

## WASTE DISPOSAL PRACTICE AND HUMAN HEALTH IN URBAN AREAS OF NORTHERN CROSS RIVER STATE NIGERIA

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### ABSTRACT

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The study examined the perceived influence of waste disposal on human health in Urban Towns in Northern Cross River State. The four hypotheses were set as people health, sewage, sludge, liquid and solid waste disposal. A validated four-point Likert type scale questionnaire for the inhabitants of Northern Town Cross River was used to explain the responses of three hundred individuals randomly selected from different people in urbanization Northern Cross River State. Pearson Product Moment Correlation Coefficient ( $r$ ) statistical test was used to analyzed the data collected. The four hypotheses were tested at 0.05 level of significance,  $r$ -critical 159 and degree of freedom ( $df$ )= 298. Among the variables tested all shows significant influence. Based on the findings, it was concluded that waste disposal has negative influence on human health in urbanization of Northern Cross River State. It was also discovered that there is no proper knowledge on scientifically approved refused disposal method, this might be attributed to the fact that the government has not approved any particular method, rather, the council displays notices on open dumping site. Dumping of refuse prohibited "without any provision for alternative dumping site. Effective and sustained mobilization/health education of the people to enable them see the need to accepted positive attitude and practices in matters of refuse disposal, provision of administration units of sanitary refused disposal system example sanitary diversity with tight fitting cover made of galvanized materials at the strategies locations in the area and the people encourage to use them when these are put in place, there should be enhancing legislation making it mandatory for each household to own at least a low cost sanitary dustbins.

**Keynote:** *Waste Disposal, Human Health and Disposal Practice*

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## INTRODUCTION

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The disposal and collection of sewage, sludge liquid and solid waste is a major human health issues and a vital factor affecting the quality of the environment as man quest for survival have resulted to the distortion of the environment both physically and socially. These activities have brought about generation of waste on the earth, which has given mankind concern from urban to rural environmental systems. Although in the origin of settlement pattern it was not seen as a serious problem to tackle, because quantity of waste generated and settlement pattern was in disperse form and the population was not dense in nature. Beatrice & Jussi (2013) noted that the attention to this problem as settlement pattern started increasing in numbers and sizes and population (natural and migration) to have large settlements such as cities and towns, the face of waste changed to become a major problem to tackle in the human health.

The Adewole (2019), stated that emergence of the industrial revolution in the 19<sup>th</sup> century brought about the concentration of population in a particular settlement resulted to the establishment of waste management planning (WMP) and policies by municipal councils. Bullem (2012) opines that Environmental Adult Education should help individuals and social groups gain a variety of experiences on the total environment and to acquire a basic understanding of the total environment, its associated problems and humanity critical responsible role in it. for those seeking for survival through their activities (employment, business activities domestic activities). The waste generated from these activities need prompt attention from city managers, because the inadequacy of tackling this problem such as diseases, sicknesses and vectors that feed on the indiscriminate dumping of waste or refuse without proper disposal (Salan, 2018). This problem caused by indiscriminate dumping of waste, the cities require adequate sanitary conditions, and has enacted sanitary conditions, edicts, by laws and policies faced by these cities and towns on the issues of waste disposal. These have led to better standard of living and human health to promote idea cities physical environment and sanitary in these cities and towns that exercise these policies and laws. most human activities contribute to pollute surface and ground proper waste disposal in any community, town or city it brings reduction in the speed of sanitation related diseases, reduction in the occurrence of non-communicable diseases; reduction of environmental pollution (degradation of land, water and air); improvement in general standard of living and increased life expectancy. Bullem (2012), add that environmental adult education shall also create awareness and help individuals and social groups to acquire social values, strong feeling of concern for the environment and motivation for actively participating in its protection and improvement. Attitudinal change is one of the most important elements of environment adult education that help people to change their attitudes towards nature and other forms of life In line with above Ulayi,Arikpo,Anthony&Tawo opined that education is an indispensable tool for socio-economic and technological transformation of any healthy society. Anipi (2021). Thus, the township ordinance was promulgated, which waste management and sanitation matters were the reasonability of the municipal council in those

towns that were seen as first second township. The municipal council and local government authority, constitutionally carryout these functions and responsibility by enabling their own by laws as to enable them effectively and efficiently carryout waste management within their area of jurisdiction (Salan 2018).

