

Psycho-Cognitive Factors Associated With Solid Waste Disposal among Residents of Sagamu Local Government Area, Ogun State, Nigeria

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Abstract: Solid waste management is one of the world's most serious issues. The purpose of this study was aimed at eliciting information on psycho-cognitive factors associated with solid waste disposal among residents in Sagamu local government area, Ogun State, Nigeria. A simple random sampling technique was used in selecting three hundred and eighty-five respondents. A validated questionnaire which was self-administered was used for data collection. Data collected were analysed by using descriptive statistics of frequency tables, charts, mean, standard deviation and inferential statistics of correlation, and multiple regression. The findings showed a mean score of knowledge measured on a 10-point reference scale as a mean and standard deviation of 7.4 ± 2.3 . The respondents' attitude measured on a 30 point rating scale showed a mean score and standard deviation of 16.52 ± 4.5 . The respondent's overall perception to improper waste disposal measured on a 51-point rating scale showed a mean score and standard deviation of 7.70 ± 1.60 . The findings revealed that the majority of respondents had good knowledge of solid waste disposal, moderate attitude and perception on solid waste disposal. Mass media (radios, televisions, newspapers, posters, magazines) should be used to facilitate change in attitudes, practices, and perception of the residents towards waste disposal.

Keywords: Attitude, Knowledge, Perception, Solid Waste Disposal.

I. INTRODUCTION

Solid wastes are the most commonly known discarded wastes that make up the day-to-day items being disposed by the general public, and they include all substances or objects thrown away as products of packaging, lawn cuttings, furniture, clothing materials, bottles/glasses, food scraps, electric appliances, newspapers, paint, and batteries, among many other items (Afon, 2006). The rate of waste generation is increasing all over the world. Cities around the world produced 2.01 billion tonnes of solid waste in 2016, equating to 0.74 kilograms per person per day. Annual waste generation is expected to increase by 70% from 2016 levels to 3.40 billion tonnes in 2050, owing to rapid population growth and urbanization (World Bank, 2019). Nigeria is one of Africa's largest producers of solid waste, with a population of 197,848,805 million persons (or 2.57 percent of the world's total population). The country is one of Africa's largest waste producers, producing over 32 million tons of waste annually, of which only 20-30% is collected and 70% is dumped in hazardous locations (Bakare, 2016). Solid waste disposal that

is indiscriminate is a threat and an insult to the nation, with heaps of garbage littering most areas of the region (Isu, 2005). In developing countries, a large proportion of residential waste is dumped on roads, road sides, unapproved dump sites, waterways drainage systems, or open sites, both of which have negative environmental consequences (Kalu et al., 2009). In most African nations, open dumps are the favored means of disposing of solid waste instead of landfills (Remigios, 2010). Household solid waste dumped indiscriminately on our roads, rivers, and drainages has contributed in no small part to drainage blockage, flooded roads, and the spread of offensive odors and diseases as well as posing environmental threats to neighboring assets (Momoh & Oladebeye, 2010). The high prevalence of tetanus, malaria, cholera, and diarrhea in many African countries can be traced back to unsanitary conditions caused by waste being littered around. Several diseases have been recorded as a result of coming into contact with smoke from solid waste burning and gaseous emissions from dumpsites (Oyelola et al., 2009). Flooding can be caused by congested drainage channels caused by improper waste disposal. Folorunso & Awosika (2001) stated that flooding in Lagos State, Nigeria, was attributed to clogging of drainage channels by dumped solid wastes. The key causes of improper waste disposal are a lack of knowledge, as well as irregular and unplanned dumping of waste. People face many problems as a result of a lack of knowledge and a lack of waste disposal equipment (Kiran et al., 2015). People who have a clear understanding of solid waste management will avoid infectious diseases and keep their environment safe (Jatau, 2013). People must have a positive attitude toward the disposal of solid waste. People's attitudes toward waste disposal are influenced by their level of knowledge. Most people do not use the proper waste disposal option due to a lack of knowledge. People who lack solid waste disposal knowledge have a negative attitude about waste disposal in their households.

In different parts of Sagamu, refuse dumps have taken over open spaces, in canals, and street gutters. Despite the fact that the Sagamu local government has provided garbage trucks in some areas, many people still choose to dump waste where it is most convenient for them. People dispose of waste anywhere it is most appropriate for them, whether it is on the road, in street gutters, or an open area. The factors behind this

poor solid waste disposal are yet unknown. It is likely that the residents lack the right knowledge, attitude, perception and practices on solid waste disposal. From the aforementioned, this study was aimed at eliciting information on psycho-cognitive factors associated with solid waste disposal among residents in Sagamu local government area, Ogun State, so that effective intervention may be developed with the help of sufficient information from the target groups.

II. METHODOLOGY

Cross-sectional study design was employed in this study. The study population focused on the residents within Sagamu Local Government Area, Ogun State. The sample size used for this study was derived using Kish Leslie (1965) formula for quantitative studies and this resulted in a Sample size of 422 respondents. Questionnaires was administered during the research to obtain primary data. The study utilized multistage sampling technique and the structured questionnaires was administered using simple random sampling. The study data was analyzed using Statistical Package for Social Sciences (SPSS) Version 23.0.

