KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, GHANA COLLEGE OF HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH DEPARTMENT OF HEALTH POLICY MANAGEMENT AND ECONOMICS

PREDICTORS OF SELF-MEDICATION PRACTICES AMONG ADULTS LIVING WITH HIV/AIDS IN THE BOLGATANGA MUNICIPALITY IN THE UPPER EAST REGION, GHANA

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DECLARATION

I, Samuel Amoateng Saffoh, hereby declare that except for references to other people''s work which have been duly acknowledged, this piece of work is my own composition and neither in whole nor in part has this work been presented for the award of a degree in this university or elsewhere.

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I declare that I have supervised the student in the undertaking of the thesis reported herein and confirm that the student has my permission to present it for assessment.

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DEDICATION

This piece of work is dedicated to the Almighty God for His unending love, bountiful

blessings and for seeing me through the programme successfully, to Rachel my wife and my
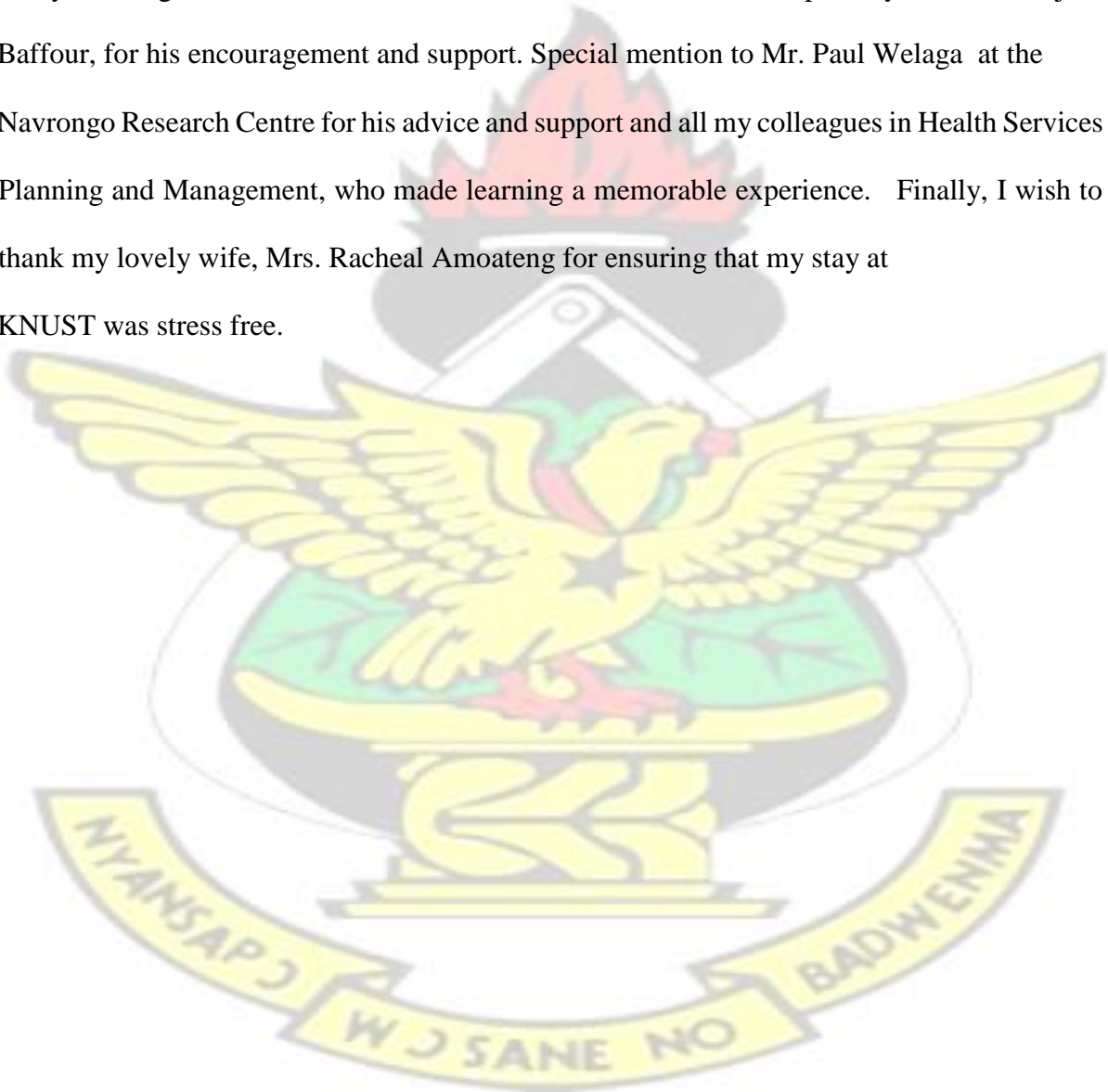
lovely kids.

ACKNOWLEDGEMENTS

LIST OF ABBREVIATIONS

AIDS   Acquired Immune Deficiency Syndrome

ART   Anti-retroviral Therapy

ARV   Anti-retroviral

CAM   Complementary and Alternative Therapy

CDC   Centre for Disease Control

GAC   Ghana Aids Commission

GSS   Ghana Statistical Service

HAART   Highly Active Antiretroviral Therapy

HIV   Human Immune Deficiency Virus

NACP   National Aids Control Programme OTC

Over the Counter

PLWHA   People Living With HIV and AIDS

POM   Prescription Only Medicines

RHB   Regional Hospital, Bolgatanga

SM   Self-Medication

STATA   Statistics and Data

TCAM   Traditional Complementary and Alternative Medicine

UNAIDS   United Nations Agency for International Development

USAID   United States Agency for International Development

WHO   World Health Organization

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ABSTRACT

In the quest for quick relief for minor ailments, reduce cost and save time from visiting a doctor and avoid the long queues in hospitals most people tend to practice self-medication (SM). However people living with HIV/AIDS who usually take a minimum of three highly active antiretroviral drugs need to be extra cautious in order to avoid pronounced adverse reactions, drug-drug interactions and masking of opportunistic infections. The purpose of the study was to assess the factors that influence the practice of self-medication among adults living with HIV/AIDS in the Bolgatanga municipality of the Upper East region of Ghana. Structured questionnaires were administered to 286 HIV adult clients who visited the Antiretroviral therapy (ART) clinic of the Bolgatanga regional hospital using convenient sampling techniques to collect data. The data were analysed using STATA 14 and presented using tables, frequencies and percentages. Statistical significance for all testing was set as 0.05.Out of the total number of participants, 38.81% self-medicated within the last three months prior to the study. Pain relief (78.38%) was the major reason for self-medication and as such analgesics usage was high (76.58%). Majority of participants (94.4%) had poor knowledge about effects of SM on ART. More than half of participants (61.5%) had a positive attitude and had higher odds to practice self-medication. (OR: 13.5 CI: 6.26-27.54, p value=0.00) Among the perceived health system factors, the perennial shortage of medicines in hospitals was twice likely to influence HIV clients to self-medicate (AOR= 1.9, CI: 1.05-3.34, p=0.03). This research recommends that health facilities should work at improving the availability of essential medicines. Also continuous education to clients is key to minimize adverse events and improve adherence to therapy.

CHAPTER ONE

1. 0 INTRODUCTION

1.1 BACKGROUND OF STUDY

Self-medication (SM) refers to the use of medicines to treat self-diagnosed disorders and symptoms without a prescription and medical supervision (World Health Organization [WHO], 2000). The use of previously prescribed drugs for own, friends and family members, using left over drugs at home and also non adherence to a prescribed treatment plan are also considered as self-medication (Loyola *et al*, 2004).

Self-medication is a common practice in most parts of the world and is generally pervasive regardless of being developed, developing, and under developed countries. It was established by Segal, 1990 that an estimated 70% to 90% of all illness episodes were handled by some form of self-medication before it came to the attention of health professionals. In the United Kingdom approximately 50% of all health care among people occurs as some form of self-medication. Self-medication has also been reported as a health behavior among people in Spain (Figueiras *et al.*, 2000). Several studies have revealed that the phenomenon of self-medication is a common health behavior in different developing countries in general, including Nigeria, Zambia, and other countries in China, India, and Vietnam (Peng *et al*. 2010, 2008, Afolabi, 2008; Banda *et al*., 2007; Fakeye, Adisa, & Musa, 2009; Malan & Neuba, 2011; Okumura, Wakai, & Umenai, 2002; Rahman *et al*., 2008; Yusuff & Omarusehe, 2011).

According to the Anderson model of services utilization an individual's option to access and use of health services is as a result of three key factors namely predisposition, enabling and needs. Predisposing factors are those that exist before the disease such demographics, health beliefs and other individual characteristics. Enabling factors refer to those that will facilitate

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or impede the use of health care services, for example health insurance status, income level, availability and accessibility to health services as well as other personal, family and community resources. Need factors are those which trigger the action to selfmedicate, such as presence of illness, severity of illness and duration of illness. Needs factors can be classified into perceived and evaluated. Perceived needs explain how people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help. Evaluated needs represent professional judgment about people's health status and their need for medical care (Andersen, 1995).

Self-medication in more developed countries is mostly due to the increasing de-regulation of previously restricted drugs where some of the prescription only medicines were re classified as over the counter medicines (Blenkinsopp & Bradley, 1996). The situation in developing countries may be as a result of a variety of factors including the higher cost involved in seeking professional care in hospitals; poverty; the considerable long time spent in hospitals in order to seek health care; cultural beliefs in the efficacy of other traditional methods; as well as poor regulation and easy availability of drugs outside formal and regulated environments (Afolabi, 2008; Donkor *et al*., 2008).

Self-medication has both benefits and risks (Yadav and Rawal, 2015). Responsible SM can save scarce medical cost especially on minor conditions, reduce the burden on health care facilities, and also decrease the cost and time people spend to seek medical attention at health care facilities for minor symptoms (Hussain A& Khanum A., 2008). The benefits of SM however can only be achieved when consumers are guided by adequate information from trained health professionals or by printed pictorial materials that are provided during medicine

purchase (Blenkinsopp A, Bradley C., 1996, Henry *et al.*, 2006). Medicines designated as non-prescription or over the counter (OTC) medicines offer patients an easy access to treatment, which is of benefit in timely management of common illnesses (Brass, 2011).

Inappropriate SM especially with prescription only medicines (POM) can however have number of dire consequences such as delay in seeking appropriate medical advice; failure to recognize or self-diagnose contraindications, unfavorable/harmful interactions with prescribed medicinal products; risk of double medication when there is failure to report current self-medications to the prescribing physician; inappropriate duration of use of medicine; bacterial resistance; risk of dependence and abuse (Abasiubong,2012;Shaghaghi, Asadi, & Allahverdipour, 2014;Gyawali, 2015) .

Human imunodeficiency virus (HIV) in Ghana continues to be a generalised epidemic with a prevalence of 2.4% in the general population (Ghana AIDS Commision [GAC], 2016) . Despite the fact that HIV continues to be a major public health problem, the advent of antiretroviral therapy (ART) in 2003 has made it a manageable chronic disease (United Nations Programme on HIV/AIDS[(UNAIDS], 2012). Data revealed that the national coverage of ART in Ghana was 70.5% in 2016; adult ART coverage was 72.3% with an unmet need of about 30% for the whole HIV- positive adult population; pediatric coverage was 35.4% with an unmet need for all HIV-positive children of about 65% (National AIDS Control Program [NACP], 2017). The phenomenon of SM with non-prescription alternatives such as OTC, and herbal/traditional medicine among people living with HIV/AIDS (PLWHA) on antirerovirals is a reality (Malangu, 2007; Orisatoki & Oguntibeju,

2010). Self-medication with OTC and other traditonal medicines has become very easy for HIV patients due to their affordability and easy access at various medicine outlets in both cities and villages of Africa (Biudes and Galato, 2014). A study by Dhalla *et al,* (2006) estimates that about 30% of PLWHA on ARTs also self-medicate with any form of traditional medicine. In most African countries, including Ghana, another non-prescription remedy usually patronized is faith-based remedies which sometimes combine the spiritual aspect with some herbal concoctions (Gyasi, Tagoe-Darko and Mensah, 2013). A study in Zambia revealed that PLWHA visited professing men of God and pastors in search of healing. Some perceived their predicament as the repercussions of their sins or curses from others and thus visited these churches in search for forgiveness and a miraculous healing from the HIV disease (Musheke , Bond , Merten ., 2012).

Self- medication has become a common practice which is an accepted self-care practice (; however, its adoption by PLWHA must be cautiously performed under orientation in order to avoid further damage to the patient health, like adverse event and masking opportunistic diseases (Biudes and Galato, 2014). This study sought to determine the prevalence of self-medication practices among PLWHA in the Upper East region Ghana and identify the reasons, socio demographic and health system factors that contribute to this practice.

