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SELF-MEDICATION PERCEPTION AND PRACTICE AMONG PREGNANT WOMEN IN WA MUNICIPALITY

BY

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DECLARATION

I, ADAMA SINA hereby declare that, except for other people's works which have been duly acknowledged, this work is the result of my own effort, and has not been submitted either in part or whole for any other degree in this University or elsewhere.

SIGNATURE……. DATE…….

ADAMA SINA

(STUDENT)

SIGNATURE…….. DATE……

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(SUPERVISOR)

DEDICATION

To my lovely wife, Ms. Patience Loggah and children Adama Nensom Jason and Adama Janice

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ABSTRACT

Background: There is increasing concern about self-medication during pregnancy in many low resource countries. Notwithstanding its adverse impact on pregnancy, in Wa municipality, pregnant women still engaged in the practice of self-medication. The aim of this study was to investigate the perception and practice of self-medication among pregnant women in Wa Municipality.

Methodology: A cross-sectional study was conducted in 3 health centers of Wa Municipality from May to June 2017. Simple random sampling and purposive sampling methods was used to select 367 pregnant women and the health facilities respectively. Basic descriptive statistics was performed and results presented in frequencies and percentages using tables. Simple Logistic regression and multiple logistics regression analysis were performed to determine if there was any association and strength of association between self-medication and the independents variables.

Results: The prevalence rate of self-medication was (74.1%). The mean age is 28±4.9 years. Majority of the respondents (68.9%) were aged between 25-34 years. Most of the respondents have no formal education 45.5%, and 45.5% were Self-employed.

The main factors associated with self-medication after multiple logistic regression were perceived illness as minor (COR=4.1 95% CI 2.49-6.69, p>0.001), easy accesses to non-prescribed medication (COR=10 95% CI 1.788-16.399, P<0.001) and traditional and cultural norms and beliefs (COR=4.9 95% CI 1.787-13.399, P=0.002). The main disease conditions for which self-medication was done were backache (33.1%), headaches (44.8%) and malaria (44%). Paracetamol (29%), tramadol (32.4%), coartem (16.2%) and herbal medicine (10.4%) were the drugs often used for self-medication.

Conclusion: Self-medication is a public health problem that needs urgent attention with prevalence rate of 74%. Easy accesses to non-prescribed medication, perceived illness as minor and cultural norms and beliefs were the main associated factors that had great influence in the practice of self-medication among pregnant women in this study area. Easy accessibility of medicines in the open market by respondents was mainly due to the proliferations and availability of many chemical shops and pharmacy and poor regulations of non-prescribed medications by the Ghana pharmacy council and the community pharmacist. Perceived illness as minor and cultural beliefs and norms of respondents were largely influenced by low level of education of most of the respondents in this study. Backache, headaches, lower abdominal pains, waist pain and malaria, and paracetamol, tramadol, coartem and diclofenac were conditions and drugs often used for self-medication by respondents. These medicines mentioned above are well known by respondents and easy accessible in the open market and are less expensive and therefore respondents were able to afford. Also backache, waist pain, headaches, lower abdominal pain and malaria are the medical conditions most respondents perceived as minor and were mostly treated without seeing a medical practitioner. It is therefore very imperative to embark on educational campaigns and strict legislation measures relating to drugs dispensing from chemical shops and private pharmacies, ensuring constant supply of medications to the government hospital and facilitate access to health services are among the important intervention (s) that may change the behaviour of respondents and protect them from potential dangers of self-medication.

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LIST OF ABBREVIATION

GSS……..Ghana Statistical Service

MDG……..…… Millennium Development Goal

GHS…….Ghana Health Service

GDHS……. Ghana Demographic Health Survey

GMHS…….Ghana Maternal Health Survey

WHO……World Health Organization

MOH…… ……. Ministry OF Health

GHS…….. Ghana Health Service

OTC……Over the Counter

JHS…….....Junior High School

PUD……Peptic Ulcer Disease

RTI…….Respiratory Tract Infection

PI……Principal Investigator

RAs…….....Research Assistants

ANC…….....Antenatal Care

GNA…….Ghana News Agency

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Globally, self–medication has become a public health problem due to its prevalence and harmful effects. It is been practiced in both developing and developed countries (Hanafy, Sallam, Kharboush, & Wahdan, 2016). The extent of self-medication and the reasons for practicing it may vary from country to country. The prevalence of self-medication in Nepal was 59%, in Bambi 54%, in Mexico 34% and in Ethiopia 26.2% (Befekadu, Dhekama, & Mohammed, 2014) .

In developing countries, both modern drugs and traditional medicines are commonly used for self-medication. It was also noted that, medication that can only be obtained upon physician prescription, could easily be obtained without prescriptions for self-medication in developing countries like Ghana and Ethiopia. Beside, self-medication has been made known as common health behaviour in other developing countries like Nigeria and Zambia (Yusuff & Omarusehe, 2011).