III. RESULTS AND DISCUSSION

Respondents' Knowledge about Solid waste

356 (92.5%), the respondents knew the composition of solid waste as consisting of papers, bottles, plastic. Likewise majority 315(81.8%) of the respondents knew that waste can contaminate or pollute water bodies like rivers, streams or lakes. Most 316 (82.1%) of the respondents knew that blockage of drainage by solid waste can result to flooding. Most 248 (64.4%) of the respondent stated that waste disposal sites does attract disease-carrying pests. Majority 271(70.4%) of the respondents knew that improper waste disposal can cause extreme climate change. More than half 212(55.1%) knew that improper solid waste disposal can result in diseases like cholera and typhoid. Many 308(80%) of the respondents knew that waste not properly disposed could have negative impact on our environment. Also Majority 314(81.6%) of the respondents knew that burning of waste could pollute the environment while few (36.9%) of the respondents stated that improper waste disposal cannot contaminate the soil. Majority of the respondents knew that solid wastes that are properly managed can be used for other purpose. In addition, respondents' level of knowledge about solid waste was assessed with the aid of a 10-point knowledge scale. Respondents' mean knowledge score was 7.4 ± 2.3 . Only 17(4.4%) of the respondents had poor knowledge of solid waste disposal while more than half 248(64.4%) had good knowledge of solid waste disposal. Overall, one can infer that most of the respondents had good knowledge on solid waste disposal.

Respondents' Attitudinal Disposition towards Solid Waste Disposal

245(63.6%) of the respondents strongly agreed that they cared about waste disposal. More than half 207 (53.8%) of the

respondents strongly disagree that practice of waste disposal is not important. Most 240(62.3%) of the respondents strongly disagree that dumping of refuse in the drains, gutters and open places is not bad. Many 218(56.6%) of the respondents agreed that disposing wastes into garbage containers is the responsibility of everybody. Above a quarter 120(31.2%) of the respondents strongly agree that proper disposal of waste is important for the environment. Few 83 (21.6%) of the respondents strongly agree that improper disposal of waste can affect the health of people. Only 55(14.4%) of the respondents strongly agree that they feel comfortable about the way solid waste is being disposed in my community. Above a quarter 114(29.7%) of the respondents strongly agree that Waste disposal is the responsibility of the local authorities. More than half 219 (56.9%) of the respondents strongly agree that burning of waste can be bad for their health and that of others. Only 82 (21.3) of the respondents agreed that it is important to volunteer in waste collection and disposal activities in the community. Furthermore, the respondents' attitude measured on a 30 point rating scale showed a mean score of 16.52 ± 4.5 . Overall, most 297(77.1%) of the respondents' had moderate attitude towards solid waste disposal.

Table 1: Respondents' Attitudinal Disposition towards Solid Waste Disposal

Statements	Strongly Agree N (%)	Agree N (%)	Disagree N (%)	Strongly Disagree N (%)
I care about waste disposal	87(22.6)*	245(63.6)	25(6.5)	28(7.3)
Practice of waste disposal is not important	9(2.3)	65(16.9)	104(27.0)	207(53.8)*
Dumping of refuse in the drains, gutters and open places is not bad.	21(5.5)	37(9.6)	240(62.3)	87(22.6)*
Putting wastes into garbage containers is the responsibility of everybody	103(26.8)*	218(56.6)	20(5.2)	44(11.4)
Properly disposing waste is important for the environment	120(31.2)*	110(28.6)	140(36.3)	15(3.9)
Not properly disposing waste can affect the health of people	83(21.6)*	131(34.0)	150(39.0)	21(5.4)
I feel comfortable about the way solid waste is being disposed in my community	55(14.3)	108(28.1)	41(10.6)	181(47.0)*
Waste disposal is the responsibility of the local authorities	114(29.6)	117(30.4)	138(35.8)	16(4.2)*
Burning waste can be bad for my health and that of others	219(56.9)*	141(36.6)	12(3.1)	13(3.4)
It is important to volunteer in waste collection and disposal activities in the community	*40(10.4)	82(21.3)	92(23.9)	171(44.4)

*Expected responses.

Table 2: Category/Level of Respondents’ Attitudinal Disposition towards Solid Waste Disposal

Attitude	N= 385	Per cent (%)	Mean (S.E)	SD
Negative attitude	2	0.5	16.52(0.23)	4.56
Moderate	297	77.1		
Positive attitude	86	22.4		

Respondents’ Perception of Solid Waste Disposal

The respondent perception of solid waste disposal was assessed using different typologies of perception such as perceived susceptibility to improper solid waste disposal, perceived severity of improper solid waste disposal, perceived benefits of proper solid waste disposal and perceived barriers to proper waste disposal.

Perceived Susceptibility to Improper Solid Waste Disposal

171(44.4%) of the respondents strongly disagree that waste out of their way has been disposed. More than half 203(52.7%) of the respondents strongly agree that people can get sick if waste were not properly disposed. Only 28(7.3%) of the respondents strongly agree that their family can fall sick as a result of improper waste disposal. More than half (52.7%) of the respondents strongly agree that dirty surroundings result to illness. Furthermore, the respondent’s perceived susceptibility to improper waste disposal measured on a 15-point rating scale showed a mean score of 10.62 ±2.78. More than half 210(54.4%) of the respondents perceived susceptibility to improper solid waste disposal was high.