1.2 PROBLEM STATEMENT

The practice of SM in developing countries, including Ghana, is evident due to several reasons such as poor access to quality healthcare, lack of money to pay consultation fees, unrestricted availability of medicines, traditional beliefs and people"s perceptions about health (Donkor *et al.*, 2012).

Self –medication is a health-seeking behavior that is associated with supposedly minor diseases that are usually self-diagnosed and treated with medicines purchased at pharmacies or other medicines outlets (Amo-Agyei *et al*, 2013;Plata, 2017). Responsible SM has been promoted to help prevent and treat ailments that do not require medical consultation especially with some endemic diseases (e.g. uncomplicated malaria) at community levels in sub-Saharan Africa where geographic and economic access to orthodox health care services is poor (Nicoll , 2000 ; Pranali *et al.*, 2018). Since the discovery of antiretroviral therapy, there have been several studies focused on medication adherence by evaluating access, use, effectiveness and safety of these therapies. However quite a limited number of studies have investigated self-medication with traditional, complementary and alternative medicines (TCAM) among the population of PLWHA (Biudes and Galato, 2014).

A major concern with the concomitant use of other orthodox or herbal remedies is the possible drug interactions which could be frequent and the consequences could be moderate or severe (Mudzviti, 2012). For example the interaction between nevirapine and fluconazole, which results in an increase of nevirapine concentration and consequently toxicity (Wakeham *et al.*, 2010). A study by Liu et al (2005) revealed that some herbs are hepatotoxic and also about 20% of HIV-patients used herbs that were very likely to compromise the effectiveness of ART due to some interactions. These findings raise concerns of effectiveness, safety and adherence to antiretroviral therapy; hence the need to assess the contributing factors to the practice and explore possible solutions.

1.3 RATIONALE OF STUDY

It is well established that self-medication has the possibility to affect ART treatment outcomes through drug-drug interactions and/or decreased ART adherence (Lee *et al*., 2006; Langlois-

Klassen *et al*., 2007 Peltzer *et al*., 2009). Though patients are advised to avoid the use of non-prescription medicines on commencing ART, a study in four hospitals in southern Ghana confirmed that the practice was common among PLWHAs (Laar *et al.*, 2017). In conducting this study, it was expected that the findings would help appreciate the contributing factors and assist in generating recommendations for clinical practice and possibly for policy recommendation.

1.4 CONCEPTUAL FRAMEWORK

The Andersen and Newman Framework of Health Services Utilization was adopted for this study. This model has been employed by several researchers to assess people‟s option to use health services. For the purpose of this study the predisposing factors were sex, age, educational level, marital status, religion, place of residence and health beliefs about selfcare. The enabling factors included occupational status, health insurance status, distance from the nearest health facility, staff attitude, unrestricted availability of remedies, quality of service and waiting time at the health facilities. The need factors were the presence and severity of symptoms of illness such as loss of appetite, severe wasting, emergence of opportunistic infections, presence of side effects of ART, desire to boost immune system, improve nutritional status and appear healthy and physically fit to avoid stigma from the society.
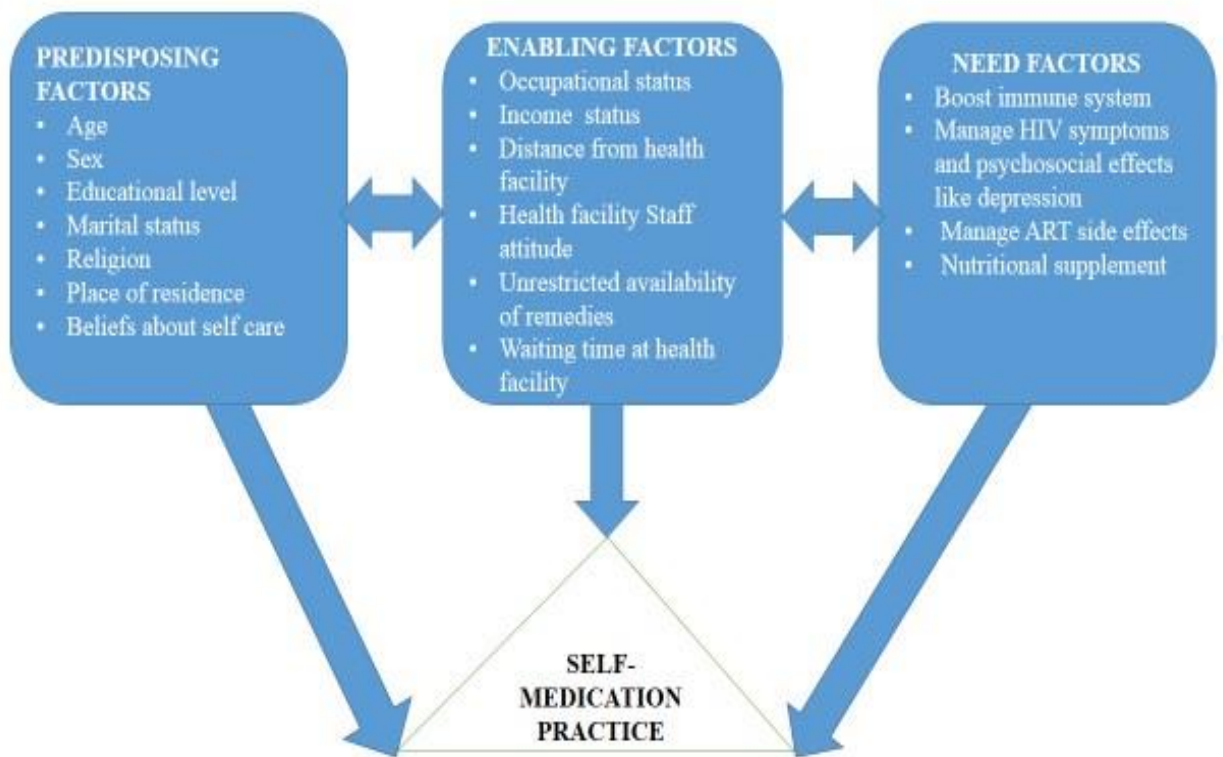
Figure 1.1: (Author's construct, 2018) Conceptual framework of the modified Andersen model of service utilization.

1.5 RESEARCH QUESTIONS

1. What are the remedies used in the practice of self-medication among adults living with HIV/AIDS?

2. What is the knowledge and attitude of adults living with HIV/AIDS towards selfmedication?

3. What are the need factors (reasons) for self- medication practice among adults living with HIV/AIDS who are on anti-retroviral therapy?

4. What are the predisposing and enabling factors that influence self- medication practice among adults living with HIV/AIDS who are on anti-retroviral therapy?

1.6 RESEARCH OBJECTIVES

1.6.1 MAIN/ GENERAL OBJECTIVE

To assess the factors that influence the practice of self-medication among adults living with HIV/AIDS in the Bolgatanga municipality of the Upper East region of Ghana.

1.6.2 SPECIFIC OBJECTIVES

1. To identify the remedies used for self-medication among adults living with HIV/AIDS

2. To assess the knowledge and attitude of adults living with HIV/AIDS towards selfmedication practices.

3. To identify the need factors (reasons) for self- medication practice among adults living with HIV/AIDS who are on anti-retroviral therapy.

4. To assess the predisposing and enabling factors that influence self- medication practice among adults living with HIV/AIDS who are on anti-retroviral therapy.

1.7. PROFILE OF STUDY AREA

The study was carried out at the ART clinic of the Bolgatanga Regional Hospital, of the Upper East region of Ghana. The Upper East Region is located in the north-eastern corner of the country, between longitude 00 and 10 West and latitudes 100 30"N and 110N. It is bordered to the north by Burkina Faso, the east by the Republic of Togo, the west by Sissala District in Upper West and the south by West Mamprusi District in Northern Region .The total land area is about 8,842 sq km, which translates into 2.7 percent of the total land area of the country. The region has twelve administrative districts, with Bolgatanga as the capital.

The population of the region is 1,046,545. It is one of the least urbanized in the country with only 21.0 percent of the population living in urban communities(Ghana Statistical Service, 2010) The region has one of the lowest HIV prevalence rate (1.7%) in the country (GAC, 2016).

The Regional hospital is the main referral center for all primary and secondary facilities. It has the biggest ART clinic with a total active client population of 1114.

1.8 SCOPE OF THE STUDY

The study focused on adults living with HIV/AIDS who were taking anti-retroviral medicines from the ART clinic of the regional hospital in Bolgatanga. The socio demographic and health systems factors that influence the practice of self-medication were assessed. Their reasons, knowledge and attitudes towards self- medication practice as well as the various remedies employed were also assessed.

1.9 ORGANIZATION OF THE STUDY

The study is organized under five main chapters. The chapter one, which is the introduction, deals with the background to the study, statement of the problem, rationale for the study, objectives of the study, research questions, scope of the study, as well as the organization of the study. Chapter two deals with the review of relevant literature related to the study .The chapter three discusses the methods adopted for the study which include the research design, population, sample and sampling procedures/technique, data collection tools/procedures, data analysis/presentation procedures. The fourth chapter looks at the analysis of data and discussion of results. The last but not the least is the chapter five deals with the summary of findings, recommendations and then the conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviews literature on self-medication (SM) among people living with HIV/AIDS (PLWHA). The literature review seeks to offer a constructive critique of existing literature about SM and identify gaps for which further research is needed. The literature review is structured to thematically cover the following areas: HIV/AIDS and antiretroviral therapy (ART), side effects of ART, effect of other remedies on ART, self-medication practice, remedies used for self-medication, knowledge and attitude towards self-medication and factors influencing self-medication among people living with HIV/AIDS

2.1 HIV/ AIDS AND ANTI RETROVIRAL THERAPY

The human immunodeficiency virus (HIV) was first discovered in 1981. It causes the acquired immunodeficiency syndrome (AIDS) which without treatment has a fatality rate of 100% fatal with devastating consequences for millions of people. The virus compromises the immune system and makes an individual susceptible to opportunistic infections (McConnell, 2007). Over 35 million AIDS-related deaths have been recorded since the virus   was discovered and HIV/AIDS is ranked the third largest pandemic after the 14th century Black Death and the 1918 influenza pandemic UNAIDS (2016). It continues to spread and has affected an estimated 37 million people globally making it one of the biggest socio-economic challenges as it affects mostly the young and economically productive population (Orisatoki and Oguntibeju, 2010 ; UNAIDS, 2017) HIV infection is a major risk factor for tuberculosis (TB) resulting in an estimated 1.2 million HIV-associated TB cases and 400 thousand HIV-associated TB deaths in 2015 (WHO,2017). According to the Ghana Health Service /National

Aids Commission Program (GHS/NACP) report the national HIV prevalence as at 2016 is estimated at 1.6% (GHS/NACP, 2016a). It is estimated that 290,000 people are living with HIV; out of which 32,000 are younger than 15 years old, 15,000 HIV/AIDS related deaths and 20,000 new infections occurring each year (GHS/NACP, 2017c).

At the initial stages of the AIDS pandemic, only a few antiviral agents such as acyclovir were on the market (Ananworanich, 2014). Generally patients received only symptomatic treatment of a few opportunistic infections, such as pneumocystis carinii pneumonia (PCP), cryptococcal meningitis, toxoplasmosis and oropharyngeal and esophageal candida albicans infections (Centers for Disease Control, 1981; Holmstrup & Samaranayake, 1990)   The introduction of a combination of antiretroviral drugs termed as highly active antiretroviral therapy (HAART) in 1996 mostly in high-income countries and in 2001 in low-income countries, particularly sub-Saharan Africa, sort to mitigate the plight of the patients and improve their lives (Nunn *et a.l*, 2007). HIV treatment is considered an essential tool in the fight against AIDS , preventing illness and death, reducing the incidence of new infections and saving money(Reuben *et.al* 2017).

The provision of a comprehensive care to PLWHA through the provision of ART since 2003 has significantly improved the lives of patients and their families as a whole (GHS/NACP, 2016). At the end of 2017, it was reported that about 41.83% of PLWHA were on ART with an unmet need of approximately 60% (GAC, 2017). Local programmatic data revealed national coverage of ART to be 70.5% in 2015; adult ART coverage was 72.3% with an unmet need of about 30% for the whole HIV- positive adult population; pediatric coverage was 35.4% with an unmet need for all HIV-positive children of about 65% .

In 2016, , the Government of Ghana (GOG) through the GHS and NACP adopted the global Joint United Nations Programme strategy termed "90-90-90" on ending the AIDS epidemic by 2030 (Lee, B., R. Naik, 2017) These targets aim to achieve by 2020, 90% of people living with HIV (PLWHA) knowing their HIV status; 90% of people who know their HIV status accessing treatment; and 90% of people receiving treatment achieving viral suppression within 12 months(UNAIDS, 2014). This strategy implies treating all clients diagnosed with HIV, regardless of CD4 count, and to increase the number of people tested for HIV from about 1 million in 2016 to 2.7 million per year by 2018 (GHS/NACP, 2016a).

