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**KNOWLEDGE, ATTITUDES AND PRACTICE OF DOMESTIC WASTE MANAGEMENT AND ITS  
IMPACT ON ENVIRONMENTAL POLLUTION IN ILORIN WEST LOCAL GOVERNMENT, ILORIN,  
KWARA STATE**

**BY**

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**Abstract**

Wastes are all things we consider unfit, unwanted and discarded due to economic reasons or ignorance of alternative technologies to re-use them. Human activities create wastes which need handling, storage, collection and disposal as they pose risk to the environment and public health. The aim of the study is to assess and understand the knowledge, attitude and practice of domestic waste management and its impact on environmental pollution. This study applies a descriptive design to assess the knowledge, Attitude and Practice of domestic waste management and its impact on environmental pollution in Ilorin West Local Government, Kwara State using multistage sampling techniques. The questionnaire was administered using convenience sampling techniques. Most of the respondents (about 80%) have high knowledge on domestic waste management in relation to environmental pollution. All the p value is less than 0.05 (p value > 0.05 or 5%) for all sections of the research which shows the p value as 0.01 or 1% which reviews that all sections are statistically significant meaning that the null hypotheses was rejected and we accept the alternate hypotheses which shows that there is significant relationship between the respondent responses in relation to pollution. Since there is significant relationship (i.e. p value is 0.01 which is less than the set hypothesis) between Knowledge, Attitude and Practice of waste management and environmental pollution among people in Ilorin West L. G. A, improving knowledge on domestic waste management will decrease the practice on domestic waste pollution such as burning, throwing of waste into land and water bodies. Skip containers should be replaced as soon as possible in communities to encourage frequent disposal of waste. The waste management bylaws should be strictly enforced to punish anyone who disposes waste at unapproved areas such as fines.

**Keywords:** Waste, Domestic waste, Domestic waste management, Environmental pollution, Ilorin West

**Introduction**

Human activities create wastes which need handling, storage, collection and disposal as they pose risk to the environment and public health (Gupta *et al.*, 2015). Domestic waste has become one of the most significant causes of severe damage to the rural eco-environment because of the large amounts of waste generated and the improper disposal of waste. In order to eliminate contaminations from domestic waste, a waste management system which include waste collection, waste transportation and waste treatment have been established. Firstly, a waste treatment and disposal plan were made to restrict improper disposal and cleanup of existing piles of waste near canals, roads, and houses. Secondly, domestic waste treatment collection network which include certain numbers of waste collection sites and transfer stations was built in big villages and counties. Third, waste reclamation technologies, such as methane fermentation, composting, and the production of compound fertilizers, were developed and applied in some countries. Waste management is a global challenge, especially in economically developing countries due to their growing populations, life style changes, rising in living standards in which all this leads to increasing waste generation (Taghipour *et al.*, 2016).

In Nigeria, Solid waste management has emerged as one of the greatest challenges facing State and Local Government Environmental Protection Agencies in Nigeria (Olukanni & Mnenga, 2015). Solid waste collection cost

is relatively high due to the unplanned way in which collection operation is undertaken. If solid waste management is to be improved, waste generators may need to pay more. Similarly for any improvement strategy which shows a pragmatic shift from a free social service (zero prices) to a commodity-based (price tagged) service, it is necessary to know the willingness of waste generators to contribute to the cost of such improved service. Invariably 'willingness to pay' creates an impression that the management of solid waste is a commodity rather than a free social service.

Two principal agencies are responsible for the management of urban solid waste in Ilorin and are the Kwara State Environmental Protection Agency (KWEPA) and Kwara State Waste Management Company (KWMC) which are responsible for waste management of the social system and the Private Partner Contractors is responsible for waste management of the commercial system in the Ilorin (Ibikunle *et al.*, 2021). KWMC handles the collection and disposal of wastes from municipal solid waste bins (Ayanshola, Sule & Salami, 2013)) and uses a fleet of medium-duty trucks to haul the waste bins. Solid waste management by KWMC is free-of-charge. In recent times KWMC has been facing many challenges such as coping with the huge amount of solid waste generation, high operation and maintenance costs, accessibility challenges and proper disposal of collected wastes. On the other hand, some residents are also experiencing low levels of satisfaction based on deferring issues related to the service provided by KWMC (Ayanshola *et al.*, 2015). Ilorin is the capital city of Kwara state which is occupied by both educated and non-educated individuals, accompany by their various activities performed on daily basis which generate wastes. This study is therefore designed to determine the knowledge, attitude and practice of domestic waste management and its impact on environmental pollution in an area/community in Ilorin metropolis with a view to encourage proper waste management and make them realize the environmental implication of poor waste management.

