

The Minutiae of Solid Waste Disposal Practice as Mechanism of Health Vulnerability

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ABSTRACT

The improper disposal of solid waste is a significant environmental and public health concern in Bida, Niger State. This study assesses the solid waste disposal practices and health implications on the residents. A survey research that applied 285 questionnaire administration and statistical packages was used in analyzing data based on the questionnaire administered with the adoption of convenient and stratification techniques. Purposive sampling was used to select 6 wards from 14 available wards for the study in order to collect the predicted data. The study revealed that most residents dispose of their waste through open dumping and burning, posing significant health risks thus establishes a strong correlation was found between poor waste disposal practices and the prevalence of waste-related diseases such as malaria, diarrhea, and respiratory infections and this was corroborated via the comparative fit index (CFI) was 0.954, and the NNFI was 0.948, both exceeding the 0.9 minimum values and the root mean square error of approximation (RMSEA) was 0.053, below the maximum 0.8 the model results demonstrated path loadings slightly above 0.2 that portend dangers to the health and environment as a whole. Residents' perceptions towards waste disposal were influenced by factors such as lack of awareness, inadequate waste collection services, and insufficient waste management infrastructure. The study concluded that prompt governmental efforts, change in attitudinal behaviour, proper sanitation sensitization and monitoring are substantial solution to improper solid waste disposal practices towards attainment of efficient, safe and healthy environment. Overall, this study provides valuable insights into the complex issues surrounding improper solid waste disposal practices in Bida, highlighting the need for a comprehensive and sustainable approach disposal practice to enhance proper sanitation exercises so as to checkmate the spread of contagious disease.

Keywords: Disposal Practices, Vulnerability, Residents, Health,

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1. INTRODUCTION

The generation of solid waste in urban localities has been growing in geometric progression due to economic buoyancy, population increment and urbanization and thus projected that the management of this waste rise to around 6.1 million tons on daily basis 2030 ((Adobe stock, 2023). The significant and negative impact shall be on both human and environment with groundwater, stream, boreholes, dug wells and sewage system has the rate of solid waste shall have adverse effect on it purities (Opoku, et al., 2020). And unplanned placement of communal bins or garbage sites has resulted endanger water resources, especially water sources like rivers and streams.

Various societal variables, such as population growth and rapid socio-economic global development has contributed to the rapid expansion in supply and demand for goods and products over few decades which eventually led to the increased waste generation without effective waste disposal, new strategies are required to develop varied and flexible urban models of waste disposal; practices. Urbanization is currently one of the major contributors to solid waste output in most parts of the world (Kenny and Prayadsnshin, 2021, Tomita et al, 2020); Hence, the added number via population increase into the area ought to have re-shaped and increased the efforts geared toward proper disposal of waste but reverse is the case as heaps of waste are at increase on daily basis in the our living environment

In several countries in Sub-Saharan Africa, garbage collecting techniques like communal container collection methods appear to be the most prevalent (Opoku, et al, 2020). Common containers (trash bins) are given at designated sites across neighborhoods for homeowners to drop-off their solid waste. Rubbish collection vans then come, and collect these containers, emptying the trash at authorized disposal sites before returning the containers to their original places. However, this trash collection method is faced with several difficulties most of the time leading to uncollected trash bins in various neighborhood.

The population of Nigerian cities is growing very fast in the world due to the large influx of people from the rural areas due to the fact that every citizen in the country's rural areas wants to enjoy the facilities and utilities being provided in the urban centers. Meanwhile, man's activities in the world today is interacting with environmental resources which he utilizes for his food, shelter and clothing, involves generating by - products or wastes. The generation of wastes such as garbage, refuse, trash, junks etc. are consequences of materials being utilized by man (Padmanabhan & Barik, 2019; Ojo, 2025), thus led to waste overflow, ground dumping at collection sites, and unlawful storage areas (Alao et al., 2021). Solid waste disposal is a severe issue because, when burned, it can increase air pollution, and, when thrown in the open, it can contaminate the land, and water in the surrounding areas (Teshome, et al., 2022). The management of solid waste in developing countries faces a variety of challenges, such as a lack of finance and resources, technical challenges, lack of public awareness, and lack of coordination between various government agencies, the public and private sectors (Ojo, 2025).

However, our environment which is supposed to be a comfortable, pleasant and convenient place for living has become a dumping site, and this, has become the greatest concern of Nigerians, in that it has posed problems to the society, causing health hazards and disasters with resulted into loss of aesthetic value of the environment and indiscriminate disposals. Furthermore, an evident has buttressed the growing trend of waste generation that 140,000 tons of solid waste were generated in the city of London in 1970-1971 and a year after, the wastes had increased to about 180,000 tones (Ibrahim, et al, 2021). Several researchers have looked into the health and environmental effects of waste disposal, and they' have discovered that waste and health are inextricably linked (Ojo, 2025).

