UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

AN ASSESSMENT OF HYGIENIC CONDITIONS IN THE TAMALE CENTRAL PRISON AND ITS EFFECTS ON THE HEALTH OF INMATES

ABDUL- WAHAB ABDUL-JALIL

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BY

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DECLARATION

Candidate's Declaration

I hereby declare that, this thesis is the result of my own original work, except for references to the work of others which have been duly acknowledged; and that no part of the work has been presented for another degree in this university or elsewhere.

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Supervisor's Declaration

I hereby as the principal supervisor declare that, the preparation of this thesis was supervised in accordance with the guidelines for the supervision of thesis laid down by the University for Development Studies.

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ABSTRACT

The study which is a descriptive cross-sectional survey was aimed at investigating the hygienic conditions in the Tamale central prison and its effects on the health of inmates. It employed a mixed method approach that is both qualitative and quantitative methods. Questionnaires and interview guides were the main tools for data collection. Purposive sampling was used in selecting the five prison officers who had a direct link with the inmates and the topic under investigation and the only prison health official for the interview and simple random sampling method was used to select 148 inmates from a population of 241. Data were analyzed using SPSS version 22 for the quantitative data and content and thematic analysis for the qualitative data. The study found that although majority of the inmates always have access to water, over 90% of them have to queue for it. With regards to the management of wastes, although different types of waste are generated in the prison, there are no adequate waste bins for storage and segregation. Over 90% of the inmates never had access to both toilets and hand washing facilities when they need them. The study concluded that the hygienic conditions in the Tamale Central Prison are below standards since most inmates were dissatisfied with the water supply situation, waste management system and access to latrines and hand washing facilities. The study recommended the following: the provision of adequate water storage facilities, waste bins, health education on hygiene, cleanliness, recycling of plastic wastes and an alternative sentencing.

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DEDICATION

This work is dedicated to my beloved wife, Sumaya Abukari and my two lovely kids; Muslimah and Muntasir.

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LIST OF ACRONYMS

ACHPR- African Charter on Human and Peoples' Right

AIDS- Acquired Immune Deficiency Syndrome

DSP- Deputy Superintendent of Prisons

GNA- Ghana News Agency

GPS- Ghana Prison Service

HIV- Human Immunodeficiency Virus

HRW- Human Right Watch

IACHR-Inter- American Commission on Human Rights

ICESCR- International Covenant on Economics, Social and Cultural Rights

ICRC- International Committee of the Red Cross

INCHR- Independent National Commission on Human Rights

NRCD- National Redemption Council Decree

OD- Open Defecation

TB- Tuberculosis

UNDP- United Nations Development Programme

UNHCR- United Nations High Commissioner for Refugees

UNODC- United Nations Office on Drugs and Crime.

WASH- Water, Sanitation and Hygiene

WHO- World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

Prison inmates are likely to be susceptible to a unique set of health challenges as a result of differences in their way of life in a new setting due to little or without activity (Mukiza, 2014). Incarceration circumstances related to the use of lock ups and separation has restrictions on inmates'" movement, contribute to inactivity which results in changed patterns of life for the prisoners" (Mukiza, 2014). Incarceration remains the assured option in several countries for the past 3 decades, which puts enormous pressure on established structures, a lot which were constructed as far back as 5 decades (Mukiza, 2014).

This (sharp in increase in the number of incarceration) in both developed and underdeveloped countries came about as a result of an upsurge in the statistics related to those being incarcerated and an upsurge in the average duration of detention for both remand and those duly convicted.

In dealing with the high numbers of incarceration calls for measures to substitute structures that are deemed not fit to be occupied by humans, additional accommodations have to be constructed to cater for the extra number of inmates (ICRC, 2012).

When there is an increase in arrest brought about as a result of hardship and at times political, it renders the court system helpless and this account for the delays in dealing expeditiously with each case brought before it within a realistic time frame (Pier, 2005).

An amalgamation of factors such as delayed trials, arrest brought about due to hardship and political trials usually bring about such large numbers in prisons. Prisons designed to hold a certain number now holds more than its capacity (Pier, 2005). The additional inmates are stuffed into the current structures housing them or forced authorities to turn structures designed for other purposes as improvised structures used as dormitories (Pier, 2005).

Space related to prison accommodation does not have a general standard. Some countries at for a in Kampala Uganda have made useful suggestions that affect different countries (ICRC, 2012). The Kampala Declaration on Prison Conditions in Africa 1996 for example suggests that inmates "should have living conditions which are compatible with human dignity" and adds that prison environment where inmates are kept "should not aggravate their suffering already caused by the loss of liberty." (ICRC, 2012)

The XII Principle of the Inter-American Commission on Human Rights (IACHR), Resolution 1/108, Principles and Best Practices on the Protection of Persons Deprived of Liberty in the Americas, states that "persons deprived of liberty shall have adequate floor space, daily exposure to natural light, appropriate ventilation and heating, according to the climatic conditions of their place of deprivation of liberty. They shall be provided with a separate bed, suitable bed clothing, and all other conditions that are indispensable for nocturnal rest" (ICRC, 2012).

In the absence of general standards, different countries have established local standards but they differ generally (ICRC, 2012). Standards for room size in Europe for example have different dimensions. Albania has four metres square whiles Switzerland has twelve metres square (ICRC, 2012). Some authorities recommend larger space for remand

inmates, some others stipulate even larger space allocations for women (as in countries such as Slovenia, Poland and Iceland) and yet some others still separate adults and teenagers such as pertained in Latvia (ICRC, 2012).

Chile in South America indicates six metres square, which comprises one single bed, a shower, a desk, a wash basin and a shelf. Three types of cells exist in Guatemala: cells meant for an individual measuring 11.52 metres square, cells designed for three measuring 20.68 metres square with each person occupying an average of 6.98 metres square and collective cells designed for 37 inmates and measuring 276.35 metres square with each individual occupying an average of 7.46 metres square. The dimensions comprise areas for showers and toilets. There are no laws or regulations establishing these minimum space requirements (ICRC, 2012).

Standards for Adult Correctional Institutions have been published by the American Correctional Institutions detailing the space allocations with regards to tangential space for one cell occupancy of 35 square feet per 3.25 metres square and cells meant for many with a dimension of (25 square feet per 2.32 metres square).

The state of Victoria in Australia indicates 8.75 metres square for a cell meant for one with toilet and shower, another 6.5 metres square for a cell meant for one but without shower and toilet and a 12 metres square meant for double occupancy (ICRC, 2012).

The custom in Africa is the use of dormitory accommodation. Kenya allows a minimum space requirement of 40 square feet per 3.7 metres square) for one inmate. Senegal has no minimum space requirement but studies especially at the Rebeuss (in Dakar) have revealed that each inmate has an average floor of 3.55 metres with the cubic capacity

being 5 cubic metres. The per capita space requirement stands at 8.75 metres square for a one cell occupant, 4.08 metres square for cells meant for 20 inmates and an additional 5.58 metres in an infirmary ward. Space conditions in many developing countries have not been established. In places where it has been established, they are routinely undermined owing to over population in prisons. (ICRC, 2012).

The ICRC (2012), has estimated the space required for lying on the bed to be 1.6 meters square with corresponding shower and toilet space to be 1.2 meters square. The following specifications have been recommended to be the minimum space required by an inmate to sleep uninterrupted, keep their personal belongings and exercise. It does not include space for shower and toilet. The initial specification stood at 3.4–5.4 meters square per inmate. The forum nevertheless discovered it to be extra suitable to detail the least space requirement for both one cell and for many cell accommodations as the initial point towards the assessment of the requirements for space.

In general, it is appropriate to accommodate inmates exceeding 40-50 persons in a room where they sleep except when the available lighting, ventilation and space meet requirements. As noted by the ICRC, where the number has exceeded its capacity, it becomes progressively challenging for inmates to have the right to use toilets and water. The safety of all inmates becomes difficult therefore undermining minimum requirements (ICRC, 2012).

When the capacity of prison is exceeded or when there is the need for an expansion to take place in the prison, it is often time not taken into account the need to adjust to the services (Pier, 2005). To this effect, facilities to ensure hygiene will be overstretched and does not meet the requirements for the whole prison inhabitants. When vital facilities

such as for food, water, and hygiene are not sufficiently provided, the inmates risk becoming sick (Pier, 2005).

Those in charge of prisons have a crucial task to ensure that vital services such as water, meal and hygienic conditions are supplied substantially both in terms of quality and quantity and must be consistent. Facilities such as water supply set up found around places of detention are regularly under enormous pressure (Pier, 2005). Accordingly, it has to be modified to serve the inmates present and has to be consistently preserved (Pier, 2005).

One of the essential services which must be delivered without break in places of detention is the supply of adequate volumes of water (Pier, 2005). Maintaining personal hygiene, preparing meals, drinking and the disposal of sewage requires the use of water (Pier, 2005).

In reality, it is often seen that the water supply set up that was originally connected comes under enormous pressure due to the continuous upsurge in the number of detainees (Pier, 2005). Often times, the supply of water to toilets, dormitories and showers are hampered owing to inadequate supply pressure coming from the taps or as a result of faulty taps (Pier, 2005). Again, denying the inmates the right amounts of water for use thwarts suitable flow of sewage and the disposal of wastes which produces a condition that favours the propagation of disease (Pier, 2005).

Accessibility of potable water for drinking from tap or container should be provided continuously for inmates for 24 hours a day according to the International Commission for The Red Cross (2012). There should be enough water outlets mounted all over the

prison in order to guarantee the accessibility of water. If it becomes important, authorities and inmates have to be supplied with facilities meant for the purification of water. Supply of least amounts of water that is (10 to 15 litres) a day to take care of inmates' needs, 3 to 5 litres for each inmate in a day to guarantee survival depending on the weather and 1 litre for each inmate for a day to take care of cleaning self after visiting toilet. The ICRC (2012), specifies 1 to 2 taps per 100 detainees to guarantee sufficient water for drinking, washing, cleaning and good sanitary conditions.

The distribution of water precludes water meant for cleaning, general ablutions or for laundry. The least quantity of water required by each inmate in a day to cook, drink, and for personal hygiene is 15 litres according to ICRC standards. In places where there are uninterrupted supplies of water, between 50 and 300 litres of water become the usual (ICRC, 2012).

In addition to this, sanitary conditions such as toilets are the visible aspects of liquid waste system in prisons. Sewage that over flows emanating from blocked or insufficient drains are commonly a practice in prisons. Several causes may range from insufficient infrastructure, wrong flushing of toilets following times of water shortage. Some solid objects thrown it to the evacuation system may often result in blockages, usually when inmates are not provided with enough and sometimes not provided at all. The often resort to the use of these foreign materials resulting in the blockages (ICRC, 2012).

Each accommodation space that inhabits close to 25 inmates should be provided at least one toilet (ICRC, 2012). Each cell that is single should have a toilet. Cells with several occupants should be provided with more showers and toilets. Also each shower per 50 persons to be used 3 times a week should be the least depending on the prevailing

weather conditions. Again latrines containing taps should be allocated as one for every toilet space to be used for hand washing (ICRC, 2012).

The issue of conditions relating to hygiene and the implications of such conditions on the health of inmates is not only limited to Ghana. A report by Amnesty International indicates that "prisoners are bottom of the pile". The report records the challenges of congestion, inadequate sanitation, weak infrastructure, poor food, health challenges, poorly ventilated and unhygienic space in prisons in Ghana (James, 2012). Not all, it stated further that some inmates who do not have beds, lie on the bare floor while a few have beds to sleep on. This situation is undermined by overcrowding and poor sanitary conditions (James, 2012).

An inmate has this to say to Amnesty International "our cell- the place where we sleep---is where we urinate and go to toilet. You don't get any privacy. You have to use the bucket." In addition, inmates are confronted with health challenges which often make them fall sick and effort at obtaining immediate care from infirmaries which were congested and ill equipped is fruitless (James, 2012).

The Koforidua Prison is not an exception when it comes to sanitary conditions as all the males totaling 714 who are in detention at present compete for 3 water closets. To attend to nature's call, they queue in several hours which occasionally force them to defecate into polythene bags or in times when they could not hold on it, defecate on themselves. Recounting the challenges facing convict at the prison, the head of the inmates stated that water shortage has worsened their situation. Two reservoirs which used to serve them when the taps stopped running can no longer store the same volume of water after they got burst (Edwin, 2014).

At Osamkrom prison camp, the DSP laments some of their challenges to include absence of vital infrastructure such as staff bungalows and offices and a new toilet facility with fittings for use by both inmates and staff forces staff on duty to resort to the bushes to attend to nature's call. Furthermore, the inmates currently use an open pit latrine which has its roofing made of palm branches, which is posing serious health problems at the camp (GNA, 2012).

With regards to the health issues, there are two convincing arguments that have been adduced to provide healthcare in prisons (WHO, 1948). Firstly, is the significance that public health in general attaches to healthcare in prisons. The prison environment inhabits different people with various degrees of health conditions, usually life threatening. As they are released back into their communities, they carry with them new ailments and conditions that have not been treated posing threat to the people of the community in which they come from and adding onto the burden of disease in that area (WHO, 1948).

Secondly is society's resolve to ensuring justice for all. Society which is governed has a clear sense of dealing fairly with its people. The healthcare providers are committed to the provision of quality healthcare to reduce inequalities in health and contribute significantly towards achieving health for all. Since most inmates are from the poorest parts of our communities, they lack basic education and job opportunities (WHO, 1948). Entering the prison will be an opportune time for them to have a complete life with enough nutrition and an option to decrease their susceptibility to disease condition and societal break down. Healthcare in prison can perform a crucial role in bridging inequalities in health (WHO, 1948).

Several studies such as Heinesss (2005), Freudenberg (2001) and Baumann (2008) suggest that in terms of contracting diseases, the prison population contract diseases more than the general population. Being aware of the commonly deplorable circumstances under which inmates live, it should not come as surprising that the status of inmates be it physical or mental will be significantly inferior to that of the population outside of the prison (Friestad et al, 2006).

In furtherance to this, inmates have an entitlement as stated by the United Nations Basic Principles for the Treatment of Prisoners which provides access to the greatest possible stock of healthcare. Principle 9 states "Prisoners shall have access to health services available in the country without discrimination on the grounds of their legal situation" (UNHCR, 1990). Also, the medical facilities of the establishment shall diagnose and treat any condition related to physical, mental or weaknesses which might impede an inmate's recovery. Provision should be made for every essential therapeutic, clinical as well as psychiatric service (UNHCR, 1997).

In conclusion, the health of inmates is of paramount importance to public health because what affects the inmates in terms of health can be passed on eventually to the population at large, in terms of burden of disease as well as financial burden. This can result in an increase in the utilization of health services as soon as inmates have been release from custody back to society. There is therefore the need to prioritize the health of prison inmates to save the society from these unexpected repercussions.

1.2 Problem Statement

Prisons all around the world are experiencing failing of infrastructure, as governments' attempts to cut cost (World Vision, 2019). This results from overcrowding the facilities. According to the Africa prisons project, some facilities are operating at around 300% above the facilities (World Vision, 2019). Water, Sanitation and Hygiene (WASH) services in prisons are quickly deteriorating affecting the health and dignity of both the detainees and staff. All detainees and staff should have access to adequate water and good sanitation as they constitute rights that they are entitled to (World Vision, 2019).

International minimum specification exists as a monitoring and evaluation tool to guarantee Water, Sanitation and Hygiene in prison (ICRC, 2012). It specifies 1 tap to serve 100 inmates, 1 toilet to serve 25 inmates and 1 hand washing facility to serve 50 inmates (ICRC, 2012). In prisons in Sub-Saharan Africa, information regarding the allocations of toilet, water tap and hand washing facilities is not available (ICRC, 2015).

A report by the Human Rights Council of the United Nations (UN) in 2014 indicated that the human rights conduct in Ghana's prison does not meet international standards. Recent documentaries about the condition of our prisons present a worrying situation. Stories of people arranged like sardines were confirmed when cameras were permitted in the Nsawam Medium Security Prison and other establishments across the country. The situation makes it almost impossible to guarantee the sanitation of our prisons as facilities to support hygiene are overly stretched (www.myjoyonline.com, 17th April, 2018). At the end of September 2018, the total number of inmates in Ghana's prisons stood at

15,063 against the authorized capacity of 9,875 representing an overcrowding rate of 52.2% (Ghana Prison Service, 2018).

The Tamale Central Prison for example houses 241 inmates more than 3 times its capacity based on the researcher's preliminary visit to the study area. Again, a report by Regina Asamoah (2016) revealed that over 300 inmates of the Tamale Prisons use eight-seated 'KVIP'- like toilet facility "for a population calibrating between 258 and 328 from time to time. This means at any given time, only eight inmates can have access to toilet to free themselves during day time hours of 06:00 and 17:00 hours". "For emergency situations, people free themselves into buckets in the cells during the night" the inmates said in a statement (Asamoah, 2016). It is against this background that this study was conducted to assess the environmental sanitation situations with special focus on the hygienic conditions in the Tamale central prison and its effects on the health of the inmates.

1.3 Research Questions

1. What is the water supply situation in the Tamale central prison?

2. How is waste disposed and managed in the Tamale central prison?

3. What is inmate's access to latrines and hand washing hygiene in the Tamale central prison?

4. What are the effects of hygienic conditions on the health of inmates in the Tamale central prison?

1.4 Research Objectives

General Objective

The overall objective of this study was to assess the hygienic conditions in the Tamale central prison and its effects on the health of inmates.

1.4.1 Specific Objectives

1. To describe the water supply situation in the Tamale central prison.

2. To examine how waste is disposed and managed in the Tamale central prison.

3. To ascertain access to latrines and hand washing hygiene in the Tamale central prison.

4. To examine the association of hygienic conditions on perceived health of inmates in the Tamale central prison.

1.5 Relevance of the Study

This study would be useful in establishing the hygienic conditions in the Tamale Central Prison. The goal is to assess the indicators of hygienic conditions in the Tamale Central Prison and its corresponding health implications in order to provide measures that could be adopted to improve the conditions under which the inmates live. Research conducted in this area would provide the Ghana Prison Service, religious and political leaders, policy makers and Non- Governmental Organizations with vital information about the hygienic conditions in the Tamale Central Prison and also help inform policy making. The findings from this study will particularly serve as a guide to other researchers who wish to do further research on hygienic conditions in prisons and its health-related issues.

1.6 Justification

The study was a case study, which assesses the hygienic conditions in the Tamale Central Prison and its effects on the health of inmates. The researcher having reviewed some literature on the subject matter came to the conclusion that there have been no studies done in the Tamale Central Prison on the hygienic conditions in the Tamale Central Prison and its health implications. It is therefore important that this new study sought to find out the challenges faced by inmates with regards to the hygienic conditions in the Tamale Central Prison and its effects on the health of the inmates.

The study is particularly relevant to government, as it will afford it the opportunity of knowing the prevailing hygienic conditions in the Tamale Central Prison and the effects that such conditions have on the health of inmates.

1.7 Limitation of the Study

The researcher was limited by time and funds to conduct the study on all the prison inmates and the prison authorities in the Tamale Central Prison but studied just a sample of the entire population.