The proportion of people who self-medicate is motivated by a lot of reasons that may vary from place to place. In all however, self–medication in the advanced countries may be due to the increasing de-regulation of previously restricted drugs. The reasons had been that different types of drugs are now available over the counter for the management of all kind of different health challenges (Lettre, 2011). Again, this claims concerning the various factors influencing the practice of self-medication was mentioned in a similar study (Novignon, Mussa, Msonda, & Nonvignon, 2011).

Moreover, self-medication in the developing countries may be due to different types of factors including high cost involve in seeking professional care in hospitals,

poverty, long waiting hours in the hospitals to seek health care, lack of regulations and availability of drugs outside health facility and regulated environment (Babatunde et al., 2016).

In Ghana, there are many reasons why patients opt out of seeking modern medical care such as long waiting time, unaffordability and the distance of healthcare facility (Bonti, 2017). The long waiting lines are caused by minimal staff in healthcare facilities; some citizens wait for multiple hours before being attended to and many citizens do not have enough time to spare waiting for a doctor to attend to them. The affordability of modern healthcare have prevented Ghanaians from attending hospital and rather opt to buy modern drugs and herbs that are available and capable of curing their ailments. Also, an abundant amount of citizens do not have transportation to the closest facility because of the limited amount of public transportation coming in and out of their town. There is easy accessibility of non-prescribed drugs and herbs as many people in Ghana use medications for treatment of their ailment without prescription from a physician from the open market. With this accessibility, citizens of Ghana do not want to go to the hospital to spend long hours to see a doctor, find transportation to different towns, and this help to deal with the expenses of visiting a healthcare facility (Bonti, 2017).

Medical practitioners around the world advocate that, most people especially pregnant women should rely on hospital and licensed professionals to meet their health needs. However, there are two main barriers preventing Ghanaians from adhering to these recommendations: inaccessibility of professional medical care and the accessibility of Western and indigenous medication (herbal medicine) through pharmacies and herbalist respectively (Bonti, 2017).

People practice self-medication in order to ensure they continue to be in good health as good health is a necessity. Although self-medication has been adopted and is being practiced globally, people are not limiting themselves to over the counter drugs only, or if they are, they are not using them appropriately (Vidyavati, 2016). The practice of self-medication has gotten to a serious situation, as people use available drugs they believe, have medicinal content without knowledge on their harmful effect in connection with those specific medicines; thus, poor knowledge on the negative effect of self-medication is adding significantly to the practice of self-medication. As a result, people have developed serious harmful effects from the drugs and has also led to delay in asking for medical care at the hospital, thereby worsening their conditions (Afolabi, 2012). Secoli, (2017) stressed on the need to use Over the Counter (OTC) drugs responsibly, as irrational use of drugs predispose one to harmful implications. This is a problem in most developing countries where level of education is low, as well as poor exposure to medical information, lead to abuse of medicines (Novignon et al., 2011). Self-medication is not only limited to a particular group of people but rather all manner of people including race, age, occupational status, gender, culture, and other such groups (Afolabi, 2008). Nonetheless, the practice of self-medication is very common among people living in areas with high incidence of infectious disease (Akanbi, Odaibo, Afolabi, & Ademowo, 2004). Self–medication practice with specific medication like antibiotics, has been reported to be highly prevalent in both developed and developing countries, with the exclusion of a few developed countries (Donkor, Tetteh-Quarcoo, Nartey, & Agyeman, 2012).

The harmful consequences of self-medication are of different kinds and may include treatment failure, prolonged hospitalization, drug toxicity, increase in treatment cost and high mobility. Self–medication is more dangerous in the developing countries due

to lack of basic knowledge about the pharmacological properties of these drugs and how these drugs affects those who self–medicate (Abasiubong, Bassey, & John Akpan Udobang, Oluyinka Samuel Akinbami, Sunday Bassey Udoh, 2012).

The increasing rate of self-medication among pregnant women is not different from the general population as many pregnant women are engaged in the practice without due diligence, as a results of limited knowledge on the harmful effects on their health and foetus. The harmful effects of self-medication on the unborn child and the mother is a potential threat to their life and health which has become a global problem that needs urgent attention. In most sub-Saharan African countries such as Ghana where the health system is not efficient, the probability that women will self-medicate is high. In many developing countries, there is growing evidence that, self-medication among pregnant women is a common practice (Abasiubong et al., 2012). Pregnant women do not know which drug is safe to them and the unborn baby as many drugs are considered contraindicated in pregnancy. Controlling self-medication among pregnant women could go a long way to decrease incidence of drug related abortion, congenital malformation and maternal and child mortality related to drug misuse. The harmful effects of self-medication are serious when the individual self-medicating is a pregnant woman (Abasiubong et al., 2012). Self–medication can impose a serious hazardous effects to the unborn baby and the mother mostly in the first trimester where pregnant women self–medicate due to early morning illness. Some of hazardous effects includes: impediment in the normal growth of the baby, deficiency or problem in the development of reproductive organs, urinary retention, undescended testis and other problems (Abasiubong et al., 2012). Similar with other developing countries, self–medication is a serious health concern in Ghana since 1985 when

facility user fees was introduced which made people to engage in self-medication in order to avoid paying consultation fees and transportation costs (Gaddah, 2011)

Although, practice of self-medication is known among pregnant women, one cannot tell the prevalence of self-medication and its associated factors, the drugs mostly used and most conditions treated for with self-medication. Thus, for this reason this study investigated the perception and practice of self-medication among pregnant women in Wa Municipal.

