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PRACTICES AND PERCEPTION OF INDISCRIMINATE WASTE DISPOSAL: A CASE STUDY OF ABUJA MUNICIPAL AREA COUNCIL (AMAC), ABUJA, NIGERIA.

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ABSTRACT

Introduction: The public health implication of indiscriminate and improperly regulated refuse disposal is a growing concern in Nigeria.

Objectives: The objectives of this study was to assess the waste management practices and the perception of the public on the effects of indiscriminate waste disposal on public health in AMAC, Abuja, Nigeria.

Method: The study involved a cross-sectional survey amongst households in rural and urban settlements in AMAC, Abuja, Nigeria. Close-ended, structured, interviewer's administered questionnaire was used and a stratified random sampling method was adopted for respondent selection. Nine hundred and fifty-six respondents comprising 521 males (54.5 %) and 435 females (45.5 %) from preselected strata were randomly surveyed. The frequencies from results obtained were analyzed with IBM SPSS Version 20 package.

Results: Six hundred and thirty-two respondents (66.1%) disposed their waste in refuse dumps, 42.57% (407) disposed waste weekly and 25.94 % (248) lived close to a dumpsite with 2.9 % residing for over 10 years. The waste disposal practice is better in the organized setting than the rural area.

Conclusion: The results from this study showed the poorer waste disposal practices in the rural districts of Abuja.

Keywords

Waste disposal, Waste management, Perception, Public health.

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Introduction

The United States Environmental Protection Act (EPA) 1990 [1], defined waste as: Any substance which constitutes a scrap material or an affluent or unwanted surplus substance which requires being disposed or any substance or article which requires being disposed off as broken, unwanted, worn out, contaminating or otherwise.

Due to poor regulation and indiscipline it is common in Nigeria to see wastes either in heaps or individual scattered wastes by roadsides, available open pits, flowing gully water and drainage channels [2,3].The unregulated indiscriminate disposal of municipal wastes is increasingly a norm in most urban areas of Nigeria [4].

Improper waste management and illegal waste shipments can have detrimental impacts on both environment and public health, due to different handling and disposal activities resulting in soil, water and air pollution. Improperly disposed or untreated waste may result in health problems for populations surrounding the area of disposal [5]. Due to poor regulation and indiscipline it is common in Nigeria to see wastes either in heaps or individual scattered wastes by roadsides, available open pits, flowing gully water and drainage channels [2, 3]. The unregulated indiscriminate disposal of municipal wastes is increasingly a norm in most urban areas of Nigeria [4].

Improper waste management and illegal waste shipments can have detrimental impacts on both environment and public health, due to different handling and disposal activities resulting in soil, water and air pollution. Improperly disposed or untreated waste may result in health problems for populations surrounding the area of disposal [5]. Abuja, since its establishment as a Federal Capital, has experienced a huge population growth. As currently obtainable, the nature of waste disposal in Abuja is mixed. Besides waste collection and dumping in the landfills, no attempt is made at sorting out biodegradable wastes from non-biodegradable wastes before disposing wastes, in most cases, through burning.

This study aimed to assess waste management practices in rural and urban settlements in Abuja, Federal Capital Territory (FCT), Nigeria including the challenges the residents face in their efforts towards managing their waste.

METHODOLOGY

Study Area

Abuja is a city in central Nigeria, and capital of Nigeria located at the Federal Capital Territory. According to the National Bureau of Statistics (2017), the Federal Capital Territory has a projected population of 3,564,126 in the year 2016 [6] making it one of the 10 populous cities in Nigeria and one of the fastest growing cities in the world. Abuja Municipal Area Council (AMAC) is the largest area council in the Federal Capital Territory (FCT). The larger populace comprises mainly of low-middle age income earners, mainly petty traders and low-ranking civil servants which reside in the rural areas. The urban settlement on the other hand is home to those with higher socioeconomic status.

Sample Size and Sampling Technique

The study involved a cross-sectional survey amongst households within Abuja Municipal Area Council (AMAC), Abuja, Nigeria. Close-ended, structured, interviewer's administered questionnaire was used and a stratified (based on number of refuse dumps close to residential area) random sampling method was adopted for respondent selection. Nine hundred and fifty-six respondents comprising 521 males and 435 females from preselected strata were randomly surveyed [7].

