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KNOWLEDGE ATTITUDE AND PRACTICE OF SOLID WASTE MANAGEMENT AMONG HOUSEHOLDS IN CALABAR MUNICIPALITY, NIGERIA

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ABSTRACT

Introduction: The volume of solid wastes being generated continues to increase at a faster rate than the ability of the agencies to improve on the financial and technical resources needed to parallel this growth and its gradually becoming a challenge in our society today.

Purpose: The purpose of the study is to investigate and understand the relationship between knowledge attitude and practice of solid waste management among households in Calabar municipality Cross River State.

Methodology: Ex post facto research design was used for the study. 200 respondents were sampled from a population of 4,000 household in Calabar municipality using a simple random sampling technique. A close-minded questionnaire was used for data collection. The instrument was validated and was also tested for reliability using Cronbach alpha method with estimate of .72 to .80. Data collected was analyzed using the Pearson products moments correlation they were tested at 0.5 level significance.

Results The results revealed that knowledge attitude and practice of household in Calabar municipality Cross River States significantly influence solid waste management and this maybe as a result of poor education on the health implication, inefficient collection methods, insufficient coverage of the collection system and improper disposal 'of solid wastes.

Recommendations: It was recommended that there should be adequate enlightenment program on solid waste management in order to enhance awareness so as to encourage and develop the habit of using proper refuse dorms in disposing waste in the area and there should be sanction for those who refused to change their poor attitude.

Keywords: Knowledge, Attitude, Practice and Solid waste Management

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PUBLIC INTEREST STATEMENT

This study will contribute immensely to the body of knowledge and it will in propelling as well as inculcating the habit of promoting proper waste management The study will help the government and non-governmental organization to create more awareness on the importance of using proper refuse dorms in disposing waste in the area and evacuation of the generating waste from the dorms, it will as well the government to create more points where waste will be deposited for easy evacuation and enlightenment of the masses on the strict adherence to those point that are been created and laws should be put in place to sanction defaulters.

INTRODUCTION

Our environments are very crucial for the existence of man and every creature, its serves as a place of abode to any creature; it contributes to the quality of life, its shape the thought, behavior, attitude and habit of the people according to the norms of the people. The environment people found themselves or leave in play a vital role in people's way of life and the health of every living being that if it's not properly taken care of can become a problem to the inhabitants (Akpa, Anam, & Agina, 2024). Because every living organisms rely on environment for air, food, water, and other needs. Therefore, it is important for it to protected keep save and clean.

Solid wastes are abandoned materials and could be garbage, sludge from a waste-treatment plant, discarded materials resulting from industrial, commercial, mining, agricultural operations, and those resulting from community activities such as waste tires, scrap metal, latex paints, furniture toys, appliances and vehicles, empty aerosol cans, paint cans and compressed gas cylinders, and construction and demolition debris. (Bamgbose et al., 2013). However, most of the waste commonly known as garbage, which consists of everyday items being discarded by the public, is generally regarded as municipal solid waste (Akah, & Akpa, 2021) It covers all thrown-away materials including products of packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances and batteries (Afon, 2017; Bassey et al., 2017). The quantity and rate of solid waste generation in a place is largely dependent on the population, level of industrialization, socio-economic status and the kinds of commercial activities (Dauda & Osita, 2015).

Providing suitable solid waste management (SWM) is perceived to be difficult in many communities globally, due to problems linked to population-growth, rapid-development and uncontrolled-urbanization. Increased affluence and urbanization often leads to increased solid waste generation and ultimately complication in management (Babaei et al., 2015). The high rate of urbanization in Nigeria has escalated urban poverty and increased informal settlements; strained urban infrastructure and improper provision of SWM services (Owuor, 2020). This is attributed by the slow rate of economic growth and development of cities which does not match the high rate of population growth.

A significant obstacle to implementing good practices in SWM is a negative public perception, limited knowledge, negative attitude, lack of political goodwill, and limited technical and financial resources (Nasrabadi et al., 2010). People play a crucial role in SWM processes. Minimal public participation coupled with insufficient funding in SWM sector has contributed towards ill practices which have ultimately resulted to pollution of environment (Nasrabadi et al., 2010). Negative-attitude towards SWM and failure in individual responsibility has contributed to this menace (GoK, 2015). Solid waste includes refuse, garbage and sludge from commercial, residential and industrial activities. SWM encompasses all activities needed to handle SW from inception to final disposal. These activities range from collection, transfer, treatment, disposal, monitoring and regulation. Legal framework related to SWM involve initiatives such as recycling. Amounts of

solid waste in cities of developing countries increases with population increase due to higher levels of consumption (McAllister, 2015).