As a result of the findings of these investigations, scientists have been increasingly interested in the study of environmental contamination and its impact on microorganisms. Realizing the health implication by (Padmanabham & Barik, 2019; Tomita et al, 2020), The severity and extent of the unorganized waste disposal and its management practices may cause crises, thus effective mitigation measures are needed to address this issue in a timely manner in order to promote and improve well-being of the inhabitants and the area at large. This, therefore, necessitates the unveiling of the intricacies of Solid Waste Open Dumping: Is our Health at Jeopardy? Hence Bida Local Government Area becomes the utmost concern to this research work.

2. LOCALE AND POPULATION

Bida as the Headquarter of Nupe kingdom, which lies between longitude 6.25'E and 9.02'E and latitude 6.0'N and 9.06'N and bounded by Gbako Local Government in the North, South by Lavun local government bounded while to the Western part it is bounded by Katcha local government. The population of Bida is a heterogeneous type consisting of different tribes from all over the Nation. According to the 2006 National Population Census, Bida was 185,553 (NPC), it was projected to 2030 to give the present population to be 397,627 persons. The figure 1, 2 and 3 below shows Map of Nigeria showing Niger State, Map of Niger State with all its Local Government Areas and finally the map of Bida Local Government showing all the wards respectively

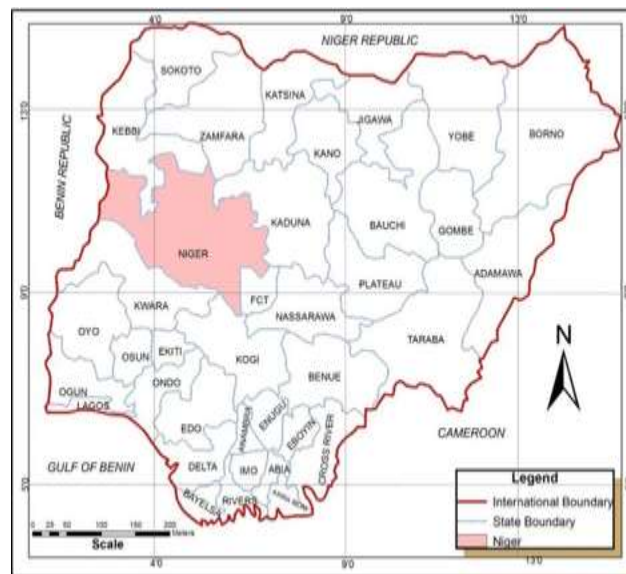


Fig. 1: Map of Nigeria showing Niger State Geographic Position
Source: Niger State Ministry of Lands & Housing. (2025)

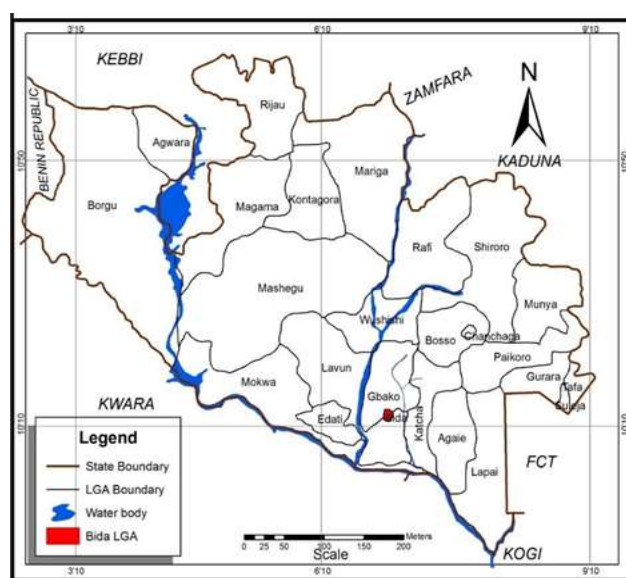


Fig. 2: Map of Niger State showing all the Local Government Areas
Source: Niger State Ministry of Lands & Housing. (2025)

