



A STUDY ON LACK OF AWARENESS ON TYPES OF WASTE AND WASTE MANAGEMENT

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ABSTRACT

The inadequate management of waste and its increasing generation have emerged as critical global concerns, significantly impacting both environmental sustainability and public health. Despite ongoing efforts to advocate for proper waste management practices, there remains a substantial lack of awareness among the general populace regarding the various types of waste and the suitable methods for their disposal. This research seeks to delve into the levels of awareness and comprehension concerning waste categorization (including organic, recyclable, hazardous, and electronic waste) and the corresponding management practices across different demographic segments. The management of waste has assumed a pivotal role in light of escalating urbanization and population expansion. Despite the multitude of initiatives geared towards fostering effective waste management practices, a notable gap in public awareness persists, particularly with regards to the diverse types of waste and the appropriate disposal techniques. This study aims to probe the depth of public knowledge pertaining to waste categorization and management strategies. By employing a blend of surveys and interviews, data was gathered from a diverse demographic to evaluate their understanding and behaviors related to waste segregation and disposal. The results expose a widespread lack of awareness, with many participants struggling to accurately identify distinct types of waste or the correct methods for managing them. This deficiency in knowledge not only impedes the efficiency of existing waste management systems but also contributes to environmental deterioration. The study underscores the imperative need for comprehensive educational campaigns and policy interventions to bolster public comprehension and engagement in sustainable waste management practices. By bridging these knowledge gaps, communities can enhance their waste management capabilities, diminish environmental repercussions, and progress towards a more sustainable future.

KEYWORDS: Sustainability, Waste Segregation, Disposal methods and Environmental Degradation

INTRODUCTION

In its most basic form, waste is any material or substance that is thrown away or considered undesirable. It includes a broad variety of things, including hazardous materials, industrial byproducts, agricultural waste, and household trash. Waste can have a wide range of composition and properties and can be solid, liquid, or gaseous. The creation of waste is an unavoidable byproduct of human activity and results from various industrial processes, consumption, and production. The volume and complexity of waste rises along with population growth and economic development, creating serious obstacles to resource management, public health, and environmental sustainability. Managing waste well and comprehending its nature is essential to solving environmental problems like pollution, habitat destruction, and climate change. Air, water, and soil contamination can result from improper waste disposal.

REVIEW OF LITERATURE

R.E Jones (2022) discovered that while the environmental impacts of energy-driven bio refining processes were often assessed and compared, there is a dearth of comparative environmental evaluations for bio refining non-energy products (product-driven bio refining) in the existing literature. Nevertheless, product-driven bio refining shows potential for utilizing horticultural FLW feed stocks, offering both economic and environmental advantages. This approach is especially pertinent for horticultural FLW due to the abundance of valuable and useful compounds present in these materials.

Fatemeh Hassan (2021) states that the integration of pyrolysis-gasification processes for recycling can yield valuable products such as biofuel, biochar/ash, and water, all while being environmentally friendly. The biochar and water can be utilized to enhance soil quality, which in turn benefits water resources, livestock, and food security in arid areas. Furthermore, the combination of trans esterification and anaerobic digestion can help mitigate some of the limitations associated with using these technologies independently. Nevertheless, the lack of standardized processing procedures, stemming from regional variations in food waste characteristics, poses a challenge to the widespread adoption of modern food waste management technologies.

Sumana jagadeshi Raghu (2020) presents an original systematic review in this paper that contributes to the existing knowledge. It advocates for more researchers, teachers, and students to engage in behavioral projects, raising awareness for citizens to participate in waste management activities. The research gaps identified suggest opportunities for future studies in unexplored areas and the implementation of pro- environmental models to promote a clean and green environment. Additionally, the findings support the development of pro-environmental laws, regulations, and policies in developing countries, emphasizing the necessity for stringent environmental regulations focused on sustainability.

Daniel Jugend (2019) carried out research to examine the status of organic waste management using circular economy principles. The research conducted a SWOT analysis to pinpoint the strengths, weaknesses, opportunities, and threats in this field. The primary weaknesses and threats identified were logistic costs, seasonality, raw material availability, product quality, and absence of technical standards. Conversely, the main strengths included the conversion of waste into resources, environmental advantages, collaborative initiatives, employment generation, and new prospects for investment.

