



INVESTIGATING THE LEVELS OF ATTITUDE AND INTENTION TO PARTICIPATE IN RECYCLING AMONG HOUSEHOLDS IN KANO METROPOLIS, NIGERIA

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Abstract

The aim of this study is to investigate households' levels of attitude and intention towards recycling in Kano Metropolis. Descriptive statistics was used to analyze the data collected from 393 households in Kano metropolis using SPSS software. The results indicated that households in Kano metropolis have high attitude; $n=162$ (46.2%) and intention; $n=155$ (41.9%) toward waste recycling. However, their attitude and intention are constrained by lack of recycling facilities. The study concluded by providing insightful information for future recycling policies that can focus on provision of recycling facilities and encouraging market-driven recycling programs in Kano metropolis, Nigeria.

Keywords: Recycling; waste; attitude; intention; households; Kano metropolis

Introduction

Globally, municipal solid waste (MSW) generation is increasing rapidly and its management is becoming more challenging, particularly in developing nations. The difficulty to effectively and properly manage the unprecedented increase of solid waste is due to rapid growth of cities and population, and change in living standard and consumption patterns (Mahar et al., 2007). Municipal solid waste refers to the unwanted materials that emanate from households, shops, offices, streets, public places, and hospitals, which are usually the responsibility of municipal government for the collection, transportation and final disposal. The MSW produced can be categorized based on its sources of generation which include commercial, industrial, residential and office wastes (Grazhdani, 2016). Residential solid waste (HSW) has been the main source of municipal solid waste (MSW) in many countries to which most cost of the waste management is allocated (Pakpour et al., 2014). In spite of the huge allocation, improper handling and disposal of the MSW is still a challenge and has been a growing concern in many countries, particularly in developing nations.

Traditionally, land-filling has been the major way of solid waste disposal in many countries across the world. In Africa and many east European nations, the rate of landfilling is very high as compared to waste minimization and recycling practices. However, landfilling method is detrimental to the public health and environment, which leads to high rates of morbidity and mortality (Antanasijević et al., 2013). In order to reduce the adverse effect of improper waste handling and limit the increasing demand of land for waste disposal, the idea of converting solid waste to resource should be adopted and practiced as part of the waste management system of every country (Ghisellini et al., 2016).



Solid waste recycling refers to the processing of used materials (waste) into new, useful products in order to reduce the use of raw materials that would have been used. Recycling has been reported as a key strategy through which a sustainable solid waste management can be achieved due to its environmental and economic benefits. It helps to conserve natural resources, reduce pollution and landfilling, save energy as well as improves quality of the environment and public health (Song et al., 2015). However, in most developing countries, the rate of public participation in recycling is low due to low attitude and intention to participate in the recycling. This study aimed at investigating the levels of households' attitude and intention to participate in recycling activities in Kano metropolis Nigeria.

In Nigeria, recycling system has for long been in practice, which is informally carried out by unregulated individuals and some families who support themselves by selling recyclable items as secondary materials to local markets, either for local use or export. The environmental advantage of this practice is that it reduces the amount of waste sent directly to the landfill. And economically, it serves as an important source of employment and income generation, mainly to the poor people who have very limited alternative for making a living (Nzeadibe & Ajaero, 2011). Therefore, the major strength of the informal recycling sector lied upon the market for the recyclable materials. However, the major disadvantage of the informal recycling sector as described by Wilson et al. (2006) is that the sector is small scale and labor intensive, with no documentation and technology; with low income return; and without regulation and license. The informal recycling sector is also associated with health risk to the members who are exposed to unsanitary materials collected either from households or dumpsites (Ogwueleka, 2009).

The method of informal waste recycling activities in Nigeria include the door-to-door itinerant by waste scavengers; buying items such as plastics, bottles, paper, metals, and glass, directly from householders, and scavenging from waste bins, communal dumpsites, and landfills (Kofoworola, 2007). The items gathered are used directly by the waste pickers or sold to recycling companies (Figure 1).



Figure 1: Agents of Informal Waste Recycling Companies receiving and buying recyclables from waste pickers (Source: field work, 2017)

Methodology

This study focuses on Kano metropolis, which is the second largest city in Nigeria, and an important cultural, economic, and political center of the country, with its abundant human and natural resources. Kano metropolis has an estimated population of about 6 million, and the density is about 1000 inhabitants per km² within the Kano closed-settled zone (Nabegu and Mustapha, 2014), which make it among the fastest growing and one of the most crowded cities in Nigeria. These figures demonstrate that waste generation is likely to be significant in Kano metropolis and that its management would require innovative strategies.

