Canadian Journal of Educational and Social Studies
Vol. 4(6), 2024, pp. 19-37

Sanitation Culture among Students: Evidence from A Senior High School in Ghana

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DOI: 10.53103/cjess.v4i6.270

Abstract

This study examined the sanitation culture among senior high students. This study sampled one hundred and twenty (120) students from four different senior high schools in the Keta municipality, Ghana. A census survey was conducted to select the respondents. A questionnaire was used to gather data from the respondents. It was revealed that students were involved in solid waste disposal practices; nonetheless much needs to be done so that males do not apportion blame on females as generators of more solid waste, but each will be the others keeper and ensure that their safety in school is not jeopardized because of poor sanitation. On the effects of improper solid waste disposal practices, respondents identified unclean environment, flooding, the spread of diseases, breeding mosquitoes and other rodents among others are evident results. It was recommended that the Municipal Assembly provide the necessary equipment for wastes disposal and enforce the process of waste recycling so that schools will be environmentally friendly for teaching and learning. A student 'vigilante' group should be formed to monitor and supervise the observance of rules and regulations on sanitation in schools within the dormitories, classrooms and school compound. The school management should package seminars and workshops to enlighten and change the psyche of students towards proper methods of waste disposal.

Keywords: School Compound, Sanitation, Senior High Students, Ghana

Introduction

Solid waste has become a global concern, posing a threat to public health and the environment if not adequately addressed. However, the potential benefits of proper waste management can bring hope and optimism. Waste issues, on the other hand, are not directly tied to the way society creates and consumes material, but also have a substantial

role in the rapid events around global warming and climate change (WHO, 2015). Waste management is still one of the most important utility services in the twenty-first century; especially, in urban regions. As a result, it is deemed a basic human need and thus a 'basic human right.' Achievement of waste management, however, is essential to the attainment of the Sustainable Development Goals (SDGs) set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030. Among the seventeen (17) SDGs, the third "good health and well-being" and the sixth "clean water and sanitation" are interdependent. Good health and well-being can be achieved when there is sufficient clean water and proper sanitation (WHO, 2020). Hence, both developed and developing nations see waste management as a problem worth prioritizing even to the extent of soundly building institutional capacity and policies in managing waste.

In this context, key stakeholders such as the Community Water and Sanitation Agency (CWSA), the Environmental Health and Sanitation Directorate (EHSD), the Ghana Health Service (GHS), national and international NGOs, and other Development Partners formed the School Health Education Programme (SHEP) Unit of the Ghana Education Service (GES) in 1992 (GES/SHEP, 1992). The SHEP was created to provide consistent information to well-informed, health-conscious students who can be change agents in their homes and communities. This is to assist students in making an effective and efficient contribution to national development. Since its founding, the SHEP Unit has been at the forefront of implementing health education programs at the pre-tertiary level. Surprisingly, one of the SHEP implementation's component areas is a Safe and Healthy School Environment. Most developed and developing countries, including Ghana, see inappropriate waste management as a threat to human health and the environment. There have been recent campaigns and wake-up calls from environmentalists, non-governmental organizations, religious bodies, and others on the need to rescue the globe and repair the environment. Ghana is the world's dirtiest country, ranking seventh (7th). There has been progress in educating the public about the importance of aiding the government and all authorities in trash management. Against this background, the researcher deems it necessary to study solid waste disposal practices in some selected senior high schools of the Keta Municipality.

Statement of the Problem

It has been observed that high population contributes to increased solid waste generation. The Free Senior High School programme (Free SHS) with its Double Track System of education policies introduced in 2017/2018 academic year, witnessed the corresponding rise in student enrolment in the public schools of the Keta Municipality. The large population has not been controlled till date. This has led to a constraint in resources used for waste management in the schools. Inadequate sanitation systems in school

premises such as toilets, kitchen, dining rooms, dormitories, classrooms, play grounds, water drainage systems and dust bins are attendant problems. A wide knowledge gap necessitates environmental researchers to investigate the students‟ attitude and awareness on the issue of managing waste in schools. The perception about solid waste disposal practices in Ghana has made waste collection system very difficult to be managed since there are no strict measures and policies dealing with the menace. People dispose of waste indiscriminately without realizing the effects of their actions on society.

In the midst of these challenges, students are overwhelmed with managing the solid waste they produce on daily basis. This has prompted the need to investigate the level of students' involvement in solid waste disposal procedures, as well as sanitation promotion and the effects of solid waste disposal practices on students.

Objectives of the Study

Specifically, the study sought to:

1) identify the involvement of students in solid waste disposal practices.
2) examine the effects of solid waste disposal practices on students.