Perceived Severity of Improper Solid Waste Disposal

82(21.3%) of the respondents strongly disagree that improper solid waste disposal is not a serious matter. More than half 202(52.5%) of the respondents strongly agree that improper solid waste disposal can cause chronic sickness (diseases that develop over time). Many (66.5%) of the respondents agree that improper solid waste disposal practices can cause death. Less than half 168(43.6%) of respondents strongly agree that improper waste management increases the risk of contracting infectious diseases. Furthermore, the respondent’s perceived susceptibility to improper waste disposal measured on a 12-point rating scale showed a mean score of 8.5 ±1.86. More than half 204(52.9%) of the respondents perceived severity to improper solid waste disposal was high.

Perceived Benefits of Proper Solid Waste Disposal

194 (50.4%) of the respondents agree that everyone stays healthy if they practiced. Only 87 (22.6%) of the respondents strongly agree that they there is no need to worry about sickness when waste is properly disposed. More than half 210(54.5%) of the respondents agree that the environment will be clean when solid waste is disposed of properly. Above a quarter 107 (27.8%) of the respondents strongly agree that by properly disposing solid waste they were contributing to

sustainable development goals. Furthermore, the respondent’s perceived benefit of proper waste disposal measured on a 12-point rating scale showed a mean score of 8.7 ±1.86. More than half 195(50.6%) of the respondents perceived benefit to proper solid waste disposal was moderate.

Perceived Barriers to Proper Solid Waste Disposal

147(38.2%) of the respondent disagree that there were no proper waste disposal system. Only 47(12.2%) of the respondents strongly disagree that disposing waste is expensive. Few 76(19.7%) of the respondents strongly disagree that government has not provided any waste disposal facility so it is difficult to properly dispose waste. Only 40(10.4%) of the respondents strongly agree that they disposed their waste the way they like since there was no law enforcement. Furthermore, the respondent’s perceived barriers of proper waste disposal measured on a 12-point rating scale showed a mean score of 6.1 ±1.98. Most 251(64.4%) of the respondents perceived barriers to proper solid waste disposal was moderate. Overall, most 291(75.6%) of the respondents had moderate perception of solid waste disposal.

Table 3: Proportion of Respondent’s Perception on Solid Waste Disposal

	Respondents in this study; N=385		Mean Score
	Frequency	Percentage (%)	
Perceived Susceptibility			$\bar{x}=10.6 \pm 2.78$
Low	25	6.5	
Moderate	150	39.0	
High	210	54.5	
Perceived Severity			$\bar{x}=8.5 \pm 1.86$
Low	13	3.4	
Moderate	168	43.6	
High	204	53.0	
Perceived Benefit			$\bar{x}=8.7 \pm 1.86$
Low	1	0.3	
Moderate	195	50.6	
High	189	49.1	
Perceived Barrier			$\bar{x}=6.09 \pm 1.98$
High	58	15.1	
Moderate	252	65.4	
Low	75	19.5	
Overall perception			$\bar{x}=7.70 \pm 1.60$
Low	13	3.4	
Moderate	291	75.6	
High	81	21.0	

IV. DISCUSSION

Most of the respondents had formal education with 62% having at least secondary level education. This appears to be reflected in the level of knowledge and attitude of the respondent's solid waste disposal. There was a significant relationship between the respondent's level of education and solid waste management. A similar report was given by Asmawati et al, (2012) in Malaysia city that showed most of the respondent had good knowledge of solid waste disposal. Majority of the respondents had moderate attitude towards solid waste disposal practices. A similar report was given by Barloa (2016) in Philippines indicated that 71.4% of the respondents had moderate attitude towards waste management issues. The study revealed that the respondents' had moderate perception of solid waste disposal practices as many perceived that indiscriminate waste disposal could cause result to sickness, flooding and also promote sustainable environment. This is in line with the study conducted in Sokoto where it was reported that the respondents had fair perception of waste disposal (Kaoje, Sabir, Yusuf, Jimoh, & Raji, 2015)

V. CONCLUSION AND RECOMMENDATIONS

Majority of the residents had good level of knowledge of solid waste disposal. Most of them had moderate attitude and perception on proper solid waste disposal waste. Majority of the respondents had moderate solid waste disposal practices. The associated factors of solid waste disposal are the knowledge, attitude and perception This implies that the presence of these factors in the respondents' would enhance proper solid waste disposal practices indicating that the Health Belief model provides a better understanding of the behaviour of the respondents'.

Based on the study findings, the following recommendations are made:

- i. Residents should be taught on the importance of sorting and recycling their solid waste so as to promote proper waste disposal.
- ii. Mass media (radios, televisions, newspapers, posters, magazines) should be used to facilitate change in attitudes, practices and perception of the residents towards waste disposal.
- iii. Teaching waste management in schools should be encouraged and developed in the school curriculum.

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