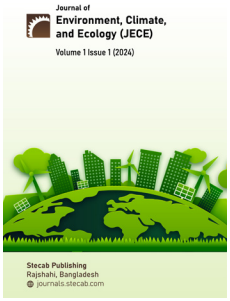

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Research Article

Evaluation of Sanitation/Hygiene Behaviours and Sanitary Conditions Among Households in Jos Metropolis, Plateau State, Nigeria

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About Article

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ABSTRACT

Access to sustainable sanitation and hygiene facilities is one of the biggest challenges faced by developing countries because of the increasing population of these regions. This study assessed the environmental sanitation and hygiene behaviours and facilities among households of Jos metropolis, Nigeria. The data used for the research were obtained through observations, field surveys and the use of questionnaire while secondary data sources included information from the internet, books and databases. The study employed random and purposive sampling techniques in the selection of sampled wards of Jos metropolis and elicited information from 383 respondents in the area. The data was analysed through the use of simple descriptive statistics like frequency tables, bar graphs and pie charts. The study revealed that sanitation and hygiene facilities like flush and pour toilets, pit latrines, sink and showers are predominant in most residential houses and majority of people take their bath once in a day because of work pressure and just very few don't take their baths at all in a day. It therefore recommends among other things that in order to improve the hygiene and the sanitary condition in the area, government and other stakeholders should intensify efforts towards ensuring the success of the monthly environmental sanitation, NGOSs and health facilities should regularly hold health education sessions for households. Also, individuals and other stakeholders should embark on construction of decent public toilets in strategic locations in the metropolis in order to discourage people from defecating in the bush or open spaces.

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1. INTRODUCTION

Adequate sanitation facilities like toilets and latrines improve health condition and enable people to dispose of their waste properly, prevent pollution of the environment and reduce risks to themselves and their neighbours. Across the world, many people lack access to sanitation facilities, resulting in poor waste management and this poses serious risks to households (CDC, n.d, Ghosh, Khan, Chakraborty, Zaman, Kabir & Tanaka, 2020). Globally, 71% of the population had access to basic sanitation services in 2020. However, only 27% of the population in Sub-Saharan Africa had access to basic sanitation services (WHO, 2021, Onwuamaeze, 2023). According to (UNICEF and WHO, 2022), only 43 per cent of Nigerian population had access to safely managed sanitation services while 33 per cent could practice hand washing within the period under review. It also stated that only 22 per cent of Nigerian population had access to safely managed drinking water while 56 per cent and 6.0 per cent had access to basic and surface water respectively. The report also showed that 19 per cent of Nigerian population practiced open defecation in 2020 while 31 per cent and 12 per cent had access to safely managed and basic sanitation respectively. The report on hygiene in 2020 showed that 33 per cent of Nigerians enjoyed basic hygiene services while 36 per cent and 30 per cent had either limited or no facility respectively.

2. LITERATURE REVIEW

In Africa, it was reported that, "208 million people still practiced open defecation in 2020" with Nigeria topping the chart with the largest number of people practicing open defecation in 2020 in spite of the massive campaigns and investments by stakeholders to end this menace (Alemu, 2017, Anon, 2017, Abonyi, 2018, Aliboh, 2018).

According to Afroz, Hossain & Rimi (2022), access to sustainable water and sanitation facilities and services is one of the greatest challenges facing households in developing countries like Nigeria. Water and sanitation services is at the heart of governance issues and many times individuals, nongovernmental organizations and even governments the world over have made several attempts at ensuring that residents are provided with adequate sanitation and hygiene facilities in their homes, institutions and public places. Change of behaviours among members of households has helped immensely in achieving the goal of tackling the water and sanitation (WSS) problem over time, therefore, will be especially useful for fighting and suppressing devastating and deadly global challenges of diseases. Some of which include : COVID-19, Athlete's Foot (tinea pedis), Body Lice, Chronic Diarrhea, Dental Caries (Tooth Decay), Head Lice, Hot Tub Rash (Pseudomonas Dermatitis/Folliculitis), Lymphatic Filariasis, Pinworms, Pubic Lice ("Crabs"), Scabies, Swimmer's Ear (otitis externa), Trachoma, Recreational Water Illnesses (RWIs), Acanthamoeba keratitis (AK) and Ringworm (Tinea).

Sustainable Development Goal 6 (SDG 6) aims to ensure access to clean water and sanitation for all by 2030 (Arora & Mishra, 2022). SDG 6 is crucial for most developing countries due to inadequacy in safe and sustainable sanitation facilities and services to their growing population, mostly in urban areas. Access to sanitation and clean water is a basic human right and an important part of sustainable development (Gleick, 1998, Ali, 2018). Jos metropolis, which has a population of more than 1 million, has made great progress recently to increase access to water and sanitation services, but much work needs to be done (Uddin et al., 2019). Water availability for sanitation and hygiene purposes is key to impacting on human health and physiology (Etim et al., 2013, Cooper, 2020) and achieving the SDG 6. According to UNICEF and WHO estimates, more than 1.1 billion people worldwide lack access to better water supplies and 2.6 billion lack access to adequate sanitation (Global Water Security and Sanitation Partnership, GWSP, 2020). The combination of population growth, land use, excessive surface and groundwater abstraction and use, and economic growth, exert serious pressure and has been a reason for the decline in water quality and quantity over the past century (Wateraid, 2020, Robinne et al., 2018). Unexpected urbanization has also resulted in extreme poverty and disparities in access to water and sanitation facilities and services in the area (Ali, 2018). This study therefore, examines the state of sanitation and hygiene facilities and services and the state of SDG6 implementation in Jos metropolis, Plateau State, Nigeria.

