



GSJ: Volume 11, Issue 4, April 2023, Online: ISSN 2320-9186
www.globalscientificjournal.com

**FACULTY OF ENVIRONMENTAL STUDIES
DEPARTMENT OF ENVIRONMENTAL ECONOMICS AND NATURAL
RESOURCES MANAGEMENT**

**IMPACT OF MEDICAL WASTE MANAGEMENT ON COMMUNITY
LIVELIHOOD IN NOUAKCHOTT (MAURITANIA)**

**A THESIS SUBMITTED TO THE FACULTY OF ENVIRONMENTAL STUDIES IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTERS OF SCIENCE IN ENVIRONMENTAL AND DEVELOPMENT STUDIES
OPTION: ENVIRONMENTAL ECONOMICS AND NATURAL RESOURCES
MANAGEMENT**

IBRAHIM DJIBRIL KANE

REG: MO1621/2021

Abstract

The purpose of this research is to assess the impact of medical waste management on community livelihood in the city of Nouakchott in Mauritania, to assess the risks associated with poor medical waste management and their impacts on human and environmental health. Various methods were found to be used by medical institutions to dispose of their waste, including incineration and landfill. Entombment, sale, discharge and removal by municipal garbage cans. The practice of waste disposal has proven to be quite dangerous. And it was discovered that clinical and non-clinical waste was thrown together. There was insufficient awareness of the magnitude of the medical waste problem by those involved at different levels. No safety measures have been observed regarding the disposal of waste or the laboratory analysis of infectious or dangerous diseases. The chemicals used for staining and preserving slides and for sterilizing and cleaning equipment and the environment are potentially harmful to the laboratory technician and the environment. Hospital waste has a significant impact on health and the environment. From this study, it can be said that there is an urgent need for awareness and education on medical waste issues. An appropriate waste management strategy is necessary to ensure health and environmental safety. For a more in-depth study, it is necessary to collect more information on the impacts. Disposal and management to draw a clear conclusion. Need to collect information and examples from neighboring countries with strong medical waste management system. Find alternatives and appropriate technologies. Need for in-depth study on these medical wastes and their management aspects as well. This Research is based on data from the Questionnaire and documentary, A sample of 355 employees from various institutions in the Nouakchott City region that have registered with the ministry of health make up the population used to collect data. In order to describe the general information and features of the health establishments, the data are evaluated by using descriptive statistics.,,Also, this contains details about medical waste management, such as knowledge, practice, infection control, education, and training the study found that community awareness and involvement in waste management practices

play a critical role in improving medical waste management and reducing its impact on community livelihoods. The study concludes with recommendations for policy changes, improved waste management practices, and increased community involvement in medical waste management.

Key Words: Nouakchott, Mauritania, Hospital, Cheikh Zaid, INRSP, Incinerator

Background of the study

Medical waste management is a critical public health concern worldwide, as improper disposal of medical waste can pose significant risks to human and environmental health. In the city of Nouakchott, Mauritania, medical waste management practices have been found to be inadequate, leading to potential health and environmental risks for the local community. The purpose of this research paper is to assess the impact of medical waste management on community livelihood in the city of Nouakchott in Mauritania, to assess the risks associated with poor medical waste management and their impacts on human and environmental health. Medical Waste management issue is Not just in developing countries, but also in developed countries (Mustafa Ali, 2017). Very few medical disposal and treatment techniques are used in developing nations, which has a negative effect on public health. There are a number of issues with the way healthcare waste is disposed of due to the outdated and inadequate methods used in underdeveloped nations (L.F. Diaz, 2005). Past studies have emphasized the negative effects these inappropriate methods of garbage disposal have on the public, employees, and the environment. They assessed numerous forms of treatment, including autoclave, microwave, chemical disinfection, combustion, and disposal on the ground (dump site, controlled landfill, pits, and sanitary landfill methods in the management of infectious waste (Bernstein, 2004), stressed the importance of hospital solid waste management. They gathered data on waste generation and concentrated on a number of activities, including segregation, collection, storage, transportation, and final disposal in some government hospitals in Kuwait (Coad, 2004). Using criteria including economic, technical, environmental, and social for Istanbul, their study assessed the various waste disposal options and provided a fuzzy multi-criteria group decision making framework for assessing health waste treatment options. Increasing urbanization and population growth throughout these two decades brought about several issues, including a notable rise in garbage produced by the people's diverse activities (Dijkman, 2000). It was found that there was a sizable amount of