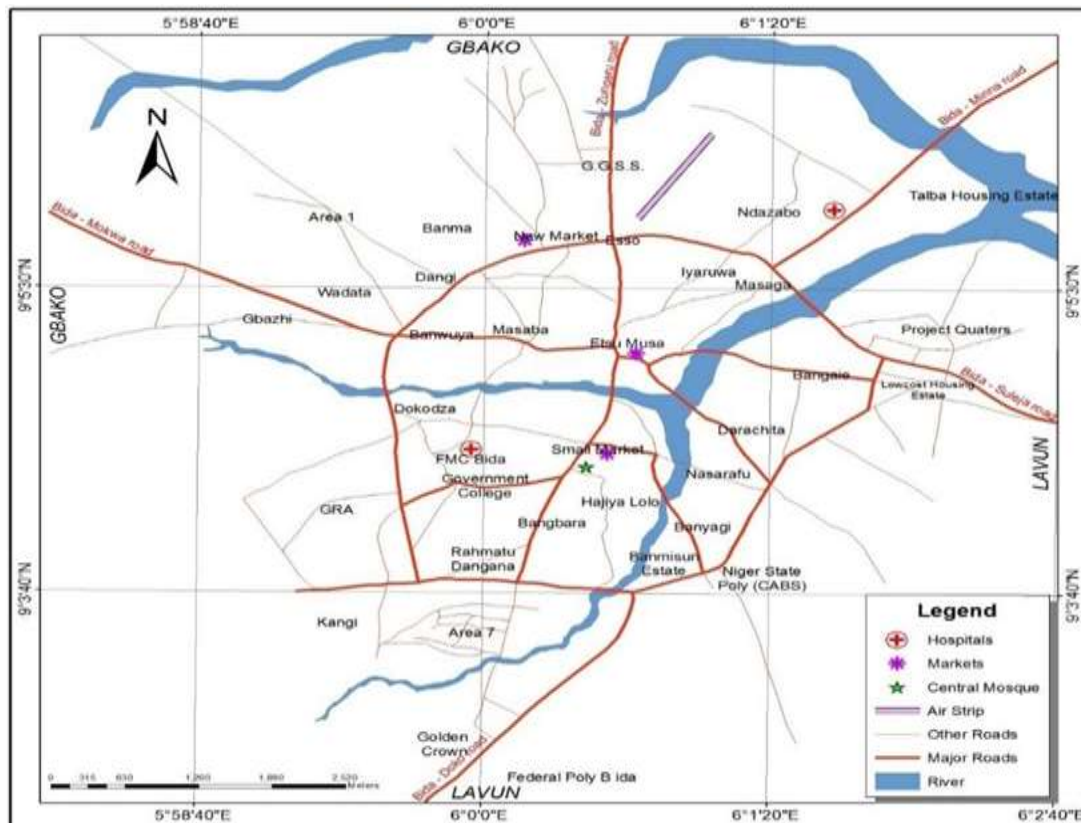


Figure 3: Map of Bida Local Government Area showing all the wards

Source: Niger State Ministry of Lands & Housing. (2025)

Solid Waste Management (SWM)

SWM comprises of range of activities to enhance recycling, reduction, segregation repackaging, sorting and separation of waste (Godswill, et al, 2022; Ibrahim, et al, 2021) geared towards proper waste management. In general terms the constituents of SW can be grouped into: Non-biodegradable inorganic matter; and Biodegradable natural organic matter; Off specification and fire- and water-damaged chemicals of unknown composition and characteristics; Toxic organic compounds; Metals, metalloids and their derivatives; partially biodegradable natural organic matter (Ibrahim, et al, 2021; Godswill, et al., 2022).

Biodegradability conceived as property that environmental conditions influences and the nature of appropriate consortia of microbes. the categories includes Construction industry and demolition waste, Energy-generation waste; Municipal solid waste (domestic, market and trade wastes); Fuel production and Food, beverage and agro-industry waste; Amenity area and garden waste; Slurries from Intensive animal husbandry (animal manures); Slaughterhouse solid waste (including specified materials), catering industry waste; Forestry and forest product industry waste; and diseased carcasses; The major feature of any solid waste that makes it suitable for treatment is that it is either biodegradable or combustible, thereby dictating that such waste fractions must be organic in nature.

Solid Waste Sources, Contents and Composition

Solid waste comprises all the waste arising from human and animal activities in solid form (Debrah et al. 2021). The composition of municipal solid waste varies greatly from place to place and from time to time. It predominately includes food waste, household waste, market waste, packaging materials and products which are no longer useful.

Table 1: Solid Waste Sources and Content

Source	Typical Waste Generator	Solid Waste Contents
Residential	Single and multiple households/ dwellings	Food wastes, paper, cardboard, plastics, textiles, leather, yard wastes, wood, glass, metals, ashes, special wastes (e.g., bulky items, consumer electronics, batteries, oil, tires), and Household hazardous wastes.
Commercial	Shops, Stores, Hotels, Restaurants, Markets, Office, Malls etc.,	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes
Institutional	Schools, Hostels, Hospitals, Government and Private Office Complexes	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes.
Construction and Demolition Waste	Construction sites, road repairs, renovation sites, demolition of buildings	Wood, steel, concrete debris, glass, sand, tiles, bituminous concrete etc.
Municipal Services	Street Sweeping, landscaping, Cleaning of parks, beaches, other recreational areas	Street sweepings; drain silt; landscape and tree trimmings; wastes from parks, beaches, and other recreational area

Source: Debrah et al. 2021.

3. METHODOLOGY

The socio-demographic characteristics of the resident of Bida in relation to socio economic strata local economy, consumption and attitude of the residents towards waste generation were taking into consideration for data collection. The application Geographical Information System (GIS) tool through various programmed - based software's have been employed in locating the major dumping sites on the map at various locations within the study area. Statistical packages was used in analyzing data based on the questionnaire administered with the adoption of convenient and stratification techniques while purposive sampling was used to select 6wards from 14 available wards for the study in order to collect the predicted data. This is because the wards have higher population density, commercial activities and other locational advantages like presence of institutions; Markets and light industries that generates waste on daily basis. The table below show a total number of (17) waste dump sites in the 6 selected wards within Bida.