1.2 Problem Statement

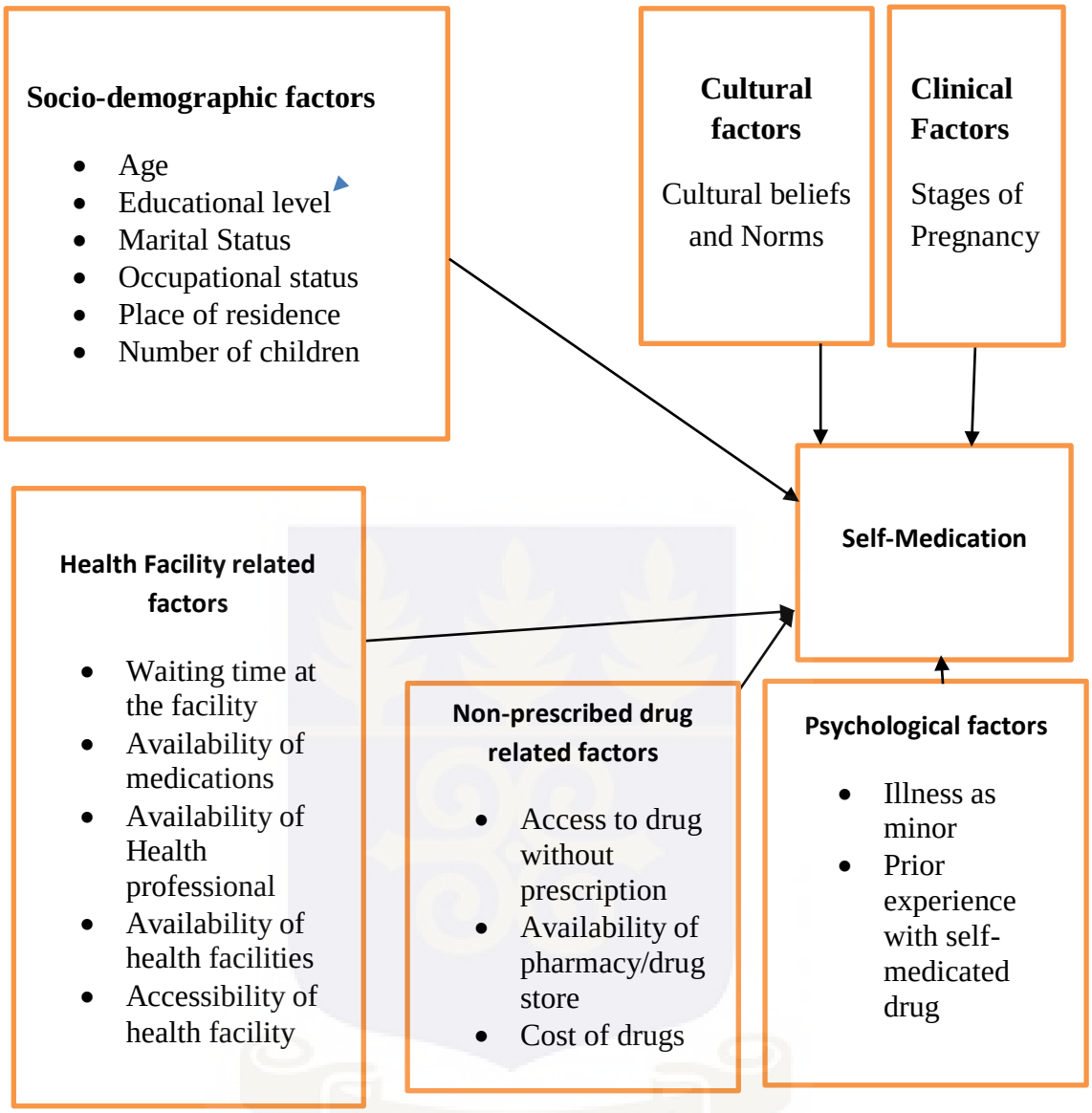
Globally, self–medication has become a public health problem due to its prevalence and harmful effects. The prevalence of self–medication among pregnant women in Yard, Iran was 35% (Baghianimoghadam, Mojahed, Baghianimoghadam, Yousefi, & Zolghadr, 2013), 10.5% in Peru (Mini et al., 2012), and 85% in Nigeria (Emmanuel, Achema, Afoi, & Maroof, 2014b). It was revealed in Egypt that the prevalence of self –medication was 86% (Rizk, Abdel-Aziz, Ashmawy, Mahmoud, & Abuzeid, 1993). Also 68.9% of pregnant women were found to have practiced self-medication in a study conducted in Ghana (Agyei-Boateng, 2015).

