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Analysis of Public Awareness of the Infectious Waste Treatment (Jebres, Surakarta)

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ABSTRACT. In the time of pandemic Covid-19, the needs of the supplies Health is getting increased. Infectious waste is a hazardous and toxic waste that is associated with the disease is contagious and it requires special management. The research is carried out in Jebres, Surakarta aims to determine the awareness of the community Jebres related to the infectious household waste in the covid-19 pandemic and discuss ways of handling infectious household waste. Descriptive survey has done through the deployment of the questionnaire and the processing of the data by qualitative method. The results of the research showed that people Jebres are aware of the existence of infectious waste and its impact, but still less availability of places specially in the location as well as the lack of socialization that lead to the management of waste that is applied by the community less optimal.

Keywords: Covid-19, infectious waste treatment, infectious waste management, pandemic.

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1. Introduction

Corona Virus Disease 2019 (COVID-19) is a large family of viruses that cause illness from mild to severe, such as the common cold or the flu and serious diseases such as MERS and SARS (Livana et al., 2020). Transmission of covid-19 can occur from animal to human (Zoonotic). Transmission can also occur from human to human. However, until the moment of transmission of Covid-19 is still unknown for sure. Many opinions expressed transmitted from animals to humans because there are a lot of cases appeared in Wuhan (Juaningsih et al., 2020). In Indonesia, corona virus found began to spread in early March 2020 and while this has been found to 4.25 million positive cases with the death of as many as 144 thousand.

Corona Virus is spread through droplets of fluid a positive person when coughing or sneezing and corona virus can survive up to 9 days on surfaces (Lin et al., 2020). Therefore, the government recommends to anyone who is coughing and suffering from the disease influenza to use a mask, the goal is to limit the splash of a droplet of concerned. The presence of the mandatory use of masks by all of society, will certainly be followed by the waste of masks that will be generated. Although most of the public to use cloth masks, but there is still a lot of also using a disposable mask. Not to mention the use of disposable gloves. If the problem is the garbage mask and gloves used this, it will produce new problems, namely domestic waste but it still has potential as infectious waste.

Infectious waste itself is a waste associated with patients of infectious diseases that require insulation, such as Covid-19. These wastes require special management because it can be a source of spread in health care workers, and the surrounding community. In addition, it can also cause environmental pollution. One of negligence related to infectious waste that is in Jebres that where there is the case of waste disposal thousands of syringe in Jebres. Jebres itself is 1 of the 5 district that is located in the Municipality of Surakarta, where the density of population ranks second after Banjarsari, with a fairly high population density that is 138,264 soul. What's more, in the Jebres there are a lot of students or students from outside the city are settled. So, the possibilities for the number of infectious waste is great.

On the adaptation of this new habit, personal hygiene and the cleanliness of the environment becomes the main focus of the entire people of Indonesia to minimize transmission of the virus. Waste management is good and right is one of the efforts to maintain the cleanliness of the environment (Juwono and Diyanah, 2021). The government through the ministry of health has actually been issuing guidelines on the management of the waste of masks from the public. But in the application there are still many people who do not know how to waste management this mask in the household scale (Jonah and Sustenance, 2020). So, this research aims to determine the awareness of the community Jebres related to the infectious household waste in the pandemic covid-19 and discuss ways of handling infectious household waste.

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2. Materials and Methods

This research was conducted in November 2021 in Jebres, Surakarta City, Central Java, with the purpose to determine the public awareness Jebres related to the infectious household waste in the covid-19 pandemic and discuss ways of handling infectious household waste. This type of research is survey research is descriptive, with a qualitative research method. Methods descriptive survey is a method of research which takes a sample from a population and the means of collecting data using questionnaires. The distributed questionnaire in this study contains the knowledge, attitude, and community action Jebres related infectious household waste in order to obtain primary data by random sampling technique. The samples used were as many as 30 samples with the criteria of the community aged seventeen (17) years old and it is the people who live in Jebres. Whereas, the secondary data obtained from various literature supporting either the journal or the book.

Test the questionnaire in this study using the Guttman Scale. Guttman scale is a scale used to get an unequivocal answer of the respondents, where there are only two answer choices or two intervals of good agree-disagree, yes-no, true-false, positive and negative, never-never, and other. Questions used in the scale of research is in the form of multiple choice and check list, with answers agree has the highest score that one and the answers do not agree to have the lowest score, i.e. zero (Yulia and Setianingsih, 2020).