Literature Review

Theoretical Framework

This study draws on Environmental Behavior Theory and Social Cognitive Theory to understand what drives students to participate in solid waste disposal practices and how these practices affect them. Environmental Behavior Theory suggests that people’s actions toward the environment are shaped by what they know, believe, and value about environmental issues (Kollmuss & Agyeman, 2002). In relation to this research, it means that students who are aware of how detrimental improper waste disposal is to the environment are most likely to behave positively in the management of waste. This theory is solid because it considers what people know and also how they feel in order to provide an all-rounded explanation of environmental behaviour. However, this theory has its own flaws. Critics argue that it might not fully account for external factors like whether students have access to proper waste disposal facilities, which can limit their ability to act on their knowledge (Gifford, 2014).

On the other hand, the Social Cognitive Theory developed by Bandura in 1986 explains how learning through observation and self-confidence, along with the necessary feedback from society or social circles, affects behavior. This theory suggests that students are likely influenced by what they observe others doing-peer, teachers, and even school administrators-regarding the disposal of waste. It is strong in highlighting how much the social environment influences behavior through the presence of role models and social support. However, according to some, the theory has put too much emphasis on personal

decisions and may lead to an underestimation of broader influences, such as school policies and infrastructures that likewise determine behavior (Schunk & DiBenedetto 2020). Put together, these theories bring a wide framework for understanding how personal and social factors combine to influence students' involvement in managing waste.

Conceptual Review

This study is pegged on the key concepts that include solid waste disposal practices, student involvement in waste disposal practices, and influence of these practices on students, which are closely linked. Solid waste disposal practices are the methods in which waste is collected, sorted, stored, and disposed of at the school level. Good practices entail separating recyclable material from non-recyclables and removing the wastes from the school premises as soon as possible to keep the school environment clean and healthy, (Mwanza & Mngumi, 2020). Student involvement in these practices is crucial because when students actively participate, whether by sorting waste, joining environmental clubs, or leading initiatives to reduce waste, they develop a stronger sense of responsibility and ownership over their school environment (Ametepe & Torku, 2018).

These practices of solid waste disposal have impacts on students both positively and negatively. Good practices in waste management will promote good health, enhance academic performance, and encourage better attitudes towards the environment among students. On the other hand, poor waste management could result in health issues related to respiratory diseases and infections, and also mental problems like stress and motivational decline among the students (Alhassan & Mohammed, 2017). Environmental education significantly affects the involvement of students in the management of waste through knowledge acquisition, change in attitude, and behavior formation that could be assisting in environmental sustainability. Schools are, therefore, very important in environmental education through formal, extracurricular, and community programs, as noted by Chen and Zhang, 2020.

However, the broader school environment, including both its physical state and social atmosphere—also plays a significant role. A clean and well-maintained school environment supports students' health and well-being and fosters better academic outcomes by minimizing distractions and creating a positive learning atmosphere (Ojo & Adeola, 2019). Second, supportive social environments that foster a culture where students get involved in managing wastes make such practices more effective to realize sustainability. According to Mensah and Acheampong (2021) the interaction between environmental education and student involvement with the school environment helps formulate effective school waste management strategies.

Empirical Review
Student Involvement in Solid Waste Disposal Practices

In this respect, the literature on students' participation in waste management shows that environmental education and hands-on activities in waste management practices can help. A study by Chen and Zhang (2020) investigated how school-based environmental awareness programs influenced the waste disposal behaviour of students. The study revealed that students, when taught about the environmental effects of generated waste and adequate facilities for disposing of waste properly, participated in segregating and disposing of waste. Moreover, school waste management integration incorporates the concept into students' curricula and gives them the responsibility of taking care of the environment from an early age.

Another study by Ametepe and Torku (2018) explored the impact of school-based waste management programs in Ghana on students' willingness to participate. The findings indicated that students are most likely to participate in managing solid waste when they are stakeholders in developing and implementing the school waste management policy. Programs initiated by students, such as recycling clubs and campaigns to reduce waste, had the highest increase in student participation.

Effects of Solid Waste Disposal Practices among Students

The impacts related to students from solid waste disposal practices are health effects, academic performance, and environmental attitude change. Alhassan and Mohammed (2017) conducted a study within the urban schools of Ghana that analyzed health implications on students based on poor waste disposal practices. The results showed that in schools, with a poor system for disposing of the generated waste, respiratory health issues, gastrointestinal diseases, and other health-related problems among the student fraternity were high. Improvements in waste management infrastructure were indicated in the study to protect the health of students.