This ambitious strategy (Ending AIDS by 2030) will require uninterrupted access to lifelong ART for tens of millions of people. This will need a robust but flexible health and community systems and a sound and reliable financing mechanisms capable of supporting treatment programmes across the lifespan of people living with HIV(UNAIDS, 2014). In resource constraint environments including Ghana, this is a big challenge, which can lead to shortage of HIV drugs and other logistics. The devastating impact of HIV/AIDS pandemic in the region coupled with the severe shortage of health personnel, health facilities, HIV drugs and essential logistics might force PLWHA to develop coping mechanisms such as adopting alternative sources of primary health care, one of which could be self-medication with both orthodox and herbal remedies (Hollenburg *et al,* 2008; Laar *et al*., 2017))

2.2 SIDE EFFECTS OF ANTIRETROVIRAL DRUGS

The effective use of ART brings about suppression in the viral load and improved immune function. These benefits of ART are however challenged with the several adverse effects associated with these drugs (AIDSinfo, 2017). Adverse effects have been cited among the most common reasons for switching or discontinuing therapy and for medication non

adherence. Fortunately, newer drugs are associated with less adverse effects (O‟Brien *et al*, 2003).

There are several factors that may predispose patients to adverse effects of ART medications. For instance, the concomitant use of different drugs with overlapping and additive toxicities can make patients susceptible to adverse effects. Again comorbid conditions that increase the risk of or exacerbate adverse effects; for example alcoholism or viral hepatitis co infection may increase the risk of hepatotoxicity (Saves *et al.*, 2000). The use of efavirenz or rilpivirine may exacerbate psychiatric disorders (Kheloufi *et al.*, 2015). Mild renal dysfunction may increase the risk of nephrotoxicity from tenofovir disoproxil fumarate. Some common ART adverse effects cited by various studies include GIT effects like nausea, loss of appetite, diarrhea; dermatological effects like rashes; CNS effects like headache, depression , lipodystrophy, peripheral neuropathy , anemia, and pain in general (Ajuoga *et al*, 2008; Johnson et al.,2011; Mudzviti et al., 2012;Puoane et al., 2012).

With the 90 90 90 policy where ART is now recommended for all patients regardless of CD4 T lymphocyte (CD4) cell count, and because therapy has to be continued indefinitely, the focus of patient management it is imperative to identify and manage early ARV-related toxicities in order to o avoid long-term adverse effects such as bone or renal toxicity, dyslipidemia, insulin resistance, or accelerated cardiovascular disease. Thus, in determining the ART regimen for a patient the clinician must consider potential adverse effects as well as the individual patient‟s comorbidities, concomitant medications, and prior history of drug intolerances in order decrease medication non adherence (Johnson *et al*, 2011; AIDS info, 2017).

2.3 EEFECTS OF OTHER REMEDIES ON ANTIRETROVIRAL DRUGS

The concurrent use of other complimentary remedies together with ART drugs may have both beneficial and harmful effects. Some products such as aloe-vera and African potato have been cited to have immune boosting, anti-inflammatory, anti-infective & antioxidant properties which help prevent opportunistic infections (Mills *et al*., 2005; Peltzer *et al*.,

2011). According to Ladenheim et al. (2008) ginseng helps in managing insomnia and

Canova has been found to stabilize the structure of platelet in HIV/AIDS (Smith *et al*., 2009).

On the flip side the use of other remedies together with ART drugs could be challenged with possible drug interactions, which have moderate or severe consequences such as clinical toxicity, therapeutic failure and in the case of HIV, drug resistance (Sim & Levine, 2010;Pham & Flexner, 2011; Puoane *et al*., 2012;). For instance there is an important interaction that occurs between efavirenz and rifampicin, which causes decrease of the concentration of rifampicin and consequently affects the treatment of tuberculosis (Kigen *et al*., 2011). The concomitant use of ART and non- steroidal anti-inflammatory agents (NSAIDS) such as ibuprofen, diclofenac, naproxen etc. result in an increase in the concentration of NSAIDS predisposing the patients to exacerbated reactions, especially

Cushing Syndrome (Tseng & Foisy, 2012). Again the use of ART together with oral contraceptives decreases the contraceptive effectiveness, thus leading to unwanted pregnancies with risk of vertical transmission of disease (WHO, 2009). Several studies have evidenced that commonly used herbal dietary supplements such as garlic have been found to be antagonistic and hence impede the efficacy of ARTs (Dhalla *et al*, 2006; Orisatoki & Oguntibeju, 2010).

2.4 SELF MEDICATION PRACTICE AMONG PEOPLE LIVING WITH HIV/AIDS

According to the World Self-Medication Industry (WSMI) self-medication (SM) is defined as the treatment of common health problems with medicines especially designed and labeled for use without medical supervision and approved as safe and effective for such use (WSMI, 2005) . Darshana, (2013) also describes SM as the use of non- prescription and prescription medicines by one"s own initiative without consulting a doctor to treat self- recognized symptoms and conditions). Self –medication also includes the acquisition of medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home (Montastruc *et al*., 1997). Self-medication has become a common phenomenon in all parts of the world and has been reported to be on the increase (Arikpo *et al*., 2010; Jain *et al*., 2011; Abasiubong *et al*. 2012). It is estimated that globally approximately 80% of the population rely on the use of unconventional medicines as the first source of health care (Rahman *et al*., 2008)

It is believed that SM empowers patients by giving them independence to choose in minor illness in case of over the counter (Pranali *et al.*, 2018). Other potential benefits of SM include increased access to effective treatment, a reduction in the number of visits to physicians (thereby reducing pressure on the limited healthcare services) , increased productivity of the population and reduces the financial burden on third-party payers, such as government or insurance companies (Noone and Blanchette, 2018). Self -medication would be a safe practice, if people have sufficient knowledge about the medicines dosage regimen, possible interactions with other medicines or food and side effects; hence it is paramount to augment

awareness and implement legislations to promote judicious and safe practices (Bennadi, 2014).

However, an inappropriate use can result in unwanted implications such as adverse reactions, masking of health problem or even complicate the clinical conditions (Ruiz, 2010) . Other potential disadvantages of SM include late reporting due to postponement of seeking care , incorrect diagnosis, unsupervised use increasing the risk for misuse, abuse, and even over-dosage of medications (Noone and Blanchette, 2018). Self-medication result in the wastage of both financial and material resources and increase resistance of pathogens especially with antibiotics(Mehta and Sharma, 2015). Antimicrobial resistance is a current global problem particularly in developing countries where antibiotics are available and easily accessible without any prescription (Vizhi & Senapathi , 2010;WHO, 2014)). Developing resistance to these pathogens will definitely lead to treatment failure, thereby worsening the health condition and endangering patients" life (Simonsen *et. al*, 2004). At the community level, incorrect SM can result in an increment in drug- induced disease with the consequent increase in public health expenditure(Ruiz, 2010)

A systematic review by Buides and Galato (2014) revealed that from several studies reviewed the prevalence of SM by PLWHAS ranges from 10% to 100%. The prevalence in this group is generally estimated above 50% (Fogelman *et al*, 1994; Ajuoga *et al*, 2008) and this does not differ significantly from general population (Pfaffenbach *et al* 2010; Auta *et al*, 2012). Globally it is estimated that at least 30% of PLHWAs who are on ARTs selfmedicate with various types of traditional medicine (Wiwanitkit, 2003; Dhalla *et al,* 2006; Noumi & Manga, 2011). In the developed countries such as Norway & Denmark, the practice ranges between 34% and 49% respectively (Hanssen et al., 2005). Within the

African context, the prevalence still varies widely from place to place, for instance 43.7% in Ethiopia , 23% in South Africa,98% in Zimbabwe and 53.7% in Ghana (Babb 2007; Lubinga *et al*., 2012; Mudzviti *et al*., 2012;Gyasi, Tagoe-darko and Mensah, 2013; Gurmu, Teni and Tadesse, 2017) .

It was established by Ajuoga et al., (2008) that the mode mostly used by PLWHA to selfmedicate is by repetition of old prescriptions (37.2%), by influence of pharmacists (22.3%) and by information obtained from reading of package leaflet (22.3%). Again it was highlighted that the main source of remedies used in SM are the community pharmacies and other drug outlets (Ajuoga *et al*., 2008).

Patients Living with HIV/Aids are usually prone to practicing poly pharmacy since they take a minimum of three antiretroviral drugs to manage their condition. Despite the potential benefits of SM. its adoption by special patients such as PLWHAS must be performed with extreme caution in order to avoid further damage to the patient health, like adverse event , drug-drug interactions and masking of opportunistic infections (Laar *et al.*, 2017). Self-medication has been identified to be a major factor that can decrease adherence to therapy since some patients replace ART drugs with other complementary alternative medicines (Bärnighausen et al, 2011).

2.5 REMEDIES USED FOR SELF-MEDICATION

There is a great variety of remedies used by PLWHA and they range from orthodox medicines, nutritional supplements, megavitamins and herbal products (Cheung, Wyman & Halcon 2007; Frass *et al*., 2012; Lorenc & Robinson 2013).

A study by Furler et al. (2004) established that, PLWHA mostly used analgesics, vitamins, antianaemics, antidiarrheal agents and mineral supplements. Another study to evaluate the use of over-the- counter medicines by PLWHA also mentioned analgesics and antipyretics as the most common (64.2%) whiles medicines for cough and cold as well as multivitamins and minerals were not frequently used (Ajuoga *et al*., 2008). However a study performed by Smith et al. (1999) highlighted 61.8% of respondents referred using vitamins. Patients used megavitamins & nutritional supplements such as vitamin A, C & E and other protein supplements that have antioxidant or immune-boosting properties to improve their health (Ladenheim *et al*., 2008).

In other studies most patients used antibiotics to manage sexually transmitted diseases (STD) and other opportunistic infections (Pavie *et al*, 2012). The use of antibiotics in selfmedication by HIV/Aids patients is very worrying because they can lead to a delayed diagnosis of opportunistic diseases, as well as the definition of AIDS which might influence the start of antiretroviral therapy (Ruiz, 2010)

Several studies have reported self-medication with traditional and complimentary medicines (TCAM) whiles on ART medications by more than half of PLWHA. In the USA, (67%), Thailand (54.7%), South Africa (51%), Nigeria (57.9%) and Ghana (53.2%) PLWHA use a form of TCAM for self- care (Littlewoodand and Vanable,2011).Other studies have indicated that traditional healers are usually consulted first by people with sexually transmitted disease, including HIV though the effectiveness, efficacy and safety of most of these herbal preparations have not been adequately established (Peltzer *et al*, 2008).

A study conducted by Kloos et al. (2013) revealed that PLWHA in Ethiopia mostly relied on traditional medicine (TM) practices by either using plant medicines or faith healing in the management of HIV/AIDS and HIV related illnesses. This practice is associated with the long history, prevailing perceptions and religious beliefs in the country about HIV/AIDS. Some commonly used forms of herbal medicines include African potato (Hypoxis hemerocallidea), sutherlandia, senna, canova, treenen, eucalyptus, echinacea, moringa, nigella sativa, garlic & ginseng (Malangu, 2007; Peltzer *et al*., 2011 Mudzviti *et a*l., 2012; Gurmu, Teni and Tadesse, 2017). Mudzviti *et al*. (2012) reported that about 98% of their study participants in Zimbabwe were taking herbal products. According to Laar et al. (2017) majority of these herbal preparations such as mahogany and garlic syrups were prepared locally or sometimes obtained from Christian prayer centers. Some of these herbal are also obtained from pharmacies as over the counter or from traditional healers (Peltzer *et al*., 2011).

2.6 KNOWLEDGE AND ATTITUDE TOWARDS SELF-MEDICATION

Knowledge is defined as having adequate information or acquiring skills through experience or education as well as the theoretical or practical understanding of a subject (Nachega *et al*., 2005). Having adequate knowledge about the effects of self-medication on ART and the overall health status is vital for remedying it. However studies have shown that many people continue to use drugs without realizing the dangers involved for themselves (Cumbler *et al*., 2010). In Gabon, Nziengui et al, (2005) concluded that patients were willing to receive adequate drug information including the side effects, interactions and any difficulties that could be experienced. Antiretroviral drugs are associated with a lot of side effects and as such in order to sustain adherence, there is the need to educate and manage them adequately (Bartlett, 2002). Several studies have suggested that most of respondents had a poor

knowledge about the pros and cons of self-medication, due to their outlook toward selfmedication practice were mainly favorable for any perceived illness (Suleman *et al*., 2009). A study by Tetteh et al. (2017) however concluded in their study in Ghana that majority of study subjects had good knowledge about adverse effects of ARVs since they were routinely counselled on their disease condition and the effects of the medicine.

