



# **Assessment Of The Impact Of Poor Solid Waste Management On Public Health In Katsina State Nigeria**

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## **ABSTRACT**

The study investigates the impact of solid waste disposal on public health in kankia local government area of Katsina state. A total number of three hundred and eighty four respondents (384) comprising of two hundred and thirteen (219) male and one hundred and sixty five (165) female were used as a sample of the study respectively for ensuring good coverage. This is in line with Krejcie and Morgan (1970) table for determining sample size. An instrument developed by the researcher titled the impact of poor solid waste management on public health questionnaire (IPSWMPHQ) was use for data collection the instrument was validated and reliability index of 0.84 was obtained. The data collected were analyzed using descriptive statistics for research questions (Mean and Standard Deviation). The result of the study revealed among others that; poor solid waste disposal lead to outbreak of diseases as the result shows that majority of the respondent were of the view that poor solid waste disposal lead to outbreak of diseases as proof by 38.3% of the respondents. The study concluded that Proper solid waste disposal should be used to ensure public health safety. The study recommended among others that the community leaders of each ward should be encouraged to enlighten people on the dangers associated with poor solid waste disposal through the public enlightenment to stop dumping of solid waste indiscriminately as this may help to reduce the outbreak of diseases.

**Keywords:** assessment, impact, poor solid, waste management, public health.

## **INTRODUCTION**

The growth in the nation industrialization and globalization has resulted into increase in population and generation of solid waste. Nigeria been the most populous in the continent of Africa and ninth in the world makes her one of the largest waste producing country generating more than 32 million tons of waste per annual in which only 20-30% is collected and the rest are dumped in unsafe places (Bakare, 2016). Solid waste management in Nigeria is characterized by insufficient coverage of the disposal in most cities coupled with inefficient method of collection of waste in which co-disposal of both municipal and hazardous waste takes place in unlined dump sites, open space, drainages and other unauthorized places that promotes indiscriminate disposal. This act put humanity at risk by aiding the spread of infectious diseases such as covid-19 that have shock the entire world since its discovery in late December 2019 killing thousands of thousands of people. Historically, human advancement has been intrinsically linked to the management of solid waste due to its effect on both public and environmental health. Solid waste management (SWM) has a long and convoluted history (Nathanson, 2015). Systems of SWM can trace their roots all the way back to ancient times. One of the first instances of waste management occurred in the 4th century A.D. with the Ancient Greeks. The Greeks had to deal with the multiple

challenges of aligning waste removal systems with a growing population, lack of space, and sanitation problems. Waste management practices were very rudimentary with trash just being collected and transported to pits outside the city.

However, it was not until urban populations boomed that garbage was viewed as a threat to human and environmental health. Cities began to grow rapidly to accommodate the growing population and conditions began to worsen for these cramped communities. The plagues that affected Europe between the 14th and 16th centuries were often perpetrated by vermin that thrived in the unsanitary urban conditions that were common during this time. Early waste-management techniques were developed during this period to combat the spread of disease but the political and social problems of the time did not see great strides in waste management (Nathanson, 2015).

Environmental health problems associated with poor solid management has become increasingly one of the local, state, national and international problem in the world, where by government and nongovernment organization have become much concerned the problem that create serious damage which tent to ruin the environment to a greater extent. However the environmental health problems of poor solid waste management touch different perspectives beside health. This study therefore investigates the factors associated with poor solid waste management in Kankia Local Government Area, Katsina State Nigeria.

Solid waste management remain one of the major challenges of urbanization faced by developing countries, the sanitary state of any given area is largely depends and influenced by the waste handling practices of the residents and the measures in place for safe waste evacuation and disposal therefore waste management is all those activities and action required to manage waste from its inception to its final disposal, this include, collection, transport, treatment and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management, encompassing guidance on recycling, re use and reduce etc. The term usually relates to all kind of waste, weather generated during the extraction of raw materials, the processing of the raw materials into intermediate and final products, the consumption of final products, or other human activities including municipal (residential, institutional, commercial, and special (Health care waste) Households hazardous waste, waste management is intended to reduce adverse effects of waste on health and environment, or aesthetics (Lucas and Gilles, (2003).

### **Statement of the problem**

Solid waste management remain one of the major challenges of urbanization faced by developing countries, the sanitary state of any given area is largely depends and influenced by the waste handling practices of the residents and the measures in place for safe waste evacuation and disposal therefore waste management is all those activities and action required to manage waste from its inception to its final disposal, this include, collection, transport, treatment and disposal of waste together with monitoring and regulation. It also encompasses the legal and regulatory framework that relates to waste management, encompassing guidance on recycling, re use and reduce etc. The term usually relates to all kind of waste, weather generated during the extraction of raw materials, the processing of the raw materials into intermediate and final products, the consumption of final products, or other human activities including municipal (residential, institutional, commercial, and special (Health care waste) Households hazardous waste, waste management is intended to reduce adverse effects of waste on health and environment, or aesthetics (Lucas and Gilles, (2003).