Apart from health effects, a study by Ojo and Adeola (2019) assessed the ways in which practices of solid waste disposal affect the academic performances of students. Their research showed that in schools where waste is unmanaged, students are often tempted to be distracted with the unpleasant odors and the presence of pests, hence leading to reduced concentration and low academic achievements. It was indicated that a clean environment promotes sanity in learning, therefore probably bringing forth increased performance through proper waste management.

Mensah and Acheampong (2021) studied the implications of practices concerning solid waste disposal on the student psyche. The conclusions of the study showed that students with poor waste disposal areas are bound to develop negative attitudes towards their environment, a factor that is disastrous for the being and motivations of such students

towards participation in environmental conservation. The result from this study indicated that good waste management benefits students in terms of better health, improved academic performances, and enhances among them an environmental-friendly way of thinking.

Solid Waste Management Practices and Participation

Owusu-Ansah et al. (2022) also indicated that poor waste management remains one of the highest challenges urban authorities in Ghana face. As a matter of fact, this is characterized by failure to ensure cleanliness on the part of individuals concerned because of ignorance or neglect. This could be due to other factors such as inadequate resource availability to effectively dispose of generated waste, lack of responsibility on the part of individuals involved, community failure to unify in this fight against poor waste management practices and putting up buildings anyhow. An estimated 4,000 tons of solid waste per day sees large amounts of uncollected waste pile up in both the cities of Accra and Kumasi. This, as cited by Monney et al. (2014), is highly due to the fact that the country has failed to appreciate the worth of certain waste materials, hence disposing every waste produced either in landfills or incinerators. The author considers that some of those rejected materials by people could have been reused as useful resources for society, which could contribute to the development and ecological protection process of the country. Ampofo 2020 gives various ways in which waste management can be enhanced. He insists on a holistic approach to understanding waste management; and at the same time provides seven steps to follow towards waste management. However, most developing countries' approach to waste management reverts back to only secondary storage, transportation, and treatment, which he terms not to be sustainable.

Ampofo also proposes the change in negative attitudes of people toward waste management, reengineering of local government laws to grant more powers to community-level structures. He also recommends the application of the polluter pays principle in order to hold individuals and businesses responsible for their waste-related activities. Increased intake has seen increased numbers of students on campus, and these are the ones that generate lots of waste. This calls for a waste-conscious mind to dispose of the generated waste appropriately. While bins have been provided, students have continuously littered campus, and one wonders why they seem so oblivious to the presence of these bins.

A teacher in the institution researched and had a valid reason to bring into question the random waste disposal by the students that needed to be disposed accordingly, however students were found crosswise into repeating that action, also becoming insensitive to the outcome of their particular action as explained by Iyer, 2018. Their behavior did not really differ from the typical behaviors of people in the country; however, the unsettled issue here is how the students failed to apply the lessons they receive regarding waste and waste management in the field of Social Studies.

Effects of Solid Waste

The inadequacy of refuse disposal facilities makes illicit dumping common in most parts of Ghana. Besides, there is too little law enforcement which hardly arrests and punishes people for dumping refuse in unauthorized sites. Correspondingly, environments around dump sites, especially urban areas, are rapidly deteriorating, consequently decreasing overall sustainability within the same areas. The consequences include poor agricultural production, proliferation of germs and diseases, and harm to aquatic ecosystems from water toxicity and acidification (Ifeoluwa, 2019).

Besides the high danger to human health, people cannot stand living in such conditions. The degree of risk to human well-being will depend on the proximity of the residential areas from these illegal dumping premises. All of these incorrect waste disposals cause a series of destructive effects on human health, which include climatic change, photochemical reaction, abiotic depletion, and extreme weather conditions like global warming caused by the emission of greenhouse gas resulting from chemical and radioactive wastes. This leads to water contamination, blockage of water bodies, soil, and air pollution, hence a high incidence is observed with respect to communicable and non-communicable diseases in many parts of the country.

Poor waste management and handling has contributed to environmental hazards including improper waste storage, collection, transportation, and proper disposal of solid waste. It is highly associated with short-term and long-term health risks. Gradually, waste dumping sites can be considered a source of pollution to drinking water supplies, which may become harmful to public health (Anaman & Nyadzi, 2014).

Open dumping of trash can invite multiplication of flies, thus facilitating the spread of diseases through mechanical mode of transmission. Besides, refuse dumps can also provide breeding places to mosquitoes, especially in pools of rain water that gather in abandoned containers and discarded tyres. This would also give the ideal conditions for survival of diseases-transmitting Aedes aegypti mosquitoes, vectors of dengue, yellow fever, and other arboviral infections. Additionally, rats will be attracted to refuse and will also have their habitat in the same area snacking on refuse as staple diet. The rat population infestation in dump yards will rapidly rise and spread to the residential areas within a short time. (Puthillath & Sasikumar, 2015).

