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Presented by

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**EFFECTIVENESS OF THE SANITATION AND HYGIENE POLICY LINKS IN
KAKAMEGA COUNTY, KENYA**

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DEDICATION

This work is dedicated to my husband Ronnie Brian, my father Jotham Wefwila and my mother Ruth Wefwila for being my source of motivation and support.

DECLARATION

I hereby do declare that this project is the result of my own independent research and that no external assistance whatsoever was received from unauthorized persons apart from my supervisor. Other people's ideas, thoughts and words have been appropriately referred to. This work has not been presented anywhere for grant of any degree.

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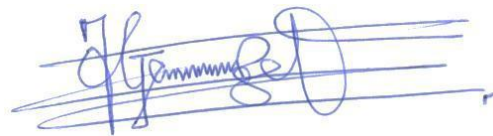
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ABBREVIATIONS AND ACRONYMS

APHRC- Africa Population Health Research Center

CBO- Community Based Organization

CHVs- Community Health Volunteers

CSOs- Civil Society Organizations

DWAF- Department of Water Affairs and Forestry

GLAAS- Global Analysis and Assessment of Sanitation

KCIDP- Kakamega County Integrated Development Plan

KESHP- Kenya Environmental Sanitation and Hygiene Policy

KESSF- Kenya Environmental Sanitation and Hygiene Strategic Framework

NGO- Non Governmental Organization

ODF- Open Defecation Free

PHO- Public Health Officer

SDGs- Sustainable Development Goals

SPSS- Statistical Packages for Social Sciences

UNICEF- United Nations Children's Fund

WASH- Water Sanitation and Hygiene

WHO- World Health Organization

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ABSTRACT

Sanitation is one of the major issues confronting humanity today. Many households within the developing world are exceptionally a long way from accomplishing adequate degrees of sanitation and hygiene notwithstanding the policies put in place. The majority of the sanitation facilities in the developing nations are inadequate and unimproved. The broad objective of the study was to assess the effectiveness of sanitation and hygiene policies through the provision of essential and fundamental services like sanitation and hygiene in Kakamega County. This study was done in an informal and rural setting of Lurambi Sub-County, Kakamega County. The study adopted a descriptive cross-sectional study design whereby 156 households were selected by simple random sampling in Lurambi Sub County. Six officers in the WASH sector were purposively sampled for the interviews. Study tools that were used included structured questionnaires, Key Informant Interview schedules and observation checklist. Management of the collected data was done using the IBM Statistical Packages for Social Sciences (version 25). Data analysis was done using descriptive statistics including the cross tabulation and frequencies were used. The study results demonstrated that the level of knowledge and awareness among the community members on the sanitation and hygiene policies was poor; the sanitation and hygiene facilities were unkempt, unmaintained and inadequate in more than 70% of the households. This demonstrated that little investment had been made in proper sanitation and hygiene facilities. The predominance of WASH related-diseases like diarrhea among the community members was attributed to the inaccessibility to safe water for drinking, and poor sanitary and hygiene conditions. I concluded that the sanitation and hygiene policy links in Kakamega are least known by both the residents of the study area and the actors which has contributed to poor sanitation and hygiene behaviors that has contributed to the high prevalence of the water-related diseases in the region. The study revealed that everyone has a role to play in ensuring proper implementation of sanitation and hygiene policies and also holds the government responsible to the people because it is for the people. There is need for cooperation amongst all stakeholders including national and county governments as well as development partners in order to achieve the objectives of efficient and effective service delivery and good governance in the Sanitation and hygiene sector. All actors should play their role to increase the level of compliance to the set policy and reduce the risks associated with poor sanitation and hygiene.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND INFORMATION

The World Population Data Sheet of 2020 demonstrates that the global total populace is projected to increase from 7.8 billion in 2020 to 9.9 billion by 2050. This level represents an increase of more than 25% from 2020, 3.6 billion individuals still do not have properly managed sanitation (IISD). Human development depends on strategies and policies with time bound objectives at all levels. In 2015 the United Nations General Assembly put out 17 Sustainable Development Goals (SDGs) to assist with making a Better Fairer World by 2030 and be a "blueprint to accomplish a superior and more supportable future for all". The SDG number 6 specifically, sets the objectives of accomplishing; general and evenhanded admittance to protected and reasonable water for all, admittance to sufficient and equitable sanitation and proper hygiene for all just as end disposal of human faeces in open spaces. The projected access to safe water and sanitation (SDG 6) would contribute to improved health by annihilation of the water-borne infections, for example, cholera and diarrhea that influence most youngsters under age of 5 and furthermore eradicate poverty. Expanded admittance to safe water and sanitation is anticipated to reduce death rates of the poor in the low income countries.

Without expanded sanitation – a facility that securely isolates human waste from human contact individuals must choose the option to utilize insufficient communal pit toilets or to practice open poop. For women and young ladies, finding a spot to go to the latrine outside; regularly delaying until the front of obscurity, can leave them powerless against misuse and rape. In certain regions of the planet, there is next to zero consciousness of good sanitation and hygiene practices and their role in decreasing the spread of illness. Notwithstanding, it is generally the situation that in any event, when individuals do know about good hygiene behavior, they lack soap, safe water and washing facilities they need to make positive changes to secure themselves and their local community (UNICEF/WHO, 2021).

Accessibility to safe water and sanitation is a precursor for progress in health, education, nutrition decent Work and Economic growth and development of a country, meaning that without access to proper sanitation and hygiene the realization of both the 2030 and 2063 agenda remains an elusive dream. Water will be an instrument of bringing prosperity as it is directly connected to the 17 SDGs.

Around 2.4 billion individuals utilize an unimproved sanitation facility internationally; with sub-Saharan Africa representing 695 million (28.96%) of the populace (Odafivwotu Ohwo, 2018). In like manner, of the 638 million individuals sharing sanitation (of a generally further developed sort), the area represented 194 million individuals (30.41%). What's more, 23% of the populace in Sub-Saharan Africa actually practice open poo against the worldwide normal of 13% in 2015 (UNICEF and WHO, 2015). Worldwide, 82% of the metropolitan populace and 51% of the rural populace utilize further developed sanitation facilities, while 70% of the populace (7 out of 10 individuals) without further developed sanitation facilities and 90% (9 out of 10 individuals) actually rehearsing open poop live in country regions (WHO, 2015).

Kenya has made significant milestones in improving WASH sector through enactment of sanitation and hygiene policies. The Kenya Vision 2030 has a goal of ensuring a universal access to safe water and improved sanitation services to all by 2030. The vision is also captured in the Kenya Environmental Sanitation and Hygiene Policy (KESHP) 2016–2030, whose main objective is to ensure 100% access to improved sanitation services by 2030. The constitution of Kenya 2010 in Article 43(1) recognizes access to safe water and sanitation services in adequate quantities as a basic right to every Kenyan.

The enactment of this sanitation and hygiene policies illustrate the government's commitment to improving lives of the people as a whole. This was done to empower various partners to execute sanitation and hygiene intercessions dependent on clear cut guidelines and rules as specified in the policy documents. It was likewise pointed toward working on the quality and adequacy of health and wellbeing intervention programs in the networks as expressed in the Kenya Environmental Sanitation and Hygiene Strategic Framework.

Due to increasing urbanization and population, providing adequate sanitation and hygiene in informal settlements is increasingly becoming a challenge.

According to the 2019 Kenya National population census Kakamega County has a population of 1,861,332. Despite county having a clear policy and advocacy plan to gain support for sanitation the county faces serious challenges with regards to sanitation and hygiene more so with the rapid population increase. The inhabitants of this area are hence in critical need of satisfactory sanitation and hygiene facilities that put in question the effectiveness of the policies governing the WASH sector. It is against this background that this study was undertaken to understand the effectiveness of sanitation policies in the study area.

1.2 STATEMENT OF THE PROBLEM

Kenya still experiences inadequate improved sanitation and hygiene services despite the government continually embracing policies and different approaches over the course of the years to battle the current sanitation and hygiene challenges. The devolution of WaSH services through the constitution were aimed at improving the Water and Sanitation services delivery to all Kenyans both at national and county level. However, the delivery of the sanitation and hygiene services has faced major challenges over the years. The availability of these services is taken as a luxury rather than a basic right to most Kenyans.

In the past 8 years Kakamega County has been receiving funds to cater for various development programs in which one of them is development of the Sanitation sector. This thus should enhance the expansion of water and sanitation admittance to larger part of Kakamega inhabitants. Notwithstanding, the fact of the matter is a long way from the goals and qualifications of numerous Kakamega occupants based on the fact that there is still inadequate access to this basic right among most of the residents particularly those in rural and uncontrolled settings.

This continuous struggle to access reliable, equitable and sustainable safe WaSH services raises gaps on the effectiveness of the various sanitation policy links in facilitating the WaSH access to the residents of Kakamega. This thus explains why policy management is principal to the effective and proper implementation of the policy links for the provision of sanitation and hygiene. The problem of inadequate provision of WaSH services is mostly felt in the informal uncontrolled settlements and in the rural households where there is inadequate access to sanitation and hygiene facilities more so with the increased population. This study therefore aimed at determining the effectiveness of Kenya Sanitation policy links in delivering sanitation services in Kakamega County.

1.3 OBJECTIVES OF THE STUDY

1.3.1 THE PURPOSE OF THE STUDY

Assessing the effectiveness of sanitation and hygiene policy links in Lurambi, Kakamega County, Kenya

1.3.2 SPECIFIC OBJECTIVES

1. To assess the existing sanitation and hygiene policies in Kakamega County
2. To assess the level of knowledge and awareness of Kakamega residents on sanitation and hygiene Policies and Practices.
3. To evaluate the household access to sanitation and hygiene facilities in the study region
4. To establish the linkage between poor sanitation and the prevalence of waterborne diseases in the study region.

1.3.3 RESEARCH QUESTIONS

1. What are the existing sanitation and hygiene policies in Kakamega County, their implementation and the existing gaps in the sanitation sector?
2. What is the level of knowledge and awareness of Lurambi residents (Kakamega County) on sanitation and hygiene Policies and Practices?
3. How accessible are the sanitation and hygiene facilities in the study area?
4. What is the linkage between sanitation and the prevalence of waterborne diseases in the study area?

1.4 JUSTIFICATION OF THE STUDY

Access to sanitation and hygiene has been an issue of concern. The need for a healthy and productive community among the people of Lurambi Sub County is the major driving force behind this project.

A healthy society with adequate access to proper sanitation and hygiene is needed for us to accomplish the recently adopted United Nations Sustainable Development Goals that targets guaranteeing healthy lives and wellbeing for all and goal number six which is geared towards accomplishing accessibility and sustainable administration of water and sanitation for all. The study is likewise in accordance with the Kenya Vision 2030 which has an objective of guaranteeing widespread access to safe water and improved sanitation services to all by 2030.

The vision is also captured in the Kenya Environmental Sanitation and Hygiene Policy (KESHP) 2016–2030, whose principle objective is to ensure 100% access to improved sanitation services by 2030. This study sought to create a system to give legitimate attention to the sanitation and hygiene policies to the residents of Lurambi Sub County on enhancing sustainable and proper sanitation and personal hygiene and come up with adequate solutions to enhance adequate access to sanitation and hygiene in the study region.

The study likewise was able to fill in as a kind of perspective material to different analysts who might want to do a comparative investigations. The implementation of this study indicated a gap that should be curbed within this community and the country as a whole. This project was a stepping stone towards having a healthy and responsible community with knowledge and awareness on importance of proper sanitation and hygiene, energetic to contribute towards growth and development of the community. This way the study contributed positively towards meeting SDGs on accomplishing access to adequate and equitable sanitation and hygiene for all and end open poop, and also improve health and poverty well-being.

1.5 SCOPE OF THE STUDY

The study deals with assessing the effectiveness of the sanitation and hygiene policy links in Lurambi, Kakamega County, Kenya. The study was confined in Lurambi Sub County. The study was concerned with institution involved in the WASH sector within Lurambi. Among areas studied include; Existing sanitation policy links within the area, the level of knowledge and awareness of the sanitation policy links within Lurambi residents, sanitation and hygiene status of the residents of Lurambi, relationship between poor sanitation and hygiene practices and predominance of the

WASH related illnesses in the region and the study likewise gives ideas, strategies and suggestions for improvement. This study was carried out between January and November 2021.

LIMITATIONS OF STUDY

- Language barrier from the respondents this constraint was relieved by utilization of locally educated persons to decipher what the local respondents were saying
- Lockdown restrictions in the locale due to Covid-19
- Bad terrain, dispersed homesteads and poor network, which implies that movement was a challenge since I had to travel long distances more so in Butso East and South administrative wards. The researcher thusly made courses of action for appropriate, adaptable means to facilitate the movement and reduce the time taken during data collection.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Existing sanitation and Hygiene Policies in Kakamega, County

According to Kenya's GLAAS 2018/2019 nation overview reaction; "devolution of administrations to the areas with particular capacities and assets" is an example of an effective policy measure (GLAAS, 2018). The adoption of a new constitution in 2010, which created the devolved governance system, changed the sanitation and hygiene sector in Kenya. With this change of power, new laws, policies and plans were needed to match the new governing structure. The Kenya Environmental Sanitation and Hygiene Strategic Framework (KESSF) notes, "...with sanitation made a guaranteed human right and its services having been devolved to 47 County Governments, a practical change in the procedure and way to deal with sanitation and hygiene service conveyance should critically be addressed to speed up progress," (GoK, 2016). A new water law, the Water Act 2016, brings the water and sanitation sector in line with the constitution, the Ministry of Health has adopted an environmental sanitation policy and framework, and the Ministry of Water and Sanitation is currently developing a new policy. However, more work remains to be done.

The KESSF notes, "In spite of the prerequisite of a solid and powerful legal system to bring the constitutional arrangements on the right to sanitation and a clean and healthy environment and devolution of sanitation services to all the 47 counties into full effect, the current legal and regulatory environment for sanitation remains fragmented with sanitation related laws dispersed in different lawful instruments - the vast majority of which are simply auxiliary to sanitation.

The 2010 Constitution of Kenya perceives the right to sanitation in Article 43(1) (c), which expresses, "Each individual has the right to accessible and sufficient housing and to sensible guidelines of sanitation," (GoK, 2010). Reverting force for service conveyance to the region states denotes a significant change for the sanitation sector in Kenya. The Kenya Environmental Sanitation and Hygiene Strategic Framework (KESSF) notes, "The Constitution of Kenya, 2010 forecasts a major paradigm shift and fundamental change in the environment for sanitation sector governance and service delivery," (GoK, 2016).

Kenya Vision 2030, which is "the drawn out development plan for the country," for 2008–2030, includes sanitation in a number of instances (GoK, 2007) Sanitation facilities are incorporated as

framework that is an establishment for Kenya Vision 2030. Furthermore, water and sanitation are the third of seven critical social areas for putting resources on the people of Kenya. Having a set up vision of widespread access lines up with the SDG rule of abandoning nobody.

The MoH's Kenya Environmental Sanitation and Hygiene Strategic Framework, 2016–2030 (KESSF) is an arrangement relating to the KESHP and gives the structure to its execution. By practically lining up with the KESHP, the KESSF addresses both metropolitan and rural areas as well as institutional WASH.

The two documents have similar language as well as lined up with a similar vision, mission and objective. The KESSF “passes on essential interventions vital for accomplishing open poop free Kenya by 2030 just as all inclusive access to further developed sanitation and a clean and healthy environment for all by 2030,” (GoK, 2016). For rural and metropolitan areas, the plan centers around further developed sanitation that is manageable just as it addresses WaSH in schools and other public places. Targets in the KESSF included: “To increase access to improved rural sanitation facilities by at least half and declare 100% of villages Open Defecation Free by 2030,” and “To increase access to improved metropolitan sanitation facilities by essentially half and proclaim 100% peri-metropolitan and casual settlements ODF by 2030”. To achieve the objectives in rural regions the following activities are undertaken: “Facilitate reception of Total Sanitation Model for communities of populace of under 5,000, initiate and guarantee latrines construction and appropriate use (minimal expense choice, adequately utilized and kept clean), initiate programs for inspiration, technical advice and negligible sponsorship (through supply of materials just to penniless gatherings locally) for the development of ventilated pit restrooms and safe removal of wastewater”. For metropolitan and peri-metropolitan regions, the proposed exercises to arrive at the objectives include: build enabling legal and regulatory environment for metropolitan sanitation, promote minimal expense proper innovations like twin pit or eco-sanitation in peri-metropolitan and ghetto regions and in other little to medium measured metropolitan communities, build safe appropriation choices for the center metropolitan poor, provide and guarantee that quality sanitation innovation choices in metropolitan regions, including flush lavatories or potentially pour flush restrooms in homes (or secretly shared) are connected to an underground sewage system terminating in a sewage treatment facility and facilitate families in metropolitan regions to possess and have access to safe sanitary facilities that use suitable and affordable water transport systems (essentially pour-flush latrine).

2.2 The level of knowledge and awareness of the residents on policy instruments relevant to sanitation and hygiene

Policies and lawful systems are a portion of the instruments that Governments use as mediations in advancing sanitation management and ecological sustainability. To effectively accomplish sustainable behavior change it is important to understand how individuals value and perceive ecological change. It is for this reason that practices and knowledge assessment is especially valuable for this research. Knowledge and practice research approaches are utilized to understand what individuals know, believe and do in relation to specific themes (Montgomery & Elimelech, 2007) (Safo-Adu & Hanson, 2019). Knowledge, attitudes, and practices (KAP) related with WASH are of appropriate concern towards sustainable and effective implementation and execution of WASH programs in communities (USAID, 2011)

A study conducted by Aswathy (2015) in Nellanadu Panchayath in Trivandrum district in India regarding environmental sanitation and hygiene among the general populace, showed that majority of the people (57 %) had average knowledge, and 49 % had both fair and good standard of practice regarding sanitation and hygiene (Aswathy, 2015). Knowledge and awareness regarding WASH are contributing factors to waterborne disease prevalence in communities; poor WASH knowledge prompts unhygienic practices and poor attitudes which contaminate water and spread illness (Yusuf A. S., 2014). Such deficient WASH knowledge prompts wrong perception of quality of water resulting in huge reliance on surface waters for drinking, open poo practices being seen ordinary and commonly practiced. Also, a study carried out by Malik and Mohd (2017) on sanitation and hygiene information, attitude and practices in metropolitan setting of Bangalore in India revealed that sanitation and hygiene practices are vigorously affected by individuals' information towards it (Mohd & Malik, 2017).

Kenya has authorized laws and guidelines that administer general well-being (in which sanitation and hygiene is a piece of) among its citizens. It is important to note that if guidelines are operationalized they assume a critical part in giving and keeping an ideal wellbeing for everybody. Some of the regulations include the Kenya Environmental Sanitation and Hygiene Policy (KESHP 2016-2030), Kenya Environmental Sanitation and Hygiene Strategic Framework (KESSF 2016-2030), National Health Policy Framework (2012-2030) County Environmental and Sanitation Bill (2016), The Kenya Vision 2030 and The Constitution of Kenya 2010. While the knowledge about

policy guidelines and laws that guide sanitation and hygiene often helps in reducing the burden and discrepancies in implementation gap, it likewise helps in guaranteeing the ideal utilization of safe water and sanitation facilities and also on good hygiene practices.