### **Methodology**

The descriptive survey research design was used for this study. This is considered appropriate because it enables a researcher to carefully describe, interpret and explain factual and detailed information about the variables of interest. This design is selected as the most suitable since the study is intended to examine domestic waste management and its impact on environmental pollution in Ilorin West Local Government Ilorin, Kwara State. Ilorin metropolis is the capital city of Kwara state, located in the Western region of Nigeria; at latitude  $8^{\circ} 24' N$  and  $83^{\circ} 6' N$  of the equator, and along longitude  $4^{\circ} 10' E$  and  $4^{\circ} 36' E$  of the Greenwich Meridian (Ibikunle *et al.*, 2021). According to the 2006 census, Ilorin had a population of about 781,934 people, thereby presenting Ilorin as the seventh-largest city in Nigeria by population (Census, 2006). Ilorin has a projected population of 908,490 people in 2011, with the demographic distribution of 241,040 people for Ilorin East, 243,120 for Ilorin South and 424,330 for Ilorin West hinged on the 2006 census (Ibikunle *et al.*, 2021). The people of Ilorin are predominantly Yoruba with a large percentage of some indigenes who are Fulani, Hausa, Nupe and Bariba immigrants.

Ilorin west local government was created in 1991 from the old Ilorin Local Government Area with headquarters at Oja-Oba. The local government area has four districts 4 wards. It has an area of  $105\text{km}^2$  and a population of 364,666 at the 2006 census. The major towns are Egbejila, Warras Osin, Aremu, Ogidi, Oloje, Bani, And Adewole. Yoruba, Hausa and Fulani are the major languages spoken within the local government. The Local Government is divided into Twelve (12) electoral wards (Adewole, Ajikobi, Alanamu, Badari, Baboko, Magaji-Ngeri, Ogidi, Oko-erin, Oloje, Ojuekun/Sarumi, Ubandawaki and Wara/Osin/Egbejila). Natural resources such as maize, yam, beans, vegetable and cassava grow in abundance in Ilorin west, while they are naturally occurring large mineral deposit of granite, clay and kaolin. The major festival in Ilorin west is the Yawo dancers' festival. Tourist attractions include the Old Alfa Alimi Mosque, Old Centre Mosque, Oloje Poultry, knitting of cloth, Okuta Ilorin, Major Crutchley's Grave, and the Emir Turbaning Mosque.

The population of this study comprises the people of Ilorin West Local Government Ilorin, Kwara State. The Fischer's formula of sample size determination below be used to calculate the sample size of respondents to participate in the study where the population is greater than 10,000 stated below.

$$N = Z^2 * pq / d^2$$

Where N= the desired sample size when the population is greater than 10,000.  
Z= the standard normal deviate (1.96).  
P= proportion of population with the desired characteristics (74%, Kehinde *et al.*, 2020).  
q= proportion of population (1-p).  
d= degree of accuracy desired, usually set at 5% or 0.05.

$$\begin{aligned} &= 1.96^2 \times 0.74(1-0.74) / 0.05^2 \\ &= 3.84 \times 0.74(0.26) / 0.0025 \\ &= 0.739 / 0.0025 \\ &= 296 \end{aligned}$$

To compensate for non-response

$$nf = n/e$$

Where, nf= desired sample size  
n= the minimum required sample size  
e= expected response rate at 90% or 0.9

Substituting, therefore

$$\begin{aligned} &= 296 / 0.9 \\ &= 329 \end{aligned}$$

Therefore, to increase the precision and accuracy of this study, this sample size will be increased to 329.

Multistage sampling technique was used for the selection of the respondents in the study. The selection was carried out in stages as follow;

Stage 1: Ilorin west has 12 wards, purposive sampling techniques was used to select 3 wards from the wards.

