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THE INFLUENCE OF SAFE WATER AND SANITATION ON THE PREVALENCE OF WATERBORNE DISEASES IN KAFANCHAN

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ABSTRACT

This study examined the influence of safe water and sanitation on the prevalence of waterborne diseases in Kafanchan. To achieve this objective, a structured questionnaire was administered to 120 respondents selected from various communities in the area. The chi-square statistical method was used to test the study's hypotheses. Findings revealed that community members lack regular access to clean and safe drinking water, prompting many households to boil or treat water before consumption. Poor water quality was found to contribute significantly to frequent health issues. The study also revealed limited access to proper toilet facilities, widespread open defecation, and inadequate waste disposal and drainage systems. Furthermore, cases of waterborne diseases—including cholera, typhoid, and diarrhea—were found to be common, with children and the elderly being the most vulnerable. Government provision of safe water and sanitation facilities was reported to be inadequate, and community participation in maintaining hygiene infrastructure was low. Based on these findings, the study recommends substantial government investment in modern water supply systems such as boreholes, water treatment plants, and pipe-borne water schemes, especially in underserved areas. It also calls for increased provision of public toilets and household-level adoption of hygienic sanitation facilities. Public awareness campaigns on hygiene, sanitation, and waterborne disease prevention should be intensified using media

and community platforms. Effective waste management systems should be established, alongside strict enforcement of water and sanitation regulations. Strengthened collaboration among government agencies, NGOs, and private stakeholders is essential for improving water and sanitation services. Finally, the establishment of rapid response teams and provision of free or subsidized treatment during outbreaks are recommended to reduce health risks and protect vulnerable populations.

KEYWORDS: Safe Water**,** Sanitation**,** Waterborne Diseases**,** Prevalence of Waterborne Diseases**.**

1.1 INTRODUCTION

Access to safe water and proper sanitation is essential for public health, economic development, and overall well-being. Globally, inadequate access to safe drinking water and sanitation facilities contributes significantly to the prevalence of waterborne diseases such as cholera, typhoid, diarrhea, and dysentery [54]. These diseases remain a major public health concern, especially in developing countries, where poor infrastructure and lack of awareness exacerbate the problem [40, 41]. Kafanchan, a semi-urban area in Kaduna State, Nigeria, is not exempt from these challenges, as many residents still rely on unimproved water sources and inadequate sanitation facilities, leading to the persistence of waterborne diseases.

The availability of safe water and proper sanitation is a fundamental determinant of health. According to the United Nations Sustainable Development Goal (SDG) 6, access to clean water and sanitation is critical in reducing mortality and morbidity associated with waterborne diseases [42]. The World Health Organization (WHO) estimates that at least 2 billion people worldwide use a drinking water source contaminated with feces, contributing to the spread of diseases [48, 49]. Similarly, poor sanitation, including open defecation and lack of proper waste disposal, creates an environment conducive to the transmission of pathogens, which ultimately leads to outbreaks of diseases [35].

Kafanchan, a town in Jema'a Local Government Area of Kaduna State, has been facing recurrent outbreaks of waterborne diseases due to inadequate access to potable water and poor sanitation infrastructure. The primary sources of water for many residents include streams, shallow wells, and untreated boreholes, which are prone to contamination [18]. The frequent outbreaks of typhoid fever, cholera, and diarrhea among children and adults indicate the severity of the problem [25]. Research conducted by [2] in Northern Nigeria found a

strong correlation between poor water quality, lack of sanitation, and the prevalence of waterborne diseases, emphasizing the need for urgent intervention in Kafanchan.

Safe drinking water reduces the risk of waterborne diseases by preventing the ingestion of pathogenic microorganisms. Improved water sources, such as piped water, protected boreholes, and treated water supplies, have been proven to significantly decrease disease prevalence [44]. Studies by [31] in Nigeria have shown that households with access to treated or purified water experience fewer cases of diarrhea and other related illnesses compared to those relying on unprotected water sources. Additionally, water treatment methods, such as chlorination and boiling, have been found to be effective in eliminating waterborne pathogens [15].

Sanitation and hygiene practices play a crucial role in minimizing the spread of waterborne diseases. Proper disposal of human waste, construction of latrines, and handwashing with soap significantly reduce the transmission of disease-causing organisms [12]. In Kafanchan, open defecation remains a challenge, with many households lacking access to improved toilet facilities [26]. Studies have shown that communities with improved sanitation and hygiene education experience lower rates of waterborne infections [20]. Therefore, addressing sanitation deficits in Kafanchan is critical to reducing the burden of these diseases.

The Nigerian government, in collaboration with international organizations such as UNICEF and WHO, has implemented several initiatives to improve water supply and sanitation in rural and semi-urban areas, including Kafanchan. The Water, Sanitation, and Hygiene (WASH) program aims to provide clean water sources, promote hygiene education, and improve sanitation infrastructure [14]. Despite these efforts, many communities still face challenges due to poor implementation, inadequate funding, and lack of community engagement [6]. Community participation in water and sanitation projects has been identified as a crucial factor in ensuring sustainability and effectiveness in disease prevention [24].

2.0 LITERATURE REVIEW

2.1 CONCEPTUAL FRAMEWORK

Access to safe water and sanitation is crucial for public health. Waterborne diseases, such as cholera, dysentery, and typhoid fever, remain significant health concerns in many developing countries, particularly where access to clean water and sanitation facilities is limited. The prevalence of these diseases is often closely linked to the quality of water sources and

sanitation practices in a given region [46]. This literature review explores the relationship between safe water, sanitation, and the prevalence of waterborne diseases, focusing on Kafanchan, Nigeria, as a case study.

Waterborne diseases are those diseases primarily spread through the ingestion of contaminated water. They are responsible for significant morbidity and mortality, especially in areas where water quality is poor, and sanitation facilities are inadequate. According to [47], these diseases account for an estimated 1.5 million deaths annually, with most of these fatalities occurring in low-income countries [47]. Common waterborne diseases include cholera, typhoid fever, dysentery, and hepatitis A.

In Nigeria, a country with many regions suffering from water quality issues, the situation is exacerbated by inadequate sanitation practices, poor hygiene, and limited access to safe water sources [4]. The northern region, where Kafanchan is located, faces particular challenges in this regard, with high levels of water contamination due to poor water infrastructure and sanitation practices [26].

Access to safe water plays a critical role in preventing waterborne diseases. Safe water is defined as water that is free from contaminants that could pose a risk to human health [45, 53]. A study revealed that regions with higher access to clean and treated water have significantly lower incidences of waterborne diseases. Safe water reduces the likelihood of diseases such as cholera, which are spread through the ingestion of contaminated water [29]. In Kafanchan, the availability and accessibility of clean water sources, including boreholes, wells, and piped water, can directly influence the rate of waterborne diseases in the region.

The link between safe water and the reduction of waterborne diseases has been consistently demonstrated in various studies. For instance, a study by [13] in southwestern Nigeria found a significant reduction in the prevalence of diarrhea and cholera after communities gained access to safe and treated water sources. This suggests that improving water quality can significantly decrease the burden of waterborne diseases.

In addition to safe water, sanitation plays a pivotal role in controlling the spread of waterborne diseases. Proper sanitation includes the safe disposal of human waste, effective waste management systems, and hygiene practices. According to [43], over 2 billion people

worldwide still lack access to adequate sanitation facilities, which increases the risk of diseases like cholera, dysentery, and other gastrointestinal diseases.