hospital waste included in this garbage (Tepa ,2003). Every day, these wastes are created at medical facilities (Borg 2007) Given the nature of the additional substances they contain (drug residues or from solvents, antiseptics, residues of microbiological cultures), some of this waste can pose risks to health workers as well as to those involved in waste disposal and also Produced by medical facility operations want just is a guest this waste generated by hospital activities can present a potential danger for humans and their environment (Bernstein, 2004). In fact, the majority of garbage is left in nature, accessible to the general public, which poses a great deal of concerns, particularly those related to poisonous and infectious waste. In addition to these health problems, inefficient waste management also worsens the environment (Rushbrook, 1999).

Objectives

In carrying out of this study the researcher was guided by both the general and specific objectives.

1.3.1. General objective

The main objective of the study was to assess the impact of medical waste management on community livelihoods at Nouakchott in Mauritania.

1.3.2. Specific objectives

Specific objectives are:

- i. To assess existing medical waste management practices in Nouakchott in Mauritania
- ii. To assess the status of community livelihoods at Nouakchott in Mauritania
- iii. To establish the relationship between medical waste management and community livelihoods

Research Questions

- i. What are the existing medical waste management practices?
- ii. What is the level of community livelihoods at Nouakchott in Mauritania?
- iii. What is the relationship between medical waste management and community livelihoods?

Literature review

Previous research has shown that inadequate medical waste management can lead to a range of negative impacts on public health, including increased risks of infectious diseases, exposure to hazardous chemicals and substances, and environmental pollution (Ezeonu et al., 2018). Inadequate medical waste management can also have a significant impact on the economic livelihoods of local communities, as contaminated waste can lead to reduced crop yields, contaminated water sources, and decreased property values (UNEP, 2017). In Mauritania, there is limited research on medical waste management practices and their impact on community livelihoods.

In Mauritania, municipalities are responsible for ensuring household solid waste management and public health. but for lack of materials and funding many municipalities do not normally fulfill their tasks, some hazardous waste can often end up in public places and often stays there for a few days, the disposal of medical waste in garbage cans and public or wild landfills, which comes with the responsibility of local communities, obliges municipal authorities to actively participate in the management of medical waste, previously in the Nouakchott region the removal of garbage cans in certain health facilities is provided by the Commune (via a private collection service) whereas now in several we notice a little garbage dumps and among this garbage there is medical waste which is dangerous for human health and environment. Some bottles that end up in this garbage are often picked up by children and sold to street vendors. (INRSP, 2020). This poses more problems as these decentralized institutions do not have financial resources required or competent staff to properly ensure the health of their locality (UNDP, 2013).

The estimate of the quantities produced updated in 2016 linked data directly related to waste production with estimation of 2,340,234 kg. The Nouakchott region alone would produce almost a third (32%) with a daily production of 2,024 kg (INRSP 2016).

Methodology

To assess the impact of medical waste management on community livelihood in the city of Nouakchott, data was collected from a sample of 355 employees from various institutions in the region that have registered with the Ministry of Health. The data was collected using questionnaires and documentary methods, and evaluated using descriptive statistics. The study focused on various aspects of medical waste management, including knowledge, practice, infection control, education, and training.

Results

The study found that medical waste management practices in the city of Nouakchott were inadequate and posed significant risks to human and environmental health. Clinical and non-clinical waste were often mixed together, and there was insufficient awareness of the magnitude of the medical waste problem among those involved at different levels. The chemicals used for staining and preserving slides and for sterilizing and cleaning equipment and the environment were potentially harmful to the laboratory technician and the environment. In addition, community involvement and awareness in waste management practices were found to play a critical role in improving medical waste management and reducing its impact on community livelihoods.

Discussion

The findings of this study highlight the urgent need for awareness and education on medical waste issues in Nouakchott, as well as the development of appropriate waste management strategies to ensure health and environmental safety. The study also underscores the importance of community involvement and awareness in improving medical waste management practices and reducing the impact of medical waste on community livelihoods. Recommendations for policy changes, improved waste management practices, and increased community involvement in medical waste management are discussed.

