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Students' Awareness of Waste Management Practices at Kampala International University

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ABSTRACT

Waste management is a critical aspect of environmental sustainability, and educational institutions play a pivotal role in shaping the attitudes and behaviors of future generations. This study investigated the awareness levels of students at Kampala International University regarding waste management practices. The research employed a mixed-methods approach, combining surveys and interviews to gather comprehensive data. The survey component assessed the students' knowledge of waste management principles, their perceptions of the importance of responsible waste disposal, and their current practices in managing waste at both personal and communal levels. The interviews delved deeper into the underlying factors influencing students' attitudes and behaviors toward waste management. The findings suggested a varied degree of awareness among students, highlighting potential gaps in understanding and implementation of waste management practices. The study aimed to provide insights that can inform educational initiatives to enhance environmental consciousness among students, fostering a culture of responsible waste management within the university community. Understanding the factors that shape students' awareness and practices in waste management is very crucial for developing targeted interventions, promoting sustainable behaviors, and contributing to broader environmental conservation efforts.

Keywords: Students; Awareness; Waste Management; Practices; Kampala International University

INTRODUCTION

Waste management is a critical component of environmental sustainability, and educational institutions play a pivotal role in shaping the environmental awareness and behaviors of their student populations [1–3]. Kampala International University (KIU), located in an urban setting, represents a microcosm of diverse student demographics, each contributing to the broader discourse on sustainable practices. In the global context, there has been a discernible shift towards emphasizing responsible waste management, recycling, and minimizing environmental impact [4]. Universities, being centers of learning and innovation, are expected to align with these global initiatives and contribute to sustainable practices [5]. However, the effectiveness of waste management education and practices among students at KIU remains unclear. Understanding the level of awareness, knowledge, and engagement of students in waste management practices is essential for evaluating the university's sustainability initiatives. The urban setting of Kampala, coupled with the diverse student body at KIU, poses unique challenges and opportunities for waste management [6–8]. Rapid urbanization and population growth can strain existing waste management systems, necessitating a proactive and informed approach to mitigate environmental impacts [9]. Therefore, a comprehensive examination of students' awareness of waste management practices at KIU is not only timely but also critical for developing tailored strategies that address the specific needs and dynamics of the university community. This study aims to delve into the current state of waste management awareness among students at KIU, seeking to identify potential gaps, evaluate existing initiatives, and propose recommendations for improvement. By addressing these aspects, the research contributes to the broader goals of promoting sustainability, enhancing environmental education, and fostering responsible waste management behaviors within the university community [10–13]. Ultimately, the findings of this study may inform the development of targeted interventions to create a more environmentally conscious and sustainable campus environment at Kampala International University. Despite the growing global emphasis on sustainable practices and waste management, there is a lack of comprehensive understanding regarding the awareness and engagement of students at Kampala International University in waste management practices. The proper disposal, recycling, and reduction of waste are crucial components of environmental conservation and sustainable living. However, there is an apparent gap in knowledge regarding waste management practices among students, which raises concerns about the effectiveness of current educational initiatives and the overall campus environment's sustainability. Addressing this gap is imperative to promote responsible waste management behaviors, contribute to environmental conservation efforts, and establish a culture of sustainability within the university community. Therefore, there is a need for an in-depth investigation into students' awareness of waste management practices at

Kampala International University to identify existing challenges, evaluate the effectiveness of current initiatives, and propose strategies for improvement.

METHODOLOGY

Description of the Study Area

The study was conducted at Kampala International University located in Kansanga Parish in Makindye Division about three kilometers from Kampala Central Business District along Gabba Road.

Research Design

A descriptive cross-sectional design was used in the study. Descriptive research was chosen since it explains the many types of data that were gathered from the field. Because information was collected once from the respondents, the study is cross-sectional. Information was gathered through questionnaires employing both qualitative and quantitative research techniques. As a result, the study's conclusions and suggestions were based on the opinions of the respondents.

Study Population

The study targeted all students of Kampala International University's main campus irrespectiveof their gender, course, study level, and age among other factors.