Information on water, sanitation and hygiene should, therefore, be provided to people both in urban areas and from rural communities to advance the right hygiene practices and these communities ought to be educated on the transmission risk and the causes of waterborne diseases (Banda et al., 2006). Information about hygiene behavior provided through home visits, health education classes, awareness campaigns or hygiene promotion programs has been demonstrated to be a powerful instrument (Freeman et al., 2007)). Nonetheless, a review on populace's information and hygiene practices conducted in rural communities indicated that they lacked knowledge on safe disposal of fecal matter in the households (Banda et al., 2006)

2.3 Household access to sanitation and hygiene facilities

Great advancement has been made towards splitting the number of individuals without access to quality water and sanitation all through the world. In any case, it was assessed that all around the world, billions individuals would still lack access to safe water, sanitation and hygiene in 2030 unless progress quadruples (WHO/UNICEF, 2021) Latest estimates uncovers that 3 in 10 people globally could not wash their hands with soap and water at home during the COVID-19 pandemic (UNICEF/WHO/JMP, 2021). As indicated by the UN World Water Development Report 2020, 2.2 billion individuals right now don't have access safe drinking water, around 4.2 billion (55%), of the total populace, are without safely managed sanitation and 3 billion lacked basic hand washing services. The report clarifies that, assuming the current trends persist, billions of youngsters and families will be left without critical, life-saving WASH services, expressing that by 2030: only 67 per cent will have safe sanitation services, leaving 2.8 billion without and only 78 per cent will have basic hand washing facilities, leaving 1.9 billion without. Eight out of 10 people without basic water services lived in rural areas. Meanwhile, safely managed sanitation services reached 62 per cent of the world's urban population, but only 44 per cent of its rural populace (UN-WATER, 2020). Access to safe water, sanitation, and hygiene (WASH) facilities is viewed as an essential human need for survival and well-being without these fundamental requirements, the health conditions of millions of people particularly children are at risk (Mustapha, 2020).

The World Health Organization (WHO) specifies that improved sanitation facilities should hygienically separate human excreta from human contact. Globally, the use of improved sanitation facilities increased from 28% in 2000 to 45% in 2017. Notwithstanding the advancement that has been made worldwide, 4.5 billion people still have no access to improved sanitation facilities. Of these, 2.3 billion have no access to basic sanitation facilities and 892 million practice open poo. The availability of hand-washing facilities has also increased to 60% globally, but it is still a challenge, particularly in sub-Saharan Africa where just 25% of the populace has access to hand-washing facilities, with one in four people able to access facilities with water and soap. (SSemugambo et al., 2020)

Moreover, other than the absence of adequate sanitation facilities particularly toilets, poorly constructed latrines without covers to keep flies from visiting the latrines and picking feces on their limbs to defile food sources and cooking tools is additionally a significant issue looked in the counteraction of water borne diseases. This is on the grounds that most families do not have good toilets facilities; the hygiene and sanitation officers of the rural municipalities do not do regular checks in homes to identify defaulters who do not have good toilet facilities or with toilets too close to households and judicious sanctions meted on them (Bodzewan, Lange, & Fonyuy, 2014). In the hinterlands a few occupants utilized pig fence as their latrines, others utilized waterways as their latrine hence contaminating water in this manner causing water borne diseases for those utilizing it downstream (Meinhardt, 2007). The ventilated improved pit latrine enhances the standard design by permitting odor to escape, preventing flies from entering, and in many cases covering the pit to prevent groundwater pollution (Montgomery & Elimelech, 2007). A simple pit latrine, one of the most fundamental forms of household sanitation, offers a modest option in contrast to a sewage system (Montgomery & Elimelech, 2007). It has been assessed that in general 9% of the global burden of disease could be forestalled through progress in satisfactory WASH facilities (Mustapha, 2020). Children are one of the most vulnerable groups affected by lack of water, sanitation, and hygiene facilities (Yaya S, 2018). In emerging nations, the high death rate coming about because of diarrheal among youngsters younger than five was significantly because of WASH challenges (Yaya S, 2018).

In Tanzania cities are developing at almost double the pace of the country's yearly populace growth. The greater part of Tanzania's metropolitan populace do not have access to improved toilets, and compliance with good hygiene practices is low densely populated, spontaneous urban

settlements with adequate sanitation and hygiene services pose significant health risks and have wider impacts on education, livelihoods, wellbeing and human dignity

As concerns the WASH circumstance in families, Kenyan data from 2017 show that 32% of the families (15 million individuals) lack access to an improved drinking water source at home. WHO and UNICEF characterize safe drinking water source as one that by nature of its construction, shields the water from pollution and can possibly convey safe water. Access to sanitation remains a challenge as well, with 10% of Kenyan households continuing to practice open poo, and with just 38% having access to an unimproved sanitation facility, such as pit latrines without a slab or platform, hanging toilets or bucket latrines (UNICEF/WHO, 2018). The absence of satisfactory hand washing facilities with water and soap in 75% of the households poses additional significant health risks. Domestic WASH provisions are significantly more terrible in rural regions, , in spite of the sluggish yet consistent enhancements over the course of the past 7 years (UNICEF, 2021). The provision of safe WASH facilities have been greatly influential on people's health status and livelihood; in any case, the accessibility of these facilities remains critical in Nigeria particularly in the rural regions; a large percentage of rural communities in Nigeria live without access to safe WASH facilities.

The challenges of addressing sanitation and waste management have been compounded by rising populace, improved standards of living and high rural-urban migration (GoK, 2007). Regardless of the way that Kakamega County in western Kenya is exceptional with water sources, the improvement of sanitary disposal of sewage has lingered behind making safe water and sanitation provision inadequate (GoK, 2007). Good sanitation and hygiene behaviors are similarly significant in disease prevention.

Speeding WASH coverage will require prioritization at the highest levels of decision making by global organizations, governments, civil society and the private sector. For this to occur, WASH should be a regular fixture on the agenda at high-level political events to guarantee member states monitor the progress.

2.4 Relationship between sanitation and predominance of waterborne infections

It is, tragically, noticed that lacking water, sanitation and hygiene (WASH) represent a huge piece of the reasons for disease and loss of life on the planet, particularly in emerging nations where

around 80% of ailments are connected to insufficient water and sanitation. Absence of water supply, sanitation and hygiene is the significant reason for mortality (Odafivwotu & Tano Dumoyei, 2018)

Waterborne illnesses are a significant reason for ailment in rising nations particularly Africa and are answerable for inconsistent and limited flare-ups of infection in the developed world. Absence of satisfactory sanitation, sufficient and safe water and sufficient mindfulness are main considerations adding to the pervasiveness of these infections. Absence of satisfactory exploration and incapable data dispersal impedes the work to decrease the infections (Njiru et al., 2016)

As per the Center for Diseases and Prevention, further developed sanitation facilities typically guarantee partition of human excreta from human contact, and these incorporate; flush latrine, channeled sewer framework, septic tank, ventilated improved pit (VIP) restroom, and pit lavatory with slab (WHO/UNICEF, 2013). Unimproved sanitation facilities don't guarantee sterile partition of human excreta from human contact and incorporate pit toilet without a slab, hanging restroom, container lavatory, and open poop in fields, backwoods, bushes, waterways or other open spaces, or removal of human feaces with solid waste (Njiru et al., 2016). The Joint Monitoring Program of UNICEF and WHO considers an unimproved sanitation as that which is shared by at least two households (WHO/UNICEF, 2008).

In Africa, it is assessed that around 22% of the populace has sufficient sanitation facilities as per Bateman et al. Choffnes et al (2009), established that, 28% of the number of inhabitants in sub-Saharan Africa defecates in the open and 23 extra percent use "unimproved" sanitation facilities that 'don't guarantee clean partition of human excreta from human contact'. Also, „even where clean water and flush latrines are accessible in Africa, absence of hygiene mindfulness keeps on bringing about flare-ups of water related illnesses (Medicine, 2009)

Gunther et al (2006), tracked down that sanitary practices for the disposal of sewage and domestic waste water, and treatment of domestic drinking water are related with the flare-up of waterborne infections (Gunther et al., 2006). The most widely recognized indication is diarrhea. Choffnes et al (2009), set up that waterborne infections might result when pathogenic organisms like infections, parasites and microbes present in feaces or pee from human and animal waste pollute water supplies, and this water is therefore utilized for drinking or food planning without satisfactory treatment.

Diarrheal illnesses brought about by improper management of water and sanitation are among the major causes of infant and child morbidity and mortality (UNICEF, 2017)). A good sanitation facility reduces diarrheal diseases as it detaches the human waste from getting into direct contact with humans and therefore ensuring harmless faecal disposal. This reduces the risks of faecal contagion (Andres et al., 2014)

Water borne diseases in Kenya is a significant concern especially with kids under 5 years. Most children below the age of 5 years die from diarrheal diseases related to exposure to hazardous and poor sanitation (Schuster-Wallace et al., 2012). Childhood diseases in Kenya's urban areas are associated with environmental health hazards such as unhygienic sanitation and bacteria from improper drainage, contagion of faecal matter with food and drinking water (APHRC, 2012). A study by Corburn & Hilderbran (2015), in Mathare slum in Nairobi, Kenya found that 48% of the households had a child who had been ill with diarrheal, malaria, typhoid or respiratory infection within six months to the study period (Hilderbrand & Corburn, 2015). A study by the centre for Microbiology Research in a Nairobi slum found that more than a quarter of children less than 5 years of age had at least an intestinal parasite related to poor sanitation. A study conducted in Embu County by the Government of Kenya on the top ten causes of morbidity showed that intestinal worms range number three of all clinical cases revealed in the health facilities.

Pathogenic organisms are spread through contaminated food and water especially those that are subject to the fecal oral course (AMREF, 2007). Diarrheal sicknesses, the second most common worldwide disease influencing little youngsters and a significant reason for death in 62 lower pay nations (UN, 2007), are firmly connected with inadequate sanitation and poor hygiene.

Gunther et al. tracked down that sterile practices for the disposal of sewage and domestic waste water and treatment of domestic drinking water are related with the flare-up of waterborne infections. Choffnes et al (2009). in his investigation of sub-Saharan Africa set up that even where clean water and flush latrines are accessible in Africa, absence of hygiene awareness keeps on bringing about episodes of water-related sicknesses (Choffnes & Mark, 2009). Bloomfield F. Sally et al (2009) saw as that while upgrades in the arrangement of sanitation and water supply would create, individually, a 32% and 25% decrease in diarrheal infection trouble, enhancements in water quality and the advancement of other hygiene mediations including, however not restricted to, hand washing in the home and local area could deliver, separately, 31% and 37% decrease in diarrheal disease burden (Bloomfield et al., 2009).

2.5 Theoretical framework

There is still continuous struggle to access reliable, equitable and sustainable safe water and improved sanitation services in Kakamega thus raising gaps on the viability of the different Sanitation policy links in facilitating the WaSH access to the residents. The focus of this study was the residential settlements of Lurambi Sub County where the impacts of inadequate water and sanitation have culminated into a crisis. With the increasing population that pile the pressure on the available sanitation and hygiene facilities thus increased constraints in access to sanitation and hygiene. The decision makers are always under pressure to improve the sanitation and hygiene facilities due to the threat of the waterborne diseases which is growing with the increased population

Whereas many studies have been carried out on waterborne diseases, little is still known of the linkages of conditions like poor sanitation, knowledge and awareness importance and the potential public health risks. Also, while most studies have been done in capital cities. This study was done in a medium size county of Kakamega in the Western region of Kenya; which is largely considered to be rural. Thus the project is a stepping stone towards having a healthy community, energetic to contribute towards growth and development of the community and the country as a whole.

2.6 Conceptual framework

Table 1: Definition of Variables

Objectives	Dependent Variables	Independent variables
To assess the existing sanitation and hygiene policies, their implementation and the existing gaps in the sector	Current existing sanitation policies	Implementation and gaps in sanitation sector
To assess the level of knowledge and awareness of the community on sanitation and hygiene policies	Good sanitation and hygiene practices Proper policy implementation	Level of knowledge and awareness
To evaluate the household access to sanitation and hygiene facilities	Predominance of waterborne diseases	Sanitation accessibility Hygiene accessibility
To establish the link between poor sanitation and water related disease predominance	Predominance of water related diseases	Poor sanitation and hygiene practices

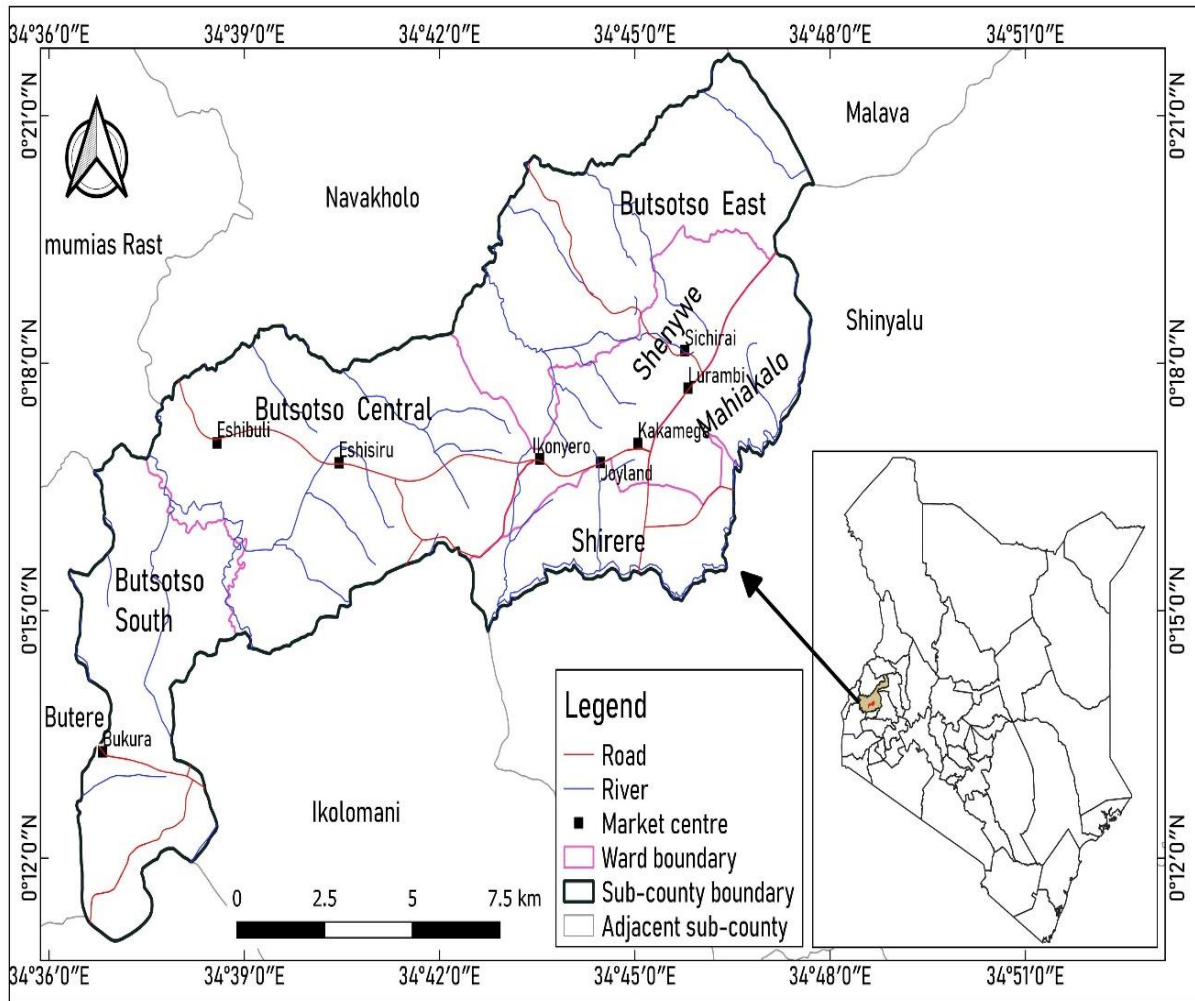
CHAPTER 3

MATERIAL AND METHODS

3.1 Study area

The study was carried out at Lurambi Sub County which is one of the Sub Counties found in Kakamega County located at N00°16.964, 34° 45.112'EIt has a total population of 160,229 covering an area of approximately 161.8 km². It is bordered by Navakholo, Malava, Shinyalu, Khwisero, Mumias East, Ikolomani and Butere sub-Counties. The administrative ward units includes Mahiakalo, Shirere, Butsotso Central, Butsotso East, Butsotso South and Shieywe. They practice on a small scaleThe major economic activity in the region is trade while intensive farming of maize, tea, sweet potatoes, sugarcane, beans, and horticultural crops is practiced in the outskirts. The rocks are highly granitized. The area experiences a hot and wet climate with rainfall that ranges from 1280 mm to 2500 mm per annum, the wettest months being March, April, May and June. The temperature range is between 20°C and 30°C.

LURAMBI SUB-COUNTY



3.2 Research design

A descriptive cross sectional study design was carried out with an aim of assessing the effectiveness of Sanitation policy links in Kakamega County. The information can be collected from the participants, from other people or by examining records. This survey was used to assess the level of knowledge and awareness and the compliance level to the sanitation policy links, predominance of waterborne infection, access to sanitation facilities and household hygiene management practices within the study region. This was to enable the researcher to examine facts, examine relationships, describe, analyze and interpret data on the existing sanitation and hygiene status accordingly.

To accomplish the objectives of this study, both quantitative and qualitative data were gathered. The quantitative data is necessary to help quantify the number of respondents who provided a particular response in relation to the objectives. Qualitative data encompass the observations made concerning the quality state of hygiene and sanitation in the study area.

3.3 Sampling design

Households were the study sample, Simple random sample procedures were used to identify the first household to start with to arrive at the research sample

Purposive sampling was used to identify the key informants in the stratum across the various sections of the water and sanitation department in Kakamega County.

Sample size and sampling procedures

This segment discussed about the quantity of respondents that were chosen to address the bigger populace and the method involved with choosing these respondents.

3.4 Sample size

The target population of the study were the 52015 households within Lurambi sub-county. The sample size of 156 households was gotten by utilizing Nassiuma's formula for sample size determination. Nassiuma (2000) contends that in many reviews, a coefficient of variation in the scope of $21\% \leq C \leq 30\%$ and a standard error in the scope of $2\% \leq e \leq 5\%$ is acceptable. The study therefore utilized coefficient variation of 25% and a standard error of 2%. The higher limit for the coefficient of variation and standard error was chosen to guarantee low variability in the same and minimize error. Nassiuma (2000) equation is as per the following:

$$n = \frac{Nc^2}{(c^2 + (N-1)e^2)}$$

Where:

n = sample size (156)

N= Target populace (52015)

c= Coefficient of Variation (0.25)

e= tolerance at desired level of confidence (0.02) at 98% confidence level (standard error)

Therefore;

$$n = \{52015 \times 0.25^2\} \div \{0.25^2 + (52015 - 1) 0.02^2\}$$

n=156 household representatives

This formula yielded a sample size of 156 respondents from the target population.

3.5 Data Collection Instruments

Primary and secondary data was gathered. The study utilized a semi-structured questionnaire, Observation, Focused Group Discussions (FGDs) and interview guide.

3.5.1 Questionnaires

A semi- structured questionnaire was used to gather primary data from the households. Kothari (2007) terms the questionnaire as the most suitable instrument because of its capacity to gather a lot of data in a sensibly speedy range of time. It guarantees confidentiality of the source of information through anonymity while ensuring standardization (Kerlinger, 1973). It is for the above reasons that the questionnaire was picked as a suitable instrument for this study.

The questionnaire contained a mix of questions, allowing for both open-ended and specific responses to a broad range of questions. The questions were in line with the specific objectives of the study. The open ended questions is to allow the informant/respondent to freely express themselves without any limitations of closed ended questions. They allow the respondent to talk about issues that maybe are not anticipated in the closed ended questionnaires. The questionnaires were structured to ensure that each objective of the study is sufficiently addressed as highlighted in Mugenda & Mugenda (2003) divided into two sections where; section one is to deal with the demographic information while section two is to deal with the study variables. In addition, section two was subdivided into subsections in line with the study objectives.

3.5.2 Interview Guides

The study adopted a key informant interview guide to collect data from the key informants which include Community Health Volunteers (CHVs), county officials mandated by the various ministries such as environment and natural resource, Water and sanitation department and the Ministry of Health.

Key informant interview schedule (KII): Key Informant Interviews were conducted using a structured schedule for the principal people involved in the implementation of the sanitation and hygiene policies. The selection of the informants took into account their knowledge about the community and their role in the implementation of the Sanitation and hygiene policy links.

3.5.3 Focus Group Discussions

The participants of each FGD were chosen dependent on their readiness to partake and their continued involvement in community services.