3. METHODOLOGY

Jos metropolis is situated between latitudes 90 54' N and 100 10' N and longitudes 80 48' E and 90 30' E. The study area comprises Jos South and Jos North local government areas with their headquarters in Bukuru and Jos respectively. The area is bounded by Barkin-Ladi and Jos East to the east, Riyom to the south and Bassa local government areas to the west (in Figure 1). It has an areal extent from north to south 104km while from east to west is about 80km on an elevation of 1,250m above sea level, with Shere Hills having the highest peak of 1,777m above sea level, and an area of 1002.19 Km2 (Mohammed, Gajere, Adigun & Folayan, 2010).

Crystalline basement rocks adjoin the area on all sides except to the southwest where it has common boundary with the cretaceous sedimentary of the lower Benue basin. The lower Niger basin area is drained by minor rivers within Jos Metropolis. This area is underlain by basement complex rocks that are composed mainly of granitic and migmatitic gneisses and granites. Both the older and younger quantities of these areas are poor aquifers.

However, over most of the area have this discontinuous mantle of weathered rocks or joint and fractured system in the unweathered basement that provide secondary reservoir, the decomposed mantle is sometimes too thin to habour large quantities of water and is usually clayey to be highly permeable (Adelana, et al 2008). The Hydrogeology of Jos or any area is influenced by geology and climate because geological formations underlying the area and the structure contained in them determine the types of aquifer to be encountered and their recharge rate, while the climate determines the amount and the rate of recharge the aquifer receives (Ariyo & Adeyemi, 2005). There is a variation in altitude across Jos metropolis, the highland part of Jos metropolis rises to an average of 1200m above sea level with the peak of about 1700m around Shere hills. The older granites form clusters of resistant cores throughout a long history and still form the hill masses of the present

landscape of the Plateau. Long years of volcanic activities have affected the geology of the area by creating hills and valleys rich in minerals such as tin, columbite, kaolin and gemstones (Ogboji, Ali, Vivan, Danjuma, Sohotden, 2015).

The drainage pattern of Jos metropolis is radial and because of altitude, many rivers take their source from the area. Jos Plateau according to Eziashi (1995) is copiously drained by streams which are largely headwater & tributaries of larger river systems. These larger river systems are the Delimi – Bunga to the North East, Lere – Gongola to the east, the Wase, Shemankar, Dep – Ankwe and Mada to the South and Southwest and the Kaduna River to Northwest. The headwater of Delimi – Bunga system takes its rise some 13km Southeast of Jos, flows through Jos and then Northeast towards Lake Chad. Its major tributary, the Tilden Fulani, rises from Shere Hills & flows through the Nile valley by joining it about 20km beyond the Plateau edge (Eziashi, 1995). Jos metropolis experiences Aw climatic type and falls within the koppens Aw climatic sub-region. Generally, weather conditions are warmer during the rainy season (April-October) and much colder during the hammattan period (December-February) (Ariyo, 2000). The mean annual temperature of the city ranges between 200 C and 260 C. These temperature ranges are due to influences of rainfall, relief and cloud cover at different periods and seasons of the year.

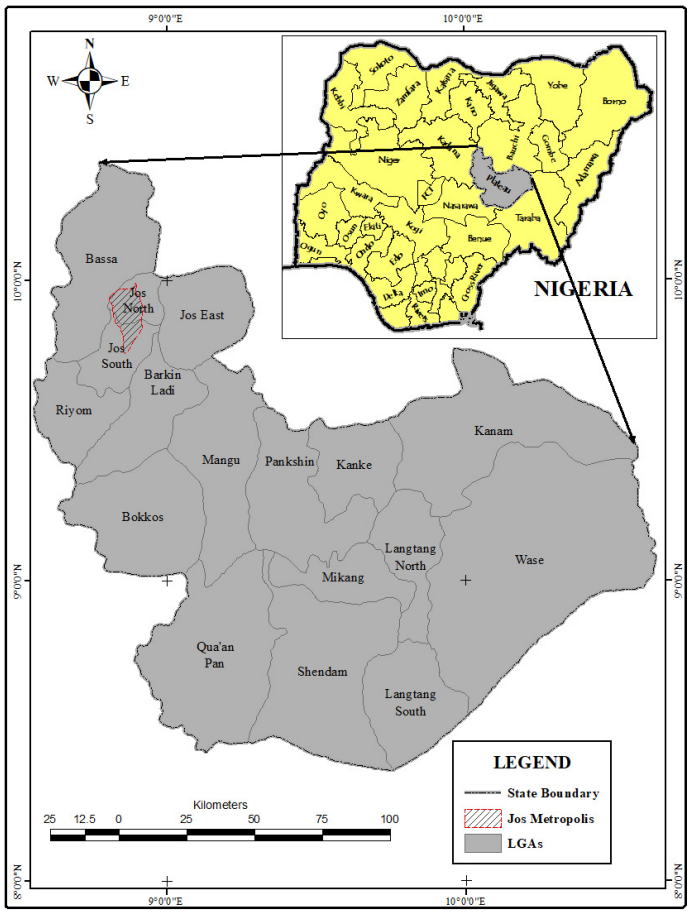

Figure 1. The Study Area, Jos Metropolis, Plateau State, Nigeria
Source: GIS Lab, Department of Geography and Planning, University of Jos, 2016

Relative humidity is lower during the dry season between November to March and is very high during the wet season with the peak values of between 81% and 84% in July and August (Bingel, 1978, Ariyo, 2000, Nyong, et al., 2003, Nyong, et al., 2008).

Precipitation on the Jos Metropolis ranges from 70cm to 100cm during the peak period. The area has wet and dry seasons. The wet season takes about 8 to 9 months between mid-March and end October, while the dry season takes about 3 to 4 months from mid-November to mid-March (Ariyo, 2000). The wet season is influenced by prevalence of the warm moist maritime south westerly monsoon winds which blow from the Atlantic Ocean south westward hinterland while the dry season is linked to the dry tropical continental north easterly winds (Hammattan) a cold dry and dusty mass blowing from the Sahara Desert (Ariyo, 2000).