3. Results and Discussion

During a pandemic, infectious waste increased both in facilities health and in home appliances. On the figure obtained results of the questionnaire that 86,7% or 26 respondents know what it infectious waste. From all respondents who had ever experienced Covid-19, only one of the respondents who do not/have not understood what is infectious waste, where respondents do not perform the insulation when suffering from Covid-19.

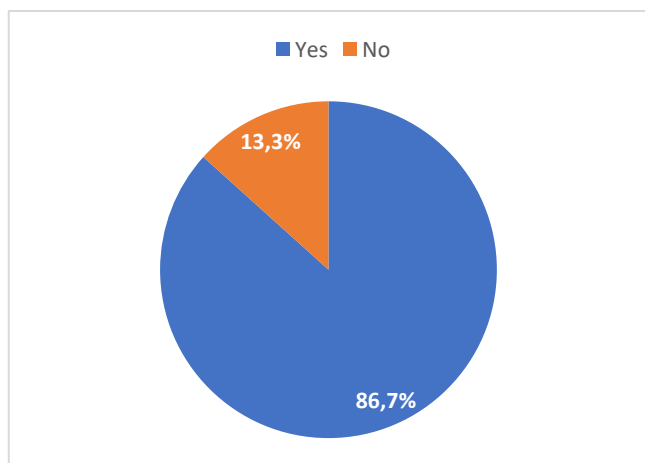


Fig.1 Knowledge of the Community about Waste Infectious

Waste material harmful toxic is waste that is generated from activities and or businesses that use of the harmful and toxic material. Whereas, infectious waste is the waste that has been contaminated with the organism pathogens that are not in routine in the environment and the organism is in the amount of certain so dangerous and can transmit the disease,

especially in humans are vulnerable. Based on the Letter of the Circular of the Ministry of Environment to Live and Forestry No. SE.3/MENLHK/PSLB3/PLB.3/3/2021, hazardous and toxic waste, which many found in the pandemic Covid-19, this has the characteristics of infectious with the waste A337-1 includes the mask of the former, dress medical used once to wear (hazmat), glove hand medical used (handscoen), protective headwear, protective shoes, protective eyewear, protective face (face shield), syringe needle waste, leftover food, sewage another is exposed to the liquid body, as well as the waste products of the pharmaceutical or drug expiration and the rest of the drug consumption.

3.1 The Impact of Waste Infectious

There are several types of infectious waste that used in the questionnaire study is namely like a medical mask, cloth gauze, cotton swab, tissue, protective tool (APD), hand glove (latex), sanitary napkins, diapers, and infusion. From the Figure 2 shows the types of waste infectious which is often used by the community Jebres that obtained with the filling of the questionnaire of 30 respondents. Type of waste infectious that most widely used by the respondents is the mask.

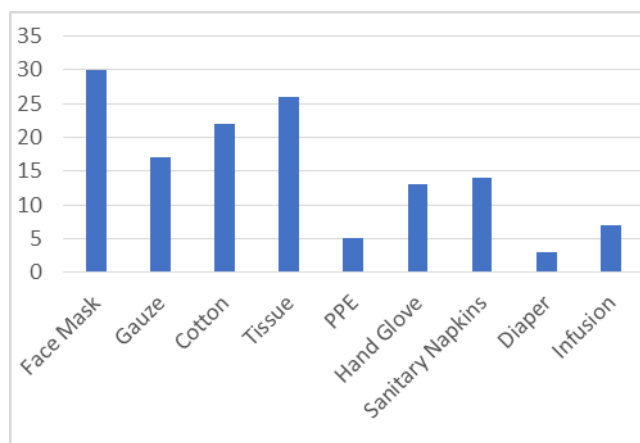


Fig.2 Type of Infectious Waste

All respondents stated that they use the masks. Then followed with the use of tissue as much as 26 respondents, cotton as much as 22 respondents, cloth gauze as much as 17 respondents, sanitary pads as much as 14 respondents, latex hand gloves as much as 13 respondents, the infusion of as much as 7 respondents, APD as much as 5 respondents, and diapers with 3 respondents and is a waste infectious with the use of the most little. Infectious waste that usually contain harmful chemical material and contain pathogens can caused an infection (bacteria and viruses), so that if not managed either can cause the impact of dangerous against the life creatures and the environment. In addition to that according to the Ameridya et al (2021) waste generation waste of masks are often used by the community will pollute and damage the environment. According to Ilyas et al. (2020) in Axmalia and Simanto (2021), that which contribute to major in increased infectious waste consists of equipment protective of self, the mask of the former, and gloves hand used to contribute to a major in the increase in the amount of infectious waste so if you do not get the management and handling that right then it can cause the spread of disease deadly as the virus that infected the waste of such a role as a vector Corona A viral Disease that can last up to 7 days.