Eunomia (2019) opined that these towns are posed with waste problems. The lack of adequate waste disposal and the use of inappropriate technology such as conditions for waste collection, storage, transportation, treatment and waste disposal methods carrot cope the carryout these functions as to serve the municipality. The problem is becoming a noticeable one resulting to environmental degradation and reducing the quality of the urban form.

To this regard identifying and suggesting more solutions will not solve this matter, but knowing. The magnitude of the problem and also finding adequate solution for present and future occurrences will be essentially significant for the towns of Cross River, because the final disposal of waste is very necessary.

### **STATEMENT OF THE PROBLEM**

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The problem of how waste can be disposed in order not to create harm, or consequences to the human health has been the question of environmental health authorities who are charged with the duty of ensuring proper disposal and management of waste as the perusal health condition in developing countries and in Nigeria in particular have been such that is a threat of life in the area of health and environment and identified to be associated with the ways waste is been disposed indiscriminately along streets, open spaces and drainage line, which impede free flow of traffic and pedestrians movements, congestions and accidents, blocking of drainage channels, contamination of food through rodents and insects that perches on garbage liquid sewage drains from the refuse dumped after rainfall to water bodies and underground water that affects aquatic lives, man and biodiversity (ecosystem). These gave the scenic landscape of the physical environment an unpleasant picture and view waste disposal problem arise from urban growth, which result partly from natural increase and move importantly from migration of population and they're unavoidable at the stage of urban development. The unpleasant situation urban litres have (informal planning) is as a result of inadequate waste disposal planning. The drainage system (nature and man-made) has been block given breeding ground for mosquitoes and other harmful vectors such as flies, rats and other rodents feed on this exposed garbage and spread diseases and sicknesses to inhabitants. These wastes that blocked the drains causes odours of different kinds as the problem increases every day. This result is provided to help manpower and financial assistance through treatment of human health.

The ineffectiveness and inefficiency of waste disposal in urban towns is as a result of poor transportation network (infrastructure) and lack of political will to know. The causes of ineffective waste disposal. The problem of this project is to find out if waste disposal practices have any negative effect on human health in urban town in Northern Cross River State Nigeria.

## PURPOSE OF THE STUDY

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The main aim of the study is to identify the problem of inappropriate disposal of waste in Northern urban areas of Cross River State and perceived influence of waste disposal on the human health and the quality of environment. Specifically, the purpose of this study was to:

1. determine the influence of sewage waste disposal practices on human health.
2. to find out the influence of sludge waste disposal practices on human health.
3. investigate the influence of liquid waste disposal practices on human health.
4. discuss the influence of solid waste disposal practices on human health.

## RESEARCH QUESTIONS

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The research questions to be addressed and to guide this research are as followed

1. Is there any relationship existing between scourge waste disposal practices and human health?
2. Does sludge waste disposal affect human health?
3. Is there any effect of liquid waste disposal on human health?
4. Do solid waste disposal practice influence human health?

## RESEARCH HYPOTHESIS

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From the stated research questions in the study, this hypothesis are hereby formulated for testing:

1. There is no significant relationship between sewage waste disposal practices and human health.
2. There is no significant relationship between sludge waste disposal practices and human health.
3. There is no significant relationship between liquid waste disposal practices and human health.
4. There is no significant relationship between solid waste disposal practices and human health.

### Hypothesis one

The null hypothesis one states that there is no significant relationship between sewage waste disposal and human health.

In order to analyze this hypothesis, Pearson product moment correlation co-efficient analysis ( $r$ ) was used to test the hypothesis at 0.05 alpha level of signifance at 298 degree of freedom.

**Table 1**

Variable r-crit	$\Sigma x$	$\Sigma x^2$	$\Sigma xy$	r-cal
Sewage waste disposal .159	171	6035		
			4328	.319
Human health	129	3697		

\* Significance at 0.05 alpha level, crit, 159, df=298

The result of the analysis as presented in Table 1 indicates that the calculated r-value of (.319) is greater than the critical r-value of (.159) observed under .05 alpha level of significance and 298 degrees of freedom. This implies that the result of the analysis is significant since the hypothesis was rejected meaning there is a significant positive relationship between sewage waste disposal practice and human health of the people. Result presented in table 1 above.