Hydrology of Jos metropolis or any area is influenced mostly by climate and geology. Though, ground water is the major source of water across much of the world, particularly in rural areas in arid and semi-arid regions. Aquifers generally are replenished by effective rainfall, rivers, ponds and lakes (Compagnucci, Cunha, Hanaki, Howe, Mailu, Shiklomanov & Stakhive, n.d). Water is life and adequacy of its supply is central to civilization (Vivan, Leo, Micheal & Ali, 2014). Jos Metropolis is blessed with abundant water resources due to high rate of precipitation and favourable climate. The annual rainfall in Jos metropolis which last for 8 – 9 months varies between 70 cm to 100 cm during the peak period (Ariyo, 2000). The area is drained by Delimi, Shen /Yingi,RafinSanyi, Nupis and Agog Rivers which are dammed purposely to provide water for the teeming population of Jos metropolis. The water resources of Jos metropolis comprise of rivers, streams, mine ponds, boreholes, dams and wells which provide water for residential, industrial, recreational and agricultural purposes (Ali, 2018).

Data for this study were derived from both primary and secondary sources. The primary data were generated mainly from administration of questionnaire administration on household heads. Information obtained from the respondents bother on sanitation/hygiene behaviours, water sources, water availability, sanitary equipment used, roles of government and other stakeholders on water, sanitation and hygiene and reasons for sanitation/hygiene in the area.

This study applies a mixed methods approach in assessing the current status of SDG 6.2 implementation in Jos metropolis, Plateau State, Nigeria. Quantitative survey was conducted to assess the current status of SDG 6 implementation in the area. A structured questionnaire was developed based on SDG 6 indicators on water supply and sanitation and distributed to household heads government officials responsible for Water, Sanitation and Hygiene services drawn from Plateau State Water Board, Ministry of Water Resources, Plateau State and RUWATSAN office in Jos. The sample was selected using a multi-stage cluster sampling technique, with a target sample size of 383 household heads and other key stakeholders. This survey was conducted to gather insights on challenges and opportunities to improve SDG 6 implementation in Jos. Data collected from the field were analyzed using the simple descriptive statistical tools like frequency tables, bar graphs

and pie charts.

4. RESULTS AND DISCUSSION

SDG 6.2 targets that by the year 2030; there should be massive actions towards achievement of access to adequate and equitable sanitation and hygiene for all. This includes actions towards ending open defecation, paying serious attention to the needs of women, girls and those in vulnerable situation. Globally, 71% of the population had access to basic sanitation services in 2020. However, only 27% of the population in Sub-Saharan Africa had access to basic sanitation services (WHO, 2012, WHO, 2013, WHO, 2021).

Table 1. Sources of Water for Sanitation and Hygiene

Variables		Frequency	%		Frequency	%
Sanitation Water Source	Supply	149	38.9	Hygiene and Other Water sources	210	54.8
	well	29	7.6		33	8.6
	Bore Hole	205	53.5		140	36.6
Sanitation Water Owner	Government	144	37.6	Hygiene and Other Water Owner	185	48.3
	Own	160	41.8		181	47.3
	NGO/ Others	79	20.6		17	4.4

Source: Field Survey, 2023

People in Jos metropolis rely mainly on surface and groundwater sources for their drinking water and other uses of water. There are a large number of people who have different sources for managing drinking and other uses of water. Surface and ground water are the major source of water for agriculture and drinking in the Jos metropolis (Ali, 2018). Table 1 makes it evident that 38.9% of the respondents use public supply source for drinking purposes. The Plateau State Water Board supplies the water through a network of pipes running across the city. This method of providing water to the population is inefficient and unsustainable. Moreover, for collecting drinking water, 53.5% of the respondents stated that they have boreholes that they use to raise water from the ground. Additionally, 7.6% of the respondents overall utilized hand dug wells, which likewise rely on groundwater.

Table 2. Components of Sanitation

S/N	Variable	No	%
1	Drinking water safety	47	12.3
2	Waste water disposal	45	11.7
3	Safe disposal of human excreta	41	10.7
4	Safe disposal of animal dungs	37	9.7
5	Safe disposal of garbage	40	10.4
6	Home sanitation and cleanliness	55	14.4
7	Storm water management	31	8.1
8	All of the above	87	22.7
	Total	383	100

Source: Field Survey, 2023

Specifically, the components of sanitation bothers on drinking water safety (12.3%), wastewater disposal (11.7%), safe disposal of human excreta (10.7%), safe disposal of animal dungs (9.7%), and garbage (10.4%). There is nearly equal number of responses on what constitute the core of sanitation by the respondents in the study area. Additionally, while 14.4% of the respondents stated that home sanitation and cleanliness are major components of sanitation, only 8.1% are of the view that storm water management forms part of the components and majority of the respondents (22.7%) are in agreement that all the variables listed in Table 2 are very good components of sanitation. But in practice, most monthly exercises undertaken across the states of Nigeria emphasize mostly only on safe disposal of garbage, home sanitation and cleanliness and storm water management.