According to Hogg &Vaughan (2005), attitude is defined as "A relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols". Attitude has a structure which could be affective, behavioral and cognitive. The affective component involves the individual"s feelings and emotions, e.g. "I am afraid of the effects of herbal medicines on my ART." The behavioral component is where one acts as a result of an experience e.g. "I will not go to the hospital due to long waiting time". The cognitive component involves one"s knowledge and or beliefs about an attitude object like self-medication e.g. "I get quick relief when I selfmedicate for minor illness" (Hogg &Vaughan, 2005). Several studies have been carried out to assess the attitude of participants towards self-medication. A study by Abebe et al. (2017) in Ethiopia revealed that more than half of the respondents were found to have good knowledge about self-medication however, their attitude towards it remain negative. In another study respondents demonstrated good knowledge and positive attitude towards self- medication indicating that the practice acceptable (Mehta *et al*., 2015)

2.7 FACTORS INFLUENCING THE PRACTICE OF SELF-MEDICATION

The Andersen model postulates that health service utilization is dependent on three sets of factors: predisposing (socio demographic) factors, enabling (economic) factors, and need

(health outcomes) factors. Predisposing factors reflect the individuals" propensity to use health services, enabling factors are the resources that may facilitate access to services, and the need factors represent potential needs of health service use, such as self-perceived health, chronic conditions, and restricted activity (Anderson, 1995). Some studies have shown that, based on this model, there is equity in health service delivery when the need factors have a strong positive association with health service utilization whiles enabling factors such income level, employment status and health insurance may lead to inequity in health service (Aday *et al*., 2004; Kim and Lee, 2016**;**

Li *et al.*, 2016)). According to Arcury et al. (2005) predisposing and enabling factors usually influence preventive care while curative care is mainly influenced by need factors.

2.7.1 PREDISPOSING FACTORS THAT INFLUENCE SELF-MEDICATION

In terms of socio demographic characteristics, some studies have shown that self- medication with other complementary remedies is common among women, the middle aged, those with higher income levels, the better educated and those with comorbid conditions (Lorenc & Robinson 2013). Arguments are advanced that women are more concerned about their health in aspects like excess weight gain and general outlook such as skin color, hair and nails (Lorenc & Robinson, 2013). Findings of a study by Smith et al (1999) indicated that the age of the respondent played a significant role in the practice of SM. However, a study in some selected ART sites in southern Ghana concluded that gender and age are not significant predisposing factors for SM (Laar *et al*., 2017). In terms of physical location, rural folks tend to self-medicate especially with local herbs and concoctions more than those in the urban settlements (Adams *et al*., 2003). A study by Gyasi et al., (2013) in Kumasi indicated that the area in which one resides could significantly influence the use of complementary alternative

remedies This could be as a result of some enabling factors such the inability to have easy access to quality health care services due to high cost of service, inadequate infrastructure, human resource and logistics or distance from the clinic, yet TCAM providers are easily accessible (Adams *et al*., 2003; Peltzer *et al*., 2008; Puoane *et al*., 2012).

2.6.2 ENABLING FACTORS THAT INFLUENCE SELF-MEDICATION

According to Frass *et al*. (2012) people with appreciable level of education and are gainfully employed have little time to visit hospitals for treatments. This is also linked to the fact that they are better placed to pay out of pocket for these self –medicated remedies. In contrast to this, Laar *et al*. (2017) establishes that the level of education and occupational status do not influence the practice of SM. A review by Shaghaghi *et al*., (2014) reveals that some of the frequently cited healthcare delivery factors that influence the practice of self-medication include distance to health facility, cost of seeking health care, long waiting time in hospitals, staff attitude, confidence in health professionals, easy access to drugs and availability of drugs in health facilities. A study in Uganda by Namuddu *et al*. (2011) indicated that PLWHA cited distance to a health facility as a reason to use traditional medicine to selfmedicate. Another study in Ghana by Laar *et al*. (2017) also concluded that distance to an ART center was a significant predictor for the use of non-prescribed medicines among HIV clients. In terms of cost of seeking health care a finding of Gyasi *et al.* (2013) indicate that PLWHA in the Kumasi Metropolis often opt to use TCAM due to high costs of seeking conventional healthcare. Unrestricted availability and easy access to medicines, especially in developing countries have also been cited by various studies as a precursor to SM (Ajuoga *et al,* 2008; Gurmu *et al*, 2017; Laar *et al*, 2017). Sharma *et al* (2012) argue that having unrestricted access to drugs especially prescription-only drugs such as antibiotics may lead to adverse drug reactions and antibacterial

resistance resulting in increased morbidity and mortality in HIV patients. According to Afolabi (2008), patients usually get frustrated and disappointed when they are referred to purchase medicines outside the hospital since they are not available in the hospital pharmacies. The continuous non availability of essential medicines, coupled with long queues in health facilities, thus become sound justification for clients to resort to pharmacies, over the counter stores, herbal centers or even moving vehicles to self-medicate (Ocan *et al*., 2014; Birhanu, 2016)

2.7.3 NEED FACTORS THAT INFLUENCE SELF-MEDICATION

In terms of clients'' motivation to self-medicate there are several reports that cite the relief of body aches and pains and psychological distress as the most dominant reason (Cheung, Wyman and Halcon, 2007; Shmueli & Shuval, 2007). In the USA, Tsao *et al*. (2005) reported that PLWHA mostly referred to self-medicate because of body pains and headaches. In Africa, studies in Ethiopia, Uganda and Ghana also point to the same finding that one of the main reasons HIV patients take CAM is to relieve pain (Bausell *et al*., 2003; Langlois-Klassen *et al*., 2007; Gyasi *et al.,* 2013). Consequently several studies highlight analgesics and antipyretics as the most commonly used form of remedies for self-medication

(Ajuoga *et al*.,2008; Buides and Galoto ,2014;Okumura *et al*. 2002; Jain *et al.,* 2011;Kasulkar & Gupta, 2015). In a study in British Columbia Dhalla et al (2006) established that among PLWHA some of the prominent reasons for self-medicating with TCAM were to improve energy level, to supplement dietary intake and to boost immune response. With regard to managing side effects of ARV drugs such as nausea, vomiting, diarrhea, anemia, dizziness, insomnia, pain, skin rash, weight loss etc. Chang *et al*, (2003) states that clients resort to the use of traditional medicines. Studies have shown that patients with comorbid conditions such

as TB/HIV, HIV/Hepatitis coinfection or chronic diseases are usually over burdened with many medications which could increase drug interactions and potentiate side effects (Lorenc & Robinson 2013). A research by Namuddu *et a*l., (2011) established that HIV patients who frequently experience ART adverse effects have higher risk of indulging in the practice of self-medication.

CHAPTER THREE

3. 0 METHODS

3.1 STUDY DESIGN/ TYPE

The study employed a hospital based cross sectional study design to assess the factors that influence self-medication among adults living with HIV/AIDS in the Bolagatanga municipality of the Upper East Region of Ghana. In assessing the factors that influence SM, quantitative data was gathered through the administration of a structured questionnaire. The choice of this design had the advantage to facilitate the collection over a short period of time at a relatively lower cost of original data necessary to address the research objectives. The study period was between June and August 2018.

3.2 STUDY POPULATION

The study population in this research consisted of adults living with HIV/AIDS who visited the ART clinic of the Regional Hospital, Bolgatanga for their antiretroviral drugs.

3.2.1 INCLUSION CRITERIA

Clients enrolled for participation in the study were those registered in the clinic and were on antiretroviral therapy. The study focused on adults (18 years of age and above)

3.2.2 EXCLUSION CRITERIA

Clients who were not registered in the clinic but visited the facility for medicine refills. These clients are usually travelers who do not have folders in the clinic from which certain data will be extracted by the researcher. Critically ill clients were also excluded since they might not be in the right state of mind to answer the questions. Clients below 18 years as well as those not on ART were not part of the study.

3.3 STUDY VARIABLES

DEPENDENT VARIABLE

Self –Medication Practice

INDEPENDENT VARIABLES

Sex, age, educational level, income level, marital status religion, place of residence, insurance status, reasons for self -medication, knowledge and attitudes towards selfmedication.

3.4 DATA COLLECTION TOOLS / PROCEDURES.

A structured questionnaire was used to collect primary data focusing on the objectives of the study, namely remedies used for SM, knowledge and attitude towards SM, reasons for SM and factors that influence the practice of self-medication. The use of a questionnaire provided the researcher the ability to gather data quickly in a most efficient way.

The questionnaires were in the English language. The researcher and two (2) research assistants who were healthcare workers at the ART clinic with proficiency in diverse languages (Grune, Hausa, Twi etc) administered the questionnaires in the form of an interview

to the respondents in a language well understood. The selection of the assistants from the clinic was an attempt to cure the discomfort some of the clients might have when exposed to the "third party" of their condition. Patients" folders were also used to extract information such as period on ART, drug regimen, adherence to appointment dates etc.

3.5 PRE-TESTING

The questionnaire was administered to twenty (20) PLWHA with similar characteristics in the ART clinic of the Bongo Hospital. Analysis of the responses and the interviewers' comments were considered to fine tune the final questionnaire.

3.6 SAMPLE SIZE ESTIMATE

The sample size was calculated from the total adult HIV population, registered at the ART clinic of the Bolgatanga regional hospital. The prevalence of self-medication by patients living with HIV/Aids varies from 10% to 100 % according to several studies (Biudes and Galato, 2014) . A study in four ART sites in southern Ghana revealed that one out of three respondents reported to have self-medicated (Laar *et al.*, 2017). Using the Epi Info version7.2.2.6, the sample size was calculated as follows:

Using a population of 1114, an expected frequency of SM among PLWHAS as 33% (Laar *et al.*, 2017) acceptance margin of error of 5%, design effect of 1, cluster 1 and 95% confidence interval, the sample size calculated was 260. Considering a non- response rate of 10% the estimated sample size is 286

10% of 260= 26

Total sample size = 260+26= **286**

3.7 SAMPLING TECHNIQUE

A purposive sampling method was used to select the Regional Hospital as the study site. The facility was selected purposely because it has the biggest ART clinic with the largest number of clients in the region. A convenience sampling approach was adopted to select participants who were eligible and consented to join the study.

3.8 DATA ORGANISATION AND ENTRY

The completed questionnaires were numbered serially in order to facilitate easy counting and to avoid multiple entries of the same questionnaire. The raw quantitative data collected from the field with the questionnaires were entered into Microsoft Excel and then exported to Stata 14.0 for data cleaning and coding of the variable.

3.8.1 DATA ANALYSIS

The data analysis employed both descriptive and inferential techniques. Tables were used to present frequencies and percentage distribution of the variables. Logistic regression was employed to establish the level of association between SM and the contributing factors. In univariate models, each exposure was individually regressed with the outcome to determine the crude association. The odds ratio and corresponding 95% confidence intervals were generated and statistical significance was assessed. A p value of ≤ 0.05 was considered as statistically significant (Gordis, 2009). All factors which achieved a p-value of less than 0.05 were considered fit to be included in the multivariable model to determine the predictors of self-medication.

3.9 ETHICAL CONSIDERATION

An application was made to the Committee on Human Research Publication and Ethics (CHRPE) of KNUST for ethical clearance. The study started only after approval was received from the CHRPE KNUST. An introduction letter from the School of Public Health was sent to the management of the Bolgatanga Regional hospital to obtain permission to carry out the study. The purpose of the study and its objectives was explained to the management and staffs of the ART clinic. A consent form was provided to all eligible clients willing to participate in the study after they had been adequately educated on the study and their questions answered to their satisfaction. They were assured of confidentiality of the information they gave to the research team**.**

3.10 LIMITATIONS OF STUDY

Being a cross-sectional design conducted at only the ART clinic of Regional hospital and using a convenient sampling approach, the study findings cannot be generalized to all areas of the country. Like most interview-based researches, the study findings might have been affected by the respondents" willingness to provide correct information and the way they understood interview questions. In order to reduce the possibility of recall or memory biases, participants were limited to events that happened in the preceding three months of the start of the study.

CHAPTER FOUR

4.0 RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the study which seek to answer the objectives of the study. It encompasses the following sub-headings: socio-demographic characteristics of the participants, practice of SM among participants, remedies used to self- medicate, reasons (motivating factors) for SM, participants" knowledge level and attitude towards SM and perceived health system factors that influence SM and associations between participants characteristics, perceive health system factors and SM. A total of two hundred and eighty six (286) participants were involved in the study.