Sample Size and Techniques

The sample that was used was about 125 students who were selected using a convenience simple random technique. Where any student that could be got on campus at random became part of the study.

Research Instruments

Questionnaire

Utilizing questionnaires created by the researcher, data was gathered. Four sections make up the questionnaires. The first section of the questionnaire concentrated on the respondents'
demographics, while the second, third, and fourth sections included questions about each of the study's objectives, respectively. Both closed-ended and open-ended questionswere included in the questionnaires. The questionnaires were given to the respondents and they were in a position to answer the questions and return the questionnaires after a period of 24 hours.

Validity and Reliability

Validity

Validity is the extent to which findings from data analysis accurately reflect the phenomenon being studied. Four experts were given the study tool (questionnaire) by the researcher, and they were asked to score the questions' relevance on a five-point scale: relevant, quiterelevant, slightly relevant, and not relevant. For the questionnaire to be accepted as legitimate, the Content Validity Index must be more than 0.7. This would imply that the questions contained within apply to the variables being investigated. According to Saunders, Lewis, and Thrornhill (2009), the formula determines the validity of an instrument.

$$\text{Validity} = \frac{\text{Number of items declared valid by the judges}}{\text{Total number of items}}$$

Reliability

The researcher used the test-retest approach to conduct a pilot study in order to determine the reliability of the research instrument. A portion of the respondents received the instruments, which were then delayed for two weeks before being re-administered. A reliability test was run using Cronbach's Alpha as the reliability metric after the findings were loaded into the SPSS program. The instrument was deemed reliable (having internal consistency) of an Alpha value greater than 0.7.

Ethical Considerations

By protecting the confidentiality of the respondents and the data supplied, the researcher respected the respondents' right to anonymity. This was accomplished by giving them the promise that the data they submitted would only be used for educational reasons and would remain anonymous. This was emphasized in the questionnaire's introduction. Citations and references have been used to acknowledge all of the literature sources. Finally, objectivitywas taken into account to prevent personal prejudice when producing the report. For permission to gather data in the intended area, the researcher asked the University. The responders were guaranteed and reassured by the researcher that all of their comments would be handled in complete confidence. The researcher obtained informed consent from authorities to interview their students. The researcher explained to the people in the studyarea the objectives of the study.

Data Processing and Analysis

Only information from the surveys was used in the quantitative data. The Statistical Package for Social Scientists (SPSS) software package version 21 was used to code, enter, check, and statistically analyze the raw data from the field in order to produce descriptive statistics that were applied to the primary variables and associated indicator items related to the study objectives.

RESULTS

Biodata of the Respondents

Sex of Respondents

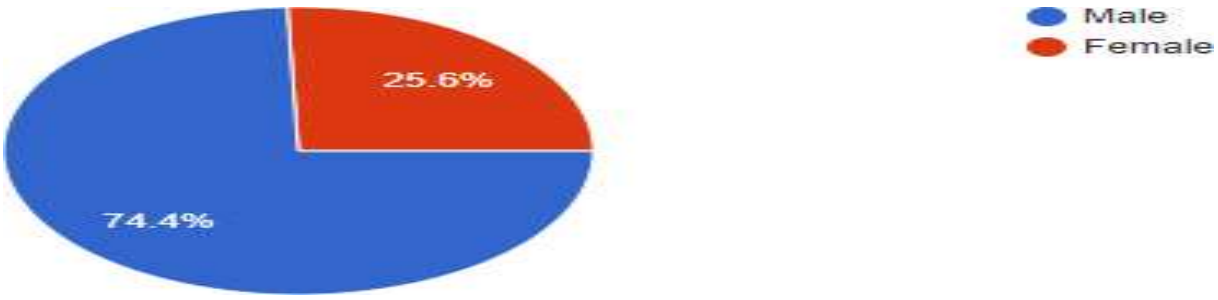


Figure 1: Sex of the respondents

Source: Primary data, 2023

From the study, it was clear that there were more males (74.4%) than females (25.6) (figure 1). This could be attributed to the gender imbalance in terms of enrolment where there might be more males admitted in KIU than the female students.