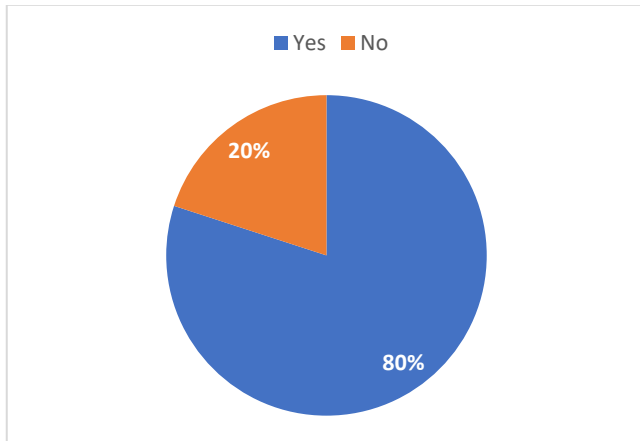


Fig.3 Knowledge about the Impact of Waste Infectious

Based on the results of the questionnaire are shown in the Figure 3. be aware that the majority of respondents or as much as 80% determine the impact of waste infectious if not managed with good. Respondents who understand the impact of infectious waste generally represents the respondents who know about the infectious waste. However, the majority of the respondents that have not yet manage infectious waste carefully. Infectious waste that are not carefully managed and really have a impact that is vulnerable to the environment and life creatures, especially humans. Infectious waste especially in the pandemic while this, if not done management with the right fit the procedure can cause transmission of disease infection and also extend the eye the chain of the spread of the virus Covid-19 (Nugraha, 2020). The increase in the use of the goods which includes infectious waste in the Pandemic of Covid-19 now this really have an impact on waste generation infectious waste, especially the increased use of the number of masks medical once made that is used by the society then it is not managed and just dumped directly whereas the mask medical hard destroyed and harmful if disposed of carelessly. Increase the amount of solid waste mask medical due to the presence of the advice of the WHO and the government to use the mask for all the people who are healthy and ill in the beginning of the month April 2020, so the use of masks during a pandemic when it has already become a habit for all of society. Infectious waste that don't get the handling specialized in disposal can bring risks to health caused by bacteria and viruses that are carried away in the garbage mask that. The ingredients that are contained in the infectious household waste have characteristics that can have an impact on disorders of the safety and health of humans, as well as the environment (Iswanto et al., 2016). The transport of waste home appliances if in it there is a infectious waste then the potential exposure hazard from the infectious waste also can lead to the transmission of the disease in the community about the place of disposal, officer garbage, waste collectors, gatherers, beneficiaries and perpetrators of recycling re - garbage household infectious waste. The impact that can occur on the officers of the covering of the wound due to scratched, red eyes, dry skin, many organisms' pathogens which appear in the hazardous and toxic waste, as well as infections that are transmitted through the subcutaneous tissue can cause ingress agents cause disease from infection of virus in the blood (Rachmawati and Sulistyorini, 2018). Waste APD household that are classified as infectious if not disposed of in a place special and not managed then it will pose a risk of transmission of the virus on the members of the family of the other, the

community around, and the officer of hygiene because of the waste of PPE should be handled in accordance with standard management processing waste of medical facilities (Laelasari, 2021). Disposal of infectious household waste - like the used mask, used syringe needle, cloth gauze, used hand gloves, diapers, bandages, infusion, cotton, tissue, and other also can be the material of pollutants to soil and water if just hoarded and did not do the management. The presence of piles of infectious waste that are exposed to rain, then the viruses and bacteria that exist can be carried over the entrance to the land and water bodies that lead to the occurrence of pollution of land and water to be the source of the consumption society so transmit disease and can affect the condition of the ecosystem in it, so in the disposal of waste infectious supposed to be infected and managed the first was somewhere special. This is in accordance with the statement according to the Hesty (2020), that the environment is a factor key in the spread of the corona virus, where the increase in the amount of infectious waste that are not carefully managed then the impact would be vicious against the life creatures and causing the environment to be polluted.

