



Assessment and Implications of Waste Transportation and Disposal Practices of Rural and Urban Dwellers in Kwara State, Nigeria

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Abstract

The piles of solid waste that have accumulated across the cities of Kwara State, Nigeria, pose a serious threat to public health. The implications of waste disposal and transportation practices on the health of people cannot be undermined, which may include environmental health issues such as outbreaks of cholera, lassa fever, malaria and other diseases which have been frequently experienced in the study area. In order to avert such incidences in the nearest future, this study assessed solid waste disposal and transportation practices and its implications on the health of the people in rural and urban areas of Kwara State. Three research questions and two hypotheses were tested for the study. An ex-post facto research design was used. The sample for the study was chosen using a multi-stage sampling technique. A total of 754 questionnaires were given to household heads who were chosen at random from six Local Government Areas in Kwara State. For research questions, mean, standard deviation and percentages were used, and the study hypotheses were analysed using an independent sample t-test. Findings revealed that rural and urban dwellers in Kwara State use similar methods of solid waste disposal (P -values = $0.99 > 0.05$, $0.99 > 0.05$) and transportation (P -values = $0.13 > 0.05$, $0.07 > 0.05$). Most of the disposal methods used are unhygienic and not environmental friendly (open burning, dumping on bare floors and drainages, and use of pits dug at the backyard). Also, majority of the respondents do not transport their wastes, some of the respondents give to children to dispose off on the streets, some take it along to dispose illegally when going to work, while a few patronize government and commercial waste collectors). The implications of such practices were found to be too important to be neglected such as unpleasant odour, disease outbreaks and loss of aesthetic value of the streets. It was suggested among others that household

members should try to use accessible healthy waste disposal options such as composting, sanitary landfill and recycling of waste in order to prevent environmental health diseases and degradation.

Keywords: Rural, Urban, Waste, Disposal, Transportation

Introduction

Waste is defined as anything that is no longer useful, serves no function, or must be discarded. The word undoubtedly applies to materials that have been discarded. There are, however, certain waste definitions that govern how garbage is regulated and handled. Regardless of whether or not it is solid in physical form, the bulk of household and veterinary practice trash is classified as solid waste. According to United States Environmental Protection Agency (EPA, 2017), waste is defined as any refuse or sludge from a waste water treatment plant, a water supply treatment plant, or an air pollution control facility, as well as other disposed materials, such as solid, liquid, semi-solid, or contained gaseous materials originating from industrial, commercial, mining, and agrarian operations, as well as community activities. However, the scope of this research is limited to domestic waste disposal and transportation practices.

Hewitt, Baxter, Givans, Murphy, Myers, and Meiklejohn, (2010) advanced that domestic waste is generated on a daily basis across households. These wastes ought to be stored until they are collected for disposal at the place of generation. In most countries, however, the reverse is the case. As a result, waste is tossed on the streets, turning them into dumping grounds. The researcher observed that, if this behaviour is not checked, cities will never be neat again, as we are seeing in Kwara State's cities, particularly in the Ilorin Metropolis, and the cities' aesthetic value will be lost forever. Even though local waste management bodies (Kwara State Waste Management Agency) make daily efforts to remove this garbage, the city will only be clean for a few hours unless people's attitudes toward throwing trash on the streets change.

Zerbock (2013) noted that, individuals must be instructed to collect or gather waste at the source, dispose of rubbish as directed by local authorities, and efficiently participate in such organizations' activities in order to keep cities clean and evergreen. Collection and transfer of waste are a noteworthy cost in waste management process. In urban areas, municipal waste alludes to the refuse gathered by local government, which may comprise domestic, commercial, industrial waste and street sweepings. Urban and rich societies tend to create more significant amount of solid waste than rural communities do. However, Hygiene and Environmental Module, (2016) noted that rural waste comes from family units and activities; it is mostly natural and biodegradable. This makes it reasonable for producing fertilizer or compost. Compost is a blend of decayed natural waste, usually of plant origin, which may be used to enhance soil structure and to return nutrients to the land. Refuse produced from households will comprise generally of natural decomposable matter, which will be disintegrated through bacterial activity. In urban territories, where a large quantity of solid waste is available, it is normally taken to a legal dumpsite for disposal. Such sites are normally situated in places like previous quarries where the waste may be utilized to fill in an opening in the ground, that is why it is called landfill. In landfill sites and a few community waste dump sites, the refuse disintegration process will create leachate. Leachate is created when the fluid portion from a mixed refuse is isolated by gravity from the solid portion. Without proper control, the leachate will

