Exploring the People's Perception and Attitude towards Solid Waste Management in Commercial Area: A Case of Sango, Ogun State Nigeria

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Abstract:- Commercial areas are among the key places in municipalities that generate quite ample amount of solid waste of various kindsmajorly due to inefficient waste managementsystems.However, public participation has a direct bearing on efficient solid waste management andthus, peoples' perception and attitude towards solid waste have significant influence on success of the solid waste management system. The objective of the present study is to explore the peoples' attitude and perception towards solid waste in commercial area of Sango, Ogun State, Nigeria.A survey wasemployed on 200 randomly selected vendorsfromcommercial areas of Sangousing a self-administered, validated questionnaire as the research instrument. The data was analyses with the aid of statistical pages (SPSSv23 and MS Excel) using both descriptive statistics and interferential (Pearson Correlation). The result of the study shows that the respondents have shown high level of positive perception and attitude towards solid waste management in the commercial area. More so, age has the strongest relationship with attitude towards solid waste management while level of education has the strongest relationship with their perception about the solid waste management.Based on the study result, it can be concluded that attitude and perception about solid waste management is positively related with age and level of education. Thus, it can be recommended that efforts should be geared towards bringing people into solid waste management in public places such as commercial areas in order to tap from the benefit of the positive perception and good attitudes they held towards waste management.

Keywords:- Attitude, Commercial area,Nigeria, Perception, Solid waste.

I. INTRODUCTION

Population explosion, booming economy, rapid urbanization and the rise in community living standards have greatly accelerated the municipal solid waste generation rate in developing countries(Guerrero, Maas, & Hogland, 2013). Municipalities, usually responsible for waste management in the cities face the challenges of providing effective and efficient system to the inhabitants. Moreover, they often face problems beyond their ability to mainly due to lack of organization, financial resources, complexity and system multi dimensionality (Ezebilo, 2013). Due to financial resources for instance, the huge expenditure needed to provide the service, the absence of financial support, limited resources, the unwillingness of the users to pay for the service and lack of proper use of economic instruments have hampered the delivery of proper waste management services.According to Nathanson, (2017), The tasks of solid waste management present complex technical challenges. They pose a wide variety of administrative, economic, and social problems that must be managed and solved.

Waste management practices especially the municipal solid waste differ for developed and developing nations, urban and rural areas, and for residential, commercial and industrial centers. Failure to provide basic waste management facility makes citizens to dump waste on the streets, open spaces, drains, and water bodies near their vicinity creating unhygienic and insanitary conditions(Kumar & Nandini, 2013).Commercial areas are characterized with the production of high amount of waste of various categories. About 10-30% of waste produced in developing countries are generated from the commercial areas (Nabegu, 2010). Waste generated from these areas are quite heterogeneous in nature making them difficult to be utilized as raw materials (Valkenburg et al., 2008).

In Nigeria, solid waste generation ranges from 0.44 to 0.66 kg per capita per day and up to 25 million tons per annum, with household and commercial areas contributing about 10% of total urban waste burden(Estate & Iweka, 2009). Municipal waste density in the Country falls within the range 280 to 370 kg/m (Zhang, Tan, & Gersberg, 2010). Reports have shown that roughlytwo thirds of these wastes are dumped indiscriminately on the streets and in the drains thus posing serious environmental health hazards(Emelumadu, Azubike, Nnebue, & Fazubike, 2016).

The perception of one's capability is said to set a limit to what to do and ultimately what can be achieved. The influence of perception which describes how a person views himself and the world around him and how it tends to govern behavior is explained by Anomie theory,(1968).Community participation has a direct bearing on efficient Solid Waste Management. In this sense, individual's perception will influence the cultural values, responses, and success of the solid waste management system. Thus, perception on waste management services is important for achieving safe, clean and healthy environment (Kumar & Nandini, 2013).According to Longe, Longe, & Ukpebor, (2009), people's perception on solid waste

management system is characterized with irregularity and inefficient collection system; with poor monitoring of the private waste service providers by the local authority. In the study by Bom, Belbase, & Bibriven Lila, (2017),their findings shows that more than 80% of surveyed respondents indicated that environmental perception and concern was the major motivation to recycling of waste material.

