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Attitude and Pattern of Solid Waste Management Practices among Residents of Oshodi-Isolo Local Government Area Lagos State, Nigeria

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Abstract

Indiscriminate disposal of solid waste pollutes the environment and poses a health risk to the public. This study therefore examined the attitude and pattern of solid waste management practices among the residents of Oshodi-Isolo Local Government area, Lagos State.

The study employed a descriptive cross-sectional design. A Multi-stage sampling technique was used to select 600 respondents for the study. A validated semi-structured interviewer administered questionnaire was used for data collection. Descriptive and inferential statistics were conducted to give statistical responses to the research questions and hypotheses using SPSS version 23.

The mean age of respondents was 38.28±12.48years. More than half (51%) of the respondents were male. Majority (91%) of the respondents had positive attitude towards solid waste management. More (61.8%) of the respondents' reported that they had waste bins in their houses. Less than half 247(41.2%) of the respondents did not separate their wet and dry waste before they disposal. Few (15.8%) of the respondents' burned their waste. There is a significant relationship between resident's attitude (r =0.14, p=0.00) and their solid waste disposal practice.

Most of the respondents had a positive attitude towards proper waste management and poor practice of solid waste management. It is recommended that the government through the federal and state ministries of Health and Environment should create awareness via seminars, radio, televisions, and social media to teach best practices in waste management.

Keywords: *Attitude, Pattern, Waste, Management, Residents.*

Introduction

The management of solid waste continues to be a major challenge in urban areas throughout the world, particularly in the rapidly growing cities and towns of the developing world [1]. Currently, world cities generate about 1.3 billion tons of solid waste per year and this volume is expected to increase to 2.2 billion tones by 2025, more than doubling in lower-income countries [2]. This may affect the adverse health population due to being caused by vector-borne disease.

Nigeria generates more than 32 million tons of solid waste annually, out of which only 20-30% is collected. In Lagos the per capita waste generation per day was 0.5 kg, the city generates more than 10,000 tons of urban waste every day [3]. This rapid growth could be attributed to increases in both population and economic development. Increasing urbanization, changes in consumption patterns, and rapid developments in technology have all contributed to an increase in demand for goods and services which lead to the introduction of different products to meet up with consumer needs and demand [4]. These factors together with the lack of effective recycling activities increased both the quantity and the variety of solid wastes generated and disposed-off as waste.

In Oshodi-Isolo Local Government area, it can be observed that too much garbage is lying uncollected in the streets, and other construction debris in a manner best described as "throw it where you like" that now resulted to piles of refuse dotting the entire metropolis causing inconvenience, environmental pollution, and posing a public health risk. Despite the efforts made by various levels of government to sanitize the environment, it is still filthy and harms the wellbeing of residents; most parts of the Oshodi-Isolo are hardly free of the waste menace since the PSP operators took over the refuse clearing.

Besides the health problems, solid waste blocks the drainage system and causes severe flooding on the streets especially during the raining season.

Several types of research have been done on solid waste collection and management crisis in Nigerian cities. The majority of this literature is devoted to explaining the basis for high waste generation, inefficient waste collection and management in urban areas [5-8]. The waste collection problems in Nigeria have been attributed to lack of awareness, lack of enabling legislation, poor public enlightenment, inappropriate technology, poor infrastructural maintenance, and the noncommittal posture of waste management workers, the attitude of the public, group behavior, education, poverty and corruption [9, 10]. Also, the substantial problems highlighting waste generation, collection, disposal, and management in urban areas of developing countries have been widely documented [9, 11, 12].

However, there is a paucity of research on attitude and patterns of solid waste management practices among the Residents in Nigeria. This study focused on attitude and patterns of solid waste management practices among the residents of Oshodi-Isolo Local Government Area, Lagos State, Nigeria.

Material and Methods

The study adopted a descriptive cross-sectional design. The study population included permanent residents of the Oshodi-Isolo Local Government Area.