Humans have suffered in no small way from diseases associated with solid wastes and the contamination of the subsurface water by the leachate from solid wastes heavily laden with toxic chemicals and pathogenic organisms which contaminate the water and make it unfit for human consumption (Adedibu, 2018).Solid-waste management entails the collection, storage, transportation, treatment, recycling, recovery, and disposal of waste in such a way as to render them innocuous to human and animal life, ecology, and the environment as a whole (Fafioye and John-Dewole, 2013). The problem of waste management is a primordial and poses threats in developing countries in Africa, particularly Nigeria. Municipal waste management problems in Nigeria cut across concerns for human health, air, water, and land pollution among others. The analysis of the key problem affecting the efficient management of municipal waste is critical for developing a workable solution in an emerging economy like Nigeria's (Abila & Kantola, 2013). Waste management is not properly done in most towns in Nigeria. Most parts of urban areas do not benefit from public waste disposal services, which makes residents sort for other options such as burying or burning their waste therefore disposing it haphazardly.

Nigeria today, having experienced a great increase in population rate and economic strength facilitated especially by the Industrial Revolution and the development of medical science and health care delivery system, rapid urbanization and rise in communities' living standard, has witnessed waste generation in cataclysmic proportions. This problem is further compounded by the deterioration of the Nigerian urban environment vis-à-vis the indiscriminate dumping of wastes as apparent in our growing cities. In Calabar, the Cross River State Capital, for instance, the disposal of wastes was critically disturbing as huge piles of dirt were found littering public places in unprecedented proportions. With the Calabar Urban Development Authority (CUDA) responsible for general sanitation and waste management, three levels of waste management techniques were introduced. First, it became mandatory for each household to have a standard rubber bin to store refuse at the primary level. At the secondary level, flash points or transfer stations were established with dumpsters to prevent indiscriminate dumping of refuse brought from the household. And lastly, the personnel of CUDA dispersed into twenty-six (26) cells with supervisors, trucks, and workers in Calabar would, at regular intervals (usually between 2-3 times a week depending on how densely populated the areas are) and preferably in the evening, transfer the refuse from the dumpsters at the 366 flash points in Calabar to the final disposal sites at the Lemna Road in Calabar Municipal Council. The final disposal of refuse is by land-filling. It is against this background that this research work undertook an objective assessment of the knowledge, attitude and practice of solid waste management among house in Calabar Municipality; to know whether wastes have actually been effectively cleared and disposed properly or whether the wastes have been allowed to constitute a nuisance and an aesthetic disorder; to determine the adverse effects of indiscriminately dumped waste on the environment, the health and aesthetic conditions of Calabar.

The knowledge of households is mainly interested in receiving effective and dependable waste collection service within their immediate vicinity. Households give priority to water supply and electricity. Although households are the main contributors to waste generation, it may well be useful to know how this can affect effective solid waste management

Quality of the environment depends on the way waste is being managed. However, the management of waste of a particular place depends on the knowledge and perception of the dwellers and visitors (Mohammed, 2017). Perception according to Mohammed (2017), is the basic process through which human beings acquire knowledge

of the world via our sense organs which enable responses to external stimulation. Our resources, knowledge, beliefs, values and norms influence our perceptions which can be created without experience and knowledge..

Similarly, people's waste generation and disposal patterns are influenced by those of their neighbors (Mehta and Satyamarayaran 2010). Thus, besides general awareness, improved local waste management depends upon the availability of practical options for waste collection and a consensus among neighbors that improvements are both important and possible. Programmers to disseminate knowledge and to improve behavior patterns and attitudes regarding waste management, are therefore critical. For such programmers to succeed such programmed must be based on sound understanding of the social and cultural characteristics of the communities.

Lack of knowledge about solid waste management brings about poor waste management which can lead to health hazard like creating breeding grounds for disease-carrying vectors like mosquitoes and rodents. Accumulated waste can result in the spread of diseases and infections, posing risks to human health and well-being. Accumulated waste in public spaces or residential areas can negatively impact the aesthetic appeal of neighborhoods. This can reduce the overall quality of life for residents and deter tourists. It can result in higher costs for municipalities and governments. These costs can include waste collection, transportation, disposal, and potential cleanup of environmental damage.