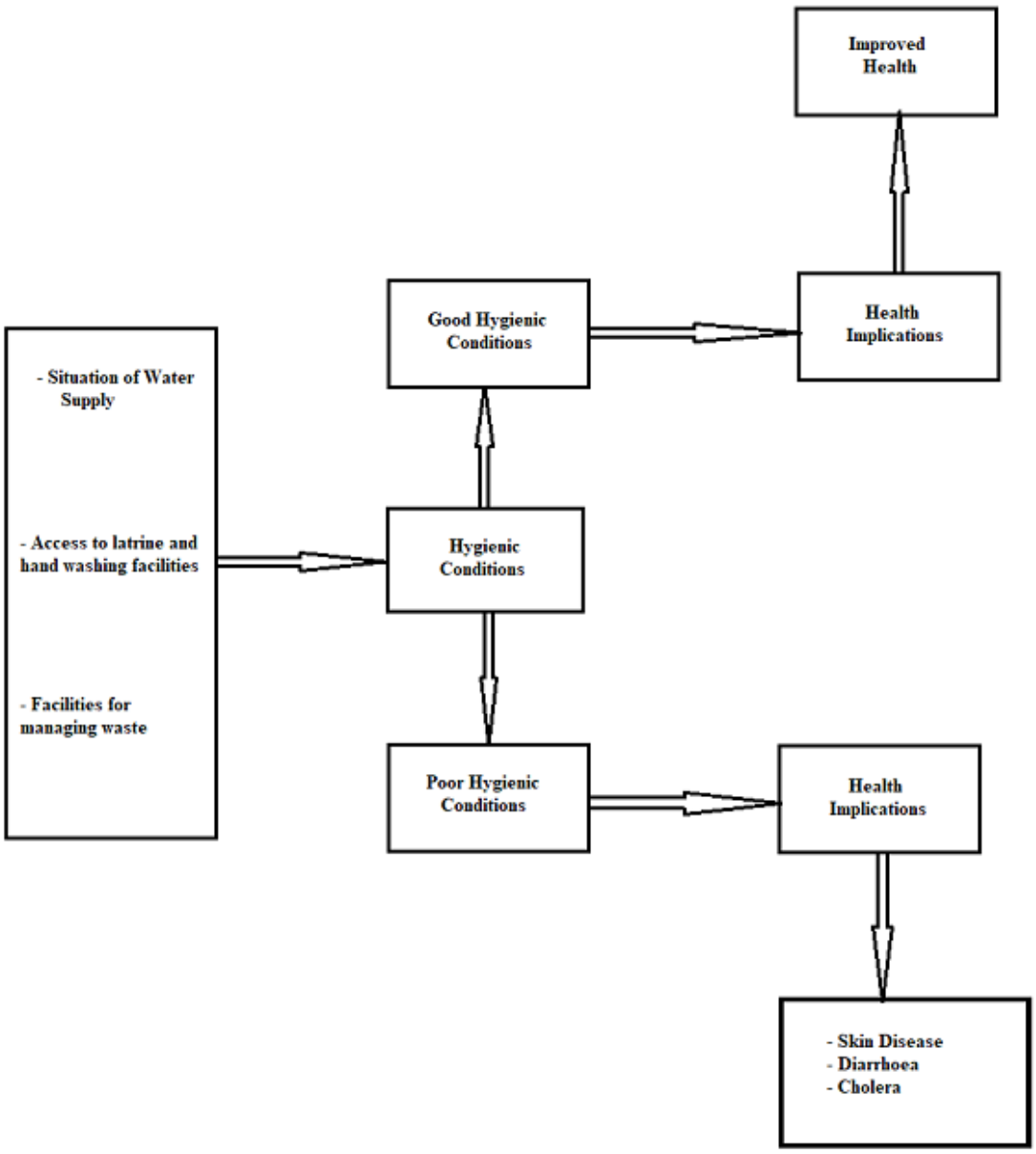
1.8 Scope of the study

The study aims to unravel the hygienic conditions of prison and its effects on the health of inmates in the Tamale Central Prison.

1.9 Conceptual Framework

The conceptual framework for this study illustrates a pictorial representation of how the work can be visualized mentally to achieve the purpose of the research. For example, it highlights the relationship between hygienic conditions and the health implications of living in those conditions. The diagram for this study presumed that several factors such as water, toilet, hand washing and waste disposal among others can influence worsening conditions of living in prisons leading to health implications such as skin diseases, tuberculosis, cholera and diarrheal diseases. Such hygienic conditions in the Tamale Central Prison either good or poor can have an effect on the health status of inmates as indicated by the conceptual framework. The effects of having a good hygienic condition in the prison such as the availability of adequate water, availability of latrine and hand washing facility and the facility for managing waste such as waste bins can result in an improvement in the health status of the inmates.

On the other hand, with poor hygienic conditions such as inadequate water supply, lack of access to latrine and hand washing facility as well as inadequate waste bins to manage waste may result in the contraction of skin diseases, diarrhea and cholera. Fig 1.9 represents the structure or the pictorial view of the entire research study work.



Source: Researcher's own construct, 2019.

Figure 1. 1: Conceptual Framework

There are a range of factors influencing hygienic conditions which may have an effect on the health of prison inmates. The conceptual framework of this research study captures the factors related to hygienic conditions in four categories: situation of water supply, access to latrine and hand washing facilities and facilities for managing waste.

Situation of Water Supply

Situation of water supply is a major factor in influencing hygienic conditions in prisons. Water supply is crucial in ensuring that toilets in prison settings are flushed regularly. Without flushing the toilets with water can result in an increase in the health hazards in the prison (Zacro, 2018).

Access to Latrines and Hand washing Facilities

Another factor of hygienic conditions in prisons was the availability and access to latrines and hand washing facilities. Zacro (2018), stated that some cells are without latrines, a situation most usual of female prisons in the country. The use of buckets as latrines is the surest option available to inmates in cells which do not have latrines.

Waste management Facilities

In addition, factors of hygienic conditions in prison could be attributed to facilities for managing waste in prisons. ACRP (1999), underscored that faulty drainage system prevented waste flowing easily out of the prisons.

In conclusion, the conceptual framework aimed at determining the factors influencing hygienic conditions as situation of water supply, access to latrines and hand washing facilities and facilities for managing waste and its implications on the health of inmates in prisons.

1.10 Organization of the thesis

This study is organized into six chapters. Chapter one consists of the background, problem statement, research questions, research objectives, relevance of the study, justification, limitations of the study and conceptual framework. Chapter two reviewed

relevant literature related to the study. Chapter three focuses on the study settings and the methodology employed for the study. Chapter four presents the results of the study. Chapter five discusses the results in line with relevant literature. Chapter six was devoted to the summary, conclusions, and proposed recommendations for policy direction

1.11 DEFINITION OF TERMINOLOGIES

Prison

There are several definitions of the term prison. A prison may be defined as a penitentiary establishment, or buildings or a set of buildings in which people who are believed to have done wrong to society, gone against the laws of the land or are suspected of having committed offences are kept under custody against their will (Atabong 2007:46). The prison system falls within the broader definition of the criminal justice system, given that a meaningful categorisation of criminal justice theories must cut across the components of the criminal justice system: police, courts and corrections (Bernard & Engel 2002). Prison, therefore, refers to a collective term which integrates the police, the court and the correctional services as inseparable state components in the administration of justice (Morodi 2001). On the other hand, criminal justice is made up of three elements, namely, the police who arrest, the courts which prosecute offenders, and the prisons which execute the sentences of the courts. According to Hill (1996:1–2), a prison should, in theory, act as a correctional institution in which the convicts acquire relevant skills for their reintegration into society. The World Report (1998:244) summarises the mission of the prison as follows: “to keep prisoners, to keep them in, keep them safe, keep them in line, keep them healthy, and keep them busy, and do it with fairness, without undue suffering, and as efficiently as possible”, thus implying that the loss of liberty is sufficient

punishment and no further punishment should be meted out to the inmate while in prison. The operational definition of the term prison refers to an institution or building in which people, including female inmates, are kept as a punishment for a crime they have committed or while awaiting trial. The criminals are forced (not of their own free will) to live in this institution or building as punishment. It is, therefore, a closed environment in which they are locked up and, thus, they are not free to go out and fend for themselves. Accordingly, the state is bound to cater for their livelihood.

Prison Inmates: In terms of the Correctional Services Amendment Act, an inmate "means any person, whether convicted or not, who is detained in custody in any correctional centre or remand detention facility or who is being transferred in custody or is en route from one correctional centre or remand detention facility to another correctional centre or remand detention facility" So for the purposes of this study, prisoners are referred to as inmates.

Hygiene: According to World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases".

The Cambridge dictionary defined hygiene as "the degree to which people keep themselves or their environment clean, especially to prevent disease". It also defined Hygienic as "clean especially in order to prevent disease".

Assessment: The process of considering all the information about a situation or a person and making a judgment.

Condition: The Cambridge dictionary of English defines condition as "the physical situation that someone or something is in and affected by".

Effect: A change which is a result or consequence of an action or other cause.

Incarceration: To keep somebody in a place, specifically a prison (Longman Dictionary, 1995). Incarceration serves four important determinations with respect to criminals: to separate offenders as well as put an end to recidivist, to castigate criminals offenders, to stop crimes among people and also repair criminals (http://www.kamus.net/term.php?term=incarceration).

Health: "A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948).

WASH: Water Sanitation and Hygiene

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This review was conducted under these topics; theoretical framework underpinning this study, Water Sanitation and Hygiene conditions in prisons and effects of hygienic conditions on the health of inmates.

2.2 Theoretical Framework

There are numerous theories that explored conditions of living in prisons and its health implications. But for the purpose of this research, the deprivation theory was considered to describe in greater detail, and to demonstrate how it is used to explain the conditions of living in prison and its health implication.

2.2.1 Deprivation Theory

The theory is founded on Clemmer (1940), Sykes (1958), and Goffman (1961), works and emphasized that prison conditions such as violence, aggression, torture, anxiety, depression, distress among others come as result of the setting in prisons. The denial of certain conditions in prisons results to behaviours that are destructive in nature. Again, Sykes (1958), came out with a title and coined it as “pains of imprisonment” to elaborate on these conditions in prisons. Sykes (1958) recognized five deprivations and submitted that prisons inmates effectively become accustomed to the conditions by way of team spirit, coordination among prison inmates. These deprivations are: deprivation of loss of liberty, deprivation of goods and services, deprivation of heterosexual relationship,

deprivation of autonomy and deprivation of security. According to Clemmer (1940), who explained the method of these conditions as "prisonization". Goffman (1961) described the prison as "total institution" as well as itemized how prison inmates adjust to life in prisons as a result of some humiliations. Significantly, Clemmer (1940, p. 270) postulated the term *prisonization*, and described it as "the taking on, in greater or lesser degree, the folkways, mores, customs, and general culture of the penitentiary". Clemmer (1940) states that prison inmates experience some conditions which he referred to as "universal factors of prisonization" and for that matter this does not make new prison inmates to get prepared for this whole process. Clemmer (1940), considered some general factors of prisonization, to include performing roles by inmate, adjusting to the laws in prisons among others.

The work of Clemmer was further developed by Sykes in a way that explains an inmate's social structure in a greatest security prison. Sykes (1958) contended that every inmate subdivision shows a universal system of value, irrespective of the setting, and features of the institution. This system of value serves as a code of ethics to safe guard the conduct of inmates behaviour in relation to both fellow prisoners and prison guards. The inmate code of ethics sum up an expected behaviour of the inmates' social structure.

The theoretical position of the deprivation model stem from the fact that conditions in prisons is the reason for the creation of prison subgroup. This model contends that prisonization is a process whereby prison inmate needs to cope with the social and physical dispossession of incarceration (Sykes and Messinger, 1960; Thomas and Petersen, 1977; Tittle, 1972). Again, inmates with common deprivations related issues collectively respond to problems. As soon as such a sense of togetherness is realized, an

inmate social order starts to emerge, "a society that includes a network of positions, which reflect various types and levels of commitment to sub cultural norms as well as adaptive reactions to the problems of confinement". (Thomas and Petersen, 1977, p. 49). The establishment of subgroups serves as a medium of identifying some problems of prison life.

Advocates of this model upheld the fact that the subgroup within which inmates found themselves, serve as a reproduction of the pains of imprisonment already produced due to the planning of the institution. As a matter of fact, inmates' code of conduct such as attitudes, values and behaviour could be extended by way of analyzing the controls which looks local to the prison location (Thomas and Cage, 1977).

Sykes (1958, p14), maintained that prison in general epitomizes a social institution where they want to have an absolute social control. This system of absolute control of prison inmate underpins Sykes position which he called the "pains of imprisonment". Sykes (1958, p14), detects five deprivations or pains related to prison life and these are deprivation of liberty, goods and services, heterosexual relationships, autonomy and as well as security.

The deprivation or loss of liberty is the most immediately obvious pain. The prisoner must live in a world shrunk to thirteen and a half acres and within this restricted area his freedom of movement is further confined by a strict system of passes, the military formations in moving from one point within the institution to another, and the demand that he remain in his cell until given permission to do otherwise. In short, the prisoner's loss of liberty is a double one that is by confinement to the institution and by confinement within the institution (Sykes 1958: 65).

Sykes (1958, p65) adds that in as much as there is a restrictions in individuals movements, that does not mean that imprisonment is way of detaching from family members and friends …It is not difficult to see this isolation as painfully depriving or frustrating in terms of lost emotional relationships, loneliness, and boredom. But what makes this pain of imprisonment bite most deeply is the fact that the confinement of the criminal represents a deliberate moral rejection of the criminal by the free community.

To this, inadequate freedom does not mean inmates' restriction within the prison organization, it also includes restraining circumstances in the institution and in the end separate prison inmates from family members, relatives, friends, and the outside world. The separation and total rejection serve as a risk to inmates' impression and must be "warded off, turned aside, rendered harmless", should inmate supposed to bear and adjust to life or conditions in prison (Sykes 1958, p67).

Again, the next pain is the denial of basic needs or deprivation of goods and services which denote the living standard of inmates in prison. Also, Sykes refers to the inmates' fundamental or the basic need of life as essential however perceived by outsiders and inmates as "rightful." The physiological needs comprise of basic needs such as food, clothing, and shelter, proper health care such as exercise and wealth and also comfort and individual cell furnishings. In another vein, "inmates could be better off in prison, in strictly material terms, than they could ever hope to be in the rough-and-tumble economic life of the free community" (Sykes 1958, p68). But however, "the average inmate finds himself in a harshly Spartan environment which he defines as painfully depriving" (Sykes 1958: p 68).

Again, prison inmates are completely deprived of sexually related activities (heterosexual affairs). The right to visit one's spouse in prison (conjugal visits) is denied. Visits are done by spouses and among others, significantly monitored and supervised by prison guards and is usually done by means of one on one communication through a window made of plate glass. Absence of sexual activities is labeled as psychologically and physically challenging prison for inmates. Open homosexual intimidations as well as concealed homosexual fears are facts in the life of the inmate. As Sykes pointed out to men prison inmates that, the masculinity of a man is in doubt when heterosexual contact is being deprived.

In addition to this, in doubt is the inmates' standing as adult versus child. Not all, denying the freedom prison inmates are capable of comprises; failure in making their selections as well as how their lives are routinely organized by a huge display of rules forced by prison guards. To this end these rules frequently are not logic or are being imposed haphazardly. Sykes (1958, p73) reaffirmed that:

> *Most prisoners, in fact, experience an intense hostility against their far-reaching dependence on the decisions of their captors and the restricted ability to make choices must be included among the pains of imprisonment along with restrictions of physical liberty, the possession of goods and services, and heterosexual relationships.*

With regard to adult inmates, it is a challenge when one is plunged into childhood dependency. This is because the deprivation of that freedom is by compulsion and not generously allowed and also exceptionally uncomfortable as well as tough to bear, which is also an aspect of denial of life in prison that they must be familiarized with.

Last, the denial of safety is another pain of imprisonment that cannot be abnegated. Absence of safety comprises of apprehension of physical anger, utilization of person or properties, and again intimidations to an inmate's level of standing and respect. Sykes (1958, p77) noticed that:

> *There are sufficient numbers of outlaws within this group of outlaws to deprive the average prisoner of that sense of security which comes from living among men who can be reasonably expected to abide by the rules of society.*

Certainly, being close to violent, dangerous and notorious criminals staying with other criminals those who are out to show their resilience is worrying. Prison inmate should adjust to the insecurity and unsafely prison life.

This theory suggests that all manner of individuals regardless of who you are should not be denied of the fundamental essentials in life not without prison inmates. As Abraham Maslow recapitulates his theory of needs and holds the view that man has a basic need of fulfilling his hunger and shelter first before thinking of the higher need of self-esteem. Maslow suggests five types of human needs in a hierarchy which mirrors the order in which needs must be satisfied, for example physiological and safety needs (Afari, 2008). For a prison inmate to agree and understand the state of prison set of rules, his less important needs must be met first. Prison authorities should be able to deliver protection for their prison inmates to satisfy their safety and security.

The deprivation theory is also in line with the United Nation amended standards for treatment of inmates which stressed on an improvement in protection from brutality and harm for detainees and total avoidance of the use of friendless imprisonment for more than 15 days. The new guidelines also add prohibition on harsh, heartless, or undignified

action and a determination that objective health care professionals who have a responsibility not to contribute in such conduct, have a role in witnessing and reporting such issues connected to treatment of inmates. Again, approval and application of these rules further strengthens human rights and principles and offered better protection for people denied of their freedom, restructured routine protection and a more operative to national prison administration (UNODC, 2015).

UNODC (2015), came out with some fundamental ideologies in prison life which reinforced what deprivation theory espoused. These fundamental ideologies seek to offer the entire well-being of life in prisons, prison authorities and inmates inside and outside the walls of prisons. Some of them are;

All inmates are considered as human and shall be treated with dignity and respect they deserve. Inmates should be safeguarded and should not also be subjected to all kinds of humiliations such as torture, cruel, cold hearted or demeaning conduct or sentenced. As a result of this, the safety and security of all the stakeholders such as prisons inmates, staff members and all other service providers including visitors shall be guaranteed at any times (UNODC, 2015).

With regards to housing, each inmate shall be given a cell or room to lodge. If it is the case that there is temporary congestion, it will be imperative for the nation's prison administration to make an exception to this regulation, it is not prudent to allocate cell or room for two inmates. Again, cell or rooms shall be occupied by inmates who can live under the same room compatibly. Inmates shall be constantly supervised and monitored in their cells all the time. Also, all cells or rooms allocated for use by inmates should be conducive enough in other not to have any health implications on inmates with respect to

ventilation, climatic condition, floor space, lightening, heating and among others (UNODC, 2015).

With regards to WASH facilities, inmates shall be given sufficient shower and bathing facilities. Every individual inmate should be able to have a bath or shower at all times and at a temperature suitable to the inmates. Additionally, water and toiletries shall be provided for all inmates and shall adhere to personal hygiene to ensure cleanliness and healthy lifestyle (UNODC, 2015).

Additionally, clothing and bedding are very essential in every facet of human endeavor. In this regard, one of the guidelines is that, an inmate shall be offered with appropriate clothing which is suitable to the weather condition to keep him or her healthy if he or she is not allowed to use his or her clothing. In instances like this, such clothing lowers and humiliates the inmate. To reinforce this point, every inmate shall be provided with different and sufficient beds and which shall be neat, kept in good condition and often changed to ensure its cleanliness to meet both local and national treaty. (UNODC, 2015).

Food is one of the basic essentials in life to ensure survival for general body growth and healthy condition. For that matter the rule advocates that the prison authority should ensure that every inmate shall be provided with food of nutritional quality at the appropriate time and also be sufficient enough to satisfy the inmates for good health and energy. Also, the provision of potable water should be at the reach of every prison inmate as well as the healthcare lies in the hands of the state. Irrespective of inmates' legal standing, they should be provided and have access to health care delivery of all standards in the community without any bias and cost as well (UNODC, 2015).

The deprivation model essentially discusses the five deprivations namely, deprivation of liberty, goods and services, heterosexual relationships, autonomy and as well as security.

To relate these deprivations to the current study, it has been observed that the inmates in the Tamale Central Prison are denied their right to liberty as they are locked into their cells between the hours of 5:00 p.m and 6:00 a.m each day.

In terms of the deprivation of goods and services, inmates in the Tamale Central Prison are not granted complete access to essential services such as water, toilet facility and adequate health care as and when they require.

Furthermore, inmates in the Tamale Central Prison are deprived of the right to heterosexual relationship (conjugal visits) by their spouses.

Again, the deprivation of autonomy does not grant inmates in the Tamale Central Prison the right to take decisions that affect their welfare. Decision making are top down, that is from the authorities to the inmates.