More so, Nabegu, (2010), found that attitudes have been positively influenced through awareness-building campaigns on the negative impacts of inadequate waste collection with regard to public health and environmental conditions, and the value of effective disposal.Haider, Amber, Ammara, Mahrukh, & Aisha, (2015), on their part, have explained that people's attitudes varied based with respect to waste storage and segregation, placement and collection of solid waste and regarding reuse of old items. They further observed that perception of males and females about disposal of solid waste varied and males were seen to be more concerned with segregation and recycling than females. In this regards, the present work is set within the effective municipal solid waste management framework, especially as it focuses on investigating the stakeholders' perception andattitudetowardssolid waste management system.

II. LITERATURE

The increase in population, urbanization and industrialization including globalization, has led to the challenge of solid waste management (SWM) in many countries and made it even more complex(Nkansah, Dafor, & Essel-Gaisey, 2015). This is attributed to inadequate regulatory framework that has manifestedin lack of interest of private sector investment in service delivery, uncoordinatedinstitutional functions, low political will, low capacity to discharges duties, poor data information forplanning, andpoor attitude of waste generator (Tobore, 2014).These challenges have resulted in health related problems, loss of properties as a result of choked gutters, indiscriminate waste disposal and uncollected refuse in communal waste containers. These wastes eventually find themselves in water bodies destroying the ecosystem(Nkansah et al., 2015).

According to Ogwueleka, (2009), the volume of solid waste generated continues to increase at a faster rate than the ability of the agencies to improve on the financial and technical resources needed to curb thesituation. Solid waste management has emerged as one of the greatest challenges facing state and local government environmental protection agencies in Nigeria (Tobore, 2014). Solid waste management in Nigeria is characterized by inefficient

collection methods, insufficient coverage of the collection system and improper disposal of solid waste.

The main sources of municipal solid waste are from domestic areas, commercial centers, food stores, slaughter areas, warehouses and institutional premises (Fronti & Poor, 1994). Study by Magutu & Onsongo, (2010), showed thatthe major sources of MSW are foodwastes, paper, plastic, rags, metal and glass, with some hazardous household waste, such as; electric light bulbs, batteries, discarded medicines and automotive parts. MSW is thus seenas primarily coming from households and commercial areas.It also comprise of wastes from offices, hotels,shopping complexes/shops, schools, institutions, and from municipal services such as streetcleaning and maintenance of recreational areas. In some countries the solid wastesmanagement system also handles human wastes such as night-soil, ashes from incinerators,septic tank sludge and sludge from sewage treatment plants. The complexities and enormityof the challenges become evident when considering other waste types to be managed andthese include industrial solid waste, municipal wastewater, industrial wastewater, stormwater and hazardous waste.

Commercial waste consists of those types of wastes generated from business premises.The composition of waste from these areas are usually food waste, yard waste, wood, plastics, papers, metals, leather,rubbers, inert materials, batteries, paint containers, textiles, constructionand demolishing materials and many others which would be difficult to classify (Miezah, Obiri-danso, Kádár, Fei-baffoe, & Mensah, 2015).