The situation of self-medication practice in Wa Municipality among pregnant women is a major problem and has become dangerous as many pregnant women do not longer seek health care services from qualify health professional at health facilities as they prefer to buy drugs and herbal medicine from chemical shops and herbalist for self-treatment. This account for late reporting to the hospital with a worse condition or complications as a result of self-treatment of condition with the wrong drug which could not treat the underlying condition or it might be due to complication as a result of the side effect of the drug taken. Moreover, these drugs are bought from chemical

drug sellers, drug peddlers and herbalist who have very little knowledge about drugs functions, side effects and the appropriate conditions these medications are supposed to treat. This predisposes many pregnant women and the foetus to harmful effects such as abortion, foetal malformation, maternal morbidity and finally maternal death (GNA, 2010)

Moreover, at the inauguration of a newly constructed clinic at Wa central market on 26th May 2010, Mrs Beatrice Kunfah, Municipal Director of Ghana Health Services expressed concern about the habit of pregnant women engaging in the practice of self-medication instead of visiting the hospital since they are more vulnerable to health complications. Although the practice of self-medication is known in the population especially pregnant women, one cannot tell the prevalence of self-medication and it associated factors that influence it practice, the drugs mostly used and most conditions treated for with self-medication. Thus this study was conducted to determine the self-medication perception and practice among pregnant women in Wa Municipality.

1.3 Conceptual Framework



Source: Student Author

Figure 1: Conceptual framework of factors influencing self-medication.

The conceptual framework contains both the dependant variable and independent variables. The dependent variable is self-medication practice since respondents became pregnant and the independent variables are grouped in to six major broad factors. These factors include socio-demographic factors, clinical factors, health facilities related factors and non-prescribed drug related factors, psychological factors and cultural factors.

Description to Conceptual Framework

Socio-demographic related factors such as educational status, age, marital status, occupational status, place of residence, number of children and NHIS status can have both positive and negative effects on the practice of self-medication. Some research results shows that the prevalence of self-medication in educated people is more because of their access to information about drugs. However a similar study revealed no association between educational status and self-medication. Okumura et al., (2002) also argues that higher education increases self-confidence about accurate drug use and with it probability of self-medication. According to Afolabi (2012), the high rate of people inability to read labels on drugs and poor access to medical information in most developing countries could be a major contributing factor to high prevalence of self–medication. Moreover, the educational level of a pregnant woman can influence practice of self-medication both positively and negatively. The ability to read drug labels and have basic knowledge on the pharmacological properties of drugs, make one better informed on the harmful effects of drugs and hence will appreciate the need to see a physician before taking any medicine. However, a pregnant woman with no formal education or low level of education cannot read, left alone know composition of drugs, whether is safe for consumption, is most likely to practice self-medication (Aishwaryalakshmi, Sasikala, Sreelalitha, Vigneshwaran, & Padmanabha, 2012).

Also there has been a study to suggest a relationship between self-medication and people who are self-employed. People that are self-employed are often independent and are used to making autonomous decisions about their lives including their health (Figueiras et al., 1999). This independence, in addition to the fact that self-employed people may be unwilling to leave their businesses unattended to in order to visit the

hospitals, especially when the disease condition is considered not serious, are likely to engage in the practice of self-medication.

Again pregnant women living in rented houses and with their parent are more likely to self-medicate due to the influence of friends and relatives to the introduction of drugs and herbs, they might have had previous experience on when the person complains of similar symptoms or disease condition. A pregnant woman living with the parent may not get the money to afford health care and may be force to listen to the advice of the parent to either take a left over drug or buy from the chemical shop or take herbal medication. Study conducted by Befekadu, Dekama, et al., (2014) revealed that, place of residence was statistically significantly associated with practice of self-medication.

Also, the number of children a pregnant woman has, makes her familiar with the symptoms associated with pregnancy especially in first and third trimester and the drug mostly prescribed by the physician to treat the condition any time she visited the hospital and hence she is more likely to self-medicate compared to a person who became pregnant for the first time and has no child may want to visit the hospital to see a doctor any time she is not well (Befekadu, Dhekama, et al., 2014). Pregnant women with national health insurance are more likely to visit the hospital to meet the doctor for proper health care than those without NHIS who will have to pay huge sums of money to access health and therefore are more likely to practiced self-medication (Porandokht, Solmaz, Shanaz, Zahra, & Hamed, 2014).

Also clinical factors such as trimester of pregnancy is a major variable that can influence a pregnant woman to self-medicate. Generally pregnant women in their first trimester, have early morning sickness which causes a lot of discomfort to them. Also waist and lower abdominal pain are common symptoms in the third trimester. This

suggests that pregnant women in their first and third trimester are more likely to self–medicate compare to those in the second trimester. Therefore pregnant women in these stages of pregnancy want to take drug to relief pain and discomfort. Moreover, the younger a person is, the higher the propensity of self-medication. Younger persons are more likely to self-medicate compared to respondents who are older (Emmanuel et al., 2014).