The knowledge about solid waste varies widely. Some households are well informed about proper solid waste management and the importance of reducing waste generation and health risks while other have limited awareness and may not understand the significance of proper solid waste management and the impact it has on the environment .those who have knowledge about proper waste management may also find it hard to practice the knowledge they have acquired due to lack of infrastructures and inadequate waste collection services which can lead to them not practicing the knowledge they acquired and then lead to environmental pollution.

Negative attitudes towards solid waste management bring about barriers to performing activities concerning waste management. This was evident in the study which was conducted by Tuckers (2010), on attitudes and behavioral change in households waste management behaviors. The findings were that negative perceptions about waste management activities are common discriminate of behavior in household waste management. The study further revealed that attitudes can differ between those who have recently taken up the activities of waste management and those who have not, and between those who formerly participated but have dropped out and those still continuing to participate. The results also revealed that there may be two distinct classes of antecedent attitudes: Convenience, factors such as time and effort, which may play little part in initiation but can reinforce persistence, and attitudes of predisposition such as perceptions of Vermin and fly problems, waste requirements and aesthetics, which can inhibit initiation. The study also reviewed that initial experience quickly sets attitudes that are stably maintained into the longer terms unless subsequent specific adverse experience an encountered, when attitudes may weaker and drop out might occur. It is true that attitudes contribute to the accumulation of solid waste in most parts of the city. Most of the people know that it is not healthy to have waste in their house no wonder they throw it outside their houses. But it is only that they have —I don't care attitude‖. The best is to change the mindset of the people by making them understand that waste mainly is the responsibility of everyone in any given society.

The right attitude of people regarding solid waste management is very crucial after knowledge. The method of dealing with the waste, where to dispose and how to deal with it becomes part of the attitude we have towards solid waste management. Increasing the accessibility to the recycling/ disposing

center or curbsid pick-up trucks may change people's attitude towards waste management. Awareness generation among people using multiple strategies would have strong impact on promoting attitude among the people.

The attitude was determined by the level of knowledge. Attitude, knowledge, thoughts, beliefs and emotion plays an important role. Attitude was determined as an evaluative response. Evaluative response means that the rise of reaction of attitude expression was caused by individual evaluation process the evaluation process concluded the stimulus into positive -negative, pleasant- unpleasant and then became potential reaction on attitude object, which showed there is a strong relationship between the attitude and behavior (Rahmaddin, 2015).

CUDA has the responsibilities of refuse evacuation and collection, sweeping of the streets and roadways, mowing of grasses in publicly owned parks and open spaces and roadways verges. The Authority planted ornamental trees and shrubs along the City streets and highways, conducted house-to-house inspections to ensure the sanitary conditions on residential, commercial and industrial areas. The Authority also embarked on public awareness campaigns to educate and inform the residents on the essence of good sanitation habits and enforces the Urban Sanitation Laws (Coker, Obo & Ugwu, 2013) however their major challenge of waste management and disposal in Calabar municipality is the wrong attitude of people towards waste disposal. The awareness in Calabar is existent, though not very effective and efficient, but some persons or households still portray poor attitude to waste management, which has often resulted in wastes being indiscriminately dumped on open spaces channel of drainage and even street and roads covering them into unsightly junk yards, unsuitable for almost any use and promoting destructive flooding.

The attitude of households towards solid waste management plays a crucial role in determining the effectiveness of waste disposal and recycling efforts. A positive attitude involves proper segregation of waste, reducing plastic usage, and supporting recycling initiatives. Education and awareness campaigns can help in shaping favorable attitudes, leading to more sustainable waste management practices within communities.

STATEMENT OF THE PROBLEM

Solid waste management has emerged as one of the greatest challenges facing states and local government environmental protection agencies in Nigeria. The volume of solid wastes being generated continues to increase at a faster rate than the ability of the agencies to improve on the financial and technical resources needed to parallel this growth. Solid waste management in Calabar municipality may, however, be characterized by inefficient collection methods, insufficient coverage of the collection system and improper disposal 'of solid wastes. This growth is significant because it has made life in homes, and markets uneasy, complicated, and unattractive. Though there are a number of private recyclers they are inadequate and their demand for waste falls short of the waste supply because waste hardly reaches transfer point but rather littered the environment. Also, there are inadequate collection programmers to ensure that most of the wastes are recycled. Finally, there are not enough legislation to properly regulate the handling and processing of these wastes. All these explain why much of the waste in the state may end up in streets, gutters, and indiscriminate dumping rather than in landfills and incinerators.