4.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Table 4.1 shows the demographic characteristics of participants where the background variables measured included: gender, age, educational background, religious background, marital status, occupational status, health insurance status, monthly income and place of residence. Out of the total number of 286 about two thirds of the participants 74.83% (214) were females. Majority of the participants, 35.31% (101) were between the ages of 30 to 39 years; followed by those less than 29 years, 26.92% (77). A total of 59 respondents, representing 20.63% were in the age group of 40-49 years whiles 49 respondents, constituting 17.13% were 50 or more years old. Among the different educational levels indicated, 28.67%

had no formal education, 36.71% had up to primary education, 27.97% received secondary education and 6.64% got to the tertiary level.

In terms of the religious distribution 77.97% (223) of respondents were Christians, 18.88% (54) were Muslims whilst 3.15% (9) were Traditionalists. Majority of the participants, 38.11% (101) were married, followed by those who had lost their partners, 32.87% (94). Thirty five participants representing 12.24% indicated that they were single, 9.7% (28) had separated whiles 6.99% (20) were cohabiting. About 80% of participants were engaged in a form of employment whiles out the remaining 20% unemployed students accounted for 1.75% (5). On participants" health insurance status, majority 80.57% (228) had an active health insurance card. More than half of the total number of participants, 58.04% (166) indicated that they earned less than GHC 100.00 per month. Sixty participants representing 20.98% earned between GHC 100- 300 while 12.24% (35) and 8.74% (25) earned more than GHC 500.00 and GHC 300.00-500.00 respectively. Urban dwellers constituted 65.73% (188) of the total study population while 34.27% (98) were from rural communities.

Table 4.1: Summary of participants' demographic characteristics

Variable	Frequency (N=286)	Percentage (%)
Gender		
Male	72	25.17
Female	214	74.83
Age		
<29	77	26.92
30-39	101	35.31
40-49	59	20.63

50+	49	17.13

Educational Background

None	82	28.67
Primary	105	36.71
Secondary	80	27.97
Tertiary	19	6.64

Religious Background

Christian	223	77.97
Muslim	54	18.88
Traditional	9	3.15

Marital Status

Single	35	12.24
Married	109	38.11
Separated	28	9.79
Widow/er	94	32.87
Co habiting	20	6.99

Source: Author's field data, 2018

Table 4.2: Summary of participants' demographic characteristics (Continued)

Variable	Frequency (N=286)	Percentage (%)
Occupational Status Salaried worker	26	9.09
Self employed	178	71.33
Unemployed	77	26.92
Student	5	1.75

Health Insurance Status

Insured	228	80.57
Uninsured	55	19.43

Monthly Income (GHC) <100	166	58.04
101-300	60	20.98
301-500	25	8.74
>500	35	12.24

Residence of respondents

Rural	98	34.27
Urban	188	65.73

Source: Author's field data, 2018

4.3 PROPORTION OF PARTICIPANTS WHO PRACTICE SELF-MEDICATION

Table 4.2 reveals that 111 participants, constituting 38.81% indicated having taken

unprescribed drugs while the remaining 61.19% (175) confirmed that they had not been

practicing self-medication.

Table 4.3: Summary of participants' practice of self-medication

Variable	Frequency (N=286)	Percentage (%)
Self-medicated in the last 3 months Yes		
	111	38.81
No	175	61.19

Source: Author's field data, 2018

4.4 REMEDIES USED FOR SELF-MEDICATION AMONG PARTICIPANTS

In examining the various remedies used by participants to self-medicate, three variables were considered. These include types of remedies that are commonly used; the source of these remedies, and how these remedies are taken in relation to their ARVs

Table 4.3 illustrates that among the various remedies, analgesics were the most commonly self-medicated drug (N=85, 76.58%). Antibiotics accounted for 38.74% (43), followed by vitamin and mineral supplements 35.14% (39), herbal remedies 20.72% (23), other remedies 12.61% (14) and lastly antacids or anti-diarrheal agents 4.5% (5). Other remedies included remedies for hypertension, diabetes, worm infestation, malaria. In terms of sources from which remedies were obtained, pharmacy or over the counter drug outlets were the most cited (N=99, 89.19 %). Thirteen participants representing 11.71% visited herbalist in their neighborhood or prepared their concoctions themselves in their homes. Drug peddlers (8.1%), left over medicines (6.30%) and spiritual home (0.90%) were also cited as other sources of remedies used for self-medication. In ascertaining how these remedies were taken in relation to the ARVs, a comparatively higher number of participants (N= 93, 83.78%) took their self-medicated remedies concomitantly with their ARVs while 15.2% (17) took their remedies at different times with the ARVs. Only one participant (0.9%) suspended the ARV while taking his self-medicated remedy.

Table 4.4: Summary of remedies used for self-medication

Variable	Frequency (N=111)	Percentage (%)
Type of Remedies* Analgesics		
	85	76.58
Antibiotics	43	38.74
Vitamins and minerals	39	35.14

Herbal preparations	23	20.72
Others	14	12.61
Antacids/ Antidiarrheal agents	5	4.50
Source of remedies*		
Pharmacy/OTC outlets	99	89.19
Herbalist/ individual homes	13	11.71
Drug peddlers	9	8.10
Left over medicines	7	6.30
Spiritual centers	1	0.90
How do you take your remedy		
Concomitantly with ARVs	93	83.78
At separate times with ARVs	17	15.32
Stops ARVs entirely	1	0.9

Source: Author's field data, 2018   ** Multiple responses*

4.5 NEED FACTORS (REASONS) THAT INFLUENCE THE PRACTICE OF SELFMEDICATION AMONG PARTICIPANTS

Table 4.4 describes the various responses by participants when asked what reasons or motivating factors pre-dispose them to self-medicate whiles on ART. The need to relieve pain was the most cited reason, (N=87, 78.38%), followed by the desire to boost their immune system (N=37, 33.33%). Other reasons such as boosting appetite and correcting anemia (N=32, 28.83%), managing ART side effects (N=17, 15.32%) and managing other conditions such as diabetes, hypertension, asthma, malaria etc. (N=14, 12.61%) were also affirmed as motivating factors for self-medication by some participants.

Table 4.5: Summary of reasons (need factors) for self-medication by respondents

Variable	Frequency (N=111)	Percentage (%)

Reasons for SM* To		
manage pain	87	78.38
To boost immune system	37	33.33
To improve appetite/ anemia	32	28.83
To manage ART side effects	17	15.32
To manage other conditions	14	12.61

Source: Author's field data, 2018   ** Multiple responses*

4.6 PARTICIPANTS KNOWLEDGE ON SELF-MEDICATION

Table 4.5 describes participants" knowledge on the self-medication. Participants were made to assess a number of statements concerning the effect of SM on ART as well as the potential harm associated with SM. Out of the 286 participants 33.92% (97) said the use of un prescribed remedies had no effect on ART. However 20.63% (59) agreed that SM could potentiate the effect of ARVs, 16.43% (47) said the effect of ARVs could be reduced and 22.73% (65) indicated that the side effects of anti-retroviral drugs could be worsened with SM. Concerning the potential hazards associated with SM majority of participants 65.72% (188) alluded to the fact that their condition could worsen when taking un prescribed medicines together with their ARVs, 26.87% (76) were of the view that SM could cause delays in seeking appropriate healthcare while 11.54% (33) and 8.04% (23) acknowledged that the practice of SM is a recipe for the use of substandard drugs and for drug abuse respectively.

Table 4.6: Summary of participants' knowledge on SM

Variable	Frequency (N=286)	
Effect on ART (expected answer)	Yes (%)	No (%)
SM does not have effect of ART (No)	97(33.92)	189(66.02)
SM could potentiate effect of ART (Yes)	59(20.63)	227(79.37)
SM could reduce effect of ART (Yes)	47(16.43)	239(83.57)
Aggravates the side effects of ART (Yes)	65(22.73)	221(77.27)
Potential hazards of SM		
Worsen clients condition (Yes)	188(65.73)	98(34.27)
Delays in seeking appropriate healthcare (Yes)	76(26.57)	210(73.43)
Possible use of substandard drugs(Yes)	33(11.54)	253(88.46)
Promotes drug abuse (Yes)	23(8.04)	263(91.96)

Source: Author's field data, 2018

4.7 PARTICIPANTS ATTITUDE TOWARDS SELF-MEDICATION

Table 4.6 describes participants" attitude towards self-medication. Participants views were sort in relation to the acceptability or otherwise of SM. Among the 286 participants about half, 49.65% (142) considered SM as an acceptable practice of self-care, 135 participants representing 47.2% considered the practice unacceptable while 3.15% (9) had no definite answer. One hundred and eighty four participants (64.34%) agreed that SM provides a quick relief to ailments, 65.38% (187) concurred with the statement that SM is appropriate in managing mild conditions and 54.9% (157) agreed to recommend the practice of selfmedication to other people. Majority 93.78%(268) however, indicated that it was dangerous to self-medicate when one does not have adequate knowledge on the drugs used while

82.87% (237) agreed to seek professional advice when side effects appeared.

Table 4.7: Summary of participants' attitude towards SM

Variable	Frequency (N=286)	
Acceptability of on SM		
SM is acceptable practice	142	49.65
SM in unacceptable practice	135	47.2
Don't know	9	3.15
Views on SM(*expected answer*)	**Yes (%)**	**No (%)**
SM provides quick relief *(Yes)*	184(64.34)	102(35.66)
SM appropriate for mild conditions *(Yes)*	187(65.38)	99(34.62)
Recommend SM to others *(No)*	157(54.9)	129(45.1)
SM dangerous when inadequate knowledge on drugs *(Yes)*	268 (93.78)	18(6.29)
Seek professional advice with side effects *(Yes)*	237(82.87)	49(17.13)

Source: Author's field data, 2018

4.7.1: ASSOCIATION BETWEEN PARTICIPANTS' OVERALL KNOWLEDGE AND ATTITUDE AND THE PRACTICE OF SELF-MEDICATION

Table 4.7 describes the association between participants overall knowledge and attitude and self- medication. In assessing the overall knowledge level of participants, an overwhelming majority (94%) had poor knowledge about the effects of self-medication and ART. About two thirds (38.5%) of those with poor knowledge practiced SM while 43.8% of those with good knowledge. The knowledge level of participants however, did not a have a significant

association with SM. (p value = 0.67). The majority of participants (61.5%) had a positive attitude towards SM. More than half (57.4%) of those with positive attitude engaged in selfmedication while about a tenth (9.1%) of those with negative attitude practiced selfmedication.. Attitude towards self-medication was significantly associated with SM and those with positive attitude were about 13 times likely to self-medicate than those with negative attitude. (p value=0.00 OR :13.5 CI : 6.26-27.54)

Table 4.8: Association between participants' overall knowledge and attitude and the practice of SM

Attribute	Practice SM (N=111)	Did no practice SM (N=175)	Unadjusted OR (95% CI)	P-value
Knowledge level				**0.67**
Good (5.6%)	7 (43.8%)	9 (56.2%)	1.24 (0.45-4.33)	
Poor (94.4%)	104 (38.5%)	166 (61.5%)	Ref	
Attitude to SM				**0.00**
Positive (61.5%)	101(57.4%)	75 (42.6%)	13.5 (6.56-27.54)	
Negative (38.5%)	10 (9.1%)	100 (90.9%)	Ref	

Source: Author's field data, 2018

4.8 ENABLING FACTORS PERCEIVED BY PARTICIPANTS TO INFLUENCE SELF-MEDICATION

Table 4.8 describes participants perceptions about the influence of a number of factors related to the delivery of healthcare on self-medication. Majority of participants, 76.22% (218)

disagreed, 20.98% (60) agreed and 2.8% (8) were not sure that long distance from a health facility was a justification to self-medicate. With regards to cost of seeking healthcare

87.06% (249) disagreed, 8.74% (25) agreed and 4.2% (12) were not sure that high cost had an influence on SM. More than half of the participants, 60.84% (174) disagreed that long waiting time in hospitals could influence them to self-medicate. Nonetheless 35.66% (102) agreed and 3.5% (10) were not sure. About a quarter 75.87% (174) of the total sample disagreed, 21.33% agreed and 2.8% (8) were not sure that poor staff attitude could contribute to the practice of SM. Majority of participants, 87.41% (250) had confidence in hospital staff while 8.39% (24) agreed and 4.2% (12) were not sure that not having confidence in staff could influence them to self-medicate. In assessing access to remedies 62.94% (180) agreed, 32.17% (92) disagreed and 4.9% (14) were uncertain that having easy or unrestricted access to medicines could influence SM. On the perception about the effectiveness of drugs served in the hospitals (NHIA drugs), most participants 86.71% (248) disagreed, 9.09% (26) agreed and 4.2% (12) were not sure that they are less effective and thus could influence SM. One hundred and sixty one (56.51%) agreed, 42.31% (121) disagreed and 1.4% (4) were not sure that the frequent shortage of medicines in hospitals could influence them to self-medicate.