Table 2: Table for 17 Dump Sites that fall within the Selected Wards

NUMBER	NAME OF WARDS	NUMBER OF DUMP SITES	PERCENTAGE OF NUMBER OF DUMPSITES (%)
1	Masaba A	4	23.53
2	Efuturi	4	23.53.
3	Masaba B	3	17.66
4	Fogun	2	11.76
5	Umaru Majigi	2	11.76
6	Wadata	2	11.76
Total		17	100.00

Source: Author's Field Survey (2025).

In all 350 copies of questionnaire were distributed, 25 copies were not retrieved accounting for 7.14% while another 40 questionnaires were wrongly filled, mal-handed, tore, dirty and filled not up to 50% of the total listed questions (11.43) thus, 285 copies of correctly administered and filled questionnaires were used for the analysis totally 81.43% of the total questionnaires administered. Therefore, the study recorded 285 as correctly filled answered questionnaire and thus supported by Krejcie and Morgan, (1970) (see table 3 Questionnaire distributions in the study area).

Table 3: Questionnaire Distributions in the Study Area

Wards	House Numbers	Pilot Survey Sample & Retrieved	Main Survey Sampled	No of QSN Retrieved & Filled Correctly	Total % of QSN Retrieved
Masaba A	344	28	69	54	78.2
Efuturi	321	25	64	53	82.8
Masaba B	294	22	59	49	83.0
Fogun	269	19	54	47	87.0
Umaru Majigi	261	18	52	44	84.6
Wadata	261	18	52	38	73.00
Total	1750	130	350	285	81.43

Source: Field Survey, 2025

The itemized predicting indicators of variables that measures Solid Waste Disposal in Bida Community and Socio-economic Strata was based on the administered survey questionnaire that led to the formulation of hypothesis and variable to variable test. Therefore, for the quantitative method as applied, structural equation model (SEM) was used for the validation of this research. To authenticate this, the measuring indicator were done via confirmatory factor analysis and validation test (Jöreskog and Sörbom, 1996 in Ojo, 2015) in tandem with two stage process involved in applying SEM i.e. the internal consistent reliability to test un-dimensionality assessed by Cronbach alpha.

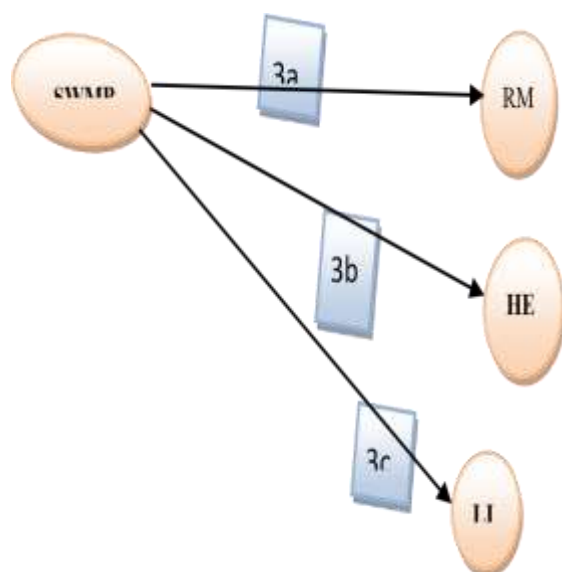
Any value above 0.7 is tagged acceptable threshold according to (Raykov and Marcoulides, 2010; Ojo, 2015) while the second stage process is refers to as convergent validity that was assessed based on factor loading, average variance extracted, KMO and component matrix. And for this study KMO value of 0.7 were appropriately accepted for a sample size adequacy. However, the sample size of this study has KMO value of 0.902 that signifies reliable and valid survey sampling derived from the application of SPSS 18. The selection of sample size did not concentrate on number but it involved sampling size of specific resident with the aid of sampling techniques. The selected sampling techniques (convenient and stratification) were done quantitatively to enhance the equality of respondents and their potential knows- how to answer the questions and provide rich and relevant information for analysis and interpretation.

Hypothesis formulation and Hypothesized Path

According to hypothesis, which states that, "There is significant correlation between Well-being (Healthy) and Solid Waste Disposal Practice in Bida Niger State. To affirm the correctness of either of the assertion, the confirmatory analysis model was advanced in figure 4 and table 4 hypotheses

Table 4: Showing Hypothesis and Hypothesized Path on Rural Revitalization Attainment

Hypothesis	Hypothesized Path
Main Hypothesis	There is significant correlation between Well-being (Healthy) & Solid Waste Disposal Practice
Sub Hypothesis a	Solid Waste Disposal Practice is significantly influence Recycling methods
b	Solid Waste Disposal Practice is significantly influence Livelihood Impact
c	Solid Waste Disposal Practice is significantly influence Healthy Environment.