Description of the Study Area

Oshodi- Isolo is a Local Government area within Lagos state. It was formed by the second republic Governor of Lagos State, Alhaji Lateef Kayode Jakande. The LGA is part of the Ikeja Division of Lagos State, Nigeria. At the 2006 census, it had a population of 1,134,548 (Male- 514,857, Female- 619,691, Source: Lagos state ministry of Science and Technology) and an area of 41.98 square kilometers (Source: Surveyor-General Office, Secretariat, Ikeja, Lagos State). The Historical development of Isolo Local Government Area dates back to the creation of the defunct Oshodi-Isolo Local Government on Tuesday, 28th October 2003. The history dates back to the early part of the 15th century when the Awori's of the present Lagos State was said to have migrated from Ile-Ife led by Akinbaye. Isolo Local Government is located in the Lagos- West Senatorial District of Lagos State. It shares boundaries with Amuwo, Ejigbo, and Ikeja Local Government Areas. It is bounded in the west by Amuwo Local Government via Ago-Palace way Okota. In the North, by Ejigbo Local Government Oke-Afa, Ejigbo, and in the North- East (NE) by Ikeja Local Government. The total population of Isolo Local Government Area is 62,509 consisting of 37,250 females and 25,259 males.

Multistage sampling technique was used to select the 600 respondents.

Measures

Attitudes towards solid waste management were measured on a 30 point-rating using a 4-point Likert response scale which consists of 10 items ranging from SA- Strongly Agree to SD- Strongly Disagree. The best option was assigned 3, while the wrong response was assigned zero. Attitudinal disposition scores were classified into two based on the 50th percentile. Those who scored between 0-15.9 were regarded as having a negative attitude, and those who scored 16-30 were regarded as having a positive attitude.

Pattern of solid waste management practice measured on an 11-points response scale. It comprises Yes/ No questions. One (1) was assigned to the correct answer while zero (0) was assigned to the wrong answer. Waste disposal practice scores were classified based on the 25th percentile into three. Those who scored between 0-5.5 had poor waste disposal practices; those with 5.6 to 11 had good waste disposal practices.

Validity and Reliability

The instrument was pre-tested with the respondents from Ikorodu Local Government Area. The main purpose of pre-testing the research instrument was to identify any weaknesses and improve them. The pre-test was likely to indicate the time required to complete the tool. These respondents were retested a second time two weeks later and their consistency between the two sets of the score was computed using Cronbach's alpha coefficient which yielded an alpha of 0.78. Therefore, the instruments were found reliable since the alpha value obtained was to >0.7.

Results

Socio-demographic Characteristics of Respondents'

The respondent's ages ranged from 18 to 77 years with a mean age of 38.28±12.48years. The ages of the majority of the respondents (31.2%) fell within the 28 to 37 years age range. More than half 306(51.0%) of the respondents were male. Less than half 261(43.5%) of the respondents were heads of their households. Forty-eight percent of the houses had 1-4 occupants. For the educational attainment of the respondents' less than half 246(41.0%) had secondary education and thirty-nine percent were self-employed. Less than half 246(41.0%) of the respondents earn between 18000-50000 naira with almost half 289(48.2%) living in self-contained flats (See table 1).

Table 1. Socio-Demographic Characteristics of Respondents'

Socio-demographic variables	**N=600**	**Percent (%)**
Age (in years) x̄ (SD) 38.28±12.48years		
18-27	118	19.7
28-37	187	31.2
38-47	163	27.1
48-57	87	14.5
58-67	33	5.5
68-77	12	2.0
Gender		
Male	306	51.0
Female	294	49.0
Respondent Head of household		
Yes	261	43.5
No	339	56.5
Number of people in the household		
1-4	291	48.5
5-9	272	45.3
10-14	21	3.5
15-19	16	2.7
Educational Attainment		
No formal education	26	4.4
Primary	68	11.3
Secondary	246	41.0
Diploma/B.Sc	210	35.0
Master/PhD	50	8.3
Occupation		
Unemployed	74	12.3
Self-employed	236	39.3
Civil servant	204	34.1
Private employed	86	14.3
Monthly income		
< 18,000	60	10.0
18000-50000	246	41.0
50,000-100000	203	33.8
100000-250000	91	15.2
Type of house		
Flat	289	48.2
Bungalow/Duplex	95	15.8
Studio/one room apartment	112	18.7