In Kafanchan, inadequate sanitation is a significant factor contributing to the prevalence of waterborne diseases. Many households in the area lack proper toilets, leading to open defecation, which contaminates water sources and exacerbates the spread of waterborne diseases [30]. Additionally, poor drainage systems and improper waste disposal contribute to the contamination of water sources and the spread of disease.

Studies have shown that the provision of basic sanitation facilities, such as toilets and proper waste disposal systems, can significantly reduce the prevalence of diseases like cholera and diarrhea. For example, a study by [5] in urban Nigeria demonstrated that improved sanitation practices led to a substantial decline in the incidence of waterborne diseases. Similarly, a report by the [51, 52] highlighted the importance of sanitation in controlling disease outbreaks and promoting public health.

Kafanchan, located in the southern part of Kaduna State, Nigeria, faces significant challenges in providing safe water and sanitation to its residents. A survey by the [26] revealed that many areas in Kafanchan lack access to potable water, with most households relying on boreholes, streams, and wells, which are often contaminated. Furthermore, the region suffers from inadequate sanitation facilities, leading to the contamination of water sources and increased vulnerability to waterborne diseases [19].

In a study by [3], it was found that the prevalence of waterborne diseases in Kafanchan, particularly cholera and typhoid fever, is high, especially during the rainy season when water contamination is more common due to the flooding of poorly maintained wells and water bodies. The lack of proper waste management systems also contributes to the contamination of local water sources, further exacerbating the health risks faced by the community.

Several initiatives have been launched to improve water access and sanitation in Kafanchan. The Nigerian government, along with non-governmental organizations (NGOs), has been involved in various projects aimed at improving water supply and sanitation infrastructure. One such initiative is the Rural Water Supply and Sanitation Project, which aims to increase access to clean water and improve sanitation in rural communities like Kafanchan. This

initiative has focused on the construction of boreholes, the rehabilitation of existing water systems, and the promotion of hygiene education.

However, challenges remain, particularly in maintaining these infrastructures and ensuring their sustainability. A study by [32] noted that despite efforts to improve water and sanitation systems in many Nigerian communities, the lack of proper maintenance and local involvement in management often leads to the failure of these systems, resulting in the continued prevalence of waterborne diseases.

Safe water refers to water that is free from harmful contaminants such as bacteria, viruses, chemicals, and pollutants. Access to safe water is a key determinant of health, particularly in preventing waterborne diseases. According to [48, 49], safe water should meet specific criteria to be considered potable, including adequate quality (free from pathogens, toxins, and chemicals) and sufficient quantity to meet the daily needs of households.

Waterborne diseases are illnesses that are transmitted through the ingestion of contaminated water. Common waterborne diseases include cholera, dysentery, typhoid fever, and hepatitis A. These diseases are caused by pathogens such as bacteria, viruses, and protozoa, which can be found in untreated or poorly treated water sources [36]. Access to safe water is crucial in reducing the prevalence of these diseases, as it prevents the ingestion of harmful microorganisms.

In many parts of the world, including rural areas in Kafanchan, inadequate access to clean water is a significant challenge. The water sources may be contaminated due to poor infrastructure, lack of sanitation, and unsafe water handling practices. This increases the risk of waterborne diseases in communities that do not have access to safe water [47].

Sanitation refers to the management of human waste, including the safe disposal of excreta and the maintenance of hygienic conditions to prevent the spread of diseases. Effective sanitation involves the provision of toilets or latrines, waste treatment systems, and proper disposal of wastewater. According to [48, 49], sanitation services aim to protect individuals from exposure to harmful pathogens, particularly in areas where open defecation is still practiced, or where sewage systems are inadequate.

Poor sanitation contributes to the contamination of both water sources and the environment. Without proper sanitation systems, human excreta can pollute water sources, leading to

outbreaks of waterborne diseases such as cholera, diarrhea, and dysentery [17]. Inadequate sanitation is a major contributor to the prevalence of these diseases, especially in areas where sanitation infrastructure is either absent or poorly maintained [44]

In Kafanchan, the situation may mirror global challenges, where many households may not have access to adequate sanitation facilities, leading to the contamination of water supplies and increased vulnerability to waterborne diseases. The lack of proper sanitation infrastructure increases the likelihood of the spread of waterborne pathogens [16].

The relationship between safe water, sanitation, and the prevalence of waterborne diseases is well established. Poor water quality, inadequate sanitation, and poor hygiene practices lead to the contamination of water sources, which, in turn, increases the risk of waterborne diseases. [48, 49], inadequate sanitation and unsafe water are responsible for approximately 80% of all diseases in developing countries.

The combined lack of safe water and proper sanitation can lead to widespread outbreaks of waterborne diseases in communities. In Kafanchan, inadequate sanitation and unsafe water sources may facilitate the transmission of diseases like cholera, typhoid fever, and diarrhea, which are all prevalent in regions with poor water management systems [38].

2.2. WATERBORNE DISEASES: CAUSES AND IMPACT

Waterborne diseases are illnesses caused by pathogens (bacteria, viruses, and parasites) that are transmitted through contaminated water. These diseases represent a significant public health challenge, especially in developing regions where access to clean and safe drinking water is limited. Waterborne diseases are a major cause of morbidity and mortality, particularly in children under five years old. The impact of waterborne diseases is wide-ranging, affecting public health, economic development, and social well-being.

1. Causes of Waterborne Diseases

Waterborne diseases are caused by the ingestion of contaminated water containing disease-causing microorganisms. The contamination of water sources occurs due to various factors, including poor sanitation, inadequate waste disposal systems, agricultural runoff, and industrial pollution. Pathogens responsible for waterborne diseases can be broadly categorized into bacteria, viruses, and parasites.

Bacterial Causes Some of the most common bacterial pathogens that cause waterborne diseases include Escherichia coli, Salmonella, Vibrio cholerae, and Shigella. These bacteria

are typically found in contaminated water sources where human and animal waste have been introduced. Escherichia coli is often used as an indicator of fecal contamination in water and can cause gastrointestinal illnesses, including diarrhea and cramps (World Health Organization [45, 53]. Vibrio cholerae, the causative agent of cholera, thrives in areas with poor sanitation and inadequate clean water access.

Viral Causes Viruses such as Enteric viruses, which include rotaviruses, noroviruses, and enteric adenoviruses, are significant contributors to waterborne diseases. These viruses are transmitted through the consumption of water contaminated by fecal matter from infected individuals [11]. Rotavirus is particularly dangerous for young children, as it can lead to severe dehydration and death if left untreated [8].

Parasitic Causes Parasites like Giardia lamblia, Entamoeba histolytica, and Cryptosporidium are commonly transmitted through contaminated water sources. These parasites can cause gastrointestinal illnesses, with symptoms ranging from mild diarrhea to more severe conditions like dysentery [1]. Cryptosporidium outbreaks have been linked to public water systems due to its resistance to chlorine disinfection [21].

Chemical Contaminants Chemical pollutants, such as pesticides, heavy metals (lead, mercury), and industrial chemicals, can also contaminate water and lead to waterborne diseases. These contaminants may not always cause immediate symptoms but can lead to chronic health conditions, including cancer, neurological disorders, and developmental problems in children [33].