leak out from the base of the waste tip and contaminate surface and groundwater. It might harbour poisonous chemicals in addition to pathogenic microorganisms. The solid fraction and the leachate formed in this procedure need to be securely discarded in a way that will not negatively affect the environment or human living conditions (Hygiene & Environmental Module, 2016).

Imam, Mohammed, Wilson and Cheeseman, (2015) explained that, in waste management process, there is a phase when waste will be briefly stored or temporarily contained in the place where it was produced. If storage is brief, then the next phases will be the transportation to a treatment facility, trailed by final disposal offsite. However, in Kwara State, collection and transport activities are not regular, especially in urban areas because, waste is normally discarded immediately, mostly through indiscriminate dumpings.

Imam, Mohammed, Wilson and Cheeseman (2015) further observed in an investigation into the solid waste management in Abuja, that waste companies gather wastes from house to house at least one or three times in a week, contingent upon the availability and state of their vehicles. Collection and transportation of waste is labour and capital intensive. They estimated that waste transportation represents about 70 to 80% of the total cost of waste management in Nigeria. Imam et al. (2015) likewise unveiled that informal sector collection workers additionally engage in house to house collection of waste. They regularly separate recyclable materials and discard unwanted decomposable waste around the area. Consequently, such casual collectors are officially restricted in a number of cities and their trucks seized by authorities. Manual collection equipments utilized by casual waste collectors incorporate push trucks, wheelbarrows and pedal tricycles while hand rakes, scoops and sorting bars are utilized for waste separation. Deficiency in waste collection vehicles in Abuja was found to be due to lack of funding and improper upkeep. Proficient collection relies upon suitable choice of vehicles, which needs to consider road conditions, traffic density, availability of extra or spare parts, servicing prerequisites and haulage distance. This made it expensive to venture into waste management services by commercial waste managers. Atkins International Ltd and Matrix Development Consultants (2012) reported in a study in Tanzania that there are no facilities for collection, treatment and disposal of waste. Even in Magu where solid waste is collected, there is problem of transportation and lack of a properly designed disposal site. As a result, solid waste is disposed at illegal open sites. This problem was also reported in other towns and cities in Tanzania (Ntakamulenga, 2012) likewise in Sengerema, Geita and Nansio (UN Habitat, 2012).

In a study by Solomon (2010), on waste management in Ogun State, Nigeria, it was found that there is usually no storage at source at the home level. The majority of the time, there are no designated bins for storing household garbage at the source. Only 31% of those polled had waste bins or containers for storing household waste. Even when done correctly, waste storage is incompatible with a healthy trash collection system. The technique of trash collection and transportation at the source does not always comply to the primary waste collection system; as a result, waste gathered in bins at residences, shops, and industrial sites finds its way into the street, resulting in unsanitary circumstances. Plastic containers, buckets without covers, polythene bags or sacks, and metal bins are some of the containers widely used for garbage collection at the domestic level. The majority of the time, such containers are not covered. These are unsuitable and harmful for storing food waste for more than a day since they can produce a foul odour.

Adogu, Uwakwe, Egenti, Okwuoha and Nkwocha (2013) in a study on waste disposal practice found that majority of the respondents (90.1%) knew about waste management. Open dumping was the most well known strategy for waste disposal among the respondents 279 (98.9percent), trailed by burning 267 (94.7%). Incineration was the least known waste disposal method. The revelation was however different in South Africa where household wastes are collected every week from households by the local bodies (Ogola, Chimuka & Tshivhase, 2011). Calhoun (2010) also observed that most of the household waste including waste from business areas, shops, offices and institutions such as hospitals, hotels, restaurants, construction and demolition wastes, and lots more end up on the streets or are discarded illegally on open plots or released into nearby water bodies, thereby resulting in blockage of drainages, contamination of water sources and increased poor conditions of the environment in the rural and urban areas.

