



APPLICATION OF THE 5R METHOD IN WASTE MANAGEMENT ON JL. STARBAN, MEDAN POLONIA

Meutia Nanda *, Elvina, Riri Anggraini, Agil Maritho Lauchan, Sumiarti Purba

Department of Public Health Science, Faculty of Public Health

Universitas Islam Negeri Sumatera Utara

Jl. Lap. Golf No.120, Kp. Tengah, Kec. Pancur Batu, Kabupaten Deli Serdang, Sumatera Utara 20353,
Indonesia

Email: meutiananda@uinsu.ac.id

Abstract

Garbage is one of the problems that occurs in the city of Medan. Based on 2021 National Waste Management Information System (SIPSN) statistics, Medan City produces up to 2000 tons of waste per day, of which only around 30 tons can be processed, thereby increasing the burden on the environment. This data shows that the amount of waste produced has exceeded the daily projection in Medan City of 1,326.37 tons. Handling the remaining waste at the Final Processing Site (TPA) also adds to the complexity of this waste problem. The 5R waste management technique is an alternative waste management approach that involves community involvement. Objective: To find out the application of the 5R method in waste management on Jl. Starban, Medan Polonia. Method: Using a combination of practice and counseling, this research is descriptive qualitative in nature. The Accidental Sample approach was used in this research. This research was attended by 30 housewives as research subjects. Observations, surveys, and documentation are used to collect data. Research Results: It was found that before conducting counseling and joint practice with the community of Jl. Starban, Medan Polonia, the level of public knowledge is only 25%. After counseling and joint practice, the community has high self-awareness regarding waste management using the 5R method. This is proven by the results of the final questionnaire measuring the level of knowledge which reached 100% from 30 respondents. Suggestion: The community can participate in dealing with waste problems through waste management using the 5R method.

Keywords: 5R, Waste management, Waste, Plastic waste.

Introduction

Waste is waste that can be recycled into something useful from a product or item that is no longer used. The waste problem stems from the fact that the volume of waste increases annually by two to four percent, but the supporting infrastructure is still inadequate to meet technical standards. In addition, human awareness is an important factor in waste management. (Yuliwati & Sri Yusmartini, 2022.)

Based on the achievements of the Ministry of Environment and Forestry (KLHK), data entry was carried out in 169 districts / cities throughout Indonesia in 2023, namely there was a waste generation of 19,517,172.98 tons / year, there was a waste reduction of 16.69% or 3,258,383.14 tons/year, waste handling 50.12% or 9,782,308.12 tons/year, managed waste 66.82% or 13,040,691.26 tons/year, and unmanaged waste 33.18% or 6,476,481.72 tons/year. North Sumatra in 2023 recorded the amount of waste generated by the community reached 1,289.16 tons per day and 470,543.97 tons per year.

In 2022 Medan City produced 1,722.60 tons/day and 628,749.22 tons/year. Based on data from the Environmental Agency, the waste generated by Medan Polonia Sub-district in 2021 is 41,941 tons/year.

The Central Bureau of Statistics (BPS) reported that there were 20,128 people living in Polonia Sub-district in 2022, while Medan Polonia Sub-district had a population of 61,820 people as of December 2021 according to statistics from the Population and Civil Registration Office of Medan City. Year after year, the population increases, thus increasing the need for food and clothing for daily survival, and consequently, the amount of waste generated.

Participation in household and community waste management, including reduction efforts (such as collection, reuse, and recycling) and waste handling (such as sorting, collection, transportation, processing, and treatment), is outlined in Law No. 18/2008 on Waste Management).

Principles such as 3-R, 4-R, or 5-R can be applied in waste management. The 3-R concept includes Reduce, Reuse, and Recycle, while the 4-R also includes Replace at the source. The 5-R principle adds Replant to the previous four principles. The implementation of 4-R waste handling is vital for the efficiency and effectiveness of municipal waste management, with the hope of reducing waste management costs. (Cahyono & Budi, 2021).

Starban is a residential area located in the middle of Medan city center, precisely in Medan Polonia Sub-district. The area of Medan Polonia Sub-district reaches 9.01 km² with a total population of 61,820 people. From the initial survey conducted, the majority of Starban residents work as scavengers. Every afternoon, the front yards of residents' houses are filled with used goods collected throughout the day, and mothers and their children are busy sorting through the used goods. Apart from being scavengers, some also work as becak drivers. While the father pulls the becak, the mother and children go off to do the scavenging.

From initial observations, Polonia sub-district only has one containerized waste disposal site located on Jalan Mangku Bumi, as well as two arm roll waste disposal sites, located at Elizabet Hospital and Suwondo Air Force Base, respectively. The landfill continues to manage waste without applying the 5R approach. The objective of this research is to manage waste on Jl. Starban in Medan Polonia by applying the 5Rs technique.

Method

Outreach and collaborative practice are the two methodologies used in this descriptive qualitative research. The purpose of this socialization is to spread knowledge and awareness about the dangers of waste on Jl. Starban in Medan Polonia. Using the Accidental Sampling approach, samples that were found accidentally by the researcher and worthy of being used as a source of data and research context were sampled. Thirty housewives were used as the research sample.