2. Impact of Waterborne Diseases

Waterborne diseases have far-reaching effects on individuals and communities, leading to a significant public health burden, economic costs, and societal consequences. Below are the key impacts of waterborne diseases:

Public Health Impact The most immediate and tragic impact of waterborne diseases is the high morbidity and mortality rates. According to the World Health Organization (WHO), approximately 2 billion people globally drink water contaminated with feces, leading to around 485,000 deaths from diarrhea alone every year [45] Children, the elderly, and immunocompromised individuals are particularly vulnerable to these diseases. Diarrheal diseases, caused by bacteria, viruses, and parasites, are a leading cause of death among young children in developing countries [53].

Economic Impact Waterborne diseases place a substantial economic burden on affected countries. The costs associated with healthcare services, treatment, and loss of productivity are significant. In regions where waterborne diseases are prevalent, individuals suffering

from these illnesses are often unable to work, which reduces household income and productivity. In addition, governments spend substantial amounts on public health campaigns, water treatment infrastructure, and disease control measures.

Social and Psychological Impact Beyond physical health, waterborne diseases have a social impact, affecting families and communities. In some cases, entire communities are struck by outbreaks of diseases like cholera, which causes widespread fear and panic. Social stigma can also be associated with certain diseases, which may result in discrimination against those affected. Furthermore, the loss of family members, particularly children, has long-term psychological effects on families and communities.

Environmental Impact The spread of waterborne diseases is often linked to environmental pollution. Contaminated water bodies can impact local ecosystems, including aquatic life, and further exacerbate health risks. Polluted water sources can also affect agricultural productivity, as crops irrigated with contaminated water may also become contaminated, further propagating the disease.

Impact on Education Waterborne diseases contribute to absenteeism in schools, as children who fall ill are unable to attend. This disrupts their education and limits their academic performance. In some extreme cases, children may have to drop out of school to help care for ill family members.

2.3 THE RELATIONSHIP BETWEEN WATER QUALITY AND HEALTH

The relationship between water quality and human health is fundamental, as water is essential for life and impacts various aspects of health, from basic hydration to the prevention of disease. Poor water quality can contribute to a range of health problems, particularly in regions with inadequate water treatment infrastructure. Below is a detailed explanation of the connection between water quality and health:

1. Waterborne Diseases and Contaminants

The quality of water is directly linked to the prevalence of waterborne diseases, which are caused by pathogens found in contaminated water. These diseases are a significant global health concern, particularly in developing countries. Pathogens such as bacteria (e.g., Escherichia coli), viruses (e.g., Hepatitis A), and parasites (e.g., Giardia lamblia) can contaminate water sources and lead to illnesses like cholera, dysentery, typhoid fever, and giardiasis (World Health Organization [45, 53]. According to [46], contaminated drinking water is a leading cause of death, contributing to an estimated 3.4 million deaths annually.

2. Chemical Contaminants and Long-Term Health Effects

Water quality is also compromised by chemical contaminants, which may include heavy metals, pesticides, and industrial pollutants. For example, the presence of heavy metals such as lead and arsenic in drinking water can lead to serious health conditions, including neurological damage, kidney disease, and cancer [27]. The toxic effects of these substances can be particularly harmful to vulnerable populations such as children and pregnant women. Lead exposure, for instance, can result in developmental delays and reduced IQ in children [10].

Pesticides used in agriculture can contaminate groundwater and surface water sources, leading to chronic health conditions, including cancer, endocrine disruption, and reproductive issues [23]. For instance, a study by [22] highlighted the neurotoxic effects of exposure to methylmercury from contaminated water bodies.

3. Nutrient Pollution and Algal Blooms

Excessive nutrient pollution, primarily from agricultural runoff, can cause eutrophication in water bodies, leading to algal blooms. These blooms can produce harmful toxins, which, when ingested through contaminated water, can lead to illnesses such as liver damage, gastrointestinal distress, and even death in extreme cases. For example, cyanotoxins produced by blue-green algae in freshwater lakes are linked to liver and kidney toxicity [9].

4. Water Quality and Child Health

Access to clean water is essential for preventing dehydration, malnutrition, and the spread of infectious diseases, particularly among children. Diarrheal diseases, often caused by poor water quality, are a leading cause of death in children under the age of five. According to [47], over 500,000 children die each year from diarrhea related to unsafe drinking water and poor sanitation. Safe water also reduces the risk of stunting, which is associated with prolonged exposure to contaminated water [37].

5. Water and Hydration

Aside from disease prevention, the quality of water influences hydration and, by extension, overall health. Poor-quality water, contaminated with chemicals or microorganisms, may discourage individuals from drinking adequate amounts of water, potentially leading to dehydration. Chronic dehydration can cause a range of health problems, including kidney stones, urinary tract infections, and even impaired cognitive function [34]. Furthermore, water quality impacts hygiene and sanitation, which are critical in preventing the spread of diseases like cholera and dysentery [39].

6. The Socioeconomic Implications

The health implications of poor water quality extend beyond the individual, affecting communities economically. Waterborne diseases place a heavy burden on healthcare systems, leading to increased healthcare costs and loss of productivity. In some regions, the financial costs of inadequate water quality are so severe that they impede economic development and social stability [7].

3. 0 RESULTS AND DISCUSSION

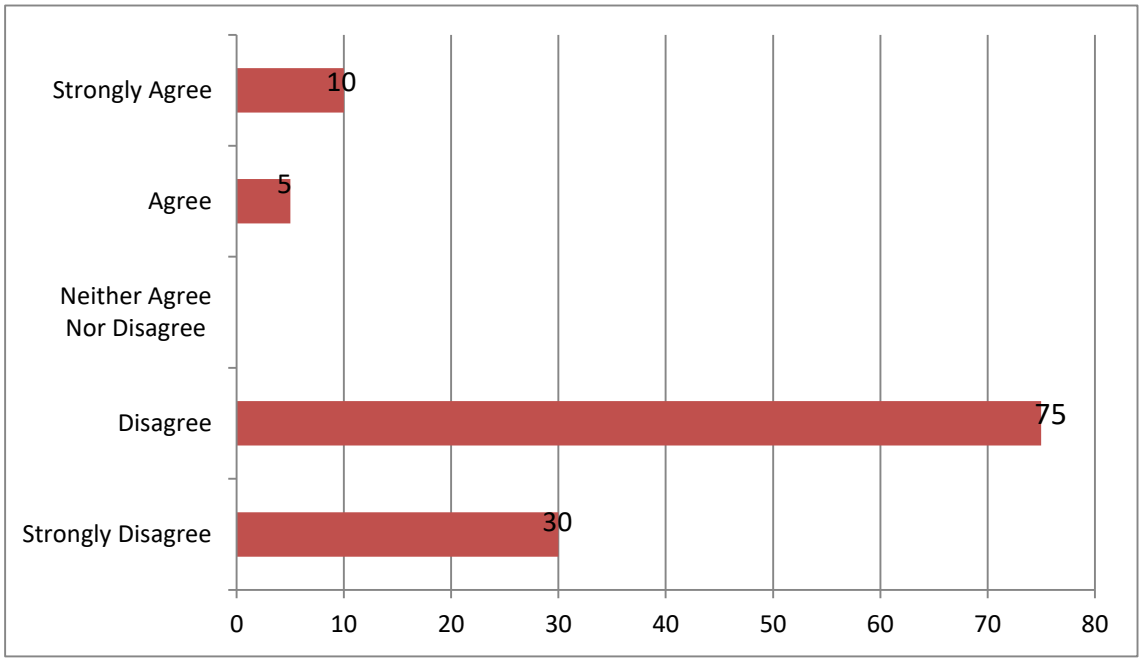
1. The community has regular access to clean and safe drinking water.