Table 4.9: Summary of health system factors perceived to influence self-medication

Health system factor	Responses (N=286)		
	Agree	Disagree	Not sure
Long distance from health facility	60 (20.98%)	218 (76.22%)	8 (2.8%)
High cost of seeking services	25 (8.74%)	249 (87.06%)	12 (4.2%)
Long waiting time at hospitals	102 (35.66%)	174 (60.84%)	10 (3.5%)
Poor staff attitude	61 (21.33%)	217 (75.87%)	8 (2.8%)
Have no confidence in staff	24 (8.39%)	250 (87.41%)	12 (4.2%)
Easy access to remedies	180 (62.94%)	92 (32.17%)	14 (4.90%)

NHIA drugs are less effective	26 (9.09%)	248 (86.71%)	12 (4.2%)
Shortage of drugs in hospitals	161(56.29%)	121 (42.31%)	4 (1.4%)

Source: Author's field data, 2018

4.9 ASSOCIATION BETWEEN PARTICIPANTS' SOCIO-DEMOGRAPHIC CHARACTERISTICS AND PRACTICE OF SELF-MEDICATION

A regression analysis was performed to establish an association between socio demographic characteristics and the practice of self-medication. Results presented in table 4.10 indicate that none of the variables (gender, age, marital status, occupation, religion, place of residence, insurance status and level of education) have significant association with SM (pvalues >0.05).

Table 4.10: Association between some respondents' predisposing factors and practice of self-medication

Characteristics	N (%)	Unadjusted OR (95% CI)	P-value
Age group (years)			**0.88**
18-28	61(21.33)	Ref	
29-38	106(37.06)	1.52(0.79-2.91)	
39-48	70(24.48)	0.93(0.45-1.93)	
49-58	34(11.89)	1.69(0.72-3.98)	
>59	15(5.24)	0.69(0.2-2.44)	
Gender			**0.09**
Female	214 (74.8)	Ref	
Male	72 (25.2)	1.59 (0.93-2.73)	
Educational background			**0.68**
None	82(28.67)	Ref	
Primary	105(36.71)	0.92(0.51-1.67)	
Secondary	80(27.97	0.99(0.53-1.86)	
Tertiary	19(6.64)	1.41(0.52-3.84)	
Religious background			**0.15**
Christian	223(77.97)	Ref	
Muslim	54(18.88)	1.38(0.75-2.51)	
Traditional	9(3.15)	2.15(0.52-3.84)	
Marital status			**0.8**
Single	35(12.24)	Ref	
Married	109(38.11)	0.87(0.4-1.9)	
Separate	28(9.79)	1.5(0.55-4.09)	
Widowed	94(32.87)	1.02(0.46-2.24)	
Co-habiting	20(6.99)	0.5(0.15-1.69)	
Health insurance status			**0.12**
Insured	228(80.57)	Ref	

Uninsured	55(19.43)	0.56(0.27-1.15)	
Income level			**0.53**
< 100 GHC	166(58.04)	Ref	
101 – 300 GHC	60(20.98)	0.81(0.44-1.49)	
301 – 500 GHC	25(8.74)	0.27(0.08-0.81)	
> 501 GHC	35(12.24)	1.18(0.57-2.46)	
Occupational status			**0.07**
Salaried worker	28(9.79)	Ref	
Self employed	196(68.53)	1.86(0.75-4.59)	
Unemployed	57(19.93)	2.52(0.92-6.85)	
Student	5(1.75)	4.50(0.62-32.69)	
Place of residence			**0.79**
Rural	98(34.27)	Ref	
Urban	188(65.73)	1.07(0.65-1.77)	

Source: Author's field data, 2018

4.10 ASSOCIATION BETWEEN PERCEIVED ENABLING (HEALTH SYSTEM) FACTORS AND THE PRACTICE OF SELF- MEDICATION

Table 4.9 describes results of logistic regression analysis to examine associations between the various health system factors that could influence self-medication. Factors such as distance to health facility, cost of seeking health care, long waiting time in hospitals, staff attitude, perception about low efficacy of NHIA drugs and low level of confidence were not significantly associated with SM (p values > 0.05). However easy access to remedies (p value= 0.01) and frequent shortage of drugs in hospitals (p value=0.001) were significantly associated with the practice of SM. After adjusting for covariates, shortage of drugs at hospitals emerged the only factor with significant association with SM (p=0.03, AOR= 1.9, CI: 1.05-3.34). This

means that the perception of frequent shortage of drugs in hospitals is 2 times likely to influence the practice of self-medication.

Table 4.11: Association between perceived enabling (health system) factors and the practice of self- medication

Health system factors	Unadjusted OR (95% CI)	P-value	Adjusted OR (95%CI)	Pvalue
Long distance from clinic	1.63 (0.96-2.76)	0.07		
High cost in seeking service	1.25 (0.64-2.44)	0.51		
Long waiting time	1.31 (0.84-2.05)	0.23		
Poor staff attitude	1.27 (0.76-2.14)	0.36		
No confidence in health workers	1.49 (0.75-2.94)	0.25		
Easy access to remedies	1.79 (1.15-2.78)	0.01	1.29 (0.76-2.17)	0.34
NHIS drugs not effective	1.68 (0.86-3.28)	0.13		
Shortage of drugs in hospitals	2.20 (1.36-3.55)	0.001	1.88 (1.05-3.34)	0.033

Source: Author's field data, 2018

CHAPTER FIVE

5.0 DISCUSSION

5.1 INTRODUCTION

The study was carried out mainly to examine the factors that predict the practice of selfmedication among PLWHA who are on ART. It determined the proportion of PLWHA who self-medicate, remedies used, reasons for SM and their knowledge and attitude towards SM. It further sought to establish the level of association between SM and the socio demographic characteristics, level of knowledge and attitude of participants towards SM as well as some health system factors perceived to influence the practice.

5.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Most of the participants (74.8%) were females (table 4.1). This almost reflected the ratio of women to men in attending the facility, which was approximately 7:3 (RHB report, 2017). This also reflects the national picture where there are more females living with HIV/AIDS in Ghana than men (GAC, 2017). Moreover it was observed that most of the married women came along with their partners" cards to refill their medicines for them. More than half of the participants, (62.2%) were between the age ranges of 18-39 years which falls within the reproductive age bracket. This affirms UNAIDS report, (2017) that HIV affects mostly the young and economically productive population. Lorenc & Robinson (2013) reiterates that self-medication with other complementary remedies is common with the middle aged. Among the different educational levels indicated, about a third of the participants (28.67%) had no formal education. In terms of the religious distribution 77.97% of respondents were

Christians and 18.88% professed the Islam religion. This finding is consistent with the national estimates of 71.2 percent and 17.6 percent for Christianity and Islam respectively (GSS, 2012).

Result for the marital status of the participants showed that about two thirds of the participants (66.3%) were either married or had lost their partners. This goes to buttress the point that the majority of clients are in their reproductive age. About 80% of participants were engaged in a form of employment whiles out the remaining 20% unemployed. Most of the participants (65.73%) who visited the regional hospital for their ART services were within the urban enclave. This could probably be due to clients" satisfaction with the services rendered at the ART clinic and a high level of trust in the health care providers (Table 4.7), contrary to a study in South Africa by Langlois-Klassen et al, 2008 which revealed that stigmatization and loss

of confidence in some healthcare providers were reasons for some clients travelling very far distances to receive ART services.

5.3 PROPORTION OF PARTICIPANTS WHO PRACTICE SELF-MEDICATION

The proportion of participants who self-medicate was 38.81% and this result is quite similar to that cited by other researchers in various parts of Africa. In Ghana , a study by Laar et al. 2017 revealed that the prevalence was 33.3%, 37.1% in Botswana (Ntukamazina, 2015) and 46% in Uganda (Lubinga et al. , 2012). In all these studies, participants came from both rural and urban sites. However Laar et al (2017) stressed that patients and care providers at rural sites needed more education about potential adverse effects of the use of nonprescription remedies concurrently with ART. On the other hand, the finding of the study is relatively lower than that of Mudzviti et al. (2012) which was carried out in a predominantly rural setting where about 98% of respondents used herbal remedies to self-medicate.

5.4 REMEDIES USED FOR SELF-MEDICATION AMONG PARTICIPANTS

Among the various classes of medicines, analgesics were the most commonly used (76.58%) for SM. This is probably due to the fact that headaches, body pains, cold and flu are the most common disease conditions reported by participants in this study. It is worth noting that the period of the study coincided with the harvesting season, thus most of them spent a lot of time on their farms working, resulting in body aches and pains. This finding concurs with that of Buides and Galoto (2014) and Ajuoga et al (2008) which also highlight analgesics and antipyretics as the most commonly used. Similar results were obtained from other research studies in other parts of the world (Okumura *et al*. 2002; Jain *et al.* 2011; Kumar *et al.*, 2013**;** Kasulkar & Gupta, 2015), which also revealed that analgesics or and pain relievers are the

drugs that are most commonly self-medicated . Albarrán & Zapata (2008) in a study from Chile, reported that analgesics were mostly used, specifically the nonsteroidal anti-inflammatory drugs (NSAIDs) with diclofenac sodium being the most used. This is quite worrying since the indiscriminate intake of these NSAIDS may affect various organs such as the liver, kidneys and the gastrointestinal tract as well as increase in adverse reactions (Enwere and Eze, 2014). This finding however differs from that of Smith et al. (1999) where vitamins were the most cited remedy used by PLWHA to self-medicate. With regard to herbal remedies, 20.3% of participants used them to self-medicate contrary to a study in Zimbabwe by Mudzviti et al. (2012) which indicated almost all (98%) of their study subjects used herbal products.   Most of the participants indicated they had been counseled severally about the potential harm the use of herbal remedies could affect their lives, a possible reason to why our results show low levels of herbals use.

In terms of sources from which remedies were obtained, pharmacy or over the counter drug outlets were the most cited (89.19 %). Several studies across the world have similar findings where community pharmacies and over the counter drug stores are highlighted as the main source for remedies. In Ethiopia, 72% of the study subjects indicated that pharmacy outlets were the source of their remedies and they received information of their medicines from pharmacy personnel (Abay & Amelo, 2010). Laar *et al* (2017) also reports that pharmacies or over the counter shops were the most cited source of remedies used. In sharp contrast to the results from Laar et al. (2017) which indicated that spiritual centers were the second most visited place for remedies, our study recorded only one client (0.9%) who had visited a spiritual center for his remedy.

In monitoring adherence to therapy, we ascertained that a relatively higher number of participants (83.78%) took their self-medicated remedies concomitantly with their ARVs. This goes to reiterate results from previous investigations that these remedies were used as adjunct treatments and not as substitutes or replacement for ART. For instance, Milan et al. (2008) estimates that about 75% of patients self-medicate with any form of traditional CAM in addition to their ART medications.

5.5 NEED FACTORS (REASONS) THAT INFLUENCE THE PRACTICE OF SELFMEDICATION AMONG PARTICIPANTS

Understanding the need factors or various reasons that motivate HIV positive patients on ART to self-medicate with other remedies is very important because these remedies could interfere with their anti-retroviral agents. In this study the need to relieve pain was the most cited reason (78.38%), followed by the desire to boost their immune system (33.33%). The finding is similar to other research findings in the US where the most common reason for using complementary medicines was to manage pain (Tsao *et al*., 2005, Bausell *et al*.,

2003). Gyasi et al. (2013) in a study in Kumasi to assess the use of traditional medicine in HIV clients also reveals that the most frequent ailments include body weakness, joint pains and headaches. Langlois-Klassen et al. (2007) also identified in a research carried out in Uganda that the majority of the PLWHA opted to self-medicate with traditional herbal medicine mainly for fever and pain. Pain management has been one of frequently given reason for SM and it has been made easier because pain relievers are generally non- prescription medicines and are easily accessible to clients. This finding corroborates the high frequency use of analgesics. The desire to boost appetite and correct anemia (28.83%) as well as manage ART side effects (15.32%) were also findings of this study which are in consonance with a study to

evaluate the use of TCAM in PLWHA in Botswana (Ntukamazina, 2015). A research by Namuddu et al (2011) concluded that clients who frequently experience ART adverse effects have higher tendency to use other remedies compared to those with less side effects.

