education and even counseling related to the management of B3 waste for these self-quarantined patients. The community is more aware and is expected to behave better in managing the environment.

In this study, the work was categorized into 2, namely students and non-students. In non-student work, the results of the research distribution were dominated by lecturers with a percentage of 54.9%.

This level of medical B3 waste management from self-quarantined patients was still difficult to implement in the community, in addition to infrastructure or drop boxes that were not yet available. Punishment applied by the

government was often ignored by the public. Since it is considered weak in its application. Therefore in general, respondents felt they did not care about the program being pursued by the government.

CONCLUSION

There is a significant relationship between the variables of attitude, knowledge, behavior, education, age, gender, occupation on B3 waste management from Covid-19 self-quarantine activities. However, in its daily implementation, it was still classified as ineffective because there was still no supporting infrastructure, government policies that required the public to manage Covid-19 B3 medical waste.

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