3.2. The Ordinances of the Processing Infectious Household Waste

Based on the results of research that looks at the Figure 4 and 5. As for the way people dispose of waste infectious divided into three ways, namely to make the waste into one (infectious waste and non-infectious) as of 63.3% of the respondents, infectious waste separated based on the types of as much as 10% of respondents, and infectious waste accommodated in a place that is different and is given the label as much as the 26.7% of the respondents. Of the questions earlier, be aware that the respondents are not contained socialization in the region is almost entirely dispose of the waste infectious not with the way that right, namely to make the waste into one (infectious waste and non-infectious). In addition to that, based on the Figure 5, obtained the result that the total of 56.7% of the respondents dispose of waste infectious causes them to perform health protocol. Most of them are not doing the health protocol when disposing of infectious waste is they who throw waste with the right way.

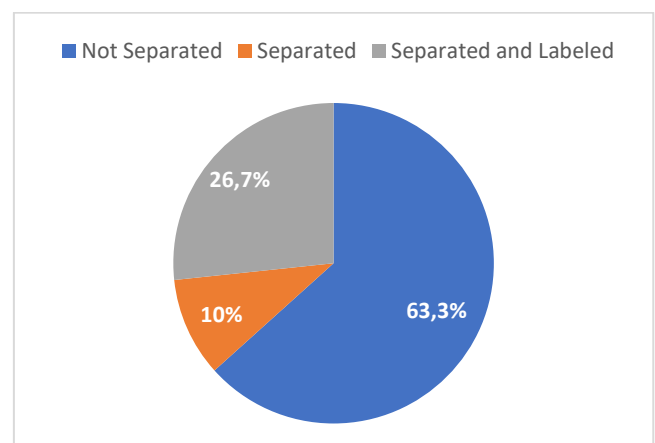


Fig.4 How to Dispose of Waste Infectious

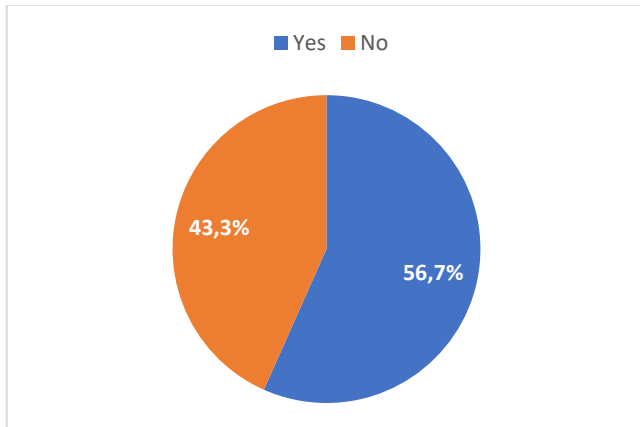


Fig.5 Protocol in the Dispose of Waste Infectious

The management of infectious waste, especially infectious household waste have to be very considered. Because of the nature of the waste that carry bacteria or viral infection that can give transmission to the person to establish contact directly with that waste. Infectious waste which is produced from the house is set on the policy Letter of MenLHK No. SE.2/MENLHK/PSLB3.3/3/2020 about the Management of Infectious waste (hazardous and toxic waste) and domestic garbage from the Handling of the Corona Virus Disease (Covid-19). The management of infectious waste in particular covid 19 which is sourced from a place of isolation/quarantine self like a hotel, and this is managed by the owner or the manager/partner service health. Infectious household waste can be managed with safely by people with how to reduce and sort the waste is in the house before being transported by officers to place the management of the waste Place of Reuse-Reduce-Recycle Waste Management (TPS3R) or the Place of Last Processing (TPA). It this is the layout of how the management of waste infectious house stairs if not, there are People In the Monitoring (ODP) and Patients In the Surveillance (PDP). While if on the contrary, the waste must be separated into in the place of the garbage that is closed and has been coated plastic and it is located rather far from the place of sleep ODP and PDP. Plastic junk that used colored yellow, but if the thin use copies of the two and closed the meeting if already for a maximum of 2 days once or when already filled about three quarters of the inner plastic. Every place trash given label or sign. Before handed over to the officer hygiene special, waste infectious house stairs that must be sprayed with disinfectant. Then, after handling garbage is make sure your hands clean is back with a wash it off using soap.