OBJECTIVES:

1. To explore the causes of waste production and its consequences.
2. To study the various influences on effective waste management.
3. To investigate public knowledge about different waste categories.
4. To comprehend and assess the preferred waste disposal techniques and the implementation of awareness initiatives.

SCOPE OF THE STUDY:

Proper management of waste is crucial in safeguarding public health, preserving the environment, and promoting sustainable development. Effective waste disposal helps prevent the spread of diseases by eliminating breeding grounds for pests and reducing pollution in the air, water, and soil. It also plays a key role in preventing environmental degradation and protecting ecosystems, biodiversity, and natural resources. Additionally, responsible waste management contributes to the fight against climate change by decreasing greenhouse gas emissions from landfills and supporting waste-to-energy projects. By implementing efficient waste management practices, communities can ensure long-term environmental sustainability, maintain public health standards, and create a cleaner and healthier environment for current and future generations.

RESEARCH METHODOLOGY:

The research methodology for studying the lack of awareness on types of waste and waste management involved a mixed-methods approach. Firstly, a survey was distributed to a diverse sample of the population, including various age groups, educational backgrounds, and residential areas, to quantify the level of awareness regarding waste types and management practices. The survey included both closed and open-ended questions to capture quantitative data and qualitative insights. Secondly, focus group discussions were conducted with selected participants to delve deeper into the reasons behind the lack of awareness and to gather detailed perspectives on potential barriers and motivators for better waste management practices. Data from the surveys were analyzed using statistical methods to identify trends and correlations, while thematic analysis was applied to the qualitative data from the focus groups to extract common themes and insights. This comprehensive approach ensured a

robust understanding of the awareness levels and informed recommendations for targeted educational and policy interventions.

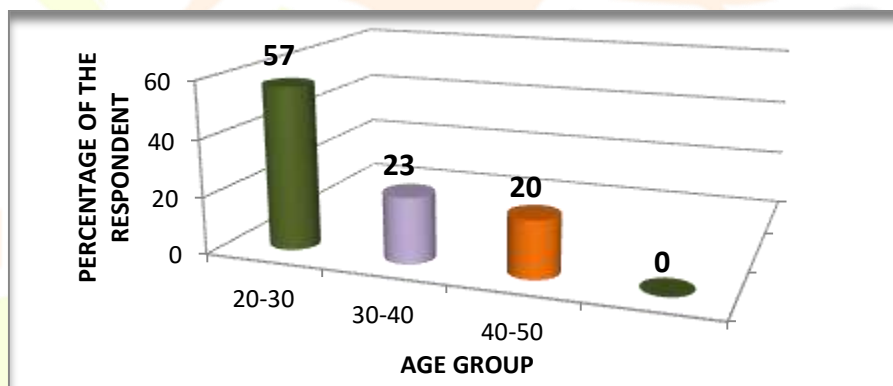
RESULT AND DISCUSSION:

TABLE 1 SHOWING THE AGE OF RESPONDENTS.

AGE GROUP	NO.OF. RESPONDENTS	PERCENTAGE
20-30	57	57%
30-40	23	23%
40-50	20	20%
Above 50	0	0
TOTAL	100	100

Source: Primary data

FIGURE 1 SHOWING THE AGE OF RESPONDENTS.