### Hypothesis two

The null hypothesis states that there is no significant relationship between sludge waste disposal practice and human health. In an attempt to analyze this hypothesis the Pearson product moment correlation coefficient was equally used (N=5). Result presented in table 2 below.

**Table 2**

Variables	$\Sigma x$	$\Sigma x^2$	$\Sigma xy$	r-cal	r-crit
	$\Sigma y$	$\Sigma y^2$			
Sludge waste disposal	131	4041			
					.159
Human health	169	6357			

\*Significance at 0.05 alpha level, r-crit. 159, df=298

The result of the analysis as presented in table 2 indicates that the calculated r-value of (.851) is greater than the critical r-value of (.159) at .05 alpha level of significance and 298 degrees of freedom resulting to the rejection of the hypothesis. This therefore implies that there is a relatively positive relationship between sludge waste disposal practice and human health result presented in table 2 above.

### Hypothesis three

The null hypothesis three states that there is no significant relationship between liquid waste disposal and human health. In order to analyze this hypothesis, independent t-test analysis was used result.

Table 3

Variables	N	X	SD	df	t-cal	t-crit
Liquid waste disposal	188	38	690	298	4.434	1.98
Human health	112	22.4	33.2			

\*Significance at 0.05 alpha level, r-crit. .198, df=298

The result of the analysis as presented in table 3 indicates that the calculated r-value of (.851) is greater than the critical r-value of (.159) at .05 alpha level of significance and 298 degrees of freedom resulting to the rejection of the hypothesis. This therefore implies that there is a relatively positive relationship between sludge waste disposal practice and human health result presented in table 3 above.

#### Hypothesis four

The null hypothesis four states that there is no significant influence of solid waste disposal on human health of the people.

In order to analyzed this hypothesis Pearson Product moment correlation coefficient was used.

Table 4

Variables	$\sum x$	$\sum x^2$	$\sum xy$	r-cal	r-crit
Solid waste disposal	221	11159	3631	.369	.159
Human health	79	1353	33.2		

\*Significance at 0.05 alpha level, r-crit. 159, df=298

The above table 4 result shows that there is a significant relationship between solid waste disposal practice and human health. Based on the fact that the calculated r-value of (0.368) is greater than the critical r-value of (.159) observed under 0.05 level of significance and 298 degree of freedom. This implies that the null hypothesis stand rejected while the alternate hypothesis was upheld result presented in table 4 below.

## DISCUSSION OF FINDINGS

This section is concerned with the findings, that emerged from the results of the analysis. The discussion is presented in accordance with the variables of the study.

### **Sewage Waste Disposal Practice and Human Health**

The result of the analysis as presented in Table 1 indicates that the calculated r-value of (.319) is greater than the critical r-value of (.159) observed under .05 alpha level of significance and 298 degrees of freedom. This implies that the result of the analysis is significant, since the hypothesis was rejected meaning there is a significant positive relationship between sewage waste disposal practice and human health of the people. The findings as reported in the data analysis of hypothesis one portray a positive significance. This result is in line with Adewole (2019) who observed that just one third of urban dwellers have access to basic sanitation facilities while less than 20 percent of those in the rural areas enjoy similar facilities. He therefore concluded that most Nigerian that do not have access to sanitary facilities have no option than to defecate indiscriminately wherever they found necessary and convenient. He believes that such comfort zone may be the bushes, water bodies, open space or abandoned buildings. In a similar development, Beacterice and Jussi (2013) opined that poor level of personal hygiene of the average illiterate Nigeria is also one of the significant factor of sewage waste influence of waste disposal practice of human health.