Lastly, the deprivation of security makes inmates feel unsafe and some inmates may be intimidated by others.

2.3 Water, Sanitation and Hygiene (WASH) in Prisons

Access to water, sanitation and hygiene (WASH) is fundamental in guaranteeing the health of human, wellbeing and development outcomes, in spite of that service levels are low in many low- and middle-income countries (LMICs). Sustainable Development Goal (SDG) 6 requests for universal and equitable access to fundamental WASH services by 2030 and advances in levels of services (Cronk, Slaymaker and Bartram, 2015). .

Although the major attention of the WASH sector has been on household access, 'universal' access also includes WASH in inhabitants that have been involuntarily displaced or 'dislocated populations' as defined by Cronk etal (2015).

Locations where such inhabitants reside, including orphanages, prisons and refugee and Internally Displaced Persons (IDP) settlements, have received little attention in terms of the monitoring and improvement of WASH and environmental conditions Cronk etal (2015).

Mara, Lane, Scott, & Trouba (2010), mentioned that good hygienic condition, suitable and appropriate sanitation, and safe and portable water, are very necessary or essential to improve health and socio-economic development. Access to improved sanitary condition results into; lower health system costs, decrease absenteeism as a result of factors such as illness, eliminating open defecation, have attention for the sick and reduced queue hours at sanitation facilities (Mara et al., 2010). With roughly 215 million people are engage in open defecation, Sub-Saharan Africa bears the greatest water and sanitation challenges (Galan, Kim, & Graham, 2013).

Also, bad sanitation, unsafe hygienic condition and water are responsible for 50% of the effects of death, maternal underweight and childhood related issues, and this is because it has a strong correlation between diarrheal related diseases and under-nutrition. This goes to affirm that, once a condition is exposed, it has a greater chance of exposing others (Bastien, Hetherington, Hatfield, Kutz, & Manyama, 2016; Mara et al., 2010).

Clear (1994), Franke, Bierie, & Mackenzie (2010) and Petersilia, (2009), stated that the understanding of the roles of prison in peoples' lives cannot be denied and as such call

for researchers to make effort towards improving awareness of how conditions in prison and incarceration or imprisonment affects prison inmates. Conditions in prisons is not something that is new but rather a long-standing issue in the last hundred years and this has been a debate by criminologists (Applebaum, 2003; Liebling & Arnold, 2004; Sutherland, 1939).

As a matter of fact, Prison Service Decree of the NRCD 46 section 1 mandates the department of the police for "safe custody and welfare of prisoners and whenever practicable, to undertake the reformation and rehabilitation of prisoners" (Prisons Service Decree, 1972, NRCD 46). However, it seems that it has failed in this regard. Prisons in Ghana today are ridden with very poor sanitary conditions and poor healthcare delivery system (Adjei etal, 2006). One Inmate interviewed in Kumasi central prison in Ghana assigned the causes of morbidity in the prison to poor sanitary condition poor diet, overcrowding just to mention a few (Herbert, 2001).

Certainly, health care providers in prison reiterated a call that diseases that debilitate inmates, caused lives were avoidable and also easy access to infirmary condition was open and accessible (Herbert, 2001). However, it is due to inadequate care and attention as well as medical logistics to salvage this situation (Herbert, 2001). Therefore, the extent to which these prison facilities have been altered and how much modernization has influenced the wellbeing of the inmates and the population at large is not quite clear.

Strangely, slight improvement has been reached in this disagreement in the sense that evolving trial work has been supervised to explore physical circumstances and test the assumption regarding effects on inmates during or after release. Consequently, some go on to argue that attempt should be made to ensure that prisons are kept neat, calm, and

silent surroundings to establish a platform for curative involvement and to reduce strain on inmates which might result in psychological harm or reactionary aggression. Others assert that prisons are assumed to be noisy, disorderly, congested, and unfriendly to avert offending the toughened the better (Mohseni, 2012).

Moreover, lack of facilities to support sanitation such as toilets, hand washing facility as well as potable running water is a major problem all over prisons in Liberia. The consequences in the prisons are however particularly grave due to inadequate water and facilities for toilet (Amnesty International, 2011). “You gotta use the toilet amongst your friends. It’s embarrassing. You eat and use the bathroom in the same cell.” As explained by a male prison inmate in Monrovia Central Prison (Amnesty International, 2011). “It’s not easy using the toilets. We have diseases now because of the toilets. When I sit on the toilet, hot air comes up. It smells and it causes rash. I am not the only one with rash down there. Everyone does.” Male pre-trial detainee in Gbarnga Central Prison indicated (Amnesty International, 2011). This state of affairs makes it almost impossible to guarantee sanitation of our prison as facilities to support hygiene are not well established.

2.3.1 Water

One of the essential services which ought to be supplied without ceasing at places where the freedom of inmates is denied is the provision of adequate volumes of water (Pier, 2005). The preparation of meals, water meant for drinking, the maintenance of individual cleanliness and the disposal of sewage requires the provision of water (Pier, 2005). It becomes a crucial duty therefore for whoever is in control of managing the prison to guarantee sufficient supply of water taking into account quality as well as quantity and

the consistency of the supply. However, severe pressure is brought to bear on the available infrastructure for the supply of water in areas of incarceration. Accordingly, the system has to be modified to better serve the current detainees and also to be consistently preserved (Pier, 2005).

In reality, it is often noted that the mechanism put in place originally connected is no longer enough due to the consistent increase in inmate's numbers. Very often, there is little or no water supply to showers and toilets, cells and dormitories because the taps and pipes are damaged or water pressure is insufficient. Again, denying inmates the require volumes of water for personal usage will prevent appropriate sewage and the disposal of wastes and consequently create circumstances favorable for disease transmission (Pier, 2005). Detention places rely on consistent supplies of water in settings where they can be found. There will be competition for water with local inhabitants in settings where the prison is in cities, and may also be faced with some water challenges owing to rapid development (Pier, 2005).

World Health Organization (WHO) recommended the minimum water essential to cook meals, for cleanliness and to drink. 10 to 15 litres each person in a day is the least amount essential for the sustenance of adequate wellbeing, provided they have consistent distribution of services as well as the facilities such as the kitchen, system for the disposal of waste-water and so on, have to be effectively working (Pier, 2005). At least 3 to 5 litres of drinking water in a day represents individual's severe biological requirement. The weather as well as the extent of bodily workout engaged influences the least requirement. Consequently, inmates who engaged in farm activities tend to have much requirement for water for preserving their cleanliness and for drinking (Pier, 2005).

In the absence of supply of water to cells and dormitories, it behoves on inmates to have water storage containers either for each inmates or the a group of inmates, and that the storage of water should be done in adequate volumes to be able to cater for their daily needs for water especially when locked up in cells. Personal containers for storing water must be enclosed to prevent pollution (Pier, 2005). It is recommended to use containers with lids or buckets with covers. Every inmate should have his or her entitlement a least quantity of water comprising 2 litres a day inside the cells and dormitories when put in cells for a duration of not greater than 16 hours and again between 3 to 5 litres for each person per day when locked up for greater than 16 hours depending on how hot the weather is (Pier, 2005).

In United Kingdom prisons, it is a requirement for inmates depending on the weather to have daily access to bath or shower at least two times weekly (or repeatedly when required) as a consequence over-all cleanliness. The rules in England stipulate that each inmate is obliged to have shower at the right time, bath with hot water or upon entry into prison be welcomed with a shower and subsequently bath once weekly (Arianna, 2013).

The story is not different in Scotland as every inmate ought to be given opportunity by the Governor to observe cleanliness by offering continuous access at realistic periods for ensuring inmates wash, bath and shower every day and sufficient provisions should be made; and where these failed, a minimum of at least once daily. These rules are not always adhered to, example on first night or for inmates kept in segregation (Arianna, 2013). In Zimbabwe prisons, cuts to water supply are consistent, consequently observing sanitation involves putting in the corner of the cell one bucket to be used by many inmates, with a different bucket used for drinking and for washing (Zacro, 2018).

The absence of running water in Liberia complicates the challenges regarding cleanliness as well as and sanitation (Amnesty International, 2011). As stated by management, inmates take a 5 litre jug containing water each day for each cell. Inmates at the Monrovia Central Prison resort to the use of an improvised system of pulley to drop their empty water bottles out of their cell windows to fill the bottles with water by those inmates outside the field working (Amnesty International, 2011). Of great necessity to inmates is the delivery of water. Unclean buckets are filled with water by inmates which are sitting still in the cells. Inmates also drink from cups that have been used already by other inmates without washing as well as bottles, and they drink from used cups and bottles, which they fill by placing the entire cup into the water they commonly share which may result in spreading infections (Amnesty International, 2011).

Whawha Young Offenders Prison in Zimbabwe also has access to adequate municipal water, but inmates used the bucket system to flush human waste during the day as the water came with low pressure. There is a total of five showers in that block, but they were not working and require some repair. A visit to Mutare Farm Prison in zimbabwe report outlines that there was unreliable municipal water supply, the toilets' flushing systems required to be repaired, inmates are to flush the toilets with buckets of water (Edson. etal, 2018).

This is inconsistent with international and national standards because the right to clean water does not only suggest the availability, but also accessibility of the water. If the water is hard to access or use, the standards would not have been met. This means that there is a high probability that the requirements for a sufficient, adequate and safe amount

of water for consumption, cooking, personal and domestic hygienic requirements as provided for in ICESCR and other instruments were not obeyed (Edson etal, 2018).

In addition, both sources of water and sanitation outflows are sited close to each other,a situation described as frightening. As reported by Kalunga, “there is one bowl and pump for water right to the pit for trash, which is right next to the pit toilet”. The offender management officer at Mwenbeshi, revealed to PRISCA, ARASA, and Human Right Watch the ground water is inadequate, and sited near latrines an inmate explained (HRW, 2010).

Additionally, notwithstanding the global criteria prescribing each inmate to have access to potable as and when required by the inmate, it should be done depending on the scarcities in several of these establishments and also as a result of unpaid water bills. Rationing of water is a common practice especially when there is erratic electricity supply to the prison. An offender management officer at Mukobeko, reports how the supply of water is wholesome but largely depends on intermittent delivery. As reported by a prison officer at Mukobeko that he witnessed brawling has seen fighting between detainees “many times in accessing water” (HRW, 2010).

2.3.2 Sanitation (Waste Disposal and Latrines/Hand washing Hygiene)

Sanitation mostly implies the establishment of facilities and services for the safe disposal of human urine and feces. The word ‘sanitation’ also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal (WHO).

Issues surrounding sanitation are complex and have relation to and the economy as the latest World Health Organisation study indicates that in WHO's South-East Asia Region, 123,300 diarrheoa deaths were estimated to be caused by insufficient sanitation and 131,500 by insufficient handwashing practices. Good sanitation impacts hugely to poverty reduction and enriches the security, dignity and wellbeing of women and girls, since poor sanitation hits them the hardest (WHO 2012).

Even though the effects of poor sanitation know no boundaries, few countries attached seriousness to it (Mara et al, 2010). All over the world, it has been acknowledged as some arrangements that facilitate the appropriate discarding of garbage, using toilets and the avoidance of open defecation (ADB, 2011, Bartram & Cairncross, 2010). Preferably, a workable hygienic system have to demonstrate an environment that is tidy as well as safeguards and enhances the health of human, disrupt the cycle of disease and should also be social as well as economical feasible and suitable (Okot-Okumu et al, 2010).

About 2.5 billion people universally do not have access to better-quality facilities for sanitation (while 1.9 billion people have gained access to an improved sanitation facility) (Unger et al., 2013), giving them unlimited contact to faecal pollutants and a multitude of diseases. It is approximated that 4.2% or beyond of the yearly worldwide death rates can be avoided as every individual is able to have access to potable water for drinking, consistent cleanliness as well as good practices related to hygiene (Prüss et al, 2002; Tumwebaze et al, 2013).

Also, the 4.2% death rate approximated may demonstrate difficult to realize since universally, one in each five persons usually engage in open defecation or use some sort of advanced sanitation like simple hygienic latrine or a flush toilet (J. Bartram & S.

Cairncross, 2010). As stated by reports such as the Country Reports on Human Rights Practices, those toilets that are often shared by inmates tends to be dirty and horrible for usage, rendering them incapable of cleaning such shared toilets are regularly filthy and disgusting to use, making them unpleasant to clean and thereby aggravating them to go back to defecating in the open (OD) (Barnard et al., 2013; Chambers et al, 2016).

Again, in many prisons in Liberia, odor emanating from of sewage becomes is great in a lot of the cells and privacy cannot be guaranteed. Due to inadequate officers to accompany inmates to public toilets, several inmates have to resort to the use of buckets and bottles as urinals (Amnesty International, 2011). Located in Monrovia Central Prison is cell block D where inmates revealed that during locked up time that is in the hours of 4pm and 8am, no staff will be available to escort us to the latrine. A visit by Amnesty International revealed that the public toilets inside the prison were dirty dark. Odor emanating from the latrines was was irresistible and the grounds were submerged with overflowing water (Amnesty International, 2011).

2.3.2.1 Waste Disposal

The Concept of Waste

A lot of activities of human are geared towards the generation of wastes (Brunner and Rechberger, 2014). Notwithstanding that, the production of wastes remains a main source of worry as it has always been since pre historic period (Chandler et al, 1997). The rate and quantity of waste generated in recent times, have been on the increase. As the volume of wastes increases, so also does the variety of the waste increases (Vergara and Tchobanoglous, 2012).

Waste is the useless by product of human activities which physically contains the same substance that are available in the useful product (White et al, 1995). Wastes have also been defined as any product or material which is useless to the producer (Basu, 2009). Dijkema et al, (2000) pointed out that, wastes are materials that people would want to dispose of even when payments are required for their disposal. Although, waste is an essential product of human activities, it is also the result of inefficient production processes whose continuous generation is a loss of vital resources (Cheremisinoff, 2003).

A study was conducted in the year 2004 by a group of researchers from Florida on how waste is being generated in each correctional facility in the state. Their findings revealed that among solid wastes, paper were leading constituting almost 4% of the generated wastes from Florida prison (Jennifer, 2017).

Again, a study commissioned by the Grocery Manufacturer Association and Food Marketing institute leadership committee in 2012 established that prisons in the U.S were generating within a year more than 500 million pounds of wastes from food with each inmate accounting for one pound for each meal (Jennifer, 2017).

Facilities for bathing in some of the prisons are dirty. The facility used for bathing at Mwembeshi is very appalling as it is made of muddy grass structured that does not have drainage and the sharing of buckets for bathing is a common phenomenon among inmates as reported. The same container used for bathing is reused as toilet when locked up in cells at night as reported by an inmate (HRW, 2010). The situation of our bathing is terrible as water which is supposed to be supplied at that facility has stopped and as result dirty water is seen. Our bathing is really bad, they have stopped water from moving in a

place where we bath from, so you will find the dirty water getting to our waist level whiles inmates urinate in that same water, wounds are exposed in there as well as all manner of things. It is surely by God's might that we are still surviving as explained by an inmate.

Again, the state of toilets is deplorable as they have been at all the time exposed and sometimes, they don't put water when using them resulting in a swam of flies around the toilet. Consequently, after returning in the afternoon from work, when lunch time exceeds, our food is found left in the open observing some flies settling on the food. Because authorities do not allow us to eat in cells, we compete with flies outside resulting in diarrheal diseases as latrines are in poor state, an inmate disclosed (Stephanie etal, 2016).

2.3.2.2 Latrines and Hand washing

In Uganda in 2010, top prison management has made a giant step towards tackling Water Sanitation and Hygiene challenge. Although, the budget is constrained coupled with other priorities of equal importance, there is the commitment to eradicate the habit of using the night soil bucket system by the year 2015. This system has become normal as a result of the policy by government to swing from a decentralized to a centralized prison service in the year 2006 with no requisite resources to elevate it in accordance with the least Water Sanitation and Hygiene service requirements (Lizabeth, 2015).

Some prison inmates protested about the lack of confidentiality and that they were expected to use the latrine found in the same area where inmates cook their food or even eat food. Again, this is not only unhealthy, but also embarrassing they said (Dissel,

1996). Again, an inmate stated that “the prison is overcrowded and I feel horrible”. “In the morning, the people in our cell start to wash from 4am to 6am, and then in the evening from 3pm to 7pm”. “There is only one toilet and one bathroom and you have to shower with someone else. However, if you are older, like myself, our cell's rules allow you to shower alone”. (Ronald: Modderbee) (Dissel In Imbizo, no.2 pp.4-10, 1996).

Again, as stated by a prison inmate “the prison is filthy, the ablution facilities are filthy, the showers get blocked and take time to fix. We spent a week with the toilet blocked and we had a leaking tap for ages and only after many complaints was it fixed. We don't have polish or soap to clean with. The problem is that you get prisoners who are cleaners for the sections and there are warders who are supposed to supervise them. Every day they open the cells for the cleaners to clean, but at the end of the day the place is not clean”. (James: Modderbee) (Dissel, 1996).

Bick (2015) studied the infections control in American jails and prisons and stated that most inmates who reported not washing their hands ascribed the reason to inadequate hand washing stations and soaps close to the latrines. Prison officers disclosed that the nonexistence of installed hand washing facilities in American jails and prisons was owing to stealing of soaps and soap dispensers by inmates which were well thought- out to be of high values.

Marian (2015), stated that the Ghana Prison Service has disclosed conditions at the country’s prisons have seen little progress despite uncountable appeals. Majority of Ghana’s prisons are congested, making life difficult for inmates there. As published by the Human Rights council of the United Nation in 2014, human rights conduct in

Ghana's prisons does not meet international standards. The report indicated that the unacceptable level of conditions results in a number of serious infringement, including insufficient nutrition, inadequate access to medical care, deplorable sanitation and poor security.

Also, prison authorities have a duty to offer detainees the essential measures aimed at ensuring own cleanliness as well as ensuring sanitation, comprising toiletries and over-all hygiene instruments as well as its supplies. Each inmate is expected to be supplied articles meant for toilet which is essential in ensuring wellbeing and for their and hygiene, which is supposed to be changed as and when required. In actual fact, it is the expectations of many that inmates purchase their personal toiletries, even though authorities might be able to provide for inmates with toiletries such as toothpaste, a toothbrush and deodorant, should they not have adequate income to purchase their personal one and each prison has a laundry. Inmates ought to be able to at least wash their clothes and bedding weekly (Arianna, 2013).

Arianna (2013), disclosed that in United Kingdom, inmates have ready access to sanitary facilities kept clean and value their privacies which forms part of the rules in prison. The governors have the responsibility in ensuring that there are adequate provisions for inmates to warm themselves, for illumination as well as fresh air in the prison which is acceptable. For example, in Northern Ireland, the laws specify that governors ought to take a lot of pragmatic steps in ensuring the sanitation and cleanliness of every part of the prison where inmates, authorities and the rest of the other workers.

There could have been a wider consultation between Governors on the one hand and other health professionals such as professional nurses, other officials of health care as well as staff in charge of environmental health and for ensuring the health and safety of people at work. Confidentiality cannot always be guaranteed. For example, cells meant for single occupancy will be doubling or tripling with their latrines and facilities for washing shared among inmates. Such sharing is as a consequence of prison overcrowding (Arianna, 2013). The lack of sanitary facilities in the Zimbabwe prisons has made inmates resorting to wrenching their worn-out blankets when easing themselves in the latrines which have been one of the reasons for which the toilets have been blocking (Zacro, 2018).

Also, notwithstanding the accessibility of water at Harare Remand Prison, the situation on the ground was seriously disturbing at the time of the visit. The toilets had become dysfunctional for close to a year and they were full of human waste. Inmates used the outside flushing system which was very unhealthy. Inmates were forced to bear the smell of human waste throughout the night (Edson C. etal, 2018).