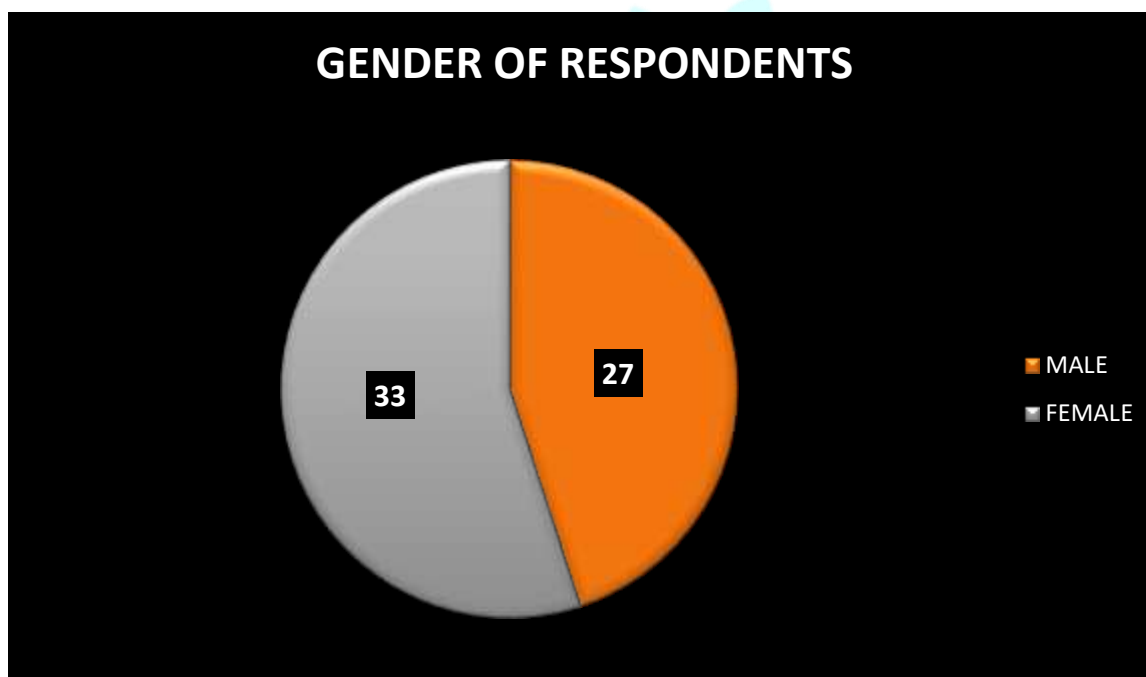


INTERPRETATION:

The above chart reveals that 57 of the respondents are among the age group 20-30 years, 23% of them are among 30-40 years, 20% of them are among 40-50 years and nil per cent of them are above 50 years respectively.

TABLE 2 SHOWING THE GENDER OF RESPONDENTS.

GENDER	NO.OF. RESPONDENTS	PERCENTAGE
MALE	35	35%
FEMALE	65	65%
TOTAL	100	100%

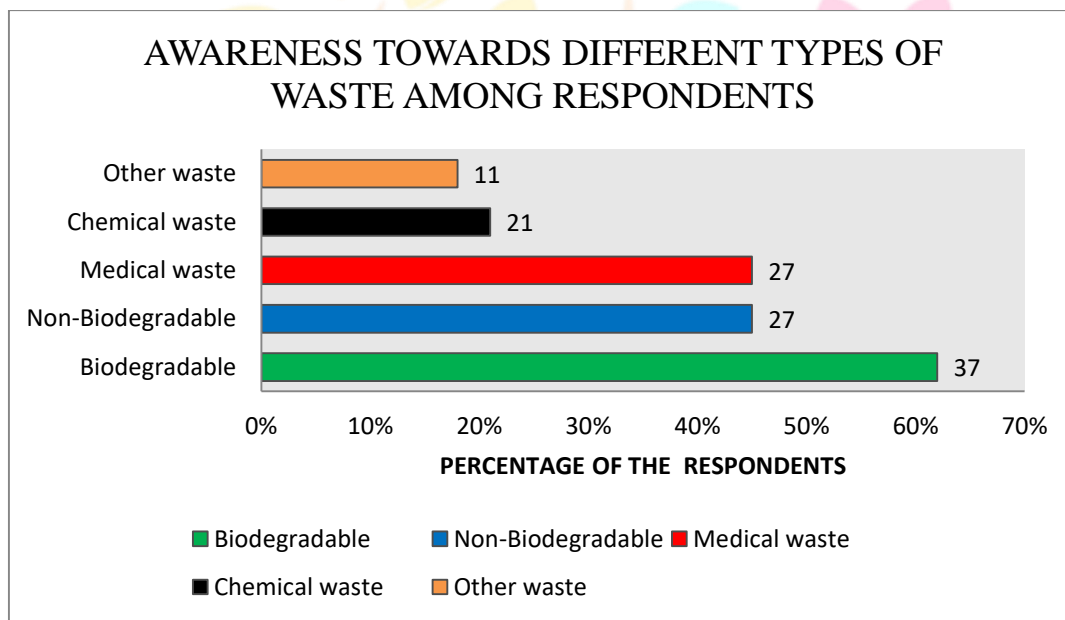
FIGURE 2 SHOWING THE GENDER OF RESPONDENTS.**INTERPRETATION:**

The above table shows that out of the 100 respondents, 35% are male and 65% are female with the majority which indicates awareness towards waste management among female are higher than male respectively.

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TABLE 3 SHOWING THE AWARENESS TOWARDS DIFFERENT TYPES OF WASTE AMONG RESPONDENTS.