Moreover, health related factors such as availability and accessibility of health facility, skilled health professional and availability of medicines in the facility, cost of transportation and accessibility of transportation to the health facility can have much influence on the practice of self-medication both positively and negatively. Pregnant woman who has access to a health facility as well as affordable health care is likely not to engage herself in self-medication. The availability and easy accessibility of health facilities, skilled health personnel, medicines in the health facility, low cost of lorry fair and easy access of transportation will motivate pregnant women to seek for appropriate medical care therefore reducing the incidence of self-medicine compare to those with some difficulties (Yusuff & Omarusehe, 2011).

Furthermore, psychological factors such as perceived illness as minor and prior experience with drugs may influence a pregnant woman to self-medicate or not. Pregnant women who have perceived illness as minor are more likely to practice self-medication compared to those who have perceived illness as serious. Also pregnant women that had some experience with some drugs used in the past to treat particular symptoms or disease condition are more likely to self-medicate when they experience the same symptoms compared to those who did not (Agyei-Boateng, 2015).

Again, easy availability and accessibility of drugs in the open market can influence pregnant woman chances of self-medicating. That is pregnant women that have easy access to drugs in terms of it availability and affordability, are more likely to self-medicate compared to those who live in areas where accessibility to drugs at the chemical chops is a major problem are more likely not to self-medicate but will rather visit the health facility or see a health professional for medical care (Togoobaatar, Napolitano, Izzo, Di Giuseppe, & Angelillo, 2010).

Also, cultural factors such as cultural beliefs and norms can influence the practice of self-medication both positively and negatively. The beliefs that people have of the existing health systems as well as of their own diseases and conditions inform their health seeking behaviours, including self-medication. Sometimes, traditionally held beliefs and myths inform or influence self-medicating attitudes. Thus, people self-medicate because of traditionally held belief or perception. In a research on the self-medication attitudes among pregnant women in Nigeria for instance Abasiubong et al., (2012) found that respondents had perception that some herbal products originated from the gods and thus they preferred to treat themselves with herbal drugs than to seek conventional medical care.

1.4 Research Questions

The following research questions guided this study.

1. What is the proportion of pregnant women that self–medicate?

2. What factors inform pregnant women to self- medicate?

3. What drugs are most use and conditions treated for without physician prescription?

1.5 General & Specific Objectives

1.5 1 General Objective

To investigate the perception and practice of self-medication among pregnant women in Wa Municipality.

1.5.2 Specific Objectives

1. To determine the proportion of pregnant women who self-medicate
2. To examine the factors that inform the practice of self-medication
3. To identify drugs often used in self-medication and most conditions on which self-medication is done.

1.6 Significance of Study

Self–medication practice exposures one to potential harmful effects of medicines and also account for the reasons why people seek for hospital intervention late, thereby complicating ones condition particularly among pregnant women.

Despite all the harmful effects linked with self-medication, pregnant women are still practicing it. The high prevalence of self-medication as seen in most of the studies could largely be due to lack of knowledge on the harmful effects from irrational use of medicine especially among pregnant women. Results of this study will therefore be important in facilitating development strategies that will be used in addressing the prevalence of self-medication by providing baseline information about the current prevalence of self-medication and related factors. This is useful in planning a health education program that can be implemented during antenatal sessions and public enlighten at both local and national level which will help reduce maternal morbidity and mortality as well as abortion in early cyesis and fetal malformation as a result of the tetratogenic effects of unsafe drugs on the fetus.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on self-medication perception and practice among pregnant women. The review is arranged thematically under the following headings: Global situation of self-medication, Prevalence of self-medication among pregnant women, Factors influencing self-medication, the most frequently used drugs and the most conditions treated for self-medication among pregnant women. Self-medication can be define as the use of medicine to treat self-identified disorders and symptoms, the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms (Donkor et al., 2012). Self-medication is manifested when people use over the counter drugs to treat minor health challenge (Emmanuel et al., 2014). Self-medication is the act of selecting and taking of any medicine for treatment of self-diagnosed illnesses or symptoms without the physicians prescription (WHO, 2010)

2.2 Global Situation of Self Medication

Worldwide, self-medication is a common phenomenon and has been said to be on the increase (Arikpo et al., 2010; Jain et al., 2011; Abasiubong et al., 2012). Rahman et al., (2008) disclose that almost 80% of the population in the world depend on the use of unconventional medicines as the first source of health care. There is always the risk of seeing self-medication as a phenomenon in the developing countries. Nevertheless, even in the most advanced countries like the United States, it has been projected that almost one third of the population practice self-medication using herbal medicines. This is also similar in countries like Malaysia (Rahman, Sulaiman, Ahmad, Daud, & Hamid, 2008)

In developing countries, self-medication, encompass the use of herbal remedies as a main form of health care which is very common among the population (Oreagba, Efuntoye et al., 2011). In Kenya, the prevalence of self-medication with antibiotics was 53.5% (Misati, 2012), while in Malawi it was 56% (Norignon et al., 2011). Self-medication is also very common form of health care and is high in Asian countries like Mongolia and in Vietnam (Togoobaatar, Napolitano et al., 2010). Thus, self-medication is there in both developing countries in Africa and in Asia. A research done in Ghana by Van Den Boom, Nsowah-Nuamah, & Overbosch, (2008) have revealed that self-medication was principal means by which Ghanaians deal with diseases. The authors further explained and projected that one out of every two Ghanaians self-medicated, especially in the rural areas.