One storey/two storey	54	9.0
Multi-purpose apartment	50	8.3
Number of rooms in the household		
1-2	159	26.5
3-4	262	43.7
5-6	93	15.5
7& above	86	14.3

Respondents' Attitude towards Solid Waste Management

Less than half 431(47.8%) of the respondents strongly agreed that proper waste management promotes environmental and human wellbeing. Less than half 284(47.4%) of the respondents strongly agreed that they feel embarrassed to throw waste anywhere. More than a quarter 203(38.3%) of the respondents agreed that proper waste management minimizes cost. Less than half 180(30.1%) of the respondents strongly agreed that household waste separation is important. More than half 209(34.5%) of the respondents strongly agreed that solid waste generation is affected by their consumption patterns.

Forty-three percent of the respondents strongly disagreed that solid waste management is the responsibility of the government. Only 73(12.2%) of the respondents strongly disagreed that scavengers are responsible for the recycling of waste. Few 126(21.0%) of the respondents strongly agreed that sometimes it is better to re-use household items. Less than half 260(44.3%) of the respondent strongly stated that were worried about how waste littered the street. Most (56.0%) of the respondents strongly agreed that they were committed to minimizing waste.

Overall, majority 546(91.0%) of the respondents had a positive attitude towards solid waste management while only 54(9.0%) of the respondents had a negative attitude towards solid waste management. One can infer that most of the respondents had a positive attitude towards solid waste management (see table 2).

Table 2. Respondents' Attitudinal Disposition towards Solid Waste Management

Statements	**Strongly disagree N (%)**	**Disagree N (%)**	**Agree N (%)**	**Strongly agree N (%)**
Proper waste management promotes environmental and human wellbeing	48(8.0)	8(1.3)	113(18.9)	431(71.8)
I feel embarrassed to throw waste anywhere	38(6.3)	33(5.5)	245(40.8)	284(47.4)
Proper waste management minimizes cost	35(5.8)	30(5.1)	305(50.8)	230(38.3)
Household waste separation is important	5(0.8)	44(7.3)	371(61.8)	180(30.1)
Solid waste generation is affected by my consumption pattern	29(4.8)	61(10.2)	301(50.2)	209(34.8)
Solid waste management is the responsibility of the government	260(43.3)	230(38.3)	75(12.4)	35(5.8)
Scavengers are responsible for the recycling of waste	73(12.2)	240(40.3)	182(30.3)	103(17.2)
Sometimes it is better to re-use household items.	43(7.2)	89(14.8)	342(57.0)	126(21.0)
I am worried how waste littered the street	260(43.3)	264(44.1)	44(7.3)	32(5.3)
I am committed to minimize waste	29(4.8)	36(6.0)	199(33.2)	336(56.0)
Negative attitude	54(9.0)			
Positive attitude	546(91.0)			

Respondents' Pattern of Solid Waste Management Practices

Most 441(73.5%) of the respondents reported that they have temporary waste storage waste material. The respondents reported that they used the following waste storage material; basket 281(63.7%), plastic bags 135(30.6%), and sacks 25(5.7%). More 371(61.8%) of the respondents' reported that they have waste bins in their houses. Less than half 178(47.9%) reported food residue as the major type of waste they dumped in their refuse bins. Less than half 247(41.2%) of the respondents did not separate their wet and dry waste before they disposal. Above a quarter 239(30.8%) of the respondent's waste was finally disposed of by LAWMA.

Above a quarter 202(33.7%) of the respondents stored their waste between two to four days before they are disposed of. Thirty–nine percent of the respondents dispose of their waste twice a week. Overall, more 389(64.8%) of the respondents had poor solid waste disposal practice.