Focus group discussions were used to obtain knowledge, perspectives and attitudes of people on issues related to sanitation and hygiene, and to seek explanations for behaviors in a way that would be less easily accessible in responses to direct questions, as compared to a one-on-one discussions. Focus group discussions were conducted at Sichirayi and Shirere market centres with the help of the community members. Each of the FGDs was composed of 8 to 10 participants drawn from 6 caretakers, 2 landlords, 4 Community Health Volunteers, 2 officials from local NGOs and 8 residents. The members discussed various approaches to community participation in the role of ensuring that the sanitation policies are effective, access to sanitation facilities in the study area and projects that they were willing to initiate in conjunction with other stakeholders to ensure proper implementation of sanitation and hygiene policies. This was of use especially in discussing sanitation facilities and services, establishing the linkage between sanitation and waterborne disease prevalence in the area and thus a comprehensive analysis of how effective the sanitation and hygiene policies are which generally described the sanitation situation in the study area.

3.5.4 Observation checklist

This instrument accorded the researcher the opportunity of gathering data at first hand without a second party filtering or embellishing facts. The observation checklist is attached on the appendix 3.

3.5.5 Documentary Reviews

Aside interviews, documents within the environmental sanitation sector in Kakamega served as data for the study

3.7 Ethical considerations

Approval from Institutional Research and Ethics Committee, a morals and examination body in PAUWES was sought. The following ethical issues were put into consideration:

- a. Participation was totally voluntary
 - b. Individuals would pull out from participation in this study whenever they felt like without being punished
 - c. No actual danger or actual mischief was caused by obliging to participate in the study.
 - d. The respondents were informed regarding the purpose for the study, which was for scholarly reason.
 - e. The rights and dignity of all participants were protected and respected. All data given was treated with most extreme secrecy.
- Official permission to conduct the study was sought from the relevant Area Public Health Officer's (PHO) office, Chief and respective village elders to give authority and necessary help to carry out the study.
 - Informed consent from all study participants was sought.

3.8 Inclusion Criteria

Respondents above the age of 18 years and who had lived in the study area for the last five years were interviewed during this study.

3.9 Validity of the Research Instruments

Content legitimacy was ascertained by supervisors; who ceaselessly checked, assessed and featured blunders in the research instruments. According to Borg and Gall (1986), validity is how much a test estimates what it implies to quantify. All in all, validity is how much outcomes got from the investigation of the information really address the peculiarities under study. According to Borg and Gall (1989), validity of an instrument is improved through master judgment.

CHAPTER FOUR

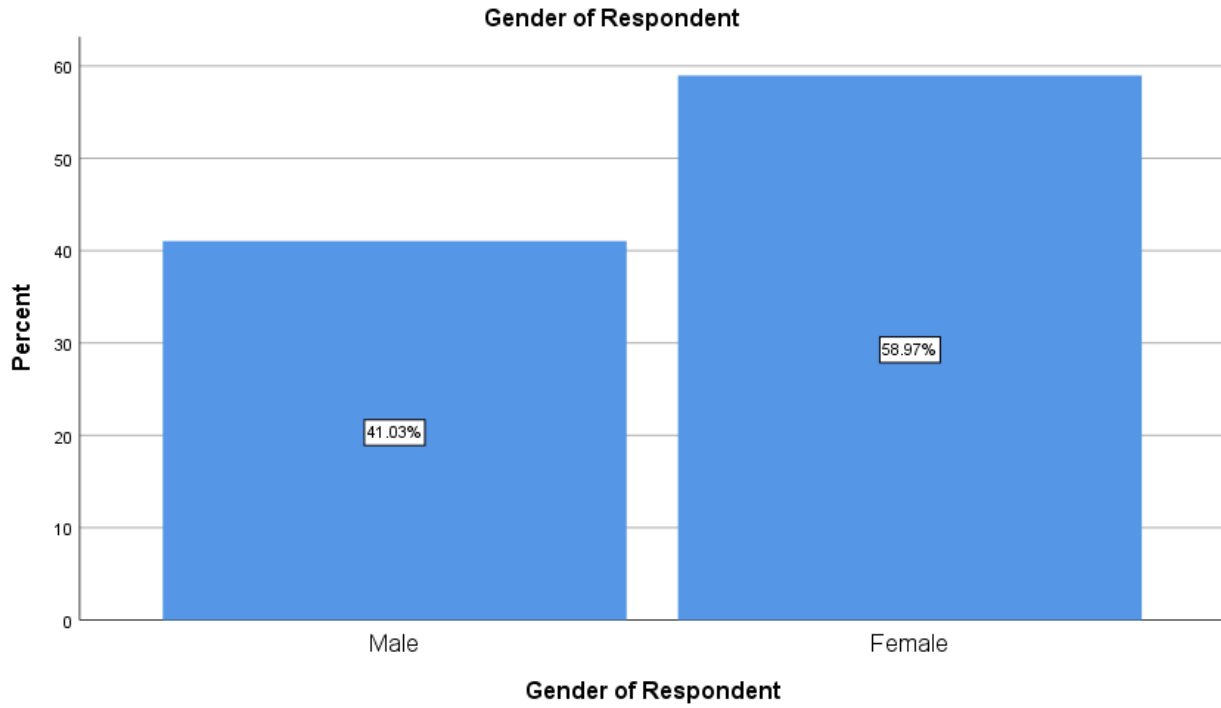
STUDY FINDINGS, INTERPRETATION AND DISCUSSION

4.1 STUDY FINDINGS AND INTERPRETATION

This chapter presents the analysis of data collected from a research conducted in Lurambi, Kakamega County. The principle aim of the study was to assess the effectiveness of sanitation policy links in Lurambi, Kakamega. The study further aimed at: identifying the existing sanitation and hygiene policies in Kakamega County, their implementation and the existing gaps in the sanitation sector, assessing the level of knowledge and awareness of Kakamega residents on sanitation and hygiene Policies and Practices, evaluating the household access to sanitation and hygiene facilities in the study area and establish the linkage between poor sanitation and the prevalence of waterborne diseases in the study area. A sum of 156 questionnaires were conducted in various households chosen randomly. All the questionnaires received were referenced and items in the questionnaire were coded to facilitate data entry. After data cleaning which entailed checking for errors in entry, descriptive statistics such as frequencies and cross-tabulation. The researcher used Statistical Package for Social Sciences (SPSS) in analyzing data. The qualitative information, mostly assembled from the vital sources and centered gathering conversations was analyzed manually using topical organization investigation method. The interpretation of the information were dependent on the source and the subjects arising out of the coded records.

4.1.1 Socio-demographic Information of the Respondents

Gender of the respondents



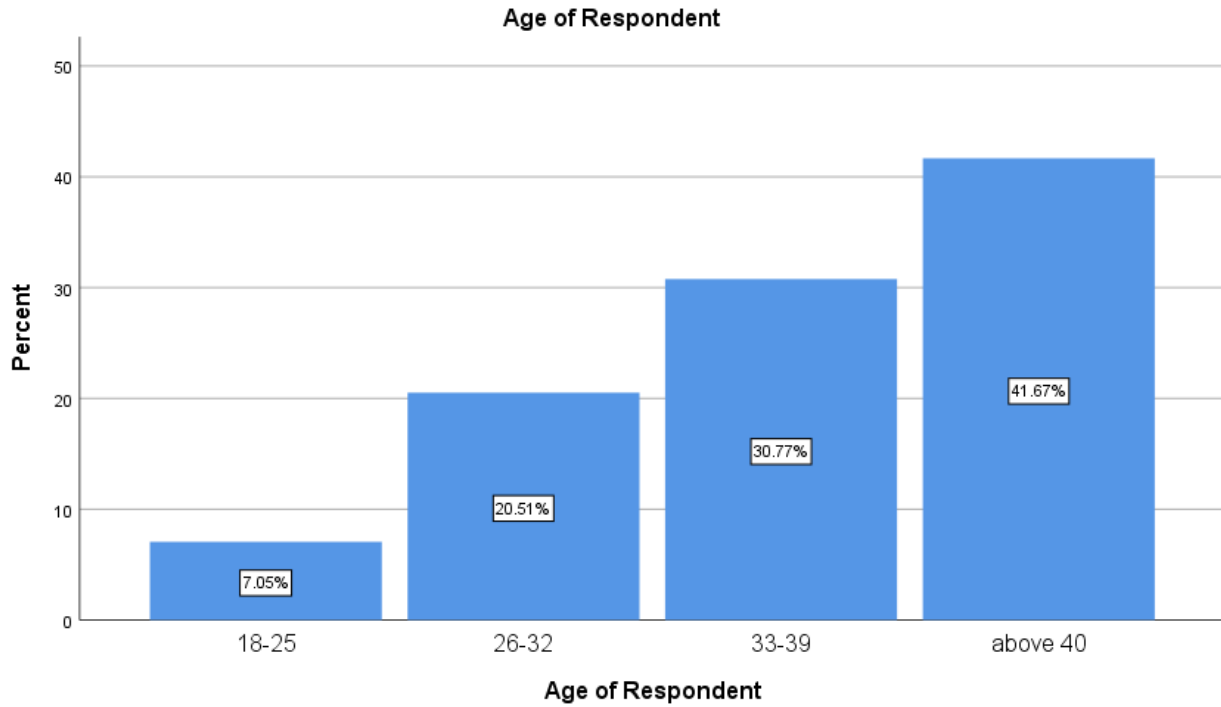


Figure 4. 1 age of respondents

Results indicate that most respondents (41.7%) were above 40 years of age followed by 30.8% which were between the age bracket of between 33-39, 20.5% were between 26-32 years of age and 7% of the respondents were below 25 years.

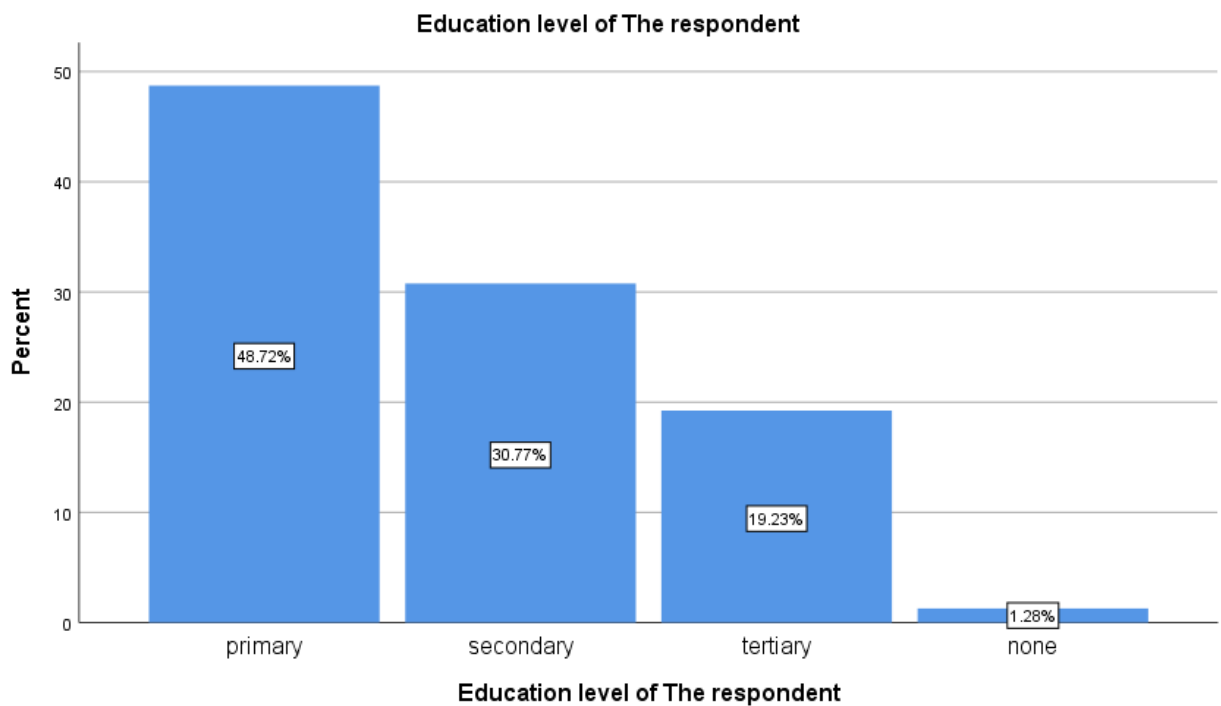


Figure 4. 2 education level of the respondent

A large number of the respondents had primary level of education (48.7%), 1.3% of the respondents had no formal education, while 19.2% had tertiary education and also 30.7% had acquired secondary level education.

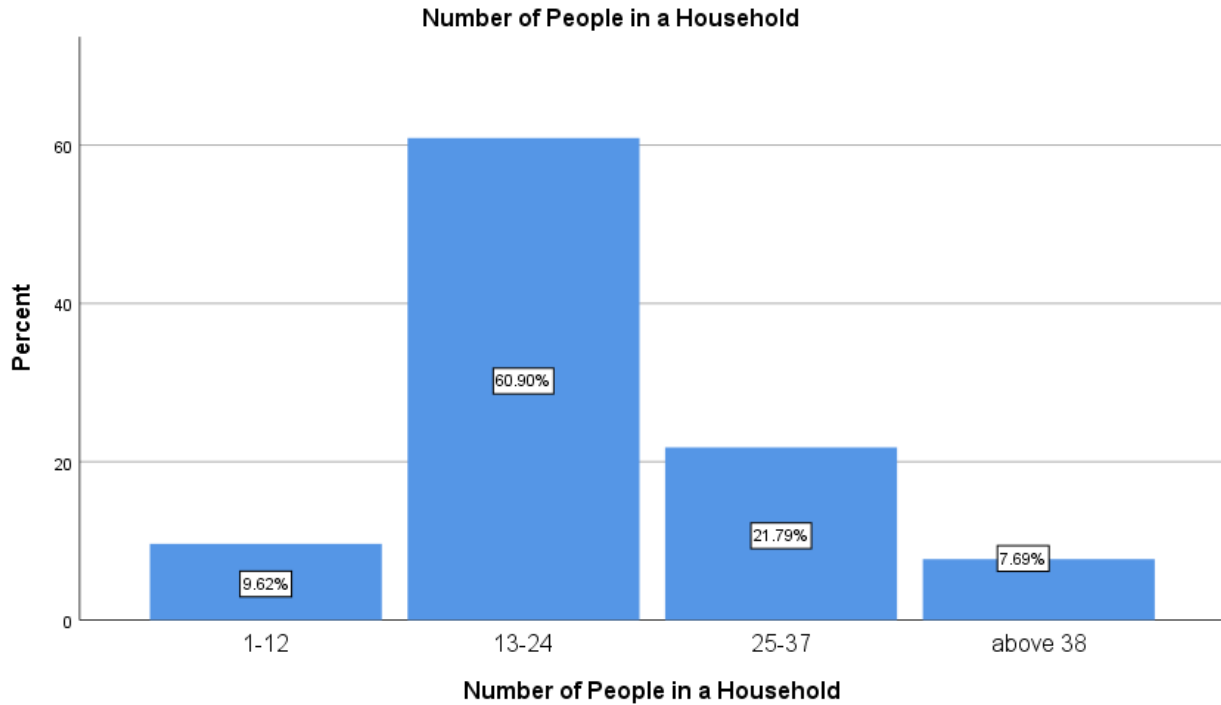


Figure 4. 3 Number of people in a household

According to the study, 60.9% represented the highest number of people in a household with the age bracket 13-24, 21.8% were between 25-37years while 9.62% and 7.7% were lowest representing the age bracket 1-12 and above 38years respectively.

4.1.2 The existing sanitation and hygiene policies in Kakamega

The sanitation and hygiene policy links available in the county docket sufficiently addresses most of the sanitation and hygiene related matters and has even provided the impetus for the development plan. Some of the existing policies includes: The Kenya Environmental Sanitation and Hygiene Policy, 2016–2030 which gives rules that guarantee universal access to improved sanitation and a clean, healthy, sustainable living environment for improved quality of life of Kenyans is the main policy governing sanitation in Kenya. Kenya Environmental Sanitation and

Hygiene Strategic Framework, 2016–2030 is the plan corresponding to the KESHP and gives a structure for its execution, it addresses bottlenecks to accomplishing universal access to improved sanitation and eradication of open poo in Kenya. The county Environmental Health and Sanitation Bill provides assistance and direction to the county governments on how to come up with legislation to enable county governments to effectively execute the sanitation and environmental health-related functions and powers vested in them by the Fourth Schedule to the Constitution of Kenya, 2010.

National Environmental Sanitation and Health Policy (NESHP) (2016–2030) has as one of its key purposes the need to upgrade the current legitimate and institutional structure to support active private sector, civil society and community participation in the planning, implementation and ownership of environmental sanitation health services. It targets property owners and developers to invest in and construct suitable sanitation facilities for tenants and home buyers.

The sanitation and hygiene policy links are in line with the current Kakamega County Integrated Development Plan. From the study the level of awareness on the sanitation and hygiene policies and strategic documents is low among some actors within County government and Civil Society Organisations. In all the offices visited the level of knowledge and awareness on the policies related to Sanitation policies and other strategic documents was very low. Paradoxically, the level of awareness among those implementing the projects on the Sanitation and Hygiene policies and those strategic documents is low. Therefore plans developed at the sub-county level are mostly not in alignment with the available sanitation and hygiene policies.

This calls for the urgent need to organize dissemination workshops for WASH sector players on the policies and strategic documents and in particular the CSOs. This calls for the need to also distribute copies of the sanitation and hygiene policies and strategic documents to the WASH sector players and the community members as a whole to increase the level of awareness, proper and effectiveness and good hygiene and sanitation practices.

Implementation of political manifestos has taken precedence over existing sanitation policies. Politicians are forced to implement the promises made during campaign in order to secure the tenure of political aspirations. Maintaining the balance between implementing national development agenda and manifesto promises has proven difficult for the Politicians in general. This calls for the need to heighten evidenced-based advocacy on the policies and strategic documents targeting the politicians.

Inadequate funding in the sector was also raised by the key informants as a factor that has contributed in slowing down the implementation of the WASH sector policies. The commitment from the Assembly in financing the activities in the plan was a challenge. This has thus reduced the sensitization and the people reached for public participation

Poor coordination among the WASH sector players in the implementation of the policy remain a challenge. The sanitation and hygiene policies have very ambitious provisions which are not realistic.