However the problem with regards to solid waste management in Kankia has been worse observed due ineffective management of solid waste that is not being practice due to the following reason: - The people of the area are ignorant on the dangers associated with solid waste in diseases transmission that is why they dumped refuse everywhere (open dump) for instance dumping refuse along roadside, drainage, gutters, uncompleted building among others; Shortage of sanitary laborers in the area who help in collection, evacuation and disposal of waste property; Inadequate refuse collection centers that will be used to dumped collected waste from household and various business centers in the area.

However, if the situation is seriously dealt with, could be improved, especially when the above mentioned problem are addressed by creating awareness through proper health education on the dangers associated with solid waste, also provision of enough sanitary laborers and adequate refuse collection centers could

likely minimized the problems of solid waste management in the study area. This study therefore investigates the factors associated with poor solid waste management in Kankia Local Government Area, Katsina State Nigeria.

**Research Questions**

It is therefore in the light of the above the study proposed to answer the following research questions:

- i. What is the impact of poor solid waste disposals on public health in the study area?
- ii. What are the common health problems associated with poor solid waste disposal in your area?
- iii. What are the factors contributing to poor solid waste management in your area?
- iv. What is the common disease associated with poor solid waste management in your area?

**Objectives of the Study**

- i. Find out the impact of poor solid waste disposals on public health in the study area.
- ii. Ascertain the common health problems associated with poor solid waste disposal in your area
- iii. Determine the factors contributing to poor solid waste management in your area
- iv. Examine the common disease associated with poor solid waste management in your area

**METHODOLOGY**

**Description of the study area**

The study will be conducted in Katsina State. The state covers an area of about 23,983 square kilometers with a projected population of 9,921,456 people by 2021 (National Population Commission (NPC), 2017; Ibukun, 2019). The state is located in the North-western part of the country and lies in between latitudes 11° 03' and 13° 05' N and longitudes 07° 21' and 09° 02' east of Greenwich Meridian and bordered by Kaduna State to the South, Niger republic to the North, Zamfara state to the West and Kano as well as Jigawa States to the East. It has two climate seasons; rainy and dry seasons with a mean average rain fall of about 400-1300mm. The climate favours maize, rice, cowpea, groundnut, millet and guinea corn. Major livestock in the state include cattle, sheep, goats and poultry (Saleh and Oyinbo, 2017).

**Sample and Sampling Techniques**

Three hundred and eighty four respondents (384) who are from communities living in kankia local government were selected which comprised of two hundred and thirteen (219) male and one hundred and sixty five (165) female respectively for ensuring good coverage. This is in line with Krejcie and Morgan (1970) table for determining sample size. A simple random sampling technique (ballot boxing method) was also used to avoid bias in selecting the sampled. Thus, the sampled for this study comprised of a total number of 202 living in urban areas which comprised of one hundred and six male (106) and ninety six (96) females and one hundred and forty five (182) respondents from rural communities which comprised of one hundred and thirteen (113) male and 69 female respectively.

**Table 1: List of Sampled wards and Number of communities**

S/N Name of words	Male	Female	Total
1. Urban communities	106	96	202
2. Rural communities	113	69	182
<b>Total</b>	<b>219</b>	<b>165</b>	<b>384</b>

**Instrument for data collection**

The impact of poor solid waste management on public health questionnaire (IPSWMPHQ) was adapted from Arthur, (2022) to determine the influence of Leadership style on Organizational Performance in Public service. The items were developed using the Likert (1973)'s 5- point rating scale involving; Strongly agreed (S.A); Agreed (A); Undecided (UD); Disagreed (D); and; Strongly disagreed (S.D). Each option carried weight in the order of priority from five to one (5-1) in positive responses and from one to five (1-5) in negative responses. The workers asked to freely indicate they impact they feel after being supervised by simply ticking one of the four options that suit their interest. From the items, maximum

score is 120 minimum score was 24 and the average score was 72 respectively. A score of 72 and above signified high impact level and thus acceptance region. A score below 72 indicated low impact level towards supervision and therefore rejection region.

The instrument used for obtaining the relevant data in this research project is questionnaires, in which the questions related to the topic under discussion were asked, so that the respondents can choose from the alternatives options given to them.

**Data Analysis**

The data for this study was analyzed using descriptive statistics (frequency and percentages). The main purpose of using percentages is because it is a measure of central tendency in which the values of all scores at the same time shows whether there is difference between responses.

**Descriptive statistics**

This involves tabular presentation of mean, frequency distribution and percentages of the data to be analyzed. It summarizes and organizes the characteristics of the data to be collected. Thus, the findings related to Likert scale items derived from the sample would be presented.