Stage 2: A simple random technique was used to select 2 markets from the 3 wards that were purposely selected.

Stage 3: Convenience sampling techniques was used to administer the questionnaire to the respondents

A structured self-administered questionnaire was used for this study (Appendix A). The questionnaire was developed using information obtained from relevant literatures and previous studies which was used to gather information from the respondents on domestic waste management practice and its impact on environmental pollution. The questionnaire item was based on the research hypothesis and research questions outlined in chapter 1. The questionnaire was in sections. In which the first was Section A which was on demographic information of the respondents and the other section follows.

The validity of an instrument refers to the ability of an instrument to measure what it is supposed to measure. To measure the validity, draft copies of the questionnaire will be presented to the research supervisor and other lecturers within the Department. Comments and suggestions will be carefully followed in order to improve the quality of the instrument. Reliability refers to the degree of consistency of an instrument in measuring what it is designed to measure. In other words, reliability refers to the precision of an instrument which means, the extent to which an instrument would yield the same results if administered on the same respondents on different occasions. The reliability of Likert scale questions was tested using the Cronbach's Alpha ( $\alpha$ ) coefficient with a reliability benchmark of 0.5 for scale with less than ten items and 0.7 for those items with ten or more than ten items (Pullant, 2016). The nine items in the knowledge scale was reliable with a Cronbach's  $\alpha$  coefficient of 0.766 while for the ten items in knowledge scale was reliable with a Cronbach's  $\alpha$  coefficient of 0.922, also reliable eleven items in the attitude a Cronbach's  $\alpha$  coefficient of 0.905 and 11 items is in practice a Cronbach's  $\alpha$  coefficient of 0.880.

The researcher obtained a signed letter of introduction from the Head of Department for the purpose of identification. The questionnaire was administered by the researcher and with the help of other research assistants to facilitate smooth conduct of the exercise. To ensure the proper filling of the questionnaire, they will be read by the researcher to the respondent with explanation before they started answering questions so as to avoid confusion

during the administration of questionnaire. On spot administration technique will be used, as such: the completed copies of the questionnaire will be collected from the respondents on the spot. The reason for this method is to reduce loss of questionnaire and make sure there is high level of return.

The returned instrument was analyzed to provide answers to research questions raised in all section of the study. The analysis was done using descriptive statistics of frequency counts, percentages and analysis the research hypotheses 0.05 alpha level of significance was done with Chi square using Microsoft Excel 2013.

Ethical approval was obtained from research ethics of Al-Hikmah University, Ilorin, Nigeria. Introduction letter was collected from the department of Public health, Alhikmah University, Ilorin, Nigeria. At individual level, Inform consent was taken from each respondent before administration of the research questionnaire and data collection.

**Results**

This chapter deals with the sorting and analysis of results for the data collected for this study. The data were collected from 329 respondents in two densely populated markets in within Ilorin West L.G.A., Kwara State.

**Table 1** outline the summary of respondents encountered during this study (in frequency and percentage) (n=330). Most of the respondents are between the age groups of young adult and middle age (84.6% & 12.3% each). Female respondents accounted for 62.3% of the study participants. About 57% of them were single with the remaining being married. About 94.5% of them were formally educated up to tertiary level while only 0.3% was not educated at all. The remaining were distributed (5.2% and 0.6%) between primary and secondary school. 92.4% of the respondents were Muslims and about 94.2% were Yoruba with remaining being a Hausa, Igbo and others (4.3%, 0.3% and 1.5%) respectively. About 44% were private owner, 25.5% were businessman and remaining were government workers and other (14.2% and 17.8%) respectively. Respondents with moderate income accounted for 89.3% of the study participants and 66.8% of them were house renter while others were house owner (33.2%) respectively.