Togoobaatar, et al., (2010) in their study of mothers in Mongolia also revealed an increase incidence of antibiotic use for respiratory tract infections and for non-specific diarrhoea or sore throats. There is evidence to show that in Africa, persons who self-medicate get their medications and information on these drugs from non-pharmacists and non-trained personnel (Yussuf & Omarusehe, 2011). Quack pharmacists and drug peddlers are also common and source of information for self-medicated drugs in less developed countries (Salisu & Prinz, 2009). The quack pharmacists and drug peddlers often operate in and around large markets and parked vehicle stations and often target unsuspecting travellers (Salisu & Prinz, 2009). Abasiubong et al., (2012) pointed out that, the sources of the drugs, the quality of the drugs bought from these sources and the efficacy of the drug associated with information received from these sources are themselves questionable (Abasiubong et al., 2012).

2.3 Prevalence of self-medication among pregnant women

In a study conducted among 920 pregnant women in Health Centers of Bukawu town, DRC, results revealed a 59.9% prevalence of self-medication among pregnant women interviewed. This study according to the author was conducted to investigate the prevalence rate of self-medication and it associated factors among pregnant women attending antenatal care (Mbarambara et al., 2016). The prevalence rate of self-medication practice revealed in different studies around the world are: Yard, Iran (35%) (Baghianimoghadam, Mojahed, Baghianimoghadam, Yousefi, & Zolghadr, 2013), Addis Ababa (12.4%) (Kebede, Gedif, & Getachew, 2009), Peru (10.5%) (Mini et al., 2012), Ghana (68.9%) (Agyei-Boateng, 2015), Egypt (86%) (Rizk, Abdel-Aziz, Ashmawy, Mahmoud, & Abuzeid, 1993), and Nigeria (85%) (Emmanuel et al., 2014).

The incidence of self-medication among women has been said to be high compared relatively to the incidence among men, due to the physiological stress that women usually experience. For example during menstruation there is higher likelihood of a woman towards self-care (Figueiras et al., 2000). For many women, menstrual periods always come with a lot of pain, stress and discomfort which are always managed with home-made remedies or over the counter medications (Figueiras et al., 2000).

2.4 Factors influencing Self Medication

The factors influencing self-medication are grouped into five main broad sections. These factors include: socio-demographic factors, health facility related factors, non-prescribed drug related factors, psychological factors and cultural factors.

2.4.1 Socio-Demographic Factors

Mbarambara et al., (2016), revealed that there was no significant relationship between age and use of self-medication practice. The author revealed that respondents aged

between 25years and above, have reported the highest self-medication practice. Also findings from the study differ from study conducted by Befekadu, Dekama, & Adem (2014) which revealed significant association was observed between self-medication practices with age. Emmanuel et al., (2014b) revealed that the practice of self-medication is different across ages. The younger a person is, the higher the propensity of self-medication. This implies that health education about the dangers of self-medication should be focused more on younger women in a situation of scarce resources.

There has been a study to suggest a relationship between self-medication and people who are self-employed. Self-employed people are often independent and are used to making autonomous decisions about their lives including their health (Figueiras et al., 1999). This independence, in addition to the fact that self-employed people may be unwilling to leave their businesses unattended and visit the hospitals, especially when the disease condition is considered as not so serious might also have contributed to the high incidence of self-medication within this sample of respondents.

Agyei-Boateng (2015) revealed that self-employed respondents were more likely to self-medicate than their counterparts in her study. Moreover, Emmanuel et al., (2014a) 25% revealed that 25% of participants in their study were self-employed. Befekadu, Dhekama, et al., (2014) noted that 45% (144) of women in their study were Muslims and six respondents were Catholic. Results in a similar study by Agyei-Boateng (2015) revealed 79% of respondent were Christians. This is because both religion (Christianity and Islam) frown on pre-marital sex, as well as getting pregnant out of wed-lock (Cline, 2014)

