KAMPALA INTERNATIONAL UNIVERSITY
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KIU
Journal of Science,
Engineering and Technology

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Research

Investigating Residential Attitudes and Perceptions of Solid Waste Generation Management System in Makindye Division of Kampala

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Paper history:
Received 7 March 2022
Accepted in revised form
18 April 2022

Keywords
Residential attitudes& perceptions; Solid waste generation**;** health hazards.

Abstract
The goal of this study is to determine residents' attitudes, perceptions, and understanding of the Makindye division's solid waste management system, as well as make recommendations about solid waste generation, planning, and control measures. For district authorities and municipalities that lack the requisite logistical skills to handle the expanding solid waste, managing collected solid waste has recently become a baffling and intimidating challenge. Essentially, the management of solid waste creation is inadequate and ineffective as a result of insufficient regulatory regulations, low technical capabilities, and a lack of public awareness, leading in environmental contamination and a variety of health problems. A poll of 400 respondents in the division was used to collect primary data. The data was analyzed using SPSS software programs. The findings show that increasing the amount of effort put into solid waste treatment reduces the amount of solid waste generated. The results revealed a strong link between management and the environment, as well as a p-value. Furthermore, the findings show that the p-value is strongly linked to management and health. When measured by the mean and standard deviation, attitudes and perceptions are statistically significant. To develop a health-hazard-free environment, it is concluded that a collaborative effort by all stakeholders, as well as the application of sustainable environmental education, is required. As a result, it is vital that environmental protection and community authorities collaborate to improve the quality of life in urban areas while also anticipating future concerns.

Nomenclature and units

1.0 Introduction

Solid waste generation exists and is influenced by a rapidly rising population, salary changes or increases, a massive growth in the size of the municipality, a changing way of life or a comfortable level of living, as well as technological advancements. In recent years, due to a lack of small capital investments, insufficient infrastructure, low technical levels of waste disposal and sanitation, a lack of solid waste data management, a reliance on a single method of disposal, and a rigid system for managing solid waste, the household solid waste management system has become overburdened, resulting in a variety of economic, social, and environmental hazards in Makindye Division, (Abduli, 2015). As a result, modern strategies for managing solid waste generation are required.

According to (Basiru *et al.,* 2017), solid waste management is an interconnected system of appropriate technologies and mechanisms involved in the processing, collection or acquisition, creation, transfer, transportation, and disposal of solid waste at an affordable cost. Ajzen and Fishbein (1980) established the Indus Valley's first solid waste management system in Mahenjo-Daro. The Makindye division's urban solid waste management has implemented a number of measures to address the division's high levels of waste disposal, particularly in the division's rapidly growing urban cities. The household is the primary generator of solid waste; consequently, it is a significant contributor to the problem of solid waste generation as a result of societal changes.

Family size, income, education, household size, marital status, and personal attitudes and perceptions are all societal changes that affect the characteristics of households. According to Moftah *et al.,* (2016), perception is the primary mechanism through which humans acquire knowledge about the world. It refers to the efforts made by our peripheral nervous system (i.e., our senses of smell, touch, hearing, taste, and vision) in response to external stimuli. Our knowledge, resources, trusts, rules, and values all have an effect on perceptions, but they can be generated independently of experience with the object or person (Mariwah & Dei, 2010).

Perception, according to Gibson and Tierney (2006), is the basic method by which humans get knowledge about the world. It refers to the responses of our peripheral nerve system (i.e., feeling, smell, touch, hearing, taste, and sight) to external stimuli. According to Ifegbesan (2010) and Kumar (2012), attitude has been found to be an integral or expedient predictor in describing a certain way of behaving toward solid trash collection and composition management. Public awareness, campaigns, and educational programs about the incorrect disposal of solid waste collection in terms of residential circumstances and public health could have a good impact on attitudes. It was discovered that attitude has a moderating effect on the intention to recycle solid waste generation (Goh *et al.,* 2013).