Table 4.1: The community has regular access to clean and safe drinking water.

The community has regular access to clean and safe drinking water.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	10	5	0	75	30	120
Percentage of Response	8%	4%	0%	63%	25%	100%
Source: Field Survey 2025						

Table 4.1 It was observed that, of the total 120 respondents, 12% respondents agree or strongly agree that the community has regular access to clean and safe drinking water, 0% neither agree nor disagree and 88% disagree or strongly disagree.

Chart 4.1: Response shows the community does not have regular access to clean and safe drinking water.



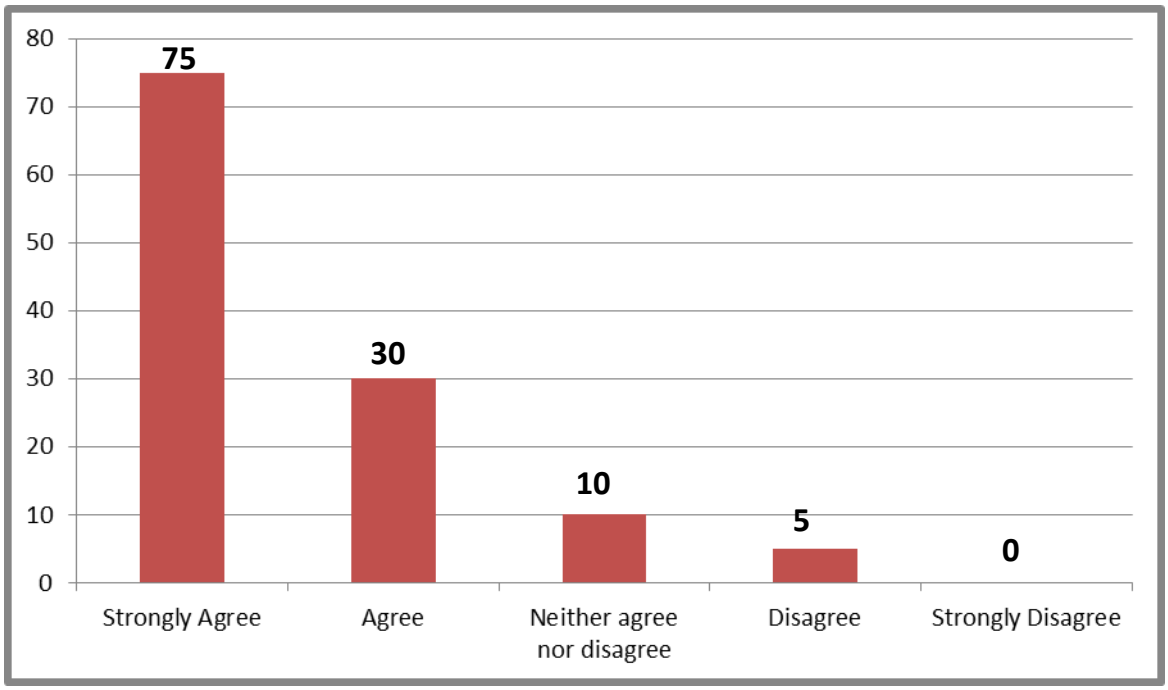
2. I always treat or boil my drinking water before consumption.

Table 4.2: I always treat or boil my drinking water before consumption.

I always treat or boil my drinking water before consumption.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.2: Of the total 120 respondents, 88% respondents agree or strongly agree that I always treat or boil my drinking water before consumption, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.2: Response shows that respondents treat or boil drinking water before consumption.



3. Poor water quality in my community contributes to frequent health issues.

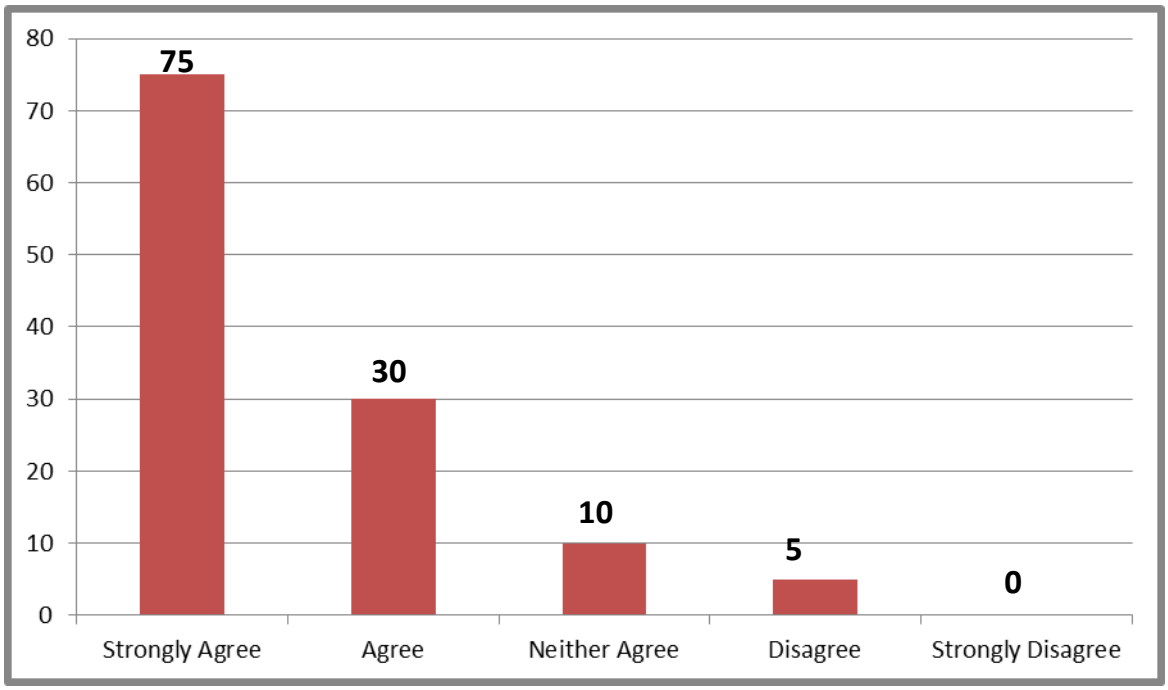
Table 4.3 Poor water quality in my community contributes to frequent health issues.

Poor water quality in my community contributes to frequent health issues.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120

Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.3: Of the total 120 respondents, 88% respondents agree or strongly agree that Poor water quality in my community contributes to frequent health issues, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.3: Response shows that Poor water quality in my community contributes to frequent health issues.