Table 3. Basic Sanitation and Hygiene Facilities in Households & Communities

S/N	Variable	No	%
1	Pit latrines/septic tanks	22	5.7
2	Wash hand basin	27	7.0
3	Flush and pour toilet	32	8.4
4	Sink	30	7.8
5	Water tap	25	6.5
6	Bath	31	8.1
7	Buckets	33	8.6
8	Garbage bins	21	5.5
9	Shower	32	7.1
10	Incinerators	13	3.4
11	Open spaces	9	2.3
12	All of the above	109	28.5
	Total	383	100

Source: Field Survey, 2023

Table 3 depicts the basic sanitation and hygiene facilities provided for use of communities and households either within or outside the dwellings and also in markets, institutional buildings, factories, school and other public places. While pit latrines (5.7%), wash hands basin (7.0%), flush and pour toilet

(8.4%), sinks (7.8%), tap (6.5%), bath (8.1%), buckets (8.6%), garbage bins (5.5%) and showers (8.1%). Still very popular and seriously in use, incinerators and open space are out of date simply due to their environmental consequences, while burning and releasing toxic gases into the atmosphere and polluting the air, open defecation at open spaces are a big source of water borne diseases like cholera and typhoid fever.

Table 4. Conditions of Sanitation and Hygiene Facilities in households

S/N	Variable	No	%
1	Perfect functional	46	12.0
2	Good and usable	43	11.2
3	Moderate and manageable	51	13.3
4	Somewhat good	62	16.2
5	Bad and dilapidated	25	6.5
6	Requires minor repairs	79	20.6
7	Require major repairs	63	16.4
8	Desires outright change	14	3.7
	Total	383	100

Source: Field Survey, 2023

Facilities once installed needs constant repairs based on the rate of usage and number of their patrons, the more the need of for repairs and change of new parts. In Table 4, 12.0% of the respondents indicated that the sanitation and hygiene facilities in their dwellings are functioning perfectly, 11.2% and 13.3% of the respondents have good, usable and moderate and manageable facilities respectively and 16.2% of them view theirs to be somewhat good. While 20.6% and 16.4% of the respondent indicated that their facilities require minor and major repairs respectively, 6.5% of the respondents said that their facilities are bad and dilapidated and only 3.7% of the respondents are of the view that theirs require outright change.

Table 5. Number of Sanitation and Hygiene Facilities within Dwellings

S/N	Variable	No	%
1	1-5	33	8.6
2	6-10	45	11.7
3	11-15	103	26.9
4	16-20	97	25.3
5	21-25	61	15.9
6	26-30	24	6.3
7	Above	30	5.2
	Total	383	100

Source: Field Survey, 2023

In the Table 5, there is required number of sanitation and hygiene facilities within the dwellings of number of households. Some of those facilities are sink, wash hand basin and bath and showers which are used on a daily basis to ensure that sanitation and personal hygiene are achieved. 8.6% of the respondents have of the facilities that range between 1-5 of all or some the facilities used by the number of households, 6-10 facilities are owned and used by 11.7% of respondents, those with 21-25 facilities are 15.9% of respondent, while 26-30 (6.3%) and above 30 (5.2%) are very few and maybe housing units with many rooms and more members of households with a room with facilities ensuite. The dwellings with 11-15 and 16-20 facilities are commonest as stated by 26.9%and 25.3% of the respondents in Table 5.

Table 6. Household Hygiene Behaviours and Activities

S/N	Variable	No	%
1	Menstrual care	22	5.7
2	Hair and Scalp care	41	10.7
3	Teeth Brushing	53	13.8
4	Nails and feet care	31	8.1
5	Frequent Bathing	33	8.6
6	Frequent Cloth Washing	29	7.6
7	Frequent Hand Washing	47	12.3
8	Food Hygiene	44	11.5
9	Clothe Pressing/Ironing	12	3.1
10	All of the Above	71	18.5
	Total	383	100

Source: Field Survey, 2023

Attitudinal and behavioural patterns (culture) and change have been recommended severally as panacea to problems of poor sanitation and hygiene among individual and households. The frequency and urgency with which the activities in Table 6.are carried out will go a long way in guaranteeing and entrancing good sanitation and hygiene in households and communities. Menstrual care (5.7%) is solely undertaken by female folks, hair care (10.7%), teeth brushing (13.8%), nails and feet care (8.1%), frequent bathing (8.6%), frequent clothe laundering (7.6%), frequent clothe pressing and irony (3.1%) and food hygiene (11.5%) are carried out by everyone in ensuring good sanitation and personal hygiene while 12 12.3% of the respondents stated that frequent hand washing should be enhanced, this behaviour, though prescribed to be helpful in fighting infections, disease became strengthen by WHO and NCDC during Ebola and Covid 19 pandemic. Majority of the respondents (18.5%) have agreed that all these behaviours and activities are good in ensuring clean environment that prevent diseases outbreaks to guarantee human health.

Table 7. Sanitation Activities in Households

S/N	Variable	No	%
1	Safe Water Management	42	11
2	Drainage cleaning	38	9.9
3	Feces Management	31	8.1
4	Solid Waste Management	40	10.4

5	Wastewater Management	25	6.5
6	Toilet Cleaning	45	12.3
7	Dish Washing	51	13.7
8	Sweeping and Mopping	30	7.8
9	General Household Cleaning	16	4.2
10	All of the Above	65	17.0
	Total	383	100

Source: Field Survey, 2023

Table 7 shows the acceptable activities to be undertaken by members of homes and entire surrounding are kept clean and free from pollutants and other encumbrances. In other to achieve this, water for drinking and other domestic uses must be managed safely (11.0%), drainage system should be kept clean to prevent vector from inhabiting the area (9.9%), feaces (8.1%), solid waste (10.4%), wastewater (6.5%) mopping (7.8%) and general house cleaning (4.2%) are key to enhancing good health, high confidence and self-esteem and high level of societal acceptance. Toilet are very important facilities for discharging feaces, urine and wastewater within the households and 12.3% of the respondents indicated that toilet cleaning is of topmost of priorities as it can easily harbour germs. The importance of provision and cleaning of toilet is projected yearly by United Nations at the World Toilet Day celebrated every 25th November.