Observation, survey, and documentation were the methods used in data collection. The researcher who followed the questionnaire instructions was the research instrument. To implement the 5R method (Reduce, Reuse, Recycle, Replace, Replant), the researcher initially gave a pre-test questionnaire to the community. After socialization, the community was given a post-test questionnaire to evaluate their knowledge of the concept and also to assess their awareness in waste management. Subsequently, content analysis was conducted and presented in narrative form.

Research Results

This joint practice is in the form of guidance by conducting counseling and practice of making crafts to the Starban community in order to have the skills to process waste into useful goods and overcome the low awareness of the community to be responsible for dealing with the waste problem. Socialization activities and community mutual cooperation practices are broken down into several categories, especially in the Starban Medan Polonia environment:

1. Preparing the location of the group exercise, as well as the participants and activity plan, was part of the preparation stage of this activity. Beginning with observation, obtaining approval from the neighborhood leader, and group practice, the preparation stage began. The state of equipment and supplies needed to facilitate the cooperative practice and socialization activities must also be taken into account during the planning stage. In addition, we have also prepared equipment that will be used for the skills training, including glue, materials from used plastic bottles, scissors, knives, used cartons, stationery, chokes, plain and patterned foam sheets, and others. Finally, the implementation team decided where and how the collaborative practice activities would be carried out.
2. Working together with the implementers to come up with materials for socialization exercises and group practice is the second level of coordination. Implementing members administered a pretest questionnaire at the beginning of the activity before starting the socialization activities. Furthermore, a socialization exercise was conducted before the skills training began. The purpose of this activity was to provide participants with a broad understanding of waste, its types, its impact on the environment, and how to recognize symbols on plastic bottles. Before proceeding to the skills training, the implementing members distributed posttest questionnaires to measure participants' understanding of the topic through joint exercises. This was followed by hands-on activities including the creation of craft skills from leftover plastic bottles. To facilitate this cooperative practice activity, the team showed the women a movie illustrating the steps of making handicrafts (jars and pencil cases) so that the community could easily obtain the necessary practical equipment. Instead of just practicing watching the video provided, participants could exercise their creativity by incorporating other aspects.

Based on the results of the questionnaire, it can be seen that there are 4 respondents or equal to (13.33%) of mothers who already know the definition of 5Rs, then there are 4 respondents (13.33%) who already know the benefits of 5Rs, then there are 10 respondents (33.33%) who know how to process eligible waste, then there are 6 respondents (20%) of mothers who have received joint practice regarding good waste management. then there are 14 respondents (46.67%) who know how to process waste, Then there were 14 respondents (46.67%) from mothers who stated that it was important to understand the 5R processing to overcome the waste problem, and finally there were 12 respondents (40%) who agreed with doing joint practice of managing waste with the 5R method which was useful for improving community skills.

After the socialization and joint practice, we again distributed posttest questionnaires to measure the level of knowledge of mothers regarding waste management using the 5R method. It can be seen that there are 30 respondents or equal to 100% of the mothers who already know the definition and benefits of 5R, how to process eligible waste, and understand 5R processing to overcome waste problems. All respondents agree and have received joint practice regarding good waste management and are useful for improving community skills.

3. The third stage of the socialization exercise and group exercise. Presentations were used to deliver the socialization event. Speakers conveyed information through talks, debates, and question and answer sessions. The prepared topic of each presentation slide is connected with each content issued. Carrying out cooperative practice tasks after the socialization exercise will

increase its efficacy. We used an organized teaching approach to carry out this cooperative exercise. The project aimed to reach thirty residents of Medan Polonia neighborhood on Jl. Starban. The products of this plastic waste processing activity are 15 pencil boxes and 15 jars with different foam paper lids. After transforming the plastic bottles into functional crafts, the group assessed the products.

4. The fourth stage is to assess what has been done. The findings of this evaluation support the idea that the best way to address the waste problem is through a community-based practice program that focuses on optimizing waste management and upskilling the Starban community to be more creative in managing waste through the approach of "Application of 5R method in waste management in Jl. Starban, Medan Polonia".

One of the actions that can be taken to overcome this is to reduce the amount of waste that must be disposed of. In addition, recycling waste is a solution that deserves attention in order to maximize the economic value that still exists in waste. The Indonesian government has long been dedicated to integrating active community involvement in the implementation of waste recycling as part of waste management. The 5Rs idea can be applied in both social and residential environments. The cornerstone of waste management from the source is the 5R concept, which is a guideline of actions that aims to reduce the amount of waste that is eventually disposed of in landfills.

Conclusion

The results of the joint counseling and practice activities carried out at Jl. Starban, Medan Polonia provide solutions to the community about waste management through the 5R method in order to improve skills for the community. The solutions that have been implemented include:

1. Increasing community awareness through providing material through counseling about waste management and providing knowledge about the 5R method to improve community skills through waste.
2. Providing new technical skills in recycling waste and producing plastic-based handicrafts.

Providing evaluation to the community in order to increase the concern of community members in Jl. Starban, Medan Polonia in handling waste problems and make the Starban community more creative in managing was

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