Facilities that support water and sanitation in the prisons across Zambia fall short of meeting the global standards and certainly breach prohibition on cruel as well as undignified treatment and which creates a huge risk associated with health. Latrines are insufficient and untidy, and in other prisons they are made only of an underground hole while some others resort to the use of buckets as latrines. Inmates at Mwenbeshi revealed the lack of toilet facilities I n their cells resulting in the use of buckets throughout the night. Also, at that time 10 outdoors toilet are shared by more than 1000 inmates which do not meet international standards (HRW, 2010).

An interview conducted with some inmates at Mukobeko, said, "You pray for your friend not to use the loo", you have to plan ahead owing to too long queues. As revealed by a lifer at Mukobeko, "You can wait for hours", resulting in a fight among inmates. Between 140-150 inmates in Mukobeko cells share one toilet. "We queue from when are locked up, straight through until morning" (HRW, 2010).

At Choma in Zambia, the inmates informed us about their plight in sharing two toilets among 150 of them resulting in an overwhelming of facilities making toilets to often spill over with inmates always suffering from diarrhea. At the Lusaka Central Prison, inmates in the female section stated how a toilet is assigned to one cell for the purposes of urination. "If we excrete for any reason… we were told we would be punished by the cell captain. We must get permission from cell prisons captain to poop when necessary" (HRW, 2010).

Insufficient facilities for bathing and toilet result in specific problem for inmates with disability disabled inmates. It is reported that, a disabled inmate on crutches having one leg amputated, informed us about his difficulty in accessing and using the toilet as it was especially not friendly to him "I find it difficult to balance, jumping over my colleagues in the cells to the toilet", an inmate explained. This means the needs of disabled people were not factored in designing the toilet and bathing facilities resulting in such difficulties in access (HRW, 2010).

The general grievance with inmates and authorities questioned in Lusaka, Zambia is about how deprived the condition of sanitation in that prison is as well as how the inmates tussle to preserve hygiene among them. Toilets are wrecked and inadequate to handle inmate's numbers, absence facilities for cleaning to guarantee the neatness of

bathrooms and toilets and the nonexistence of these facilities in their cells often result in the use of buckets with covers which raises fears by the inmates interviewed in all four locations. With regards to the influence that these conditions have on health, quiet a substantial number of inmates revealed willing and anxiety concerning the likelihood of communicable disease spreading resulting in poor sanitation, with intermittent and inadequate supply water supply (Stephanie etal, 2016).

2.4 Effects of Hygienic Conditions on the Health of Inmates

Dating back to the ancient times, individuals are aware of the significance of public sanitation in reducing the transmission of illnesses. The state of Roman buttressed the delivery of food to people, provision of potable water and the provision of facilities meant for bathing (WHO, 2007). When trade activities and movement of people brought about growth, congestion and uncleanliness of the medieval states, separation of the unhealthy and confinements of people from other places suffering possible contact were provided with an efficient tool for ensuring the control of diseases to the towns that have been able constantly apply those actions (WHO, 2007).

In contemporary times, the invention of vaccines and antibiotics has brought about extraordinary improvements, occasioning among other things, the extermination of smallpox which resulted in a fundamental decline in child's death. In spite of the so many years of attempting to gather evidence as well as the current advancement in medicine, all over the world, the leading cause of death in this 21st century is infectious diseases. The main factor responsible for the susceptibility of persons is the fact that why are susceptible is that the foundation of the infection is often beyond the person.

Environmental exposure or other persons infected can be the critical cause of the spread (WHO, 2007).

Chaturvedi and Bagle (2015) examined the relationships between periodontal diseases and oral hygiene practices with inmates of drug addicts using Chi-Square analysis. Outcome of the study revealed that the prevalence of periodontal diseases among drug addicted inmates was considerably influenced by overcrowding, personal hygiene, and duration of inmates in prison (Chaturvedi and Bagle, 2015).

Owusu et al. (2015) conducted a cross-sectional study among prisoners aged 15 years and older at the Ho Central Prison using bivariate and multivariate analysis. The goal of the study was to assess the risk factors that are associated with pulmonary tuberculosis with detainees among prisons in Ghana. Owusu et al. (2015) recounted that overcrowding, religion, smoking behaviour and sharing of food and drinking facilities were mainly responsible for the high risks of tuberculosis among inmates in the Ho Central Prison of Volta Region in Ghana. Owusu et al. (2015) further discovered that the socio-demographic characteristics of inmates interviewed were employed before their conviction, and about 98% were males. About 59% of respondents for the study were less than 35 years while the remainder was above 35 years.

Amnesty International (2011), explained that lack of initial medical assessment upon admission has accounted for the difficulty in identifying and treating ill inmates. In the absence of medical assessment, it would be difficult to ascertain the danger associated with infectious diseases or its healing requirements for arriving inmates. Liberian law (Chapter 34, Section 8 of the Criminal Procedure Law) mandate inmates to be examined at the point of entry into prisons. By engaging in that assessment, it is possible to

distinguish already existing conditions as well as those contracted during incarceration (Amnesty International, 2011).

Topp et al. (2018) explored how the impact of health system accountability has on prison health committees in Zambia and reported that authorities spent less resource in disposing waste within Zambian prisons which resulted in the outbreak of severe epidemics in these prisons.

Dogbe *et al*. (2016) assessed in Ghana's prisons the life of persons living with disability using 6, 114 prisoners from the Kumasi Central Prisons, Nsawam Medium Security and the Sunyni Central Prison. Over 80 percent of respondents were between the ages of 20 and 59 and only 2% were females. Dogbe et al. (2016) found that poor waste management and insufficient water supply significantly accounted for most contagious diseases among inmates in Ghanaian prisons.

Inmates are particularly at risk, because they do not have power over their surroundings and may often times be left with little or no choice over the density and composition of the environment in which they live. An amalgamation of causes of the spread: agents, hosts and routes of the spread are much more favorable outside than in the prison environment. Agents such as bacteria, viruses among others are an essential connection in the chain of infection (WHO, 2007).

People from deprived and sidelined communities who have little or no access to services from health care constitute the bulk of people living in prisons. As a result of attitude, life situations and physical situations, agents of infections are more widespread within inmates. A classic inmate is very possible to be a disempowered person with a past

account of disease contact, use of drug as well as the consumption of alcohol. Overcrowding premises will be imminent with him or her either earlier or later after incarceration which can be exposed to diseases either by water, food or by sanitation (WHO, 2007).

Also, ignored long lasting conditions, bodily defects, parallel communicable and non-communicable conditions, a description of unpredictable use of antibiotic, extreme amount of dose and a lengthy period of contact as well as inadequate dietary class destructively influencing the rate of existence and acuteness of condition in prisons. In unhealthy prison setting, agents of infection may be distributed through different routes: openly via feeling, sexual association, open droplet infection as a result of individual involved in coughing or contact with soil or as a result of numerous unintended broadcast means: carrier-borne transmission can arise as a result of food, water, clothing, equipment for tattooing or syringes that are contaminated; airborne related spread may take place as a result the sprays formed in the huge, inadequately aired and hardly warmed places; and vectors can be brought about by flies, ticks and mosquitoes (WHO, 2007).

To add to the above, several different researchers have identified reasons for fast tracking or inducing the effects of incarceration. The reasons show the extent to which inmates survive with life prison life since the impact will vary from one inmate to another subject to the various reasons. As indicated by Tosh (1982), who specifies that the troubles of jail imprisonment have an effect on all inmates differently. Several countries of the world are struggling with the problem of enlarged crime rates, both within and outside their national territories (Adler et al, 1991).

Rob (2010), discovered that there are more than 10 million inmates in the world and that 30 million people enter prison establishments. In spite of the several global agreements and instruments aimed at protecting inmate's rights are habitually abused. The UN Special Rapporteur on Torture hinted the General Assembly somewhere last year that in several places of the world, areas for detention are persistently congested, dirty and the absence of the least facilities required for permitting a distinguished life. Furthermore, tuberculosis and some extremely infectious sicknesses are common. Hierarchies within inmates and related violence are ordinary qualities of several places where inmates are kept and again it is not possible to have an ordinary behaviour and feeling within prisons (Rob, 2010).

INCHR (2017), revealed that situations which includes poor sanitation, absence of sufficient food and medications fall short of United Nations standards for treatment of inmates and as a result, diseases are prevalent. Prisons are in bad shape and the facilities are functioning below minimum standard required for prisons and prisoners management. The structures are ill equipped and the sanitary conditions are horrific. In addition, the classification and treatment of prisoners remains a challenge (INCHR, 2017). Moreover, prolonged-pretrial detention accounts for more than 55% of the inmates in Liberia. Many have never had a chance to be listened to in court and some of them have been remanded for more than two years (INCHR, 2017).

Moreover, the situation of congestion in Ghana's prisons continues to negatively impact on the management of inmates in the areas of food service, security, health care provision, bedding, education and life skills provision and sanitation among others (Julius etal, 2018). It is therefore apparent that inhuman and harsh conditions which have been

linked with prisons only end up producing inhumane and violent characters who when freed back into the society find it more to reintegrate. (Rob 2010), mentioned that within the past few months, there are reports suggesting congestion spreading tuberculosis outbreaks in Phillipines in which Manila central jail which was constructed to house thousand inmates now houses 5000 challenging for them to acclimatize into society (Glanz et al., 2009).

Again, in Uganda Central Prison there are only five medical doctors serving the entire prison establishment which has brought about several health crises, including the rise of multidrug resistant tuberculosis. A report by Dr. James Kisambu (2019) the head of prison health service, say that over 50% cases of tuberculosis in Uganda are reported (Lizabeth, 2015).

Not without doubt, among the states who were confronted by lawsuits in the 1990s over inferior and illegal circumstances of imprisonment were California and Texas. The courts in both federal states concluded that the prison systems have been unsuccessful in offering sufficient medical services for the inmates suffering the greatest serious psychological results of imprisonment in worsened as well as congested circumstances (Haney, 2001). Similar health conditions in Russian prisons are documented in the UNDP (2004) report that an extremely high-risk environment which led to the Russian prisons to be described as “HIV incubators” (Klein et al. 2004).

Haiti in the year 2012 had unyielding congestion in its prisons which forces inmates to adopt shift system in sleeping. This has brought about challenges related to sanitation and fresh air in their cells. Representatives of the United Nation have revealed that roughly 70% of the inmates have endured from the absence simple hygiene, poor nutrition,

substandard health care delivery as well as water borne related diseases. Again, congestion and the absence of enough sanitation as well as facilities for medical care created severe danger to the health of inmates in Benin (U.S. Department of State, 2013).

Information published in 2012 by the Ministry of Health, Ethiopia revealed that close to 62% of detainees in several prisons all over the country have endured from mental health related challenges owing to individual detention, congestion and the absence of adequate facilities for rendering health care services of inmates in various jails across the country suffered from mental health problems as a result of sole confinement, congestion, and lack of enough health care facilities and services. Equally, in the same year, congested situations have overstretched medical facilities in the State of Mexico, especially in Baja California threatening the lives and conditions of inmates (U.S. Department of State, 2013).

As stated by the Commission on Safety and Abuse in America's Prisons (2006), challenges related to mental health of inmates often go undetected. Inmates similarly bear with non-communicable diseases for instance hypertension and diabetes. The commission further emphasized that overcrowding and absence of resources indicate that frequently inmates' health challenges become worsened before relieved after incarceration.

Of major concern to the Zimbabwean prisons are the issues of poor hygiene and sanitation (Zacro, 2018). Sometimes inmates who suffer infectious diseases are not isolated from the rest, a condition that may probable witness inmates suffering from opportunistic diseases like TB infecting the rest. Of particular importance is the absence of facilities for cleaning like brooms, detergents, and gears for protecting them when scrubbing the cells and latrines in most female prisons (Zacro, 2018). The health threats

related to this custom continues to be major concern bothering inmates who often times are without soap for washing themselves as well as their uniforms (Zacro, 2018).

More so, predisposing conditions like poor sanitation, insufficient facilities for washing inter alia make inmates particularly susceptible to certain illnesses. Everyday illnesses which constantly affect inmates comprise cholera, malaria diarrhea as well as tuberculosis (Zacro, 2018). In spite of this, it can be noticed medical consumables and supplies remains insufficient across several prison establishments in Zimbabwe. Inmates are consequently asked to purchase their own medical consumables through their relatives. It is obvious that inmates who have money are the ones who can have access to the required medicines.

Monrovia Central Prison is the single prison in Liberia that is equipped with an on-site clinic manned by a professional clinician. Though, the infirmary is without vital drugs and rudimentary supplies. In situations where there is enough space, improvised sick bays have developed lately to facilitate a visiting clinician to provide care in an agreed space. However, a lot of the time, correctional officials serve as providers of first aid, notwithstanding their deficient in medical knowledge needed to evaluate and offer care to sick inmates. Furthermore, greater number of prisons is without first-aid kits. (Amnesty International, 2011).

Several efforts go into in an attempt to deliver medical care by prisons owing to of the absence of drugs and qualified workforce. Correctional officials revealed to Amnesty International how they are constraint with resources example vehicles to drive inmates to hospitals. Provision of primary healthcare in most prisons is exceptionally restricted as normal illnesses like malaria, infections of the skin and problems related to the eyes are

usually not cured; inmates are carried largely during crises and even with that, instant reassignment all the time is impossible. Screening, diagnosis and treatment of illnesses are totally insufficient. (Amnesty International, 2011). “From the time I was there, there is something wrong with my eye. Look, you can see. I am afraid I am getting blind. My eye was not itching before. My eye was scratching and itching in there, that’s the problem I got in there. They never took me to JFK (hospital). Nothing. Nowhere. They were going to go to the hospital but they said no gas for the car to go.” Male past inmate from Monrovia Central Prison explained (Amnesty International, 2011).

Amnesty International (2011), pointed out that inmates are subjected to particularly great danger of infectious diseases whereas imprisoned, that may result in health dangers which affects the larger society. A prison health professional revealed to Amnesty International that though several correctional officials are abreast with how to recognize incidents of tuberculosis (TB), they were frequently not able to quarantine inmates that are affected as a result of restricted room. Performance of the treatment regime advocated by the World Health Organization is likewise problematic by reason of resource limitations. Many inmates appeared to have red, infected eyes and also some have complained that their eyes are itchy, a lot of inmates and past inmates complained of impaired vision, which they said had happened during incarceration. Some are complaining of having malaria, and this is very common in every part of the country.

Amnesty International (2011), in Liberia prisons, almost all inmates interviewed are grumbling with rashes on their groin and upper thighs. The inmates ascribe this to “heat” that emanates from the toilets owing to backed-up dirt. An inmate justified that there was an accumulation of gas in the toilets, and this was making his skin to irritate. More

probable, as stated by workers of John F Kennedy Hospital who have been treating several of the inmates from Monrovia Central Prison, diseases of the skin are brought about as a result of scabies, fungus, ringworm and improper hygiene challenges worsened by the absence of soap toilet and paper "I bathe every day, but no soap. I feel dirty and have rash between my legs from the heat in the toilet." Female inmate serving a life imprisonment explained.

A likely repercussion of the low quality water offered to inmates coupled with poor sanitation is diarrhoea. At Mwenbeshi a prison in Zambia, poor hygiene is stemming from the absence of toilet with water and using buckets as toilets will speed up diarrhea as reported by the offender management officer. Insufficient quality of and poor sanitation can have repercussions that are fatal to inmates. An inmate told PRISSA ARASA and Human Right Watch that the inmates are asked to collect the toilet tissues after the night and wipe the space within the cell. They do this without hand gloves which eventually bring about diseases. A cholera epidemic which occurred sometime ago in cell three resulted in 15 inmates becoming sick. In the ablution, Mono, a teenager at Lusaka central prison, told us "we end up contracting skin diseases and there is no proper water" (HRW, 2010).

The absence of soap results in reduced hygiene. The issue hygiene is key to the Lusaka Central Prison as report indicates the lack of soap, toothpaste, neat clothing as well as clean mattresses. Inmates are affected by weather extremes and the lack of enough blankets and bed sheets worsen their plights. Again, vital cleaning materials like gloves and disinfectants are not supplied to inmates, for the cleaning of toilet buckets and latrines, an inmate explained (HRW, 2010).

Again, in Mali, the prisons lacked medicine, but the inmates were plagued with many diseases like tuberculosis, dysentery and fever. Severe cases were sometimes referred to higher facilities such as the hospital. If an inmate fell ill, the Registrar would go up and down looking for a doctor, and this took 2 days sometimes. They were not taken to hospital frequently. When they were eventually taken, they were sometimes not attended to because the hospital claimed it had too many patients to handle. Bathing facility was not enough and the sewage was poor. Soap should be provided more often than the current practice of once a month, discussion with inmates (ACHPR 1999).

CHAPTER THREE

STUDY AREA AND RESEARCH METHODOLOGY

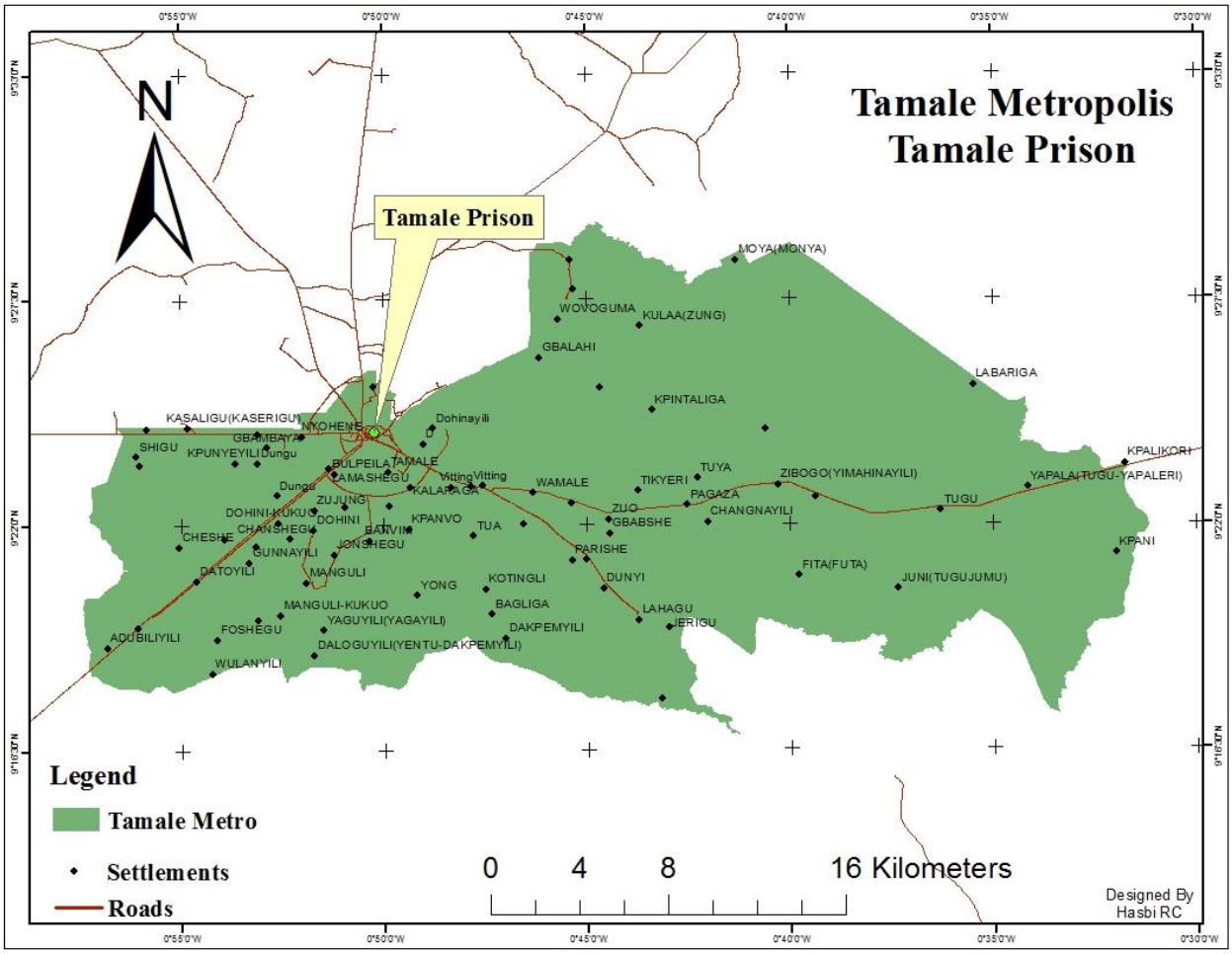
3.1 Introduction

This section of the study was devoted to the study area and the research methodology adopted for the study. Specifically, the chapter describes the geography of the study area and research approach adopted in the study. It includes; research design strategy, study area, population of the study, sample and techniques for sampling, sampling size, instruments for data collection, procedure for data collection, study variables, inclusion and exclusion criteria, data sources, data analysis and ethical considerations.