Note:

SWMP = Solid Waste Disposal Practices
RM = Recycling Methods
LI = Livelihood Impact
HE = Healthy Environment

Figure 4 Proposed Confirmatory Analysis Model of Healthy Environment

The needs for demographic survey in the design of questionnaire is to collect the identity of respondents and their eligibility in responding to questionnaire so as to assess Solid Waste Disposal Practices in relation to residents well-being and good health in Bida in order to recommend relevant and appropriate solutions. (See table 5 demographic data variables)

Table 5: List of Variables of Household Demographic Data

Main Variables	Sub Variable	Items involved
Demographic data	Gender	Male () Female ()
	Age	Below 20 () b. 21 – 30 () c. 31 – 40 () d. 41 –50 () e. 51 – 60 () f. 61 & above ()
	Educational background	a. Primary school not finished () b. Primary school () c. Secondary/ modern school () d.HND, NCE or Bachelor's Degree () e. Master's Degree () f. No education () Others (specify)
	Occupational status	a. Farming () b. Government employee () c. Self-employed () d. Home maker/Draft livestock () e. Student () f. Private Industry () g. Teacher () h. Other _____
	Marital status	a. Married () b. Single () c. Divorce () d. Widow / Widowers ()
	Ethnicity :	a. Nupe's () b. Yoruba () c. Gwari () d. Hausa () e. Ibo () f. Tiv ()
	Length of stay	Below 5yrs () b. Between 5 – 10 () c. Between 11-15 () d. Between 16 – 20 () e. Between 16 – 20 ()

Precisely, this section presents the outcome of analytically data based on respondent's socio-demographic data. To ascertain the degree of exactness and correlate their socio demographic data, various statistical method were used ranging from frequencies of occurrence, percentages, valid and cumulative percentages expressed graphically with the aid of histogram, bar chat and pie chat. The demographic data analysis includes the age of respondents, educational background, ethnicity, gender, and length of stay, marital status and their occupation status in tandem with the study research variables. Below are the outcomes of the analysis

Age of Respondent

It is noticeable from figure 5. that age group 31-40 have the highest percentage of 26.32 % of individuals who responded to the questionnaire, seconded by age group 41-50 (19.30%) while below 20years of age accounted for the lowest percentage (09.47%). the questionnaire distribution gave special consideration to all age cadre so as to document their view on Bida Community regarding waste disposal practices. The histogram below illustrate in details

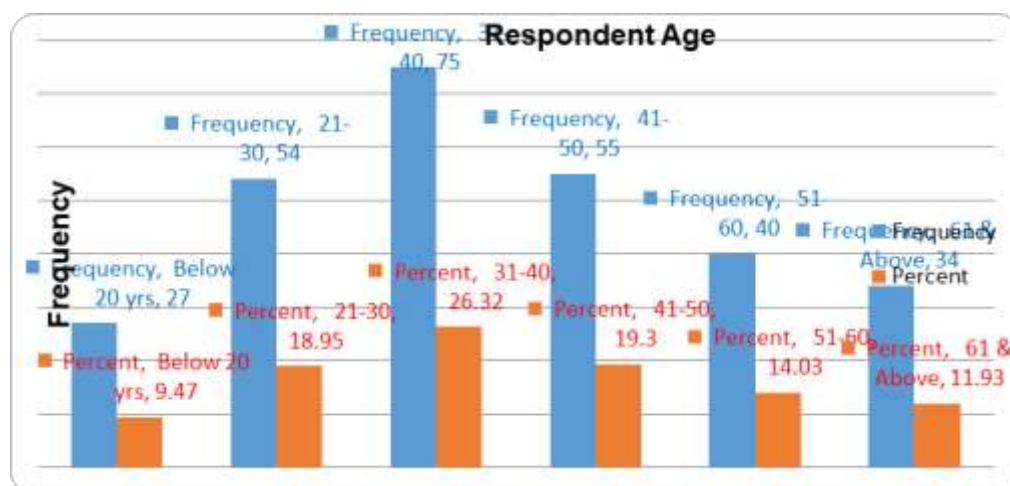


Figure 5: Histogram Showing Ages of Respondents

Educational Background

The pie chart below shows that 29.13 and 25.96% of the people interviewed were illiterate and semi illiterate respectively one deduce therefore the most set of people do engage in traditional fishing and farming mainly, and thus belief there is no need wasting time on school. The elementary educators interviewed carried the second largest percentage of people who really engage actively in fishing, although there are variations in their level of education as both primary and secondary certificates holders accounted for 37.19% (20.35+ 16.84% respectively). The educated elite that obtained degree and master certificate accounted for 07.72%. The implication of the analysis above is that the largest percentages of the population (estimated 75%) do not value the mixing of schooling and their primary activities. (See the pie chart below)