4.1.3 Knowledge and awareness of the sanitation policy links among the community members

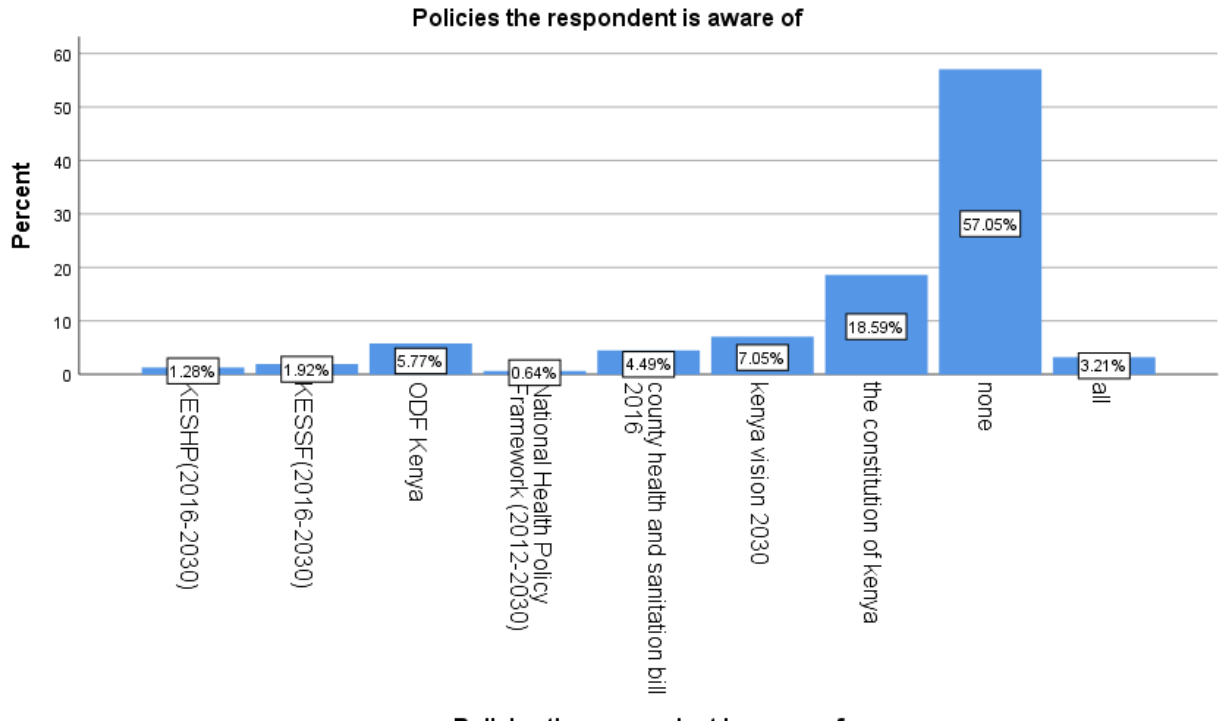


Figure 4. 4 Awareness levels of the Sanitation Policies amongst the respondents

The study found that more than half (57.1%) of respondents were not aware of the policies related to sanitation, 19% are aware of the constitution of Kenya and how it addresses sanitation and hygiene, 7.1% are aware of the Kenya vision 2030, 5.8% of the respondents were aware of the ODF Kenya 2020, 4.5% of the respondents were aware of the CEHSB, 3.2% respondents understood all the policies while the least were 1.9% and 1.3% which represented the KESHP (2016-2030) and KESHFSF respectively.

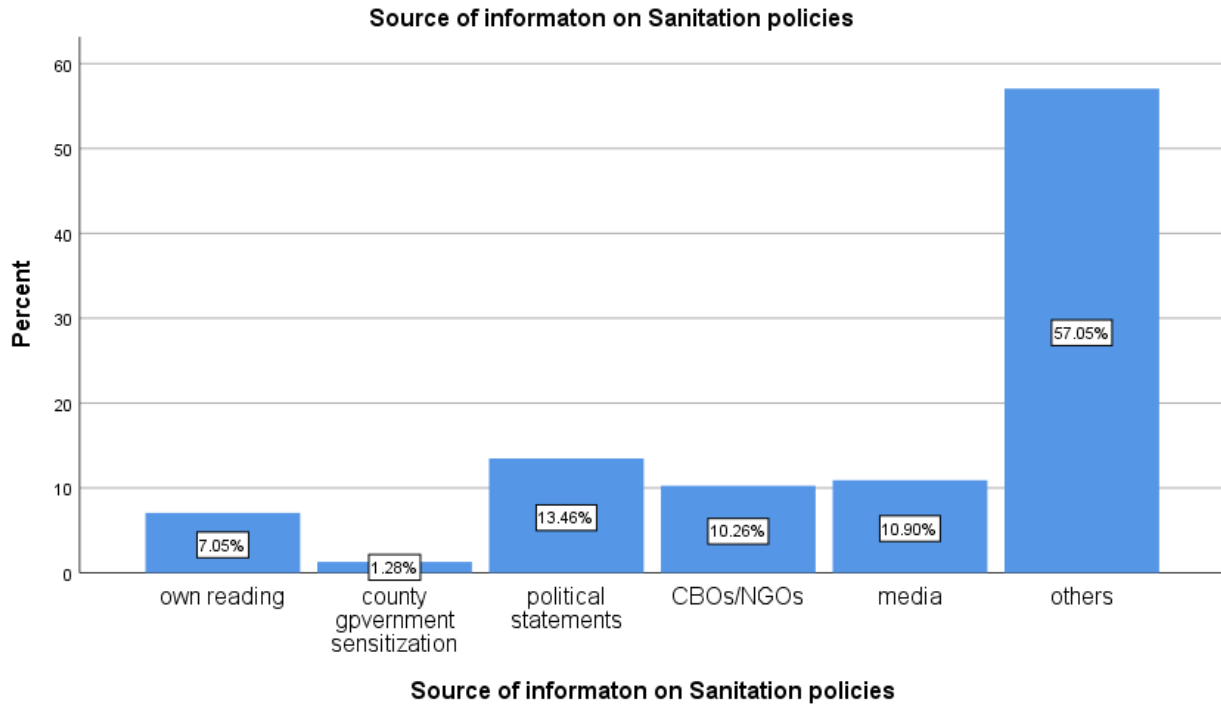


Figure 4. 5 Source of Information on Sanitation Policies amongst the Respondents

Amongst the respondents who were aware of the policies 13.5% became aware of those policies by political utterances during rallies, 10.9% of the respondents became aware through media advertisements, 10.3% raised awareness through CBOs/NGOs, while 7.1% and 1.3% of the respondents became aware of the policies through reading on their own and county government sensitization respectively.

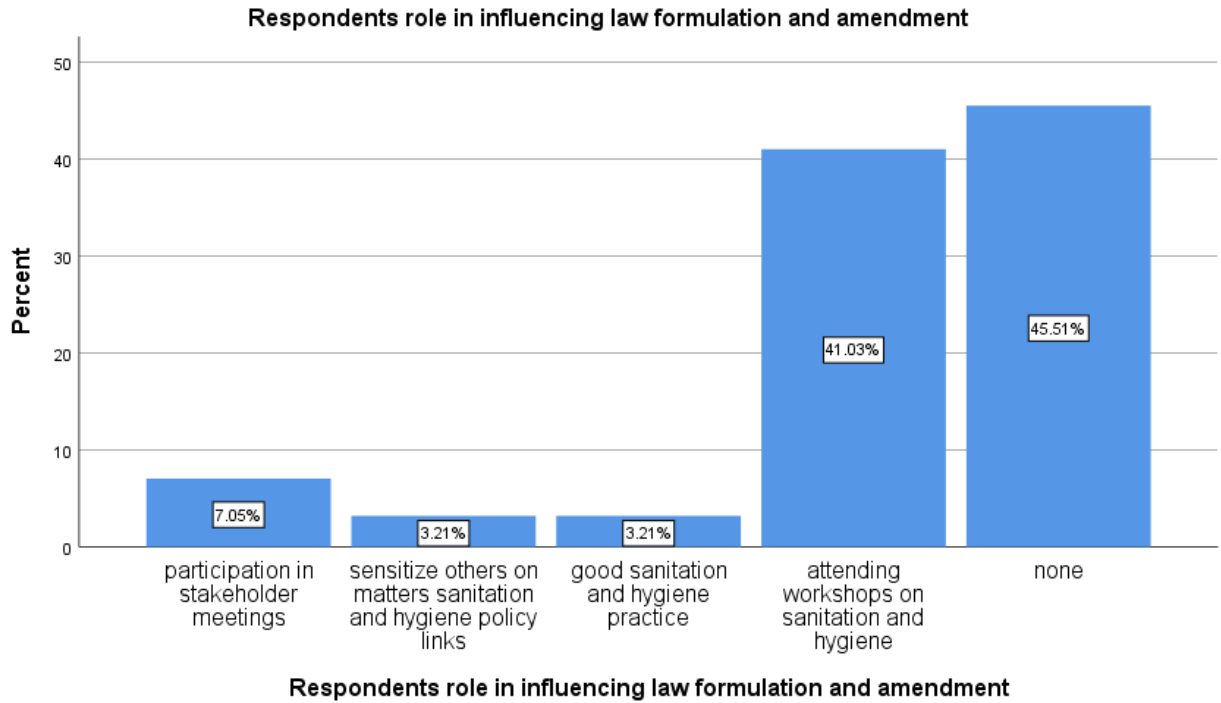


Figure 4. 6 Respondents role in influencing Sanitation Policy formulation and amendment

Most of the respondents (46%) did not play any role in influencing the formulation, amendment or implementation of the sanitation related policies 41% of the respondents claimed to have attended some workshops on sanitation and hygiene and therefore participated in issue identification and agenda setting, 7.1% of the respondents influenced the policy formulation and amendment by attending and participating in stakeholder meetings on matters sanitation and hygiene while only 3.2% of the respondents participated in sensitizing the others on sanitation and hygiene policy links as well as good sanitation and hygiene practice.

4.1.4 Household access to sanitation and hygiene facilities in the study area

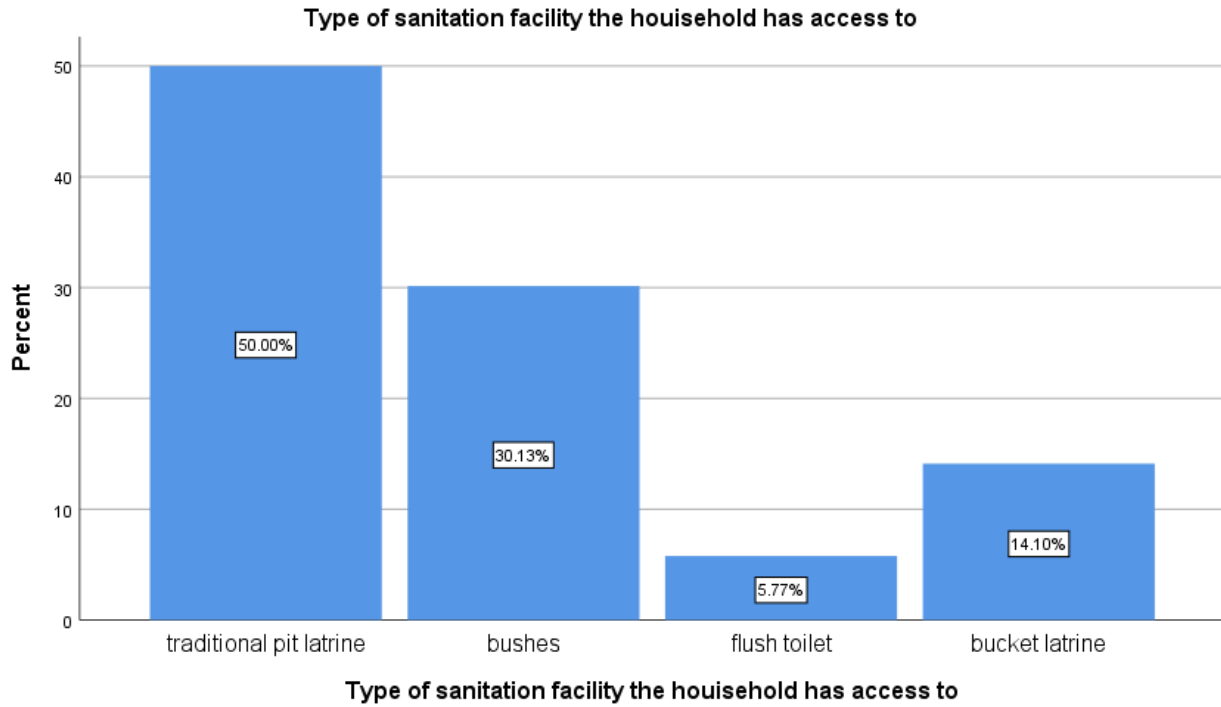


Figure 4. 7 Type of sanitation facilities in the study area

The study assessed the availability and accessibility of sanitation facilities by seeking to know whether the household owned any form of a latrine or toilet. Out of the 156 respondents half (50%) of them depended on traditional pit latrine traditional pit as their facility for sanitation purposes, 30.1% of the respondents were who rely on bushes as their sanitation facility, 14.1% of the respondents depend on bucket as their sanitation facility while the remaining 5.8% depended on flush toilet as their sanitation facility.



Figure 4. 8 Location of the sanitation facility

54.5% of the respondents had their accessible sanitation facility located in their place of residence while the remaining 45.5% of the total respondent's accessible sanitation facility were located outside the residence (around the neighborhood).

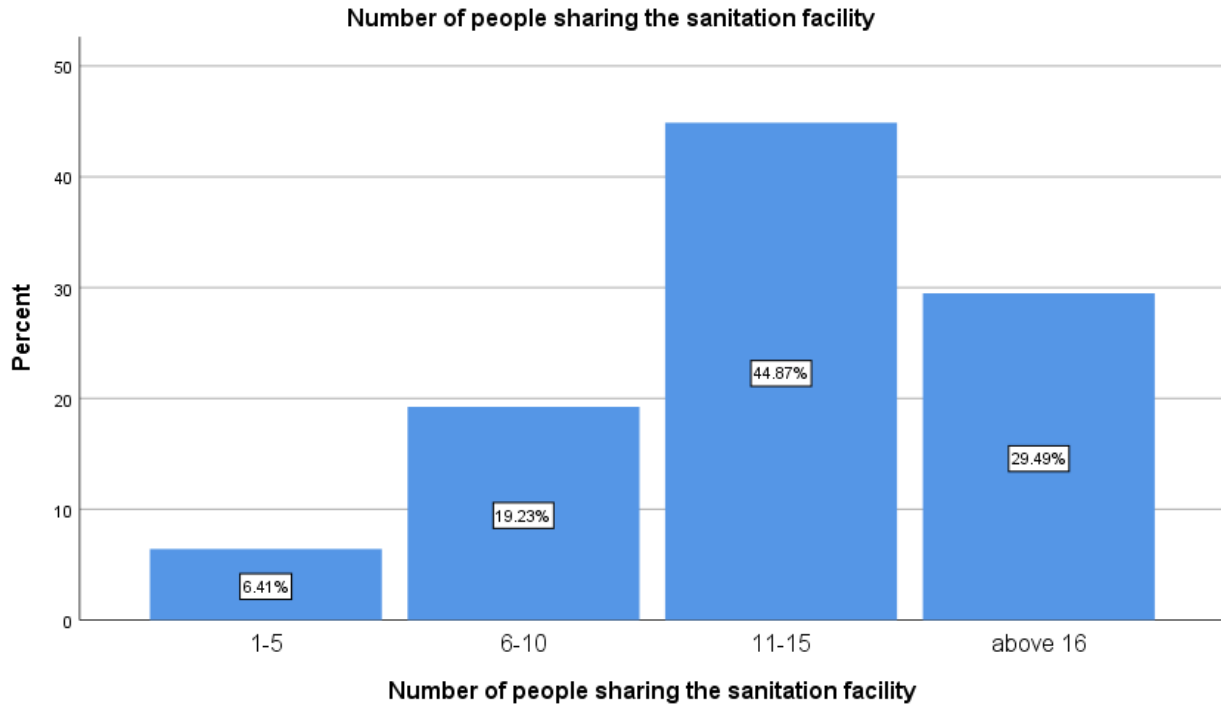


Figure 4. 9 Number of people sharing the sanitation facility

44.9% respondents were sharing the sanitation facility 11-15 people, 29.5% of the respondents shared the facility with more than 16 people, 19.2% shared a sanitation facility between 6-10 people and only 6.4% shared a sanitation facility between 1-5 people.

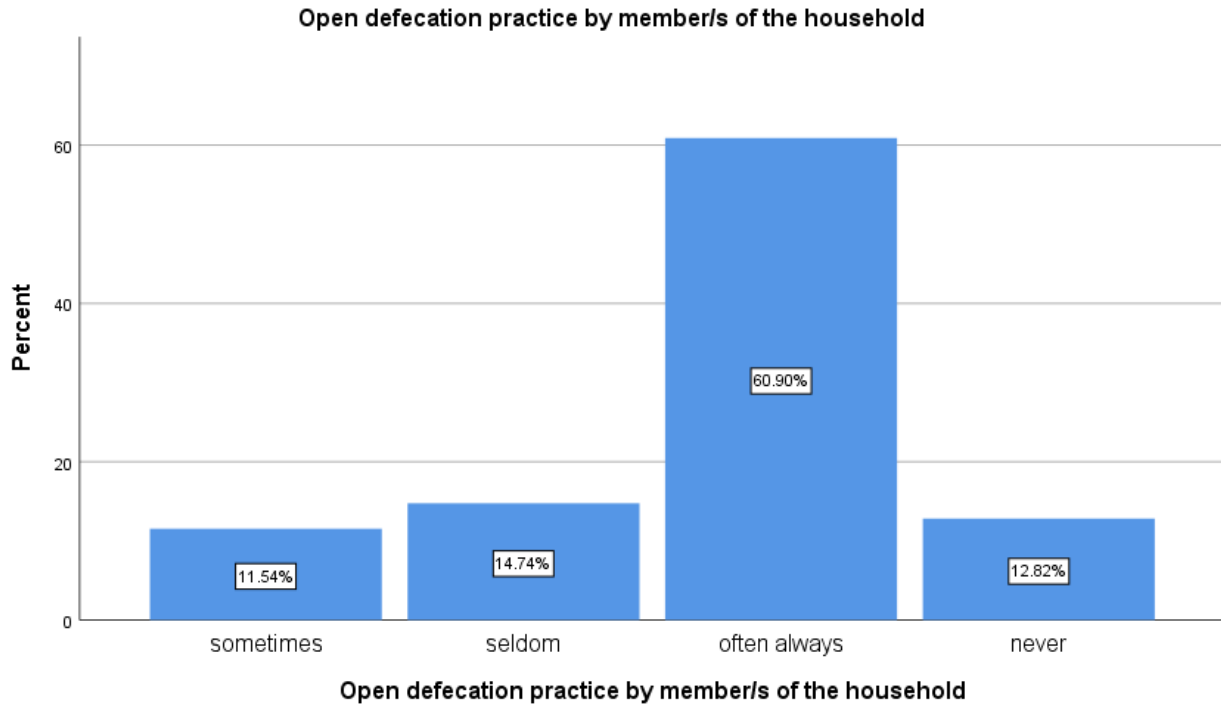


Figure 4. 10 open defecation practice by members of the household

60.9% of the respondents in the study area often always practice open defecation 14.7% of the respondents rarely practiced open defecation, 11.5% of the respondents practiced open defecation on certain occasions but not always while 12.8% of the respondents never practiced open defecation.

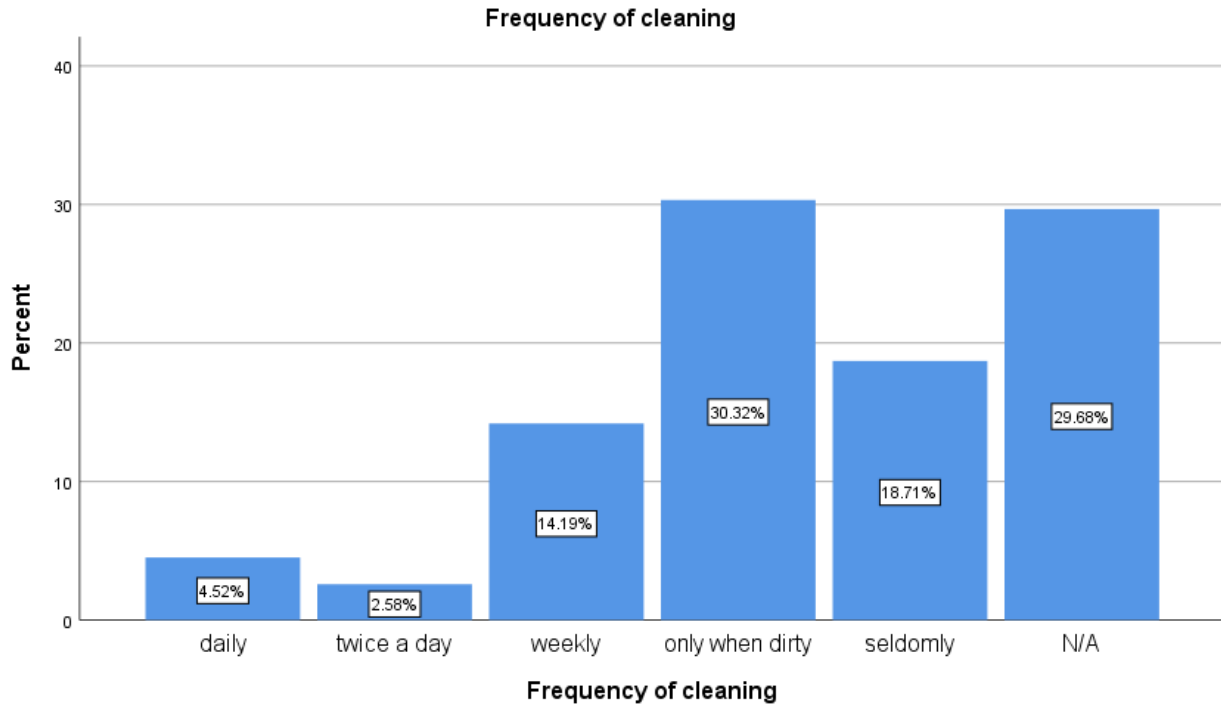


Figure 4. 11 Frequency of Cleaning of Sanitation Facilities

30.1% of the sanitation facilities in the study area were cleaned only when dirty while 29.7% were not cleaned at all, 18.7% of the respondents seldom clean their facility, 14.2% of the respondents interviewed clean their sanitation facilities weekly while the least which is 4.5% and 2.6% were cleaning their facilities daily and twice a day respectively.