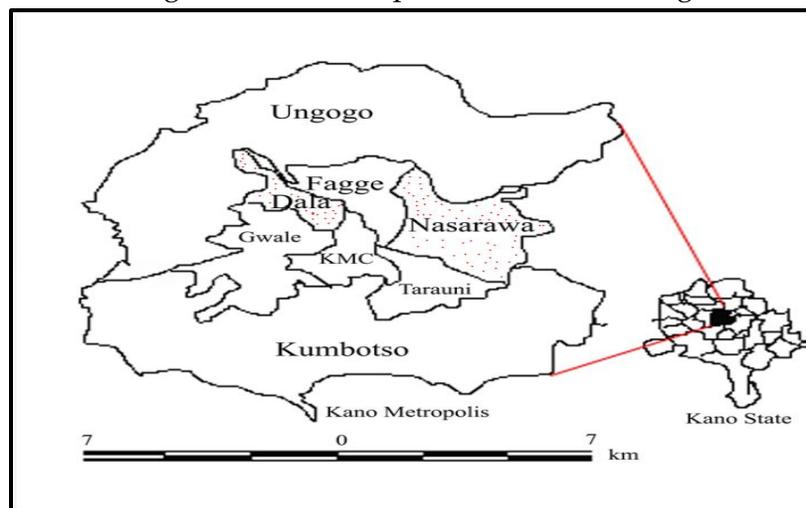


Figure 2. Showing the map of Kano metropolis and the distribution of sample (Khalil, et al., 2017)

The participants of this study were households residing within Kano metropolis. The study area has approximately 477805 households (NPC, 2012), thus the sample size was 393 using Krejcie



and Morgan (1970). Kano metropolis constitute of eight local government areas, which are unevenly distributed within the inner city and the suburb areas as shown in figure 2 above (Incekara, and Khalil, 2014). Simple random sampling technique was adopted to select two local government areas. Following this procedure Dala and Nassarawa local government areas were selected to represent the study area. Participants were selected proportionately from the two areas based on their population.

The distribution of the respondents in the study area from where the sample was drawn is indicated as follows as shown in figure 3: Dala (low income) has 120,974 households, and its proportionate sample was 236.94 (52.64%), Nassarawa (high income) has 108,780 households, and its proportionate sample was 213.058 (47.33%).

The instrument used to measure the variables was adopted from previous study by Khalil et al., (2017), and was slightly modified to suit the present study. A five-point Likert scale was used to assess the respondents' level of agreement to each statement measuring the variables ranging from 1=strongly disagree to 5=strongly agree.

In the questionnaire, the participants were asked to answer questions with regards to their socio-demographic profile such as gender, income, age, education, area of residence, employment status, and size of the household. Similarly, the variables attitude and intention to recycle were measured using five point statements.

Results and Discussion

Demographic analysis

The summary of the statistics in Table 1 shows that 71.6% of all the respondents, which constitutes about 280 households are married. Households' disparity across gender reveals that the male (n=159) constitute 40.2% and female (n=234) account for a relatively larger size of 59.8%. This shows that women were strongly represented in the study, which is congruent to previous study by Khalil, et al., (2017). The findings based on age categories shows that the average age of the households was 36 years. It shows that majority of the households are within the age range from 18 to 30 years were 146 respondents which accounts for (37.3%), while those who were few in the survey are within the age range of 51 years and above who are only 14.1%. The educational distribution of the respondents shows that 9.7% disclosed to have attended Islamiyya schools, which is presumably informal educational system. This implies that 90.3% of the sample has formal education, which is consistent with the study by Alhaji, et al., (2017).

Additionally, employment status distribution of the sample shows that majority (34.5%) of respondents are self-employed, while public servants or government employed as well as



private employed constitute 25.1% and 18.2% respectively. Others include unemployed (10.7%), pensioners (3.8%), and housewives (7.7%). The income distribution of the chief income earner of each household revealed that, majority of the respondents (73.3%) have their monthly income below 150,000 Naira (US\$416.6). This is followed by 19.3% of the respondents with their monthly income between N150,001 and N300,000 (\$416.6 and \$833.3), only few of the respondents (7.4%) have monthly income above N300000 (\$833.3). This shows the unevenly distribution of income in the study area where majority have low income and this has corroborated with the findings by Khalil, et al., (2017).

