

Attitudes of Residents to Solid Waste management in Obio/Akpor Local Government Area, Rivers State Nigeria

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Abstract: Obio/Akpor Local Government is in Rivers State, Nigeria and is one of the local governments with growing urbanization. It is also beset with myriad of problems of waste management. This problem stems from attitude of residents to waste management and others. This study aims to investigate the attitudes of residents to waste management in Obio/Akpor Local Government, Rivers State. The method of study was cross-sectional survey and questionnaires were used. Analytical technique includes simple percentages and ANOVA test was used for the hypothesis. The hypothesis result showed no significant difference in the attitudes of the residents of Obio/Akpor Local Government Area to Solid waste Management. To achieve this, the entire households' waste management operations were examined alongside their perceptions and attitudes (beliefs, emotions and behaviours). Data from the survey were collated and statistically analysed with the ANOVA technique to test the hypothesis. The study also revealed that the respondents were knowledgeable about waste management, but attitudinal problems affected their level of compliance. Furthermore, it was discovered that variations exist in the attitudes of the residents of the study area in the way solid wastes are managed. Some recommendations include stricter penalties to defaulters of waste management laws or the non-compliant residents. To improve on solid waste management in the LGA, the services of Rivers state Waste Management Agency must improve to include the adoption of the (3Rs) in waste management. Adequate public enlightenment on good sanitation habits to be disseminated to schools and colleges. The government should take steps to improve the present open dump system to engineered landfill sites to improve the sanitary condition of the local government and the state at large.

Key-Words: Attitudes, Residents, Solid waste, Management, Obio-Akpor.

1. Introduction

Attitude as a concept has been of interest to almost all disciplines that has to do with human Psychology. This is because attitude affects the way people perceive and act towards others, objects or events that they encounter, (Afangideh, Joseph, and Atu, 2015). Besides that, attitudes can also have an effect on one's social interactions. These factors contribute in making attitude an interesting focus of study. Defining attitude has so far been very pluralistic and relative. Various definitions given for the concept have been either based on perspective, approach or due to numerous other factors. Baron and Byrne (1987) gave definition of attitude which is a lasting, general evaluation of people (including oneself), objects, or issues. Attitude is lasting because it persists across time. According to Schneider (1988), 'Attitudes are evaluative reactions to persons, objects, and events. This includes your beliefs both positive and negative feelings about the attitudinal object'. He also added that attitude can guide our experiences and decide the effects of experience on our behaviors. He posited that attitude lasts, and it is not a momentary feeling. Furthermore, Albarracin, Johnson, and Zanna, (2005), defined attitudes to include the general way people feel towards socially significant objects and most attitudes are lasting. Attitudes are generally understood to be formed through a process of individual subjective evaluation (involving a rational assessment of costs and benefits), but also influenced by affective and emotional responses and related beliefs, (Lutui, 2014). Attitudes are defined as being specific to an object or behaviour while beliefs are more generic, relating to a wider worldview, and tend to be more stable, (Bohner and Wanke, 2016). This can be likened to a statement made by Vaughan and Hogg (2013), that Attitudes are relatively permanent, persist across times and situations. In brief, it could be said that, attitude is a positive or negative evaluations or feelings that people have towards other people, objects, issues or events, (Umeduji and Aiseuebegan, 2016). In Rivers State, Agwu (2012) conducted a research on issues and challenges of solid waste Management Practices in Port Harcourt City, Nigeria a behavioural perspective. The aim of this research was to ascertain the attitude of individuals and background (sex, age and social class) and the level of awareness, knowledge and practices of solid waste management in Port Harcourt city residents. The research assumed that the background (sex, age and social class) of Port-Harcourt city residents influences their attitude, subjective norm and perceived behavioural control, thus determining the behavioural intention/actual behaviour that is, the level of awareness, knowledge and practices of solid waste management. Furthermore, in 2017, a pilot survey carried out in Obio/Akpor local government near Port Harcourt revealed that the sampled zones were aware of solid waste