Accumulated trash presents a great fire hazard, especially with the mixing of flammable materials together in dump yards. Adding hot ashes increases this hazard. The prevalent practice of open burning refuse can easily lead to a situation that is out of control. The materials in dump yards often include rubber tires, PVCs, and plastics that give off toxic gases such as dioxin and furan when burned. Moreover, large volumes of water used in quenching these fires can result in toxic material leaching into the groundwater. (Puthillath & Sasikumar, 2015).

CDS also notes that poorly disposed waste can lead to water pollution since rainfall can wash masses of wastes into surface water. This makes the groundwater get contaminated. Decomposition of piles of wastes would emit foul odors and create an aesthetic disgust in the urban areas. A lot of the wastes land in open streets, drains, and urban water bodies due to improper solid waste collection services. This results in blockages and flooding of streets and other areas. Equally, uncollected waste blocks the streets and the drainage systems, thus creating environments that are ideal for mosquito breeding.

Besides diseases caused by insects and rats, disease infection may be contracted by workers who are involved in the collection and transportation of waste due to handling refuse. Roundworm and whipworm are some of the common infections that may be acquired while working with solid waste disposal without protection. This calls for the need for simple, practical, and economical technologies for the management of waste as a means of public health protection and the reduction of environmental pollution (Shahzadi et al., 2018).

Solid Waste and Health

Shahzadi et al. 2018 indicated that poor waste management is turning to a hazardous challenge for human health and survival not only in rural but also in urban areas. A hygienic environment contributes to health, that eventually enhances human productivity. In the entire world, 2.6 billion people or 39 percent of the total population of the world do not dispose of the generated waste properly. Approximately 1.1 billion people still dump their waste in open areas. It is more usual to see the practice of irresponsible solid waste disposal in rural areas which leads to several health-based diseases and issues. In one research study, it was identified that a considerable number of individuals in rural areas avoid using proper measures related to solid waste disposal. In the same way, it has been observed that these communities lack appropriate bins for handling the waste disposal process effectively.

According to Adogu et al. (2015), waste management disposed played a significant role in health living standards. Proper waste management practices followed in a community evade dangerous conditions to the surroundings and improve general living standards. A clean environment directly impacts health and quality of life. As such, awareness and education in regard to waste disposal are key at household levels.

Good knowledge of waste disposal is key in environmental protection. Absence of proper knowledge and unplanned, irregular means of disposal are the primary causes of incorrect waste management or disposal. A general lack of understanding of proper waste management poses a very serious human health risk. The major mode of waste disposal is through waste containers and dustbins, yet a lot of people do not have them in their homes,

leading to many challenges facing them. With improved knowledge about waste disposal, individuals can protect themselves against infectious diseases and keep the environment clean. People should have a positive attitude toward waste disposal, and attitudes come about as a result of knowledge. People with less awareness about the methods of waste disposal display negative attitudes that add to handling waste at home. Waste management if practised accordingly by one and all would lead to dramatic health and environmental dividends, decreasing the harms and the spread of infectious diseases. Inadequate collection of waste and poor disposal promotes the spread of pathogens and may lead to diseases such as cholera, diarrhoea and a habitat for disease-carrying vectors like mosquitoes carrying malaria, dengue fever flies that spread diarrhoea and rodents (Adogu et al., 2015).

Solid Waste and the Environment

A study by Burmamu et al. (2014) established that routine activities of human beings result in a lot of waste materials, which include papers, plastic bags, metals, and bottles. Disposal of such materials then results in physical clutter and detracts from their natural aesthetic value. For example, polythene does not easily break down whenever it falls onto the ground and is blown to every place by wind. This could block the soil and impede aeration and leakage of water therefore flooding could occur. Vivek et al. (2013) suggest that inadequate waste management in solid waste disposal significantly contributes to environmental deterioration. This leads to pollution and disease outbreaks in numerous regions globally. In cities, waste management is typically the responsibility of municipalities, but they struggle to establish an efficient and reliable system for residents in Ghana.

Urbanization is a major contributor to the increased production of solid waste. As society becomes more urbanized, there is a shift towards a modern lifestyle, heightened awareness, and the acquisition of new skills and knowledge. However, if urbanization occurs at an unsustainable rate, it becomes a significant challenge for governance, as institutions struggle to effectively manage waste. (Amuda et al., 2014).