Age of Respondents

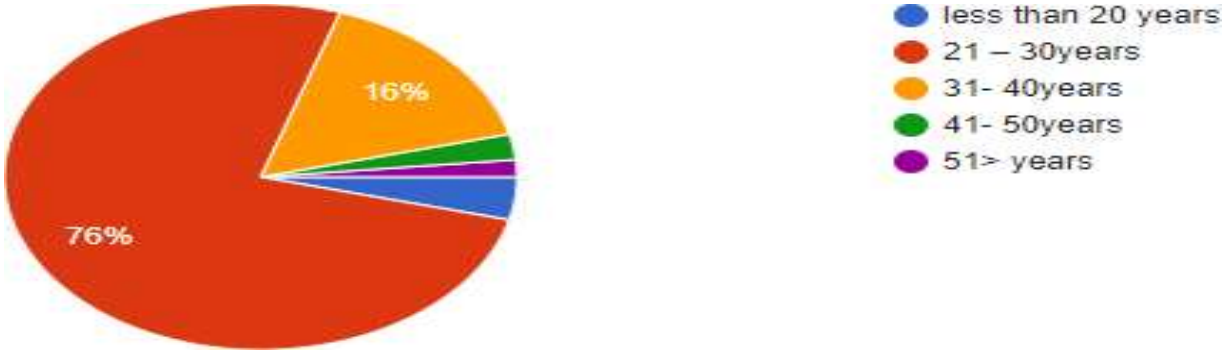


Figure 2: Age of respondents

Source: Primary data, 2023

The biggest percentage (76%) of the students were aged 21 to 30 years (figure 2). This was an indication that a majority of the participants in the study were either in year three of the study or year two and above given the age ranges.

Place of residence while on or off campus

Figure 3: Where the students live while on holidaysSource:

Primary data, 2023

A majority of students (68%) live in urban areas when they are in for holidays. This is likely to influence their waste management practice at home and while on campus (figure 3). It is likely that because most of the students live in urban areas their knowledge of waste management practices might be vast given their level of exposure to municipal solid waste management practices that are always exhibited by the city authorities such asKampala Capital City Authorities together with the private bodies that man the wastes in and around Kampala city.

Respondents study level

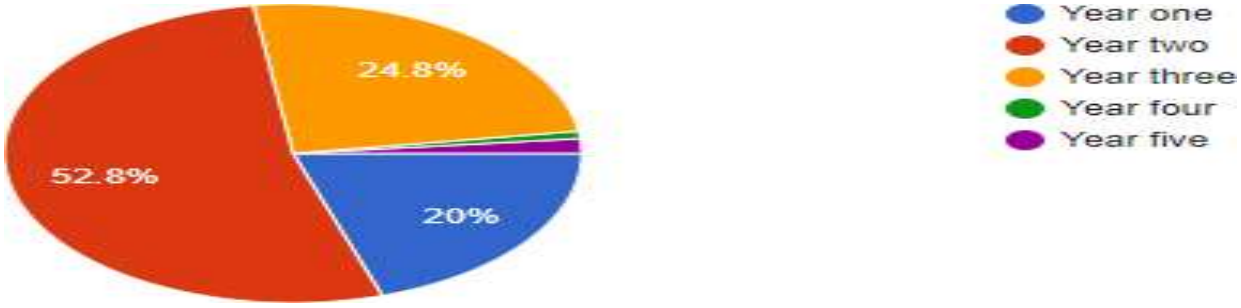


Figure 4: Student's study level
Source: Primary data, 2023

Most of the students who took part in the study were in study level two (52.8%), study level three (24.8%), and study level one (20%) (Figure 4). This study level correlates with waste management especially since the more student stays at campus the more they get acquainted with the waste management practices in and around campus dueto their experience by learning at school and also from the environment.

