Journal of Community Service and Society Empowerment
E-ISSN 3021-7512 P-ISSN 3021-7504
Volume 2 Issue 01, January 2024, Pp. 19-26
DOI: https://doi.org/10.59653/jcsse.v2i01.374

Waste Management Education for Preventing Infectious Diseases among Coastal Community in Watu Ulo Beach, Jember

Citra Anggun Kinanthi[1], Adistha Eka Noveyani[2]*, Tri Damayanti Simanjuntak[3]
Department of Epidemiology, Faculty of Public Health, Universitas Jember, Indonesia | citraanggun@unej.ac.id[1]
Department of Epidemiology, Faculty of Public Health, Universitas Jember, Indonesia | adistha.en@unej.ac.id[2]
Department of Epidemiology, Faculty of Public Health, Universitas Jember, Indonesia | tri.simanjuntak@unej.ac.id[3]
Correspondence Author*

Abstract

Issues related to waste do not only occur in urban environments. Coastal areas are also not free from issues related to waste. Not only rubbish from the local community but rubbish from tourists also contributes to the large amount of trash in coastal areas. Waste that is not appropriately managed in the environment can be a source of disease. For this reason, it is necessary to increase public knowledge regarding waste processing to prevent the emergence of disease. Apart from that, the public is educated regarding the disease's symptoms and how to treat it. This community service activity occurred in Watu Ulo, Sumberejo Village, Ambulu SubDistrict, Jember Regency. The training was attended by 23 participants who were coastal youth. The results obtained were based on gender; the majority are male, and based on the occupation, the majority are fishermen, and the knowledge of respondents increased after counselling. Conclusion From this training, there has been increased respondents' knowledge through education about waste management socialization.

Keywords: *waste, infectious diseases, coastal community*

Abstrak

Isu terkait dengan sampah, tidak hanya terjadi pada lingkungan perkotaan saja. Wilayah pesisir juha tidak luput dari isu terkait dengan sampah. Bukan hanya sampah dari masyarakat sekitar, sampah dari wisatawan juga turut menyumbang banyaknya sampah di wilayah pantai. Sampah yang tidak dikelola dengan baik di lingkungan dapat menjadi sumber penyakit. Untuk itu perlunya peningkatan pengetahuan masyarakat terkait dengan pengolahan sampah sebagai upaya pencehagan timbulnya penyakit. Selain itu masyarakat diedukasi terkiat dengan gejala timbulnya penyakit dan juga cara pengatasinya. Kegiatan pengabdian kepada masyarakat ini dilakukan di Dusun Watu Ulo, Desa Sumberejo, Kecamatan Ambulu, Kabuaten Jember. Kegiatan diikuti oleh 50 peserta yang merupakan pemuda pesisir. Hasil yang diperoleh, berdasarkan jenis kelamin mayoritas pria, berdasarkan pekerjaan mayoritas adalah nelayan,

hasil edukasi diperoleh pengetahuan responden mengalami peningkatan. Kesimpulan dari kegiatan ini, telah terjadi peningkatan pengetahuan responden melalui edukasi berupa penyuluhan manajemen sampah.

Kata kunci: sampah, penyakit infeksi, masyarakat pesisir

Introduction

Indonesia is one of the largest archipelagic countries in the world, with the longest coastline reaching 99,093km. Indonesia consists of 17,508 small islands scattered to form a beautiful mosaic in the Archipelago Sea. Indonesia's geographic region is located between the continents of Asia and Australia, as well as the Indian and Pacific Oceans (Sukandar et al., 2016). Indonesia has around 8,090 coastal villages across 300 coastal districts/cities (Gurning et al., 2021). East Java Province has a sea area almost four times the size of its land area, with a coastline of approximately 3,498 kilometers and 446 minor islands (Balai Pengelolaan Sumberdaya Pesisir dan Laut Denpasar, 2018). On the southern side of East Java, eight coastal districts directly border the Indian Ocean and have relatively the same character. A total of 142 coastal villages are neatly lined up to guard the coastline of the southern side of East Java, 943,901 km long (Sukandar et al., 2016)

Coasts and oceans and their abundant marine biological resources, such as fish, seaweed, mangroves, coral reefs, and other aquatic biota, are future food sources that must be developed. Apart from that, it can also become a tourist area that positively impacts economic growth and increases people's welfare so that criminal acts can be minimized (Sholeha & Puspitasari, 2022). Apart from the positive impact on the economy, on the other hand, coastal areas also have issues related to environmental problems, namely regarding waste originating from human activities, waste products from households, tourists, and those carried by rivers that lead to the sea. As much as 10% of land-based waste is thrown into the sea and is dominated by plastic waste, which decomposes for a long time, causing air, water, and soil pollution (Patuwo et al., 2020; Risa & Mapparimeng, 2023; Yuliadi et al., 2017).

