



ASSESSMENT OF WASTE DISPOSAL PRACTICES AND ASSOCIATED HEALTH HAZARDS AMONG RESIDENTS OF GWAGWALADA AREA COUNCIL, ABUJA, NIGERIA

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Abstract

Poor waste disposal practices remain a major environmental and public health concern in Nigeria, especially in peri-urban and rapidly urbanizing regions like Gwagwalada Area Council, Abuja. Improper disposal contributes to water contamination, vector-borne diseases, and degradation of the living environment. This study assessed the knowledge, attitudes, and practices (KAP) related to waste disposal and the associated health hazards among residents of Gwagwalada Area Council, with an emphasis on identifying gaps in behavior and awareness. A descriptive cross-sectional study was conducted among 255 consenting household heads selected through cluster sampling technique. Data were collected using a structured, pre-tested, interviewer-administered questionnaire. Descriptive statistics were used to summarize socio-demographic variables and KAP scores, while associations between variables were analyzed using Chi-square tests at a 95% confidence level. The majority were male (73.7%) and aged 30–49 years. Most (84.3%) demonstrated good knowledge of waste types and disposal-related health risks. However, only 35.3% practiced proper waste segregation, and 61.2% used open dumps as their primary disposal method. Significant associations were found between educational level and both knowledge and practice of proper waste disposal ($p < 0.05$). Commonly reported health hazards included malaria (67.5%), diarrhea (52.9%), and skin infections (38.0%). Despite good knowledge, the practice of proper waste disposal remains poor among residents of Gwagwalada, primarily due to infrastructural deficits and behavioral gaps. Targeted public health interventions, community education, and enforcement of sanitation regulations are necessary to mitigate environmental and health risks.

Keywords: Waste disposal, Health hazards, Environmental sanitation, Household practices, Nigeria, Community health

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Introduction

Waste disposal is a critical component of environmental and public health management. Improper handling and disposal of household and municipal waste contribute significantly to environmental degradation, water pollution, vector-borne diseases, and other health challenges, particularly in developing countries [1,2]. In Nigeria, rapid urbanization, population growth, and inadequate waste management infrastructure have exacerbated the challenge, especially in peri-urban areas

like Gwagwalada Area Council in the Federal Capital Territory [3].

Despite numerous national sanitation policies and state-level interventions, indiscriminate dumping, burning of refuse, and poor hygiene practices remain prevalent among urban and semi-urban dwellers [4]. These behaviors are often driven by limited access to waste disposal services, lack of enforcement of environmental regulations, and poor public awareness of the health consequences [5].

Studies have linked inadequate waste management with increased incidences of vector-borne diseases such as malaria, diarrhea, skin infections, and respiratory illnesses, particularly among vulnerable populations such as children and the elderly [6,7]. Assessing community-

level knowledge, attitudes, and practices (KAP) is therefore essential to inform targeted interventions. This study aims to determine the waste disposal practices and associated health hazards among residents of Gwagwalada Area Council, identify socio-demographic determinants of proper disposal behaviors, and recommend evidence-based strategies to improve waste management.

Materials and Methods

Study Area

The study was conducted in Gwagwalada Area Council, one of six area councils in the Federal Capital Territory, Nigeria. It is a fast-growing semi-urban area with a population of approximately 157,770 as of the 2006 census. The community experiences poor waste collection systems, especially in residential neighbourhoods.

Study Design

This was a descriptive cross-sectional study design to assess the waste disposal practices and perceived health hazards among residents.

Study Population

The target population included household heads aged 18 years and above who had resided in the area council for at least one year and gave informed consent.

Sample Size Determination

The sample size was calculated using the Leslie-Kish formula for a single population proportion, assuming a prevalence of poor waste disposal practices at 20% based on similar Nigerian studies [8]. After adjusting for a 10% non-response rate, a total of 255 respondents were surveyed.

Sampling Technique

A cluster sampling method was adopted. First, five out of ten political wards were selected using simple random sampling and all consenting heads of household were interviewed.