This is consistent with a study by WHO (2012) which showed that washing hands with soap and water could reduce deaths from diarrheal disease by up to 50%. Researchers estimate that if everyone routinely washed their hands, 1 million deaths a year could be prevented. A large percentage of foodborne disease outbreaks are spread by contaminated hands. Handwashing can reduce the risk of foodborne illness and other infections. Handwashing can reduce the risk of respiratory illnesses, like colds, in the general population by 16–21%.

Table 8. Distance of Households to Sanitation and Hygiene Facilities

S/N	Variable (distance in metre)	No	%
1	1-5	213	55.6
2	6-10	104	27.2
3	11-15	33	8.6
4	16-20	11	2.9
5	21-25	9	2.3
6	26-30	7	1.8
7	Above	30	1.3
	Total	383	100

Source: Field Survey, 2023

Distance to facilities is key to volume of their patronage, the closer the distance patrons to facilities the better such facilities are put to optimal use and vice visa. Table 8 ranked the distance to facilities on a range of 5m from the facilities. For the facilities that are within buildings inhabited by households, their distance just fall within their range of 0-5m and 55.6% of the respondents stated that their distance from these facilities are very short and desirable and that eased movement and patronage of the facilities that within the distance of 6-10m, 27.2% of the respondents agreed to living within this category which is believed to facilities like shared latrines and shared bathrooms outside the dwellings. Those who live within distance range of 26-30m and over 30m (1.3%) are in the minority and this means that open defecation should have been nearly conquered in the area. This study agrees with Gaffan et al., (2022) which surveyed 14,156 households and found that 63.98% and 10.11% have access to water, basic sanitation and hygiene facilities, respectively. While, 3% of households have access to combined basic WASH services. In general, wealthier households and those headed by people aged 30 and over, women and with higher levels of education have access to basic personal WASH services and most combined and some disparities were observed in low income places of residence.

Table 9. Types of Disinfectants and Cleanser used by Households

S/N	Variable	No	%
1	Toothpaste	28	7.3
2	Ordinary Water	43	11.2
3	Alcohol Based Sanitizer	12	3.1
4	Dettol/Septol/Izal	38	9.9
5	Soap	34	8.9
6	Detergent	19	10.2
7	Bleach	13	3.4
8	Ashes	5	1.3
9	All of the Above	159	41.5
10	None of the Above	12	3.1
	Total	383	100

Source: Field Survey, 2023

Most households in the utilized at least one or a combination of disinfectants and the cleansers in Table 9, toothpaste combined with ordinary water is used in brushing teeth to maintain oral hygiene, 7.3% and 11.2% of the respondents respectively indicated that these two disinfectants and cleansers are available for their use. The use of Dettol, septol and Izal and detergents and soap as cleanser and disinfectant are very important for households cleaning as it keeps vectors and microbes away from the home. Almost equal number of the respondents 9.9%, 8.9%and 10.2% are of the view that these substances are good and effective disinfectants and cleanser. Only 3.1% of the respondents agreed that alcohol based sanitizer are important disinfectants, this substance became publicly known and popular during the outbreak of infectious disease such as Ebola and Covid 19. Ashes are the archaic method of the decontamination and cleaning and only 1.3% of respondents used this in their homes.

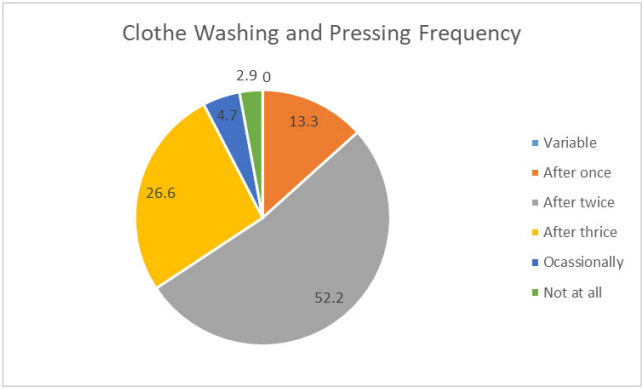

Figure 2. Clothe Washing and Pressing Frequency
Source: Field Survey, 2023

Clothes that are well kept by washing and ironing are of a great extent free from germs and all forms of infections. From Figure 2, 13.3% of the respondents indicated that they wash their clothes after using it once and 52.2% washed and iron their after repeating it usage in the second time. Those who said that they use three times before washing are 26.6% of the respondent's fortunately, only 4.7 wash and iron their clothes occasionally and 2.9% representing very negligible fraction do not wash their clothes at all. There is no cast in stone timing for frequency of cloth washing but clothes are to be washed and pressed after every use during infectious diseases outbreaks. But Hapiso (2022) is of a view that frequency of cloth wash depends on many different factors such as the weather, user activity level, the type of fabric, and the specific type of clothing. Efficient laundry benefits everyone, whether it is only person managing the clothes or part of a family of four with lots of laundry.

4.1. Frequency of Sanitation Activities and Behaviours

Good sanitation activities and behaviours among households is a sure way to maintaining a very clean environment. During every sweeping and mopping, washing of plates, toilet flushing and washing and general household cleaning and general waste management the activities constitute to be frequently undertaken to guarantee clean and safe environment for households and community members.