III. METHODOLOGY

A. Study Area

Sango Ota, the local government headquarters of Ado-Odo/Ota is the most populated among the 20 LGAs in Ogun State, South Western Nigeria (Fig 3.1). The city has an estimated population of about six hundred and sixty nine thousand, eight hundred and eighty six hundred (669,886)people based, with a growth rate of 3.5%). The city is located on longitude 3^0 14' 32"Eand latitude6^0 42' 19" N, and it is one of the industrial hubs with the highest concentrations of industries in Nigeria. It accommodates several hundred industries which include food, beverages and tobacco; pulp and paper products; chemical and pharmaceuticals; metallurgy; gas; plastics; wood processing; and non-metallic mineral products (Omole, Emenike, Tenebe, Akinde, & Badejo, 2015). The proximity of Sango Ota to Lagos especially border town of Idiroko has led to the creation of two larger markets namely; the Kayero market and Oba T.T Dada market, which later fused together and are commonly referred to as the Sango Ota market.
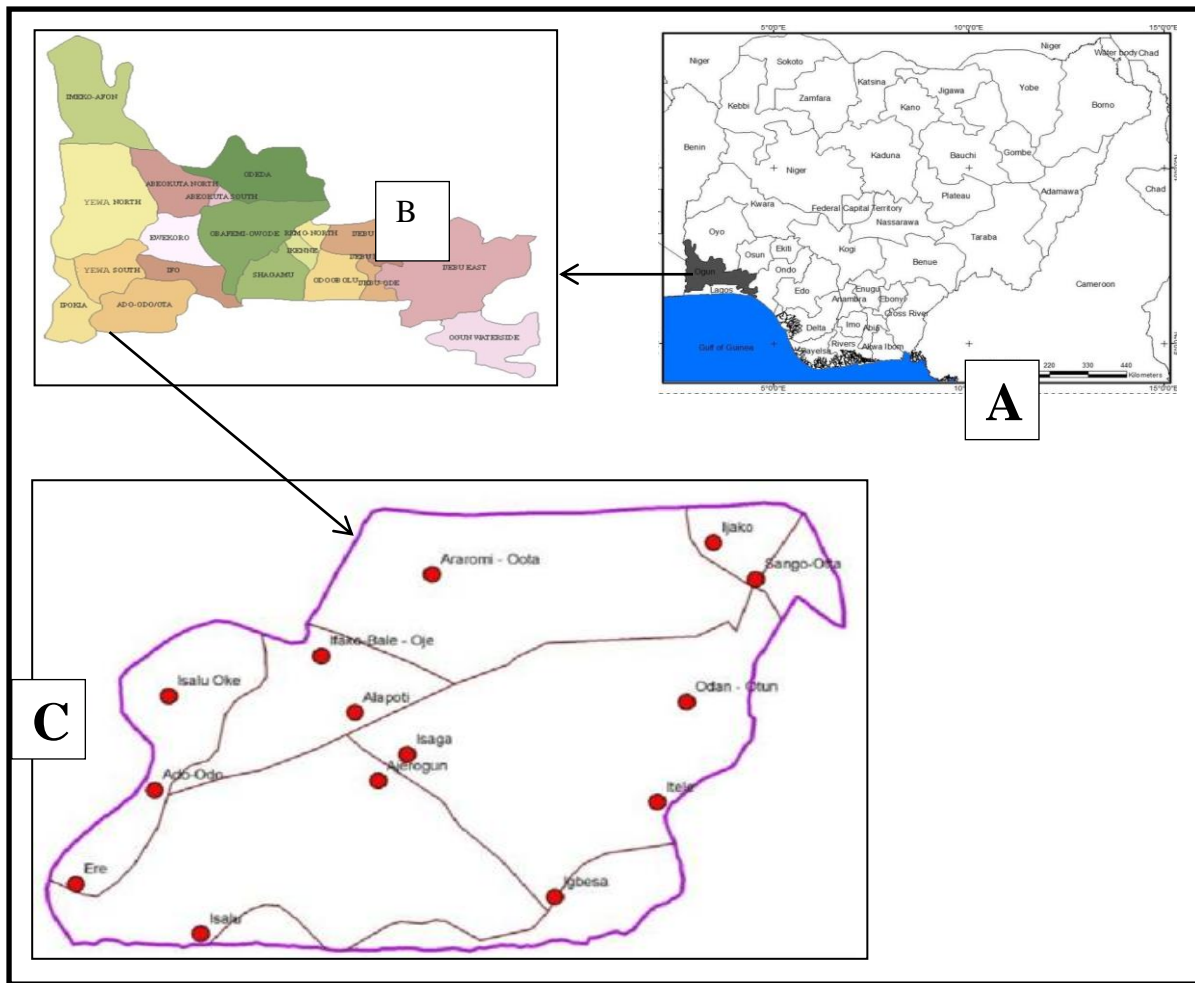
Fig. 1: Map of Nigeria (A) showing Ogun State (B) and Sango Ota (C)

B. Population and Sampling

The population of the study comprised of the shop/ business premises owners in the commercial area of Sango Ota. Based on available data from the local authorities on business premises that are paying tax to the government, there are 1730 business premises in the commercial area which formed the study population. As Chuan, (2006) stated that many studies are conducted using Cohen's (1988) statistical power analysis as the guideline for estimating the desired sample size, the sample size used in this study was determined based on the Cohen formula. According to Chuan, (2006), using Cohen formula, sample size of 120 is sufficient enough to answer research objectives using, both, correlation analysis and multiple regression analysis. Thus this study adopted this sample size and increased it to round number (200) in order to take care of missing values.Lastly, this study employed simple random sampling technique to distribute the 200 samples from the total list of shop owners/ business premises within the commercial area.