### **Sludge Waste Disposal and Human Health**

The result of the analysis as presented in table 2 indicates that the calculated r-value of (.851) is greater than the critical r-value of (.159) at .05 alpha level of significance and 298 degrees of freedom resulting to the rejection of the hypothesis. This therefore implies that there is a relatively positive relationship between sludge waste disposal practice and human health result presented in table 2. The findings shows that the result was highly significant and that they exist a positive relationship between sludge waste disposal and human health. This result is consonance with the findings as reported by Salan (2018). In his study of waste disposal system in the metropolitan Lagos, noted that the nature of sludge waste disposal system of any urban area is a determinant factor of human health purification and determination rates. He observed that the insanitary pouring of waste water on open space constitute a threat to urban human health and environment quality. He went ahead to state that improper discharging of sludge waste on pathways are frequent phenomena among the urban dwellers since they do not channel their bathroom waste water on the appropriate direction, which he believe the only alternative is the need for proper awareness and change of attitude by the people.

### **Liquid Waste Disposal ad Human Health**

The result of the analysis as presented in table 3 indicates that the calculated r-value of (.851) is greater than the critical r-value of (.159) at .05 alpha level of significance and 298 degrees of freedom resulting to the rejection of the hypothesis. This therefore implies that

there is a relatively positive relationship between sludge waste disposal practice and human health result presented in table 3. The findings as reported in the analysis of hypothesis three portray a significant influence of the two variables. The findings is in line with Uche, Olele, and Nwabueze, (2013) who observed that most of the liquid waste has to do with industrial activities which are either liquid or semi-liquid in nature. He went ahead to observed that activities related to petroleum exploitation and exploitation has caused untold damages to the Nigerian environment. He believes that the impact of oil spillage on on-shore and off-shore has significant influence on the biodiversity lives of the entire ecosystem and he also believes there must be a change in attitude and care toward man and his health.

### **Solid waste disposal and human health**

The above table 4 result shows that there is a significant relationship between solid waste disposal practice and human health. Based on the fact that the calculated r-value of (0.368) is greater than the critical r-value of (.159) observed under 0.05 level of significance and 298 degree of freedom. This implies that the null hypothesis stand rejected while the alternate hypothesis was upheld result presented in table 4. Finding based on the analysis shows a significant influence between solid waste disposal and human health. This findings is in consonance with Beatrice and Jussi (2013), in his study of fifteen Nigerian town attributed the accumulation of solid waste dumps in these cities to inefficiency of the organization saddles with this responsibilities to manage the waste which he believes has been generated at about 440 x 10kg of solid waste per year. In an attempt to cope with this problem, Jassam (2014), recommended that disposal in developing countries should be more efficient and sanitary in nature when dealing with waste disposal and management.

### **CONCLUSION**

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The result of this work from fieldwork observation conclusively shows that waste disposal practices influence public health of the people of Urban Towns of Northern Cross River State. It goes extensively to confirm that the perceived influence of sewage waste disposal practices and human health in Cross River State is a myriad problem. Again, the negative attitude of the residents in the study area toward sludge, liquid and solid waste disposal greatly influence human health.

In order to maintain good and healthy environment in Urban Towns of Northern Cross River State, the government should ensure that the refuse generated are appropriately disposed off by the sanitary workers.

### **RECOMMENDATIONS**

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For effective and efficiently waste disposal to be ensured in Urban Towns of Northern Cross River State and also to save the inhabitants from human health hazards and degradation, the researcher has the following recommendations:



1. Government should conscientiously educate her citizens through the establishment of environmental health policies. This should be done each time a developmental project is being considered in Urban Towns of Northern Cross River State. Such policy should as a matter of fact incorporate national and international organizations like United Nations Development Programme (UNDP), and other agencies.
2. There should be massive public enlightenment through various mass media to help change and create awareness to the masses as regards to waste disposal in Urban Towns of Northern Cross River State.
3. For effective and efficient waste disposal, taskforce on environmental sanitation should be re-organised and properly funded by the government.
4. As an environmental educationist, house to house creation of awareness should be a personal concern.
5. Social clubs in Urban Towns of Northern Cross River State should be intimated on the dangers of improper waste disposals.
6. Non-governmental organisation should extent their programmes to cover whole Cross River State, Nigeria as it is being done in other areas.
7. Regular follow-up inspections and education/encouragement by human health officer should be carried out in the area.
8. More staff should be employed and also there should be understanding between the residents and the staff.
9. Recycling, resource recovery and hog feeding method should be practices for effective waste disposal.

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