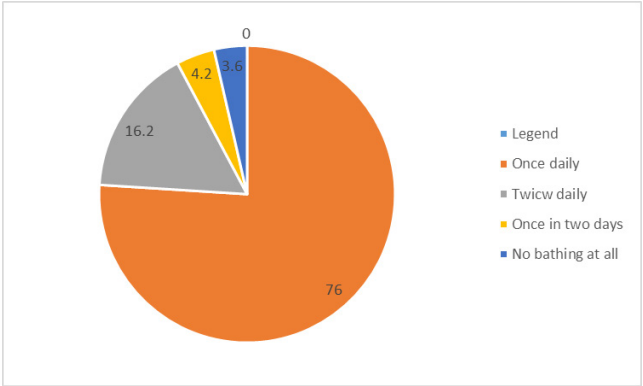

Figure 3. Frequency of Bathing by Members of Household
Source: Field Survey, 2023

Bathing or showering is the personal hygiene process which involves the use of water and soap to wash and keep the entire body clean. Majority of the respondents representing 76.0% as shown in Figure 3 stated that they take their baths once in a day. An interaction with them reveals that, while some people are lazy, some are busy and few others face water scarcity and could not afford the luxury of cleaning up more than once. 16.2% of the respondents stated that they live up to the traditional norm of taking their bath twice daily advancing reason of compulsion from spouses, being used to it and or being to it over time. The minority of respondents indicated that they take their bath once in two days (2.1%), no bathing at all (3.6%) and as occasion demands (2.1%). It is very rare in reality to find people who don't take their bath at all but those who said that occasions dictate to them may take their baths several times in a day when the weather condition becomes terrible or during disease outbreak and may not take their baths during fair weather condition. Frequent bathing according to UNICEF and World Health Organization (2022), more than 50% of healthy people have Staphylococcus aureus living in or on their nasal passages, throats, hair, or skin and within the first 15 minutes of bathing, the average person sheds 6 x 106 colony forming units (CFU) of Staphylococcus aureus and showering before entering recreational waters (such as pools) prevent the spread of germs by reducing the microbial load in the body and the environment (WHO/UNICEF JMP, 2021).

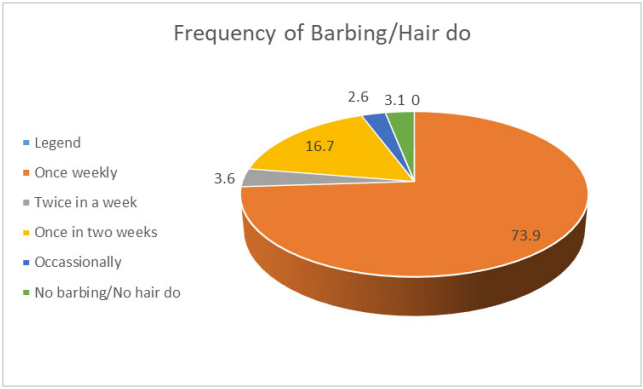

Figure 4. Respondents' Frequency of Barbing/ Hairdo
Source: Field Survey, 2023

In other to keep lice, flees, germs and other parasites from the body, the hair on the head and the pubic regions must be shaved, plaited and kept clean. Many respondents (73.9%), indicated in Figure 4 that they barb and undertake their hair do once a in week, 3.6% stated that they undertake theirs twice in a week and 16.7% do theirs once in two weeks, only 2.6% and 3.1% sated that theirs are undertaken occasionally and none at all.

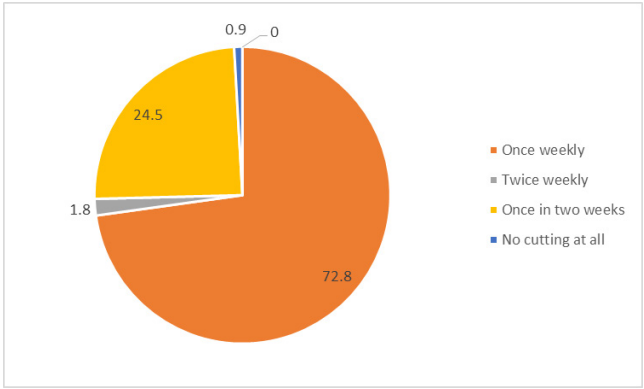

Figure 5. Frequency of Nail/feet cutting
Source: Field Survey, 2023

In Figure 5, 72.8% of the respondents stated that they cut their nails once weekly and 1.8% said that their own is undertaken two times a week, 24.5% on the other hand affirmed that they trim their nails once in two weeks and 0.9% do not cut nail at all.

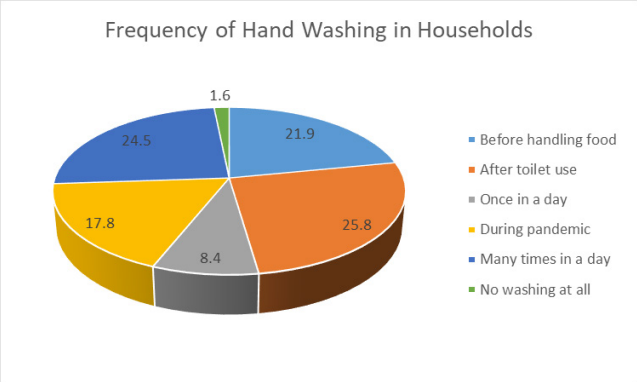

Figure 6. Respondents' Frequency of Hand Washing in Households

Source: Field Survey, 2023

Hand washing is very essential in the suppression and prevention of many infectious diseases. There is nearly equal agreement among the respondents on hand washing before food handling (21.9%), after toilet use (25.8%), and during diseases outbreaks (17.8%) and those of many times a day (24.8%). With only 8.4% and 1.6% of the respondents washing their hands once in a day and no washing of hands at all it is evident that the consciousness of deliberate hand washing by members of households have been firmly entrenched in the people's culture and serious efforts should be put in place to sustain same. This agrees partially with Wateraid (2020) which found that as of 2020, 2.3 billion people lacked basic hygiene services (handwashing facility with soap and water), and 1.6 billion people had access to handwashing facilities that lacked water or soap. Worldwide, 70% of people used basic hygiene services in 2020.