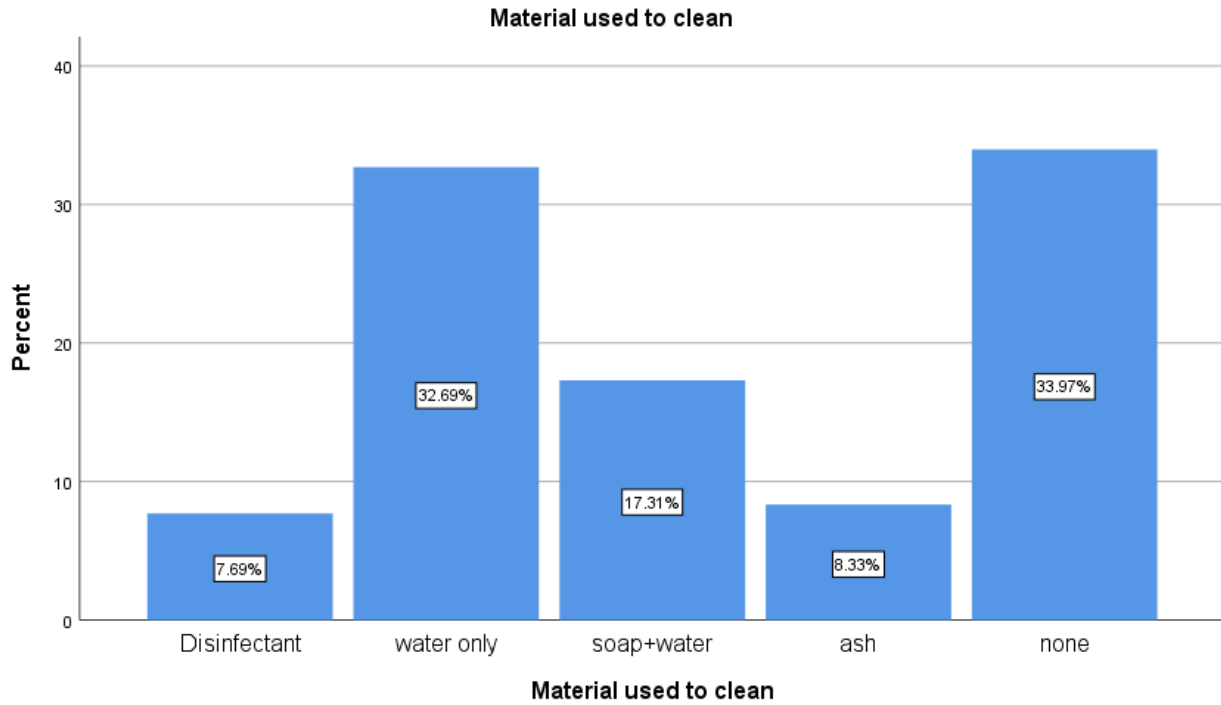


Figure 4. 12 Means of Cleaning of Sanitation Facilities

34% of the respondents do not clean their hands while 32.7% use water only to clean their sanitation facility, 17.3% clean their sanitation facilities with soap and water, 8.3% use ash to clean their sanitation facilities while 7.7% uses at least a disinfectant to clean the sanitation facility

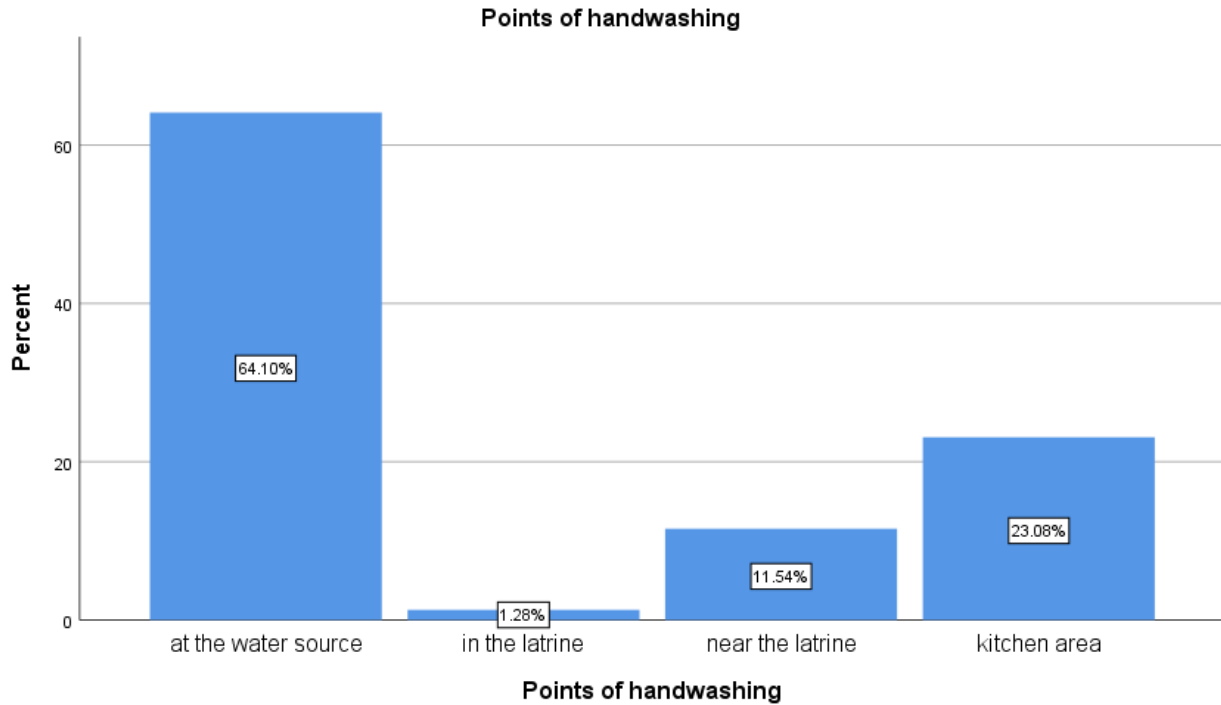


Figure 4. 13 Points of hand washing

The study examined the availability of designated facilities for washing hands after visiting sanitation facilities by asking whether there was a place for washing hands, and seeking to be shown where available. 64.1% of the respondents clean their hands at the water source, 23.1% wash their hands near the kitchen area, and 11.54% of the respondents were washing their hands near the latrine while 1.3% wash their hands in the latrine.

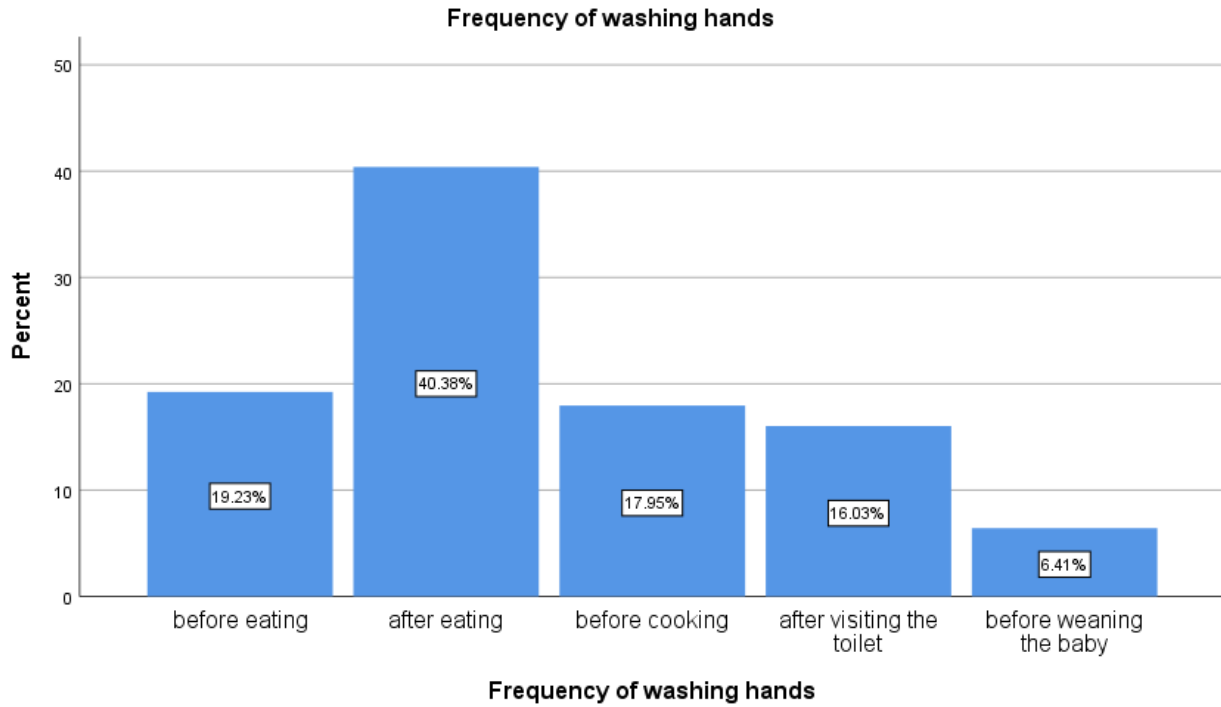


Figure 4. 14 Frequency of washing hands

40.1% of the respondents wash their hands after eating, 19.2% were washing hands before eating, and 17.9% respondents were washing before cooking while 16% of the respondents wash after visiting a sanitation facility and the remaining 6.4% washed before weaning the baby.

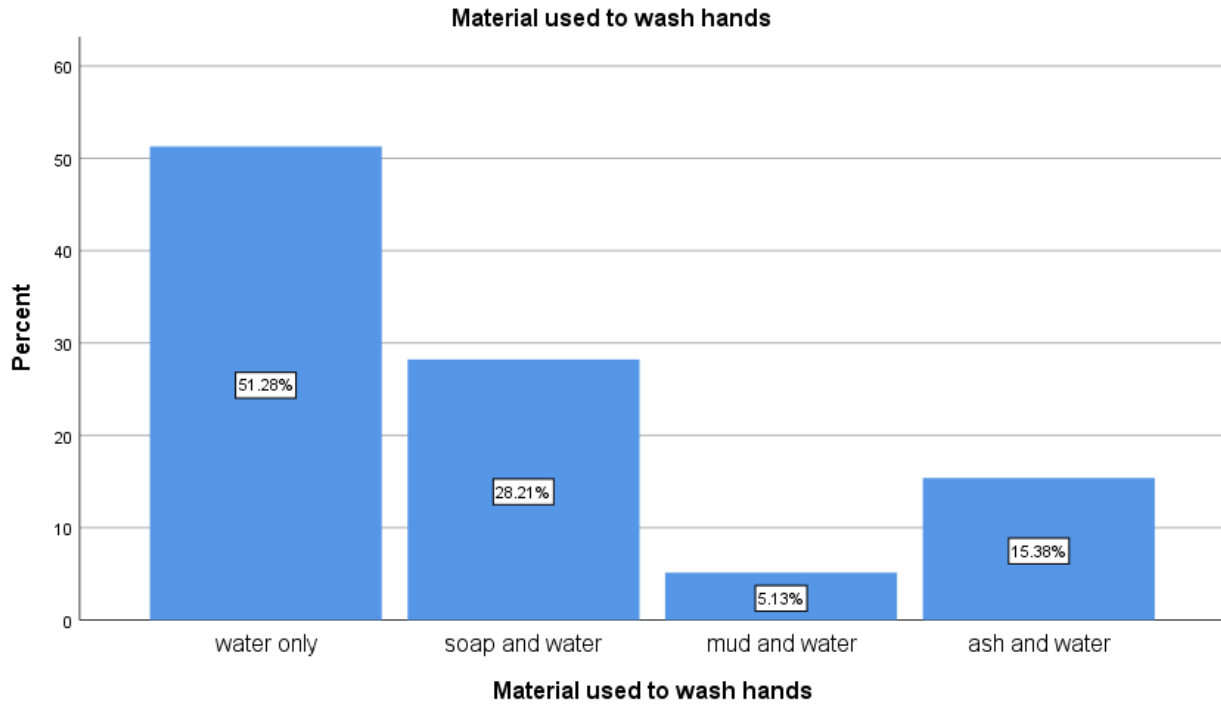


Figure 4. 15 Material used to wash hands

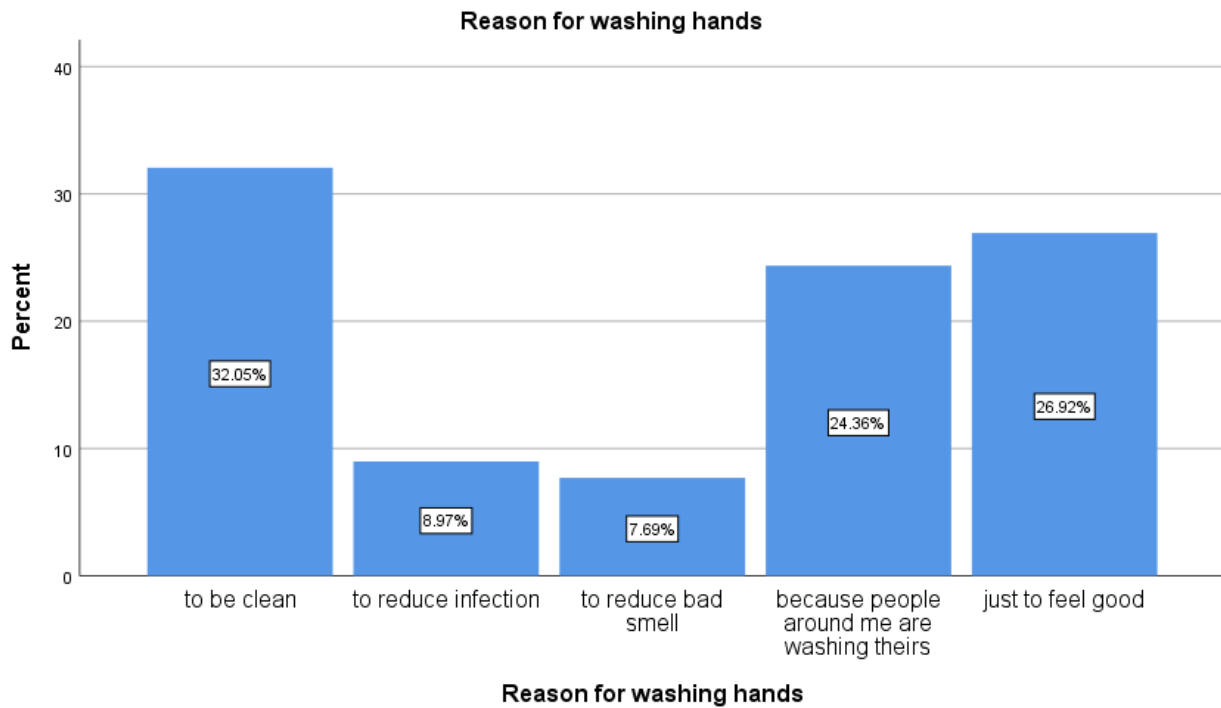


Figure 4. 16 Reasons for washing hands

32% of the respondents washed their hands to be clean 26.9% just to feel good,24.4% because people around them are washing hands while the least being 8.9% and 7.7% to reduce infection and to reduce bad smell respectively.

The condition of the sanitation facilities in the study area was pathetic with broken doors and foul smell. The sanitation facilities were mostly shared among numerous people with no consideration of gender segregation and women integrity. Behavioral insights should be emphasized even more so that people can use the sanitation and hygiene facilities. Sanitation and hygiene will not be solved by only building a latrine or putting a hand washing station, there is need for a deeper knowledge and understanding on the importance of using the facilities.

The role that households play in providing sanitation cannot be overemphasized. In most countries, households remain the major source of financing for sanitation, generally contributing around 60% of investment in the sector, Kenya is no exception. This is explained by the fact that sanitation practices and hygiene behaviors are at the discretion of the individual in a more or less private setting.

4.1.5 The link between poor sanitation and hygiene practices and prevalence of WASH related diseases

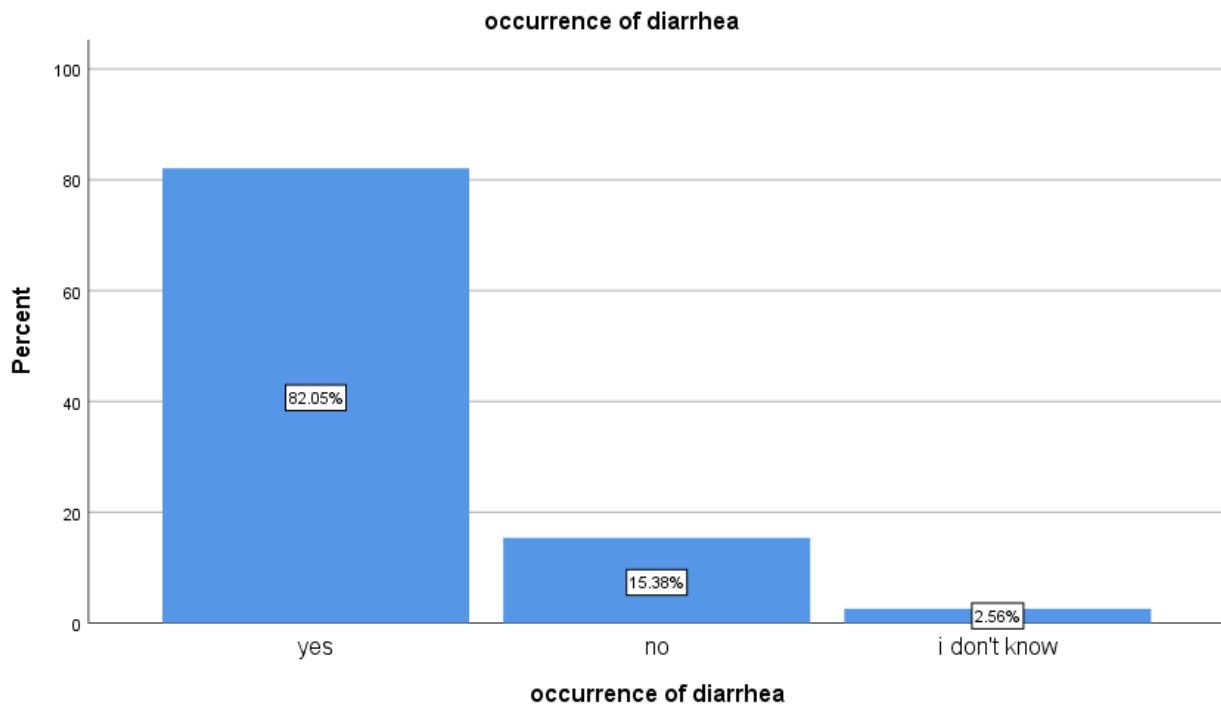


Figure 4. 17 Occurrence of diarrhea in the study area

A high occurrence of diarrhea was noted from the respondents being 82.1%, 15.4% of the respondents indicating no occurrence and 2.56% some were not aware of any occurrence. As indicated by a review done by Bhavnani, (2014) in Ecuador unimproved water sources and unimproved sanitation are the significant danger variables of diarrhea. The study showed that unimproved water sources and unimproved sanitation increased the chances of diarrhea (Bhavnani & J, 2014).