In order to ensure a clean and healthy environment, Longe, Longe, and Ukpekor (2011) noted that it is critical that trash producers cooperate and participate actively in the waste management operations of local governments in order to maintain the streets and public spaces clean. Residents may be taught to retain waste at the source in their domestic waste bin and to dispose of it only in legal locations and at specific times. Additionally, Dede, (2016) explained that both urban and rural local governments must take steps to ensure that inhabitants do not throw trash on the streets, open areas, drainage systems, or water bodies. They should collect waste at the site of generation instead. Solomon (2012) further noted that Local governments must place waste collection containers in strategic places defined by the agency as high waste generating points, which will be tagged with wheeled plastic waste bins, metal waste bins, and constructed waste fortification. The wastes in these containers are then disposed of at a site around 6 kilometers away from the generators, this will ensure the tidiness of the streets. Such technique also guarantees that garbage collection sources are identified, and that individual waste stream components are examined, sorted, and weighed. This method is useful for identifying the waste stream in a given area. Joseph, (2015) observed that majority of waste collectors in the study area use a public bin collection system which include collecting trash from various sources, such as homes and businesses, and dumping it in public bins strategically placed around street corners, however, wastes are not routinely treated before being moved to final dumping locations (Joseph, 2015).

In order to enlighten residents on the hygienic methods of waste transportation and disposal and the unpalatable implications of unhygienic waste management practices, this study assessed waste disposal and transportation practices and its implications on rural and urban dwellers in Kwara State. The study also compared the waste transportation and disposal practices of household members in rural and urban areas of Kwara State in order to find out if one of the areas are doing better than the other in terms of waste management. Three research questions were raised for the study which include; i) What are the solid waste transportation practices of rural and urban dwellers in Kwara State, Nigeria? ii) What are the solid waste disposal practices of rural and urban dwellers in Kwara State, Nigeria? iii) What are the health implications of unhygienic solid waste storage and transportation practices among rural and urban dwellers in Kwara State Nigeria?

Research Hypothesis

- (i) There is no significant difference in the solid waste transportation practices of rural and urban dwellers in Kwara State, Nigeria.
- (ii) There is no significant difference in the solid waste disposal practices of rural and urban dwellers in Kwara State, Nigeria.

Methodology

The research was conducted using a mixed method approach that included both qualitative and quantitative components. The quantitative data was collected using an ex-post facto research design, whereas the qualitative data was collected through a key informant interview. Devin (2022) defined an ex post facto research design as a method in which groups with qualities that already exist are compared on some dependent variable. Also known as “after the fact” research, an ex post facto design is considered quasi-experimental because the subjects are not randomly assigned. They are rather grouped based on a particular characteristic or trait. This design is appropriate for the study as the study examines two existing groups (rural and urban) without any manipulation from the researcher. As of the time of the survey, the population comprised all household heads in both rural and urban areas of Kwara State. The target population consisted of heads of families in the selected Local Government Areas in Kwara State, which has a population of around 223,360 individuals, according to the National Population Commission, NPC (2016). The survey only included heads of families who were 18 years old or older. While a total of 15, officials from the Kwara State Environmental Protection Agency were also included in the study. The target however, was limited to authorities who deal directly with solid waste.