5.6 PARTICIPANTS KNOWLEDGE ON SELF-MEDICATION

The overall knowledge level about effects of SM on ART and its associated potential harm on the client was generally poor. Out of the total number of participants, 94.4% had poor knowledge while the remaining 5.6% had good knowledge. This finding contradicts findings by Olowookere et al. (2012) and Tetteh et al (2017) where knowledge of study subjects on ART, associated interactions with other drugs, adverse effects and benefits of ART were generally good. Furthermore it was established that the knowledge level was not a significant predictor to SM (Table 4.6.1).About a third of the study participants (33.92%) said the use of non-prescribed remedies did not have any effect on ART, while 20% agreed that some of the remedies used for SM could potentiate the effect of ARVs, and 16.43% said the effect of the ARVs could be reduced. This study is congruence with that of Mark et al. (2016), done in India which revealed that most clients were naïve about the negative effects of self-medication such as adverse drug reaction, drug-drug interactions, and other side effects. On the contrary, results from Gurmu et al. (2017) suggest that about half of the participants of the study had a fair knowledge about the possible interactions that exist between TM and ART. Concerning the potential hazards associated with SM majority of participants 65.72% alluded to the fact that their condition could worsen when taking un prescribed medicines together with their ARVs, 26.87% were of the view that SM could cause delays in seeking appropriate healthcare while 11.54% and 8.04% acknowledged that the practice of SM is a recipe for the use pf substandard drugs and for drug abuse

respectively.

5.7 PARTICIPANTS ATTITUDE TOWARDS SELF-MEDICATION

The majority of participants (61.5%) had a positive attitude towards SM. This finding is similar to that of Mehta et al. (2015) which revealed that participants had a positive attitude towards SM. Among the 286 participants about half, 49.65% considered SM as an acceptable practice of self-care, 47.2% considered the practice unacceptable while 3.15% had no definite answer. More than half of the participants indicated that SM provided quick relief to ailments and was a convenient way of self-care especially when managing perceived mild and common ailments. Several studies on SM in various sub populations such as pregnant women, students, workers etc. routinely cited the afore mentioned reasons for the practice of SM (Ajuoga *et. al*,2008; Bernardin *et al*., 2013; Gurmu *et al*. ,2017;Lei *et al*., 2018). Majority of participants again indicated that it was dangerous to self-medicate when one does not have adequate knowledge on the drugs used while agreed to seek professional advice when side effects appeared. This result supports findings by Tetteh et al (2017), in a study to assess knowledge and attitude towards ART, where most HIV positive clients affirmed that they would consult their clinicians when adverse events occur. Statistical tests revealed that the attitude of participants to SM has an influence on the practice of self-medication (p value<0.00, OR 13.5, CI 6.7-27). It was established that patients with positive attitude were 13 times likely to self-medicate than those who had negative attitude to SM.

## 5.8 PREDISPOSING (SOCIO-DEMOGRAPHIC) FACTORS INFLUENCING SELF-

MEDICATION

In a regression analysis, the study findings indicated statistically insignificant differences between the practice of self-medication in relation with the various socio demographic variables. (See Table 4.8). It was established that gender was not significantly associated with SM (p value=0.68). This finding is similar to a study done in some selected ART sites in southern Ghana which revealed no association between gender and the use of non prescription remedies (Laar *et al*., 2017). In terms of age, it was revealed there was no significant association with the practice of self-medication (p value=0.88), contrary to the findings of a study by Smith et al (1999) which concluded that the age of the respondent played a significant role in the practice of SM. As established by Laar et.al, (2017) in a similar study carried out in southern Ghana the level of education did not a play a significant role in whether or not a participant self-medicate. In this study, occupational status of participants did not show significant association with SM (p value=0.07), contrary to the findings in a study in Botswana by Ntukamazina, (2015). According to Lorenc & Robinson (2013), people who are employed and have higher income levels mostly engage in SM due to lack of time to visit the hospital and also can afford to purchase their medications on their own .The results of the study failed to establish an association between the place of residence of participants and the practice of self-medication (p=0.79) unlike that of Gyasi et al., (2013) where area in which one resides was a significant predictor to the use of complementary alternative remedies. Likewise, the marital status as well as the religious backgrounds of participants was not significant determinants to the practice of selfmedication.

5.9 ENABLING (HEALTH SYSTEM) FACTORS PERCEIVED BY PARTICIPANTS TO INFLUENCE SELF-MEDICATION

For the purpose of this study certain health delivery factors that have been reported by Shaghaghi et al., (2014) to have influence on the practice of self-medication were examined. These included distance to health facility, cost of seeking health care, long waiting time in hospitals, staff attitude, confidence in health professionals, easy access to drugs and availability of drugs in health facilities. Majority of participants, (76.22%) disagreed with the assertion long distance from a health facility was enough justification to self-medicate. This could be due to the fact that most of the clients came from urban communities where access to health care facility is relatively easy. This result is however different from a study in Uganda where PLWHA cited distance to a health facility as a reason to use traditional medicine to self-medicate (Namuddu *et al*. 2011) With regards to cost of seeking healthcare 87.06% disagreed that it could influence them to self-medicate. This probably is due to the fact that majority possessed a valid health insurance card, which was the main form of health financing. (RHB report, 2017). This however, contradicts the finding of Gyasi et al. (2013) which indicates that HIV clients often result to the use TM due to high costs of seeking conventional healthcare.

In assessing access to remedies, majority (62.94%) agreed that having easy access to medicines could be a factor to influence self-medication. This result compares favorably with other research findings that cite easy access as a precursor to SM (Ajuoga *et al*, 2008; Gurmu *et al*, 2017; Laar *et a*l, 2017). Sharma et al (2012) argues that having unrestricted access to drugs especially prescription-only drugs such as antibiotics may lead to adverse drug reactions and antibacterial resistance resulting in increased morbidity and mortality in HIV patients. A

regression analysis however showed no significant association between easy access to remedies and SM. (p value=0.34). More than half of the participants (56.5%) referred to the frequent shortage of drugs in hospitals as a possible justification to selfmedicate. earlier studies. Shortage of essential medicines in hospitals was one of the main challenges cited by respondents in other studies to evaluate factors that influence SM (Afolabi, 2008; Birhanu, 2016). A review of the stock status of medicines in the hospital corroborated the finding since it was revealed that the percentage availability of tracer medicines in the facility was low (65%) due to reasons such as high indebtedness to suppliers and the challenges associated with the new national framework contract regarding procurement of medicines in public institutions (RHB report,2017).It was further established that there is a significant association between shortage of drugs and SM ; thus those who perceive that there are always shortage of drugs in the hospital are twice likely to selfmediate. (p=0.03, AOR= 1.9, CI: 1.05-3.34).
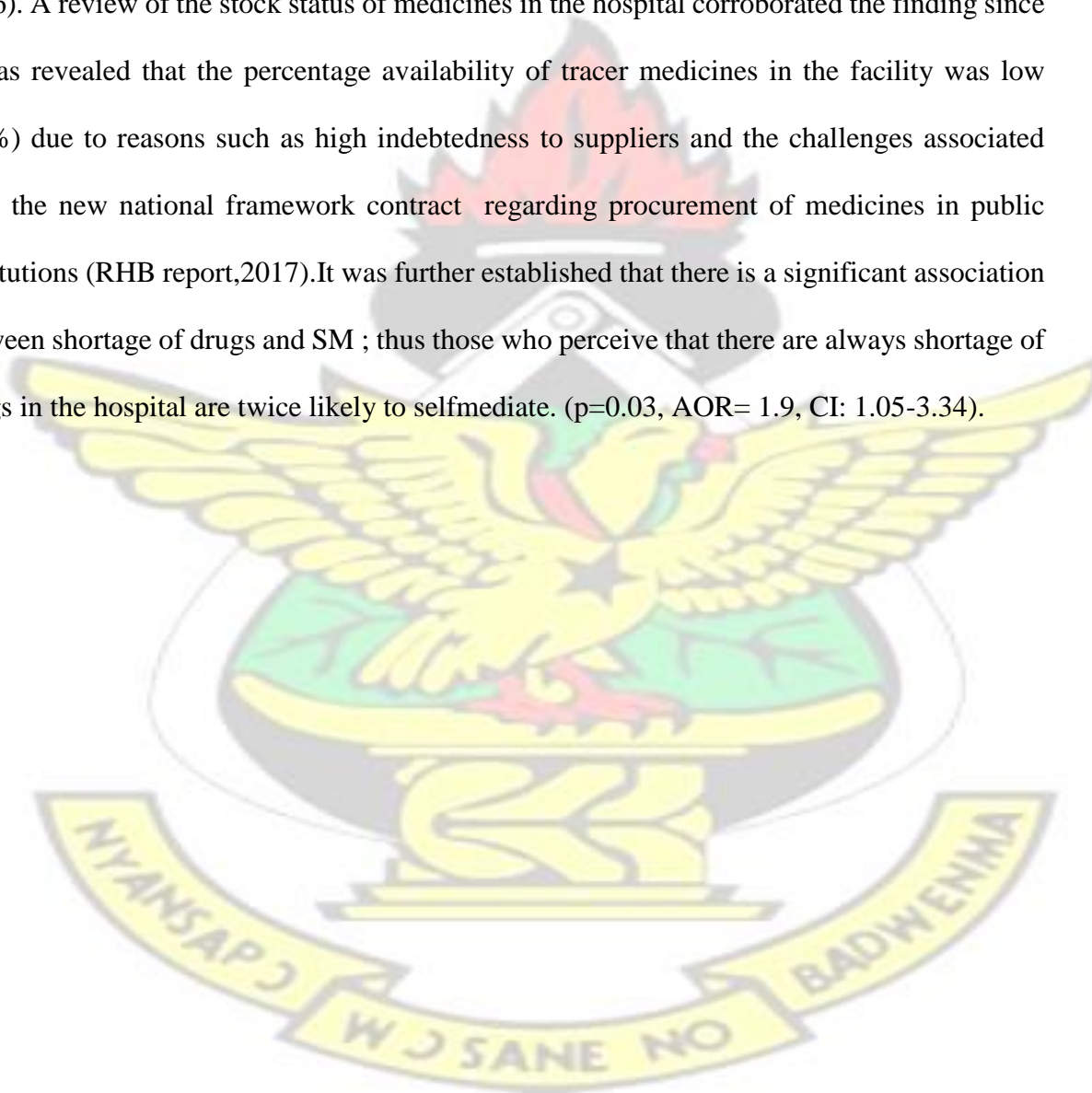
CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the conclusions and recommendations based on the results and discussions made in the previous chapters. The study set out to assess the various factors that predict the use of un-prescribed medicines by HIV adult clients, on ART in the Bolgatanga Regional hospital. The following are the conclusions as per each objective.

6.2 CONCLUSIONS

The results of this research reveal that 38.7% of the study participants practiced selfmedication. The main reason or motivating factor cited for self-medication was to relieve pain (65.2%) followed by the desire to boost their immune system (33.33%).). Accordingly, analgesics (76.58%) were the drugs most often self-medicated. The main source of these remedies were pharmacy and over the counter outlets (90.9%) and majority (88%) used these drugs concomitantly with their anti-retroviral drugs. Majority of participants (99.3%) had poor knowledge on the effects of self-medication on ART and their disease condition. More than half (57%) had positive attitude and had higher odds to self-medicate than those with negative attitude. All the socio demographic factors did not have influence on the practice of self-medication. Among the perceived health system factors evaluated, shortage of medicines in hospitals emerged as the only factor that could predict the practice of selfmedication among participants.

6.3 RECOMMENDATIONS

1. The Ghana Health Service through the Regional and District Health Directorates should routinely monitor the availability of essential medicines in all health facilities. Medicines play a pivotal role in the healthcare delivery system and to a larger extent influence patients satisfaction of services rendered in a health facility. The perennial shortage of drugs in hospitals could be due to several factors such as poor planning, inadequate financial support, procurement irregularities etc.; thus it is imperative to identify and tackle the root courses. This will reduce the "no drugs in hospitals" perception among the populace and thus enhance patronage of health services which will in turn reduce the indiscriminate use of non-prescribed remedies.

2. The findings of this research concur with various studies that the uncontrolled availability and sale of drugs on the market is a recipe for self-medication. The Pharmacy Council, Food and Drugs Authority and other security agencies need to collaborate to improve patrols at the various borders to curb the illegal entry of medicines. The appropriate sanctions for the indiscriminate sale of medicines at market places, lorry parks and even in passenger vehicles, as well as the sale and dispensing of prescription only drugs without valid prescriptions need to be strictly enforced by the appropriate authorities.

3. The findings suggest that pharmacy and over the counter outlets are the main source of remedies; hence the Pharmacy Council must ensure that the right calibre of personnel are used to man these facilities.

4. The study revealed poor knowledge about effects of SM on ART and its consequences.Tailored messages should be developed during counseling sections at

the ART clinic about the effects of SM on their anti-retroviral drugs. Counselling should incorporate psychosocial aspects and ensure all cultural believes are addressed since some of the motivating factors are rooted in improving their well- being in order to reduce stigmatization.

5. Future research could be designed to assess the practice of self-medication among pediatric HIV clients. These clients are often vulnerable and are catered for by other relatives other than their biological parents; hence it will be worth evaluating the type of healthcare they receive in terms of visiting hospitals or self-medicating in times of ill health.