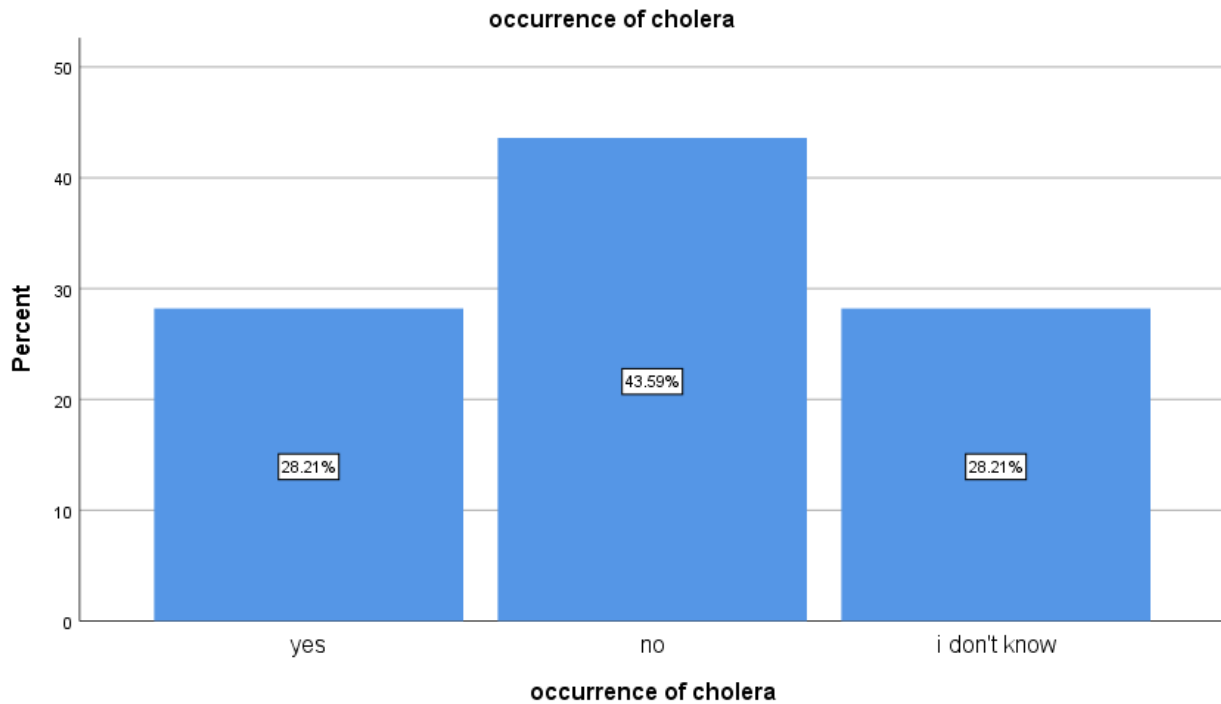


Figure 4. 18 Occurrence of cholera

Majority of the respondents comprising of 43.6% indicated a low occurrence of cholera while 28.2% being an equal measure of those that were not aware of an occurrence and those that had an occurrence of cholera.

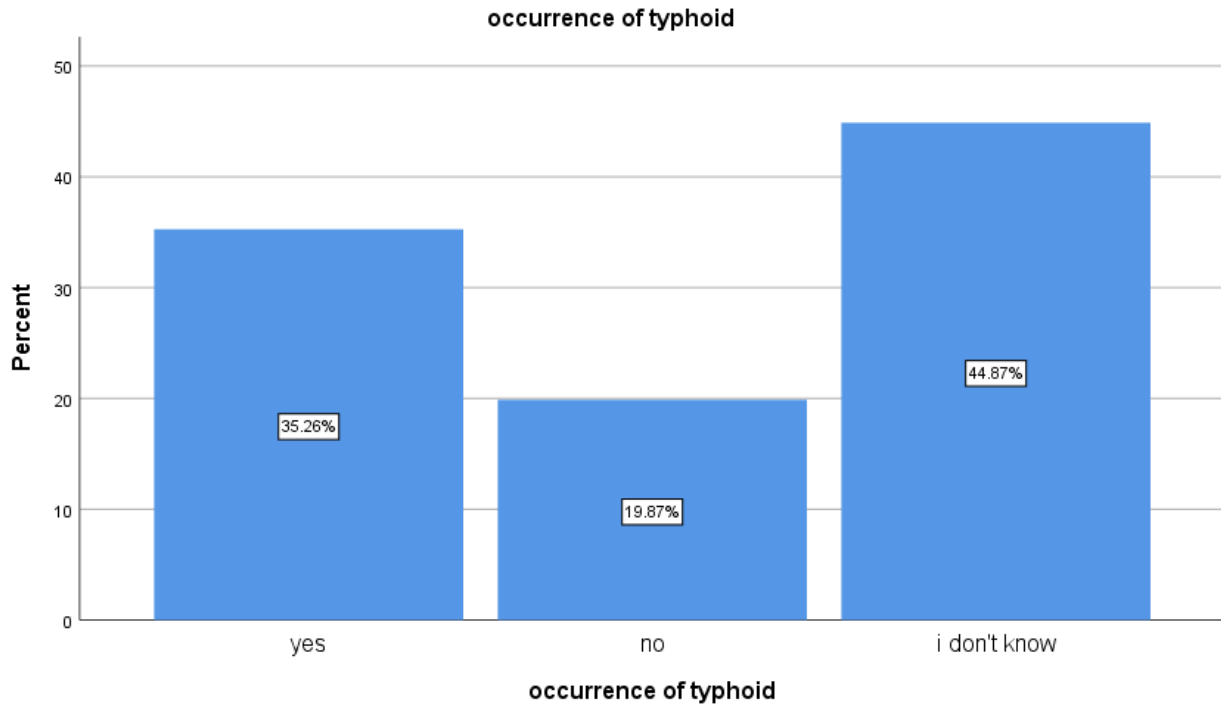


Figure 4. 19 Occurrence of typhoid

44.9% did not know of any occurrence of typhoid, 35.3% had an occurrence of typhoid while 19.87% were not aware of any occurrence.

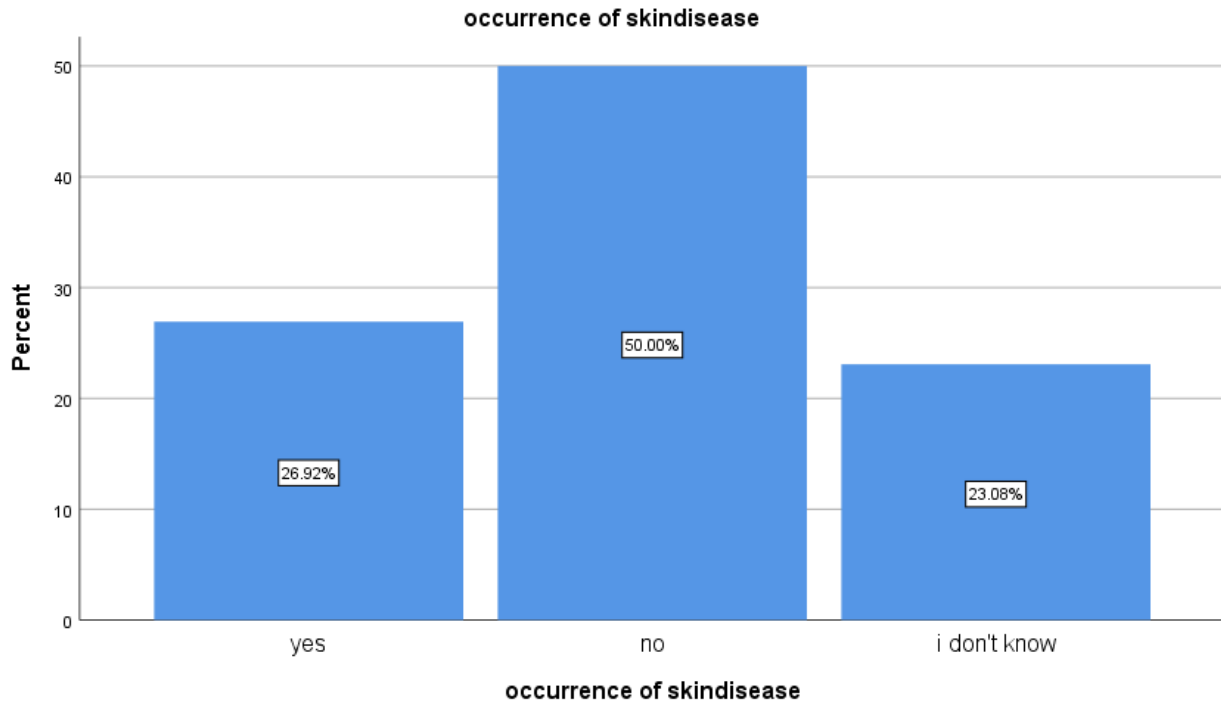


Figure 4. 20 Occurrence of skin disease

Half of the respondents 50% had not had an incidence of skin diseases, 26.9% had an incidence while 23.1% were not aware of any incidence.

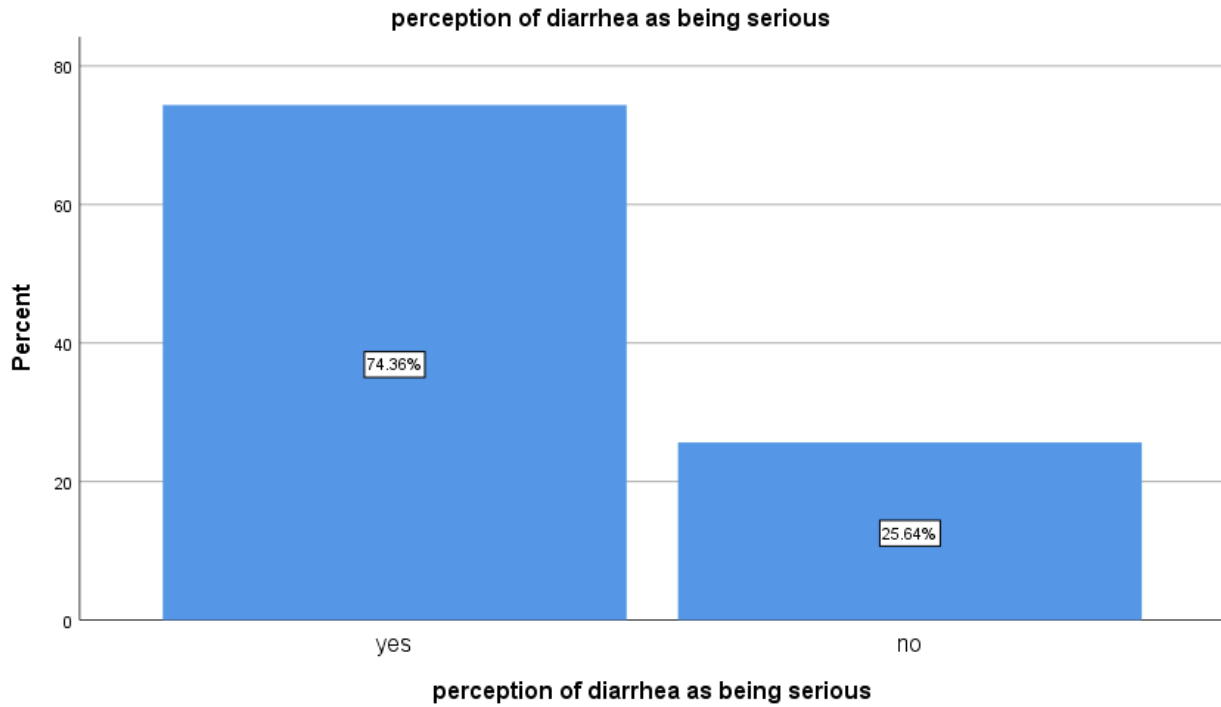


Figure 4. 21 Perception of diarrhea as a serious disease

A clear note that diarrhea was a serious disease as per the responses from the respondents being 74.4% and a low percentage of 25.7% saying it is not a serious disease.

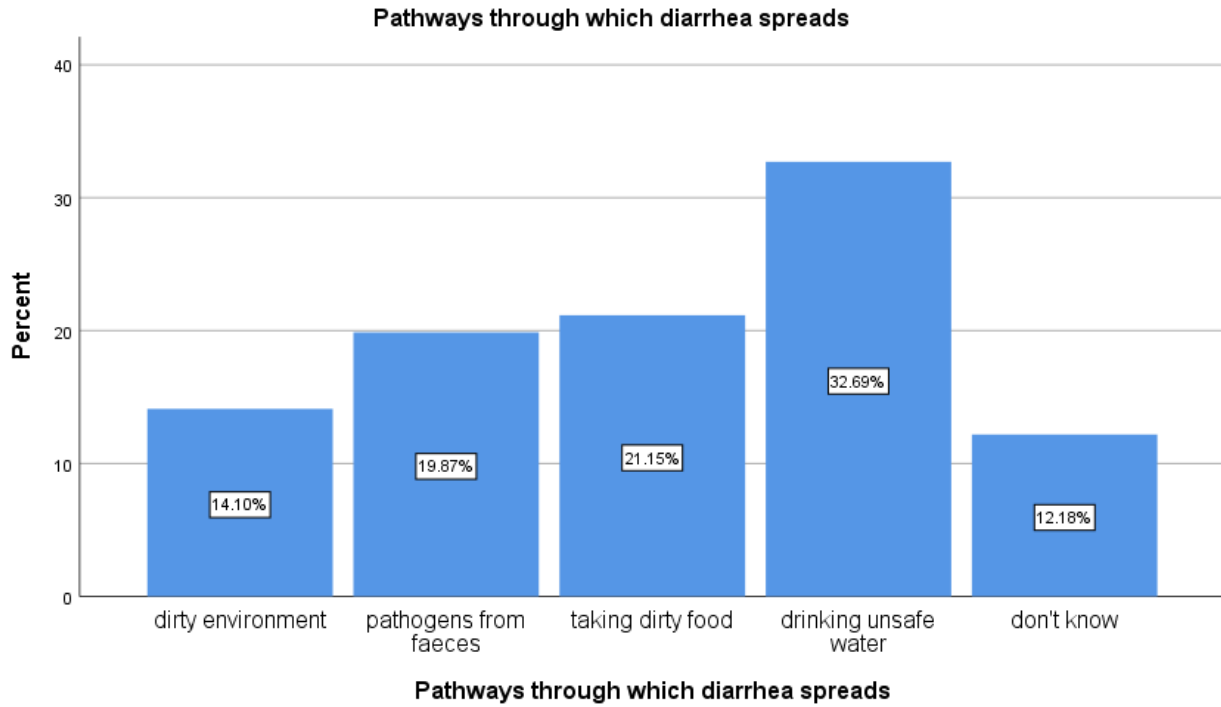


Figure 4. 22 Pathways through which diarrhea spreads

As per the results 32.7% considered drinking unsafe water as a major way of diarrhea spread, 21.2% taking dirty food, 19.9% from pathogens of faeces, 14.1% from dirty environment and 12.2% were not aware of how it is spread.

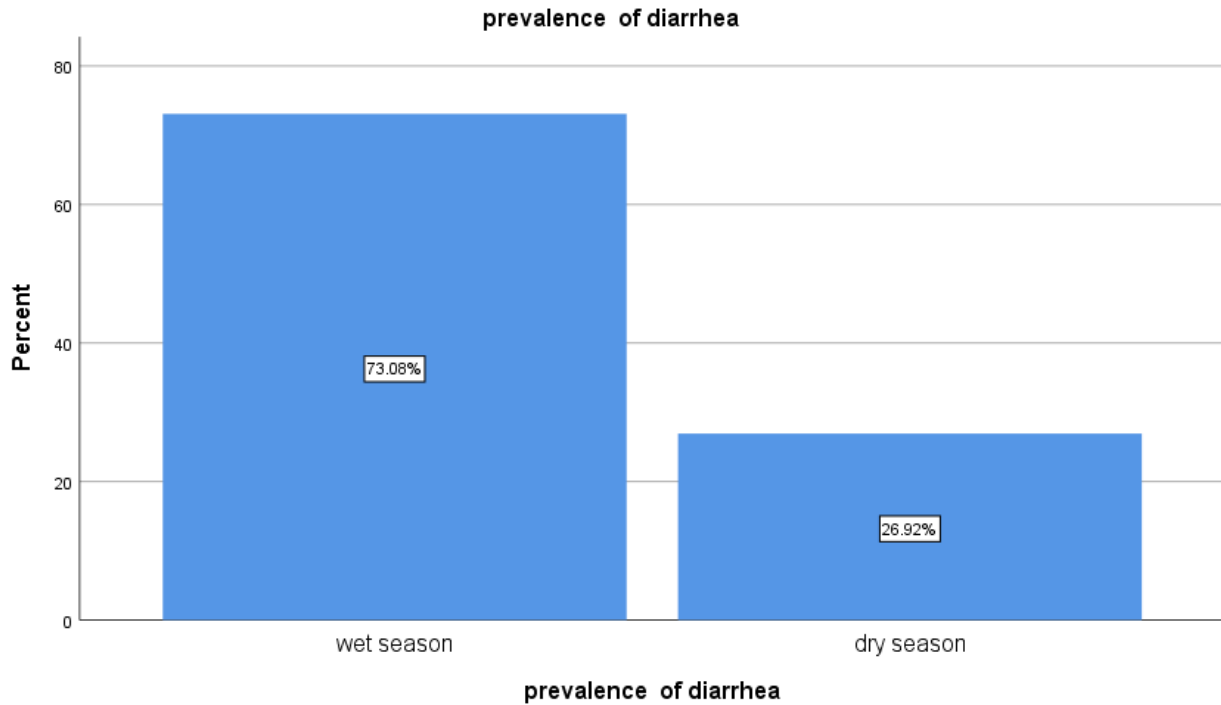


Figure 4. 23 Prevalence of diarrhea

73.1% of the respondents associated the prevalence of diarrhea with wet season while 26.9% associated it with dry season. This agrees with (Onyango & Angienda, 2010) that stated. The high occurrence of diarrheal diseases during the wet season could be ascribed to undeniable degree of microbial contamination brought about by surface run-off as much fecal matter is washed into water bodies that also happen to be sources of drinking water.