Jember Regency has 31 sub-districts, six of which are coastal. The number of coastal villages in these six sub-districts (Kencong, Gumukmas, Puger, Wuluhan Ambulu and Tempurejo) is 11 villages, one of which is Sumberejo Village, where Watu Ulo is located (Sukandar et al., 2016). The preliminary study results in Watu Ulo show that the current problems are related to waste. Garbage is thrown carelessly both in the home environment and in coastal areas. The type of rubbish most frequently complained about is livestock dung, namely cows, plastic waste, broken liquor bottles and several other types of garbage dumped on the beach. Besides throwing rubbish on the beach, many people defecate on the coast. These activities will undoubtedly impact environmental pollution and health problems for the surrounding community.

Waste in the environment that is not managed correctly can cause health problems in the community. Piles of unmanaged rubbish will rot and become breeding grounds for disease

vectors, such as cockroaches, rats, flies, and mosquitoes (Mubarak et al., 2021; Windraswara & Prihastuti, 2017). According to Adi (2005), diseases that can arise from developing this vector include diarrhea, dysentery, worms, malaria, elephantiasis, and dengue fever (Mubarak et al., 2021). WHO revealed that as many as 24% of global diseases (diarrhea, Lower Respiratory Tract infections, various types of non-intense wounds, and malaria) are caused by all kinds of preventable environmental factors, and more than 13 million deaths every year are also caused by poor environmental factors or contaminated (Axmalia & Mulasari, 2020).

This community service activity aimed to provide education about diseases caused by waste in Watu Ulo, Jember. The targets of this activity are residents of Watu Ulo, Sumberejo Village, Ambulu District, Jember Regency.

Method

Education is carried out by providing material through lectures to coastal community respondents. The counselling will be held on Saturday, October 14th, 2022. Community Service Activities start at 09.00 until 12.00 WIB. This activity was attended by 23 participants consisting of coastal youths. The stages of implementing Community Service include:

1. Preliminary study: before the initial study, the Community Service team (lecturers and students) conducts a literature study. After obtaining the primary data, we conducted a preliminary survey by visiting the Head of Sumberejo Village and the Head of Watu Ulo to convey our objectives. In this discussion, we also explored data related to health problems that often occur in the area and risk factors that might lead to health problems.
2. Conduct socialization on implementing activities to the target Community Service and to several community leaders in the target area of the activity.
3. Preparation for activities, conceptualizing the event, compiling materials, and preparing facilities and infrastructure for activities.
4. Implementation of the activity, starting with filling in the attendance list, opening the activity starting with a speech from the hamlet head, carrying out a pre-test, providing material about types of waste, sources, impacts of garbage, waste processing, and diseases that may result from the presence of waste in the area. Environment. At the end of the material, respondents were allowed to ask questions. The activity ends with a post-test.

We used Epi Info to analyze the result of pre-test and post-test.

Result and Discussion

Community service activities were conducted at the Watu Ulo Hall, Sumberejo Village, Ambulu SubDistrict, Jember Regency on Saturday, October 14th, 2022. This activity was attended by 23 youth groups from coastal communities and housewives. Apart from that, several community figures, including the Village Secretary, participated in this activity.

Figure 1. Waste management education to prevent infectious diseases

The distribution of participants based on gender and occupation is shown in Figures 2 and 3.