Data collection was carried on the selected respondents using questionnaire admiration. The questionnaire was in Likert scale and multi-category format, which were distributed to the respondents after seeking for their consent to participate in the survey. The answered questionnaires were collected back and analyses with the aid of a computer software package (SPSS version 23).

IV. RESULT AND DISCUSSION

A. Socio-Economic Characteristics

The socio economic profile of the respondent as presented on Table 1 shows that based on gender distribution, male were 77.5% while female were 22.5%. On respondents' age, it ranges between 18 and over 56 years old, with mean age =35 years. Those whose age were 18-25 years old were 23.0% while the older respondents (56 years and above) were 8.0%. In terms of education level, it was found that 24.5% have reported to have never been to school, 20.5% attended only primary, 40% secondary school while the remaining 15.0% had reported to have university degree. About ownership of the business premises, only 24.5% were the actual owners of the shop while the remaining 74.5% were only shop attendants.

On marital status, those who were married were 66.5%, single were 25.0%, divorced were 5.5%and widows 3.0%. Percentage of respondent based on business type shows cosmetics has 21.0%, food items 37.0%, electronics 28.5%, fruits and juice 11.0% and others were 2.5%. Moreover, gross monthly income of the respondents was obtained as those with income within the range of 10,000-20,000 were 43.5%, 21,000-30,000 income bracket were 30%, while those who earn 31,000-40,000 were 20.5%. Only 4.5% earn between 41,000-50,000, while those who earn between 51,000 above constituted only 1.5%.

Element (n=200)	Mean	Freq.	Percentage (%)
Gender			
Female		45	22.5
Male		155	77.5
Age	35.80		
18-25years		46	23.0
26-35 years		53	26.5
36-45 years		59	29.5
46-55years		26	13.0
56 years above		16	8.0
Shop Ownership			
Not owner		151	75.5
Owned		49	24.5
Educational level			
Never been to school		49	24.5
Primary		41	20.5
Secondary		80	40.0
Tertiary		30	15.0
Marital Status			
Married		133	66.5
Single		50	25.0
Widow		6	3.0
Divorce		11	5.5
Business Type			
Cosmetics		42	21.0
Food items		74	37.0
Electronics		57	28.5
Fruits and Juices		22	11.0
Others		5	2.5
Gross monthly income (Naira)	23644.5		
10,000-20,000		87	43.5
21,000-30,000		60	30.0
31,000-40,000		41	20.5
41,000-50,000		9	4.5
51,000 above		3	1.5

Table 1: Socio-Economic Characteristics of the Respondents

B. The Respondents Perception towards Solid waste Management service in the Market

The respondent perception about solid waste management in the market premises was measured on 5-point likert scale and the result is presented in percentage in Table 2. The responses obtained indicate that the respondents have shown high level of positive perception about solid waste management and handling in the commercial area of Sango, Ogun State. The statement that "Solid waste management service is not handled effectively and efficiently in this commercial centre", majority of the respondents (42%) strongly agree, and 30% agree, whereas only 2.5% disagree and 3.5% strongly disagree. However, those who remain neutral about the statement were 16.5%.

When respondents were asked that Government should only partake in the contracting process of private solid waste service providers, majority of the respondents (45%) strongly agree with the statement, 35.5% agreed, and 13.0% remain neutral. However, 1.0% strongly disagrees while 5.0% disagrees. The responses on Poor solid waste management causes environmental deterioration in our business premises show mixed result. About 27.5 strongly agree with the statement, 37.5% agreed, while 37.5% again were undecided. Those who disagree were 6.5% whereas those who strongly disagree were just 1.0%.

"I will support any government's decision and plan to engage private sector participation in solid waste collection services" was the statement that 25.5% of the respondents strongly agree with it, 35.0% agreed while 31.5% remained undecided. However, only 5.0% disagree and 3.0% strongly disagree with the statement.

More so, on the statement that said "I am interested in improvement in solid waste management in our neighborhood", 33.5% strongly agreed with it, 35.5% agreed while 4.5% disagree and 2.0% strongly disagree with the statement. Only 24.5% remained neutral about the statement. Again, when respondents were presented with the statement that said "I am satisfied with the overall solid waste management in this area", majority of the responding (33.0%) strongly agree with the statement, 31.0% agree, whereas 29.5 were undecided. However, only 4.0% disagree and 22.5% strongly disagree with the statement.