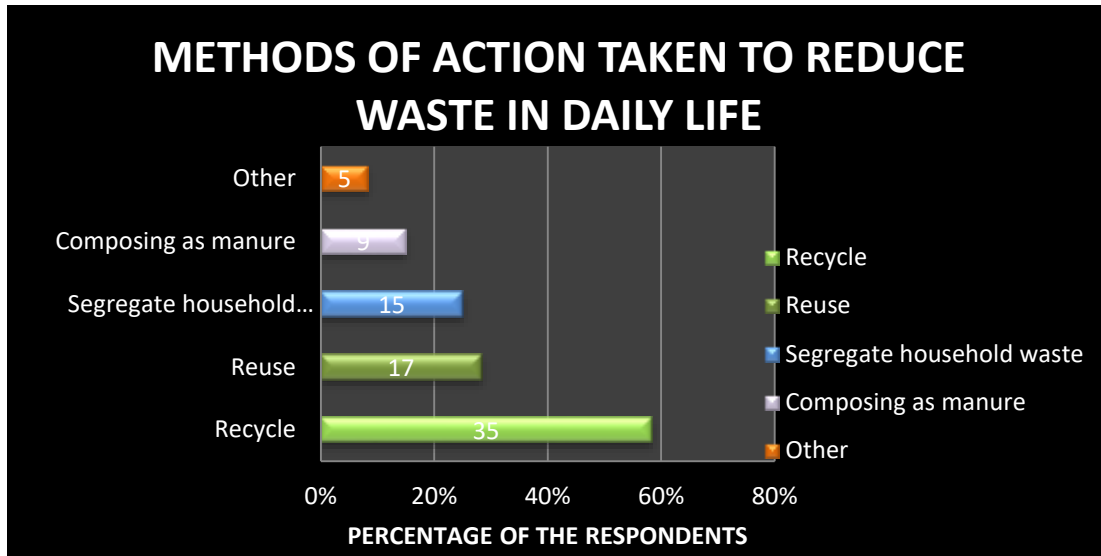
TYPES OF WASTE	NO.OF. RESPONDENTS	PERCENTAGE
Biodegradable	37	62%
Non-Biodegradable	27	45%
Medical waste	27	45%
Chemical waste	21	21%
Other waste	11	18%

FIGURE 3 SHOWING THE AWARENESS TOWARDS DIFFERENT TYPES OF WASTE AMONG RESPONDENTS.**INTERPRETATION:**

The tables above display the level of awareness regarding various types of waste, with 62% of participants being knowledgeable about biodegradable waste, 45% about non-biodegradable waste, 45% about medical waste, 21% about chemical waste, and 18% about other types of waste. The number of respondents who were aware of each type of waste was 37, 27, 27, 21, and 11 respectively, out of a total of 100 respondents.

TABLE 4 SHOWING ACTION TAKEN TO REDUCE WASTE IN OVER DAILY LIFE.

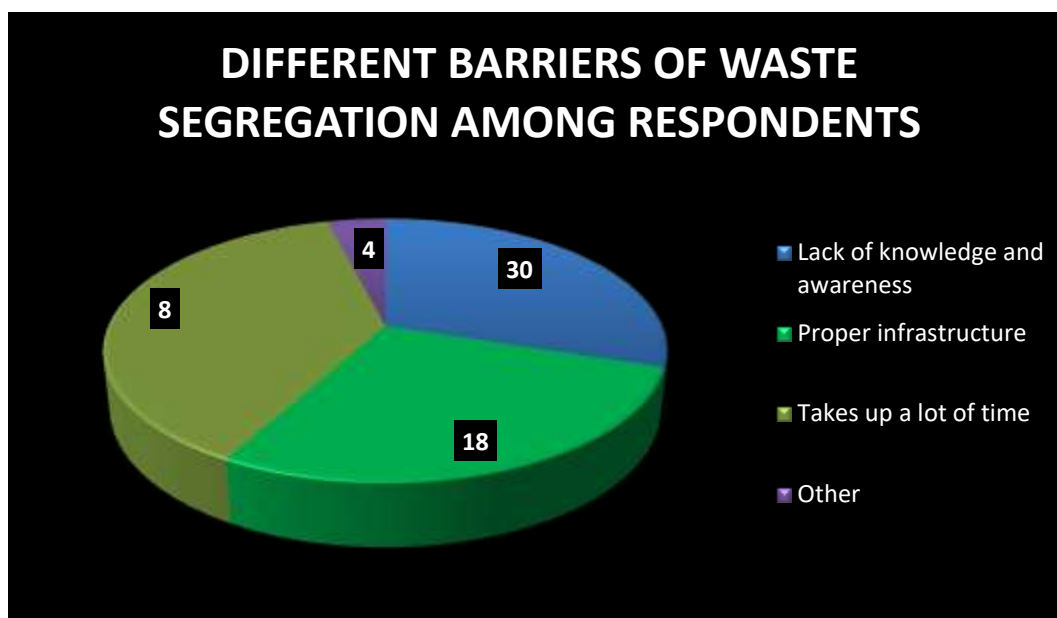
PARTICULARS	NO.OF. RESPONDENTS	PERCENTAGE
Recycle	35	58.3%
Reuse	17	28.3%
Segregate household waste	15	25%
Composing as manure	9	15%
Other	5	8.3%