Awareness of Waste Management Practices

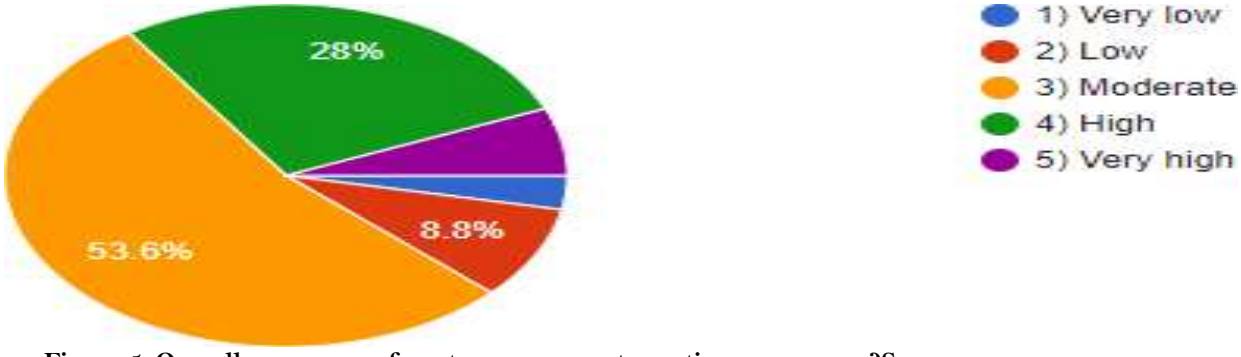


Figure 5: Overall awareness of waste management practices on campus?Source: Primary data, 2023

Students' awareness of waste management practices on campus was moderate (53.6%) although about (28%) of the students were aware of the waste management practices, this level of awareness is still generally low (figure 5).

Primary Sources of Information about Waste Management on Campus

Figure 6: Primary sources of information about waste management on campus
Source: Primary data, 2023

About 60% of the students attested to the fact that the major sources of information on waste management on campus were classroom discussions or lectures (40%) and notice boards on campus (20%) (Figure 6). This is an indication that most of the curriculums taught at KIU have some element of environment management or waste management-related topics which has tended to improve students' level of awareness about waste management. Similarly, it could mean that the university administration is playing its part in ensuring that the students can access waste management-related information throughthe talking compound or notice boards.

Student's Participation in Waste Management Activities on Campus.

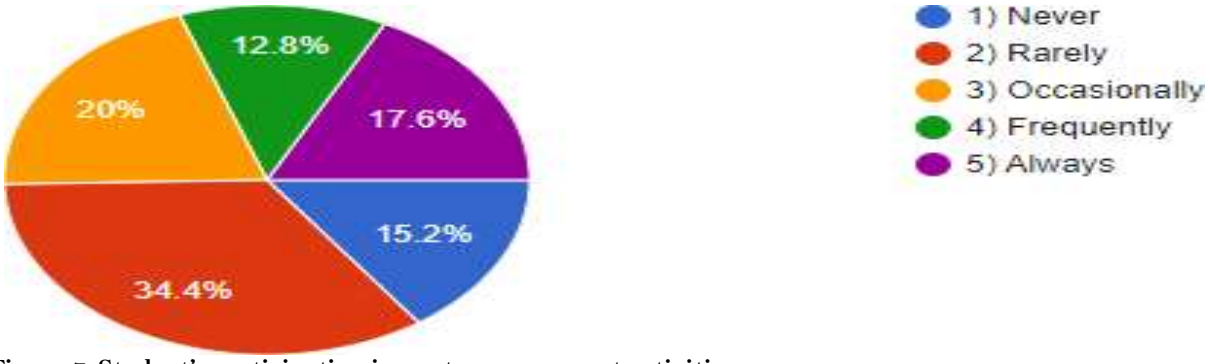


Figure 7: Student's participation in waste management activities on campus.
Source: Primary data, 2023

Over 69% of the students did not participate (rarely (34.4%), occasionally (20%), and Never (15.2%)) in waste management activities on campus (figure 7). This could be attributable to the fact that the university has the services of support staff who are non-academic to always handle the cleaning of the campus and proper disposal of the waste. This worker always sweeps the lecture rooms, the compound, and the washroom, and washing of the different facilities as well. Also, since it is a private institution, the arrangements may not go well if students are to be involved in such activities at the university level giventhe stiff competition this would end up pushing away some students.