management problems in their environment, but possessed poor behavioural attitudes on waste management practices. The survey therefore recommended among others: sensitization of the residents on the dangers of poor attitudinal behaviour on solid waste management, provision of nearby solid waste collection points, enactment of waste management laws with stiffer penalties on offenders, establishment of solid waste recycling plants, effective monitoring of waste contractors, provision of more waste evacuation equipment, provision of more solid waste dump sites and effective monitoring of monthly clean-up activities. These measures proffered through the pilot study motivated this research. More so, personal interviews with some individuals in the communities corroborated the pilot survey in the study area. Some common methods of waste management practices prevalent in the study area were identified. The most common included: incineration (burning), reuse (in the case of compost making and manure), dumping into drainage channels, recycling, open-dumpsites/landfill, indiscriminate dumping/littering (done anywhere), etc. More so, the residents were of the opinion that the above behaviours towards waste and its management, stems from attitudes which are contributed by factors such as the Level of education, level of income, accessibility and proximity to dumpsites, ineffective government efforts on waste management, population increase, type of waste, age/health status, family background (family size and social orientation), Land use pattern and deliberate actions (laziness and outright bad habits) etc. These opinions alongside related works reviewed on waste management in some cities in Nigeria motivated this research in Obio/Akpor local government in Rivers State.

2. The Research Questions

1. What methods of solid waste management are practiced in the Local Government Area?
2. What are the residents' attitudes towards solid waste management in the area?
3. What is the level of participation of residents in the Solid waste management in the local government area?
4. What are the factors that influence the attitude of residents towards solid waste management?

3. Aim and Objectives of the Research

This research aims at investigating the attitudes of residents of Obio/Akpor Local Government Area of Rivers State to waste Management.

4. The Study Objectives includes to;

1. Identify the methods of solid waste management in the local government area.
2. Examine the attitudes of the residents towards Solid Waste Management in the local government area.
3. Identify factors that influence the attitudes of residents to solid waste management activities in the Local Government Area.
4. Examine how the residents participate in Solid Waste Management activities in the local government area.
5. Make recommendations on how the residents' attitude to waste management can be improved upon in the local government area.

5. Research Hypothesis

Null Hypothesis (H_0): There is **no** statistical significant difference in the attitudes of the residents of Obio/Akpor Local Government Area to Solid waste Management.

Alternate Hypothesis (H_1): There **is** significant difference in the attitudes of the residents of Obio/Akpor Local Government Area to Solid waste Management.

Rumudogo, Rumuegba, Rumuekini , Rumuekwe, Rumueme, Rumuepirieli, Rumuepirikom , Rumuewhara, Rumuibekwe, Rumuigbo, Rumumduru , Rumuodara, Rumuodomaya, Rumuoji, Rumuokoro , Rumuokro, Rumuokwachi, Rumuokwuota, Rumuokwurusi , Rumuola, Rumuolukwu, Rumuomasi, Rumuomoi , Rumuosi, Rumuoto, Rumurolu, Rumusara , Rumuwaji, Rumuwegwu, Runuobiakani, Ozuoba , and Woji.	Rumuoaholu Rumuekini Rumuepirikom Rumumduru Rumuokoro Rumuokwurushi Rumuomoi Rumusara Ozuoba.
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9. Instrumentation/ Data Analysis

For each question, variables represented the different responses to questions and they were close and open ended questions. Likert scaling and checklist ranking was assigned numerical values and then the data was recorded in frequencies. Data analysis includes use of simple percentages, tables, frequencies and Analysis of variance (ANOVA) technique to test the hypothesis. Furthermore, about five communities were selected randomly from the fifteen sampled communities and a total of 275 questionnaires were distributed to the five communities. The communities sampled were Alakahia, Mgbuoba, Ozuoba, Rumuokoro and Rumuokwurushi. At the end the exercise about 250 questionnaires were returned which represents 91% response rate.

10. Demographic Data of Respondents

According to the field survey, Table 2, shows the scale of response in favour of males to the tune of 53.6% and the females, 46.4% respectively.