**Table 1: Sociodemographic data of the respondents.**

S/N	Demographic	Response	Frequency ( n=330)	Percentage (%)
1	<b>Age</b>	Young adult –(18-35)	280	84.6
		Middle age (36-59)	40	12.3
		Senior Adult (60 years and above)	10	3.1
2	<b>Gender</b>	Male	124	38.3
		Female	206	62.3
3.	<b>Marital Status</b>	Single	121	57
		Married	109	43
4.	<b>Level of education</b>	Tertiary	310	94.5
		Secondary	17	5.2
		Primary	2	0.6
		None	1	0.3

5.	<b>Religion</b>	Christianity	25	7.6
		Islam	305	92.4
		Other	0	0
6.	<b>Ethnicity</b>	Yoruba	310	94.2
		Hausa	14	4.3
		Igbo	1	0.3
		Other	5	1.5
7.	<b>Occupation</b>	Private Owner	143	43.7
		Businessman	83	25.5
		Govt. worker	46	14.2
		Other	58	17.8
8.	<b>Family monthly income</b>	Low Income	29	8.9
		Moderate Income	293	89.3
		High Income	8	2.5
9.	<b>Residential Status</b>	Owned	109	33.2
		Rented	221	66.8

**Table 2** outline the knowledge of respondents on waste management in frequency and percentage (n=330). Most of the respondents believe that wastes are what thrown away because it is not needed (96.3%). 93.9% of them believed that domestic management is the collection and disposal of waste. About 94.2% of them believe that waste that can be harmful should be dispose into different facilities. Most them dispose their waste through burning (72%), 22.7% bury their waste and remaining throw it in bush and water bodies. About 83% of the respondents cover their waste bin and other did not (17.3%). About 90% of them accounted for wearing of slippers to the waste disposal facilities and 10.2% did not. 92.3% accepted that improper waste management is a source of pollution to the environment. About 65% accepted that waste disposal into the rivers leads to flood and 36% did not accept. 96.4% accepted that smoke from burnt waste affect the atmospheric condition and 3.6% did not accept. About 99% of the respondent knows that improper dumping of waste can leads to pollution of waters.

**Table 2: Knowledge on Domestic Waste Management.**

S/N	Question	Response	Frequency	Percentage (%)
10	Domestic wastes are home wastes which are thrown away because it is not needed.	Yes No	315 15	96.3 4.6
11.	Domestic management is the collection and disposal of waste.	Yes No	308 22	93.9 6.7

12.	There should be different waste facility for throwing away waste that can be harmful due to their chemical component.	Yes No	310 20	94.2 6.1
13.	What is your method of waste disposal?	Burn  Bury  Throw in my backyard  Throw in bush  Water bodies	224  73  9  20  4	72  22.7  2.8  6.2  1.2
14.	Do you cover the waste bin in your house/kitchen	Yes No	274 56	82.7 17.3
15.	Walking without slippers to the waste disposal facility is what I do.	Yes No	33 297	10.2 89.8
16.	Is improper waste management source of pollution in the environment?	Yes No	305 25	92.3 7.7
17.	Do you know that throwing of waste into the river can leads to flood?	Yes No	211 118	64.3 36
18.	Do you know that the smoke from the waste burnt can affect the atmospheric condition of the environment?	Yes No	317 13	96.4 3.6
19.	Improper dumping of solid wastes can eventually lead to pollution of rivers, lakes and well.	Yes No	323 7	98.5 2.1

**Table 3** below shows that about 55% of the disagree that solid waste is anything without value and remaining strongly disagree, neutral, agree and strongly agree (7.5%, 5.4%, 26.1% and 2.4%). About 75% of them agree that waste is an environmental problem that needs immediate attention and other share the remaining strongly disagree, disagree, neutral and strongly agree (3.3%, 3.0%, 3.9% and 13.0%). About 72% of them agree on reduce, reuse and recycle of waste other share the remaining strongly disagree, disagree, neutral and strongly agree (4.8%, 0.9%, 2.4% and 17.9%). 72.4 % of the respondents agree that proper waste disposal is the responsibility of everyone. Majority of the respondents strongly agree and agree (48.9% and 39.3%) that proper waste management create healthy environment while 4.8% strongly disagree, 1.2% disagree and 2.4% were neutral. Most of the respondents agree

(68%) that proper collection and disposal of waste is the responsibility of every household while 19.7% strongly agree and others shared the remaining respectively. 37% each of strongly agree and agree shared the same percentage that selling of reusable and recycled waste is the best way to manage waste while 16 were neutral and others shared the remaining respectively. 40.3% agree that sorting of waste into different bin should be every household priority, 38.2% were neutral, 13% strongly agree, 3.9% strongly disagree and 2.7% disagree. Most of the respondents agree (75.4%) that throwing of waste into bin is a safe way of waste management, 11.5% strongly agree, 3.3% were neutral and others shared the remaining. 73% strongly agree that improper waste disposal can cause occurrence of disease, 15.4% agree, 3.6% strongly disagree, 2.7% disagree and 3% were neutral respectively.