FIGURE 4 SHOWING ACTION TAKEN TO REDUCE WASTE IN DAILY LIFE.**INTERPRETATION:**

The methods employed to minimize waste in daily life among the participants are elucidated in the aforementioned table. Out of the total 100 respondents, 58.3% engage in recycling waste, 28.3% opt for reusing waste, 25% practice segregating household waste, 15% utilize composting as a means of producing manure, and 8.3% undertake various other actions. These actions are undertaken by 35, 17, 15, 9, and 5 respondents respectively.

TABLE 5 SHOWING DIFFERENT BARRIERS OF WASTE SEGREGATION AMONG RESPONDENTS

PARTICULARS	NO.OF. RESPONDENTS	PERCENTAGE
Lack of knowledge and awareness	30	30%
Proper infrastructure	28	28%
Takes up a lot of time	38	38%
Other	4	4%
TOTAL	100	100%

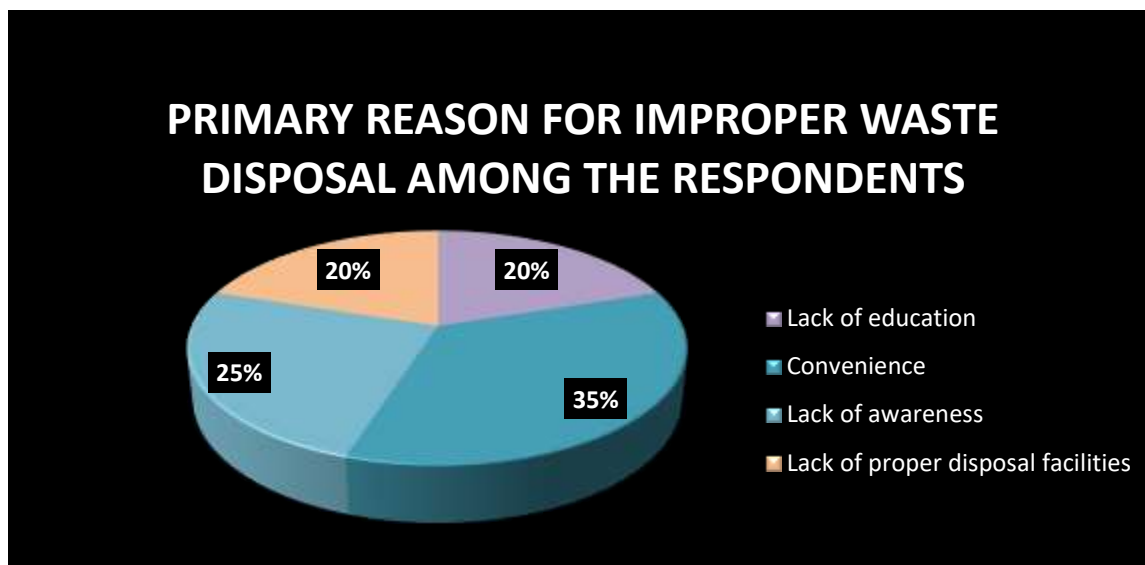
FIGURE 5 SHOWING DIFFERENT BARRIERS OF WASTE SEGREGATION AMONG RESPONDENTS.**INTERPRETATION:**

The table above illustrates that 30% of the respondents lack knowledge and awareness, while 28% encounter issues with proper infrastructure. Additionally, 38% find waste segregation time-consuming, and 4% face various other barriers. These percentages correspond to 30, 28, 38, and 4 respondents, respectively.