Waste Management Practices Students are Familiar with

Figure 8: Types of waste management practices students are familiar with Source: primary data, 2023

The students were more familiar with reuse (33.6%), sorting waste into different categories (29.6%), and proper disposal of the waste (24.8%) and the students were less familiar with composting of organic matter (figure 8). Separation was carried out for only banana peelings and leftover foods for feeding animals. Respondents expressed a high willingness to separate (76.6%) and compost (54.9%) solid wastes.

Students Individual Actions on Waste Management

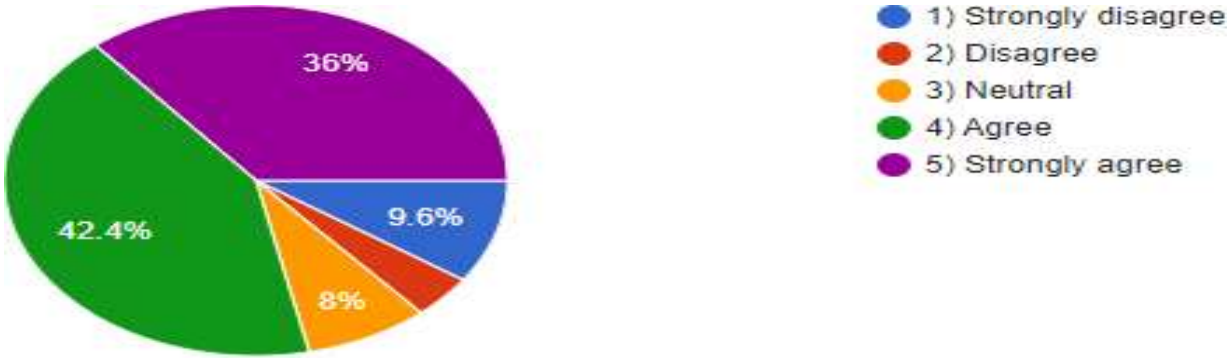


Figure 9: Do you believe that your individual actions can make a difference in wastemanagement on campus?
Source: Primary data, 2023

Many students (Agree (42.4%), strongly agree (36%) totaling over 78% believe that their actions can make a big difference in waste management on campus (figure 9). This meansthat most of the students would be willing to participate in waste management if they were given a chance to and therefore contributing to the reduction of waste and subsequently improvingthe condition of our environment.

Challenges that Prevent Students from Actively Participating in Waste Management Practices on Campus

Figure 10: Challenges that prevent students from actively participating in wastemanagement practices on campus.
Source: primary data, 2023

A large percentage of the students believe that the limited availability of waste disposal bins (32%), lack of awareness (29.6%), and lack of clear guidelines or policies were the major challenges to waste management practice on campus (figure 10).

The effectiveness of waste management policies and strategies currently implemented on campus