As a result, programs should be focused on disseminating knowledge and skills in order to enhance resident behavior and attitudes toward solid waste management, which are founded on a thorough grasp of the people's cultural characteristics and social methods. According to Beinstein (2004), numerous social and ethnic groupings frequently designate the rapidly rising population and low-income residential neighborhoods. Additionally, Schultz and Zelezny (2000) assert that, when environmental concerns are taken into account, attitude refers to a pervasive concept in a person's perception and relationship with the environment. Meanwhile, Warner (2006) asserts that there is no such thing as a moral perspective other than a social way of behaving in a specific society. However, within a society with a common social cultural background, their behavior can be influenced over time by a variety of factors (Suleman *et al.,* 2015). As a result, sophisticated solid waste generation management systems are required. Solid waste management, according to Romenick & Ivee (2021), is an interconnected system of appropriate technologies and procedures engaged in the processing, collection or acquisition, creation, transfer, transport, and disposal of solid waste at an affordable price.

The Makindye division's urban solid waste management has made a number of steps to address the division's high levels of solid waste management challenges, particularly in fast-growing urban areas where these issues are evident. Many major cities are grappling with significant amounts of solid garbage output and determining where to dispose of it. Because the household is the primary source of solid waste generation, it plays a significant role in the problem of solid waste generation as a result of societal changes. Family size, income, education, household size, marital status, personal views and perceptions are all societal developments that influence the features of families (Okot-Okumu, &Nyenje, 2011; Longe, E.O; Longe & Ukpebor 2009; Moftah *et al.,* 2016; Mohsen *et al.,* 2016).

Ministry of Health (MOH), Uganda (2020) stated that poor waste management in Kampala is a health hazard. The residential community's attitude toward the environment is also cause for concern. Human beings must be educated about the consequences of careless waste disposal and the importance of properly disposing of solid waste and always keeping their surroundings clean. Nyakaana's (1997) work is improved in this study (the handling of solid waste in metropolitan areas: the case of Kampala, Uganda) by taking into account household attitudes, awareness, and perspectives on solid waste management. However, the attitudes and opinions of residents about solid

waste generation have not been taken into account. The purpose of this study is to see if there is a link between inhabitants' attitudes and perceptions of solid waste generation and composition.

2.0 Materials and Methods

This work proposes to establish attitudes and perception effects on solid waste creation between the adult and senior age-structured, based on several empirical investigations on the subject. In Makindye Division, data on residential solid waste generation was collected from Kabalagala, Kansanga, Lukuli, Gonge, and Garba. This study draws on primary and secondary data collected through questionnaires, as well as literature, the internet, and journals, among other sources .A survey questionnaire was distributed to 400 inhabitants in the Division in order to meet the research objectives. Using descriptive statistics tables and the Statistical Package for the Social Sciences, Pearson's Rank correlation was used as a quantitative technique (SPSS).

3.0 Results

Table 1: Residential Area Classification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kansanga	126	31.5	31.5	31.5
	Kabalagala	41	10.25	10.25	41.75
	Lukuli	62	15.5	15.5	57.25
	Gonge	66	16.5	16.5	73.75
	Garba	105	26.25	26.25	100.0
	Total	297	74.25	100.0	

Table 2: Attitudes and Perceptions of Residents Regarding Solid Waste Management

	Mean	N	Std. Deviation
Strongly Disagree	1.2593	108	.44658
Disagree	1.4762	84	.51177
Not Sure	1.0000	13	.00000
Agree	1.3333	120	.48154
Strongly Agree	1.3600	125	.48990
Total	1.3434	400	.47727

Table 3: Residential Age Classification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-9	95	23.75	23.75	23.75
	10-17	105	26.25	26.25	50.0
	18-49	150	37.5	37.5	87.5
	50 & above	50	12.5	12.5	100.0
	Total	400	100.0	100.0	

Table 4: Environment, Management, Health, Attitudes, and Perceptions in Residential

		HEALTH	ATTITUDES	PERCEPTIONS
HEALTH	Pearson Correlation	1	-.017	.225*
	Sig. (2-tailed)		.866	.025
	N	399	399	399
ATTITUDES	Pearson Correlation	-.017	1	.031
	Sig. (2-tailed)	.866		.759
	N	399	399	399
PERCEPTIONS	Pearson Correlation	.225*	.031	1
	Sig. (2-tailed)	.025	.759	
	N	399	399	399