3.3 The Management of Infectious Waste

In managing infectious waste, especially the waste of the infectious covid-19 the government and institutions facilities health as officer of health centers, institutions of the apparatus of the village, covid 19 officer and the unit of the neighbourhood should do a cooperation with the taking notes of the citizens with the status of the ODP or PDP. The cooperation of the government that can be done in the management of infectious waste is to provide a place of disposal special to waste infectious. According To The Ministry Of Health Of The Republic Of Indonesia (2020), to prevent the onset of the impact of infectious waste supposed to be before it is discharged to a place of waste should be through the process of selection of the first advance of garbage other than performed treatment first before thrown to the garbage that is

the same with the trash domestic. From the results of the research have been obtained answers of the respondents like the image x at the bottom of this that as much as 93,3% or as much as 28 respondents stated that as yet there are areas the disposal of special waste infectious in around them.

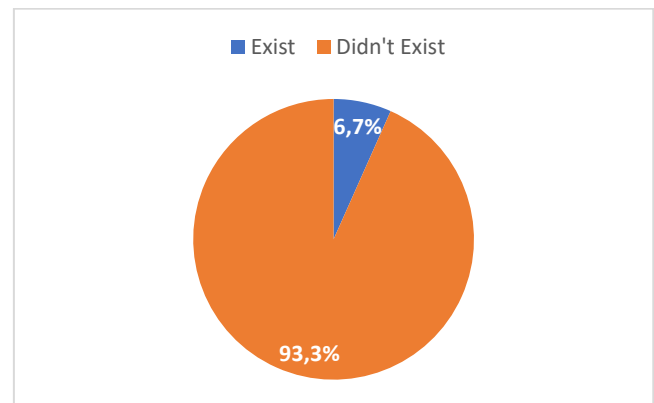


Fig.6 Special Disposal Site for Infectious Waste

The family with the status of the ODP or PDP should do the management of the two trash that the household trash and also the infectious waste. The management is done by the separation of the two types of garbage in the bag which is different with the given label.

For it is made the granting of the question for how the respondents or the community when disposing of waste infectious house stairs. By providing three options the options on the questionnaire as make the waste into the better it is infectious and non - infectious, infectious separated based on type, the waste infectious accommodated in a place that is different and is given a label. Then the obtained results that the way people dispose of infectious to make the waste into one (infectious waste and non-infectious) as of 63.3% of the respondents, waste infectious separated based on the types of as much as 10% of respondents, and infectious waste accommodated in a place that is different and is given the label as much as the 26.7% of the respondents. Of the questions earlier, be aware that the respondents are not contained socialization in the region is almost entirely dispose of the infectious waste not with the way that right, namely to make the waste into one (infectious waste and non-infectious).

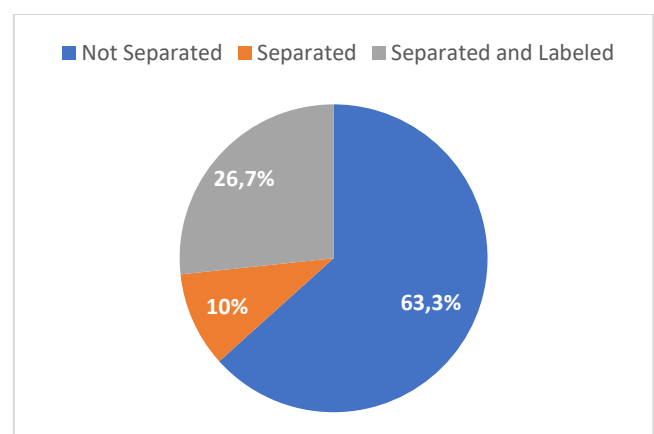


Fig.7 How to Dispose of Waste Infectious

After the disposal of the waste is infectious from the home in accordance with the Letter of MenLHK No.

SE.3/MENLHK/PSLB3/PLB.3/3/2021 officer who served using special PPE uniform and will collect bags of infectious garbage that has given a sign to carry to the place of processing of hazardous and toxic waste. At the stage of collection of waste can be transported by truck vehicle special, which has a bulkhead separator, transported by officers especially by the hospital officer, or hazardous and toxic waste can be placed in the dropbox.

To find out there is whether or not the officer who is responsible in terms of the transport of waste infectious in Jebres carried out the analysis of the answers of the respondents to exist whether or not the officer infectious. Then obtained the answers of the respondents that as much as 83.3% or as much as 25 respondents from 30 states that there are officers of hygiene that is devoted to infectious waste in the area place of residence. Things this could be just based on because of not availability of the place of disposal of infectious.