TABLE 6 SHOWING THE PRIMARY REASON FOR IMPROPER WASTE DISPOSAL AMONG THE RESPONDENTS

PARTICULARS	NO.OF. RESPONDENTS	PERCENTAGE
Lack of education	20	20%
Convenience	35	35%
Lack of awareness	25	25%
Lack of proper disposal facilities	20	20%
TOTAL	100	100%

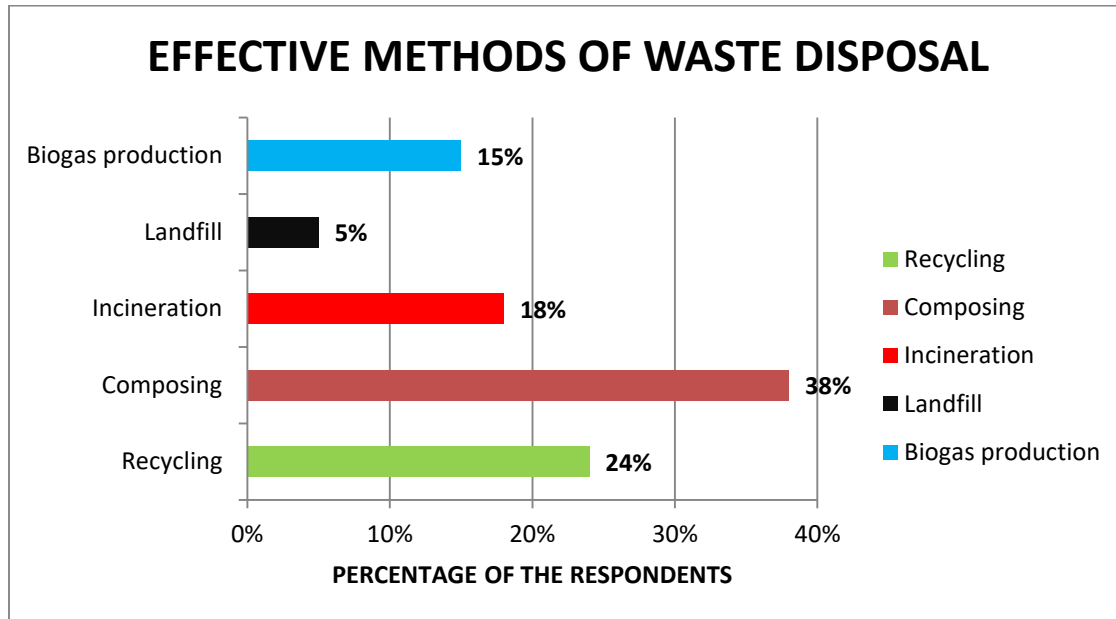
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FIGURE 6 SHOWING THE PRIMARY REASON FOR IMPROPER WASTE DISPOSAL AMONG THE RESPONDENTS.**INTERPRETATION:**

The table above elucidates the main causes of improper waste disposal among the participants, with 20% attributing it to a lack of education, 35% to convenience, 25% to a lack of awareness, and 20% to inadequate disposal facilities. These percentages correspond to 20, 35, 25 and 20 respondents, respectively.

TABLE 7 SHOWING EFFECTIVE METHODS OF WASTE DISPOSAL AMONG THE RESPONDENTS.