The study relied on a sample of 771 respondents, however, only 754 people participated in the study. This group consisted of household heads from six Local Government Areas (LGAs). This sample size was obtained by adopting the use of table numbers for determining sample size constructed by Research Advisor (2006) which stated that for a population above one hundred thousand, a sample of three hundred and eighty four (384) is adequate at a confidence level of 95% and degree of accuracy of 0.05. This is the minimum acceptable figure for the study population. However, in order to cover most of the study area and prevent sampling error, the researcher used seven hundred and seventy one respondents for the study. A multi-stage sampling technique was used to select the sample for the study. This included stratified random sampling, simple random sampling, proportionate allocation, purposive sampling and systematic random sampling techniques. The first stage made use of a stratified random sampling to divide Kwara State into the three constitutionally recognized senatorial districts. At the second stage, a simple random sampling of Fisher bowl by Fisher (2007) was used to select two Local Government Areas from each senatorial district. At the third stage, a purposive sampling technique was used to select one Local Government Area where the Local Government headquarters was selected as urban area out of the two selected LGAs from each senatorial district. A purposive sampling was used to select one out of the other towns not designated as LGA headquarters to serve as rural areas. At the fourth stage, a purposive sampling was used to select household heads in the selected areas. At the fifth stage, a proportionate sampling was used to select 0.345% of the population of household heads as at the time of the study. The last stage involved the use of systematic random sampling to select every fifth household in the selected areas. The sample selection is summarized in table 1 as follows:

Table 1: Sample Selection for the Study

| S/N | SENATORIAL DISTRICT | LGAs | TOWN/ VILLAGE | NO OF HOUSEHOLD HEADS | SAMPLE (0.345%) |
|-------|---------------------|-------------|------------------|-----------------------|-----------------|
| 1 | Kwara Central | Ilorin West | Adewole(LGA HQ) | 99,042 | 342 |
| | | Asa | Yowere | 25,766 | 89 |
| 2 | Kwara North | Edu | Lafiagi (LGA HQ) | 44,940 | 155 |
| | | Patigi | Patigi | 24,116 | 83 |
| 3 | Kwara South | Offa | Offa (LGA HQ) | 18,922 | 65 |
| | | Oke Ero | Odo Owa | 10,574 | 37 |
| Total | | | | 223,360 | 771 |

Source: National Population Commission Projection, (2016)

Two instruments were used for the study namely, a key informant interview guide which was constructed in line with the variable for the study and a researcher-developed questionnaire. The instrument was validated by five jurors. Cronbach alpha reliability coefficient was used to determine the reliability of the instrument. The result was 0.791r. The researcher with the help of four (4) instructed research assistants administered the questionnaire. Seven hundred and seventy one (771) copies of the questionnaire were administered on the respondents from house to house on daily basis until the samples for the study were covered. However, only seven hundred and fifty four (754) were retrieved which formed the final respondents for the study. The officials of the waste management agencies were also contacted in their various offices in order to have a one-on-one interview with them. Data collected was analysed using mean and standard deviation to answer the research questions raised for the study, while, an inferential statistics of Independent sample t-test was used to analyse the hypotheses for the study at 0.05 alpha level of significance. A thematic analysis was also used to report the key informant interview.

Result

Table 2: Mean scores on solid wastes transportation methods used by household members in rural and urban areas of Kwara State

| S/N | | Rural | | Urban | |
|-----|---|-------|----------------|-------|----------------|
| | | Mean | Std. Deviation | Mean | Std. Deviation |
| 1 | Usually, the children are the ones who carry the solid waste to the disposal unit | 2.85 | 0.775 | 2.55 | 0.984 |

| | | | | | |
|---|---|--------------|--------------|--------------|--------------|
| 2 | Wheel barrow pushers always come around to help us transport wastes to dumping sites | 2.38 | 0.848 | 2.34 | 0.949 |
| 3 | Most of the time, our waste is transported by trucks from government owned waste management companies | 2.23 | 1.016 | 2.36 | 1.016 |
| 4 | In our household, private waste management companies are patronized to transport wastes because of inadequate access to government trucks | 2.17 | 0.895 | 2.39 | 0.994 |
| 5 | Wastes are usually collected and poured in an open space around the compound in our household | 2.71 | 0.923 | 2.50 | 0.922 |
| 6 | We do not need to transport the wastes because they are usually converted to other usage like production of manure for farming. | 2.30 | 0.841 | 2.09 | 0.883 |
| 7 | Inorganic wastes such as plastic, cartons and metals are given to scavengers who help us transport them to recyclers | 2.26 | 0.922 | 2.21 | 0.948 |
| | | 16.90 | 6.220 | 16.44 | 6.696 |