Data Collection Instrument

Data were collected using a structured, pre-tested interviewer-administered questionnaire. It comprised sections on socio-demographic characteristics, knowledge of waste types and hazards, disposal practices, and common waste-related illnesses.

Data Analysis

Data were analyzed using SPSS version 23. Descriptive statistics were used to summarize variables. Chi-square tests were used to examine associations between socio-demographic factors and knowledge or disposal practices and statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee of the University of Abuja Teaching Hospital. Verbal and written informed consent was obtained from all participants. Participation in the study was voluntary and participants were free to leave the study at any stage without any punitive measures. Data

collected were anonymous and were used strictly for the purpose of the study

Results

A total of 255 respondents participated in the study and the majority were male (73.7%) and aged between 30–49 years (61.2%). Most were married (69.8%) and had at least secondary education (67.5%).

Knowledge of Waste Disposal

About 84.3% of respondents demonstrated good knowledge of waste types and health hazards. However, misconceptions reported, particularly regarding the classification of electronic and biomedical waste.

Attitudes and Perception

Over 90% of participants believed waste disposal was a shared community responsibility, yet fewer than 40% supported monthly sanitation levies. Only 28.2% had ever attended any sanitation awareness event or training.

Waste Disposal Practices

Only 35.3% of respondents practiced proper disposal, primarily via municipal collection bins. The majority (61.2%) used open dumps, while 12.5% resorted to open burning. Only 7.8% of households reported regular waste segregation. Distance to waste collection points and irregular municipal service were cited as barriers.

Associated Health Hazards

Most respondents reported experiencing waste-related health issues within the past year. Malaria was reported by 67.5%, diarrhea by 52.9%, and skin infections by 38.0%. A significant association existed between improper disposal practices and incidence of these health outcomes ($p < 0.05$).

Statistical Associations

Educational level, income, and gender were significantly associated with proper waste disposal practice ($p < 0.05$). Individuals with tertiary education were more likely to use municipal bins and practice waste segregation.

Discussion

This study found a high level of awareness of waste-related health hazards among residents, consistent with previous studies conducted in similar urban contexts in Nigeria and Ghana [2, 5, 9]. However, the significant gap between knowledge and practice reflects the influence of systemic barriers such as limited access to waste collection services and inadequate enforcement of environmental regulations.

The dominance of open dumping as a disposal method, despite high awareness, mirrors findings in other Nigerian cities such as Ibadan and Kano, where municipal infrastructure has failed to keep pace with population growth [10]. Lack of community engagement and weak enforcement of environmental laws further aggravate this problem.

The reported prevalence of malaria and diarrhea aligns with WHO findings that link improper waste disposal to increased vector breeding sites and microbial

contamination. [6, 11] The strong association between education and proper disposal highlights the need for targeted awareness campaigns, particularly in low-literacy communities.

Overall, this study reinforces those technical solutions such as provision of bins should be integrated with community education, consistent waste service delivery, and policy enforcements to effect sustainable behavioural change.

Conclusion

Despite good knowledge and positive attitudes toward proper waste management, actual disposal practices among residents of Gwagwalada Area Council remain inadequate. This gap is linked to infrastructural deficits, socioeconomic disparities, and behavioral factors. Poor disposal contributes to preventable health issues including malaria, diarrhea, and skin infections.

Improving waste disposal practices requires a multi-sectoral approach involving policy reform, health education, public-private partnerships, and community participation.

Recommendations

To Government and Policymakers

- Strengthen municipal waste collection systems and expand coverage to underserved areas.
- Enforce environmental sanitation laws, including penalties for illegal dumping.
- Implement regular public health education campaigns on waste segregation and sanitation.

To Health and Environmental Agencies

- Train community health workers and volunteers to conduct waste education outreaches.
- Monitor and report local waste-related illness trends to guide interventions.

To Residents and Community Leaders

- Organize community clean-up exercises and establish local waste monitoring committees.
- Encourage household-level waste segregation and use of covered bins.

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Ethical Approval

Ethical clearance has been obtained from the University of Abuja Teaching Hospital.

Inform Consent

Taken from Study Participants.

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Author Contribution

Both Authors contributed equally

Conflict of Interest

None Declared

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