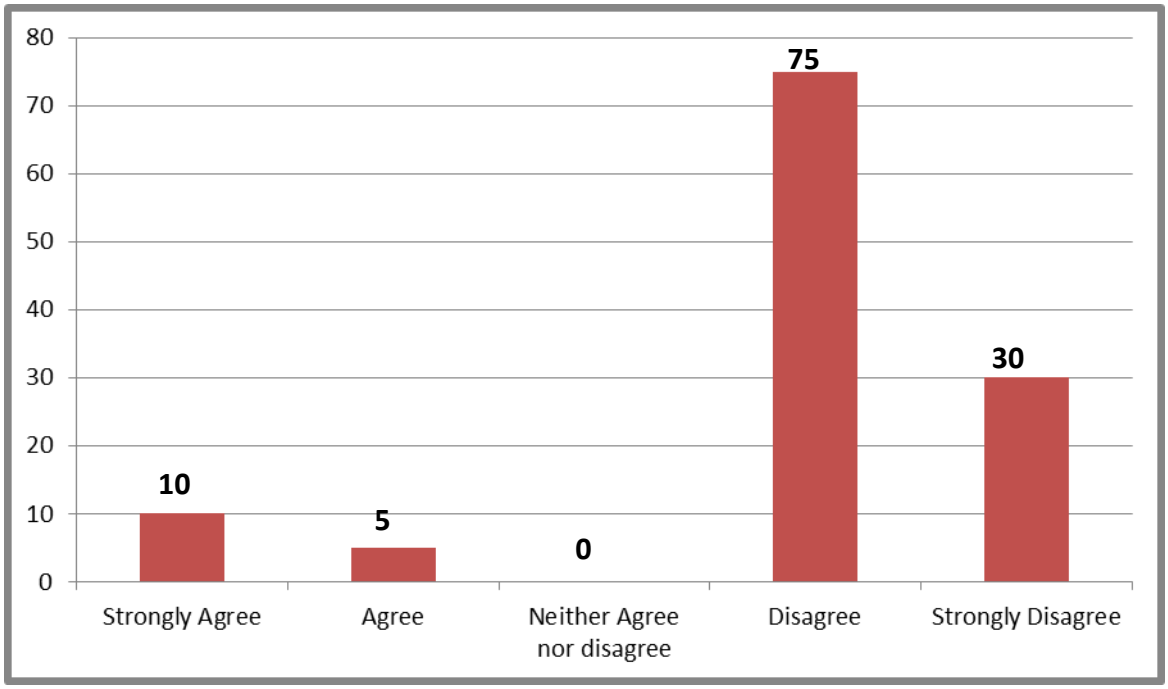
4. My household has access to a proper toilet facility (e.g., water closet or pit latrine).

Table 4.4: My household has access to a proper toilet facility (e.g., water closet or pit latrine).

My household has access to a proper toilet facility (e.g., water closet or pit latrine)	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	10	5	0	75	30	120
Percentage of Response	8%	4%	0%	63%	25%	100
Source: Field Survey 2025						

Table 4.4: Out of the total 120 respondents, 12% respondents agree or strongly agree that my household has access to a proper toilet facility (e.g., water closet or pit latrine), 0% neither agree nor disagree and 88% disagree or strongly disagree.

Chart 4.4: Response shows household does not have access to a proper toilet facility (e.g., water closet or pit latrine).



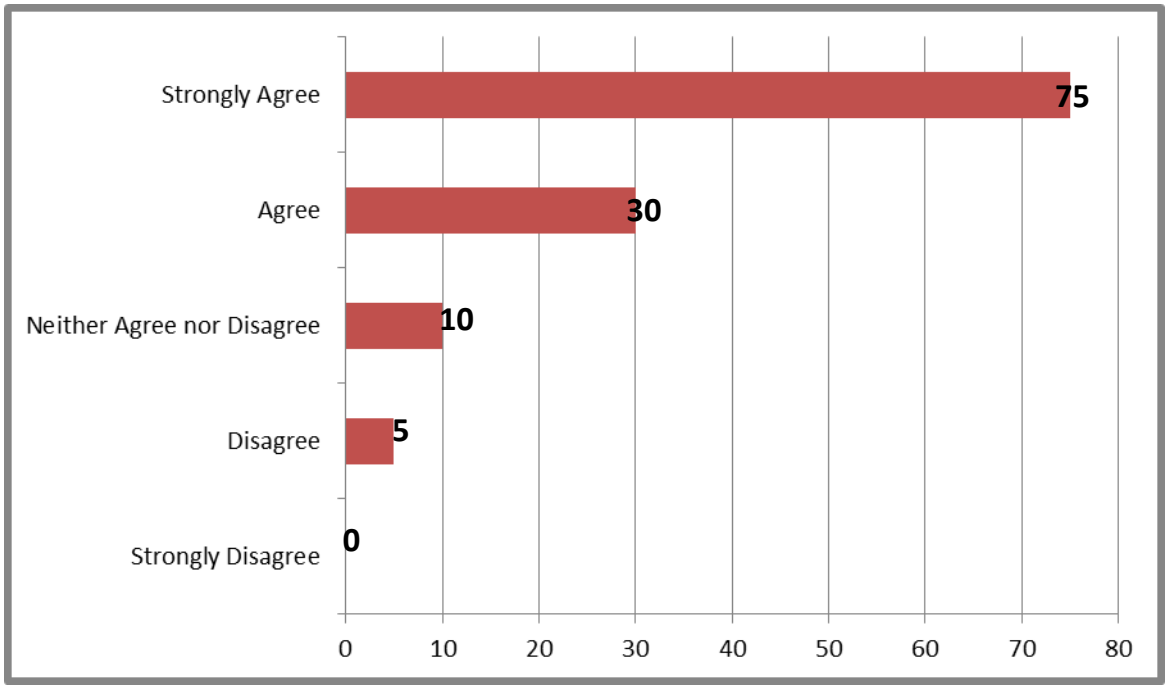
5. Open defecation is a common practice in my community.

Table 4.5: Open defecation is a common practice in my community.

Open defecation is a common practice in my community	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.5: Out of the total 120 respondents, the above table shows that 88% respondents agree or strongly agree that Open defecation is a common practice in my community, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.5: Response shows that Open defecation is a common practice in my community.



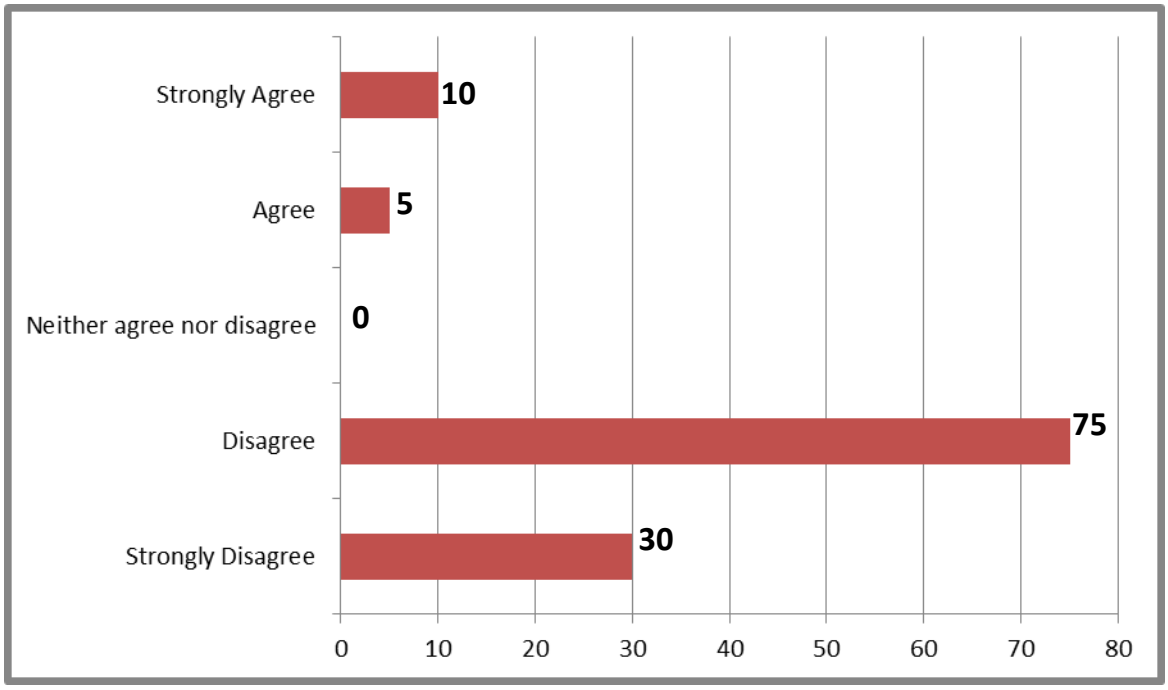
6. There are enough waste disposal and drainage systems in my community.