Research Methodology

Research Design and Approach

Given the nature of the research problem and the study's objective, the researcher opted for quantitative research as the type of study. This choice was suitable because quantitative research measures attitudes, opinions, behaviours, and other predetermined variables, and is able to generalize results from a larger sample population. An important advantage of this approach is that the results are credible and dependable. Creswell (2014)

acknowledges that a descriptive survey in education involves gathering information from members of a group of students and teachers. As a design, a descriptive survey accurately depicts the characteristics of specific individuals, groups, or situations. It offers the researcher an opportunity to develop a valuable understanding of the current state of a situation. A descriptive survey provides a numeric or quantitative portrayal of a population's trends, attitudes, and opinions by examining a sample of the population. This research design was fitting for the study as it allowed the researcher to obtain factual and relevant data from respondents on issues related to solid waste disposal practices among senior high students in the Keta Municipality.

Population

The target population for this study was senior high school students in the Keta Municipality. All the senior high schools in the Keta Municipality are mixed schools. The accessible population was restricted to students from Keta Senior/Technical High School, Keta Business Senior High School, Zion College, and Afiadenyigba Senior High School in the Keta Municipality.

Sample and Sampling Techniques

In this study, a census survey was used to select the prefects from the respective schools. This afforded respondents an equal chance to participate in the survey, without bias and prejudice. Since the population of the schools varied in number, the proportionate sampling approach was used. This comprised 120 students from four (4) senior high schools in the Keta Municipality. Out of this figure (120), 35 students were selected from Keta Senior/Technical High School, 35 from Keta Business Senior High School, 25 from Zion College and 25 from Anlo- Afiadenyigba Senior High School.

Research Instrument

The researcher used structured questionnaire as the research instrument. This was made up of close-ended and open-ended questions based on the objectives of the study. The open-ended questions were used to allow the respondents to express themselves without any given limit. This ensured flexibility in responses. The above-mentioned instrument was of great benefit in providing the researcher with the needed data.

Results And Discussion

Gender of Respondents

Figure 1 shows that 62 (52%) of the respondents were males, while the remaining 58 (48%) were females. It can be concluded that the majority of the respondents used in

the study were males, and so responses were not based on females only. This was also to refute the fact that issues concerning solid waste are not only a female concern in Ghana but also a male concern.

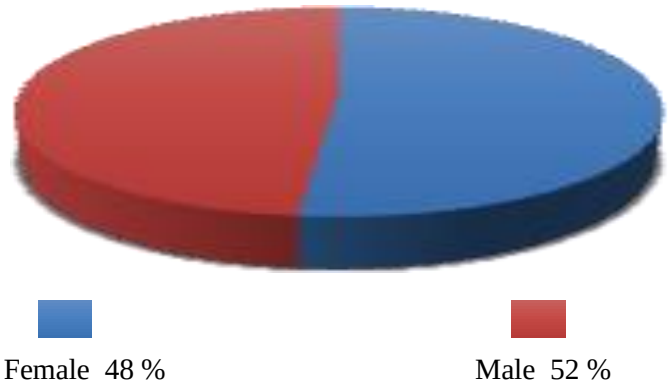

Figure 1: Gender of respondents by proportion

Table 1: Distribution of respondents by courses offered

Course	Frequency	Percent
General Science	40	33.3
Business	18	15.0
Social Science	5	4.2
General Arts	57	47.5
Total	120	100.0

Source: Field survey, 2020

Table 1 shows 40 (33.3%) of respondents are General Science students, 18 (15%) are Business students, 57 (47.5%) are General Arts students and 5 (4.2%) are Social Science students. From the courses of study of respondents, one can deduce that, it has generated coherent responses that have gone a long way to yield better findings and results. According to Ferrer (2015) as cited by Dolipas et al. (2018), when students are grouped according to certain profile variables, students‟ reduction practices are dependent on their course, year level, and academic grade; the students‟ reuse practices are dependent on their course and year level; and the students‟ recycling practices are not dependent on any of the profile variables. Students are mostly involved in matters concerning their subject of study.

Involvement in Solid Waste Management by Respondents

Table 2: Role Males Play in Solid Waste Management

Responses	A	%	B	%	C	%	D	%
Collection and Dumping at Dumpsite	14	56	0	0	0	0	0	0
Weeding	1	4	2	6	0	0	0	0
Digging and burying of waste	1	4	0	0	0	0	0	0
Sweeping	1	4	2	6	6	17	0	0
Nothing	3	12	1	3	1	2.9	0	0
Burning	4	16	7	20	0	0	11	44
Place Waste Bin at Right Places	1	4	0	0	0	0	0	0
Burning and Sweeping	0	0	2	6	2	5.7	1	4
Disposal and Burning	0	0	1	3	0	0	6	24
Disposal	0	0	0	0	23	65.7	6	24
Order Juniors to keep the Place environment clean	0	0	0	0	0	0	1	4
Sending waste to Dumpsite	0	0	19	54	0	0	0	0
Sweeping and Disposal	0	0	0	0	1	2.9	0	0
Drawing to Educate Cleanliness	0	0	0	0	1	2.9	0	0
No Response	0	0	1	3	1	2.9	0	0