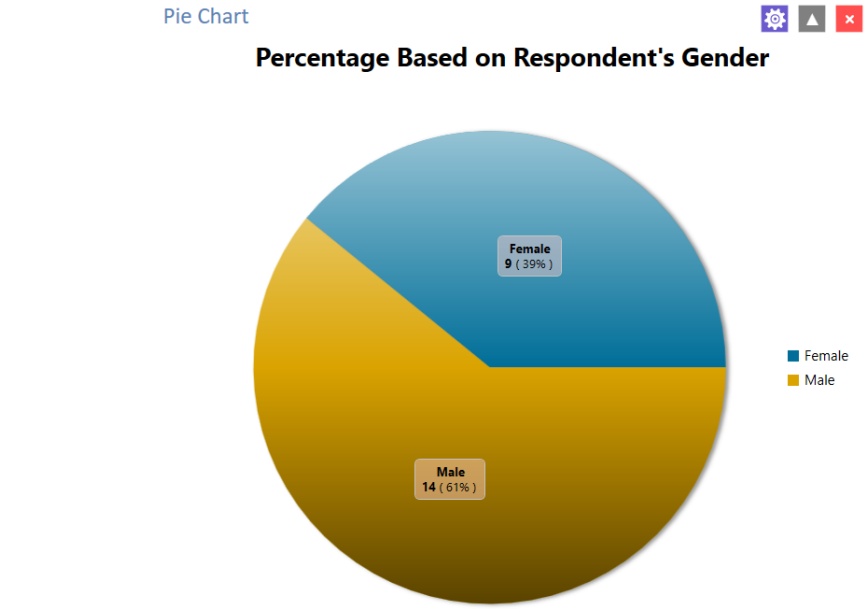

Figure 2. Percentage Based on Respondent's Gender

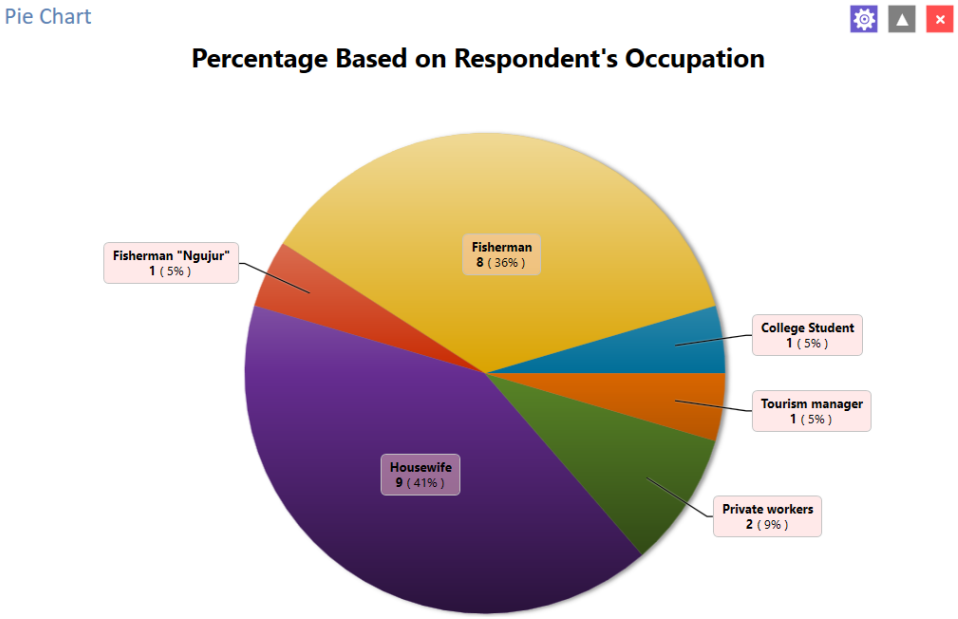

Figure 3. Percentage Based on Respondent's Occupation

Based on job distribution, most respondents work as fishermen. Fishermen are the main job for coastal communities, although it is not the only job. Apart from being fishermen, the community also manages their own and other people's livestock.

The education results provided through lectures were obtained through pre-tests and post-tests. Education is provided regarding the impact of waste on the occurrence of disease. This activity was carried out to increase public knowledge of the dangers of illness that could arise from exposure to environmental garbage. Apart from the types of diseases that may occur, the public is also educated on proper waste processing. The results obtained are shown in Figure 4 as follows.