**RESULT AND DISCUSSION**

**Table 2: Impact of poor solid waste disposals on the public health**

ANSWER	NO OF RESPONSES	PERCENTAGE (%)
Outbreak of diseases	147	38.3
Contamination of water	119	30.10
Contamination of air	59	15.4
Contamination land	53	13.8
Total	384	100

The table 2 above shows the analysis of the impact of solid waste disposal on public health, the result revealed that 147 respondents who represent 38.3% of the respondents confirmed that poor solid waste disposal lead to outbreak of diseases, 119 respondents who represent 30.10% disclosed that poor solid waste disposal causes contamination of water, and 59 respondent who constitutes 15.4% viewed that poor solid waste disposal lead to Contamination of air which could affect public health. While 53 respondents representing 13.8% revealed that poor solid waste disposal lead to Contamination of land. Therefore the result shows that majority of the respondent are of the view that poor solid waste disposal lead to outbreak of diseases.

**Table 3: Common health problems associated with poor solid waste disposal in your area**

ANSWER	NO OF RESPONSES	PERCENTAGE (%)
Rodents infection	103	26.8
Flies infection	94	24.5
Blockage of roads	64	16.7
Unightly condition	47	12.2
Fire outbreak	28	7.3
Pollution	48	12.5
Total	384	100

Table 3 indicated that 103 respondents who constitutes 26.8% are of the view that Rodents infestation is common health problems associated with poor solid waste disposal in their area, 94 respondents who represents 24% revealed that the most common health problems associated with poor solid waste disposal is infestation, while 64 respondents who constitutes 16.7% disclosed that Blockage of roads is the most common health problems associated with poor solid waste disposal and 47 respondents who are representing 12.2% said the problem is Unightly condition, 28 respondents who representing 7.3% said the common problems is Fire outbreak whereas 48 respondents who represent 12.5% disclosed that the

common problems is pollution. This signifies that Rodents infection is the most common health problem associated with poor solid waste disposal.

**Table 4: Factors contributing to poor solid waste management in your area**

ANSWER	NO OF RESPONSES	PERCENTAGE (%)
Poor environmental sanitation	147	38.3
Ignorance	119	30.10
Poverty	31	8.1
Lack of sanitary facilities	64	16.7
Poor law enforcement	23	11
Total	384	100

The analysis in table 4 indicates that 147 respondent who constituted 38.3% revealed poor environmental sanitation as the factor contributing to poor solid waste management, 119 respondents who represent 30,9% disclosed that ignorance is the factor contributing to poor solid waste management, 31 respondents representing 8.1% blamed poverty as major factor contributing to poor solid waste management 64 respondents who constitutes 16.7% said Lack of sanitary facilities is the factor and 23 respondents who are representing 11% said poverty is the factor that contribute to poor solid waste management, 24 respondents who represents 25% said lack of sanitary facilities is the factor, while 11 people representing 11% revealed Poor law enforcement as the factor responsible for poor solid waste management in the area. This shows that poor environmental sanitation as the factor contributing to poor solid waste management as proof by 38.3%

**Table 5: Common disease associated with poor solid waste management in your area?**

ANSWER	NO OF RESPONSES	PERCENTAGE (%)
Cholera	149	38.8
Typhoid	111	28.9
Dysentery	78	20.3
Malaria	46	11.9
Total	384	100

Table 5 revealed the views of the respondents on the disease associated with solid waste management, 149 respondents who represent 38.8% revealed that cholera is the most common diseases associated with poor solid waste disposal, 111 respondents who constitutes 28,9% said typhoid is the common disease, while 78 people who constitutes 20.3% said dysentery is the most common disease and 46 respondents who are represents 11.9% disclosed that malaria is the most common disease associated with poor solid waste management. This signifies that cholera is the most common diseases associated with poor solid waste disposal 38.8%

## CONCLUSION

Based on the finding of this research it was concluded that proper solid waste disposal should be used to ensure public health safety. The poor solid waste disposal can affect the health of public as revealed in findings that majority of the respondent disclosed that poor solid waste disposal lead to outbreak of diseases as proof by 38.3% of the respondents.

Additionally, proper solid waste disposal should be used in order to reduce the occurrence of Rodents infestation as common health problems associated with poor solid waste disposal in their area as proof by 26.8% of the respondents.

Also effective solid waste disposal should be put in place to ensure constant environmental sanitation as the majority of the respondents revealed that poor solid waste disposal is the major factor contributing to poor solid waste management as proof by 38.3% of the respondents. Finally, proper solid waste disposal

should be used to avoid the outbreak of diseases such cholera as majority of the respondents revealed that cholera is the most common diseases associated with poor solid waste disposal as proof by 38.8%

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