3.2 Study Area

The prison was built in 1914 and was designed to house 78 inmates. Currently, the prison has a total of 241 inmates made up of 141 incarcerated and 100 remand prisoners. Again, there are 23 senior prison officers and 152 junior rank officers and also 1 prison health official.

Tamale Central Prison is situated at the heart of Tamale and shares boundaries with Tamale Police Headquarters to the South, Tamale Central Hospital to the North, Regional Directorate of Ghana Health Service to the East and the Tamale Jubilee Park to the West. Figure 1 below is the map of Tamale Metropolitan Assembly where the Tamale Central Prison is located.



Source: (CERSGIS, UNIVERSITY OF GHANA, 2019)

3.3 Study design

The study design employed for this study is a descriptive cross-sectional study using mixed method approach both qualitative and quantitative approaches. Collection of both qualitative and quantitative data was done concurrently where the researcher merges both data to offer a detailed analysis of the problem of the research. Using concurrent triangulation mixed method approach helped verify, cross validate and confirm the findings of the study.

The qualitative approach was carried out through interviews with the prison authorities and the only prison health officer. With regards to the quantitative methods, questionnaires were also administered on the prison inmates with respect to the hygienic conditions of living in prisons.

3.4 Study Population

The study population was made up of 23 prison officials, 241 prison inmates (both remands made up of 100 inmates and incarcerated made up of 141 inmates) and one prison health officer. This study selected respondents from the total population of two hundred and sixty-five (265) made up of 241 inmates, 23 senior prison authorities and 1 prison health official of the Tamale Central Prison.

3.5 Sample and Sampling Techniques

The study adopted probability and non-probability sampling techniques. Under the category of non-probability technique, purposive sampling was employed to select the prison officials numbering five (5) and the only prison health official.

Purposive sampling was considered to be appropriate for this study because the selected participants were deemed to have an in-depth knowledge to enabled the researcher to understand the hygienic conditions in the Tamale Central Prison and its effects on the health of inmates. It would also provide the best information by the participants to achieve the objective of the study.

With regards to probability sampling technique, the researcher employed the simple random sampling technique. This technique was applied to select one-hundred and forty-eight (148) inmates comprising both remand and incarcerated.

In selecting these participants, the lottery method (which is one of the methods under the simple random sample) was used to recruit one-hundred and forty-eight (148) inmates to participate in the study. The list of the inmates was obtained and stratified into remand and incarcerated groups. A 'Yes' and "No" written on pieces of paper was used to select 61 and 87 remand and incarcerated prisoners respectively from a total of 100 remand and 141 incarcerated prisoners. Using structured questionnaire as shown by appendix E, information background data, hygienic conditions in the Prison and their perception of hygiene were assessed. Their perceived knowledge was assessed based on a Likert's scale as indicated in the questionnaire **(Table 3.2).**

Table 3. 1 Question on the likely effects of hygienic practices on inmates' health

	Statement on the likely effect of hygienic practice on inmates' health	Strongly disagree (-2)	Disagree (-1)	Uncertain (0)	Agree (1)	Strongly agree (2)
i	Inmates often fall sick of water related illness?					
i	Malaria is the main sickness among inmates					
iii	Not washing hands after visiting the toilet is a major health threat to inmates					
iv	Poor waste management is responsible for most ill-health conditions of inmates					
v	Inmates often suffer from communicable disease due to sharing common water containers such as cups					
vi	Inmates often feel sick because they do not bath often					

The study adopted this sampling method because it ensured equal chances for all the respondents to be selected to eliminate the possibility of human bias.

3.6 Sample Size

The quantitative component of the study involved the administration of questionnaires to 148 inmates randomly selected from the total population of 241 inmates. The sample size

of 148 was determined from the sample size determination table of 95% confidence level of the critical value of 1.96 according to Krejcie and Morgan (1970). From Table 3.1, with a population of 241 inmates, a sample size of 148 will be arrived at.

Table 3. 2 Krejcie and Morgan sample size determination table

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

For the qualitative part of the study, 5 senior prison officers were selected from a population of 23 senior prison officers and the only prison health officer with in-depth information about the hygienic conditions of living in prisons and health status of the prison inmates were purposively selected to be part of the study.

3.7 Data Collection Instruments

In conducting this study, two key data collection instruments were employed. They were interview guide and a questionnaire. The interview guide used helped the researcher

conducted an effective interview which solicited data from the interviewees. The interview guide also helped the interviewer stayed focus on the aims and objectives of the study. Whilst the interview guide was used to collect qualitative data, the interviewer-administered questionnaires were administered to obtain the quantitative data.

3.7.1 Face-to-face Individual Interviews

The interview guide for the prison officers had components of personal information and hygienic conditions in the Tamale Central Prison which specifically looked at respondent's knowledge about source of water supply, waste disposal and accessibility of latrine and hand washing hygiene.

With regards to the prison health official, the questions range from personal information, jurisdiction of the prison (whether it is under Ghana Prison Service or Ministry of Health), type of ailments, capacity of clinic and referral issues. These questions were asked to seek clarification regarding the hygienic conditions under which inmates live. This study employed a face-to-face in-depth individual interview to solicit the views, ideas and opinions from the prison authorities and the prison health official on the subject matter.

The interview afforded the researcher the opportunity to clarify the meaning of statements or questions that were not too clear to the prison health official as well as the prison officers. It also made the researcher to access detailed views and opinions about the hygienic conditions in the Tamale Central Prison and its effects on the health of inmates. It also helped to ensure that research questions were understood before the responses were recorded.

3.7.2 Questionnaires

This research employed an interviewer administered questionnaire as an instrument to collect data. It was administered solely on the 148 inmates sampled from a population of 241 inmates. It encompasses three (3) parts namely demography, hygienic conditions in the Tamale Central Prison with questions ranging from water supply adequacy, waste disposal and access to latrine and hand washing hygiene and a Likert's scale on perceived effects of hygienic conditions on the health of inmates.

Again, questionnaires were also administered under the supervision of the researcher to ensure that those who were selected had access to the questionnaires.

3.8 Data Collection Procedure

Qualitative and quantitative data were both collected from respondents who were selected purposively and simple randomly selected respectively. With regards to the interview schedule, it was conducted in the offices of the five prison officials and that of the prison health official conducted at the infirmary and it all lasted for ten (15) minutes each. The interviews were recorded by hand written and this was applied to all the respondents until the end of the interview. The interview was conducted in the second week of October in 2018.

With respect to the questionnaires, the researcher personally supervised the administration of the questionnaires and gave out some explanations on the importance of the study and this helped the researcher to establish and create rapport with the respondents. The consent of the inmates was sought before commencing with the

administration of the questionnaire. The researcher used the questionnaires administered to collect data from the one hundred and forty eighty (148) inmates.

The administration of questionnaires lasted two (2) months from the third week of October. All the one hundred and forty eighty (148) inmates responded to the questionnaires without failing.

3.9 Study Variables

The variables in which this research study was made up were categorized into two namely; dependent and independent variables. The independent variables include hygienic conditions in the Tamale Central Prison and the dependent variable included the perceived health implications.

3.10 Sources of Data

This research study relied on primary and secondary sources of data to accomplish its objectives.

3.10.1 Primary Data

Data from primary sources were observed and collected directly using interviews which was granted to health official and prison authorities and self-administered questionnaires, also administered on the prison inmates.

3.10.2 Secondary Data

The secondary data was obtained from Ghana Prison Service Annual Reports, published articles related to the topic, surfing the internet, newspaper publications and sociology books. The use of documents helped to corroborate the information obtained from both

the interviews and the questionnaires that were conducted on the respondents. These documents were reports from Ghana prisons service official website (www.ghanaprisons.gov.gh). The documents also helped in complementing the data obtained from the questionnaires and interviews about inmates and prison officers on the hygienic conditions and its implications on the health of inmates.

3.11 Data Analysis

The interviews that were conducted on the participants comprising prison authorities and prison health official were analysed through content analysis where responses were put into categories, indexing the responses and other field notes into themes. These major themes have helped reflected the main problem and the objectives of the study. The secondary data was used in the discussions of the results, the literature review part of the thesis and some aspect of the background.

The questionnaire administered (closed ended) with inmates were vetted, coded, entered into SPSS 22 for windows and cleaned before analysis. Generally, descriptive statistics such as means, and percentages were employed to analyse the socio-demographic characteristics of respondents, access to water, waste management and access to latrine and hand washing facilities.

Inmates' response to items on adequacy of water supply in Tamale prison were composite scored to classify water supply adequacy into adequate and inadequate. Responses which favored water adequacy were scored 1 and those which favored water inadequacy were scored 0. Composite scores were used to classify water adequacy level.

Those who scored between 1 and 3 indicated that water was inadequate and scores from 4-7 indicated adequacy of water supply.

Inmates' responses to questions on management of wastes in the Tamale Central Prison were applied. Responses which indicated poor waste management strategy were score 0 and those which indicated good waste management strategy were scored 1. Composite score was done and those who scored 2-3 were considered to indicate good waste management and those who scored 0-1 were considered to indicate poor waste management.

The effects of hygienic practices on inmates' health was analysed in two folds. In the first fold, Inmates' perceived effects of hygienic conditions on their health was solicited using a Likert scale. Inmates were presented with some likely effect of waste management, access to water, hand washing facilities and latrine to respond using a five (5) point scale of strongly disagree (-2), disagree (-1), uncertain (0), agree (1) and strongly agree (2). The responses were then averaged to ascertain the Perceived Health Implication Index (PHII) for each statement under waste management, access to water and hand washing facilities. A composite score was done for overall implication of hygienic practices on inmates' health. Inmates' response on impact of hygienic conditions on their health were recoded for scoring, 1 for disagreement that poor hygienic conditions had impact on health of inmates, 0 for neutral. Respondents' with score less than or equal to -1 indicated agreement that poor hygienic conditions in the prison has negative impact on their health, 0 score indicated neutral impact and score above 1 indicated disagreement

that poor hygienic conditions had impact on the health of the inmates and -1 for agreement that poor hygienic conditions had impact on the health of inmates.

In the second fold of the analysis, a Spearman's Correlation Coefficient (one – tail) was used to test the significance of the relationships between inmates' ill-health conditions and hygienic conditions. In conducting the Spearman' correlation test, inmates Yes/No response to the question "by your own assessment, do you fall sick often due to poor hygienic condition in the prison" was used as a dependent variable in the one-tail correlation with the independent variables being Perceived Health Implication Index.

3.12 Ethical Considerations

For ethical clearance for the study, formal permission was obtained from the Ghana prisons service and informed consent was obtained from all participants before data was collected.

With the help of the introductory letter obtained from the Department of Community Health and Family Medicine, University for Development Studies (UDS), permission was obtained from the Ghana Prison Service Headquarters in Accra through the Regional Commander of Prison in charge of northern the region.

The participants/respondents of the study were fully informed about the purpose for which this study was being carried out. Roles they were also expected to play were clearly articulated to them and only those who agreed to be part of the study were included. They were also made to sign an informed consent form (refer to appendix A). Participants were free to withdraw from the study at each point in time without any adverse consequences.

The interview guides and questionnaires were designed to conceal the identity of the inmates, prison authorities and the only prison health official in order to ensure anonymity during the data collection process.

Having disclosed the research goal to them, the respondents were also assured that, data elicited from them were purely for academic purposes and that; such responses would be treated as such. Respondents were also assured that, under no circumstances would information acquired from them be disclosed to people who had nothing in common with the study.

3.13 Validity of the Study

The study introduced validity as its importance cannot be down played. In this research study, methodological validity was adopted which consisted of both qualitative and quantitative in its analysis. To ensure the validity of the research instruments, items in the questionnaire were assessed during its construction. The principal supervisor took time to discuss the questionnaires with the researcher and then a different lecturer from the Department of Community Health and Family Medicine also took turn to look at it for verification. Therefore, in order to achieve the purpose of this study, the supervisor examined the questionnaires and the interview guide and provided feed back to the researcher.

3.14 Reliability of the Study

To make the results of this study reliable, triangulation was employed where the researcher used different data collection procedures such as questionnaires, interviews and documents to collect data.

Also, reliability of the study result was also ensured by obtaining information from different stakeholders such as inmates, prison authorities and prison health official. Therefore, collecting information from different sources enhanced the reliability of the study results. Again, the researcher administered the same questionnaires to all the sampled inmates under the study to ensure consistency of responses and scores.

To sum it, using qualitative data coupled with the use of quantitative data (mixed method) through interviews, questionnaires and documents offered adequate information to the researcher to be able to achieve the stated objectives of this research.

CHAPTER FOUR

RESULTS

4.1 Introduction

The results and findings of the study have been presented in this chapter. Section 4.2 shows the results on the socio-demographic characteristics of respondents. The reminder of the Chapter is chronologically presented in accordance with the study objectives. Section 4.3 presents results on water supply to inmates in prisons; Section 4.4 indicates results on waste managements in prisons; Section 4.5 presents access to latrines and hand washing facilities by inmates; and Section 4.6 presents the effects of hygienic conditions in prison on the health of inmates.

4.2 Socio-demographic characteristics of respondents

The socio-demographic characteristics of respondents considered in this study are age, sex, marital status, educational level, religious affiliation of respondents, type of prisoner, and occupation of inmates and duration of inmates in prison. The results revealed that 102 of the 148 inmates interviewed, representing 68.9 per cent were between the ages of 41 – 50 years. About 24 inmates (16.2%) were within the ages of 26 to 40 years. Only 13 inmates (8.8%) and 5 inmates (3.4%) were within the ages of 18 – 25 years and above 60 years respectively (Table 4.1).

The results showed that 116 inmates, representing 78.4% were married, with 32 inmates reporting to be single. About 85 inmate respondents, representing 58.2% had no

education with only 12 inmates (8.2%) and 5 (3.4%) inmate reporting to have training college and university level education respectively (table 4.1).

On the type of prisoners, about 83 inmates (56.1%) were incarcerated and serving their jail term while 65 inmates (43.9%) were on remand at the time of the study, waiting for their trials. The study further revealed that 51 inmates (37.8%) reported to be unemployed at the time they were convicted with the remainder employed in various sectors. About 28.1%, 23.0% and 11.1% of inmate respondents were employed in the agricultural sector, trading and craftsmanship respectively. About 84 inmate respondents (56.8%) have been in the prison for 1 to 5 years with additional 14.9% serving for 6 to 10 years. Presented in table 4.1 are the socio-demographic characteristics of respondents.

Table 4. 1: Socio-demographic characteristics of respondents

Socio-demographic characteristics	Number of Persons	Percentage (%)
Age (year)		
18 – 25	**13**	**8.8**
26 – 40	**24**	**16.2**
41 – 50	**102**	**68.9**
51 – 60	**4**	**2.7**
60+	**5**	**3.4**
Total	**148**	**100**
Sex		
Males	**144**	**97.3**
Females	**4**	**2.7**

Total	**148**	**100**
Marital status		
Married	**116**	**78.4**
Single	**32**	**21.6**
Total	**148**	**100**
Educational level		
None	**85**	**58.2**
Primary	**31**	**21.2**
SSS/SHS	**13**	**8.9**
Training college	**12**	**8.2**
University	**5**	**3.4**
Total	**146**	**100**
Religion		
Christianity	**48**	**34.8**
Islam	**87**	**63.0**
Traditional	**3**	**2.2**
Total	**138**	**100**
Type of prisoner/inmate		
Remand	**65**	**43.9**
Incarcerated	**83**	**56.1**
Total	**148**	**100**

Occupation of inmate		
Trader	**31**	**23.0**
Agriculture (farmer/fisher man)	**38**	**28.1**
Craftsman	**15**	**11.1**
Unemployed/jobless	**51**	**37.8**
Total	**135**	**100**
Duration in prison (years)		
< 1	**31**	**20.9**
1 – 5	**84**	**56.8**
6 – 10	**22**	**14.9**
11 – 15	**8**	**5.4**
> 15	**3**	**2.0**
Total	**148**	**100**

Source: Field Survey, 2019.

The only health worker respondent for the study was a female aged 50, and has been working with the Tamale Central Prison for the past 12 years. Of the five (5) prison officers interviewed, four (4) were males with one being a female. The maximum and minimum ages of prison officers interviewed were 50 years and 27 years respectively with an average age 37 years.

4.3 Situation of Water supply for inmates in the Tamale Central Prison

The situation of water supply for inmates was examined and this section presents the results on water adequacy. Respondents were asked to respond to statements on the adequacy of water supply in prison using a five-scale point with 1 denoting never, 2 denoting rarely, 3 denoting sometimes, 4 denoting often and 5 denoting always. The responses of all respondents on each statement were averaged and presented in Table 4.2. Other questions aimed at highlighting the adequacy of water supply for inmates are presented in Table 4.3.

Table 4. 2: Water supply situation in prison

Statement on water supply	Response				
	Never	Rarely	Sometimes	Often	Always
Do you need permission from authorities to access water	126 (85.1)	22 (14.9)	0 (0)	0 (0)	0 (0)
Do you queue to fetch water	11 (7.4)	2 (1.4)	0 (0)	0 (0)	135 (91.2)
How often do your pipe flow	0 (0)	0 (0)	138 (93.2)	0 (0)	10 (6.8)
How often do you have access to water	0 (0)	0 (0)	1 (0.7)	126 (85.1)	21 (14.2)
Do you get sufficient water for bathing at least once a day	0 (0)	0 (0)	4 (2.7)	144 (97.3)	0 (0)
Do you have water in your dormitory/cell for use when locked up in cells	128 (86.5)	16 (10.8)	4 (2.7)	0 (0)	0 (0)
Do you have your own drinking cup	124 (83.8)	0 (0)	0 (0)	0 (0)	24 (0)

Duration to access permission from authorities for water	1-5 minutes	6-10 minutes	11-15 minutes	More than 15 minutes
	90 (60.8)	24 (16.2)	12 (8.1)	22 (14.9)

Note: Figures in brackets are in percentage

Source: Field Survey, 2019.

Table 4. 3: Water supply situation in prisons

Statement on	Number of respondents	Percentage (%)
Main source of water		
Public tap	**145**	**98.0**
Open well	**3**	**2.0**
Total	**148**	**100**
Duration in queue to fetch water		
1 – 5 minutes	**20**	**13.5**
6 – 10 minutes	**14**	**9.5**
11 – 15 minutes	**98**	**66.2**
More than 15 minutes	**16**	**10.8**
Total	**148**	**100**
Inmates Coping strategies to insufficient water		
Bath only once in a day	**27**	**18.2**
Manage the little water I get	**104**	**70.3**
Family support	**4**	**2.7**
Others Specify	**13**	**8.8**
Total	**148**	**100**
Sources of water to inmate when locked up		
Have gallons filled with water	**68**	**45.9**
Call for escort to fetch water	**69**	**46.6**

Cannot have access to water when locked up	**3**	**2.1**
Others Specify	**8**	**5.4**
Total	**148**	**100**
Coping strategies for inmates without cups		
Use one cup in turns to fetch from veronica bucket	**110**	**74.3**
Drink sachet water	**2**	**1.4**
Drink directly from running water with bare hands	**12**	**8.1**
Others Specify	**24**	**16.2**
Total	**148**	**100**
Inmate overall assessment of water provision		
Highly satisfied	**22**	**14.9**
Satisfied	**98**	**66.2**
Unsatisfied	**28**	**18.9**
Total	**148**	**100**

Source: Field Survey, 2019.