Table 4.6 There are enough waste disposal and drainage systems in my community.

There are enough waste disposal and drainage systems in my community.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	10	5	0	75	30	120
Percentage of Response	8%	4%	0%	63%	25%	100
Source: Field Survey2025						

Table 4.6: The above information shows that, out of the total of 120 respondents, 12% respondents agree or strongly agree that there are enough waste disposal and drainage systems in my community, 0% neither agree nor disagree and 88% disagree or strongly disagree.

Chart 4.6: Response shows that there are not enough waste disposal and drainage systems in my community.



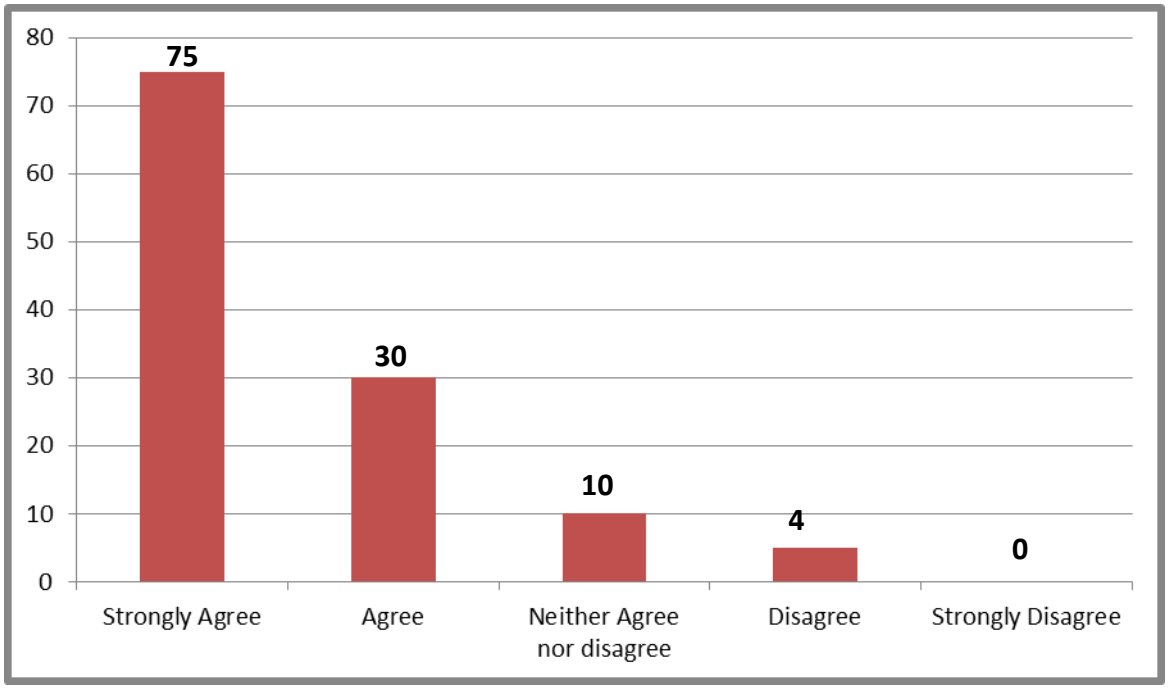
7. Poor sanitation is a major contributor to waterborne diseases in this area.

Table 4.7 Poor sanitation is a major contributor to waterborne diseases in this area.

Poor sanitation is a major contributor to waterborne diseases in this area.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.7: The above information shows that, out of the total of 120 respondents, 88% respondents agree or strongly agree that Poor sanitation is a major contributor to waterborne diseases in this area, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.7: Response shows that Poor sanitation is a major contributor to waterborne diseases in this area.



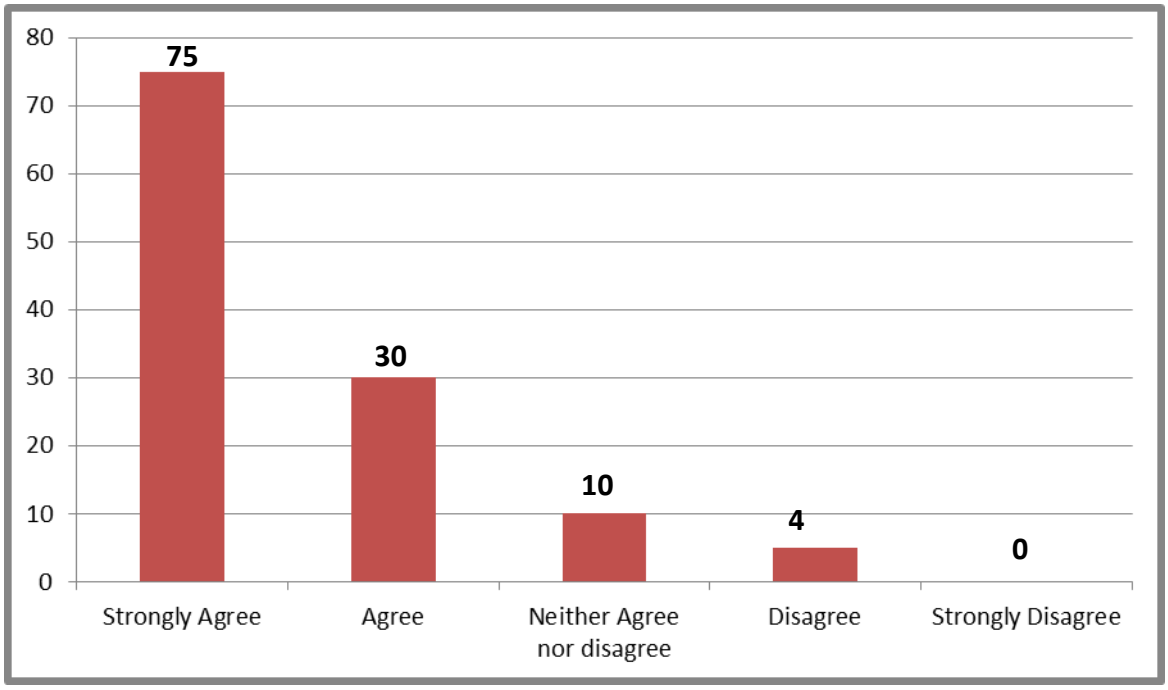
8. Cases of waterborne diseases such as cholera, typhoid, and diarrhea are common in my community.