Statistical Analysis

The frequencies from the data collected were analyzed using statistical techniques on IBM SPSS Statistical Version 20 package.

RESULTS

The socio demographic data of the participants is reported in Table 1.0. From the results, six hundred and thirty-two respondents (66.1%) disposed their waste in refuse dumps, 42.57% (407) disposed waste weekly and 25.94 % (248) lived close to a dumpsite with 2.9 % residing for over 10 years. The waste disposal practice was better in the organized setting than the rural area.

The waste disposal practices among households under studied revealed that the wastes of 43.8 % of participants were collected by private waste disposal companies popularly known as sanitary workers, 31.69 % dispose their waste in open dumps close to their houses, 22.8% of the respondents have complained to local authorities on the deplorable state of waste disposal, while 77.3 % are willing to pay more if proper waste disposal management systems are put in place. Only 49% of participants reported separating their waste for various reasons, although 77% are of the opinion that waste need to be separated depending on neatness.

The results on knowledge and perceptions of respondents on waste and waste management (Table 2.0) revealed that most people can identify waste substances, with 97.8 % agreeing that waste are harmful and that defaulters should be punished.

Discussion

With a population of 378,671 in 1991, Abuja is projected to reach 5.8 million by 2026, according to a report by the Federal Ministry of Environment; this rapid population expansion has not been matched by consequent development of infrastructure especially in the satellite towns for the management of waste produced by the fast-growing population [8].

Majority of the respondents (66.11 %) claimed that their waste end up in refuse dumps within their communities while 31.69 % live close to such refuse dump. Forty-four percent (43.8%) of waste disposed in this refuse dump (most of which are unsanitary and illegal) are through the activities of local sanitary workers (private business outfits) who move from house-to-house to collect their waste for a token. This practice has generated many illegal dumps within these communities with its consequent implications on the environment (soil, water and air pollution) and health of people living close to such areas. Poor disposal of wastes from communities and hospitals have been linked to the increase in antibiotic resistant microorganisms [9].

Intra-community collaboration to ensure proper waste disposal was found to be poor as only 25.6% of participants report being aware of any arrangement in their community to ensure waste disposal. Studies have shown the strong impact and benefits of intra-community collaboration in improving the waste management systems of an environment [10, 11]. In a study by Rangeti *et al.*, (2018) [11], community based waste management model has far reaching benefits when the local authorities and other stakeholders in waste management have failed.

Only 49% of participants reported separating their waste for various reasons, although 77% are of the opinion that waste need to be separated depending on neatness. This might be a pointer to the assumption that only a few percentages of people practice what they believe is right. Waste separation at source can enhance the homogeneity of the waste recovered and

minimize its level of contamination [12]. Findings by Kelly, (1993) [13] showed that in order to reduce cost of treatment of domestic waste there is need to sort their waste into different types at the point of generation.

Conclusion

Waste practice by rural residents of Abuja are the disposal of their wastes in open dumps close the residential areas while those in urban residents engage waste management agencies; there is need for the government and waste disposal agencies to embark on extensive public education on the health and environmental effects of waste management especially in the rural areas with large population.

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Table 1: Socio-demographic Characteristics of Participants