**Table 3: Attitude of respondents regarding Domestic Waste Management**

S/N	Question	Response	Frequency	Percentage (%)
1.	Solid waste is anything without value.	Strongly disagree	25	7.5
		Disagree	193	55.4
		Neutral	18	5.4
		Agree	86	26.1
		Strongly Agree	8	2.4
2.	Solid waste is one of the environmental problems that need an immediate attention.	Strongly disagree	11	3.3
		Disagree	10	3.0
		Neutral	13	3.9
		Agree	253	74.5
		Strongly Agree	43	13.0
3.	Solid waste can be reduced, reused and recycled.	Strongly disagree	16	4.8
		Disagree	3	0.9
		Neutral	14	4.2
		Agree	284	71.8
		Strongly Agree	13	3.9
4.	Proper solid waste disposal is the responsibility of everyone.	Strongly disagree	13	3.9
		Disagree	3	0.9
		Neutral	8	2.4
		Agree	247	72.4
		Strongly Agree	59	17.9
5.	Proper waste management is important for creating healthy environment.	Strongly disagree	16	4.8
		Disagree	4	1.2
		Neutral	8	2.4
		Agree	131	39.3
		Strongly Agree	171	48.9

6.	Every household should have responsibility for the proper collection and disposal of waste.	Strongly disagree Disagree Neutral Agree Strongly Agree	15 4 13 233 65	4.5 1.2 3.9 67.6 19.7
7.	Selling of reusable and recycle waste is the best way to manage domestic waste.	Strongly disagree Disagree Neutral Agree Strongly Agree	19 9 53 122 127	5.7 2.7 16 37 37
8.	Sorting of waste into different bin should be every household priority	Strongly disagree Disagree Neutral Agree Strongly Agree	13 9 126 139 43	3.9 2.7 38.2 40.3 13
9.	Throwing of waste in a bin is a means of safe waste management	Strongly disagree Disagree Neutral Agree Strongly Agree	16 7 11 258 38	4.8 2.1 3.3 75.4 11.5
10.	Improper waste disposal can cause occurrence of disease	Strongly disagree Disagree Neutral Agree Strongly Agree	12 9 10 51 248	3.6 2.7 3 15.4 73

**Table 4** below outline more than half of the respondents (59%) separate their waste before disposal and 81.1% of them have knowledge on proper waste disposal by not disposing their waste on road sides and major street. More than half of them dispose their waste in waste basket (59.6%), 35.1% disposal their waste into plastic bag, 5.6% dispose into tin/can and others dispose indiscriminately (3.4%). Majority of the respondents use hand carrying methods to transport their waste to final disposal site (61%), 26.3% use close vehicle, 10.2% use open vehicle and others use wheel barrow (4.3%). About 62% of the respondents did not practice reduce, reuse and recycle method of wastes. 58.1% of the respondents did not employ the service of waste management company for their waste disposal and majority of the respondents did not have access to door-to-door waste collection service (68.3%). Most of the respondents (66.1%) did not have adequate landfill or dumping sites in their area. About 85% of the respondents emptied their house waste container often. 93.2% of the respondents notice waste in the road, land and public area and about 85% of the respondents knows that waste on roads and public area is improper and not good for the environment.