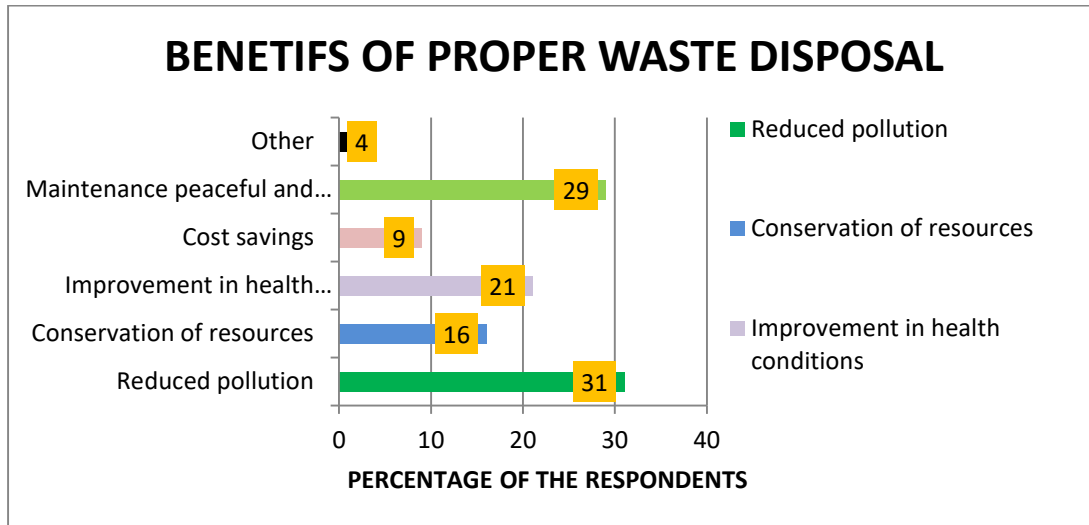
PARTICULARS	NO.OF. RESPONDENTS	PERCENTAGE
Recycling	24	24%
Composting	38	38%
Incineration	18	18%
Landfill	5	5%
Biogas production	15	15%

FIGURE 7 SHOWING EFFECTIVE METHODS OF WASTE DISPOSAL AMONG THE RESPONDENTS.**INTERPRETATION:**

The table provided illustrates that 24% of respondents prefer recycling, 38% prefer composting, 18% prefer incineration, 5% prefer land filling, and lastly, 15% opt for biogas. These percentages correspond to 24, 38, 18, 5 and 13 respondents respectively.

TABLE 8 SHOWING BENEFIT OF PROPER WASTE DISPOSAL AMONG THE RESPONDENTS.

PARTICULARS	NO.OF. RESPONDENTS	PERCENTAGE
Reduced pollution	31	31%
Conservation of resources	16	16%
Improvement in health conditions	21	21%
Cost savings	9	9%
Maintenance peaceful and eco-friendly environment	29	29%
other	4	4%

FIGURE 9 SHOWING BENEFIT OF PROPER WASTE DISPOSAL AMONG THE RESPONENTS.**INTERPRETATION:**

The table above illustrates various benefits, with 31% of respondents believing in reduced pollution, 29% in maintaining a peaceful and eco-friendly environment, 21% in improving health, 16% in supporting resource conservation, 9% in cost-saving, and 4% holding other opinions.

CORRELATION ANALYSIS FOR METHODS OF WASTE DISPOSAL AND BENEFITS OF METHODS OF WASTE DISPOSAL.

	METHODS	BENEFITS OF METHODS
METHODS	1	0.64
BENEFITS OF METHODS	0.64	1

The correlation between effective methods and the benefit of effective methods of the respondents is 0.64; **r = 0.64**.

Introduction:

The management of waste disposal plays a crucial role in environmental conservation, as it directly impacts public health, ecological equilibrium, and overall sustainability. The relationship between the effectiveness of waste disposal methods and the advantages they provide is a topic of great interest due to its implications for both the environment and human well-being. This article explores the **moderate positive correlation (r=0.64)** that has been observed between effective waste disposal methods and the benefits they offer.

Understanding the Correlation:

A correlation coefficient of 0.64 indicates a moderate positive correlation between effective waste disposal methods and the benefits they provide. This means that as the effectiveness of waste disposal methods improves, the associated benefits also tend to increase, although to a moderate extent. In practical terms, this suggests that implementing more efficient waste disposal techniques generally leads to a proportional increase in positive outcomes related to waste management.

Conclusion:

The significance of prioritizing sustainable waste management practices is highlighted by the moderate positive correlation observed between effective waste disposal methods and their benefits. By adopting efficient waste disposal techniques, societies can not only achieve environmental sustainability but also enjoy various social, economic, and public health advantages. To enhance this correlation and effectively tackle the global waste management challenge, it is crucial to continue conducting research, fostering innovation, and promoting collective action.