For the last statement used on measuring the respondents' perception (I am willing to pay more for services that will enhance environmental quality), majority of them (38.0%) strongly agree with the statement and 35.5% agreeing. For those who disagree, they constituted 6.5%, those who strongly disagree were 1.5% whereas 18.5% remain neutral.

	PERCEPTION	Mean	1	2	3	4	5
					(%)		
1	Solid waste management services is not handled effectively and efficiently in this commercial centre	4.11	3.5	2.5	16.5	30.0	42.5
2	Government should only partake in the contracting process of private solid waste service providers	4.20	1.0	5.0	13.0	35.5	45.5
3	Poor solid waste management causes environmental deterioration in our business premises	3.84	1.0	6.5	27.5	37.5	27.5
4	I will support any government's decision and plan to engage private sector participation in solid waste collection services	3.75	3.0	5.0	31.5	35.0	25.5
5	I am interested in improvement in solid waste management in our neighbourhood	3.94	2.0	4.5	24.5	35.5	33.5
6	I am satisfied with the overall solid waste management in this area	3.88	2.5	4.0	29.5	31.0	33.0
7	I am willing to pay more for services that will enhance environmental quality	4.02	1.5	6.5	18.5	35.5	38.0

Table 2: Perception about Solid waste Management service

Note: 1=Strongly agree, 2=disagree, 3=Neutral, 4=Agree, 5=Strongly agree

In other to investigate the overall respondents' level of perception, composite score of the 8 items measuring the 'perception' construct was determined. The overall score for the items were categorized in to 3 groups namely; low, moderate and high perception based on individual total score. The frequency distributions and percentage of each category is shown in Table 2. The result shows that more than half of the respondents (60.0%) had indicated a high level of perception towards solid waste management. The second category that revealed a moderate level of perception were 32.0%. However, only 8.0% out of the total valid responses obtained shows low level of perception towards solid waste management. With this outcome, it can be presume that majority of the respondents in the commercial area of Sango had a high perception towards solid waste management and therefore, indicates the likelihood of their willingness to support solid waste management program that will aimed at reducing waste in the market.
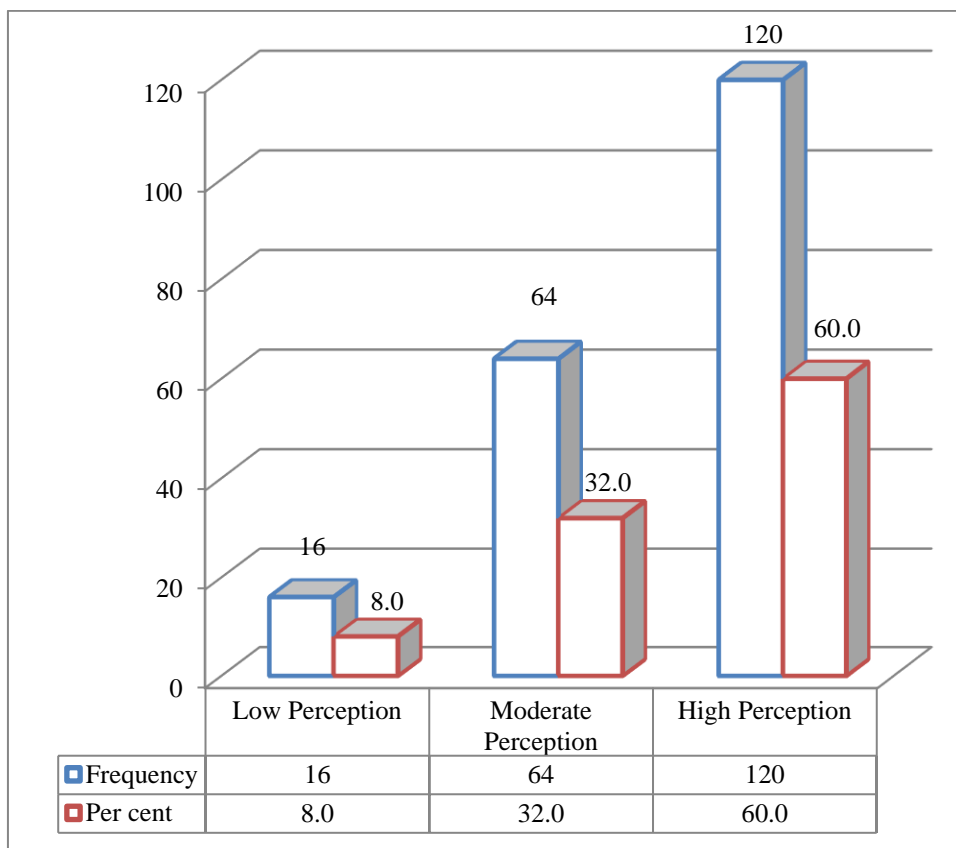
	Low Perception	Moderate Perception	High Perception
Frequency	16	64	120
Per cent	8.0	32.0	60.0