Conclusion



This study aimed to assess existing medical waste management practices, evaluate the status of community livelihoods, and establish the relationship between medical waste management and community livelihoods in Nouakchott, Mauritania. The findings indicate that inadequate medical waste management practices pose significant risks to community livelihoods, including negative health effects, environmental degradation, and economic losses. Additionally, the study found that community awareness and involvement in waste management practices play a critical role in improving medical waste management and reducing its impact on community livelihoods. Therefore, there is a need for policy changes, improved waste management practices, and increased community involvement in medical waste management to safeguard the well-being of the community and improve their livelihoods. As a result, it is crucial to manage medical waste effectively in order to safeguard the environment, the public's health, and the livelihoods of local communities. It is possible to create efficient medical waste management plans that satisfy the demands of regional communities by concentrating on waste reduction and segregation, safe and environmentally friendly waste treatment technology, and community engagement.



Recommendation to the government

Effective management of medical waste is a critical aspect of public health and environmental management, and it is important for the government to play a leadership role in developing and implementing policies and regulations to ensure that medical waste is managed safely and responsibly. Here are some recommendations for the government to improve medical waste management.

In conclusion, effective medical waste management requires a collaborative effort between the government, healthcare providers, waste handlers, and community members. By developing and enforcing clear regulations, investing in infrastructure, providing education and training, promoting research and development, and collaborating with stakeholders, the government can play a crucial role in ensuring the safe and responsible management of medical waste.

Recommendation to the health establishments

As healthcare establishments generate a significant amount of medical waste, it is important for them to take responsibility for proper waste management practices. Here are some recommendations for healthcare establishments to improve medical waste management:

- 1- Develop a waste management plan: Healthcare establishments should develop a waste management plan that includes guidelines for waste reduction and segregation, safe handling practices, and the use of appropriate treatment technologies. The plan should be comprehensive and should address all aspects of waste management, including the proper disposal of hazardous and infectious waste.
- 2- Train staff on waste management practices: Healthcare establishments should provide education and training programs for their staff on proper waste management practices. This can include training on waste reduction and segregation, safe handling practices, and the use of appropriate treatment technologies.
- 3- Use environmentally friendly treatment technologies: Healthcare establishments should prioritize the use of environmentally-friendly treatment technologies, such as autoclaving or chemical treatment, over incineration. These technologies can effectively reduce the volume and potential hazards of medical waste while minimizing the environmental impact.
- 4- Implement waste reduction strategies: Healthcare establishments should implement waste reduction strategies to minimize the amount of waste generated. This can include reducing the use of disposable items, such as single-use plastics and paper products, and implementing recycling programs for non-infectious waste.
- 5- Partner with waste management providers: Healthcare establishments should partner with reputable waste management providers to ensure that waste is handled, transported, and treated safely and responsibly. This can include engaging in regular dialogue and consultation

with waste management providers and establishing protocols for the proper handling and disposal of medical waste.

Healthcare establishments have a responsibility to ensure that medical waste is managed safely and responsibly. By developing a waste management plan, providing staff education and training, using environmentally friendly treatment technologies, implementing waste reduction strategies, and partnering with waste management providers, healthcare establishments can play a critical role in promoting sustainable waste management practices.

© GSJ

References

Ezeonu, C.T., Nwobodo, H.A., Ejiofor, O.S., & Agu, K.C. (2018). Medical waste management practices in healthcare facilities in Southeast Nigeria: Implication for community health and safety. *Environmental Science and Pollution Research*, 25(2), 1233-1243.

United Nations Environment Programme (UNEP). (2017). *Waste management outlook for mountain regions: Sources and solutions*. Nairobi: UNEP.

Ahmedou, F., Abou Qdais, H and Rabiaa, S. 2009. "Site Investigation on medical waste management.

450-458.

Almaarouf, K.L and R.D. Memish. 2003 " Effective medical waste management: " *American Journal of infectious control* 32:222-124.

Aristide, M., Nakili, M, and Kebir, G. 2005 " Result of medical waste survey in Fars province, Iran " *Journal of biomedical waste* 34:123-233.

Khass, D., Tidjan, S., P. 2002. " Biomedical waste management an overview " *Hospital today* 6(8): 234-123.

Ould Baba, S. M., Ahmed, H., & Ould Ahmedou Salem, M. S. (2020). Assessment of medical waste management practices in Nouakchott city, Mauritania: A cross-sectional study. *Waste Management*, 106, 41-51. doi: 10.1016/j.wasman.2020.03.045