Source: Field survey, 2020

Key - A= strongly agree B= agree C= disagree D= strongly disagree

Table 2 displays the role of males in solid waste management in the various schools‟ understudy. Solid waste management is not the affair of females only but males as well. In school A, 56% of the males are involved in the collection and dumping of waste at dumpsite. The males mostly carry out this activity after the females have swept the refuse and gathered them for collection. 16% of the males are also engaged in burning of waste, 4% weed the environment, 4% dig and bury waste and another 4% sweep the compound. In spite of this, 12% of the respondents alleged that males do nothing when it comes to solid waste management in the school. In school B, the roles of males in solid waste management are varied. 54% of the males are involved in disposal of solid waste, 20% are involved in burning the solid waste, 6% of the males weed the surrounding to keep it clean.

In addition, 6% sweep, 6% sweep, burn the solid waste, 3% dispose, and burn refuse. Another 3% of the respondents do nothing at all and 3% did not respond to the issue.

In school C, 65.7% of the males‟ dispose of solid waste, 17% sweep the compound and 5.7% are engaged in sweeping and burning of solid waste, 2.9% of the males sweep and dispose of solid waste and 2.9% also draw on surfaces to educate others about cleanliness. Despite these, 2.9% of the males do nothing and 2.9% did not respond to the issue. School D also made some inputs. 44% of the males‟ burn solid wastes, 24% dispose of solid waste, 24% dispose and burn waste and 4% sweep and burn solid waste. Another 4% instruct the students in the lower classes (juniors) to keep the compound clean. From the feedback from the respondents, it is seen that involvement in solid waste practices is a matter of everyone's duty.

Table 3: Roles females play in solid waste management

Responses	A	%	B	%	C	%	D	%
Sweeping	19	76	29	83	0	0	0	0
Collection and Gathering	3	12	0	0	0	0	0	0
Right Waste Management	1	4	0	0	0	0	0	0
No Role	2	8	0	0	0	0	2	8
Sweeping and Collection	0	0	0	0	19	54	20	80
Sweeping and Burning	0	0	0	0	1	3	2	8
Ordering Juniors for the Right	0	0	0	0	0	0	1	4
Sweeping and Dumping	0	0	3	9	12	34	0	0
Recycling of Sachets	0	0	0	0	1	3	0	0
Invalid Response	0	0	1	3	0	0	0	0
No Response	0	0	2	6	2	6	0	0

Source: Field survey, 2020- Key - A= strongly agree B= agree C= disagree D= strongly disagree

Table 3 displays the roles of females in solid waste management in the various schools. It is noted that females are mostly engaged in sweeping, collecting waste, and dumping waste at dumpsites. Bohlen (2003) attested that girls are often made to carry out most of the sweeping and cleaning activities; they are called upon more than their male counterparts to perform maintenance tasks at home or in schools. Therefore, females have been consistently shown to have higher environmentally conscious attitudes than men do.

Types of Solid Waste Generated in Schools

Table 4: Types of solid waste generated by males in schools

Responses	A	%	B	%	C	%	D	%
Polythene / Plastics	9	36	25	71	18	51	21	84
Food leftovers	3	12	3	9	0	0	0	0
Spoilt shoes	1	4	0	0	0	0	0	0
Grass	1	4	0	0	0	0	0	0
Invalid responses	6	24	0	0	1	3	0	0
All types of solid waste	0	0	0	0	0	0	1	4
Papers	5	20	2	6	3	9	1	4
Papers and plastic waste	0	0	0	0	5	14	2	8
Cans	0	0	1	3	1	3	0	0
Water sachet, papers & food leftovers		0	1	3	0	0	0	0
Food leftovers and plastics	0	0	0	0	3	9	0	0
Rags, spoilt shoes and bowls	0	0	1	3	0	0	0	0
No response	0	0	2	6	4	11	0	0

Source: Field survey, 2020- Key - A= strongly agree B= agree C= disagree D= strongly disagree

The table above shows the type of waste males generate in the various schools. In all the schools, plastic waste is the majority in percentage and waste papers are mainly generated. Other wastes include spoilt shoes, cans and food leftovers. Conversely, females generate solid waste, which was linked to female lifestyles. The table below shows the waste females generate in the various schools.