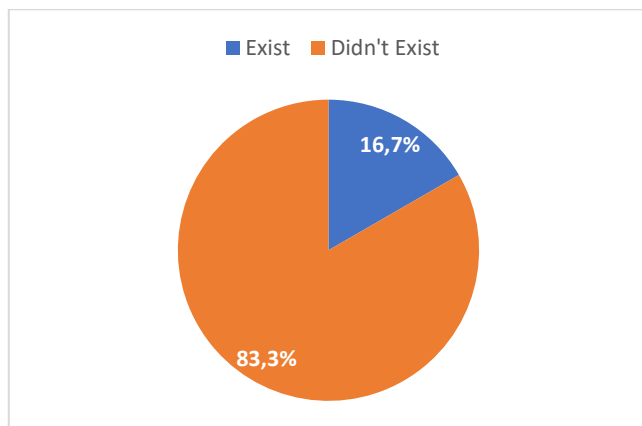


Fig.8 Officer Hygiene Waste Infectious

3.4 Effort In Supporting The Sustainability Of Handling Infectious Household Waste

In improving the sustainability of handling infectious household waste need to include the role of government and work together of the community for more careful with the dangers of infectious waste if the waste is infectious not well managed. The role of the government of the area in terms of this is to provide education for the citizens or the community around in the manage infectious household waste with careful so infectious waste can't be thea source of transmission to other people. To find out whether there is a socialization of the way the management of infectious household waste by officials who are responsible, then given to respondents for a question such. Then from 30 respondents obtained the answers as much As 83.3% of respondents or as many as 25 people answered that they do not ever get the socialization about the management of infectious waste, and 5 of them never get the socialization of the management of infectious waste.

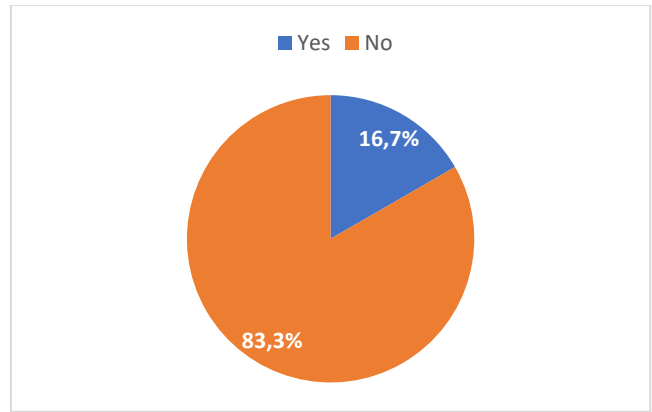


Fig.9 The Socialization of The Management of Waste

Village officials and officers of the environment and health also should work together with the community in managing the infectious household waste. Because of society also is a producer of waste that is infectious which also can be harmful for the health of others as well as self - own if not managed with good. On the questionnaire is given questions about the readiness of the community to implement the management of infectious waste for to help dismiss the spread of covid 19 and the impact of pollution on environment. Then the obtained results from the 30 respondents 29 people of the respondents stated to be ready in applying management infectious household waste and 1 other is not yet ready to implement the management of infectious household waste.

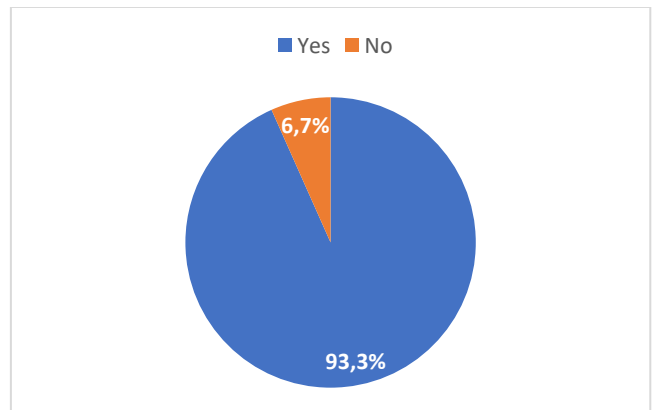


Fig.10 The Readiness of the Community to Implement the Management of Infectious Waste

Conclusion

From the research that can be concluded that the community of Jebres already know and conscious of the existence of infectious household waste that can have an impact on the environment and the creatures living around. However, in the management of the community still hasn't well applied. This is due to the lack of socialization and the provision of a particular spot in the location around.

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