Fig. 2: Respondents' Level of perception towards Solid waste Management

C. Respondents Attitude Towards solid Waste management in the Market

Respondents' attitude towards solid waste management in the commercial area of Sango, in Ogun state Nigeria was explore using 10 items measured on a 5-point likert scale. The result (Table 3) shows that majority of the respondents have responded positively to the statement, which indicates a positive view that translates into a positive attitude towards the solid waste management in the area.

For the first item used in measuring the respondent's attitude, it states that "Monthly environmental sanitation exercise has impact on environmental pollution reduction in our neighborhood". About 22.0% strongly agree with the statement, 44.5% agree and 16.0 were neutral. Those who disagree were 9.5% and the remaining 8.0% strongly disagree with the statement. The second item stated that "SWM issues are included in my priorities and thus, willing to take part in environmental quality improvement" and those among the respondents that strongly agree with it were 30.0%. Majority of the respondents (50.0%) also agree, while 13.0% were undecided. However, Only 4.5% disagree and 2.5% strongly disagree with the statement.

For the statement "Government's policy on SWM in commercial areas has open up new avenues for us on SWM services", about 39.5% strongly agree, 42.5% agree while 5.0% disagree and 1.5% strongly disagree. However, only 11.5% remained undecided. More so,the statement "SWM issues are important for the economic and societal development" has 38.0% response as strongly agree. 45.5% agree, 12.5% were neutral whereas 3.0% disagree and 1.0% strongly disagrees. From the responses, about12.5% remains undecided. For the statement "I am ready to accept any new policy on SWM in which would improve quality of the environment", 35.5% strongly agree with the statement, Majority of them (50.5%) also agree while 9.0% were neutral. On the other hand, 3.5% disagree with the statement, whereas 1.5% strongly disagrees.

"I really want to see our business premises is clean for people to live there healthy and happily" is the statement that majority of the respondents (44.5%) strongly agree with it, and 43.0% also agree while 4.5% disagree and 1.0% strongly disagree with it. Only 7.0% were undecided. In addition, the statement that says "I so much have passion for environmental quality improvement, especially as it relates to SWM" had 43.5% strongly agree response and 45.0% agree. About 8.0% were neutral while 2.5% disagree and 1.0% strongly disagreeing with the statement. More than half of the respondents (52.0%) agree to the statement that "I have never heard anything about private solid waste service providers" and 32.5% even strongly agree with the statement. But for those who held negative view about the statement, 4.5% disagree, 2.5% strongly disagree and 8.5% were undecided.

About the statement that says "I get disturbed seeing my environment in a dirty condition everyday", 38.5% strongly disagree with the statement and 47.0% agree, while 7.5% were neutral. Those who disagree were 4.0% and those who strongly disagree with the statement were 3.0%. The last item used in measuring the respondent's attitude is the statement that says "I cherished clean and tidy environment because I have concern for the future generation". Majority (46.5%) voted strongly agree to the statement and 45.5% agree while 3.0% were neutral. About 4.0% disagree and 1.0% strongly disagrees with the statement. To make conclusion about the general respondents view with regards to the items measuring attitudes towards solid waste management, the study outcome have portrayed that majority of the respondents in the study area held a more positive attitude towards the solid waste management in the commercial area of Sango, in Ogun state