❖ FINDINGS:

- Out of 100 respondents, 57 of the respondents are among the age group 20-30 years, 23% of them are among 30-40 years, 20% of them are among 40-50 years and nil per cent of them are above 50 years respectively.
- Out of the 100 respondents, 35% are male and 65% are female with the majority which indicates awareness towards waste management among female are higher than male respectively.
- Out of a total of 100 respondents, 62% of participants being knowledgeable about biodegradable waste, 45% about non-biodegradable waste, 45% about medical waste, 21% about chemical waste, and 18% about other types of waste. The number of respondents who were aware of each type of waste was 37, 27, 27, 21, and 11 respectively
- Out of the total 100 respondents, 58.3% engage in recycling waste, 28.3% opt for reusing waste, 25% practice segregating household waste, 15% utilize composting as a means of producing manure, and 8.3% undertake various other actions. These actions are undertaken by 35, 17, 15, 9, and 5 respondents respectively.
- 30% of the respondents lack knowledge and awareness, while 28% encounter issues with proper infrastructure. Additionally, 38% find waste segregation time-consuming, and 4% face various other barriers. These percentages correspond to 30, 28, 38, and 4 respondents, respectively.
- The main causes of improper waste disposal among the participants, with 20% attributing it to a lack of education, 35% to convenience, 25% to a lack of awareness, and 20% to inadequate disposal facilities. These percentages correspond to 20, 35, 25 and 20 respondents, respectively.
- 24% of respondents prefer recycling, 38% prefer composting, 18% prefer incineration, 5% prefer land filling, and lastly, 15% opt for biogas. These percentages correspond to 24, 38, 18, 5 and 13 respondents respectively.

➤ Various benefits, with 31% of respondents believing in reduced pollution, 29% in maintaining a peaceful and eco-friendly environment, 21% in improving health, 16% in supporting resource conservation, 9% in cost-saving, and 4% holding other opinions.

❖ SUGGESTIONS

1. **Assessing Current Awareness Levels:** This can be done through surveys, interviews, or focus groups to determine the level of awareness among different demographic groups regarding waste generation, disposal practices, and the environmental impact.
2. **Identifying Knowledge Gaps:** It is important to identify specific areas where individuals lack understanding or awareness, such as the significance of waste segregation, recycling methods, handling hazardous waste, or the consequences of improper waste disposal on public health and the environment.
3. **Evaluating Existing Communication Strategies:** The effectiveness of current outreach efforts and educational programs related to waste management should be assessed. This includes evaluating government initiatives, community campaigns, school curricula, and media campaigns.
4. **Comparing with Best Practices:** It is important to benchmark awareness levels and waste management practices against international standards and successful case studies from other regions or countries known for their effective waste management strategies.
5. **Development of Intervention Strategies:** Suggest specific interventions and educational initiatives designed to fill knowledge gaps, shift attitudes, and encourage behavioral changes in relation to waste management practices.
6. **Policy Implications:** Examine the policy implications and provide suggestions for government bodies, local authorities, NGOs, educational institutions, and other relevant parties to enhance waste management infrastructure, regulations, and awareness campaigns.
7. **Long-Term Monitoring and Evaluation:** Set up systems for continuous monitoring and evaluation to monitor shifts in awareness, waste management behavior, and environmental impacts over time, enabling ongoing enhancement and adjustment of interventions.

By examining these factors within the study's framework, scholars can acquire a deeper understanding of the underlying reasons behind the limited knowledge regarding waste management. This will enable them to formulate evidence-driven approaches aimed at fostering enhanced comprehension and involvement in sustainable waste management methods.

❖ CONCLUSION

The lack of knowledge regarding waste and its management poses a significant barrier to achieving sustainable development and environmental stewardship. This issue impacts all sectors of society, from individuals to organizations, and its effects are felt across ecosystems, economies, and public health.

At the personal level, a lack of awareness or indifference towards waste management often results in irresponsible consumption patterns and improper disposal methods. Without a basic understanding of how waste production affects the environment and the advantages of proper waste management, individuals may unknowingly contribute to pollution, resource depletion, and health risks. This lack of awareness perpetuates a cycle of environmental harm and undermines attempts to encourage sustainable lifestyles.

In conclusion, the lack of awareness surrounding waste and waste management presents a pressing challenge that demands immediate attention and concerted action. Without widespread understanding of the consequences of improper waste disposal and the benefits of effective waste management practices, communities are at risk of facing environmental degradation, public health hazards, and economic losses. Addressing this issue requires comprehensive education campaigns, community engagement initiatives, and policy interventions aimed at raising awareness, promoting responsible waste behavior, and fostering a culture of environmental stewardship. By empowering individuals and communities with knowledge and resources, we can pave the way towards a more sustainable future where waste is managed responsibly, resources are conserved, and the well-being of both people and the planet is safeguarded.

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