**Table 4: Practice of respondents on Domestic Waste Management.**

S/N	Questions	Response	Frequency	Percentage (%)
21.	Do you separate wastes before disposal?	Yes No	137 193	41.3 59
22.	Do you dispose your waste by road sides and major street?	Yes No	63 267	19.6 81.1
23.	In what type of container do you collect waste?	Waste Basket Plastic bag Tin/can Others	192 109 18 11	59.6 35.1 5.6 3.4
24.	What is your method of waste transportation to final disposal site?	Hand carrying Closed Vehicle Open Vehicle Wheel Barrow	198 85 33 14	61 26.3 10.2 4.3
25.	Do you practice reduce, reuse and recycle method for your solid wastes?	Yes No	124 206	38.3 61.7
26.	Do you employ service of waste management company for your waste disposal?	Yes No	136 194	42.2 58.1
27.	Do you have access to door-to-door waste collection services?	Yes No	104 226	32.6 68.3
28.	Are there adequate solid waste landfills or dumping sites in your area?	Yes No	220 110	66.1 34.2
29.	How often is the waste container in your house emptied?	Yes No	282 48	85.1 15.5
30.	Do you ever notice wastes in the road, land and public area?	Yes No	306 24	93.2 7.5
31.	If yes do you think it proper and good for the environment?	Yes No	281 49	85 15.3

### Statistical Analysis

The statistical analysis was carried out using Microsoft excel 2013 alongside with statistical tools merge with software package. In order to analyses the pretest or level of reliability of the questionnaire, the Cronbach's Alpha formula was introduced. The Cronbach's Alpha is a measure of internal consistency, indicating how well a set of items measures a single one-dimensional latent construct. It is commonly used to assess the reliability of a questionnaire or test.

Cronbach's Alpha formula:

$$\alpha = \frac{N}{N - 1} \left( 1 - \frac{\sum \text{Variance of Each Item}}{\text{Total Variance}} \right)$$

### Where

$\alpha$ : Cronbach's Alpha

N= is the number of items (questions)

The summation of the variance of each item and total variance was evaluated using Microsoft excel 2013 calculating tools which shown in the table below.

### Application of chi square statistical tool

Chi-square tests are used to determine if there is a significant association between two categorical variables. For analyzing questionnaire data in Excel, you can use the chi-square test to see if the distribution of responses differs significantly from what would be expected by chance. The chi square can be calculated using the formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Where

O is the observed frequencies which indicate the value obtained from each response of the questionnaire

E: this is the number of expected frequencies. It can be obtained using the formula

$$E = \frac{(\text{Row Total} \times \text{Column Total})}{\text{Grand Total}}$$

Where

Row Total is the number of total number of row from the excel analysis test and

Column total is the total number of response which is 330

Grand total is the summation of all the row value.

### Determine the Degrees of Freedom

The degrees of freedom (df) for a chi-square test is calculated as:

$$df = (\text{Number of Rows} - 1) \times (\text{Number of Columns} - 1)$$

### Calculate the p-value

To find the p-value, the Chi-square distribution with the calculated statistic and degrees of freedom was used. In Excel, for this analysis the **CHISQ.DIST** was used. The P value of every section of the questionnaire was evaluated and the value was estimated to be 1.

### Association between knowledge, attitude and practice on domestic waste management and environmental pollution

Using chi square at significant level of p-value of 0.05, result shows there is significant relationship between the knowledge, attitude and practice on domestic waste and environmental pollution at p-value of 1 or 0.01. Therefore, null hypotheses were rejected and the alternate hypotheses was accepted

Table 5: Expected frequencies and association between knowledge and environmental pollution

				Expected Frequencies								
	D1	D2	D3	D4	D5	D6	D7	D8	D9	Q10		
R1	262.1	262	262.1	262.1	262	262.1	262.1	262.1	262	262.1		
R2	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6	64.6		
R3			0	0.9	0	0	0	0	0	0		
R4	0	0	0	2.4	0	2.4	0	0	0	0		
				chi square								
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
R1	10.677	8.04	8.754	5.538	0.54	200.25	7.022	9.577	11.5	0.004	261.904	
R2	38.083	28.1	30.79	1.092	1.14	836.06	24.27	44.14	41.2	0.015	1044.92	
R3	0	0	0	72.9	0	0	0	0	0	0	72.9	
R4	0	0		194.4	0	0	0	0	0	0	194.4	
										1574	1574.12	
			Pvalue	1								