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation is significant at the 0.01 level (2-tailed)

Table 5: Makindye Division's demographic characteristics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	M	168	42.00	42.00	42.00
	F	232	58.00	58.00	100.00
	Total	400	100.00	100.0	

4.0 Discussions

This research examines the relationship between population and solid waste creation, as well as the wage inequality between high- and low-income citizens, as well as the negative implications of unsystematic trash disposal in the municipality. Residents' levels of awareness and response to environmental consequences, as well as their participation in waste management, were the primary determinants of the clan's attitudes toward environmental advancement. The speeders of responsiveness and distinct conduct dominance can be used by

local governments to steer individuals' intentions and behaviors toward a rational garbage collector system.

As seen in Table 2, attitudes and perceptions are statistically significant. Residents' attitudes and opinions confirm the Division's reality of a well-organized solid waste management system. However, respondents describe the SWM system as being characterized by non-uniform garbage collection by assigned Home-Klin operators. In general, a mean score of 1.3434 and a range of error of 0.47727 indicate that the average results of independent items are contained within a low-level group. Residents' attitudes and views toward solid trash collection are largely determined by their perception and reactivity to their immediate environment. Habitat responsiveness is a characteristic of an independent's intuition that enables him or her to perceive domains with tolerance. As shown in Table 3, the age group 18-59 (adult age group) is the age structure that is most responsible for solid waste generation. It is the age group with the highest immigrant rate, which means an increase in the immigrant population, which results in population growth in urban cities, and according to fundamental epidemiological assumptions, the age group of 18-49 is the most susceptible to disease in this District.

Table4 demonstrates a significant correlation between management and environment and p-value. $(p < 0.0005)$ .Additionally, management and health are found to be substantially connected with the p-value. $(p < 0.0005)$. Additionally, the finding indicates that environment and perceptions are significantly connected with p-value, $(p < 0.0005)$ which is corroborated by the fact that environment and health are significantly correlated with p-value $(p < 0.0005)$. It is highlighted that management of solid waste and views are substantially connected with p-value $(p < 0.0005)$., implying that residential attitudes about solid waste management are negative, resulting in ineffective solid waste management in the District. Similarly, the result indicates that the environment and health are significantly connected with the p-value $(p < 0.0005)$, implying that the environment is susceptible to many diseases such as diarrhea, cholera, cough, and influenza, which is consistent with MOH (2010).

According to Table5, the majority of interviewees (58%) are female, while 42% are male. The preceding facts demonstrate that the demographic features of the Division's population vary considerably. According to this data, females outnumber males (58%) by a factor of two (42 percent). This suggests that residents are more likely to be adults and energetic than they are to be seniors or children (the minor category). Variations in people' socioeconomic status have an effect on the amount of garbage generated in the Division. This is because residents who earn a high wage as a result of good work and a good education are more likely to generate solid trash than those who earn a low wage as a result of poor jobs and low educational attainment. This result is consistent with Chuckwumuanya and Ihueze's 2017 findings.

5.0 Conclusions

In conclusion, the following are the study's findings:

In order to attain a health-hazard-free environment, a collaborative effort by all stakeholders is required, as is the application of sustainable environmental education. The government should propose a remedy to the inaccessibility of streets, which has made it difficult to collect solid trash for proper disposal. The occupants' degrees of environmental consciousness and perception, as well as their engagement in waste collection services, influenced the households' attitudes toward environmental improvement the most. Communities' authorities can employ both the drivers of attitudes and perceived behavioral control to influence citizens' intentions and behaviors toward a reasonable solid waste management system.

These findings imply that residents are eager to participate in different types of solid waste management programs in order to improve environmental quality and assure efficient solid waste collection services. As a result, the implementation of a community-based program may prove to be a vital tool for the Division's solid waste management system. Participating in a solid waste management system as a group may have the potential to improve environmental sustainability.

More public awareness initiatives and programs are needed to promote proper solid waste management and creation. In the Division, both government and non-governmental groups should take joint responsibility for boosting household levels of perception and cognition about solid waste management and generation.

Acknowledgements

The authors are grateful for the reviewers' efforts and valuable feedback.

Declaration of conflict of interest

There are no conflicts of interest.

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