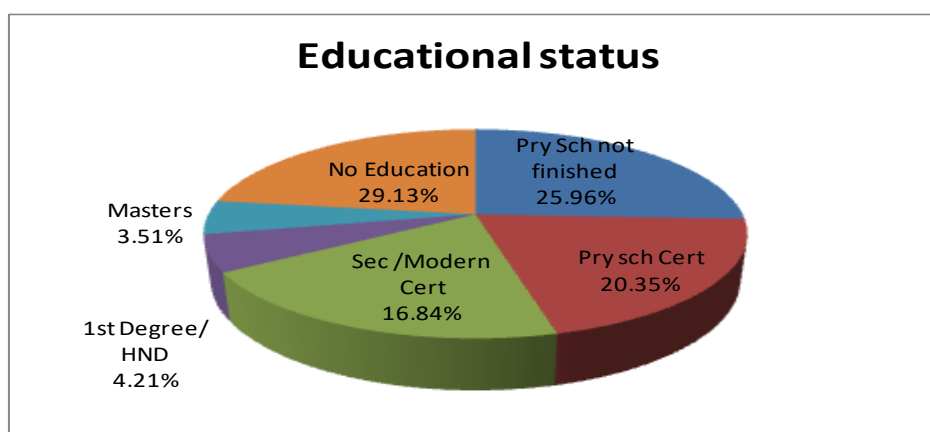


Figure 6: Pie Chart Showing Educational Background of Respondents

Table 6: Ethnicity

Tribe	Frequency	%	Valid %	Cumulative%
Nupe	128	44.91	44.91	44.91
Yoruba	79	27.72	27.72	72.63
Gwari	29	10.18	10.18	82.81
Hausa	23	08.07	08.07	90.88
Ibo	15	05.26	05.26	96.14
Tiv	11	03.86	03.86	100.0
Total	285	100.00	100.00	

Source: Author's Field Survey, 2025

The data in Table 6 reveals that the greater percentage of respondents are Nupes with almost 45% followed by Yoruba ethnic group estimated 27.72% while Ibo and Tiv gulp 05.26% and 03.86% respectively. The implication here is that the community (Bida) is accommodative and hospitable because it harmoniously abode many tribes which is a good yardstick for measuring cultural belief in waste disposal syndrome and by extension it management practices culture.

Table 7: Respondent Gender

Gender	Frequency	%	Valid %	Cumulative%
Male	133	46.67	46.67	43.6
Female	152	53.33	53.33	100.0
Total	285	100.0	100.0	

Source: Author's Field Survey, 2025

The gender of respondents according to Table 7 above became imperatively significant so as be able to identify with both sexes and to determine their level of participation, involvement, cooperation and disposable paradigm, therefore, the female respondent accounted for 53.33% of the sampled population due to the nature of their economic activities and domestic work while their male counterpart took 46.67% as they are always at farmland, offices, fishing or on farm cultivation.

Table 8 Length of Stay

Residency	Frequency	%	Valid %	Cumulative%
Below 5yrs	39	13.68	13.68	13.68
Between 5 – 10	40	14.04	14.04	27.72
Between 11-15	34	11.93	11.93	39.65
Between 16 – 20	61	21.40	21.40	61.05
21 yrs. & Above	111	38.95	38.95	100.0
Total	285	100.00	100.00	

Source: Author's Field Survey, 2025

The purpose of this question is to authenticate the historical background, waste disposal methods, livelihood context and resident vulnerability. The residency year according to Table 4.6 shown that 206 respondents (72.31%) have been staying in Bida for more than 11years which affirmed their veracity to establish the above statement. The remaining 27.69% accounted for respondents below 10years of staying. Hence, length of respondent staying propels the researcher to determine the worthiness of Bida as model for the research. The outcome of this question eventually encourages the researcher to be able to forge ahead due to their eligibility to answer to answer the pertinent question. This became manifested through the responses as almost 70% supported the needs to checkmate open dumping, while 21.3% were not in favour due to their belief that such will take a longer time to reach the demarcated site and that their livestock's will be deprived of free food on nearby dumping site. Finally, the remaining 08.7 percentage were indifference, this is due to their lacadestical or carefree attitude i.e. unconcern nature of some respondents

Table 9: Marital Status

Status	Frequency	%	Valid %	Cumulative%
Married	122	42.81	42.81	42.81
Single	36	12.63	12.63	55.44
Divorce	61	21.40	21.40	76.84
Widow / Widowers	66	23.16	23.16	100.0
Total	385	100.00	100.00	

Source: Author's Field Survey, 2025

Table 9 above represents marital status of the respondents and thus revealed in the same abode while 61 respondents accounted for 21.40% are in divorce cadre. The widower and widows gulp 23.16% of the sampled respondent and lastly, the single accounted 12.63% (least response).

Table 10: Occupational Status

Occupation	Frequency	%	Valid %	Cumulative%
Fishing, craft / Home maker	64	22.46	22.46	22.46
Government Employee	20	07.02	07.02	29.48
Self – Employed	30	10.53	10.53	40.01
Farming	135	47.36	47.36	87.37
Student	19	06.67	06.67	94.04
Teaching	10	03.51	03.51	97.55
Others(Specify)	07	02.45	02.45	100.0
Total	285	100.00	100.00	