Also, a study conducted by Agyei-Boateng (2015) revealed that majority (74.3%) of the respondents were married. Gebremedhin & Gomathi, (2014) reported that 95.5% of the respondents who took part in the study were married and a bivariate logistic regression shows that respondent's marital status was significantly associated with self-medication. Findings of a study indicated that, patients with lower educational level might have more trust in physician's advice. Patient's knowledge of drug therapy and disease still remains poor and patients memory of instructions given by physicians is poor, 50% of the information will be forgotten immediately. Lack of communication and lack of patient uptake of information may account for the marked up to 55% patient deviation from prescribed drugs (Aishwaryalakshmi et al., 2012). Similarly, a study conducted in Ethiopia revealed that, educational status significantly associated with self-medication (p=0.003). According to the author, low maternal education increases respondent's chances of practicing self-medication (Befekadu, Dekama, et al., 2014). Also Afolabi (2008) conducted a study to determine the factors influencing the pattern of self-medication in adult Nigerian population. In that study, he find out that, majority of the market women who self-medicated were literates. According to Porandokht et al., (2015), educational status was found associated with self-medication (p=<0.0001), most prevalence was seen in people with a university education (37.56 percent). According to the author, respondents with higher educational level are more likely to self-medicate compared with respondents with low level of education. Some research results show that the prevalence of self-medication in educated people is more because of their access to information about drugs. However a similar study revealed no association between educational status and self-medication. Okumura et al., (2002) also argues that higher education increases self-confidence about accurate drug use and with it probability of self-

medication. According to Afolabi (2012), the high rate of people inability to read labels on drugs and poor access to medical information in most developing countries could be a major contributing factor to high prevalence of self–medication. Moreover, the educational level of a pregnant woman can influence practice of self-medication both positively and negatively. The ability to read drug labels and have basic knowledge on the pharmacological properties of drugs, make one better informed on the harmful effects of drugs and hence will appreciate the need to see a physician before taking any medicine. However, a pregnant woman with no formal education or low level of education cannot read, left alone know composition of drugs, whether is safe for consumption, is most likely to practice self-medication (Aishwaryalakshmi et al., 2012)

Self-medication is common among persons living in malaria endemic areas (Manzi et al., 2012). Malaria is one of the most common disease conditions for which pregnant women self-medicate (Manzi et al., 2012). A study conducted by Befekadu, Dekama, et al., (2014) shows that, place of residence was significantly associated with self-medication. The practice of self-medication among respondents without healthcare insurance revealed to be more representing 89.4% and according to author, there was significant relation between self-medication and having healthcare insurance (Porandokht Afshary et al., 2015)

Findings of a study conducted by Befekadu, Dekama, et al., (2014) also revealed that self-medication was associated with number of children with a p-value of 0.001.

2.4.2 Clinical Factors

Since pregnancy is usually followed by nausea, vomiting, back and waist pain, pregnant women, often self-medicate to treat these ailments as well (Yussuf &

Omarusehe, 2011). Moreover, author revealed that majority of respondents 58.3% were in their third trimester and the third trimester of pregnancy is often associated with several disease conditions including nausea, waist pains, and headaches, among others. Consequently, there is association between the third trimesters of pregnancy with increase in self-medication (Yussuf & Omarusehe, 2011). Also another study has shown that, stage of pregnancy was related with self-medication (Porandokht, Solmaz, Shanaz, Zahra, & Hamed, 2014).

2.4.3 Health Facility Related Factors

In sub-Saharan Africa, the practice of self-medication is high because of the extent of poverty and limited health care systems and facilities (Arikpo et al., 2010). Self-medication as a health seeking behaviour has been considered as a potential threat to the health of people who practice it. Nonetheless, in places where health facilities are not there or far away, self-medication is sometimes enhanced and motivated for the treatment of certain conditions (Yussuf & Omarusehe, 2011). However, this can only be appropriate if people have adequate information or knowledge about their health conditions (Yussuf & Omarusehe, 2011).

Furthermore, according to Salisu & Prince (2009), it is better known for Ghanaians to treat themselves first when sick, instead of seeking professional medical care from health personnel at the health facility. This conduct among the entire Ghanaian populace is primarily to lower cost of consultation and cost of transportation to and from the hospital or health care facilities particularly for the rural areas where residents have to travel for considerable distance to access health care.

Van den Boom et al., (2008) investigating self-medication in Ghana pointed out that access to health care is still a problem in the rural areas compared to the urban areas

where health care provision is prominent to the detriment of the rural areas. The authors pointed out that the Ghana governments health policies have attached very little importance on providing preventive health care for rural residents but instead on curative health care, and has become less imperative in the provision of basic health care for rural residents (Van Den Boom et al., 2008). In addition to many other problems, these according to the authors have a propensity to maximise the practice of self-medication among many of the residents in Ghana. Other reasons that amount to the high practice of self-medication were poverty, ignorance and lack of education, and inadequate health care (Jain, 2011). In total, policies, systems and structures at the state and structural level affects and influence the health seeking behaviour of people and can be seen as some of the reasons of the high practice of self-medication.

The hard nature and discomfort associated with accessibility to and use of health care is an important challenge for the government of Ghana to overcome. This embodies the challenge of lowering self-medication and enhance good health seeking behaviour among the general Ghanaian populace (Van Den Boom et al., 2008).