Table 5: Types of solid waste generated by females in schools

Responses	A	%	B	%	C	%	D	%
Plastics	9	36	21	60	18	51	21	84
Food leftovers and plastics	0	0	6	17	1	3	0	0
Plastics and papers	0	0	1	3	0	0	0	0
Papers	0	0	0	0	1	3	0	0
Tin / can	0	0	1	3	2	6	0	0
Food leftovers	3	12	2	6	1	3	3	12
Plastics, papers and food leftovers	0	0	2	6	1	3	0	0
Used sanitary pads	6	24	0	0	5	14	1	4
Invalid responses	7	28	0	0	1	3	0	0
All types of waste	0	0	0	0	3	9	0	0
No response	0	0	2	6	2	6	0	0

Source: Field survey, 2020- Key - A= strongly agree B= agree C= disagree D= strongly disagree

Table 5 shows that 9 (36%) of respondents from school A, 21 (60%) of respondents from school B, 18 (51%) of respondents from school C, and 21 (84%) of respondents from school D generate plastic waste. Next in percentage are food leftovers and used sanitary pads. It was discovered that females generate can waste in metallic form.

Effects of Poor Solid Waste Disposal

Table 6: Effects of poor solid waste disposal per school

Responses	A	%	B	%	C	%	D	%
Spread of Diseases	10	40	18	51	18	51	9	36
Air Pollution	2	8	0	0	3	9	1	4
Breeding of Mosquitoes	2	8	5	14	4	11	6	24
Environmental Pollution	3	12	6	17	6	17	4	16
Coughing (Respiratory)	3	12	0	0	0	0	3	12
Malaria and Cholera	4	16	0	0	0	0	0	0
Accidents (Cuts and Falls)	0	0	0	0	0	0	1	4
Affect Health and Learning	0	0	0	0	2	6	0	0
Flooding	0	0	2	6	0	0	0	0
Air and Water Pollution	0	0	3	9	0	0	0	0
Choke Toilets and Gutters	0	0	0	0	2	6	0	0
Invalid Answer	0	0	1	3	0	0	0	0
No Response	1	4	0	0	0	0	1	4

Source: Field survey, 2020- Key - A= strongly agree B= agree C= disagree D= strongly disagree

The table clearly shows that improper disposal of solid waste has some health, psychological, and environmental effects.

Discussion

Research conducted by Njeri (2012) revealed that the respondents, who were mainly primary school pupils, mentioned some of the waste produced in their schools including old books, used exercise books, polythene bags, leaves, shoes, and wood, among others. Paper was seen as the most waste generated. The researcher attributed it to the easy access to paper producing materials like books by the pupils. The majority of the respondents from all four schools confirmed that the effects of poor solid waste disposal practices are the spread of diseases such as malaria, cholera, typhoid, and cough. Due to open burning, the air is polluted and coughing and smoke enter the eyes of those around the site. This confirmed what has been said in previous studies (Shahzadi *et al.,* 2018; Shewasinad *et al.*, 2017; Amuda, 2014; Adogu *et al.*, 2015). Therefore, it stands to reason that inadequate collection and improper disposal of waste facilitates the multiplication of pathogens, causing diseases like cholera and diarrhoea and providing breeding sites for disease vectors like mosquitoes (malaria, dengue fever), flies and rodents.

Conclusion And Recommendations

On the involvement of students in solid waste disposal practices, much needs to be done so that males do not apportion blame on females as generators of more solid waste. However, each will be the others keeper and ensure that their safety in school is not jeopardise because of poor sanitation. Lastly, on the effects of improper solid waste disposal practices, respondents identified an unclean environment, flooding, the spread of diseases, and the breeding of mosquitoes and other rodents, among others, as evident results.

Recommendations

Based on the findings of the collected data and the conclusions drawn, the following recommendations are made:

a) There should be education on laws regarding waste management and ensuring enforcement of law by the government. There should be the formation of a student „vigilante“ group to monitor and supervise the observance of rules and

regulations on sanitation in schools within the dormitories, students' attitudes toward proper waste disposal methods and the school compound.

b) Mass media (radios, televisions, newspapers, posters, magazines) should be used to facilitate change in students' and communities' attitudes, practices, and perceptions towards waste management.
c) Teaching waste management in schools should be encouraged and developed in the school curriculum. Teachers, students and members of the wider community should be involved to suggest ideas for consideration. The Waste Management Strategy should focus on waste education and action-oriented tasks to manage waste sustainably at school.
d) The school management should package seminars and workshops to enlighten and change the psyche of students towards proper waste disposal.

Acknowledgements or Notes

We acknowledge the consent and support of the respondents and the Faculty of Education, respectively

References

Alhassan, A., & Mohammed, S. (2017). Health implications of poor solid waste management in urban schools in Ghana. *Journal of Environmental Health, 79*(2), 12-20.