**Table 6: Expected frequencies and association between attitude and environmental pollution**

				EXPECTED FREQUENCY								
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
R1	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6		
R2	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1		
R3	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4		
R4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4	180.4		
R5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5	81.5		
				CHI SQAURE								
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
R1	5.664103	1.35641	0.010256	0.433333	0.010256	0.023077	0.741026	0.433333	0.010256	0.830769	9.512821	
R2	1123.124	9.084064	19.45857	19.45857	17.73745	17.73745	10.32709	10.32709	13.05219	10.32709	1250.633	
R3	3.224818	7.567883	6.553285	13.73577	13.73577	7.567883	23.91825	354.8161	9.816058	11.04964	451.9854	
R4	49.39778	29.21707	59.49534	24.58736	13.52749	15.33681	18.90554	9.500887	33.38004	92.81796	346.1663	
R5	66.28528	18.18712	57.57362	6.211656	98.28528	3.340491	25.40184	18.18712	23.21779	340.1503	656.8405	
											2715.138	
			pv=	1								

**Table 7: Expected frequencies and association between practice and environmental pollution**

EXPECTED FREQUENCY												
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	
R1	185.7	185.7	185.73	185.7	186	185.7	186	185.7	185.7	185.7	185.727	
R2	137.4	137.4	137.36	137.4	137	137.4	137	137.4	137.4	137.4	137.364	
R3	0	0	4.6364	4.636	0	0	0	0	0	0	0	
R4	0	0	2.2727	2.273	0	0	0	0	0	0	0	
				chi square								
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Grand Total
R1	12.78	81.1	0.2119	0.811	20.5	13.31	36	6.324	49.9	77.89	48.8722	347.6828
R2	22.53	122.3	5.8567	19.96	34.3	23.35	57.2	5.451	58.14	93.56	56.8428	499.5248
R3	0	0	38.519	173.5	0	0	0	0	0	0	0	212.0374
R4	0	0	33.513	60.51	0	0	0	0	0	0	0	94.02545
												1153.271
						pvalue =1						

**Discussion**

The study revealed that majority of the respondents has knowledge on domestic waste (96.3%) and domestic waste management (93.9%). They support that there should be different waste for throwing away different waste (94.2%). Majority of the respondents dispose their waste mostly through burning. This finding is supported by Ayodele (2019) which stated that refuse dumps give rise to smug and air pollution when burnt openly. There is a risk-factor of air pollution in the event of accidental or spontaneous combustion of refuse. Air pollution signifies the presence in the atmosphere of substances generated by the activities of man that interfere with human health, safety or comfort. It is injurious to vegetation and animals and other environmental media, resulting in chemicals entering the food chain or being present in drinking water, causing health problems to man. The study revealed that improper waste management is a source of environmental pollution (92.3%) and that smoke from waste burnt affect atmospheric condition of the environment. This finding is also supported by Ayodele (2019) which stated that refuse dumps give rise to smug and air pollution when burnt openly. Air pollution signifies the presence in the atmosphere of substances generated by the activities of man that interfere with human health, safety or comfort.

It also revealed that majority of the respondents disagree (55.4%) that waste is anything without value, 7.5% strongly disagree, 26.1% agreed, 2.4% strongly agree and 5.4% of the respondents were neutral. This study revealed that most the respondents have ideal (71.8%) on the effective management of waste but yet their attitude towards waste management is unsafe and also 37% strongly agree with 37% agreeing to that selling of reusable and recyclable waste is the best way to manage domestic waste safely. Majority of the respondents strongly agree (73%) that improper waste disposal causes occurrence of disease even though most of burn their waste some dumped their waste into water bodies and open spaces. This finding agrees with WHO (2019) revealed that as many as 2 million

children die each year from diseases caused by indiscriminate disposal of waste. In addition, it is also supported by Olorokor (2020) that there could also be outbreak of diseases like cholera, typhoid fever, and other diseases, in severe forms causing death, especially in children ages 0-15 years, whose immunity is not as strong as the adult population.

Respondents practice on domestic waste management is poor in which 59% of respondents do not separate their waste into segregation before disposal and majority of the do not practice the 3R's of waste management even though they claimed to understand what it is all about. 58.1% of the respondents do not employ the service of waste management company and few of them (32.6%) have access to door-to-door waste collection service and others (68.3%) do not have access to the service. These findings also revealed that most the respondents (93.2%) claimed to notice waste in road sides, land and public area and agreed that (85%) proper waste management is good for the environment. This is in line with the findings of Joseph (2015) that stated that unavailability or insufficiency of dumpsters and poor transportation is a main drawback for efficient wastes management and Lack of sufficient waste collecting points was found as barrier by Nachalida et al. (2017).