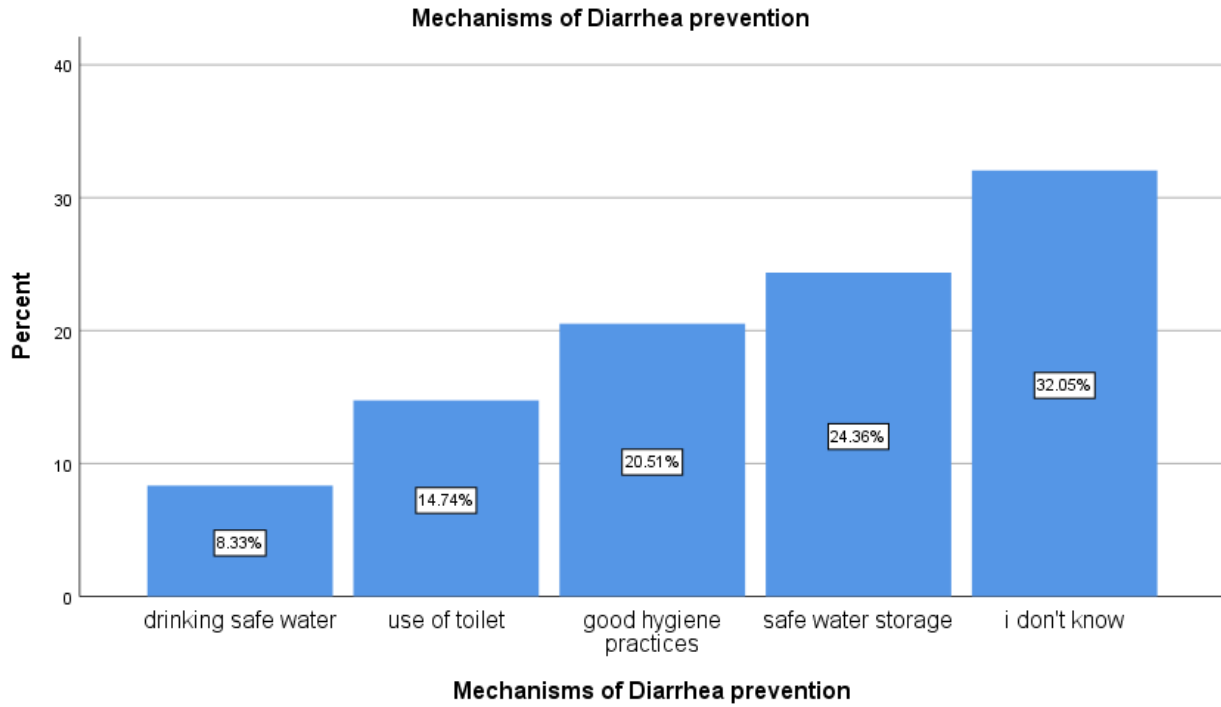


Figure 4. 24 Mechanisms of Diarrhea prevention

32.1% lacked knowledge on the prevention ways of diarrhea while 24.36% and 20.5% considered safe water storage and good hygiene practices respectively as a way and the minority 14.8% and 8.3% talked of use of toilet and drinking safe water as a way of prevention

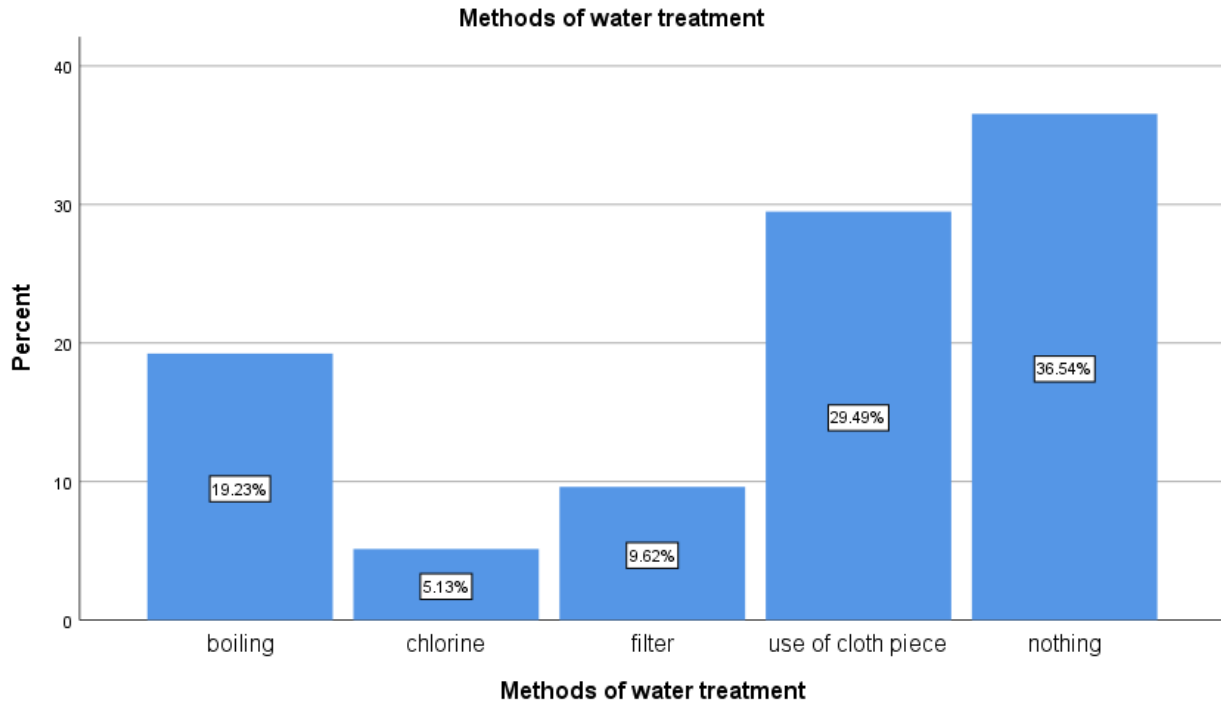


Figure 4. 25 Methods of water treatment

According to the study, 36.54% did not treat their water to make it safe for drinking, most of them used a piece of cloth to make the water safe for drinking, 19.2% boiled their water whereas 9.62% and 5.13% used filter and chlorine respectively.

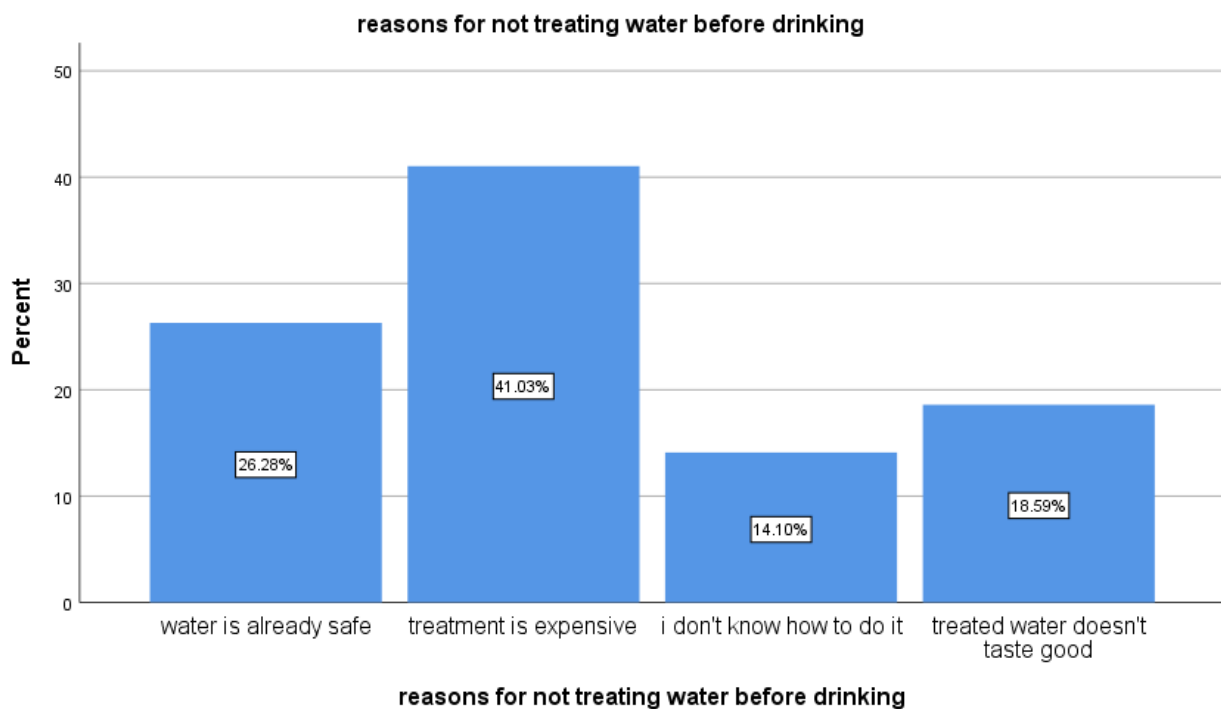


Figure 4. 26 Reasons for not treating water before drinking

Most respondents comprising of 41% indicated that treatment of water is expensive and therefore saw no reason to treat it, 26.3% regarded water as being safe already for drinking, as 18.6% noted that treated water wasn't good and a minority 14.1% didn't know how to do it.

Figure 4.6 showed the type of latrine used by the respondents and the number of people who have suffered from diarrhea. All the respondents that used bucket latrine and bushes have suffered from WASH related illnesses like diarrhea. 36.54% of those who used a traditional latrine have suffered from diarrhea. Inadequate access to improved sanitation facilities according to the study is a major cause of sanitation and hygiene related illnesses.

Figure 4.13 showed that 40.38% of respondents that only washed their hand after eating have at one point suffered from WASH diseases.

4.2 Discussion

4.2.1 The existing sanitation and hygiene policies links in Kakamega

There are sufficient policies addressing sanitation at various levels (GLAAS, 2014) however the gaps between policy and “words,” execution or “action,” and result remain a reason for worry in most developing regions, sub-Saharan Africa (SSA) being no special case (GLAAS, 2017). Numerous nations in SSA cannot effectively implement their sanitation policies and projects on account of certain elements including inadequate financial and human resources (GLAAS, 2014). The focus on ambitious policies without much regard for how they are actually funded and viably executed (GLAAS, 2017) also contributes to the gap between aspirations, goals and results (GLAAS, 2014) and (GLAAS, 2017). Consistent with the unequal policy attention paid to water and sanitation, progress towards providing sanitation facilities ceaselessly falls behind water supply (WHO/UNICEF, 2017)

The Constitution is the incomparable law of the country which entrenches the rights of the citizens. The Constitution states that government has an obligation to guarantee that all Kenyans have access to adequate sanitation. The constitution of Kenya mandated the ministry of water and sanitation responsibility to support the county government in ensuring effective performance of the WASH sector this is in line with the South Africa’s Strategic Framework for Water Services (2003) where national government has the constitutional responsibility to help and strengthen the capacity of local government in the fulfillment of its functions, and to regulate local government to guarantee effective execution of its obligations. Also, national government might foster enactment of legislation overseeing the provision of water and sanitation services. National government through Department of Water Affairs and Forestry (DWAF) set national standards for water and sanitation delivery. Moreover, DWAF has overall responsibility for the management of water resources and for WASH sector policy. The Department of Water Affairs explicit capacities in this regard include sector leadership, promotion of good practice, development and revision of national policies, oversight of all enactments impacting on the water sector. Decentralization in the sanitation sector is normal in most nations in SSA as part of reforms to further develop execution. A large part of the obligation regarding sanitation services is increasingly transferred to the local level, , yet rarely followed by the transfer of power, decision-making and monetary obligation (Ekane, 2018)

In Kenya Sanitation and hygiene was addressed in the KESHP, NHP, KESSF just like Rwanda where sanitation was addressed in the 2016 National Sanitation Policy while in Uganda, sanitation is addressed in the 2010 National Health Policy. County government should help households to work on their own sanitation. They should work with communities and households to advance the importance of sanitation for health, benefits and convenience of a safe and attractive latrine. Along with the community, local government must launch health and hygiene promotion programs, identifying needs for toilet facilities, prioritize these needs and afterwards through explicit undertakings, assist households with building their own toilet facilities. Local government planning is implemented through the Integrated Development Plans (IDPs) of which the Water Services Development Plans (WSDPs) are a part and to carry out sanitation advancement programmes, local government must budget and source funding for these. The funding is drawn from different sources, including revenue collection and provincial and national government budgetary allocations. In the execution of the sanitation programs local government authorities should guarantee that the ecology is protected (Strategic Framework for Water Services, 2003). Local government should help by providing management skills to guarantee the success of the undertakings. Also, health and hygiene advancement messages ought to be reinforced and health monitored on a continuous basis. (Xabendlini, 2010)

Article 11 of the constitution of Kenya clarifies on the significance of cooperation between the national and the county governments in executing government interventions and policies, which agrees with the South African Constitution Section 40 (1) which stipulates that ‘In the Republic, government is constituted as national, provincial and local spheres of government which are interdependent and interrelated’. This shows the way that execution of policies is the program that includes all circles of government and other applicable partners like Community Based Organizations and Non- Governmental Organizations.

The main concerns of the KCIDP concurs with The priorities of the City of Cape Town as far as top twenty results of the Integrated Development Plan (IDP) by which three distinguished issues incorporate infrastructure development, solid waste and access of water and sanitation to the informal settlements inhabitants. It is evident that poor execution of the sanitation and hygiene policies has an adverse consequence to the livelihood of the communities which relates to the health of the community members.

When the KESHP 2016-2030 and other policy links are taken into consideration and properly implemented by the relevant stakeholders by creating sanitation and hygiene awareness to the people there will be less disease burden and this will result to improved health and quality of life to all.

4.2.2. Knowledge and awareness of the sanitation and hygiene policies

Knowledge and awareness is one of the essential elements in effective sanitation interventions though there is little that has been done in this area. The households' knowledge on sanitation basically entails the facts, information and skills acquired by the households regarding their roles and responsibilities in ensuring sustainable sanitation and hygiene management of which most of the respondents were not aware of the relevant policy links related to sanitation and hygiene this agrees with the study by Juliana et al., (2018) which reported that Existing sanitation and hygiene policies and legal frameworks are least known to the target population not complying with the laws and playing little or no role at all in influencing policy for the promotion of appropriate sanitation management approaches (Agwata et al., 2017). The compliance level was also noted to be very low since most of the households are not aware of the policies governing the sanitation and the hygiene sector this is in line with the study by Juliana et al., (2018). Most of the participants in this study did not play any role in influencing the formulation, implementation, amendment and review of the sanitation policies. Those who were aware of the policy did not have the right interpretation of the guidelines therein and thus affecting its implementation.

4.2.3. Household access to sanitation and hygiene facilities

The most common sanitation facility used by many households is the traditional pit latrine (Letema, B, & Lier, 2014). These settlements lack systems for disposal of sewage, excreta, silage and solid wastes, which may cause health and environmental dangers. In particular, Human waste disposal is a major problem, which renders informal settlements an unhygienic residing place for the occupants (WHO/UNICEF, 2014)

The condition of the sanitation facilities in the study area was pathetic with broken doors and foul smell. Inadequate household sanitation facilities in informal settlements force residents to share the few available facilities, a practice that some authors have proposed as being the most practical

alternative (Kabange & Nkansah, 2015). The sanitation facilities were mostly shared among numerous people which is consistent with the study done by Simiyu et al.,(2017) which established that shared facilities, most of which were dirty, were shared by an average of eight households, and their quality decreased with an increase in the number of households sharing (Simiyu et al., 2017). Tumwebaze et al.'s study recommended that facilities be shared by a limit of four people (Tumwebaze & Mosler, 2014) Coverage of improved sanitation and hand-washing facilities was low among households. The majority of the sanitary facilities were unimproved and had no hand-washing facility. The low hand-washing facility coverage in our study can be explained by the fact that many households shared sanitary facilities, hence individual household members could have opted to wash their hands elsewhere due to poor maintenance associated with communal hand-washing facilities. (SSemugambo, Wafula et al., 2020)

One of the key informant interviewers said that most people don't use the public toilet that are in the main centers claiming that "they can't pay for shit" so some opt to defecate openly. This agrees with WHO, (2014) that states It is approximated that internationally in metropolitan regions, in excess of 100 million metropolitan tenants are compelled to poop in the open, into squander paper and plastic sacks since public latrines are not accessible or are excessively far off and costly (WHO/UNICEF, 2014).

In spite of the acknowledgment of the significance of observing good hygiene practices and the risk of poor hygiene practices, many households in the study area had not implemented good hygiene practices. The frequency of sanitation facility cleaning should be at least once a day and more often where there are more users of the sanitation facility. In addition, it is important to mention that sanitation facilities such as toilets cannot work as expected without water. For instance, an individual must wash hands subsequent to utilizing the sanitation facility. Notwithstanding, the challenge is that the communal water points in the country regions are situated a long way from the sanitation facilities. This makes difficult for communities to wash their hands subsequent to utilizing the latrine. There is likewise a challenge in the maintenance and sustainable management of these facilities more so for the facilities that shared by a number of individuals within the community. For instance, more than four households are sharing one latrine thus posing a challenge on the sustainable maintenance of the condition of the facilities.

4.2.4 The link between poor sanitation and hygiene practices and prevalence of WASH related diseases

Inadequate access to sanitation and hygiene account for a large part of the burden of illness and health in emerging nations (WHO/UNICEF, 2017). The health consequences of inadequate WASH services include an estimated 4 billion cases of diarrhea and 1.9 million deaths each year, mostly among young children in developing countries. Improving global access to safe water, proper sanitation and hygiene is one of the least expensive and most effective means to improve public health and save lives. Household and environmental hygiene also tend to be poor, and children stool is often overlooked and perceived harmless in sanitation programs, hence increasing the risk of disease transmission (Islam M, 2018)

It is not possible to avert sanitation related diseases and ill health by providing adequate sanitation facilities alone without paying attention to improving the standards of hygiene. Despite the significance of hygiene in diseases prevention, various studies have pointed to poor uptake of sanitation and hygiene practices globally. Globally, 3 in 10 people or 2.3 billion do not have access to basic hand washing facilities with water and soap at home, including 670 million people without any facility by any means. In the least developed countries, more than 6 in 10 people lack basic hand hygiene facilities at home (WHO/UNICEF, 2021). Virtually, diarrhea infections thrive under poor hygienic conditions primarily through ingesting water or anything contaminated with human and animal faeces (WHO/UNICEF, 2019). Stopping the spread of loose bowels sickness isn't muddled, or expensive, yet it is fundamentally significant that hand-washing with soap becomes normal for everybody (UNICEF, "Clean hands save lives"- Global Handwashing Day, 2018).

The result of this study are steady with those of Abdulkadir et al., (2018), that revealed that diarrhoea is the most common waterborne diseases found and is commonly among all age group and villages (Abdulkadir et al., 2018). The result of this study on the season that diarrhea is prevalent is in line with study by Bhavnani et al., that stated that high frequency of diarrhoeal sicknesses happened during the wet season could be credited to significant degree of microbial pollution brought about by use of an unimproved water source, unimproved sanitation, and extreme rainfall events (Bhavnani & J, 2014). Despite the people being aware of the dangers of diarrhea still most of them did nothing to make their water safe before drinking, this agree with study done in Parla village, Kurnool district which established that 71.6% interviewed households were not following any household water purification method (Hothur, Arepalli, & Bhadreshwara,

2019).But all these diseases related to WASH can be reduced by good sanitation and hygiene practices. Improved sanitation facilities are known to be more hygienic and related studies have advocated for the use of pour flush in an effort to eradicate open defecation.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Findings

This study aimed at assessing the effectiveness of the sanitation and hygiene policy links in Lurambi Sub County in Kakamega County, Kenya. The first objective of the study was to assess the existing policies applicable in the study area and their implementation and the results showed that The sanitation and hygiene policy links are in line with the current Kakamega county integrated development plan however, the level of awareness on the sanitation and hygiene policies and strategic documents is very low among many actors within County government and Civil Society Organisations.

The second objective of the study was to assess the level of knowledge and awareness of the community members on the sanitation and hygiene policy links in Kakamega county and the results show that 57.1% of the respondents are not aware of the sanitation and hygiene policy links that are applicable in Kakamega County and thus poor implementation and compliance with the policies. This represented the majority of the respondents interviewed. When cross tabulation was conducted to analyze relationship knowledge and awareness of the community on the policy links and those who practice open defecation it was found that majority of those who open defecate are not aware of any of the policies. There is a relationship between inadequate knowledge and awareness of the sanitation policy links with the good sanitation and hygiene practices and behavior.

The third objective sought to assess the household access to sanitation and hygiene facilities in the study area and the results showed that 94.23% of the respondents do not have access to improved sanitation facility because they depend on bushes/sugarcane, bucket latrine and traditional pit latrine to dispose their excreta of which most of them are shared. It was noted that open defecation is still a common practice among the community members in the study area and thus making it even more difficult to achieve the aspirations on the policy to ensure we are Open Defecation Free by 2030

The fourth objective of the study was to determine the link between poor sanitation and hygiene and the predominance of the waterborne diseases in the area and the results from the study showed that inadequate access to improved sanitation facilities according to the study is a major cause of

WASH related illnesses. Most of the respondents have suffered diarrhea and acknowledge it as a serious disease but are not willing to take the preventive measures.