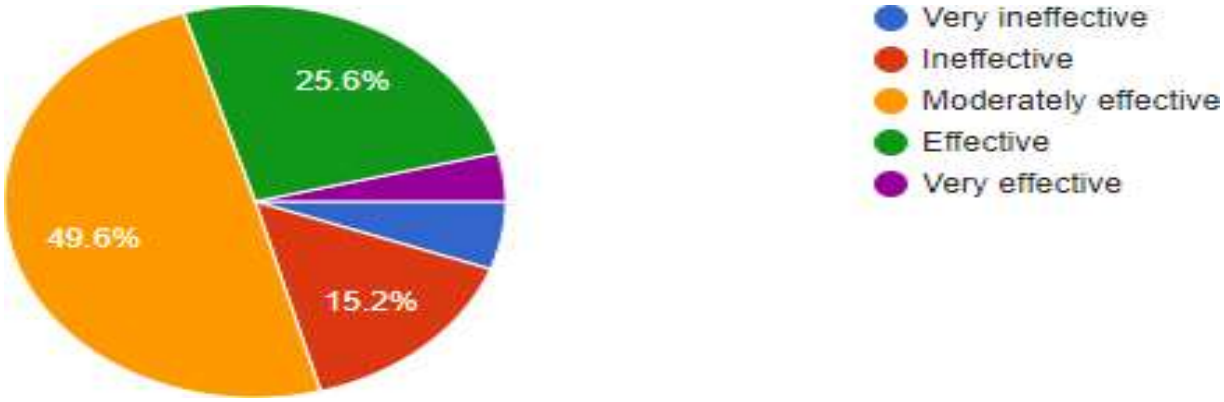
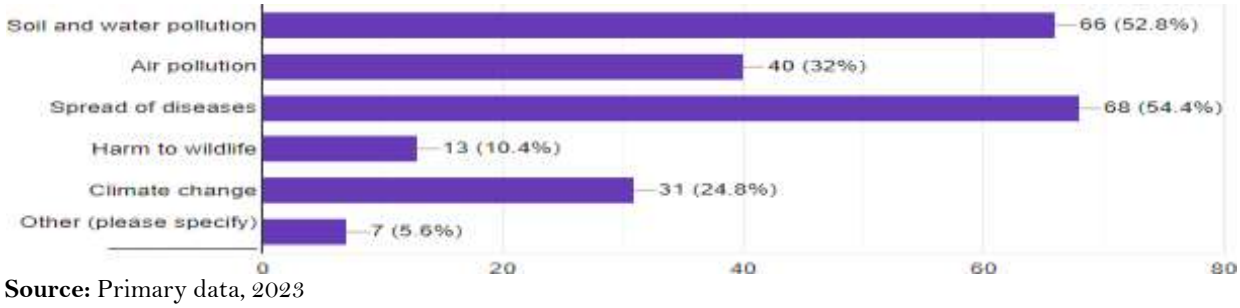


Figure 11: The effectiveness of waste management policies and strategies currentlyimplemented on campus.
Source: Primary data, 2023

Almost half of the students (49.6%) said that the current waste management strategiesimplemented on campus were moderately effective (figure 11).

The Environmental Impacts of Improper Waste Management on Campus

Table 1: The environmental impacts of improper waste management on campus.



Source: Primary data, 2023

About 54.4% of the students said that the major environmental effect of poor waste management is the spread of diseases while 52.8% mentioned that it leads to soil and water pollution (table 1).

Students' Awareness of Any Initiatives or Programs on Campus to Promote Wastereduction or recycling

Figure 12: Are you aware of any initiatives or programs on campus that promote wastereduction or recycling?

Source: primary data, 2023

Over 53% of the students said they were not aware of any initiatives or programs on campusthat promote waste reduction or recycling (figure 12). The implication of over 53% of students stating that they are not aware of any initiatives or programs on campus promoting waste reduction or recycling is significant and raises several concerns. Here are some key implications.