Table 1: Socio-economic profile of the respondents

Variable (s)	Frequencies	Percentage	Mean±SD	Min.	Max.
Gender					
Male	159	40.2			
Female	234	59.8			
Age/Age Group					
			36.14±11.95	18	68
Below 30	146	37.3			
31-40	114	29.2			
41-50	76	19.4			
51 and Above	57	14.1			
Marital Status					
Married	280	71.6			
Single	89	22.8			
Divorced	21	5.4			
Other	3	0.3			
Educational Level					
Islamiyya	40	9.7			
Primary	25	6.4			
Secondary	110	28.1			
Tertiary	218	55.8			
Employment					
Govt. Employed	98	25.1			
Private Employed	71	18.2			
Self Employed	135	34.5			
Unemployed	42	10.7			
House Wife	30	7.7			
Pensioner	17	3.8			
Household Monthly Income					
			37692.33±11834.00	₦20000	₦400000
₦150000 and Below	183	46.8			
₦150001-300000	131	33.5			
₦300001 and Above	27	6.4			

Note: \$1 = N305; HH = Household



Households' Levels of Attitude towards Recycling

From Table 2 the households' scores on attitude based on the categorized levels showed a mean score of 4.09 and a standard deviation of 0.79 suggesting high agreement with this measure. The participants scores indicate that the low level ranges from (7 - 15.33), moderate level (16.33 - 24.66), and high level (25.66 - 35). The descriptive analysis indicates that out of the 393 participants, 38 participants representing (10.8%) were in low level, 151 participants representing (43%) were in moderate level, and 162 participants representing (46.2%) were in the high level of attitude toward recycling. This revealed that the majority of the participants (46.2%) claimed they have a positive high attitude towards recycling. This is consistent with the findings by (Stoeva and Alriksson, 2016).

Households' Levels of Intention towards Recycling

The participants' levels on recycling intention have a mean score of 4.03 and a standard deviation of 0.91. Also the participants' scores based on the 3 levels reveal that, the low level is within the range of (5-10.66), moderate level (11.66-17.32), and high level (18.32-25). The descriptive analysis of the study in Table 2 shows that out of the total participants of 393, a total number of 104 participants representing (28.1%) are in low level, 155 participants representing (41.9%) are in the high level, and 111 participants representing (30.0%) have high level of recycling intention. This indicates that the majority of households have high level of intention to perform recycling. This is congruent with the findings of (Abd'Razack et al., 2017)

Table 2: Summary of the households' levels of recycling attitude and intention

Variables	Levels / Frequency (N) & Percentage (%)						Mean	SD
	Low		Moderate		High			
	(N)	(%)	(N)	(%)	(N)	(%)		
Attitude	38	10.8	151	43.0	162	46.2	4.09	0.79
Intention	104	28.1	111	30	155	41.9	4.03	0.91

The high scores in recycling attitude and intention suggests that households have the intention to recycle their waste but may be deterred by some factors, such as lack of recycling facilities and market for recyclable items. These households comprise of those of low and high income status. Participants who scored high on items measuring recycling intention are usually those who recycle for financial benefit and developed the intention to recycle regardless of the availability of recycling facilities, which is consistent with the findings by Khalil, et al., (2017). Majority of these households come from low income areas and participate in informal recycling activities. This indicates the role of households' income in influencing households' participation in recycling and is consistent with the study of Hornik et al. (2005).



Conclusion

The results of this study show that household in Kano metropolis have high attitude and intention toward recycling. Therefore, the Nigerian government should come up with a recycling awareness campaign to enlighten people about the benefit of recycling to oneself and to the environment. This will help to strengthen people that already have a positive attitude as well as encourage others with a less positive attitude toward recycling. Some of the issues that should be highlighted in the recycling campaign should include the health and environmental consequences of a poor attitude of households towards waste handling. Also, emphasis should be given to personal gain; especially the financial benefit associated with participating in recycling through selling recyclables items. Finally, the government should come up with policies that will strengthen households' participation in recycling by providing recycling facilities in every part of Kano metropolis.



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