5.2 Conclusions

The study made the following conclusions;

The existing sanitation and hygiene policy links in Kakamega are sufficient enough with good plans and aspirations but the implementation clearly indicate gaps which require urgent attention to ensure results are achieved. There is also an indication that the policies are not being followed by the different actors in the sector because of their inadequate of access to the policy and strategic sanitation documents.

Based on the study, the respondents had least knowledge and awareness of the relevant sanitation and hygiene policy links because there is no sensitization and thus this slowed down the implementation of the policies. There is need for satisfactory partner involvement in the goal of guaranteeing that each individual from the general public has adequate access to sanitation and hygiene services even as it is in the policies.

Poor sanitation and hygiene practices contributed to the prevalence of the waterborne diseases especially diarrhea in the region

5.3 Recommendations

- Involvement of the local communities in implementation of community sanitation programs such as community-led total sanitation (CLTS) and WASH to help eradicate/curb open defecation, and water-related diseases, respectively
- Conduct Public health campaigns and awareness on the need and importance of toilets at enhancing human and environmental health
- Translating water and sanitation policy documents into Kiswahili and vernacular
- Allocating financial resources for implementation of the existing water, sanitation and Hygiene policies.

5.4 Suggestion for further research

Further research need to be carried on the same area of study but in a different locality in the country.

References

- Abdulkadir, N., Usman, H. M., & G, M. (2018). Prevalence of Waterborne Diseases in Relation to Age and Gender in Nakoloke Sub County Mbale District, Uganda. *JOURNAL OF ADVANCEMENT IN MEDICAL AND LIFE SCIENCES*.
- Agwata, J., Anyango, S., & Kamanthe, J. (2017). : Effectiveness of sanitation policy instruments in Mavoko Municipality of Machakos County, Kenya. , *Cogent Environmental Science*.
- AMREF. (2007).
- Andres, L., Chase, C., & Echenique, J. (2014). Sanitation and Externalities: Evidence from Early Childhood Health in Rural India. *Policy Research Working Paper 6737*.
- APHRC. (2012). *Urban Health in Kenya: Key Findings: The 2000 Nairobi Cross-Sectional Slum Survey*. Nairobi.
- Aswathy, S. K. (2015). Knowledge and Practice Regarding Environmental Sanitation and Hygiene among General Population. *Global Journal for Research Analysis*, 4, 158-159.
- Banda, B., Hassan, R., & Faroifi, S. (2006). Determinants of quality and quantity values of water for domestic uses in the steelpoort sub-basin: a contingent valuation approach. *Water Governance for Sustainable Development*, 230, 167–188.
- Bhavnani, D., & J, G. (2014). Impact of rainfall on diarrheal risk associated with unimproved water and sanitation. *The American journal of tropical medicine and hygiene*.
- Bloomfield, S., Exner, M., & Scott, E. (2009). *The global burden of hygiene-related diseases in relation to the home and community*. International Scientific Forum on Home Hygiene (IFH).
- Bodzewan, E., Lange, I., & Fonyuy. (2014). Prevention Practices from water Borne Diseases Within Households. *GLOBAL JOURNAL OF MEDICAL RESEARCH*, 26.
- Chandak, A. (n.d.).
- Choffnes, R., & Mark, A. (2009). Global issues in Water, Sanitation and Health: Workshop Summary.
- Ekane, N. (2018). Linking sanitation policy to service delivery in Rwanda and Uganda: From words to action. *Wiley-Blackwell*.
- Freeman, M., Ravani, M., Migele J., & O'Reilly, C. (2007). The impact of a school-based safe water and hygiene programme on knowledge and practices of students and their parents: Nyanza Province, western Kenya. *Epidemiological Infections*, 136, 80–91.
- GLAAS. (2014). *Investing in Water and Sanitation*. UN-Water.
- GLAAS. (2017). *Financing universal water, sanitation and hygiene under the Sustainable Development Goals*.

- GLAAS. (2018). Contry survey.
- GoK. (2007).
- GoK. (2007). Vision 2030: A Globally Competitive and Prosperous Kenya. Government of Kenya, Nairobi.
- GoK. (2010). Costitution of Kenya.
- GoK. (2016).
- Gunther, C., Calderon, R., & Wade, T. (2006). Assessing waterborne risks. *National Library of Medicine*.
- Hilderbrand, C., & Corburn, J. (2015). Slum Sanitation and Social Determinants of Women's Health in Nairobi, Kenya. *Journal of Environmental and Public Health*.
- Hothur, R., Arepalli, S., & Bhadreshwara, A. (2019). A KAP study on water, sanitation and hygiene among residents of Parla village, Kurnool district, Andhra Pradesh. *International Journal of Community Medicine and Public Health*.
- IISD. (2020). World Population Datasheet.
- Islam M, E. A. (2018). Unsafe disposal of feces of children <3 years among households with latrine access in rural Bangladesh: Association with household characteristics, fly presence and child diarrhea. *PLoS One*.
- Kabange, R. S., & Nkansah, A. (2015). Shared Sanitation Facilities: A Reality or Mirage? *American Academic Scientific Research Journal for Engineering, Technology, and Sciences*.
- Letema, S., B, J., & Lier, V. (2014). Sanitation policy and spatial planning in urban East Africa: Diverging sanitation spaces and actor arrangements in Kampala and Kisumu. *ScienceDirect*.
- Medicine, I. o. (2009). *Global Issues in Water, Sanitation, and Health: Workshop Summary*. Washington, DC. The National Academies Press.
- Meinhardt, P. (2007). Recognizing waterborne disease and the health effects of water contamination: a review of the challenges facing the medical community in the United States. *Journal of Water and Health*, 4, 27–34.
- Miner C. A., D. A. (n.d.). Envuladu E. A. Household drinking water; knowledge and practice of purification in a community of Lamingo, Plateau state, Nigeria. *Journal of Environmental Research and Management*.
- Mohd, R., & Itrat, M. (January 2017). Sanitation and Hygiene Knowledge, Attitude and Practices in Urban Setting of Bangalore: A Cross-Sectional Study. *Journal of Community Medicine & Health Education* 07(04).

- Mohd, R., & Malik, I. (2017). Sanitation and Hygiene Knowledge, Attitude and Practices in Urban Setting of Bangalore. *Journal of Community Medicine & Health Education*.
- Montgomery, M. A., & Elimelech, M. (2007, January 1). Water and Sanitation in Developing Countries. p. 18.
- Mustapha, O. O. (2020). Assessment of Knowledge, Attitudes, and Practices on Water, Sanitation, and Hygiene in Some Selected LGAs in Kaduna State, Northwestern Nigeria. *Environmental and Public Health*.
- Njiru , P., Omuterema, S., & Lilechi D., B. (2016). Sanitation In Relation To Prevalence of Waterborne Diseases in Mbeere, Embu County, Kenya. *Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) e-ISSN: 2319-2402,p- ISSN: 2319-2399. Volume 10, 59-60.*
- Odafivwotu Ohwo, T. A. (2018). Assessment of water sanitation and hygiene services in sub Saharan Africa.
- Odafivwotu, O., & Tano Dumoyei, A. (2018). Assessment of Water, Sanitation and Hygiene Services. *European Scientific Journal*, 308.
- Safo-Adu, G., & Hanson, R. (2019). Practices and Knowledge about Environmental Sanitation and Hygiene Among Urban Dwellers in Gomoa East District, Ghana. *European Journal of Earth and Environment*, 2.
- Schuster-Wallace, C., Cheng, J., Watt, S., & Mente, A. (2012). Anecological quantification of the relationship between water, sanitation and infant child, and maternal mortality. *Environmental Health 11*.
- Simiyu, S., Swilling, M., Caincross, S., & Rheingans, R. (2017). Determinants of quality of shared sanitation facilities in informal settlements: case study of Kisumu, Kenya. *BMC Public Health*.
- Sophie Githinji, C. H. (n.d.). Kenyan school book knowledge for water, sanitation, hygiene and health. *International Journal of Hygiene and Environmental*.
- SSemugambo, Wafula, S. T., Osuret, J., & Charles. (2020). Characteristics of sanitation and hygiene facilities in a slum community in Kampala, Uganda. *International Health*.
- Tumwebaze, I., & Mosler, H.-J. (2014). Shared toilet users' collective cleaning and determinant factors in Kampala slums, Uganda. *BMC Public Health*.
- UNICEF. (2017). *Diarrhoea remains a leading killer of young children, despite the availability of a simple treatment solution*.
- UNICEF. (2018). "Clean hands save lives"- Global Handwashing Day.
- UNICEF. (2021). Global Handwashing Day.

- UNICEF/WHO. (2018). *Progress on drinking water, sanitation and hygiene: 2017 update and asustainable Development Goal baselines.*
- UNICEF/WHO. (n.d.). Water, Sanitation and Hygiene.
- UNICEF/WHO/JMP. (2021). Drinking Water and Sanitation.
- UN-WATER. (2020). Water and climate change.
- USAID. (2011). The KAP Survey Model (Knowledge, Attitudes and Practices). *Spring.*
- WHO/UNICEF. (2008). *Progress on Drinking Water and Sanitation special focus on Sanitation.*
- WHO/UNICEF. (2013). *Progress on Sanitation and drinking Water.*
- WHO/UNICEF. (2014). Global water supply and sanitation assessment report. USA.
- WHO/UNICEF. (2017). *Progress on drinking water, sanitation and hygiene.*
- WHO/UNICEF. (2019). *Progress on household drinking water, sanitation and hygiene.*
- WHO/UNICEF. (2021). Global Handwashing Day.
- WHO/UNICEF. (2021). Progress on household drinking water, sanitation and hygiene.
- Xabendlini. (2010). An Examination of Policy Implementation of Water and Sanitation Services in the City of Cape Town: a Case Study of the Informal Settlements in the Khayelitsha Area.
- Xabendlini, M. (2010). *An examination of policy implementation of water and sanitation services in the city of Cape Town: a case study of the informal settlements in the Khayelitsha area.*
- Yaya S, H. A. (2018). Improving Water, Sanitation and Hygiene Practices, and Housing Quality to Prevent Diarrhea among Under-Five Children in Nigeria. *Trop Med Infect Diseases.*
- Yusuf A. S., J. W. (2014). Review on prevalence of waterborne disease in Nigeria. *Journal of Advancement in Medical and Life Sciences.*

APPENDICES

APPENDIX 1: PARTICIPATION INFORMATION SHEET AND INFORMED CONSENT FORM

Title of the Master Thesis Project: Effectiveness of The Sanitation and hygiene policies in Kakamega County, Kenya

My name is Rabecca Mwenje Wefwila and I am part of a team carrying out a survey for a research project looking at: The effectiveness of the sanitation policies in Kakamega County, Kenya. This research is conducted by a Master's student at the Pan African University Institute of Water and Energy Sciences (including Climate Change) (PAUWES), University of Tlemcen, Algeria in collaboration with Common Ground for All Africa.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take the time to explain. If you have questions later, you can ask them to me or to another researcher of the team.

1. Aim of the study

The study aims to assess the **effectiveness of the sanitation and hygiene policies links in Kakamega County, Kenya.**

The study aims to better understand

1. The existing sanitation and hygiene policy links in Kakamega
2. The level of knowledge and awareness of Kakamega residents on sanitation and hygiene Policies and Practices.
3. The household access to sanitation and hygiene facilities in the study area
4. The link between poor sanitation and the prevalence of waterborne diseases in the study area.

2. Type of Research Intervention

We would like to ask you a set of questions for this study. The type of information we seek include; your awareness of the existing Sanitation policies, compliance level, your role in influencing policy formulation and amendment, your access to sanitation and hygiene facilities at household level
We value your opinion and there are no wrong answers to the questions we will be asking. We require about 45 minutes of your time to complete the survey.

3. Benefits of Participation

There will be no direct benefit to you, but your participation is likely to help us find out more about how effective the sanitation policies are in the region. Apart from acknowledging your contribution in sparing time for us in answering the questions, we will also send you the feedback of our results to help you in better decision making in the future. There will be no cost to you.

4. Appreciation

5. Your participation will be highly appreciated. Your answers will help provide information to use in planning for better WaSH services for Lurambi sub County households.

6. Right to Refuse or Withdraw

Your participation in this research is completely voluntary. You are free to withdraw your consent and discontinue answering these questions at any time. I will give you an opportunity at the end of the interview/discussion to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

7. Confidentiality

This study is conducted anonymously. That means, that any information which may lead you will be anonymized. Thus, a researcher who uses the data will never be able to identify you, except with your explicit permission (see below). This is strictly demanded by national and international law, and PAUWES / University of Tlemcen will never infringe that law!

8. Use of the data gained from your answers

Your anonymized answers will only be used for the purpose of research. In any scientific publication the data will be anonymized.

You allow PAUWES to potentially make a second survey round in order to generate panel data. Should PAUWES seek to do this, the new interviewer would get only your name from me. The new interviewer would have to prove his identity to you, using an authorization signed by me.

You allow members of PAUWES to use the data without anonymization in case of panel data analyses. The data will not be given to any other third party without anonymization.

CONTACT PERSON:

If you have any questions, you can ask them now or later. If you feel you have been treated unfairly, or you have questions or concerns you may contact:

Name and address of the researcher

Name: Rabecca Mwenje Wefwila

Tel: +254722864816

Email: mwenjerebeey@gmail.comn

INFORMED CONSENT:

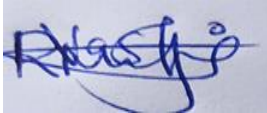
The above statement has been read to me (or I have read it myself) and its meaning has been explained by the research staff. I agree to take part in this research. I understand that I am free to discontinue participation at any time if I so choose and that the research staff/contact person will answer any questions that arise during the course of the survey.

___ Yes, I agree to participate. THEN BEGIN THE INTERVIEW.

___ No, I do not wish to participate. DISCUSS THIS RESULT WITH YOUR SUPERVISOR AND GO TO THE NEXT HOUSEHOLD.

Name of the participant: _____

Signature of Participant: _____ Date: _____

A handwritten signature in blue ink, appearing to be "R. Smith", written over a horizontal line.

APPENDIX 2. QUESTIONNAIRE SCHEDULE

In this section am interested to know your social and the demographic information.

1. Gender:

Male Female

2. How old are you?

18-25 26-32 33-39 above 40

3. What is your level of education?

Primary Secondary Tertiary None

4. What is your Occupation?

Student Employed Business Unemployed

5. What is the number of people living in your household?

1-12 13-24 25-37 above 37

1. The level of knowledge and awareness of the residents on policy instruments relevant to sanitation and hygiene

a. Which one of this existing sanitation and hygiene policy links are you aware of?

Kenya Environmental Sanitation and Hygiene Policy (KESHP 2016-2030)

Kenya Environmental Sanitation and Hygiene Strategic Framework (KESSF), 2016–2030

National Open Defecation Free Kenya 2020 Campaign Framework 2016–2020

National Health Policy Framework (2012-2030)

County Environmental Health and Sanitation Bill (2016)

The Kenya Vision 2030

The Constitution of Kenya 2010

None

All

b. How did you become aware?

Own reading

County government sensitization

Political statement

CBOs/NGOs

Media

Others.

c. Respondents compliance level with the sanitation and hygiene policies

- Maintenance of clean and safe environment
- Proper waste management disposal
- Proper use and maintenance of latrine/toilet
- Toilet for every household
- Attend meetings by health personnel's
- Report problems
- Don't know

d. What is your role in influencing the formulation and amendment of laws and regulations?

- Participation in stakeholder meetings
- Sensitize others on matters sanitation and hygiene policy links
- Good sanitation and hygiene practice
- Attending workshops on sanitation and hygiene
- None

2. To evaluate the household access to sanitation and hygiene facilities in the study area

a. What type of sanitation facility does the household have access to?

- Traditional pit latrine
- Bushes/sugarcane plantations
- Flush toilet
- Bucket latrine
- None

b. Where is the sanitation facility located

- On plot
- Off plot

c. Do you pay to use sanitation facilities

- Yes
- No

d. Approximately how many people/household share it?

- 1-5
- 6-10
- 10-15
- Above 16

e. Is open defecation practised by you or any other member of your household

- Sometimes
- Seldom
- Often always
- Never

f. How often is the sanitation facility cleaned and disinfected

- Daily
- Twice a day
- Weekly
- Only when dirty
- Seldom

g. What do you use to clean the facility?

- Soap
- Water
- Soap + water
- None

h. What is the importance of using a toilet/latrine?

- To keep clean
- To prevent diseases
- To improve dignity
- Reduce risk of harassment
- For safe disposal of human waste

i. How do you dispose the domestic waste?

- Dump in open waste offplot
- Dump in open waste onplot
- Burning
- Compositing
- Scatter waste on the farms

j. If yes where do you wash your hands?

- At the water source
- In the latrine
- Near the latrine

- Kitchen area
- k. How often do you wash your hands?
- Before eating
- After eating
- Before cooking
- After visiting the toilet
- Before weaning the baby

- l. What material do you use to wash your hands?
- Water only
- Soap and water
- Mud and water
- Ash and water

- m. Why do you wash your hands?
- To be clean
- To reduce infection
- To reduce bad smell
- Because people around me are washing theirs
- Just to feel good

3. The relationship between sanitation access and prevalence of waterborne diseases in the study area

- a. Has any member of this household suffered any of this illnesses this year?

Illness	Yes	No	Don't know
Diarrhoeal			
Cholera			
Typhoid fever			
Skin diseases			

- b. Is diarrhoea a serious diseases

- Yes No
- c. How is diarrhoea spread?
- Dirty environment
 - Pathogens from faeces
 - Taking dirty food
 - Drinking unsafe water
 - Don't know
- d. Which season is the diarrhea infection prevalent?
- Wet season.
 - Dry Season.
- e. How can diarrhoea be prevented?
- Drinking safe water
 - Use of toilet
 - Good hygiene practices
 - Safe water storage
 - Don't know
- f. What do you do to make your water safe for drinking?
- Boiling
 - Chlorine
 - Filter
 - Use of cloth piece
 - Nothing
- g. What are the reasons for not treating?
- Water is already safe
 - Treatment is expensive
 - I don't know how to do it
 - Treated water doesn't taste good

THANK YOU FOR YOUR COOPERATION.

APPENDIX 3: OBSERVATION CHECKLIST

Latrine facilities

Presence of the latrine	Yes No
Type of latrine	Pit latrine Flushing toilet
Cleanliness of latrine	Clean Not clean
Presence of a hand washing facility near latrine	Yes No
If yes, is there soap	Yes No
Latrine within 10m of the water point	Yes No
Feaces (animal or human) within 10m from the water point	Yes No
Garbage within 10m from the water point	Yes No
Any other source of pollution within 10m from the water point	Yes No

APPENDIX 4: KEY INFORMANT INTERVIEW GUIDE

This instrument seeks the views of relevant stakeholders in the wash sector on strengths, gaps and opportunities in existing wash policies in Lurambi, Kakamega

INSTITUTION	
NAME OF THE OFFICER	
TITLE	
CONTACT	
DATE OF INTERVIEW	

- a) In your opinion, what is the state of WaSH in Lurambi Sub-county?
- b) How do you contribute to WaSH sector region?
- c) Which institute works directly in the area of sanitation and hygiene?
- d) What are some of the policies guiding the WaSH sector in Lurambi sub-county?
- e) Is KCIDP in line with the WASH policies?
- f) Who is responsible for the implementation of sanitation and hygiene policies?
- g) Ways contributing to achieving and ensuring implementation of WaSH policies in the area
- h) What are the key drivers surrounding implementation of the sanitation policies?
- i) What are the factors slowing down the implementation of the policies?
- j) In your opinion, what are the aspects that require review to ensure effectiveness of the policies?
- k) Are there any approaches you think should be put in place to enhance sustainable WaSH services in Lurambi?

- l) What can be used to reduce the gaps between policy formulation and implementation?

- m) How has your department contributed to the implementation of the sanitation and hygiene policies?

- n) Was the contribution put into consideration?

- o) Are there inputs from the CSOs?

- p) How often are the policies updated?

- q) Efforts being made to counter the arising WaSH challenges

Thank you for your time