Table 4.8 Cases of waterborne diseases such as cholera, typhoid, and diarrhea are common in my community.

Cases of waterborne diseases such as cholera, typhoid, and diarrhea are common in my community	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.8: The above information shows that, out of the total of 120 respondents, 88% respondents agree or strongly agree that Cases of waterborne diseases such as cholera, typhoid, and diarrhea are common in my community, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.8: Response shows that Cases of waterborne diseases such as cholera, typhoid, and diarrhea are common in my community.



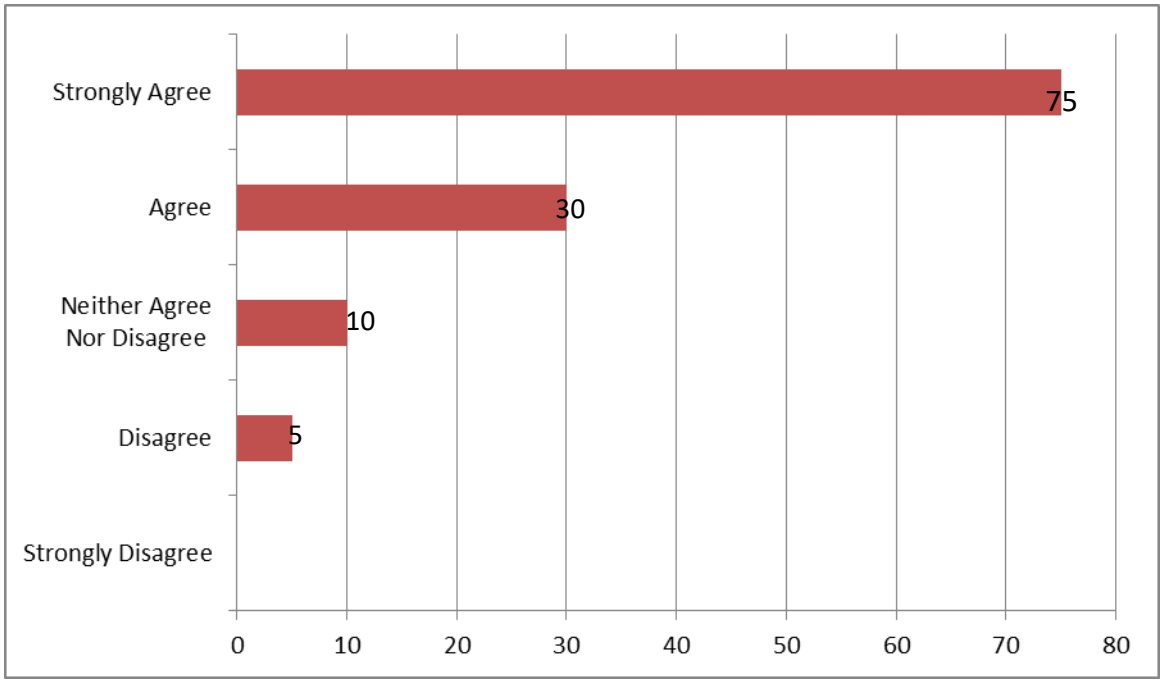
9. Children and the elderly in my community are more vulnerable to waterborne diseases.

Table 4.9: Children and the elderly in my community are more vulnerable to waterborne diseases.

Children and the elderly in my community are more vulnerable to waterborne diseases.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100%
Source: Field Survey 2025						

Table 4.9 It was observed that, of the total 120 respondents, 88% respondents agree or strongly agree that Children and the elderly in my community are more vulnerable to waterborne diseases, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.9: Response shows Children and the elderly in my community are more vulnerable to waterborne diseases.



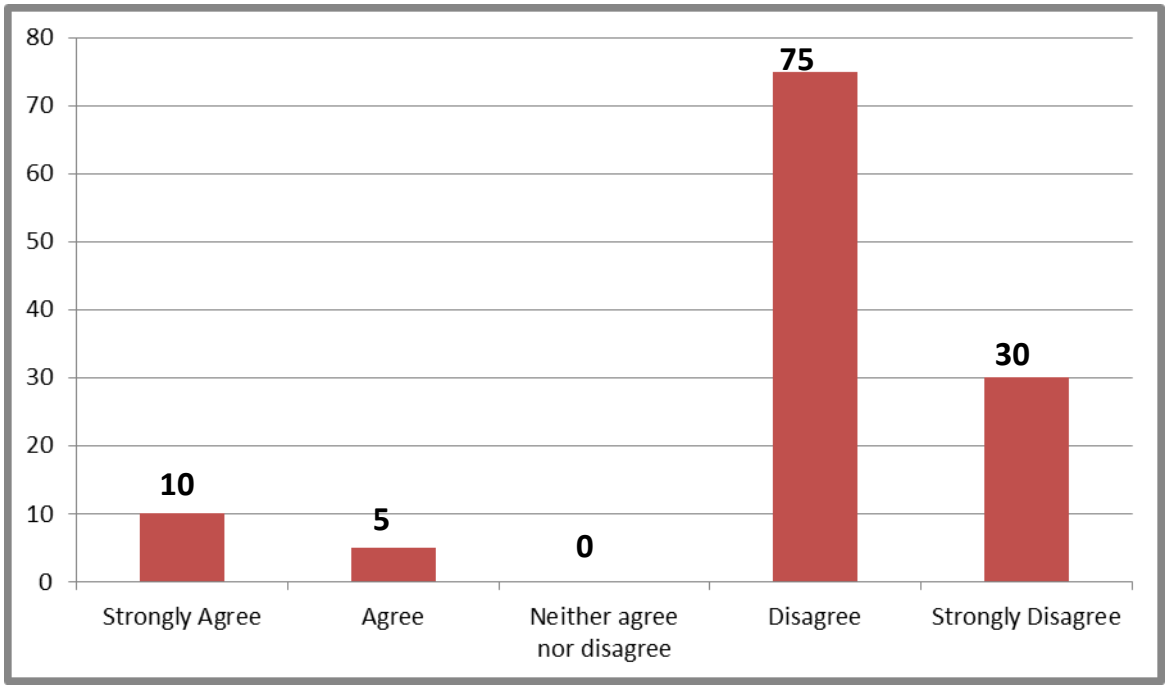
10 The government provides adequate safe water and sanitation facilities in my area.

Table 4.10: The government provides adequate safe water and sanitation facilities in my area.

The government provides adequate safe water and sanitation facilities in my area	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	10	5	0	75	30	120
Percentage of Response	8%	4%	0%	63%	25%	100
Source: Field Survey 2025						

Table 4.10: Of the total 120 respondents, 12% respondents agree or strongly agree that communities near gas flaring sites experience higher rates of health issues, 0% neither agree nor disagree and 88% disagree or strongly disagree.