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APPENDIX A

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

PROGRAM: MPH - Health Services Planning and Management

TITLE OF TOPIC: *"Predictors of Self. Medication Practices among Adults Living with HIV/AIDS in the Bolgatanga Municipality"*

QUESTIONNAIRE

Introduction

This questionnaire is to gather information on the factors that predict the practice of self-medication among adults living with HIV/AIDS. Please answer these questions as accurately as possible. Data collected will be treated with complete confidentiality and only used for the purpose of this study. Your cooperation is very much anticipated.

Thank you.

Interviewer"s code……………

Section 1: Socio demographic characteristics.

1) Sex of Respondent	2) Age of Respondent in complete years
0. Male 1. Female ☐	☐
3) Marital Status 0. Married 1.Single ☐ 4.Separated ☐ 2.Widow/Widower ☐ 5.Co habiting	**4) Educational Level** 0. None ☐ 1. Primary ☐ 2. Secondary ☐ 3. Tertiary
5) **Religion** 0. Christian ☐ 1.Muslim 2. Traditionalist ☐ 3. Other	6) **Occupational Status** 0. Salaried Worker ☐ 2.Unemployed ☐ 1. Self-Employed ☐ 3. Student
7) **Health Insurance Status** 0. Insured 1.Not insured	8) **Income Level(GHC)** 0. Less than 100 ☐ 1. 101-300 ☐ ☐ 2. 301-500 ☐ More than 500
9.) Place of residence	

Section 2. Practice of Self Medication by clients

10.) How long have you been on ART	_____ years
11. Have you ever taken medicine without doctor's prescription (self-medicate) whiles on ART (in the last 3 months) *(if NO skip to Section 3)*	0.Yes 1.No
12.) What was (were) your reason(s) to SM? a.) .Mildness of disease condition b).Quick relief c). Busy lifestyle d). Convenience e). Adequate knowledge of condition f) Others (specify)………….	 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No
13.) Conditions for which remedies were self-prescribed a.) Diarrhoea b) .Aches /Body pains c) .Nausea d) .Loss of Appetite e).Cold/Cough f).Skin Rashes/Itching	 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No

g). Sleeplessness h). Others (Specify)……..…	
14.) Please list the remedies(s) used for SM	
15.) Sources of remedies being used for **SM** a).Pharmacy/chemical shop b).Traditional healers c). Drug peddlers d).Left over medicines e) Others (Specify)……………….	0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No
16.) How do you identify your medicine? a.) By name b.) By colour c).By shape	0. Yes ☐ 1. ☐ No ☐ 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No
17.) How did you take your SM remedies **with your ART**	0.Concomitantly with ART ☐ 1.At different times with ART ☐ 2.Suspends entirely ART ☐
18.) Did you inform your health care provider at the ART clinic about remedies used for SM?	0. Yes ☐ 1. No ☐

19.) Have you ever received counselling on	0.Yes ☐
the problems that can arise when mixing ART drugs with other medicines or supplements?	1.No ☐ ☐ 2 rem

Knowledge about Self Medication by clients

20.) What do know about the use of other remedies on your ART? a.) They potentiate ART effect b.) They reduce ART effect c) They increase ART adverse events d.) They don''t have effect on ART e.).Don''t know	 0. Yes ☐ 1. No 0. Yes ☐1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No
21.) What are the expected benefits of SM with other remedies whiles on ART a.) Helps to boost immune system b) .Helps to manage HIV symptoms c) .Helps to manage ART side effects promptly d.) .Serves as nutritional supplement f.) Other (Specify)………………….	 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No

22.) What are the potential harm associated with self –medication whiles on	
ART?	0. Yes ☐ 1. No
a.) Worsening of disease condition	0. Yes ☐ 1. No
b.) Serious adverse drug reactions	0. Yes ☐ 1. No
c.) Possible usage of substandard medicines	0. Yes ☐ 1. No
d.) Drug misuse/ overdose	0. Yes ☐ 1. No
e) Delay in seeking appropriate care	
f).Others (Specify)……………	
23.) How do you know the dosage of the medicine? a).By consulting a health professional b).By consulting family members/friends c).By checking package insert d). From my previous experience e). By guessing the dosage	 0. Yes ☐ 1. No 0. Yes ☐ 1. No 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No 0. Yes ☐ 1 No ☐

Attitude towards self-medication practice by clients

24.) What is your first response to ill health?	0.Self- medication with orthodox ☐ 1.Self –medicate with local herbs ☐ 2.Visit a hospital for treatment ☐
25.) What is your view about taking medicines without a prescription from a physician?	0. Acceptable practice ☐ 1. Unacceptable practice ☐ 2. Don‴t know ☐
26.) Which of the following statements regarding self-medication practice do you agree with or otherwise? a.) Self-medication is part of self-care b) I will advise self-medication to friend or family member c) Mild medical problems do not need drug treatment d) In the case of side effects a physician‴s help must be needed e) Taking remedies without proper knowledge about them is harmful	 0. Yes ☐ 1. No 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No ☐ 0. Yes ☐ 1. No

Section 4: Health System Factors that influence the practice of SM

Please score the following statements regarding health system factors that influence the practice of self-medication. *(0: Not sure, 1: Don't agree. 2: Agree)*

27. Long distance from the hospital can influence self-medication. ☐

28. The high cost of hospital visits deters clients going to hospitals and rather self-medicate ☐

29. I will self –medicate because of the long waiting time at hospitals ☐

30. I will self-medicate to avoid the poor treatment by the hospital staff ☐

31. I don"t have confidence in the health workers ☐

32. Remedies are easily accessible to facilitate SM remedies on the market ☐

33. Hospitals medicines (NHIS medicines) are less effective ☐

34. There is always shortage of drugs in the hospitals ☐

THANKS FOR YOUR TIME
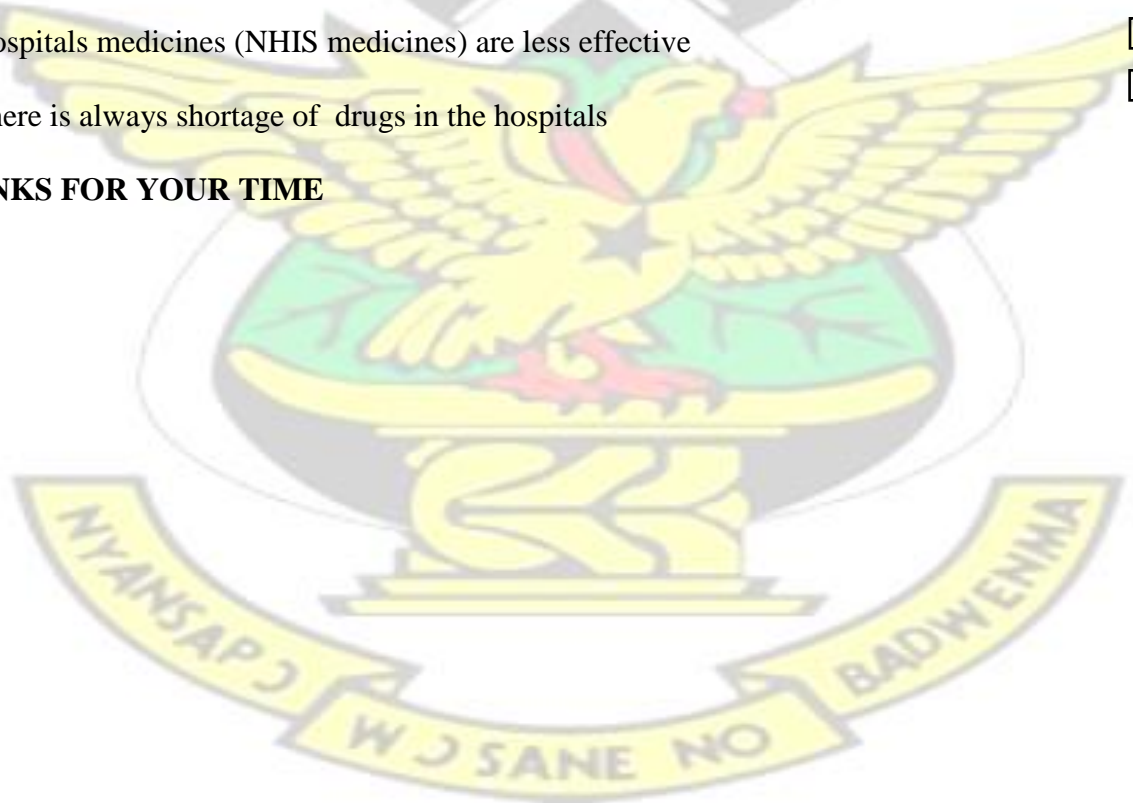
INFORMATION SHEET FOR CLIENTS

You are being invited to take part in a research study that seeks to find out what influences self- medication practice among adults living with HIV /AIDS in the Bolgatanaga Municipality of the Upper East Region of Ghana .

Before you decide to take part in this study, it is important for you to understand why the research is being done and what it will involve. Please take some time to read the following information carefully and discuss it with others if you wish. Ask the researcher if there is anything that is not clear or if you would want more information. Take time to decide whether or not you wish to take part.

Who is conducting the study?

The study is being conducted by Samuel Amoateng, a student of the School of Public Health of the Kwame Nkrumah University of Science and Technology, Kumasi.

What is the purpose of the study?

The researchers want to find out what makes adults living with HIV/AIDS in the Bolgatanga municipality to self-medicate on drugs and other substances that are not prescribed to them by their physicians or healthcare providers taking care of them. The research work is being carried out in July and August 2018.

Why have I been asked to take part?

You have been chosen to represent the views of adults living with HIV/AIDs in the Bolgatanga municipality.

What would be involved?

We have a few questions for you to respond to at any place in the facility where you feel more comfortable. The questions will find out about what you know and your attitude towards self –medication. We also would like to know about anything else that you think influences a person‟s choice to self- medicate. The interview is expected to last for up to 30 minutes.

What happens next?

If you are interested in taking part in this study then a consent form will be given to you to sign to affirm your willingness to take part in the study.

Do I have to take part?

Your participation in this study is entirely voluntary. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving reason.

What are the benefits of taking part?

There may be no direct benefits of filling the questionnaire. However, you will be providing useful and important information, which will contribute to the improvement in the general well- being of people living with HIV/AIDS with focus on medicine safety issues and adherence to their antiretroviral therapy.

Will my taking part in this study be kept confidential?

All information, which is collected, about you during the course of the study will be kept strictly confidential. No names will be recorded and so it will not be linked to you in anyway in the report of this study.

What will happen to the results of the research study?

The results of the study will be presented to the school of Public Health of Kwame Nkrumah University of Science and Technology and also published in academic journals. If you wish, you could obtain a copy of the published results by contacting Samuel Amoateng Saffoh. You will of course not be identified in the final report or publication.

Who is organizing and funding the research?

The research is being undertaken by Samuel Amoateng Saffoh, a student at the Kwame Nkrumah University of Science and Technology under the supervision from an academic lecturer. The student is funding this research.

Thank you for reading this.

CONSENT FORM

Title of Project: PREDICTORS OF SELF MEDICATION PRACTICE AMONG ADULTS LIVING WITH HIV/ AIDS IN THE BOLGATANGA MUNICIPALITY

Name of Researcher: SAMUEL AMOATENG SAFFOH

Please cross box

1. I confirm that I have read and understand the information sheet dated…………for the above study and have had the opportunity to ask questions. [ ]

2. I understand that my participation is totally voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being infringed upon. [ ]

3. I agree to take part in the above study. [ ]

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Name of subject   Date   Signature/thumbprint

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Name of Person taking consent   Date   Signature

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Researcher: Samuel Amoateng Saffoh   Date   Signature

APPENDIX C

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Ref: CHRPE/AP/411/18   17th July, 2018

Mr. Samuel Amoateng Saffoh
(Principal Investigator)
Post Office Box 34
War Memorial Hospital
NAVRONGO.

Dear Sir,

LETTER OF APPROVAL

Protocol Title: *"Predictors of Self Medication Practice among Adults Living with HIV/AIDS in the Bolgatanga Municipality in the Upper East Region of Ghana."*

Proposed Site: *Art Clinic, Upper East Regional Hospital.*

Sponsor: *Principal Investigator.*

Your submission to the Committee on Human Research, Publications and Ethics on the above-named protocol refers.

The Committee reviewed the following documents:

- A notification letter of 22nd June, 2018 from the Upper East Regional Hospital (study site) indicating approval for the conduct of the study at the Hospital.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 17th July, 2018 to 16th July, 2019 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Yours faithfully,

Osomfo Prof. Sir J. W. Acheampong MD, FWACP
Chairman

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