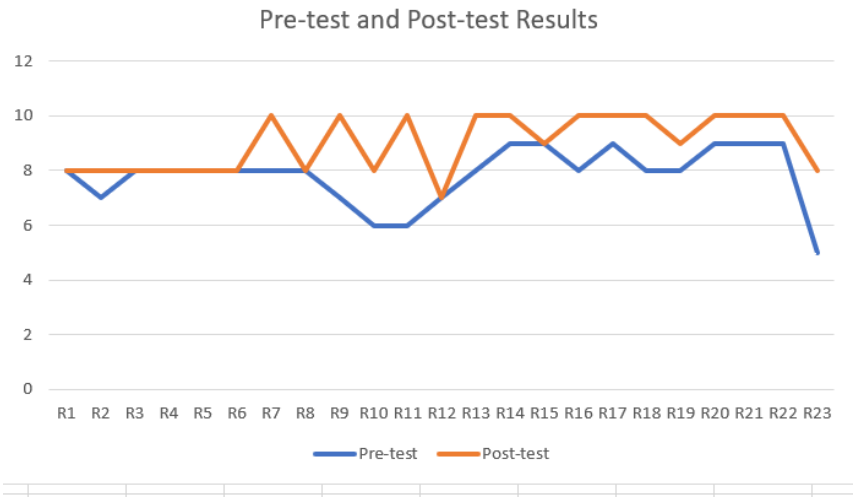

Figure 4. Pre-test and Post-test Results

Waste can be a severe problem in coastal communities that impacts public health. Coastal areas are places where rubbish often accumulates, either from river estuaries or from local communities who deliberately dump it on the coast. Waste not managed correctly can become a breeding ground for disease-causing agents. As previous research results state, poor waste management is essential in providing shelter for rodents, which mainly spread leptospirosis. Rotting organic waste will attract animals, pests, and flies, which transmit fecal-oral diseases, leptospirosis, and salmonellosis (Prabhusaran et al., 2015; Zurbrügg, 2003). Biological factors from household waste can enter the body through the respiratory tract, digestive system, and skin and cause infectious diseases. Investigation and evaluation of the pathogenic potential of household solid waste and bacteriological analysis of the air near the waste are necessary because street households can survive for several days, and improper management has a detrimental effect on human health (Aurelia & Oneț, 2012; Ferronato et al., 2017).

Uncleared trash increases the risk of leptospirosis due to the introduction of rats, mice, etc., which spread the disease. In India, due to declining waste disposal performance, the epidemic of deaths due to leptospirosis and other infectious diseases associated with human waste is increasing (Prabhusaran et al., 2015). This can increase the risk of infectious diseases such as dengue fever, malaria, leptospirosis, etc. The morbidity rates most frequently reported are infectious diarrheal diseases and vector-borne diseases (Balato et al., 2013).

The counselling participants consisted of female cadres and coastal youth. With participants' ages ranging from 20 to 49 years and the majority being men, this shows the diversity of the target group participating in the counselling. Who needs to be given an understanding of the importance of good waste management. The pre-test results show that coastal communities do not yet have knowledge and awareness about the negative impact of waste on their health. They do not realize improper waste disposal can cause infectious diseases for themselves and their neighbours.

Additionally, some coastal communities may have traditional lifestyles and habits contributing to waste management problems. Based on the results of discussions with Payangan coastal residents, they stated that they had been accustomed to throwing rubbish on the seashore since their ancestors. So, household waste management does not yet exist and is not well coordinated. However, the post-test results showed a significant increase in participants' knowledge after the counselling. The average score increased in the post-test. This indicates that education positively improved participants' understanding of the relationship between waste and infectious diseases.

Education is essential in increasing public awareness regarding the negative impact of waste on health. Participants can better identify potential risks associated with trash and infectious diseases. They can also understand the steps that need to be taken to reduce these risks (Saseanu et al., 2019). Coastal communities have a crucial role in protecting their environment. With increased understanding through counselling, participants can play an active role in keeping their beaches and homes clean and managing waste better. Community involvement in waste management and understanding its impact on health can help create more environmentally conscious communities responsible for dealing with waste problems. Education regarding the impact of waste on infectious diseases must be an integral part of public health programs in coastal areas. Because coastal communities also have limited access to adequate health care. Therefore, prevention through education about the impact of waste on infectious diseases is crucial. Apart from public health, this education is also important in environmental conservation efforts. By understanding the harmful effects of waste, coastal communities can care more about the cleanliness and sustainability of their environment.

In addition, coastal communities often depend heavily on marine and water resources for their livelihoods. Pollution from waste can damage these resources, which in turn can affect food security and the economic well-being of society. For further activities, it is best to carry out regular and continuous outreach to ensure public understanding and awareness are maintained; encourage active community participation in waste management programs; collaborate with government agencies and Community Non-Governmental Organizations (NGOs) to improve waste management infrastructure in coastal areas; involving coastal youth in waste management and environmental conservation efforts.

Conclusion

Education regarding the impact of waste on the occurrence of infectious diseases in coastal communities has a positive effect on participants' knowledge and awareness. This

emphasizes the importance of education to overcome health problems caused by poor waste management. With increased knowledge, it is hoped that coastal communities can play an active role in maintaining the cleanliness of their environment and reducing the risk of infectious diseases caused by waste. The results of the counselling carried out have increased respondents' knowledge, as seen from the pre-test and post-test results. This shows that the aim of providing counselling to respondents has been achieved.

References

Aurelia, O., & Oneț, C. (2012). Research on Evaluation of Pathogen Potential of Household Solid Waste. *Fascicula Protecţia Mediului*, *XIX*.