	ATTITUDE	Mean	1	2	3	4	5
					(%)		
1	Monthly environmental sanitation exercise has impact on environmental pollution reduction in our neighborhood.	3.63	8.0	9.5	16.0	44.5	22.0
2	SWM issues are included in my priorities and thus, willing to take part in environmental quality improvement	4.01	2.5	4.5	13.0	50.0	30.0
3	Government's policy on SWM in commercial areas has open up new avenues for us on SWM services	4.12	1.5	5.0	11.5	42.5	39.5
4	SWM issues are important for the economic and societal development	4.17	1.0	3.0	12.5	45.5	38.0
5	I am ready to accept any new policy on SWM in the that would improve quality of the environment	4.15	1.5	3.5	9.0	50.0	35.5
6	I really want to see our business premises is clean for people to live there healthy and happily	4.26	1.0	4.5	7.0	43.0	44.5
7	I so much have passion for environmental quality improvement, especially as it relates to SWM	4.28	1.0	2.5	8.0	45.0	43.5
8	I have never heard anything about private solid waste service providers	4.08	2.5	4.5	8.5	52.0	32.5
9	I get disturbed seeing my environment in a dirty condition everyday	4.14	3.0	4.0	7.5	47.0	38.5
10	I cherished clean and tidy environment because I have concern for the future generation	4.33	1.0	4.0	3.0	45.5	46.5

Table 3: Attitude Towards solid Waste management in the Market

Note: 1=Strongly agree, 2=disagree, 3=Neutral, 4=Agree, 5=Strongly agree

The overall respondents' level of attitude towards solid waste management (Fig 3) was measured as an index and categorized base on levels (Poor, Moderate and Good). The result indicates the positive inclination of the respondents' attitude towards solid waste management, with about 80.5%

exhibiting a 'Good' level of attitude towards solid waste management. Those who exhibit 'Moderate' level of attitudes towards solid waste management constitute 15.5%, whereas only 4.0% shows 'Poor' level of attitudes.
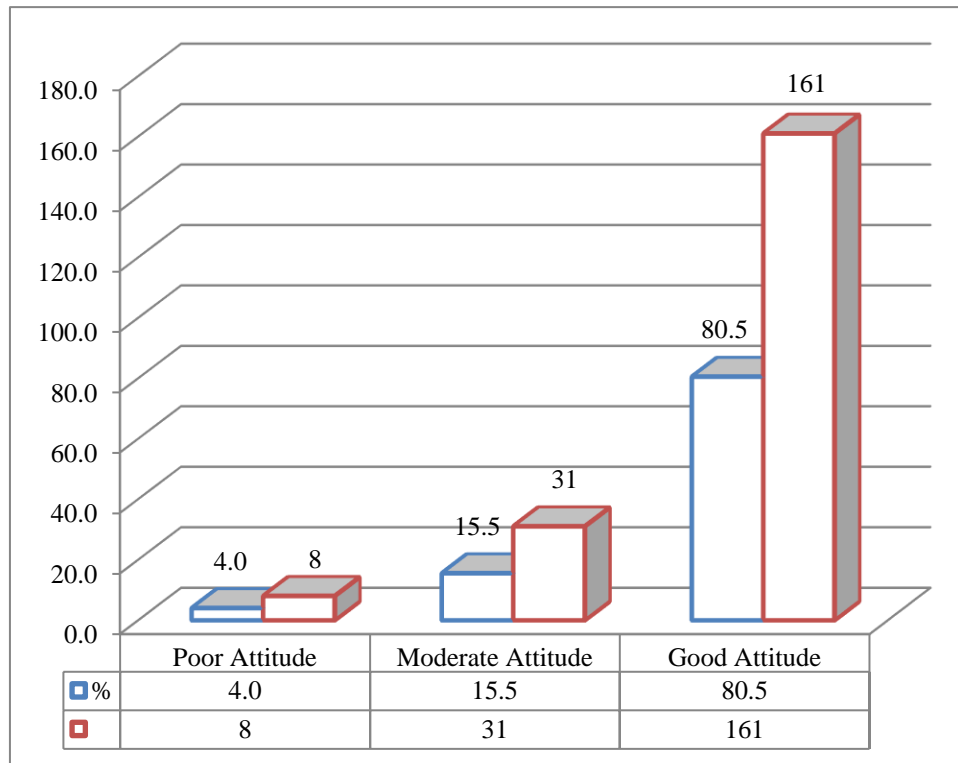