The researchers observed that failure of proper waste disposal in Calabar municipality leads to ill health to the community, air pollution, water pollution and land pollution and it served as a reservoir of infections, malaria, cholera, typhoid fever, Exposure to hazardous waste materials can cause respiratory problems, skin infections, and other illnesses. Climate change impacts: Improper waste management contributes to climate change through the release of greenhouse gases. Methane, a potent greenhouse gas, is generated from

decomposing organic waste in landfills. etc. It is against this back ground that the researcher became interested in conducting a research on assessment of knowledge, attitude and practice on solid waste management among households in Calabar Municipality, Cross River State.

PURPOSE OF THE STUDY

The purpose of the study is to investigate and understand the relationship between knowledge attitude and practice of solid waste management among house in Calabar municipality Cross River State. Specifically the study seek to evaluate the following objectives:

1. The influence of knowledge on solid waste management among households in Calabar Municipality.
2. Examine the influence of attitude on solid waste management among households in Calabar Municipality.

RESEARCH QUESTIONS

1. How does knowledge relate to solid waste management among households in Calabar Municipality?
2. To what extent does attitude relate to solid waste management among households in Calabar Municipality?

METHODOLOGY

Design

The ex- post facto research design was used for the study .the Ex-post facto design was found suitable for this investigation. The design is seen to be more appropriate because the information needed is already existing with the respondent an does not require any form of manipulation of the independent variables by the researcher.

Population and Sample

The population of this study compromised of all households in Calabar municipality, Cross River State, which is made up of 4000 households' Simple random technique was used to select required numbers of households from Calabar municipality which is the area of study. A balloting process was used to select 5 wards out of the 10 wards and 10% of the population was used which was 200 households. The selection ensured adequate representation in the sample .the simple random sampling technique was used in order to select a sample that would yield research data that could be generalized to a larger population. The piece of paper which were used to indicate (YES) or (NO) with only 207(YES) and numerous (NO) were properly mixed ,house holds who picked the pieces of paper marked (YES) were used for the research work. The sample of the study consisted of 200 households in Calabar Municipality. A further distribution of the sample also shows that 200 households which were selected from the 5 wards in the research area were selected for the study.

Instrument for Data Collection

To achieve the purpose of this study the researcher developed questionnaire that was used to assess knowledge, attitude and practice of solid waste management among households in Calabar municipality. The questionnaire was divided into 3 section (A-C). Section A consisted on 10 items on knowledge of solid waste management among households in Calabar municipality, section B consisted of 10 items on attitude of solid waste management among households in Calabar municipality. Section C consisted of 10 items on practice of solid waste management among households in Calabar municipality. Hence, a total of the thirty items constituted the questionnaire. The instrument was validated by an expert in the department of Test and Measurement as well as an expert in department of Human Kinetic and Health Education both from University of Calabar, Calabar. The reliability of the instrument was ascertained using Cronbach alpha methods with the reliability estimate of .72 to .80.

Procedure for Data Collection

Permission was obtained from the Chief, Clan head to conduct among the households in Calabar Municipality. The research assistants were briefed on the

administration of the questionnaire to respondents There After questionnaire were administered and collected by the research assistants and the researcher. The data collected were used for data analysis.

Methods of Data Analysis

To prepare the data collected for statistical analysis, a coding schedule was designed for the questionnaire items based on four point Likert scale. Strongly agreed was assigned 4-points, Agreed 3 points, Disagreed 2-points while Strongly Agreed 1-point. The Statistical Package for Social Sciences (SPSS) computer programme was used to analyze the data collected. The hypotheses formulated to guide the study were appropriately tested using a Pearson Product Moment Correlation Coefficient at .05 level of significance for the two hypotheses.

RESULTS

Hypothesis 1: There is no significant relationship between knowledge and solid waste management among households in Calabar Municipality.

Table 1: Summary of Pearson Product Moment Correlation for the relationship between knowledge of and solid waste management among households (N=200)

Variables	Σx Σy	Σx² Σy²	Σxy	r-value	Sig
Knowledge	2640	35160			
			38360	0.492*	.000
Solid waste management	2920	43050			

* Significant at .05, critical r=.139, df = 198

The result of the analysis as presented in Table 1 revealed that the calculated r-value of 0.492 is significant at .05 level of significance with 198 degrees of freedom. With this result, the null hypothesis which stated that there is no significant relationship between knowledge and solid waste management among households was rejected. This result implied that there is a significant relationship between knowledge and solid waste management among households. The positive r implied that the more knowledge, the better solid waste management among households tends to be. On the other hand, the more the lack of knowledge, the poorer the solid waste management among households tends to be.