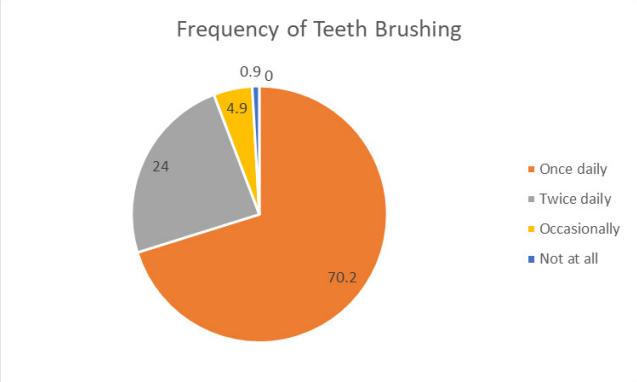

Figure 7. Respondents' Frequency on Teeth Brushing

Source: Field Survey, 2023

Oral hygiene is another key area that is not enough given attention from multidisciplinary stakeholders as it left mostly to the medical personnel. Over 70% of the respondents in Figure 7 indicated that they brush their teeth twice daily in line with WHO standards. Only 4.9% stated that they occasionally brush their teeth and 0.9%indicated that they don't brush their teeth properly due to high cost of toothpaste. Majority response of 70% agrees with Zhou (2023) which advised that brushing teeth twice a day with fluoride toothpaste for at least two minutes each time helps in taking food and plaque off human teeth and prevent plaque, a bacteria infested, sticky white film that forms on teeth from attacking tooth enamel and causing dental caries.

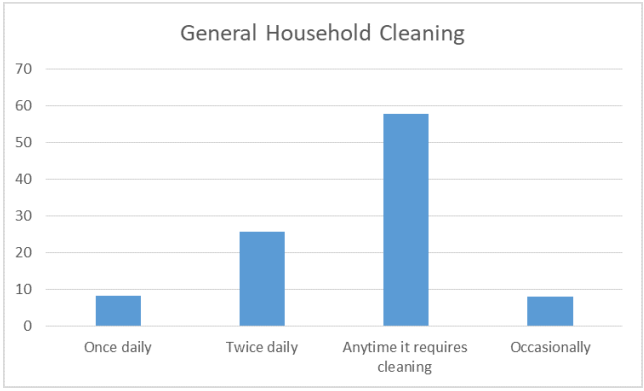

Figure 8. General Household Cleaning

Source: Field Survey, 2023

This is undertaken to keep the home surrounding clean and free from dirt. As shown in Figure 8, 8.3% and 8.1% of the respondents indicated that they undertake their general home cleaning once daily and occasionally respectively but 25.8% of the respondents stated that they embark on general home cleaning two times in a day, 57.7% of the respondents correctly embark on cleaning any time the need arises to do, this is so important that, one does have to wait or depends on routine to clean the environment.

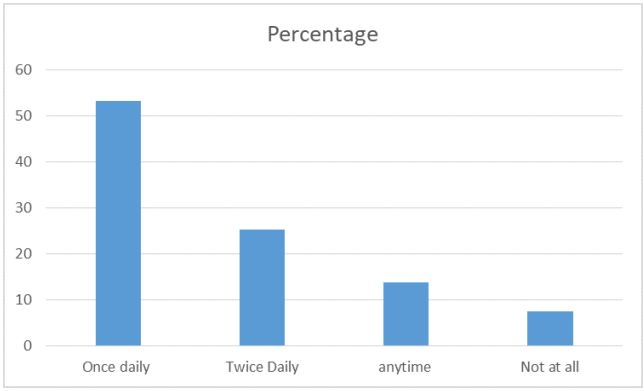

Figure 9. Frequency of Sweeping and Mopping

Source: Field Survey, 2023

Figure 9 shows the rate at which members of households in the area sweep and mop their immediate surrounding like the living room, kitchen, toilet, and other parts of the house 53.3% of the respondents said they undertake this task once daily and 25.3%said they carry out this assignment twice daily and 13.8% and 7.6% show nonchalant attitude towards keeping their surrounding clean through this process.

Figure 10 depicts the number of times respondents wash their dishes and fortunately, only 3.1% of the respondents indicated that they do wash their plates occasionally, while 23.8 wash their dishes once in a day, 23.0% do this twice daily and the majority 50.7% do so any time after use. This shows that many of the residents are seriously aware of the advantages and

usefulness of keeping the environment clean and its health and social benefits. Washing of plates (dishes) after use keep fleas and flies away from food, water and entire surrounding. Majority of the respondents (50.1%) indicated that they wash their plates twice in a day use figure... from observations, it true for those who in the public service and it may also follow that 24.8% of the respondents who does same for once in a day. But the usual practice is to wash plates any time after use based on assentation of 21.7% of the respondents. The 1.8% of respondents who don't wash plates at all may at all times live with flies, fleas and parasites.