Axmalia, A., & Mulasari, S. A. (2020). Dampak Tempat Pembuangan Akhir Sampah (TPA) Terhadap Gangguan Kesehatan Masyarakat. *Jurnal Kesehatan Komunitas*, *6*(2), 171–176. https://doi.org/10.25311/keskom.vol6.iss2.536

Balai Pengelolaan Sumberdaya Pesisir dan Laut Denpasar. (2018). *Jawa Timur Siap Mengelola Sumberdaya Pesisir dan Pulau-Pulau Kecil*.

Balato, N., Megna, M., Napolitano, M., & Patruno, C. (2013). Garbage and skin diseases related risk. In *Occupational and Environmental Medicine* (Vol. 70, Issue 3, p. 212). https://doi.org/10.1136/oemed-2012-101215

Ferronato, N., Torretta, V., Ragazzi, M., & Rada, E. C. (2017). WASTE MISMANAGEMENT IN DEVELOPING COUNTRIES: A CASE STUDY OF ENVIRONMENTAL CONTAMINATION. *U.P.B. Sci. Bull., Series D*, *79*(3).

Gurning, F. P., Aidha, Z., & Nanda, M. (2021). *Masalah Kesehatan Masyarakat Pesisir*. Merdeka Kreasi Group.

Mubarak, M., Sari, N. P., Sinaga, J., Rini, I. A., Tanjung, R., Ashar, Y. K., Munthe, S. A., Lourrinx, E., Nasution, N. H., Simamora, J. P., NNPS, R. I. N., Jastam, M. S., & Argaheni, N. B. (2021). *Pengantar Kesehatan Lingkungan*. Yayasan Kita Menulis.

Patuwo, N. C., Pelle, W. E. P. E., Manengkey, H. W. K., Schaduw, J. N. W., Manembu, I., & Ngangi, E. L. A. (2020). Karakteristik Sampah Laut Di Pantai Tumpaan Desa Tateli Dua Kecamatan Mandolang Kabupaten Minahasa. *Jurnal Pesisir Dan Laut Tropis*, *8*(1), 70. https://doi.org/10.35800/jplt.8.1.2020.27493

Prabhusaran, N., Natarajaseenivasan, K., & Innocent, J. P. (2015). Poor Garbage Management: A Major Source of Emergence of Leptospirosis and Other Infectious Diseases. *Ewemen Journal of Epidemiology & Clinical Medicine* , *1*(1), 1–6.

Risa, N. E. W., & Mapparimeng. (2023). *Pengelolaan Sampah Pesisir Berbasis Masyarakat (Studi Kasus : Masyarakat Pesisir Di Desa Lamurukung) (Community Based Coastal Waste Management (Case Study: Coastal Communities in Desa Lamurukung)*. *3*(April), 49–56.

Saseanu, A. S., Gogonea, R. M., Ghita, S. I., & Zaharia, R. Ş. (2019). The Impact of Education and Residential Environment on Long-Term Waste Management Behavior in The Context of Sustainability. *Sustainability (Switzerland)*, *11*(14). https://doi.org/10.3390/su11143775

Sholeha, J., & Puspitasari, N. E. (2022). *DAMPAK POSITIF OBJEK WISATA PANTAI KERANG MAS TERHADAP SOSIAL EKONOMI MASYARAKAT*. *32*.

Sukandar, Harsindhi, C. J., Handayani, M., Dewi, C. S. U., Maulana, A. W., Supriyadi, & Bahroni, A. (2016). Profil Desa Pesisir Provinsi Jawa Timur Volume 2 (Selatan Jawa Timur). *Bidang Kelautan, Pesisir, Dan Pengawasan Dinas Perikanan Dan Kelautan Provinsi Jawa Timur*, *2*, 99.

Windraswara, R., & Prihastuti, D. A. B. (2017). Analisis Potensi Reduksi Sampah Rumah Tangga Untuk Peningkatan Kualitas Kesehatan Lingkungan. *Unnes Journal of Public Health*, *6*(2), 123. https://doi.org/10.15294/ujph.v6i2.15360

Yuliadi, L. P. S., Nurruhwati, I., & Astuty, S. (2017). Optimalisasi pengelolaan sampah pesisir untuk mendukung kebersihan lingkungan dalam upaya mengurangi sampah plastik dan penyelamatan Pantai Pangandaran. *Jurnal Pengabdian Kepada Masyarakat*, *1*(1), 14–18.

Zurbrügg, C. (2003). Urban Solid Waste Management in Low-Income Countries of Asia How to Cope with the Garbage Crisis. *Scientific Committee on Problems of the Environment (SCOPE) Urban Solid Waste Management Review Session*, 1–13. http://www.worldbank.org/data/databytopic/class.htm