Ametepe, E., & Torku, K. (2018). School-based waste management programs and student involvement: A case study from Ghana. *International Journal of Environmental Studies, 75*(3), 356-372.

Ampofo, J. A. (2020). Implications of poor waste disposal management practices on senior high schools within the Wa Municipality of Ghana. *International Journal of Applied Research in Social Sciences, 2*(3), 53-70. https://doi.org/10.51594/ijarss.v2i3.156

Amuda, O. S., Adebisi, S., Jimoda, L., & Alade, A. (2014). Challenges and possible panacea to the municipal solid wastes management in Nigeria. *Journal of Sustainable Development Studies, 6*(1), 64-70.

Anaman, K. A., & Nyadzi, W. B. (2015). Analysis of improper disposal of solid wastes in a low-income area of Accra, Ghana. *Applied Economics and Finance, 2*(1), 66-75. https://doi.org/10.11114/aef.v2i1.633

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.

Burmamu, B. R., Law, P. L., Aliyu, H. H., & Ibrahim, Y. (2014). Environmental impacts and management strategies of solid waste disposal in Jimeta-Yola, Nigeria. *International Journal of Environmental Engineering Science and Technology Research, 2*(3), 3-7.

Chen, L., & Zhang, Y. (2020). The role of environmental education in enhancing student

participation in waste disposal practices. *Environmental Education Research, 26*(7), 937-950.

Creswell, J. W. (2014). *A concise introduction to mixed methods research*. SAGE Publications.

Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology, 65*(1), 541-579.

Ifeoluwa, O. B. (2019). Harmful effects and management of indiscriminate solid waste disposal on human and its environment in Nigeria: A review. *Global Journal of Research and Review, 6*(1), 1-4.

Iyer, L. S. (2018). Knowledge, attitude, and behaviour (KAB) of student community towards electronic waste: A case study. *Indian Journal of Science and Technology, 11*(10).

Jatau, A. A. (2013). Knowledge, attitudes, and practices associated with waste management in Jos South Metropolis, Plateau State. *Mediterranean Journal of Social Sciences, 4*(5), 119.

Kiran, K., Kini, S., Santhosh, N., & Kiran, N. U. (2015). KAP study of solid waste disposal of households in Kuttar & Manjanadi Panchayath covered under Gramaskhema programme of KS Hegde Medical Academy. *Nitte University Journal of Health Science, 5*(3).

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research, 8*(3), 239-260.

Mensah, R., & Acheampong, K. (2021). Psychological effects of solid waste disposal on students in Ghanaian schools. *Journal of Environmental Psychology, 72*, 101-110.

Monney, I., Agyei, D., Ewoenam, B. S., Campoare, P., & Nyaw, S. (2014). Food hygiene and safety practices among street food vendors: An assessment of compliance, institutional and legislative framework in Ghana. *Food and Public Health, 4*(6), 306-315.

Mwanza, A. A., & Mngumi, E. B. (2020). The importance of proper waste disposal practices in schools. *Journal of Environmental Studies, 45*(4), 234-245.

Njeri, M. H. (2012). Factors influencing primary school pupils' attitudes and awareness in solid waste management in Laikipia East District, Laikipia County, Kenya. *[Master's Thesis].*

Ojo, T., & Adeola, S. (2019). Impact of school waste management practices on student academic performance in Nigeria. *Educational Research International, 2019*, 1-10.

Owusu-Ansah, P., Obiri-Yeboah, A. A., Nyantakyi, E. K., Woangbah, S. K., & Yeboah, S. I. I. K. (2022). Ghanaian inclination towards household waste segregation for sustainable waste management. *Scientific African, 17*, e01335. https://doi.org/10.1016/j.sciaf.2022.e01335

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology, 60*, 101832.

Shahzadi, A., Hussain, M., Afzal, M., & Gilani, S. A. (2018). Determination the level of knowledge, attitude, and practices regarding household waste disposal among

people in rural community of Lahore. *International Journal of Social Sciences and Management, 5*(3), 219-224. https://doi.org/10.3126/ijssm.v5i3.20614

Shewasinad, S., Daniel, T., Abebe, H., Tsegaye, N., & Abera, T. (2017). Assessment of knowledge, attitude, and practice towards solid and liquid waste management among Addis and Kometa Kebele Community, Mizan-Aman Town, Bench-Maji Zone, SNNPR, South Waste Ethiopia. *Biomedical Journal of Scientific & Technical Research, 1,* 1346-1354. https://doi.org/10.26717/bjstr.2017.01.000434

Vivek, R., Licy, C. D., Saritha, K., Anies, T. K., & Josphina, C. T. (2013). Awareness, attitude, and practice of school students towards household waste management. *Journal of Environment, 2*(6), 147-150.