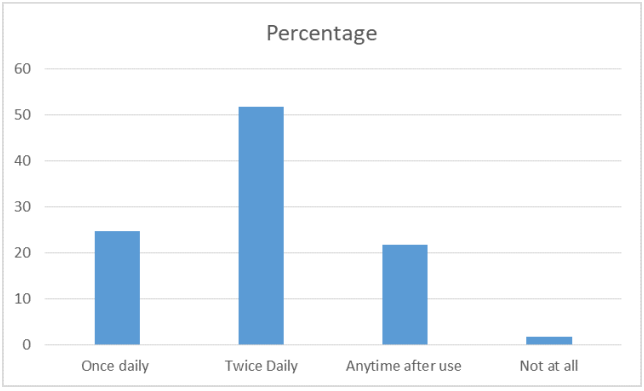

Figure 10. Respondents' Plate Washing Frequency
Source: Field Survey, 2023

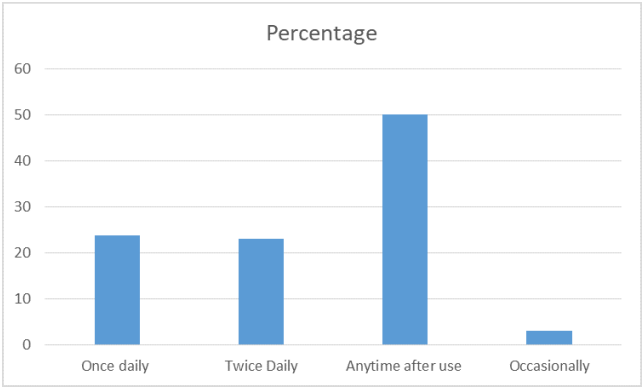

Figure 11. Toilet Flushing and Washing Frequency
Source: Field Survey, 2023

Figure 11 shows respondents' views on toilet cleaning and washing. Toilet discharge excreta, urine and wastewater into the septic tanks and good maintenance of toilet also show how hygienic a household and community is. The ideal number of time to keep toilet clean is to do so immediately after use as indicated by 50.1% of the respondent. It is also unhygienic to use the toilet without flushing and washing until morning or evening as viewed by 23.8%, 23.0% and 3.1% of our respondents who see this exercise as a routine. According to Wu et al (2019), while 98.3% of the participants reported that they flushed after using the toilet, 43.9% of them did not flush with the toilet lid closed. Wu et al (2019) also found that slightly more than two thirds had adequate hand hygiene habits that always washed hands with soap and dried hands with paper towels after washing. The majority reported hand hygiene behaviours, such as always cleaning the toilet seat with tissue paper (48.1%) or alcohol (22.5%), washing hands with soap (68.7%) and drying hands with paper towels (68.4%). Nearly half (45.6%) of them did not sit on the public toilet seat but 16.2% reported stepping on it.

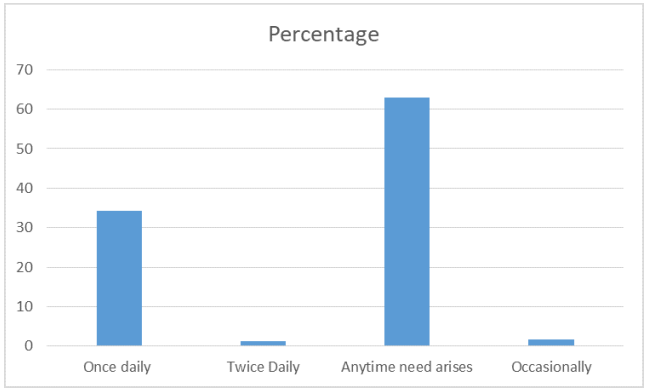

Figure 12. Other Waste Management Activities
Source: Field Survey, 2023

Other waste management activities include but are not limited to storm water management, management of sewage and refuge. In managing these waste 34.2% of the respondents in Figure 12 indicated that they embark on this task daily and 62.9% said that this undertaken anytime the need arises to prevent out break od diseases and only 1.6% does so occasionally.

Table 10. Effects of Poor Sanitation and Hygiene Facilities, Conditions and Behaviours

S/N	Variable	No	%
1	Dirty Clumsy Surrounding	33	8.6
2	Diseases Outbreak	30	7.8
3	Deaths	35	9.1
4	High Health Care Burden	41	10.7
5	Low Social and Professional acceptance	29	7.6
6	Loss Confidence and Self Esteem	32	8.4
7	Water Contamination	43	11.2
8	Poor Public Perception	11	2.9
9	Bad Odor's/ Air Pollution	28	7.3
10	Land Pollution	34	8.9
11	All of the Above	67	17.5
	Total	383	100

Source: Field Survey, 2023

Table 10 lists the respondents view on the effects of poor sanitation and hygiene facilities, conditions and behaviours on household and communities in the study area. Poor conditions of facilities and behaviours of members of households exert regressive impact on the environment it results to dirty and clumsy surrounding (8.6%) diseases outbreak, (7.8%) and ultimately death as pointed out by respondents in the area.
This place high healthcare burden on households and government as heavy amount of money would be needed to cope with diseases outbreak, 10.7% of the respondents indicated that money meant for development purpose would be diverted

to treat people with ailments associated with poor sanitation and hygiene habits. Socially also, poor sanitation and hygiene condition result to low and professional acceptance (7.6%), loss of confidence and self-esteem (8.4%) and the least number of respondents are also of the view that this leads to poor public perception of the individuals, households and the communities.

5. CONCLUSION

The study concluded that lack of basic hygiene can lead to an unhealthy environment polluted by human waste and that without adequate sanitation, waste from infected persons and environment can contaminate the community's soil and water, increasing the risk of infecting others. Good personal hygiene is essential in preventing infection. Dirty toilets are known to be a source of bacteria and viruses. Proper waste disposal slows down the infection cycle of many pathogens. Unkempt environment contributes to the spread of many diseases/ conditions that can cause widespread morbidity and mortality. Without adequate sanitation, people often have no choice but to live in and drink water from environments contaminated with the waste of infected people, putting themselves at risk of future infections. . Improper waste disposal leads to infection cycles of many bacteria and other germs that can be spread through contaminated soil, food, water and insects such as flies.

RECOMMENDATIONS

To guarantee that sufficient and equitable sanitation services are available to all residents, the State government and the Local Authorities can develop and implement sanitation infrastructure, such as public restrooms, private toilets, and sewage systems. By keeping an eye on sanitation quality and putting in place the proper treatment procedures to get rid of contaminants, they can also make sure that sanitation facilities are secure and of high quality. The government can give low-income households, slum areas, and informal settlements a higher priority when it comes to providing sanitation services. Through community involvement, behaviour changes communication, and public education campaigns, they can also encourage good hygiene practices. Promoting handwashing, managing menstrual hygiene, and safely disposing of solid waste, the use of an alcohol-based hand sanitizer in school classrooms will reduce diseases outbreaks and absenteeism due to infections.

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