Tables 2 show the method of solid waste transportation used in rural and urban areas of Kwara State, Nigeria. On aggregate, respondents in both rural and urban area had mean scores of 16.90 and 16.44 respectively with a mean difference of 0.46. Therefore, the solid wastes transportation methods employed by household members in rural and urban areas of Kwara state are not different. Usually, the children are the ones who carry the solid waste to the disposal units. In some households, Wheel barrow pushers always come around to help transport wastes to dumping sites, while in others, waste is transported by trucks from government owned waste management companies or the commercial waste managers. Some household members do not even transport wastes as they dump wastes at their backyard, while few household members give out inorganic wastes such as plastic, cartons and so on to scavengers. This shows that, household members in Kwara State, Nigeria practice both safe and unsafe methods of transporting their wastes.

Table 3: Mean scores on solid wastes disposal practices among household members in rural and urban areas of Kwara State.

| S/N | ITEMS | Rural | | Urban | |
|-----|---|-------|----------------|-------|----------------|
| | | Mean | Std. Deviation | Mean | Std. Deviation |
| 1 | Most of the time, our household members dump solid wastes openly at designated sites | 2.61 | 0.863 | 2.61 | 0.882 |
| 2 | Solid wastes from our household are often dumped in a natural or artificial pit that are compressed and daily covered with a layer of dirt (Sanitary landfill) | 2.35 | 0.881 | 2.30 | 0.914 |
| 3 | We do not dispose the organic materials, they are only allowed to undergo aerobic bacterial decay and the remains are used to build soil fertility (composting) | 2.40 | 0.894 | 2.35 | 0.935 |
| 4 | Sometimes, solid wastes from our household are dumped into water bodies | 2.50 | 0.822 | 2.62 | 0.899 |
| 5 | We patronize the refuse disposal companies (private/public) who do house to house collection to help us dispose our solid wastes | 2.09 | 0.874 | 2.28 | 0.907 |

| | | | | | |
|-------------------------|--|--------------|--------------|--------------|--------------|
| 6 | Solid wastes are disposed at the back of our house for burning | 2.53 | 0.886 | 2.55 | 0.924 |
| 7 | Whenever rain falls, it as an opportunity for household members to dispose wastes in drainages | 2.34 | 0.858 | 2.41 | 0.954 |
| Total Mean Score | | 16.62 | 6.078 | 16.72 | 6.406 |

Table 3 shows the practice of solid waste disposal among people in rural and urban areas of Kwara State, Nigeria. On aggregate, respondents in rural area had a mean score of 21.30 while those in urban area had a mean score of 21.28 with a mean difference of 0.02. By implication, household members in rural and urban areas of the study area have similar ways of disposing their solid waste. Most of the time, household members dump solid wastes openly at designated sites and wastes are sometimes disposed at the backyard for burning, they also dump waste into water bodies and drainages. However, majority of the respondents do not use sanitary landfill and composting method of waste disposal, and majority of the respondents do not patronize private waste managers who do house to house collection of waste. This also means that, most of the respondents do not practice safe methods of waste disposal such as sanitary landfill and composting. This finding is a bit surprising because, the rural dwellers are expected to produce more organic wastes which can be converted through composting to produce manure and fertilizers for their soil.