Characteristics	Frequency									Total	%
	Idu	Life Camp	Gwarimpa	Kado	Garki	Nyanya	Asokoro	Lugbe	Kukwuaba		
Sex											
Male	121	110	60	20	60	70	35	20	25	**521**	**54.5**
Female	130	45	40	30	40	85	20	20	25	**435**	**45.5**
Total	**251**	**155**	**100**	**50**	**100**	**155**	**55**	**40**	**50**	**956**	
Age											
15-20	70	10	10	25	25	40	15	0	5	**200**	**20.9**
21-30	111	70	70	25	35	45b	0	0	10	**366**	**38.3**
31-40	46	70	10	5	25	35	15	10	10	**226**	**23.6**
41-50	14	0	5	0	15	30	15	0	15	**94**	**9.8**
51-60	8	5	5	0	0	0	10	15	5	**48**	**5.0**
61-70	2	0	0	0	0	0	0	15	5	**22**	**2.3**
Marital status											
Single	148	65	85	45	50	95	35	15	25	**563**	**58.9**
Married	95	90	15	5	50	60	20	25	25	**385**	**40.3**
Divorced	4	0	0	0	0	0	0	0	0	**4**	**0.42**
Widow/Widower	4	0	0	0	0	0	0	0	0	**4**	**0.42**
Educational qualification											
None	5	30	0	0	0	0	0	5	5	**45**	**4.7**
Primary	19	0	0	0	0	10	0	0	5	**34**	**3.6**
Secondary	107	65	0	45	55	65	10	10	10	**367**	**38.4**
Tertiary	120	60	100	5	45	80	45	25	30	**510**	**53.3**
Occupation											
Farmer	6	0	0	0	0	0	0	5	0	**11**	**1.15**
Business	80	25	5	5	30	50	15	20	20	**250**	**26.15**
Housewife	26	10	0	0	0		5	0	10	**56**	**5.86**
Student	93	20	75	35	60	40	20	5	15	**363**	**37.97**
Civil/Public servant	46	40	15	0	10	50	10	10	5	**183**	**19.14**
Others	0	60	5	10	0	10	5	0	0	**90**	**9.41**

Position in Home											
Father	49	75	5	5	0	20	5	15	10	**164**	**17.15**
Mother	65	40	5	0	40	35	10	10	15	**220**	**23.01**
Child	102	55	80	35	45	50	20	10	15	**392**	**41.0**
Others	35	85	10	10	15	50	20	5	10	**180**	**18.83**

Table 2.0 Knowledge and Perceptions of Respondents on Waste and Waste Management

Criterion	**Frequency**									**Total**	**%**	**Significance**
	Idu	**Life Camp**	**Gwarimpa**	**Kado**	**Garki**	**Nyanya**	**Asokoro**	**Lugbe**	**Kukwuaba**			
Waste include leftover foods, paper, plastics, etc (n= 956)												**P value**
Agree	240	155	95	50	100	155	55	40	50	**935**	**97.8**	**0.0128**
Disagree	10	0	0	0	0	0	0	0	0	**10**	**1.04**	
Neutral	6	0	5	0	0	0	0	0	0	**11**	**1.15**	
Total	**251**	**155**	**100**	**50**	**100**	**155**	**55**	**40**	**50**	**956**		
Where is waste disposed off?												
Backyard	18	10	65	25	0	50	0	25	0	**193**	**20.19**	
Refuse dump	187	125	30	15	100	105	55	15	0	**632**	**66.11**	**0.1556**
Open burning	46	5	5	10	0	0	0	0	15	**81**	**8.47**	
Others	0	15	0	0	0	0	0	0	35	**50**	**5.23**	
How often is waste disposed off?												
Daily	66	100	20	35	90	10	0	0	0	**321**	**33.58**	
Twice a week	83	0	0	15	0	80	0	0	0	**178**	**18.62**	
Weekly	92	50	70	0	10	65	55	35	30	**407**	**42.57**	
Every two weeks	8	5	10	0	0	0	0	5	20	**48**	**5.20**	
Monthly	2	0	0	0	0	0	0	0	0	**2**	**0.21**	
Do you live near a dumpsite?												
Yes	78	35	35	30	0	50	0	10	10	**248**	**25.94**	**0.0128**
No	173	120	65	20	100	105	55	30	40	**708**	**74.06**	
Do sanitation inspectors visit												

this area?											
Yes	98	25	40	20	0	5	0	0	0	**188**	**19.67**
No	102	65	35	10	0	125	0	5	50	**392**	**41.0**
Don't know	51	65	25	20	100	25	55	35	0	**376**	**39.33**
Is there any arrangement for community waste disposal?											
Yes	63	55	10	20	0	15	0	15	10	**188**	**19.67**
No	64	45	35	0	0	85	0	10	10	**249**	**26.05**
Don't know	124	55	55	30	100	55	55	15	30	**519**	**54.29**
Have you complained to local authorities on poor waste disposal?											
Yes	63	50	0	5	0	60	0	40	0	**218**	**22.8**
No	188	105	100	45	100	95	55	0	50	**738**	**77.2**
Would you be willing to pay more for proper waste disposal?											
Yes	179	105	95	50	65	135	55	40	15	**739**	**77.3**
No	72	50	5	0	35	20	0	0	35	**217**	**22.7**