Table 2: Gender Responses

Sex	Alakahia	Mgbuoba	Ozuoba	Rumuokoro	Rumuokwurushi	Total	Percentage (%)
Female	24	28	22	15	27	116	46.4
Male	30	18	30	35	21	134	53.6
TOTAL	54	46	52	50	48	250	100

Age of Respondents

Table 3, below showed the age brackets of respondents from 30 – 49 years (44%). In Rumuokoro, most respondents (30 out of 50 persons) were between 30 – 49 years. In other communities sampled, respondents were mostly between 18 to 49 years age bracket. This was in contrast to the few 18years and above 50years respectively.

Table 3. Age of Respondents

Age (years)	Samples (Communities)					Total	Perc.(%)
	Alakahia	Mgbuoba	Ozuoba	Rumuokoro	Rumuokwurushi		
Under 18	8	14	5	8	3	38	15.2
18 – 29	19	12	17	10	14	72	28.8
30 – 49	21	15	20	30	24	110	44
Above 50	6	5	10	2	7	30	12
TOTAL	54	46	52	50	48	250	100

Household size: Table 4, shows that (48%) of the total respondents were from the medium household size (6-10), while (1-5) household were 33.6% and above (10) were 18.4% respectively.

Table 4. Household size of Respondents

Household size	Survey distribution	Percentage (%)
1-5	84	33.6
6-10	120	48
10+	46	18.4
TOTAL	250	100

Education Attainment of Respondents:-The level of education attained by an individual is undoubtedly a possible factor that may influence the individual's attitude personally and socially. An enlightened man would make informed decisions when faced with several options, while an un-educated person may feel the abnormal to be normal. The situation in Obio-Akpor local government in Rivers State as shown in Table 5, gives a

summary of the educational attainment of respondents. About 28.4% have Tertiary education, while 22.4% have Vocational/Technical education, 16.0% have secondary education, while 24% had Primary education respectively. The table shows an enlightened and informed society and citizens, but the fact remains that attitudinal or Nigerian factor has permeated into their life styles as it pertains to proper waste management. The attitudes of the people are negative, because they perceive the environment to be owned by nobody, thereby litter the waste indiscriminately. This was the case in Obio/Akpor local government as it is in other local governments in Nigeria.

Table 5.The Education Attainment of Respondents.

Education level	Survey size	Survey Percentage (%)
No Schooling	23	9.2
Primary School	60	24
Secondary School	40	16.0
Vocational/Tech. Education	56	22.4
Tertiary Education(University/Polytechnics)	71	28.4
TOTAL	250	100

Occupation of Respondents: - From Table 6, about (34%) were business men,interviewed in their shops and business centres. The next in ranking was private professionals (31.6%). The least represented category of occupation was the free lancers who were just 16%out of the respondents.

Table 6.The Occupational Category of Respondents.

Occupation	Survey size	Survey percentage (%)
Civil Servants	30	12
Private professionals	79	31.6
Business man/woman	85	34
Free lancers	16	6.4
Others: Students	40	16
TOTAL	250	100

Average Family Annual Income: - From Table 7, a very high proportion of the respondents were in the high income category, about 70% of the sample population earn about N500, 000 to N800, 000 annually while less than N500, 000was 10%, and above N800, 000 was 20% respectively.

Table.7. Annual Income Levels of Respondents.

Income (Naira)	Survey size	Survey Percentage(%)
Less than N500,000	25	10
About N500,000 to N800,000	175	70
More than N800,000	50	20
TOTAL	250	100

11. Residents’ Attitudes to Waste Management

This section represents the responses on the general emotions, beliefs and actions (willingness of the people residing in Obio/Akpor Local Government Area of Rivers state to participate in waste management). Table8 and 9shows clearly the respondents attitude towards waste management in the study area. In Table 8,about 39.6% respondents indicated that they don’t really practice waste storage in their homes. About 38.8% expressed their positive emotion towards waste handling. This invariably means that majority of the residents would prefer a better way of storing waste than what already exist in their area. On the other hand, Table 9, elicits their willingness to participate and partner with the government in waste management. Their responses were thus38.8% of residents are willing to participate if given the right education and orientation about waste management, 22.4% are not willing, 20.0% are undecided, while 18.5% said nothing. Thus the assertions affirm the problem of attitude and not that of willingness.