DISCUSSION

Students' awareness of waste management practices on campus was moderate (53.6%) although about (28%) of the students were aware of the waste management practices, this level of awareness is still generally low (figure 5). Accordingly, those who are aware of waste management are more inclined to put it into practice. Diestro and Harman and Yelikalayo [14, 15] contended that individuals act in particular ways because they are aware of the circumstances. People who are aware will be positive about a topic. Unaware people could have a bad or neutral opinion of a field. Students' awareness of waste management has an impact on their attitude since what they know impacts how they act. While respondents' understanding of MSW management is good, a recent survey found that their attitudes and behaviors are either neutral or moderate [9, 16]. According to Ma et al [17], and Eshete et al [18] the high degree of respondents' awareness and attitude regarding Solid Waste Management can have afavorable impact on their solid waste disposal behaviors at home and at school. They concluded that while knowledge and attitude may impact environmental behavior, they must also be coupled with the possible benefits of engaging in environmental activities after noting that solid waste disposal processes do not match the respondents' high level of awareness. According to Darling-Hammond [19], a person's perspective on a subject is influenced by their level of understanding about it. According to their research, education is just one of several factors that affect attitudes toward waste management. Individuals with less education tend to be more pessimistic than those with more education [20]. The students were more familiar with reuse (33.6%), sorting waste into different categories (29.6%), and proper disposal of the waste (24.8%) and the students were less familiar with composting of organic matter (figure 8). The findings of this study agree with those of Erhabor [21] where they found out that Food remains (38%) and plastics (37%) formed the biggest proportion of waste generated in households. Most households (35.9%) disposed of general wastes by open dumping while 27% disposed of plastics by burning. Only 8.8% of households conducted composting while 55% carried out separation for some decomposable wastes. Separation was carried out for only banana peelings and leftover foods for feeding animals. Respondents expressed a high willingness to separate (76.6%) and compost (54.9%) solid wastes. Conclusion. Practices in waste disposal and separation were poor despite a high willingness to participate in initiatives to improve waste management, highlighting a need for authorities to engage residents of slums to improve theirpractices. Waste management on campus can be hindered by various factors, including lack of awareness, inadequate infrastructure, ineffective communication, limited accessibility, inconsistent enforcement, cultural and behavioral barriers, time constraints, inadequate education, perceived ineffectiveness, lack of incentives, and financial constraints. Students may be unaware of the importance of waste management practices, and their participation may be discouraged due to a lack of awareness, inadequate infrastructure, and inconsistent enforcement. Cultural attitudes towards waste disposal and lack of awareness about sustainable practices can also impede active participation. Time constraints may limit students' time to engage in waste management activities, and the absence of educational programs or campaigns can contribute to a lack of knowledge and motivation. Incentives may also be lacking, and financial constraints may restrict the implementation of comprehensive programs. Addressing these challenges requires a multi-faceted approach, including improved communication, infrastructure development, educational campaigns, and clear policies. Improper waste disposal can lead to soil contamination, water pollution, air pollution, greenhouse gas emissions, biodiversity loss, resource depletion, aesthetic and landscape degradation, health risks, eutrophication, and long-term environmental damage[22, 23]. Soil contamination can be caused by toxic substances leaching into the soil, affecting its fertility and posing risks to plant and microbial life. Water pollution can be caused by improper disposal of hazardous chemicals or electronic waste, contaminating groundwater and surface water, and causing air pollution. Greenhouse gas

emissions from improper disposal of organic waste can contribute to climate change and global warming. Biodiversity loss can occur due to pollution harming local flora and fauna, disrupting natural habitats, and threatening species survival. Inefficient waste management can lead to the squandering of valuable resources, causing aesthetic and landscape degradation. Health risks include respiratory problems, skin diseases, and other ailments. Eutrophication can occur due to excessive nutrient runoff in water bodies, leading to algae overgrowth and oxygen depletion. To mitigate these environmental impacts, campuses should prioritize comprehensive waste management practices, including recycling programs and educational initiatives[24, 25]. The lack of environmental awareness among students on campus is a significant issue, leading to limited participation in sustainable practices and missed educational opportunities. The ineffectiveness of existing waste reduction and recycling programs is also evident, as students are often unaware of these initiatives. This lack of awareness can lead to increased environmental impact, pollution, and resource depletion. Achieving sustainability goals is challenging due to the lack of awareness among students. Universities should improve their communication and outreach strategies to bridge the awareness gap. Increasing awareness can empower students to take an active role in promoting a culture of sustainability. To address these implications, universities should reevaluate their communication strategies, enhance outreach efforts, and implement educational campaigns to raise awareness about waste reduction and recycling initiatives. Engaging students and fostering a sense of responsibility towards the environment can contribute to a more sustainable and environmentally conscious campus community.

CONCLUSION

Generally, the study conducted at Kampala International University (KIU) on students' understanding of waste management techniques offers important new information about the current level of environmental consciousness among KIU students. The results show that students' levels of awareness vary; while some show a great comprehension of waste management principles, others show gaps in their knowledge and behavior. To influence students' attitudes and behaviors about trash management, educational programs are essential. The study's findings emphasize the significance of ongoing initiatives to raise students'knowledge of KIU's trash management procedures. The institution may make a substantial contribution to the overarching objective of developing a sustainable and environmentally conscious campus community by encouraging a feeling of environmental responsibility and offering the required resources.

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