Table 3. Respondents' Pattern of Solid Waste Management Practices *n=441; **n=371; ***n=382

Items	**N=600**	**Percent (%)**
Do you have temporary solid waste material in your house?		
Yes	441	73.1
No	159	26.5
*Kind of storage Material used		
Basket	281	63.7
Plastic bag	135	30.6
Sack	25	5.7
Does your household have a refuse bin?		
Yes	371	61.8
No	229	38.2
**Types of a waste dump in the waste bin		
Food remains	178	47.9
Nylon and paper	125	33.7
Plastics and bottles	68	18.4
How do you dispose of your wet and dry waste?		
I dispose of it separately	100	41.5
I dispose of it together	141	58.5
Where do you dispose of your waste after storage?		
At the refuse heap/dump nearby	161	26.8
Behind the house	179	29.8
LAWA carriers it from the house to a designated dump site	239	39.8
Cart pushers collect the refuse	21	3.6
How long do you store your waste before disposal?		
One day	41	6.8
Two to four days	202	33.7
One week	170	28.3
Two-week or more	187	31.2
How often do you dispose of your refuse?		
Daily	39	6.5
Twice a week	237	39.5
Once in a month	144	24.0
Twice in a month	180	30.0
Poor	389	64.8
Good	211	35.2

Hypothesis

There is a significant relationship between respondent's attitude and their pattern of solid waste management (r =0.14, *p*=0.00) (See, table 4).

Table 4. Relationship between Respondents' Attitude and Pattern of Solid Management Practices

	Pattern of Solid Waste Management Practices	
	R	***p*-value**
Attitude	0.14	0.001

Discussion

The study examined the attitude and pattern of solid waste management practices among the residents of Oshodi-Isolo Local Government area, Lagos State. The majority of the respondents had a positive attitude towards solid waste management practices as most of the respondents agreed that proper waste disposal can better their health and believed that the practices of waste management are their responsibility and they are committed to minimizing waste. Also, the majority of respondents reported that waste management promotes good health and a healthy environment. This finding is similar to the findings of Adeyemo *et al*., that respondents' in Ogbomso had a positive attitude towards solid waste management which also corroborates the findings of Mamady in Guinea; and Nagarajan, Thirumalaisamy, & Lakshumanan in India where they reported positive attitude among their respondents [13,14,15]. However, this is at variance with the findings of Ojo, & Adejugbagbe in Sango Ota Ogun State where they reported that the respondents had a negative attitude [16]. This may be because of the differences in the educational qualifications of the respondents.

There is a significant relationship between respondents' attitude, and their pattern of solid waste management practices, which is similar to the findings of Babaei et al where they posited that respondents' attitude influence solid waste management [17]. The findings revealed that the major waste generated from households was food residues, this is similar to the findings of Modebe, & Ezeama on household solid waste management in Awka in which the commonest type of waste generated was garbage [18]. Most of the respondents' collected their waste in containers with covers and majority did not separate their waste before they disposal of, which is line with the outcome of the study done by Modebe, and Ezeama, that majority of households in Awka stored their waste in closed containers outside the house and most of the respondent did not sort their waste before disposal [18]. A study in South Africa recorded a similar finding that waste collected is not sorted into recyclables or non-recyclables and is all disposed of at the final dumpsite with no sorting [19]. A recycling program could be introduced by the authorities as studies have shown that 60% of waste generated in the households can be recycled if proper waste recycling system is put in place.

Above a quarter of the respondent's waste was finally disposed of by LAWMA. These findings agree with the Modebe, and Ezeama, which showed that majority of the respondents' disposed of their waste through government waste management agency, and only a few dumped theirs in an unauthorized area[18] The respondents dispose of their refuse twice in a week and they kept their refuse bin in the backyard. This is similar to the findings of Trasias et al, in Uganda where they reported that the most common frequencies of waste storage in the households were weekly and biweekly [20].

Conclusion

Most of the respondents had a positive attitude towards proper waste management, even though there was evidence to the contrary considering the observation that some still buried and burned their waste, and these wastes are not separated before disposal. There was a significant relationship between respondents' attitude, and their pattern of solid waste management practices. It is recommended that involvement of the private sector, LGAs, and communities as pressure groups and change agents will have a positive impact on solid waste management practices.

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