Table 4: Frequency Counts and Percentages of Responses on the Impacts of Unsafe waste disposal and transportation practices on Household Members in Kwara State, Nigeria

| S/N | ITEMS | YES(%) | NO(%) | TOTAL |
|-----|--|------------|-------------|-----------|
| 1 | Has there been any outbreak of diseases such as cholera and lassa fever in your community in the last two years? | 465(61.7%) | 289(38.3%) | 754(100%) |
| 2 | Do you frequently perceive any unpleasant odour due to indiscriminate waste disposal in your area? | 591(78.4%) | 163(21.6%) | 754(100%) |
| 3 | Do you feel that your environment looks as tidy as you would want it to be? | 95 (12.6%) | 659 (87.4%) | 754(100%) |
| 4 | Has there been proliferation of rats and other vectors around the environment? | 600(79.6%) | 154 (20.4%) | 754(100%) |
| 5 | Poor waste transportation practices makes waste materials to end up on the streets thereby degrading the environment. | 754(100%) | (0%) | 754(100%) |
| 6 | Has there been contamination of water sources due to indiscriminate waste dumping in your community in the last two years? | 403(53.5%) | 351(46.5%) | 754(100%) |

Table 4 shows the frequency counts and percentages of responses on the impacts of unsafe waste disposal and transportation practices on the people of Kwara State, Nigeria. Majority (61.7%) of the respondents said there has been outbreaks of diseases such as cholera and lassa fever in the last two years, 78.4% of the respondents frequently perceive unpleasant odour due to indiscriminate waste disposal in their area, 87.4% felt that their neighbourhood is untidy, 79.6% said there has

been proliferation of rats and other vectors while all the respondents(100%) agreed that waste materials end up on the streets due to poor transportation thereby degrading the environment. Meanwhile, 53.5% of the respondents said they have experienced contamination of water sources due to indiscriminate waste dumping in their communities in the last two years. This implies that there is need for people to practice safe and hygienic waste disposal and transportation methods in order to ensure a safe environment.

Table 5: Independent Sample t-test on difference in the solid waste disposal methods employed by household members in rural and urban Areas of Kwara State, Nigeria

| | Areas | N | Mean | SD | Df | t-value | Sig(p) |
|------------------------------|-------|-----|-------|-------|-----|---------|--------|
| Solid waste disposal methods | Rural | 205 | 21.30 | 4.576 | 752 | .011 | 0.99 |
| | Urban | 549 | 21.28 | 3.993 | | | |

(t -critical = 1.972, P value > 0.05)

Results of the independent t-test in Table 5 show that there is no significant difference between rural and urban in their methods of solid waste collection. This was because the calculated p-value of 0.99 is higher than the 0.05 alpha level of significance, while the calculated t value of .011 is lower than the 1.972 t critical at df 752. Therefore, the null hypothesis which states that there is no significant difference in the solid waste storage methods employed by household members in rural and urban areas of Kwara State, was retained. As it was found that, most household members in Kwara State practised unsafe methods of waste disposal which include open burning, dumping in the bush and drainages and indiscriminate dumping of refuse.

Table 6: Independent sample t-test on difference in the solid waste transportation methods used by household members in rural and urban areas of Kwara State, Nigeria

| | Areas | N | Mean | SD | Df | t-value | Sig(p) |
|------------------------------------|-------|-----|-------|-------|-----|---------|--------|
| Solid waste transportation methods | Rural | 205 | 16.90 | 4.032 | 752 | 1.529 | 0.13 |
| | Urban | 549 | 16.44 | 4.321 | | | |

(t-critical = 1.972, P value > 0.05)

Results of the independent sample t-test in Table 5 show that there is no significant difference between rural and urban areas in their methods of solid waste transportation. This was because the calculated p-value of 0.13 is higher than the 0.05 alpha level of significance, while the calculated t value of 1.529 is lower than the 1.972 t critical at df 752. By implication, the null hypothesis which states that there is no significant difference in the solid waste transportation methods used by household members in rural and urban areas of Kwara State, was retained. This implies that,

household members in rural and urban areas of Kwara State practice similar methods of waste transportation. As it was found that majority practised unsafe methods of transportation.