The main source of water to inmates in the Tamale Central Prison is public tap situated close to the administrative block of the prison as reported by 145(98%) of inmate respondents (refer to Table 4.3). While 126 (85.1%) never required any permission to access water, 22 (14.5%) rarely took permission to access water. It is clear that inmates do not require any permission from prison authorities to access water. (refer to Table 4.2). Where inmates require permission to access water, 90(71.4%) of inmate respondents

reported that it takes between one to five minutes for authorities to grant inmates the permission.

The results further revealed that 135(91.2%) of inmate respondents always queue for water. About 98(74.2%) of inmates reported waiting for between 11 – 15 minutes in queue to fetch water (refer to Table 4.3). This was confirmed by all prison officers interviewed who added that inmates often queue for between 5 to 10 minutes to fetch water at tap stands in the prison center. Averagely, about 126(85.1%) of inmates reported often accessing water for personal use in the Tamale Central Prison. Similarly, 144(97.3%) of inmates often get water for bathing at least once in a day (refer to Table 4.2). However, about 128(86.5%) of inmates reported that they never had water for use in their dormitory/cell when locked up.

The results further revealed that when pipes are locked in the prison that is when water stops running from pipe for some time, about 48.6% of inmates interviewed reported that they source water from their filled gallons, popularly known as the "Kuffour or yellow gallons" while 69(49.3%) of inmates reported that they often call for escort by prison guards to fetch water outside the prison center (refer to Table 4.3). The remaining 4(3%) of inmates reported that they resort to family support for water when pipes are locked (refer to Table 4.3).

The results revealed that only 24(16.2%) of inmates use their own drinking cups while 124(83.8%) do not use their cups. Of those without their own cups, 110(88.7%) use shared cups, 12(9.7%) drink directly from the water source and 2(1.6%) drink sachet water. Inmates who share drinking cup may be exposed to communicable diseases. An overall assessment of water provision in the Tamale Central Prison by inmates revealed

that only 28(18.9%) of inmates interviewed were dissatisfied with water provision compared to 120(81.1%) of inmates were generally satisfied with the provision of water supply in the Tamale Central Prison.

Inmates were also asked to suggest ways of improving the water situation in the Tamale Central Prison. About 82% of inmates opined that there should be more water storage facilities to store water for use by inmates when pipes are locked that is where water stops running from pipes. About 34% of inmate respondents suggested that prison authorities should start regulating inmates' use of water to avert water wastage among inmates. Ensuring constant flow of tap was also suggested by 18% of inmates to improve water supply in the Tamale Central Prison. Figure 4.1 presents inmates' suggestions towards improving water supply situation in the Tamale Central Prison.

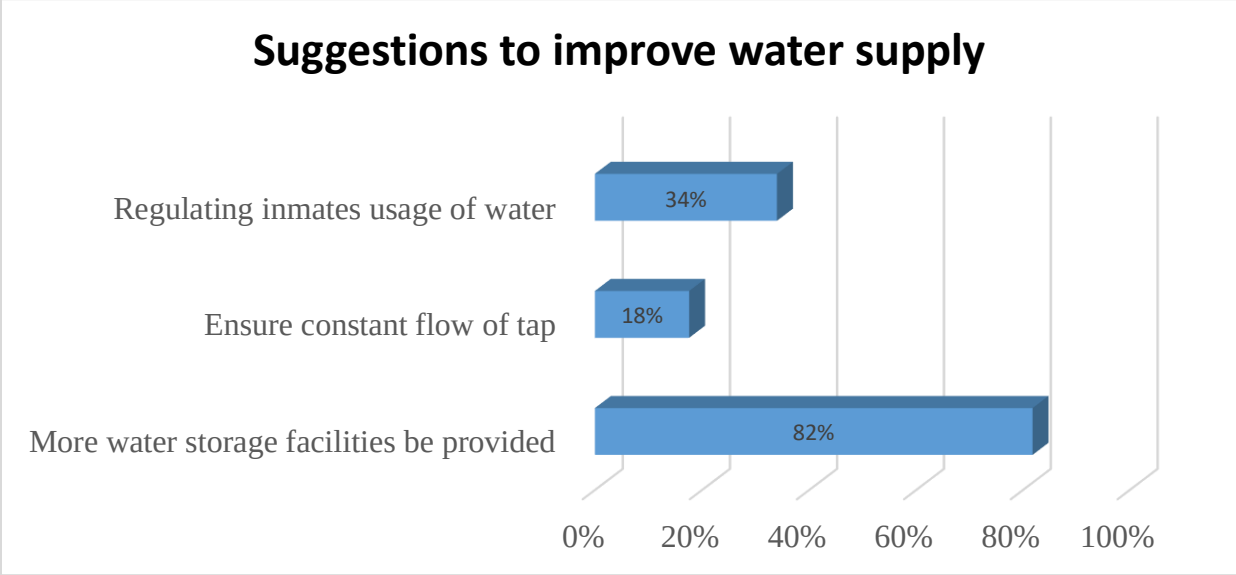


Figure 4. 1: Suggestions to improve water supply in prisons by inmates

Source: Field Survey, 2019.

4.3.1 Level of water adequacy in Tamale Prison

Inmates' response to items on adequacy of water supply in Tamale prison were composite scored to classify water supply adequacy into adequate and inadequate. Responses which favored water adequacy were scored 1 and those which favored water inadequacy were scored 0. The mean score of all respondents was 3.07 ±0.30. Individual overall Scores were used to classify water adequacy level. Those who scored between 1 and 3 indicated water was inadequate and scores from 4-7 indicated adequate of water supply. About 136 (91.9%) of the respondents' regarded water supply to be inadequate and remaining 12 (8.1%) of them regarded water supply as adequate (Figure 4.2).

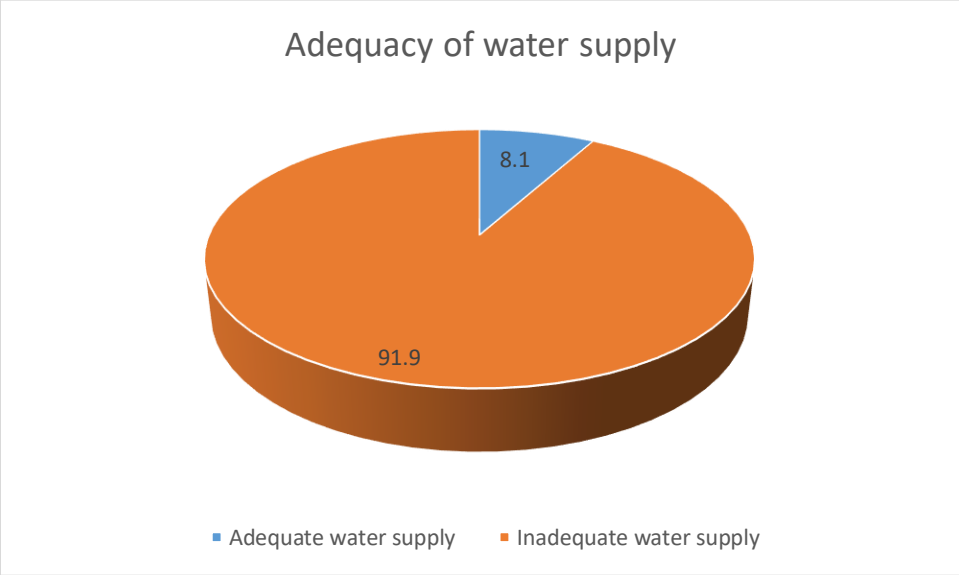


Figure 4. 2: level of water adequacy according to inmates

Source: Field Survey, 2019.

Results of an interview with one of the prison officers on water supply situation

"The situation of water in this prison cannot be said to be one of the best as inmates are always seen every day in the early hours of morning queuing to fetch water which does not even flow on regular basis" Respondent 1

4.4 Waste management in the Tamale Central Prison

This section presents results on the management of wastes in the Tamale Central Prison. On the type of waste generated in the Tamale Central Prison, 82 inmates (55.4%) reported that plastic wastes are mostly generated compared to 63 inmates (42.6%) who reported liquid waste as the dominant type of waste. Only 3 inmates (2.0%) mentioned paper waste as another form of waste generated in the prison.

In the absence of separate bins for dry and wet wastes, 96 inmates, representing 65.8% reported waste is kept on the floor while 48 inmates, representing 32.9% of inmates interviewed reported all forms of waste is kept in one container. Overall, 136 inmates, representing 92.5% of inmates interviewed were strongly unsatisfied with the current waste management practices in the Tamale Central Prison as showed by Table 4.4

Table 4. 4: Ways of solid waste management in prison

Statement on waste management	Number of respondents	Percentage (%)
Do you have separate containers for dry and wet wastes		
Yes	**8**	**5.4**
No	**140**	**94.6**
Total	**148**	**100**
In the absence of separate bins, how are dry and wet wastes managed		
Putting in one container	**48**	**32.4**
Leave waste on floor	**96**	**64.9**
Others Specify	**4**	**2.7**
Total	**148**	**100**
Are you satisfied with the current waste management practices in the prison		
Strongly unsatisfied	**136**	**91.9**
Unsatisfied	**12**	**8.1**
Total	**148**	**100**

Source: Field Survey, 2019.

4.4.1 State of waste management in Tamale prison according to inmates

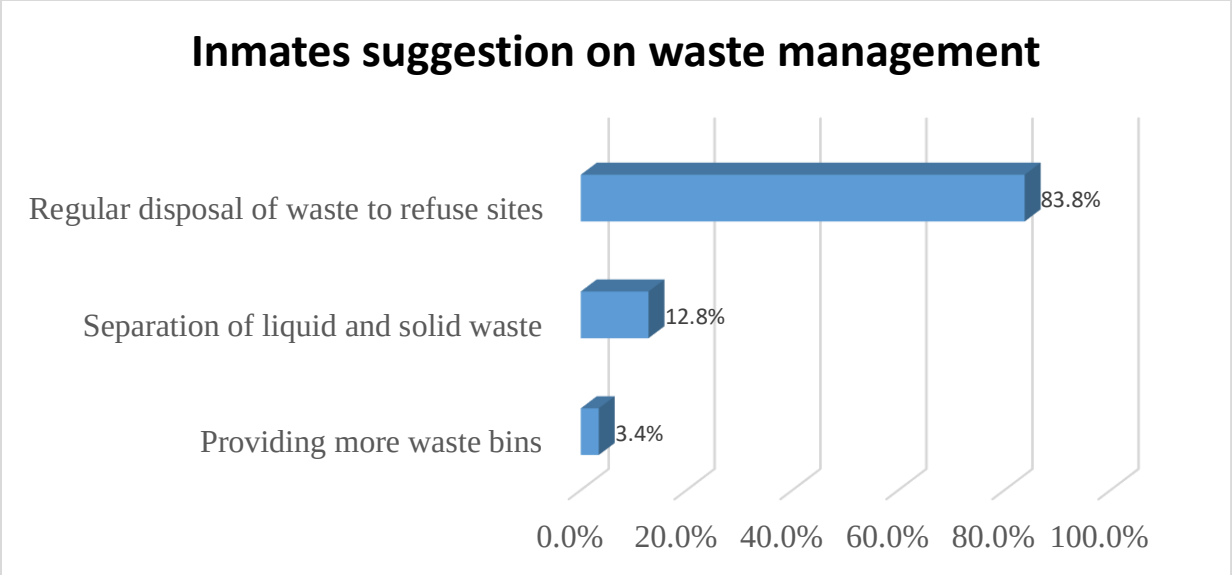
Inmates' responses on the above questions in Table 4.4 were applied to know how wastes are managed in Tamale prison. Responses which indicated poor waste management

strategy were score 0 and those which indicated good waste management strategy were scored 1. Composite score was done and those who scored 2-3 were considered to indicate good waste management and those who scored 0-1 were considered to indicate poor waste management. Majority (98.0%) of the inmates indicated poor waste management in Tamale prison and only 3 (2.0%) out of 148 inmates indicated good waste management in Tamale prison (Figure 4.3).

Source: Field Survey, 2019.

Figure 4. 3 level of waste management according to inmates in Tamale prison

Inmates suggestion of waste management in the prisons and is presented by Figure 4.2. From the figures 83.8% of inmates interviewed were of the view that waste management in prisons can be improved through regular disposal of wastes to refuse sites. Also, about 12.8% of inmates suggested separation of liquid and solid wastes as a way of improving waste management in Ghanaian prisons. Providing more waste bins was suggested by 3.4% of inmates.



Source: Field Survey, 2019.

Figure 4. 4: Suggestions to improve Waste management in prison

An interview with a prison officer on waste management practices in the Tamale Central Prison

"With regards to the issue of waste in this prison, despite educating the inmates on the need to always put them (wastes) into the waste bins, a lot of them (inmates) leave the wastes on the floor. This allow flies and mosquitoes to invade the entire place". "The wastes are also not discharged on regular basis" Respondent 2

4.5 Access to Latrine and Hand washing Facilities by Inmates

This section presents results on the availability and inmates' access to latrine and hand washing facilities in the prisons. Inmate respondents were asked to respond to three statements on the availability and access to latrine and hand washing facilities using the scale 1 (never), 2 (rarely), 3 (sometimes), 4 (often) and 5 (always). The results revealed that 139(93.9%) inmates never accessed latrines and urinals for use when locked up in

cells. All inmates reported that the only way of easing themselves when locked up in cell is the use of the bucket.

However, inmates reported that the use of the buckets was not preferable due to its unhygienic condition and smelling but remained the only option when locked up in cells. Almost all inmates reported that access to latrines and urinals for use by inmates during locked up periods were mainly granted between the hours of 06:00am to 05:00pm. After this time, inmates cease to use both latrines and urinals.

The results revealed that 140(94.6%) of inmates reported that hand washing facilities are never available at latrines and urinal sites. In the absence of hand washing facilities at latrines, 9 inmates (6.1%) reported that they wash their hands with water only while 17 inmates (11.5%) wash their hands with water and soap after visiting the toilet with most inmates, 122 inmates, representing (82.4%) reported not washing their hands at all after visiting the toilet. When respondents were asked if prison officials provide soap for inmates' hand washing, about 87.8% of inmates reported that prison officials have never provided soap for hand washing by inmates.

About 132(93.9%) of inmates reported that they do not have access to urinals and latrines between 5:00 pm to 06:00 am each day. After 5:00 pm, inmates are locked in their cells and hence, have no access to latrines and urinary. It was revealed that inmates are often locked up in cell after 5:00 pm, hence, the use of buckets as toilets and urinary remain the last option for inmates between 5:00 pm and 6:00 am.

Table 4. 5: Inmate reported access to latrine and hand washing facilities

Statement on latrine and hand washing	Response N (%)					
	Never	Rarely	Sometimes	Often	Always	Average
Access to latrines and urinals by inmates for use when locked up	139 93.9 %	9 6.1%	0 0%	0 0%	0 0%	1.1
Availability of hand washing facilities near latrines	140 94.6 %	4 2.7%	0 0%	4 2.7%	0 0%	2.0
Does prison officials provide inmates soap for hand washing	130 87.8 %	0 0%	18 12.2 %	0 0%	0 0%	2.8
Latrines are often closed and clean	78 52.6 %	22 14.9 %	30 20.3 %	18 12.2 %	0 0%	2.0

Source: Field Survey, 2019.

In the absence of hand washing facilities at latrines, only 17 inmates (11.8%) reported that they wash their hands with water and soap after using the latrine. About 9 inmates (6.3%) reported that they wash their hands with only soap after visiting the latrines while 118 inmates (81.9%) reported that they do not wash their hands at all after visiting the latrine, when there is no hand washing facility at the latrine. The results further revealed that when prison authorities do not provide soap for hand washing at latrine sites, inmates who wash their hands with soap and water after visiting the latrine reported that they get soap from their families for the hand washing.

The majority of inmates interviewed 78(52.6%) reported that latrines and urinals are never kept closed and cleaned compared to only 18(12.2%) of inmates who reported that latrines and urinary are often closed and cleaned. In the view of one prison officer during an interview, it was revealed that toilets and urinary are often not in good state because inmates use latrines without flushing with water and often leave latrines opened.

Table 4. 6: Descriptive statistics of inmates' access to latrine and hand washing facilities

Statement on latrine and hand washing facilities	Number of respondents	Percentage (%)
Latrines and urinary accessibility times by inmates		
06:00 am to 05:00 pm	142	95.9
06:00 am to 08:00 pm	4	2.7
09pm to 6am	2	1.4
Total	**148**	**100**
How inmates ease themselves when locked up in cells		
Use of buckets in cell	148	100
Total	**148**	**100**
In the absence of hand washing facilities at latrines, what inmates do after visiting the latrine		
Do nothing	118	79.7
Wash hands with water only	9	6.1
Wash hands with soap and water	17	11.5
Others Specify	4	2.7
Total	**148**	**100**
Where do inmates get soap for hand washing if prison officials do not provide		
Families	131	88.5
Friends	17	11.5
Total	**148**	**100**

Source: Field Survey, 2019.

Response of an interview with a prison officer on access to latrine and handwashing facility

"The inmates are only granted full access to latrine from 06:00 a.m. to 05:00p.m. each day. In their cells, they used buckets as an improvised toilet to be discharged into the main toilet the next morning after locked out. There is no single handwashing facility and we always encouraged them to find ways of washing their hands after visiting the latrine". Respondent 3

4.6 Effects of hygienic conditions on the health of inmates

This section presents result on the effects of inmates' access to water, latrine and hand washing facilities on their health. The first aspect presents descriptive statistics on the inmates' perceived effects of hygienic practices on their health conditions. The second aspect presents Spearman's correlation results of the effects of access to water, latrine and hand washing facilities on the health status of inmates. These are complemented by responses from interviews with prison health worker and prison officers.

Inmates' perceived effects of hygienic conditions on their health was solicited using a Likert scale. Inmates were presented with some likely effect of waste management, access to water, hand washing facilities and latrine to respond using the scale strongly disagree (-2), disagree (-1), uncertain (0), agree (1) and strongly agree (2). The responses were then averaged to ascertain the Perceived Health Implication Index for each statement under waste management, access to water, hand washing facilities. This is presented in Table 4.7.

Table 4. 7: Perceived health effects of hygienic conditions on the health of inmates

Statement on the effect of hygienic practices on inmates' health	Response					PHII
	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	
Inmates often fall sick of water related illness?	78 (52.7)	22 (14.9)	30 (20.3)	18 (12.2)	0 (0)	-1.1
Malaria is the main sickness among inmates	0 (0)	10 (6.8)	7 (4.7)	30 (20.3)	101 (68.2)	1.5
Not washing hands after visiting the toilet is a major health threat to inmates	0 (0)	6 (4.1)	22 (14.9)	78 (52.6)	42 (28.4)	1.1
Poor waste management is responsible for most ill-health conditions of inmates	17 (11.5)	33 (22.3)	9 (6.1)	30 (20.3)	59 (39.9)	0.6
Inmates often suffer from communicable disease due to sharing common water containers such as cups	24 (16.2)	43 (29.1)	3 (2.0)	4 (2.7)	74 (50.0)	0.4
Inmates fall sick because they do not bath often	32 (21.6)	88 (59.5)	5 (3.4)	3 (2.0)	20 (13.5)	-0.7

Source: Field Survey, 2019.

The results showed that 78 inmates, representing 57.6% strongly disagreed that inmates often fall sick of water related illness with additional 22 inmates (14.9%) also disagreeing

to this allusion. The Perceived Health Implication Index (PHII) of -1.1 indicates that averagely, inmates disagree to the statement that they often fall sick of water related illness.