Chart 4.10: Response shows that the government does not provides adequate safe water and sanitation facilities in my area



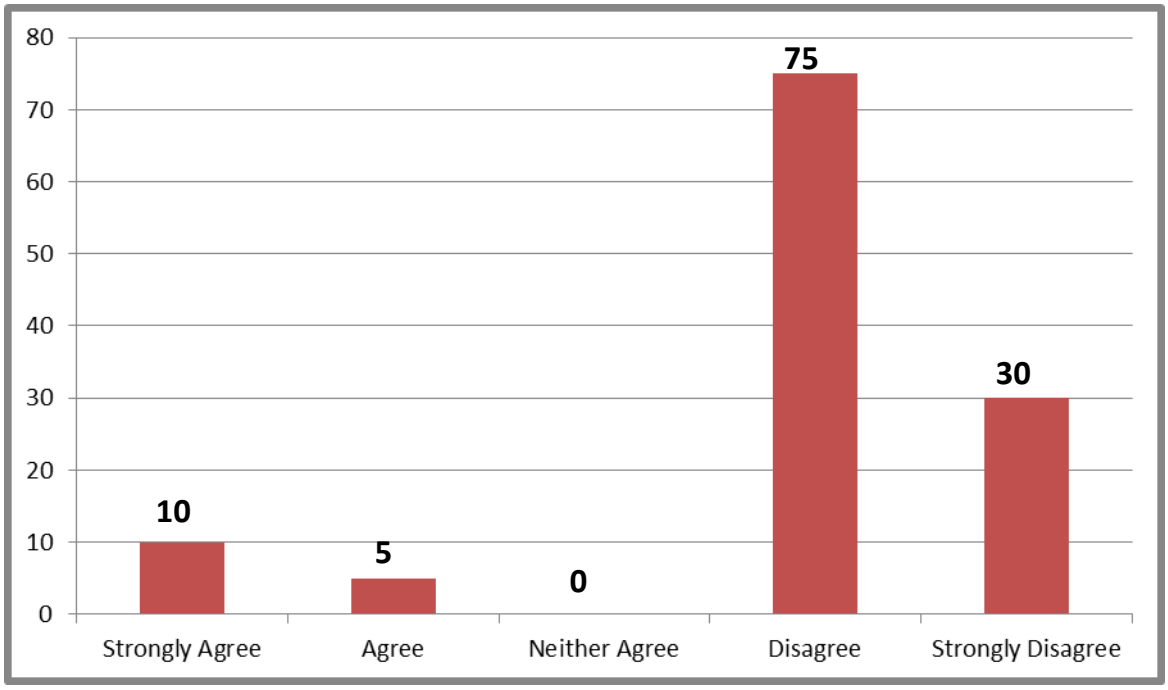
11. Community members are actively involved in maintaining water and sanitation hygiene.

Table 4.11 Community members are actively involved in maintaining water and sanitation hygiene.

Community members are actively involved in maintaining water and sanitation hygiene.	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	10	5	0	75	30	120
Percentage of Response	8%	4%	0%	63%	25%	100
Source: Field Survey 2025						

Table 4.11: Of the total 120 respondents, 12% respondents agree or strongly agree that Community members are actively involved in maintaining water and sanitation hygiene, 0% neither agree nor disagree and 88% disagree or strongly disagree.

Chart 4.11: Response shows that Community members are not actively involved in maintaining water and sanitation hygiene.



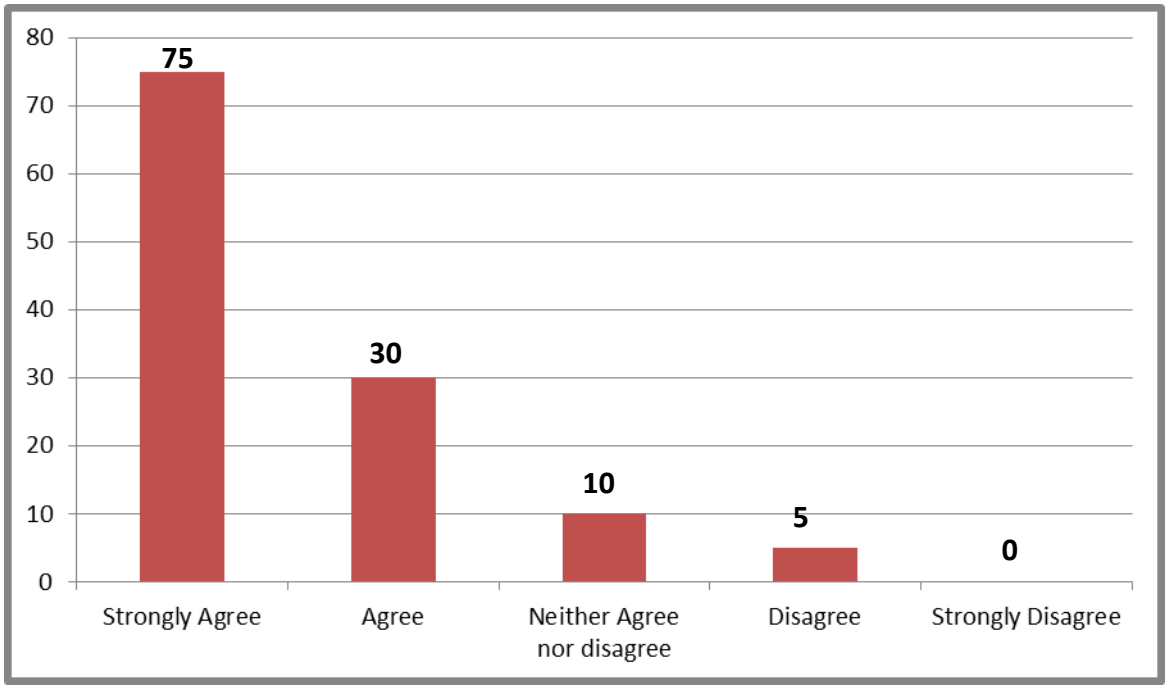
12. More awareness programs on water sanitation and hygiene are needed in my community.

Table 4.12: More awareness programs on water sanitation and hygiene are needed in my community.

More awareness programs on water sanitation and hygiene are needed in my community	**SA**	**A**	**N**	**DA**	**SD**	**TOTAL**
No. of Response	75	30	10	5	0	120
Percentage of Response	63%	25%	8%	4%	0%	100
Source: Field Survey 2025						

Table 4.12: Out of the total 120 respondents, 88% respondents agree or strongly agree that more awareness programs on water sanitation and hygiene are needed in my community, 8% neither agree nor disagree and 4% disagree or strongly disagree.

Chart 4.12: Response shows that health risks associated with gas flaring outweigh the economic benefits of the activity.



CONCLUSION

This study examined the influence of safe water and sanitation on the prevalence of waterborne diseases in Kafanchan. The findings reveal that inadequate access to clean water and poor sanitation significantly contribute to the occurrence of diseases such as cholera, typhoid, and diarrhea in the area. The study also highlights that communities with limited sanitation facilities, poor waste disposal systems, and unsafe water sources experience higher rates of waterborne infections.

Furthermore, the research establishes that government intervention and community participation in water and sanitation management play a crucial role in reducing disease prevalence. However, the study indicates that existing efforts are insufficient, as many households still lack access to safe drinking water and proper hygiene facilities.

In conclusion, improving water quality, increasing sanitation infrastructure, and promoting hygiene awareness are essential steps in combating waterborne diseases in Kafanchan. The study recommends enhanced governmental support, community-based initiatives, and stronger health education programs to ensure sustainable improvements in public health. Addressing these challenges will not only reduce disease burden but also improve the overall well-being and productivity of the population.

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