Hypothesis 2: There is no significant relationship between attitude and solid waste management among households in Calabar Municipality.

Table 2: Summary of Pearson Product Moment correlation for the relationship between attitude and solid waste management among households(N=200)

Variables	Σx Σy	Σx² Σy	Σxy	r-value	Sig
Attitude	2520	33040	36420	.490*	.000
Solid waste management	2920	43080			

* Significant at .05, critical r = .139, df =198

The result of the analysis as presented in Table 2 revealed that the calculated r-value of 0.490 is significant at .05 level of significance with 198 degrees of freedom. With this result, the null hypothesis which stated that there is no significant relationship between attitude and solid waste management among households was rejected. This result implied that there is a significant relationship between attitude and solid waste management among households. The positive r implied that the more positive attitude, the better solid waste management among households tends to be. On the other hand, the negative the attitude, the poorer the solid waste management among households tends to be.

Hypothesis 3: There's no significant relationship between practice and solid waste management among households in Calabar Municipality.

Table 3: Summary of Pearson Product Moment Correlation for the relationship between practice and solid waste management among households (N=200)

Variables	Σx Σy	Σx^2 Σy^2	Σxy	r-value	Sig
Practice	2720	38160			
			39320	0.542*	.000
Solid waste management	2920	43080			

* Significant at .05, critical r = .139, df = 198

The result of the analysis as presented in Table 3 reveals that the calculated r-value of 0.542 is significant at .05 level of significance with 198 degree of freedom. With this result, the null hypothesis which stated that there's no significant relationship between practice and solid waste management among households in Calabar Municipality was rejected. This result implies that practice significantly relate to solid waste management among households. The positive r indicates that the better practices they have, the better solid waste management among households tend to be. On the other hand, the more poor practice, the poorer solid waste management among households tends to be.

DISCUSSIONS

Knowledge and solid waste management among households. The result revealed that there is a significant relationship between knowledge and solid waste management among households in Calabar Municipality. This result show a positive relationship since the r-value of .492 was greater than the critical value of.139 which means that as knowledge increases, there is a corresponding proper solid waste management among households in the study area. The positive r-value also implied that the more the knowledge, the better solid waste management among households tends to be. The finding of this hypothesis is in line with the view of Mohammed, (2017) that, the management of waste of a particular place depends on the knowledge and perception of the dwellers and visitors. Thus, besides general awareness, improved local waste management depends upon the availability of practical options for waste collection and a consensus among neighbors that improvements are both important and possible. Programmers to disseminate knowledge and to improve behavior patterns and attitudes regarding waste management are therefore critical. For such programmers to succeed such programmed must be based on sound understanding of the social and cultural characteristics of the communities. On

the other hand, the more the lack of knowledge, the poorer the solid waste management among households tends to be.

The finding also implies that, the more the lack of knowledge, the poorer the solid waste management among households tends to be. Lack of knowledge about solid waste management brings about poor waste management which can lead to health hazard like creating breeding grounds for disease-carrying vectors like mosquitoes and rodents. Accumulated waste can result in the spread of diseases and infections, posing risks to human health and well-being. Accumulated waste in public spaces or residential areas can negatively impact the aesthetic appeal of neighborhoods. This can reduce the overall quality of life for residents and deter tourists. It can result in higher costs for municipalities and governments. These costs can include waste collection, transportation, disposal, and potential cleanup of environmental damage.

Attitude and solid waste management among households. The result also revealed that there is a significant relationship between attitude and solid waste management among households in Calabar Municipality. This therefore means that attitude play an important role in the management of solid waste in the study area. The positive r-value of .490 implied that the more positive attitude, the better solid waste management among households tends to be. On the other hand, the negative the attitude, the poorer the solid waste management among households tends to be.

Negative attitudes towards solid waste management bring about barriers to performing activities concerning waste management. This finding is in agreement with the study which was conducted by Tuckers (2019), on attitudes and behavioral change in households waste management behaviors. The findings were that negative perceptions about waste management activities are common discriminate of behavior in household waste management. The study further revealed that attitudes can differ between those who have recently taken up the activities of waste management and those who have not, and between those who formerly participated but have dropped out and those still continuing to participate. The results also revealed that there may be two distinct classes of antecedent attitudes: Convenience, factors such as time and effort, which may play little part in initiation but can reinforce persistence, and attitudes of predisposition such as perceptions of Vermin and fly problems, waste requirements and aesthetics, which can inhibit initiation.