### **Conclusion**

Based on the findings in this study, it is concluded that people in Ilorin West local government have knowledge on improper waste management and practice of proper domestic waste management in relation to pollution. They have low knowledge on proper waste disposal method because most of them dispose their waste through burning, throwing of waste into bush area near their area or water bodies. It was concluded that even though they understand that waste have their own value and is a major source of environmental problems, most of them refuse to practice reuse and recycling method even though it was agreed by them that waste generated can undergo this process. It was also conclude that they have knowledge that improper waste disposal can cause occurrence of disease but yet practicing safe waste disposal have been a big challenges in their environment in which waste are dispose in major road sides, major street, water bodies public area , land which brings about infestation of flies, breeding mosquitoes, driven attention of rodents and other harmful animals which can cause health implication such as cholera, malaria, transmission of other disease such as monkey pox etc.

### **References**

- Ayanshola, A. M., Aremu, A. S., Jacob, S. O., Bilewu, S. O., & Salami, A. W. (2015). Evaluation of municipal solid waste management system and willingness-to-pay for its improvements in ilorin, Kwara State, Nigeria.” *Nigerian Journal of Technology* 34.4 (2015): 868-874.
- Ayanshola, A. M., Sule, B. F., & Salami, A. W. (2013). “Evaluation of Willingness to Pay for Reliable and Sustainable household Water Use in Ilorin, Nigeria”, *Ethiopian Journal of Environmental Studies and Management*, Vol. 6, Number 6, pp 754-762, 2013.
- Ayodele-Oni S. (2019). Environmental Health Education in Schools and In the Community. *Nigerian School Health Journal* 19(2) 116-122 from [www.iosrjournals.org](http://www.iosrjournals.org) retrieved 6th of Feb, 2020.
- Gupta, N., Yadav, K. K., & Kumar, V. (2015). A Review on Current Status of Municipal Solid Waste Management in India. *JES*, 37, 206-217. <https://doi.org/10.1016/j.jes.2015.01.034>.
- Ibikunle, R. A., Titiladunayo, I. F., Dahunsi, S. O., Akeju, E. A., & Osueke, C. O. (2021). Characterization and projection of dry season municipal solid waste for energy production in Ilorin metropolis, Nigeria. *Waste Management & Research*, 39(8), 1048-1057.

- Kehinde, O., Ramonu, O. J., Babaremu, K. O., & Justin L. D. (2020). Plastic wastes: environmental hazard and instrument for wealth creation in Nigeria. *Heli*. 2020; 6: e05131. doi: 10.1016/j.heliyon.2020.e05131.
- Nachalida, Y., Beverley, C., & Kirstin, R. (2017). Barriers to Effective Municipal Solid Waste Management in a Rapidly Urbanizing Area in Thailand: *Int. J. Environ. Res. Public Health* 2017, 14, 1013; doi:10.3390/ijerph14091013 [www.mdpi.com/journal/ijerph](http://www.mdpi.com/journal/ijerph).
- Olorok, C.O. (2020). Hazardous Wastes: its production, effects, disposal and control in Nigeria Industries; Oyo: JONAPHER-SD 2(2) 258-267 from [www.iosrjournal.org](http://www.iosrjournal.org) retrieved 6th of Feb, 2020.
- Olukanni, D. O., & Mnenga, M. U. (2015). Municipal Solid Waste Generation and Characterization: A Case Study of Ota, Nigeria. *International Journal of Environmental Science and Toxicology Research*, 3(1): 1-8.
- Pallant, J. (2016). *SPSS Survival Manual* (6th edition). Berkshire: McGraw-Hill Education.
- Taghipour, H., Amjad, Z., Aslani, H., Armanfar, F., & Dehghanzadeh, R. (2016). Characterizing and quantifying solid waste of rural communities. *Journal of Material Cycles and Waste Management*, 18, 790-797.