Table 8.Emotions (feelings) to Waste Storage

Emotional Status	Survey size	Survey Percentage(%)
Like it Very Much	23	9.2
Like it	97	38.8
Don’t really like it	99	39.6

Don't like it at all	31	12.4
TOTAL	250	100

Table 9. Willingness to participate in waste management by Respondents.

Willingness to participate	Survey size	Survey Percentage (%)
Very willing (yes)	97	38.8
Not willing (No)	56	22.4
Indifferent (undecided)	50	20.0
No Response	47	18.8
TOTAL	250	100

Furthermore, Table 10, elicited the respondents' beliefs and possible actions. They were asked to indicate how they would store the waste in their homes if asked to do it themselves. Their responses on the beliefs of residents on waste storage is summarised in Table 10. About 107 respondents preferred plastic bags for storage of wastes, 73 respondents says they prefer closed containers, while others had other choices, cartons, open containers etc.

Table 10. Waste Storage Preferences in Obio/Akpor LGA.

Communities	Plastic bags	Cartons	Open container	Closed container	Open pile	Basket	Others	TOTAL
Alakahia	13	9	6	15	3	8	-	54
Mgbuoba	22	2	4	16	1	1	-	46
Ozuoba	24	1	4	17	4	2	-	52
Rumuokoro	25	5	2	13	1	4	-	50
Rumuokwurushi	23	5	3	12	3	2	-	48
TOTAL	107	22	19	73	12	17	-	250

12. General Awareness of Obio/Akpor Residents on Waste Management

It is imperative to examine the state of the knowledge and awareness of the residents on waste management as this can have either negative or positive impact on the residents and the environment. Table 11, shows that about 52% respondents are unaware, of its health impact and 44% unaware of its environmental impact. However, about 49% of respondents are aware of the impact of improper waste management on the economy. The difference between lack of awareness and unawareness are subjective, depending on individuals.

Table 11. Knowledge of impacts of Improper Waste management.

Impacts	Don't Know (%)	Indifferent (%)	Aware (%)	Unaware (%)
Health	3	13	32	52
Environment	1	17	38	44
Economy	8	31	49	12

On their general waste management practices, Table 12, shows that about 85% of the respondents dump their waste anywhere indiscriminately, 77% dump their wastes in uncompleted buildings, while 44% each dump in open drainages and road side respectively.

Table 12: Waste Disposal Practices

Scenarios	Throw away Carelessly	Throw into the gutter nearby	Dispose properly	TOTAL
Dumping anywhere	3	39	43	85
Dump in structures (buildings)	1	12	64	77
Dump on roads at night	14	16	14	44
Dump at open drains	7	28	9	44
TOTAL	25 (10%)	95 (38%)	130 (52%)	250

More so, Table 13, shows the available infrastructural facilities for waste management in the local government. The analysis shows that 61.2 % of respondents said that these infrastructural facilities (designated dump site, central collection points, waste trucks etc) were available, while 38.4% said they are not available.

The information lends credence to the general apathy by the people rather than the provision of infrastructural facilities.

Table13: Infrastructural facilities Provision for waste management at the local government.

Infrastructures	Available	Not Available	Total
Designated Dump site	40	26	66
Designated collection Points	47	33	80
Waste Collection Trucks	46	24	70
Private Vendors	20	14	34
TOTAL	153(61.2%)	97 (38.4%)	250

13. Hypothesis Testing:-On Emotions of respondents to Solid Waste Management

The data on Emotions in the five sample communities was analysed using Analysis of Variance (ANOVA) test tool as shown in Table14.