On the contrary, the results showed that 101 inmates, representing 68.2% strongly agreed to being sick of malaria with 30 more inmates (20.3%) also agreeing to having taken ill of malaria within the year. It was revealed that malaria is the main sickness often reported by inmates in the Tamale Central Prison. The PHII of 1.5 suggests that inmates strongly agreed that malaria is the main sickness among inmates in the Tamale Central Prison. The health worker of the Tamale Central Prison Clinic disclosed during an interview that:

> *"The common disease which inmate visits this clinic with is malaria. The reason has been due to the filthy environment, which is conducive for the breeding of mosquitoes. Given that most inmates have no treated mosquito nets, they are often exposed to mosquito bites which make them prone to malaria. Those who visit the infirmary with severe malaria cases are often referred to the Tamale Central Hospital for further treatment."*

Another major hygienic condition is hand washing with water and soap especially after visiting the toilet. The results showed that most inmates (78 inmates, representing 52.6%) agreed that hand washing is a major threat to inmates' health in the Tamale Central Prison with additional 42 inmates (28.4%) strongly agreeing to this statement. The PHII of 1.1 indicates that inmates agreed that hand washing is perceived to be a threat to the health of inmates in the Tamale Central Prison.

In an interview with the health worker, her response to the attitude of inmates towards hand washing was that:

> *"I have observed that most inmates are indifferent to hand washing even upon visiting the toilet. They seem not to be bothered with having clean hands at all time. They only wash their hands when they are about to eat, but most of them (inmates) wash their hands without soap".*

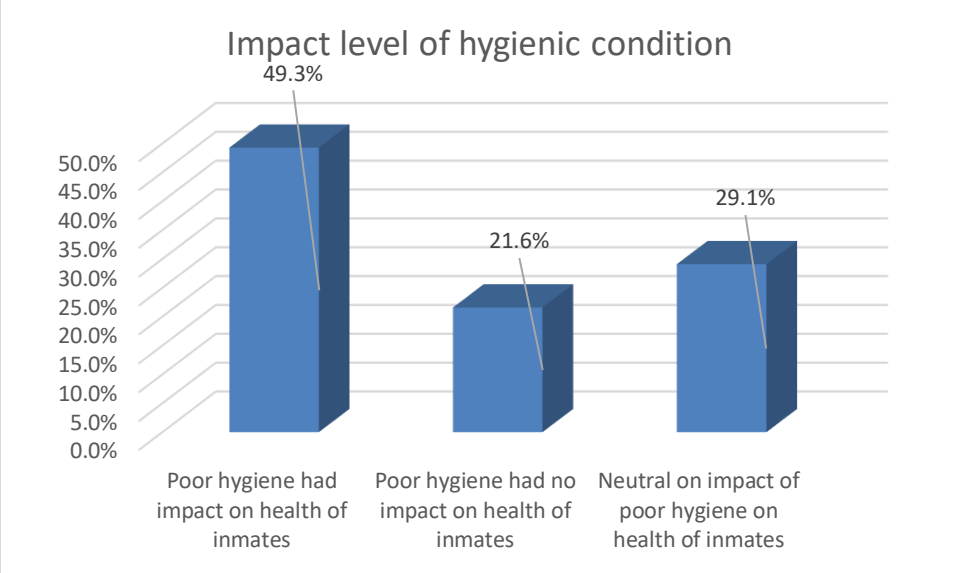
The implication of waste management on the health of inmates was also solicited. The results showed that about 60.2% of inmates (20.3% + 39.9%) opined that poor waste management accounts for most ill-health conditions of inmates in the Tamale Central Prison compared to 33.8% (11.5% + 22.3%) who disagreed. The PHII of 0.6 implies that most inmates agreed that the ill-health conditions of inmates are due to poor waste management. It was revealed that there are no adequate waste bins in the Tamale Central Prison.

The results showed that 74(50%) of inmate respondents strongly agreed that most communicable diseases among inmates are due to sharing of the same cup. Also, an additional 4(2.7%) of inmates agreed to this statement compared to 67(45.3%) of inmates who either disagreed or strongly disagreed that disease prevalence among inmates were as a result of sharing common drinking cups in the Tamale Central Prison. Majority of inmates [81.1% (21.6%+59.5%)] rejected the opinion that most inmates are often sick because they do not bath. The PHII of -0.7 suggests that most inmates disagreed to be sick for not bathing.

4.6.1 Impact level of hygienic conditions on health of inmates

Inmates' response on impact of hygienic conditions on their health were recoded for scoring, 1 for disagreement that poor hygienic conditions had impact on the health of inmates, 0 for neutral impact and -1 for agreement that poor hygienic conditions had impact on the health of inmates. Inmates means score of hygienic impact on their health was -0.72 ±1.69 with minimum of -5 and maximum score of 2. Respondents' with score less than or equal to -1 indicated agreement that poor hygienic conditions in the prison has negative impact on their health, 0 score indicated neutral impact and score above 1 and above indicated disagreement that poor hygienic conditions had impact on the health of the inmates.

According to 73 (49.3%) of the respondents, poor hygienic conditions of the prison affect their health, 43 (29.1%) of them were neutral on whether hygienic conditions affect their health or not and 32 (21.6%) indicated that poor hygienic conditions did not affect their health (Figure 4.4).



Source: Field Survey, 2019.

Figure 4. 5 Impact of poor hygienic conditions on the health of inmates

To determine the significant relationship between hygienic conditions and health condition of inmates, inmates' Yes/No responses to the question "by your own assessment, do you often fall sick due to poor hygienic conditions in the prison" was correlated with inmates' responses on sharing of drinking cup, waste management, and hand washing using the Spearman correlation. The Spearman's correlation results are presented in Table 4.8.

Table 4. 8: Results of Spearman's Correlation of inmates' health condition and hygienic practices

	Inmates health condition		
Hygienic practices	**r_s rho (ρ)**	**Number of obs.**	**Prob > | t | (one – tail)**
Access to water	**-0.12**	**148**	**0.1207**
Sharing of drinking cups	**0.26****	**148**	**0.0316**
Waste management	**-0.32****	**148**	**0.0182**

Note: ** and *** denote significant at 5% and 1% respectively.

Source: Field Survey, 2019.

The Spearman's correlation results indicate that even though access to water has a negative relationship with inmates' ill-health condition, the effect is weak and not statistically significant as shown by the ρ value of 0.12. The results further revealed a significant positive effect of sharing drinking cups on their sickness among inmates in the Tamale Central Prison. Waste management also had a significant negative relationship

with inmates' ill-health condition. The Spearman correlation coefficient of -0.32 is significant at 5%.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 Introduction

The discussion of the results of this study was presented in this chapter. Section 5.2 presents results on the demographic characteristics of respondents. The reminder of the Chapter is chronologically presented in accordance with the study objectives. Section 5.3 presents discussion of results on water supply to inmates in prisons; Section 5.4 presents discussion of results on the waste managements in prisons; Section 5.5 presents discussion of results on access to latrines and hand washing facilities by inmates; and Section 5.6 presents discussion of the effects of hygienic condition in prison on the health of inmates.

5.2 Socio-demographic characteristics of respondents

Majority of the inmates interviewed were within the ages of 41 – 50 years, suggesting that most inmates are quite elderly and almost out of their youthful life time. Majority of respondents were married with few respondents reporting to be single. This is consistent with Dogbe et al. (2016) who reported that majority of inmates in Ghanaian prisons were within the ages of 41 and 50 years with few inmates being above 60 years or below 20 years. These suggest that most inmates are within their late youthful ages. Almost all inmates' respondents were males because at the time of the data collections, there were only 11 female inmates at the Tamale Central Prison. This confirms Dogbe *et al*. (2016)

who had 2% female prisoners as respondents in assessing how persons with disability cope with prison life in Ghana.

Majority of inmates interviewed belonged to the Islamic religion 87 (63%) compared to few inmates who belonged to Christianity 48 (34.8%) and Traditional religions 3 (2.2%) This deviates from Owusu et al. (2015) who stated that most inmates in Ghanaian prisons were Christians. The difference in findings may have come as a result of the different location in which this present study was conducted. The current study was conducted in Tamale Central Prison, located in the Northern regional capital, Tamale, which is a Muslim dominated region and most convicts are likely to belong to Islam and that could be the reason why most of the inmates sampled for this study are Muslims.

Majority of respondents were married 116 (78.4%) with few respondents reporting to be single. This partly explains why most inmates were convicted of domestic violence related crimes such as assaults of wife. It was also revealed in the results that most inmates had no education 85 (57.4%) with only a few inmates having attained training college 12 (8.1%) and university level 5 (3.4% education. People with no education have little knowledge about the law and often find themselves convicted for indulging in acts that the law frowns upon.

It was evident from the results that most inmates 66 (44.6%) were employed before their conviction. Agriculture was the predominant sector of employment. Other inmates were also engaged in trading, and craftsmanship. Employment serves as a source of livelihood and reliefs people of economic hardship that could influence them meddling into criminal related acts. This confirms the findings of Owusu et al. (2015) and Dogbe et al. (2016)

who testified that most inmates in Ghanaian prisons are employed before their conviction.

The results also showed that most inmates have been in the prison for the period one to five years. This suggests that the respondents for this study were acquainted with the health conditions prevalent in the Tamale Central Prison and that, the validity and accuracy of their responses can be used to guarantee a generalization of the findings of the study. Also, the over a decade of working experience of the health worker with the Tamale Central Prison Clinic suggests that the health worker interviewed was in the position to provide accurate responses that depicts the health conditions in the Tamale Central Prison to ascertain valid findings. This equally applies to the prison officers interviewed.

5.3 Water supply situation for inmates in prison

It is evident from the results that the main source of water to inmates in the Tamale Central Prison is public stand tap. However, inmates do not require any permission from prison authorities to access water. Where inmates require permission to access water, it takes less than five minutes for authorities to grant inmates the permission. Yet, inmates are given unlimited access to water for use in the prison centre because water is crucial to ensuring good health among inmates, which is one of the critical international standards for all prisons across the globe. This is different from the findings of Zacro (2018) who reported that prison authorities provided only one bucket of water to be used by several inmates for washing and another for drinking in Zimbabwe prisons. This implies that access to water is better among Ghanaian prisons than Zimbabwean prisons.

Given that tap is the main source of water to inmates in the Tamale Central Prison, queuing for water is a common practice. Inmates spend less than 15 minutes waiting in queue to fetch water. Almost all inmates were able to bath at least once in a day. These results suggest that inmates in the Tamale Central Prison have access to the minimum water required of 10 to 15 litres per day as recommended by the World Health Organization (2007). Contrary, inmates have no adequate water for use when locked up in cells because they do not store water due to insufficient storage containers. Hence, when pipes are locked for a short time, there are always water shortages or crisis. These results deviate from Pier (2005) who recommended the use of 'Jerry cans' or Veronica buckets to ensure access to water for bathing in cells or dormitories when locked up for more than 16 hours.

When pipes are locked in the prison, inmates mainly source water from their filled gallons, popularly known as the "Kuffour or yellow gallons". Others also call for escort by prison guards to fetch water outside the prison centre while few inmates resort to family support for water when pipes are locked. The reason why most inmates do not rely on their families for water when taps are locked up is that most inmates have their families outside Tamale where the Tamale Central Prison is located and also because the prison officers have specific times that inmates families can visit, but not all the time. Most inmates do not have their own cups for drinking and often share drinking cups with other inmates, which exposes them to communicable diseases such as hepatitis B. Thus, inmates without drinking cups use the same cup in turns to fetch water from a common veronica bucket.

To improve water accessibility in the Tamale Central Prison, inmates opined that there should be more water storage facilities to store water for use by inmates when pipes are locked. This is because inmates do not store water due to insufficient storage facilities. Others also suggested regulating inmate use of water while others thought that ensuring constant flow of taps are surer ways of ensuring water accessibility in the prison. Inmates waste so much water knowing that prison authorities are not very strict on inmates' use of water.

5.4 Waste management in prison

The commonest waste generated in the Tamale Central Prison is plastic, which is solid waste. This goes contrary to an earlier report by Jennifer (2017) who reported that papers were the leading solid waste generated in Florida's prisons. It was revealed that most plastic wastes were mostly bottles and polythene bags used to package food by inmates. These types of waste are not biodegradable and take time to decompose when not disposed in time. This is consistent with Jennifer (2017) who reported that wastes in most prisons in the United States were generated from food packaged into the prison either by inmates or prison authorities.

The result also suggested that dry and wet wastes were kept in the same container and not separated. It was observed that there are no enough bins for dumping of wastes in the Tamale Central Prison. This could be probably the reason why wastes are not separated in the prison. The effect of combining both dry and wet waste is the likely breeding of mosquitoes, flies and other unpleasant smell with its attendant effect on the health of inmates. Some inmates leave waste on the floor. This finding is consistent with that of

Stephanie et al. (2016) who reported that water from toilets and urinary are left to flow to the waste dump sites causing unpleasant smell and attracts flies in most prisons in Zambia.

Waste managements in prisons can be improved through regular disposal of waste to refuse sites. It is general opined by inmates that waste collection in the Tamale Central Prison was never regular and have always been heaped for weeks before they are emptied by waste management organization. Regular disposal of waste will surely reduce the waste menace bothering inmates in prisons. In most cases, both liquid and solid wastes are kept in the same container, resulting in the breeding of mosquitoes and unpleasant odor for inmates. Separating solid and liquid waste will give the plastic waste a second life and also reduce its undesirable related health hazards. Also, a lot of waste is generated by inmates within the prison and inmates have no private bins to cater for their wastes. Therefore, providing enough waste bins will curtail the situation where wastes are dumped on the bare floor especially when the few bins are filled up awaiting disposal.

5.5 Access to Latrine and Hand washing by Inmates

The discussion of results on availability and access to latrine and hand washing facilities by inmates in the prison are presented in this section. Prison authorities grant inmates access to latrines and urinals between the hours of 06:00am to 05:00pm. After this time, inmates cease to use both latrines and urinals. It is evident from the results that inmates do not have access to latrines and urinary when locked up in cells. Instead, inmates use buckets as toilets and urinals, which in their view are not preferable due to its' unhygienic condition and smelling but remained the only resort. The use of bucket as toilets is not

peculiar to Ghanaian prisons but, is also highly practiced among inmates in Uganda's prisons which results from shift in government's policy from decentralized to centralized prison service without providing funds to upgrade latrines to meet WASH minimum standards (Lizabeth, 2015).

Personal hygiene requires that people have easy and unlimited access to hand washing facilities especially after visiting the toilet. However, facilities for hand washing are never available at latrines and urinal sites for use by inmates. Hence, most inmates do not wash their hands with water and soap when they visit the latrine. Most inmates rely on families for soap who also rarely visit these inmates thereby aggravating inmates' inability to wash their hands with water and soap when they use the latrine.

5.6 Effects of hygienic conditions on the health of inmates

Results on the effects of inmates' access to water, waste disposal and latrine and hand washing facilities on the health status of inmates were discussed in this chapter. Majority of inmates often fall sick of water related illness. The Perceived Health Implication Index (PHII) of -1.1 indicate inmates disagreed to the statement that they are often sick of water related illness. This suggests that water related illness is not a key difficulty among the inmates of the Tamale Central Prison.

On the contrary, the results showed that most inmates are often sick of malaria. It was revealed that malaria is the main sickness often reported by inmates in the Tamale Central Prison. The PHII of 1.5 suggests that inmates strongly agreed that malaria is the main sickness among inmates in the Tamale Central Prison. Malaria is caused by the bite of mosquito whose breeding strives in stagnant water. Given that dry and wet wastes are

often not separated, dumped wastes are sources of breeding for mosquitoes, thereby, the influx of malaria among inmates who often do not sleep under insecticides treated mosquito nets, no mosquito net screening on windows among others.

The results further showed that poor waste management accounts for most conditions related to ill health of inmates in the Tamale Central Prison. The PHII of 0.6 implies that most inmates agreed that the ill-health conditions of inmates are due to poor waste management. It was revealed that there are no adequate waste bins in the Tamale Central Prison. As a result, dry and wet wastes are not separated. In most instances, wastes are dumped on the bare floor when bins are full and have not been emptied. Thus, merging both dry and wet wastes and dumping wastes on the floor have the tendency of attracting flies which when settled on the exposed food and eaten by inmates, can easily contract contagious diseases. This is not different from the findings of sanitary conditions in Liberian prisons which reported horrific with damning undesirable consequences on inmate's health INCHR (2017).

As revealed by the results, most inmates without cups often share a common cup, which has health implications. Most inmates attributed contracting communicable diseases to sharing of the same cup among inmates. However, inmates were quick to reject the notion that they are often sick because they do not bath. The PHII of -0.7 suggests that most inmates disagreed to being sick for not bathing.

Another major hygienic practice is the washing of hands with soap and water after visiting the latrine. The study revealed that hand washing is a major threat to inmates' health in the Tamale Central Prison. The PHII of 1.1 indicates that inmates agreed that hand washing is perceived to be a threat to the health of inmates in the Tamale Central

Prison. Most inmates reported that they rely on their family for soap, who do not visit them regularly. As a result, most inmates do not wash their hands with soap and water, exposing them to contagious diseases such as diarrhea and cholera. This confirms Bick (2007) who found that most inmates in American jails and prisons contracted contagious diseases for not adhering to hand washing due to absence of soap and soap dispensers.

Access to water had no significant effect on inmate ill-health because water is not much a problem to inmates in the Tamale Central Prison. Inmates reported that water supply in the prison is adequate, hence, water borne related illnesses were avoided. However, the significant positive effect of hand washing on inmates' ill-health stems from the issue that the common practice of inmates not washing their hands after visiting the latrine makes them prone to ill-health conditions. This corroborates with inmates' perceived effect of hand washing on health condition. It also agrees with Chaturvedi and Bagle (2015) who reports that a major consequence of personal hygiene on the periodontal disease prevalence among drug addicted prisoners.

The results further revealed a significant positive effect of sharing drinking cups on their health among inmates in the Tamale Central Prison. Diseases such as hepatitis B are transmitted through exchange of drinking cup which is a common practice among inmates. These findings agree with Owusu et al. (2015) who reports that overcrowding and sharing of facilities were mainly responsible for the high risks of tuberculosis among inmates in the Ho Central Prison of Volta Region in Ghana.

Waste management also had a significant negative relationship with inmates' ill-health condition. This is consistent with Dogbe et al. (2016) who reported that poor waste management significantly accounts for most contagious diseases among inmates in

Ghanaian prisons. The result is also consistent with Topp et al. (2018) who reported that prison officers inability to spend more of their resources on waste disposal resulted in severe epidemics outbreak in Zambian prisons.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The key highlights of this section are the summary of the major findings, conclusions and recommendations. Presented in section 6.2 is the summary of the major findings. Section 6.3 presented the conclusions of the study. The recommendations of the study have been presented in section 6.4. The last section which is section 6.5 presented suggestions or future research in similar topic.

6.2 Summary of findings

The overall objective of this study was to assess the hygienic conditions in the Tamale central prison and its effects on the health of inmates.

Specifically, this study examined the perceived adequacy of water supply to inmates, determine waste management systems, determined inmates' access to latrine and hand washing facilities, and the effects of hygienic condition on the health of inmates in the Tamale Central Prison.

6.2.1 Socio-demographic characteristics of respondents

This study considered the following socio-demographic characteristics of respondents: age, sex, marital status, educational level, religious affiliation of respondents, type of prisoner, occupation of inmates and duration of inmates in prison.

The results revealed that most inmates, 68.9 percent were between the ages 41-50 years. Again, majority of inmate respondents were married that is 78 percent. The study further revealed that 57.4 percent of the inmates had no formal education. Also, 63 percent of the interviewed were Muslims. On the type of prisoners, 56.1 percent were incarcerated and 43.9 being on remand when this study was conducted.