Source: Author's Field Survey, 2025

The result of the survey as shown in Table 10 reveals various strata of occupation respond delightfully to the questions which spelt out the importance attached to waste disposal practices. The summation of Bida primary economic activities are 47.36% (135 respondents accounted for farming; Self-employed in fish related activities like blacksmith, fish smokes, net makers, accounted for 10.53%; The Fishing, craft / Home maker operation depicted 22.46% (64 respondents) which got their root from fishing activities). This is due to the fact that their natural River accommodates bountiful aquatics life that can improve the vulnerable as well as diversify their livelihood strategies which hitherto have effect on waste generation and health paradigm. While government employed, students, Teachers, and others totalled 19.65%. Having peruse this table, it may be inferred that the income strata based on the occupational table is difficult to determine as their response is very poor because the findings shows that the respondent reluctantly declined to disclose their income

Hypothesis Analysis and Results

For hypothesis and the sub-hypothesis (a, b and c), Measured variables and their indicators were examined for convergent and discriminant validities. Convergent validity was measured using composite reliabilities and average variances extracted (AVE) Fornell and Larcker, (1981). Composite reliabilities ranged from 0.864 to 0.895. The KMO as revealed by variance measurement and reliability ranges from 0.717 through 0.850, standardize regression weight estimate also shows a range of 0.663 through 0.994 and the component matrix supported the reliability of the variables used as it shown an analysis that range between 0.845 through 0.933 suggesting reliable values above the 0.7 benchmark Raykov and Marcoulides, (2010). AVEs ranged from 0.562 to 0.673, both above the 0.5 benchmark Bagozzi and Yi, (1988) and indicating adequate convergent validity. CFA was used to test the entire measurement model as recommended by Anderson and Gerbing, (1992).

The comparative fit index as shown in table 11 (CFI) was 0.954, and the NNFI was 0.948, both exceeding the 0.9 minimum values recommended Browne et al., (1993). The root mean square error of approximation (RMSEA) was 0.053, below the maximum 0.8 value recommended by Browne et al., (1993). Thus, the model can address the research hypotheses since the measurement model exhibited good fit (Table 12). Shown in Figure 7 model results demonstrated path loadings of 0.23 thus portend dangers to the health and environment as a whole

Table 11: Measurement Variance Analyses and Reliabilities: Disposal Practice

Variables & Indicators	Standardized regression weight Estimate	T-Value	Alpha	Average variance Extracted	Composite Reliability	KMO	Component Matrix
Conservation/ Recycling			0.824	0.562	0.864	0.717	
SD1	0.719						0.845
SD2	0.772	10.872					0.859
SD3	0.816	10.912					0.878
Livelihood Impact			0.931	0.640	.0.886	0.850	
ED1	0.663						0.924
ED2	0.769	16.512					0.918
ED3	0.994	23.355					0.933
ED4	0.826						0.867
Health Threat			0.916	0.673	0.895	0.757	
SL1	0.902	20.711					0.928
SL2	0.869						0.918
SL3	0.887	20.166					0.933

Factor loadings for the indicators were significant at 0.001, indicating good loadings according to (Bagozzi and Yi, 1988). Table 12 presents the structural model output reflecting fit as follows: normed χ^2 for the measurement model was 1.591 ($\chi^2/df = 1.591; df = 283$). Normed values less than 2 suggest high acceptable reliability Bagozzi and Yi, (1988). Adjusted goodness of fit index (AGFI) was 0.837, and the goodness of fit index (GFI) was 0.868, both above the 0.8 marginal values recommended by (Chau and Hu, 2001; Bagozzi and Yi, 1988) see Figure 7 for detail.

Table 12: Management Practice Model Fit Indices.

Measures	Fit index	Scores	Recommended value	Literature
Absolute measures	fit			
	χ^2/df	1.591	$\leq 2^{xx}, \leq 3^x, \leq 5^x$	(Chau and Hu, 2001)
	GFI	0.868	$\geq 0.9^{xx}, \geq 0.80^x$	(Browne et al., 1993)
	RMSEA	0.053	$\leq 0.05^{xx}, \leq 0.08^x$	
Incremental fit measure	NFI	0.951	$\geq 0.90^{xx}$	
	AGFI	0.837	$\geq 0.90^{xx}, \geq 0.80^x$	(Browne et al., 1993)
	CFI	0.954	$\geq 0.90^{xx}$	