Table 14. ANOVA Test (1)

Source of Variation	Sum of Squares	Degree of Freedom	Mean Sum of Squares
Between Variance	3.5	4	0.875
Within Variance	1091.5	15	72.767
Total Variance	1095	19	57.632

- Test for Significance (Fischer Value) $F = \text{Higher Variance Estimate} / \text{Lower Variance Estimate} = 72.767 / 0.875 = 83.16$

Table value = Lower Degree of Freedom under Higher Degree of Freedom on the Fischer Table = **19 under 4 = 2.90 (at 0.05 significant level)**The Calculated value (83.16) is *greater than* the Table Value (2.90), reject the Null Hypothesis.**Conclusion:**There is a statistical significant difference in the **Emotions** of the residents to Solid Waste Management in Obio/Akpor LGA of Rivers state.

On Beliefs of Respondents to Solid Waste Management:-Using ANOVA Test as shown in Table 15.

Table 15. ANOVA Test (2)

Source of Variation	Sum of Squares	Degree of Freedom	Mean Sum of Squares
Between Variance	-334	4	-83.5
Within Variance	723	15	48.2
Total Variance	389	19	20.474

- Test for Significance (Fischer Value) $F = \text{Higher Variance Estimate} / \text{Lower Variance Estimate} = 48.2 / -83.5 = -0.58$. **Table value** = Lower Degree of Freedom under Higher Degree of Freedom on the Fischer Table = **4 under 15 = 5.86(at 0.05 significant level)**The Calculated value (-0.58) is *less than* the Table Value (5.86), accept the Null Hypothesis.**Conclusion:** There is **no**statistical significant difference in the **Beliefs**of residents to Solid Waste Management in Obio/Akpor LGA of Rivers state.

14. Key Informant Survey: Rivers State Ministry of Environment

The Commissioner for Environment during a brief interview the researcher, re-affirmed the policy statement made by the present Governor of the State, that the present practice of waste management is waste re-distribution and not disposal and; (i) that the government will intensify adequate public enlightenment on waste management in the state and the local governments using the best practices, and that the policy would be integrated into the school's curriculum, (ii) A modern gas powered incinerator will be acquired in the state for disposal of waste by incineration conscious of its air pollution effects. And (iii) that proper and engineered land filling system of waste management would be practiced instead of the open dumping system already in existence. These are laudable policies if implemented.

15. Conclusion

In this study, the major task carried out was to analyse the attitudes of the residents of Obio/Akpor local government area of River state to solid waste management. The study discovered that majority of people practice illegal dumping, disposing waste into the drainages, roads, unfinished structures, nearby stream, this findings corroborates Afangideh et al, (2015) in Obio/Akpor who also found out that some residents were simply lazy and/or reluctant to dispose their waste which represents a negative attitude. On the aspect of impacts of

improper waste management on health and the environment, most of the respondents were unawareness of the health implications; this aligns with the finding reported by Adeyemo et al (2014), also Tables 11 and 13 in this research attest to the assertions. The study also found that littering and improper waste management practices were related to the attitudes of the people living in the study area, although Table 9 showed their willingness to participate in waste management, but attitudinal problem has inhibited their willingness. In order to authenticate this, the research sought statistical, difference on attitudes towards solid waste management practices of the residents of Obio/Akpor Local Government Area. This was shown in the ANNOVA results tests. The study recommended a re-orientation and a general attitudinal change by residents, that is (feelings/emotions, beliefs and practices/actions) of the residents of Obio/Akpor Local government must be positive. The general apathy of individuals towards waste must be discouraged through massive public enlightenments campaigns in the communities, schools and colleges. The realization that waste could be turned to resource is recommended through household sorting; waste exchange, waste incentives and waste buy-back measures by the private partnership initiatives (PPI) and also government setting up an integrated waste management system (IWMS), is suggested. On Legislation, policy and enforcement: The River State government should consider formulating a waste management policy to guide the waste management practices and activities in Obio/Akpor local government as well as the State at large.

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