The study also reviewed that initial experience quickly sets attitudes that are stably maintained into the longer terms unless subsequent specific adverse experience an encountered, when attitudes may weaker and drop out might occur. It is true that attitudes contribute to the accumulation of solid waste in most parts of the city. Most of the people know that it is not healthy to have waste in their house no wonder they throw it outside their houses. But it is only that they have —I don't care attitude. The best is to change the mindset of the people by making them understand that waste mainly is the responsibility of everyone in any given society.

The right attitude of people regarding solid waste management is very crucial after knowledge. The method of dealing with the waste, where to dispose and how to deal with it becomes part of the attitude we have towards solid waste management. Increasing the accessibility to the recycling/ disposing center or curbside pick-up trucks may change people's attitude towards waste management. Awareness generation among people using multiple strategies would have strong impact on promoting attitude among the people.

The attitude of households towards solid waste management plays a crucial role in determining the effectiveness of waste disposal and recycling efforts. A positive attitude involves proper segregation of waste, reducing plastic usage, and supporting recycling initiatives. Education and awareness campaigns can help in shaping favorable attitudes, leading to more

sustainable waste management practices within communities.

Practice and solid waste management. The result revealed that there is a significant relationship between practice and solid waste management among household in Calabar Municipality. The finding indicated that good or improved practices would lead to a better solid waste management among the household in the study area while poor or negative practices would bring about poor solid waste management. Therefore, waste management education is a critical and necessary element in the management of waste. Lack of knowledge brings about poor waste management practices. It was also observed that generally, generation of total municipal solid waste had significantly increased in Poland due to poor management of waste which in turn was due to lack of knowledge.

According to Adewole (2019) lack of proper knowledge by the tenants resulted into irresponsible management of waste. This researcher further indicated that in order to increase public knowledge towards waste management, professional workers such as teachers of the subjects related to environmental issues should deliver educational programs mainly within the formal education system. United Nations Environmental Program (2020) pointed out that lack of improvement in waste management was to due to the fact that all forms of promotion and educational programs on sound waste management over the country had not been successful. The problem to this is attributed to the absence of acceptance and active participation by the public in the rational waste management. In addition the public did not participate in the segregation and recycling as well as in planning and implementation of the waste management activities.

According to Uvio, (2020) integrated waste management systems follow a general hierarchy of waste management which includes source of reduction, recycling or revising, compositing, incineration and land filling. For each of the processes, there is a dependence upon how effective each preceding elements has been. The most favorable is reduction which suggests using less to begin with and revising more, thereby saving material production, resource cost and energy. Educational programs on waste management are an imperative in any given society.

CONCLUTION

This study sought to establish the relationship between knowledge, attitude and practice of solid waste management among household in Calabar. The findings of the study revealed that there was a significant relationship between knowledge, attitude, practice of solid waste management among household in the study area. Based on finding of the study, it could be inferred that knowledge, attitude and practice are very important and a factors in promoting proper waste management and it should be considered and given maximum attention in order to improve the sanity of the Municipality. No doubt the government have in one way other carried out some campaigns, provide waste disposal buckets to households, pick-up trucks that come to pick the waste every twice a week as well as providing an agency in charge of waste management to make the disposal of waste very easy, yet the knowledge, attitude and practice is still seems to be low. This may be attributed to the fact that the agencies are not well paid, households started making use of the buckets are provided as water tanks, the I don't care attitude of the household and the prompt evacuation of the waste by the agencies responsible for the evacuation and the public enlightenment on the importance of recycling waste.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

1. There should be adequate enlightenment programme on solid waste management in order to enhance awareness of residence of Calabar Municipality.
2. Residence of Calabar Municipality should be encouraged to develop

the habit of using proper refuse dorms in disposing waste in the area.

3. There should be sanction for those who refused to change their poor attitude and practice toward solid waste disposal in the municipality.
4. Government and stakeholders should endeavor to provide dumping facilities and timely evacuation of the refuse.

Conflicts of Interest: The authors declare no conflict of interest.

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Notes on Authors

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Authorship and level of contributions

Stephen Ushie Akpa: conceptualization, writing original draft, investigation data collection. Was the resource supervision, methodology review and editing validation**,** data analysis.

Dr. Dan Felicia Agbor-Obun: did the content and face validity, handles the reliability of the instrument and proof reading of the work.

Umoh Matilo Anthony: conceptualization, writing original draft, investigation data collection.

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