Acceptability: Acceptable: xx , marginal: x

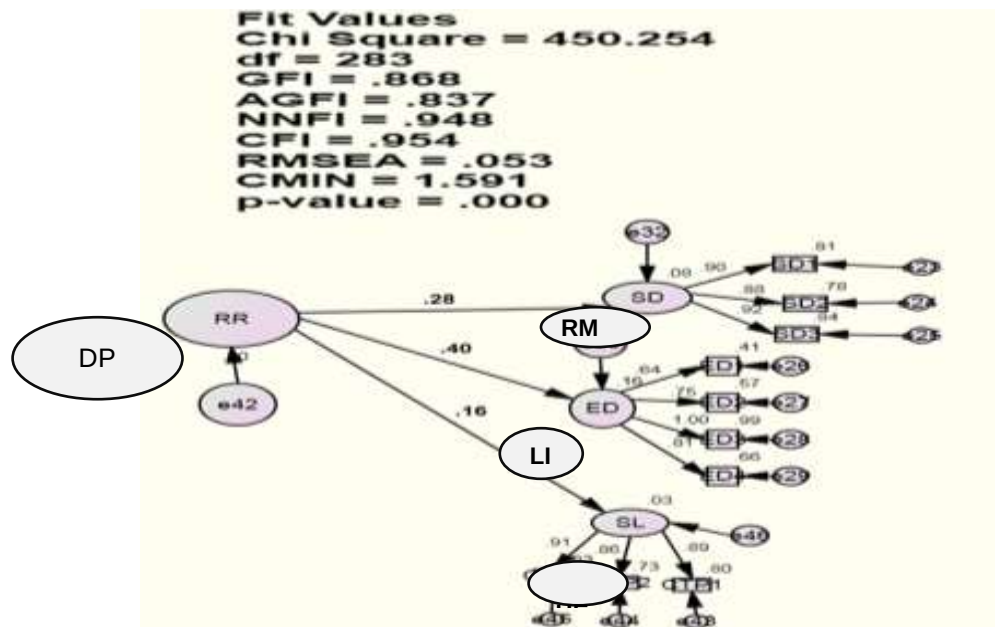


Figure 7: Result of the confirmatory analysis model on Disposal Practices

NOTE: DP= Disposal Practice; CR =Conservation / Recycling; LI = Standard Livelihoods Impact;
HT= Health Threat

4. DISCUSSION ON TESTED HYPOTHESIS & SUMMARY OF STRUCTURAL MODEL RESULTS

The main hypothetical path was seen to be above 0.2 which is the bench mark of acceptable standard hence supported that the findings that the waste management practices have significant impact on the \well- being of the general populace and thus affect the environment negatively. The sub loading of HE₁₋₃, LI₁₋₄, RM₁₋₃ gives support to the measurement too as they all exhibited above the 0.2 acceptable path loading. Finally, Waste Disposal Practice is significantly influence Healthy Environment hence, the result supported hypothesis see table 13 (Summary of Structural Model Results

Table 13: Summary of Structural Model Results

Hypothesis	Hypothesized Path	Path coefficient	Ranking of the Main hypotheses	Results
Main HYPO	There is significant correlation between Well-being (Healthy) and Solid Waste Disposal Practice	0.23	Significant	Supported
Sub hypo a	Solid Waste Disposal Practice is significantly influence Recycling methods	0.28	Significant	Supported
Sub hypo b	Solid Waste Disposal Practice is significantly influence Livelihood Impact	0.16	Partially Significant	Supported
Sub hypo c	Solid Waste Disposal Practice is significant influence Healthy Environment	0.40	Highly Significant	Supported

5. CONCLUSION

The critical evaluation of the research based on finding and interpretation of the data collected has clearly shown that ideal and organized waste disposal paradigm can systemically create a future where waste disposal becomes a driver of environmental regeneration and human health enhancement. The interplay between waste disposal practices and human well-being holds immense potential for positive transformation, and it is our responsibility to navigate this path with foresight, innovation, and a steadfast commitment to a healthier planet and thriving communities. Collaboration among policymakers, industries, communities, and individuals to enact informed waste policies and practices that prioritize both environmental integrity and public well-being if harnessed can combat the health vulnerabilities as indicated in this research.

6. RECOMMENDATION

- ❖ Creation of an official waste monitoring network committee that comprises of community head representative, local government staffs, sanitation officers,, medical expert, interested residents, representative of hoteliers, youth leader and qualified environmentalist so as to enable them contributes their professional skill towards decision-making and the implementation of waste to wealth paradigm.
- ❖ It is highly indispensable that Niger state government in conjunction with Bida local government formulates “Waste Disposal Planning Guide” to be monitored by who has extensive skill, experience and knowledge of the region waste generation and locale cultural belief and antecedents. Therefore, Waste Disposal Planning Guide for the study area should comprises of an individual with vast knowledge of the local behavioural pattern, highly knowledgeable in the local income strata, resources and endowment, approachable and accessible so as to bring about valuable social contributions to residents and community at large.
- ❖ Advance Composting: Promote the widespread adoption of composting practices to divert organic waste from landfills. Encourage Individuals, municipalities, and businesses to compost organic materials and improve soil health for increased farm productivity.
- ❖ Modernize Landfill Practices: Implement innovative landfill technologies that mitigate the environmental impact of waste disposal. Embrace techniques that minimize leachate and methane emissions, ensuring safe and responsible waste containment.
- ❖ Cross-Disciplinary Research: Encourage interdisciplinary research collaborations between environmental scientists, public health experts, policymakers, and urban planners. Such collaborations can yield holistic waste disposal solutions that prioritize both environmental integrity and human well-being.
- ❖ Long-Term Vision: Develop and adopt long-term waste disposal visions that align with broader sustainability goals. Strive to balance economic development with ecological stewardship and public health considerations.
- ❖ The household-level proper segregation of waste has to be done and it should be ensured that all organic matter is kept aside for composting, which is undoubtedly the best method for the correct disposal of this segment of the waste. In fact, the organic part of the waste that is generated are more easily, attracts insects and causes disease. Organic waste can be composited and then used as a fertilizer

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