Discussion of Findings

Findings revealed that there is no significant difference in the methods of solid waste transportation employed by household members in Kwara State, Nigeria. This implies that household members in rural and urban areas of the study area have similar ways of transporting their solid waste. Usually, the children are the ones who carry their solid waste to the disposal unit. Sometimes, their waste is transported by trucks from government owned waste management companies, while in some situations, private waste management companies are patronized to transport wastes because of inadequate access to government trucks. This finding agrees with the observation of Imam, Mohammed, Wilson and Cheeseman (2015) who reported in a study on solid waste management in Abuja, that waste companies gather wastes from house to house at least one or three times in a week, contingent upon the availability and state of their vehicles. According to the researchers, waste transportation represents about 70 to 80% of the aggregate cost of waste management in Nigeria. The researchers likewise unveiled that informal sector collection workers additionally engage in house to house collection of waste. Atkins International Ltd and Matrix Development Consultants (2012) reported in a study in Tanzania that there are no facilities for collection, treatment and disposal of waste. Even in Magu where solid waste is collected, there is problem of transportation and lack of a properly designed disposal site. As a result, solid waste is disposed at illegal open sites. This problem was also reported in other towns and cities in Tanzania (Ntakamulenga, 2012) likewise in Sengerema, Geita and Nansio (UN Habitat, 2012).

This finding was supported by a report from the key informant interview that;

“people usually transport their wastes to certain illegal dumping sites. Sometimes, they put them in the car and dispose them on their way to work, while some people patronize the commercial waste managers, many people are not willing to pay for such service that is why they take their wastes to illegal dumping sites (a male respondent).

Finding further revealed that there is no significant difference in the methods of solid waste disposal employed by household members in rural and urban areas of Kwara State, Nigeria. By implication, household members in rural and urban areas of the study area have similar ways of disposing their solid waste. Most of the time, household members dump solid wastes openly at designated sites. Sometimes, solid wastes are often dumped in a natural or artificial pit that are compressed and daily covered with a layer of dirt (Sanitary landfill), While some of them dump solid waste into water bodies, others patronize the companies who do house to house collection to help dispose their solid wastes. However, most people, especially in the rural area do open burning. This finding agrees with Adogu, Uwakwe, Egenti, Okwuoha and Nkwocha (2013) in a study on waste disposal practice who found that majority of the respondents (90.1%) knew about waste management. Open dumping was the most well known strategy for waste disposal among the respondents 279 (98.9percent), trailed by burning 267 (94.7%). Incineration was the least known waste disposal method. The revelation was however different in South Africa where household wastes are collected every week from households by the local bodies (Ogola, Chimuka & Tshivhase, 2011). Calhoun (2010) who

observed that most of the household waste including waste from business areas, shops, offices and institutions such as hospitals, hotels, restaurants, construction and demolition wastes, and lots more end up on the streets or are discarded illegally on open plots or released into nearby water bodies, thereby resulting in blockage of drainages, contamination of water sources and increased poor conditions of the environment in the rural and urban areas. This finding is a bit surprising to the researcher because, the rural dwellers are expected to produce more organic wastes which can be converted through composting to produce manure and fertilizers for their soil since they are mostly agrarians.

This finding was corroborated by a respondent, that; people do not usually patronize the private waste managers, even if they take their wastes to legal dumping sites, they do not dispose them appropriately. They prefer to burn their wastes at the back of their house and even inside the containers placed around town (a male respondent).

Conclusion

Based on the findings of this study, the researcher concluded that people's practices in terms of solid waste storage and transportation are similar in both rural and urban locations. These behaviours include storing garbage in containers with or without covers, storing waste in bags, dumping waste in backyard pits, and even dumping waste on the bare floor. The majority of them do not transfer their garbage, while some do take it with them when they walk out to illegally dump it on the streets. The rural dwellers who are expected to produce organic wastes for composting also, surprisingly practise same illegal dumping of refuse. These activities are hazardous and unsanitary, and they may result in the spread of infectious illnesses in the environment as was witnessed in some of the communities in the past two years. As a result, individuals must be educated, particularly in metropolitan areas, on the importance of sanitary solid waste disposal methods (such as composting, sanitary landfill, use of government or commercial waste trucks and recycling of waste). To maintain an ideal environment, more local government waste bins (large sizes) should be strategically put in important spots around cities and removed on a daily basis to avoid overflow and littering of the streets.

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