With regards to the occupation of inmates, 34.5 percent reported to be unemployed, 25.7 percent reported to be in the Agricultural sector, 20.9 percent trading and 10.1 percent belonging to craftsmanship. Lastly, 56.8 percent of inmates have reported being in the prison for between 1-5 years.

6.2.2 Water supply situation

The results on water supply situation to the Tamale Central Prison have revealed that majority of inmates 98 percent reported public tap, 74.1 percent reported that they queue for between 11-15 minutes before accessing water and a further 85.1 percent reporting not requiring permission to access water.

An additional 86.1 revealed they never had water in their dormitories for use during locked up which makes their situation unbearable. Furthermore, 48.6 percent of inmates interviewed reported having their own gallons and using them in times when water is not flowing from the main tap.

It has also been revealed by inmates that 83.7 percent have not got their own drinking cups and an additional 88.7 percent of the inmates share common cup for drinking. Majority of inmates were satisfied with the waters supply situation. To improve on the

situation of water, 82 percent of inmates want more water storage facilities, 34 percent regulating inmates' use of water and 18 percent ensuring constant flow of water

6.2.3 Waste management

As reported by 55.4 percent of inmates interviewed, the predominant type of waste generated was plastics. This was confirmed by all the prison officers interviewed. Again, about 95% of inmates reported that wastes are not being segregated owing to insufficient waste bins resulting in about 66 percent of inmates leaving their wastes on the bare floor.

Majority of inmates 92.5 were highly unsatisfied with how wastes were being managed and disposed at the Tamale Central Prison. To improve on the situation of waste management, about 84 percent of inmates suggested regular disposal, 13 percent suggested segregation of wastes whiles 3 percent suggested provision of more waste bins.

6.2.4 Access to latrines and hand washing facilities

Majority of inmates 93.9 percent have reported not having access to latrine and urinary when put in their dormitories from 5: 00p.m- 6: 00a.m each day. Again, 94.6 percent of inmates reported the unavailability of facilities for hand washing at latrines and urinary sites resulting in 82.2 percent of inmates not washing their hands at all after visiting latrines.

Also, it has been reported by 88 percent of inmates that prison officials have never provided soap for hand washing and that most of them relied on family support in that regard

6.2.5 Effects of hygienic conditions on inmates' health

Inmates' response to the perceived health implication of hygienic conditions on their health have revealed that almost 53 percent strongly disagreed to falling sick as a result of water related illnesses as indicated by the Perceived Health Implication Index (PHII) of -1.1. They however strongly agreed to malaria being the main cause of sickness among them giving Perceived Health Implication Index of 1.5. this was corroborated by the interview with health official who stated malaria as the topmost cases being recorded daily at the infirmary.

Again, about 53 percent of inmates strongly agreed to the statement that by not washing their hands can constitute a major health threat to their health as indicated by the Perceived Health Implication Index of 1.1.

With regards to waste, 60.2 percent of inmates agreed that their ill health conditions are caused by poor waste management with Perceived Health Implication Index of 0.6 which can be interpreted to mean on average, inmates agreed to the statement that their ill health conditions are a result of poor waste management. About 50 percent of inmates reported that they agreed to the statement that sharing of drinking cups can be responsible for the spread of communicable diseases.

An additional 81.1 percent of inmates disagreed to falling sick due to not having enough water for bathing.

6.3 Conclusion of the Study

The main aim of this study was to assess the environment and sanitation situation with respect to the hygienic conditions in the Tamale central prison and its effects on the health of inmates.

Main Conclusion: The hygienic conditions in the Tamale Central Prison are below standards since most inmates were dissatisfied with the water supply situation, waste management system and access to latrines and hand washing facilities.

Specific Conclusions:

The study identified the main source of water to inmates in the Tamale Central Prison as public stand tap. Although majority of the inmates always have access to water, over 90% of them have to queue for it.

Also, plastic waste is considered the dominant type of waste generated in the Tamale Central Prison. Although different types of waste are generated in the prison, there are no adequate waste bins for storage and segregation.

Solid and liquid wastes are not also segregated but rather kept in the same bins.

Again, over 90% of the inmates never had access to both toilets and hand washing facilities when they need them.

Inmates are granted access to latrines between the hours of 06am to 05pm. The bucket system is used as toilet and urinary when locked up in cell and also absence of hand washing facilities at latrine sites for inmates to wash their hands after visit to the latrines.

Also, with regards to the implications on the health of inmates in prisons, the study identified malaria, diarrhoea and communicable diseases as the main causes of ill health conditions in the prison.

6.4 Recommendations of the study

Based on the findings of the study, the following recommendations were proposed for consideration.

Firstly, based on the revelation that over 90% of inmates queue for water at water point, prison authorities should appeal to Ghana Water Company to install more stand pipes in the prison

Secondly, based on the findings that there were insufficient waste bins in the Tamale Central Prison, prison authorities should endeavour to provide more bins to contain the high volumes of waste generated in the prison. This can be achieved by appealing for support from waste management companies such as 'Zoomlion' and the Metropolitan assembly as well as other organizations to provide support in that direction.

Again, following the revelation that most inmates dump waste on the floor, inmates should be sensitized by the prison health official on the consequences of improper disposal of wastes and the need to segregate dry and wet wastes. This will avoid the breeding of mosquitoes which cause malaria as the main cause of sickness among inmates. Also, plastic wastes should be given a second use through recycling. These plastic wastes can be gathered and supplied to plastic waste recycling companies to generate income for the prison.

Furthermore, prison officers should from time to time invite public health officers especially from the Regional Health Directorate which sits next to the Tamale Central Prison to hold talks with the inmates by educating them on the need for personal hygiene and why they should keep their surroundings clean.

Also, since majority of inmates do not wash their hands with soap and water after using latrines as the findings suggest, it is recommended that such facilities should be sited close to latrine sites to enable inmates have easy access which is consistent with WASH recommendations.

In addition, government subvention should make provision for the supply of adequate soap for use by inmates.

Lastly, efforts should be geared towards decongestion of the prison by central government through alternative sentencing.

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APPENDIX A

Post Office Box 514,

Tamale.

6th February, 2019.

The Regional Commander,

Tamale Central Prison

Tamale.

Dear Sir,

INFORMED CONSENT

I would be very grateful if you could grant me permission in your outfit to conduct my research work. I am currently a student of the University for Development Studies pursuing Masters Degree programme in Public Health. The thesis topic is on "AN ASSESSMENT OF HYGIENIC CONDITIONS IN THE TAMALE CENTRAL PRISON AND ITS EFFECTS ON THE HEALTH OF INMATES". The researcher seeks to find out about the hygienic conditions in the Tamale Central Prison its implications on the health of inmates.

The researcher wishes to stress that your involvement in this study is voluntary and that every attempt would be made at ensuring that your identity would be protected and the information you give would be kept confidential. This research study would require access to the inmates, the prison health officers and prison officers. The instruments that would be used to carry out this exercise are questionnaire and interview guide. I wish this request meets your kind consideration and approval.

Yours faithfully,

……..

Abdul-Wahab Abdul-Jalil

UDS/MPH/0002/17

APPENDIX B

UNIVERSITY FOR DEVELOPMENT STUDIES

SCHOOL OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT: COMMUNITY HEALTH AND FAMILY MEDICINE

PARTICIPANT'S INFORMED CONSENT FORM

TOPIC: **AN ASSESSMENT OF HYGIENIC CONDITIONS IN THE TAMALE CENTRAL PRISON AND ITS EFFECTS ON THE HEALTH OF INMATES**

PROGRAMME: MASTER OF PUBLIC HEALTH

NAME OF RESEARCHER: ABDUL- WAHAB ABDUL - JALIL

NAME OF PRINCIPAL SUPERVISOR: DR. SAMUEL ZANYA BUGRI

NAME OF CO-SUPERVISOR: PROF. JUVENTUS B. ZIEM

The rationale for this study and the degree to which I would participate has been clarified to me by the researcher in a language I understood. I have therefore agreed to be involved in this study willingly.

It is also my understanding that I am at liberty to pull out from the study as and when I desire.

Respondent

……..

Address…….

Signature…….

Date…….

APPENDIX C

INTERVIEW GUIDE FOR THE PRISON OFFICERS

A. PERSONAL INFORMATION

1. Age……..
2. Sex……..
3. Marital status……
4. Education level…….
5. Rank……..

B. HYGIENIC CONDITIONS IN THE TAMALE CENTRAL PRISONS

i). RESPONDENT'S KNOWLEDGE ABOUT SOURCE OF WATER SUPPLY

6. What is your main source of water?.....

7. How regular is water supply to the Tamale Central Prisons…….

8. How do inmates have access to water during the time they are locked up in cells?

……

9. During the time that inmates are open from their cells, do they queue to be able to access water and if Yes, how long does it take them to have access to water?.....

. ii) RESPONDENT'S KNOWLEDGE ABOUT WASTE DISPOSAL

10.What are the types of waste that are generated daily in the Tamale Central Prison?.....

11. Is the generated waste segregated? ……..

12. Where do you dispose of your generated waste?.....

13. What is the level of satisfaction with the current waste management practices in the Tamale Central Prison?.....

iii) RESPONDENT'S KNOWLEDGE ABOUT ACCESSIBILITY OF LATRINES AND HANDWASHING HYGIENE

14. What type of latrine is available for usage for inmates?.....

15. What is the number of inmates per latrine in the male and female sections?.....

16. How are the latrines accessible to inmates?.....

17. What are the arrangements for keeping the latrines clean?.....

18. How frequently do the latrines get full?.....

19. What facilities are there for hand hygiene?.....

20. What is the attitude of inmates in the Tamale central prison towards hand washing hygiene?.....

APPENDIX D

INTERVIEW GUIDE FOR THE PRISON HEALTH OFFICERS

EFFECTS OF HYGIENIC CONDITIONS ON THE HEALTH OF INMATES

1). Age……..

2). Sex…….

3). Qualification…….

4). How long have you been working at the health post in the Tamale Central Prisons?

……..

5). What are the opening hours of the clinic?.....

6). Are you on call 24/7?.....

7). Who is your immediate supervisor?.....

8) Is the clinic under the Ghana Health Service or the Ghana Prison Service?.....

9). What are some of the common ailments that inmates come with?.....

10). Does the clinic in the Tamale Central Prisons have the capacity to manage the disease conditions that inmates come with?.....

11). Have you referred any cases to other facilities and which are they?.....

APPENDIX E

QUESTIONNAIRES FOR PRISON INMATES

INSTRUCTIONS: Tick or provide brief information where applicable to the questions below.

PART "A"

PERSONAL INFORMATION

1). Age 1) 18-25 [ ] 2) 26-40 [ ] 3) 41-50 [ ] 4) 51-60 [ ] 5) 60 and above [ ]

2). Sex 1) Male [ ] 2) Female [ ]

3). Marital status 1) Married [ ] 2) Single [ ] 3) Divorced [ ] 4) Widowed [ ]

4). What is your level of educational? 1) None [ ] 2) Primary [ ] 3) Secondary [ ] 4) College [ ] 5) University [ ] 6) Others specify ……..

5). Religious affiliation 1) Christianity [ ] 2) Islam [ ] Traditionalist [ ] 4) Others specify ….

6). Type of prisoner 1) Remand [ ] 2) Incarcerated [ ]

7). Occupation of inmate: 1) Trade [ ] 2)Agriculture (farmer/fisherman) [ ] 3)Craftsman [ ] 4)Unemployed [ ] 5) Other Specify: ……

8). How long have you been in this prison?

1) < 1 [ ] 2) 1 – 5 [ ] 3) 6 – 10 [ ] 4) 11 – 15 [ ] 5) > 15 [ ]

PART "B"

HYGIENIC CONDITIONS IN THE TAMALE CENTRAL PRISONS

I). RESPONDENT'S KNOWLEDGE ABOUT SOURCE OF WATER SUPPLY

9). What is the main source of water to the Tamale Central Prison?

1) Public tap [ ] 2) Tanker services [ ] 3) Open well [ ] 4) Other specify……

10). Do you need to inform authorities to be able to access water?

1. Yes [ ] 2. No [ ]

11). If Yes, how long does it take you to get permission from prison authorities to go and fetch water? 1) 1 – 5 minutes [ ] 2) 6 - 10 minutes [ ] 3) 11 - 15 minutes [ ] 4) Other specify…….

12). Do you queue to fetch water? 1. Yes [ ] 2. No [ ]

13). If Yes, how long does it take you to fetch water?

1) 1 – 5 minutes [ ] 2) 6 – 10 minutes [ ] 3) 11 - 15 minutes [ ] 4) Other Specify……

14) How often do you have access to water? 1) Always [ ] 2) More than once a day [ ] 3) once a day [ ] 4) Other specify……..

15). How often would you want to have access to water? 1) Always [ ] 2) More than once a day [ ] 3) once a day [ ] 4) Other specify……..

16). Is the amount of water provided sufficient to bath at least once daily?

1) Yes [ ] 2) No [ ]

17). If No, how do you get extra water to take care of your needs?

1) Bath only once [ ] 2) Manage the little I get [ ] 3) Family support [ ]

4) Other specify…….

18). Do you have water in your dormitories/cells for use when locked up in cells?

1) Yes [ ] 2) No [ ]

19). If No, how do you get water for use when locked up?

1) Have gallons filled with water [ ] 2) Call for escort to fetch water [ ] 3) Cannot have access to water when locked up [ ] 4) Other Specify……

20). Do you have your own drinking cup? 1) Yes [ ] 2) No [ ]

21). If No, what do you use to fetch water for drinking?

1) Use one cup in turns to fetch from Veronica bucket [ ] 2) I drink sachet water [ ] 3) Drink directly from running water with my bare hands [ ] 4) Other Specify……

22). Overall, are you satisfied with the provision of water to you by authorities of the Tamale Central Prisons? 1) Highly Satisfied [ ] 2). Satisfied [ ] 3). Unsatisfied [ ]

23). If No, what do you suggest should be done to improve the supply of water in the Tamale Central Prisons/ 1) More storage facilities be provided [ ] 2) Constant flow of taps [ ] 3) Provision of tanker services [ ] 4) Other specify……

II). RESPONDENT'S KNOWLEDGE ABOUT WASTE DISPOSAL

24). What are the types of waste that are generated daily in the Tamale Central Prisons?

1) Plastics [ ] 2) Paper [ ] 3) wash water [ ] 4) waste water [ ] 5) Other specify…….

25). Do you have separate containers for dry and wet wastes? 1) Yes [ ] 2) No [ ]

26). If No, how do you manage both dry and wet waste?

1) By putting them in one container [ ] 2) No litter bins for waste [ ] 3) putting them in plastic bags 4) Other specify……

27). Are you satisfied with the current waste management practices in the Tamale Central Prisons? 1) Yes [ ] 2) No

28). If No, what do you suggest should be done to improve the condition?

1) More litter bins provided [ ] 2) Separation of liquid and solid wastes [ ] 3) Regular disposal of waste to refuse site [ ] 4) Other specify……

III). RESPONDENTS KNOWLEDGE ABOUT LATRINE AND HAND WASHING HYGIENE

29). How many hours are you locked up in cells/dormitories?

1) 11 hours [ ] 2) 12 hours [ ] 3) 13 hours [ ] 4) Other specify……

30). Are the latrines and urinals in the Tamale Central Prisons accessible to you for use when you are locked up? 1) Yes [ ] 2) No [ ]

31). If No, at what time do you have access to the latrines and urinals?

1) 06:00a.m – 05:00p.m [ ] 2) 06:00a.m – 08:00p.m 3) 09:00p.m – 06:00a.m 4) Other specify…….

32). How do you ease yourselves during periods when locked up in cells/ dormitories?

1) Use buckets in cells [ ] 2) Use plastic bags [ ] 3) Hold onto it until open time [ ] 4 call for escort to the latrine [ ] 5) Other specify……

33). Do you have facilities for hand washing near the latrines? 1) Yes [ ] 2) No [ ]

34). If No, what do you do after visiting the latrine? 1) Nothing [ ] 2) Only wash my hands with water [ ] 3) Wash my hands with soap and water [ ] 4) Other specify……

35) Does the prison provide you with soap? 1) Yes [ ] 2) No [ ]

36) If No, where do you get soap for your use? 1) From families [ ] 2) Friends [ ] 3) NGOs [ ] 4) Other specify……

37). Hand hygiene reduces chances of spreading infections.

1) Strongly agree [ ] 2) Agree [ ] 3) Disagree [ ] 4) Strongly disagree [ ]

5) Other specify……..

Effects of hygienic practices on the health of inmates.

38). By your own assessment, do you fall sick often due to poor hygiene practices in the prison? Yes ( ) No ( )

Please respond to the following statements on the likely effects of hygiene practices on your health using the scale strongly disagree (-2), disagree (-1), uncertain (0), agree (1) and strongly agree (2).

	Statement on the effects of hygienic practices on inmates health	Strongly disagree (-2)	Disagree (-1)	Uncertain (0)	Agree (1)	Strongly agree (2)
i	Inmates often fall sick of water related illness?					
ii	Malaria is the main sickness among inmates					
iii	Not washing hands after visiting the toilet is a major health threat to inmates					
iv	Poor waste management is responsible for most ill-health conditions of inmates					
v	Inmates often suffer from communicable disease due to sharing common water containers such as cups					
vi	Inmates often feel sick because they do not bath often					

APPENDIX F

UNIVERSITY FOR DEVELOPMENT STUDIES

School of Medicine and Health Sciences

(Department of Community Health and Family Medicine)

Tel : 03720 - 93295
E-Mail :
Local : 5:7811/106.15
Internet: www.uds.edu.gh

Post Office Box TL 1883,
Tamale, Ghana, West Africa.

28/01/2019

Office of the Head

The Regional Commander
Tamale Central Prisons
Tamale, N/R

LETTER OF INTRODUCTION

Abdul-Wahab Abdul-Jalil

This is to introduce to you, ***Abdul-Wahab Abdul-Jalil***, a Master of Public Health student of School of Medicine and Health Sciences of the University for Development Studies. Abdul-Jalil is a second year master of public health student and is currently working on his project titled: '**An assessment of hygiene conditions in the Tamale Central Prisons and its implications on the health of inmates**.' Abdul-Jalil want to have access to your facility and inmates to help him carry out this important academic exercise. I would be grateful if you could grant him access to your facility and inmates and any other information he may need to strengthen the quality of his work.

Thank you.

Dr. Yidana Adadow
SENIOR LECTURER HOD
DEP. OF COM. HEALTH & FAM MED
SMHS-UDS, TAMALE

Yidana Adadow *(PhD)*
(Head of Department, CHFM)

APPENDIX G

In case of reply the number and date of this letter should be quoted

HEADQUARTERS
Ghana Prisons Service
P. O. BOX 129, ACCRA
GHANA WEST AFRICA
TEL: 760093/760094
Fax: 233-302-772865

Email: info@ghanaprisons.gov.gh

Your Ref: No.....

My Ref. No: HRG/0183/V. 1/19116/447E

Date 21ST **FEBRUARY, 2019**

RE: LETTER OF INTRODUCTION
ABDUL-WAHAB ABDUL-JALIL

This is to acknowledge receipt of your letter No. 168/028/TAM/2019 of 13th February, 2019 and to inform you that permission has been given to the above-named student of the **University of Development Studies** to conduct a research at the **Tamale Central Prison** on the topic: "**An Assessment of Hygiene Conditions in the Tamale Central Prison and its Implications on the Health of Inmates**".

2. You are to liaise with the student for a discussion on the modalities of his research.

3. The student is required to submit a **copy** of his **research work** to the Service for study upon completion.

4. You are to offer the student the necessary support without **compromising security**.

5. Accept and inform the student accordingly.

K K KPELI
DIRECTOR OF PRISONS/HRD
For: DIRECTOR-GENERAL OF PRISONS

THE AG. REGIONAL COMMANDER/OIC
CENTRAL PRISON
P. O. BOX 17
TAMALE

Cc:

ABDUL-WAHAB ABDUL-JALIL

/dl/