Fig. 3: Respondents' Level of perception towards Solid waste Management

D. Correlation Analyses

Pearson correlation was carried out in order to examine the relationship between the dependent variables(attitude and perception) and the independent variables (age, years of education and income). The result is presented in Table 4.6, which shows that thedependentvariables 'attitude and perception' havesignificant and positive relationship with all the independent variables. The relationship between the respondents' age and attitude towards solid waste management in the commercial area of Sango was statistically significant, with correlation coefficient value (r)=0.556(p=.000). This outcome indicated that with increase in age, the attitude towards solid waste management also increases among respondents in the study area. For the relationship between respondents' years of education with attitude, the result shows a statistically significant positive correlation, with r= 0.432, p=.000. This result revealed that the more years someone spent acquiring education, the more he will exhibit positive and good attitude towards solid waste management.Moreover, the result of the correlation analyses indicated that the

respondents' income has a significant and positive relationship with attitude towards solid waste management in the area, r= 0.511, p=.014. This shows that positive attitude towards solid waste management is positively related with higher income.

On the other hand, for the perception about solid waste management in the commercial area, the study outcome shows that it has a statistically significant relationship with respondents' age, r=0.363, p= .002. This also means that high perception is significantly related with higher age. Years of education of the respondents also had significant and positive relationship with perception, r=0.471, p=.000. This result indicated that the more the years spent on education by the respondent, the higher his perception about solid waste management in the study area.Lastly, respondents' income was also positively correlated with perception, r=.321, p=.000. This means that higher perception about solid waste management is significantly and positively related with high income of the respondent.

Variables	ATTITUDE		PERCEPTION	
	R	P-value	R	P-value
Age of Respondents	.556	.000	.363	.002
Years of Education of Respondents	.432	.000	.471	.000
Income of Respondents	.511	.014	.321	.000

Table 4: Result of the Pearson Correlation

V. CONCLUSION

The quest for an effective solid waste management policy leads to a search for a comprehensive, coordinated and governmental planning which will combine with adequate legislation, adequate fiscal provision, public involvement and awareness to bring about the expected improvement in the quality of urban environment. There is hardly any state government in Nigeria that has not shown concern in the area of urban solid waste management,yet there is no city in Nigeria that is not groaning under the pressure of uncharted urban wastes. The problem has been that the systems adopted by most cities are inadequate, especially for commercial areas. It is important to emphasis thatmanagement needs to do more in terms of educating the people on the importance of ensuring effective waste management especially in commercial areas.

A number of interesting findings emerged from this study.From the Results, it could be deduced that significant number of the respondents have indicated good attitude and high perception towards waste management in the commercial areaof Sango, Ogun State. About 60% indicate high level of positive perception towards waste while only 8% indicated low level of perception.On attitude, more than 80%of the respondents had indicated high level of good attitude towards waste management, whereas just on the opposite side, 4% of the respondents were holding negative attitude towards solid waste management in the commercial area.This outcome is partly due to the cultural practice in some communities in Nigeriawhere waste management is viewed as everybody's business but not just a government affair. As such, respondents most likely had prior experience that assisted them to some extent in establishing and indicating their perception and attitude towards waste management.

Based on the study findings, it is recommended that solid waste management in Nigeria should bethe matter of concern for everyone.The assignment of solid waste management exclusively to a single agency is not yielding the desired result. As studies shows that no single government agency can effectively cope with the huge volume of solid waste generated in most urban cities, it is recognized that the appointment of a public agency is vital in urban solid waste management. It must also be recognized that effective urban waste management demand multi-stakeholder approach in which all segments of the society must be brought together in tackling the waste management issues.

Moreover, government should also make legislations that will establish waste management agency exclusively for handling waste from commercial areas as independent waste management authorities that will function like a private business corporations. This will enhance the efficiency and effectiveness of waste management in market areas of urban centers. Also, government should ensure provision of adequate funding for agencies charged with the responsibility of solid waste management for effective handling of solid waste especially in commercial areas. Lastly, efforts should be geared towards bringing people into solid waste management in public places such as commercial areas in order to tap from the benefit of the positive perception and good attitudes they held towards waste management. This will go a long way in ensuring effective management of waste in such areas. Awareness campaign on the significance of solid waste management is also appropriate as people will tend to change their negative ways of handling solid waste to a more scientific and civilized ways.

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