Moreover perception of the formal health systems, and of their disease conditions also influence the practice of self-medication. Jain et al., (2011) pointed that the incidence of self-medication is linked to the perception of people concerning the quality of a country's health care system. The authors indicated that people wish to have greater control over issues regarding their health and thus people are increasingly tending to self-medication rather than endure the inconvenience that are linked with going to the hospital and or health care facility and seeing a health professional (Jain et al., 2011). The dissatisfaction of patients concerning the type of services they get at the public health facilities and from health personnel such as long waiting time to see doctor and no availability of medications are among the main factors influencing self-medication

globally (Yussuf & Omarusehe, 2011). That is to say that, a patients anticipation of the services that they will get at various health centres is enough to scare the patient from seeking formal modern health services and to tend to self-medication.

2.4.4 Non-prescribed Drug Related Factors

Government actions and inactions including the health structures and health policies showing in various countries can influence the health seeking attitudes among people in various parts of the world. The WHO for example disclosed that more than 50% of all countries do not implement basic policies that will help enhance better health seeking behaviours among its citizen (WHO, 2010)

The WHO disclosed that more than 60% of clients in the public sector and 70% in the private sector do not seek health treatment according to laid down and proper clinical guidelines. As a result, these people engaged themselves in poor health seeking behaviours, including self-medication (WHO, 2010). Thus, policies, actions and inactions of governments and state authorities have great direct effect and sometimes indirectly leading to an increase in self-medication as a health seeking behaviour among people in various parts of the world. Some governments openly put policies in to effect that make self-medication more common among its populace (Bradley & Blenkinsopp, 2010). Literature on self-medication in the United Kingdom disclosed that government view self-medication as a means of making consumers share in the cost of health care, and take away pressure on the health insurance scheme. In the process, government aim to divert some of the responsibility and cost of health care to consumers in their respective countries (Bradley & Blenkinsopp, 2010). This makes different types of drugs for treating a large variety of disease conditions which are there to consumers than were previous. When this occurs, some

people are less likely to suffer the inconvenience at health facilities, especially when the illness is non-serious and rather turns to using over the counter medication.

Moreover, the vigorous media advertisements done by pharmaceutical companies is one of the major causes of self-medication in many developed countries (Figueiras et al., 1999; Okumura et al., 2002). In places like Vietnam, research has indicated that the introduction of free market economy, which leads to an increase in establishment of private pharmaceutical companies and later increase in number of pharmaceutical drugs like antibiotics, has led to a high incidence of self-medication (Okumura et al., 2002). Togoobaatar et al., (2010) further repeat that in countries that were initially socialist like Mongol and Vietnam, the introduction of free market economies has accounted for rapid rise in the number of private pharmacies making drugs available to individuals without prescription (Togoobaatar, et al., 2010) .

Abasiubon et al., (2012) have pointed out that the failure of several governments and state authorities to ensure existing drug regulations work and later control the sale of drugs (including expired and counterfeit drugs) is the main cause of self-medication. In developing countries, the incidence of self-medication becomes more dangerous by poor regulation, distribution, and sale of prescription drugs (Togoobaatar et al., 2010). This lack of control, in addition to high costs of health care, has been cited as some of the causes of self-medication (Togoobaatar et al., 2010).

2.4.5 Psychological Related Factors

Van den Boom et al., (2008) explain that sometimes people feel or think that they know the symptoms and management of most of the common disease conditions and symptoms and so there is no need to visit the hospital but to manage it themselves when they fall sick or get unwell. The authors further indicated that, some people practice self-medication because they perceive illness as minor. Thus, where people

feel they know their disease conditions, and feel that the disease conditions are not severe enough to warrant the attention of medical personal, they are more likely to practice self-medication. This becomes worse when a person because of previous experience, not satisfied with available health services. Together, these maximize the probability of a person tending to self-medication rather than visiting a health facility. In all, several reasons including personal beliefs and perceptions have great effects on the health seeking behaviours of people, including self-medication.

Sometimes people have a misconception about the effectiveness of a specific drug or medication. Among parents in American, European, and Asian countries for example, misconceptions about the efficacy of antibiotics are the main reason that has increased self-medication (Togoobaatar et al., 2010).

2.4.6 Traditional and Cultural belief Factors

Traditional beliefs and myths has influence on self-medication attitude. In a research on the self-medication perception among pregnant women in Nigeria for example, Abasiubong et al., (2012) revealed that respondents were having mind-set that some herbal products were gift from the gods and thus they liked to manage themselves with herbal drugs than to ask for conventional medical care.

Concerning herbal medicines one of the main factors causing self-medication among pregnant women is their perception. For some pregnant women herbal medicines are more potent in curing diseases particularly in their natural form and thus is seem to be much safer during pregnancy (Fakeye et al., 2009). Researches carried out in Canada and Italy found out that some pregnant women liked herbal medications because they see herbal medications to be safer than conventional pharmaceutical drugs. They see herbal medication to be safe, natural with little side effects (Tabatabaee, 2011). In addition, herbal medicines are less expensive compared to other modern medicines

and so attract low income consumers who may be unable to afford modern medical treatments (Fakeye et al., 2009).

In addition to the factors given above, there are other factors that is associated with the traditional and religious beliefs that people hold all over the world. In some areas, herbal medicines are believed to prevent a woman from losing her pregnancy before it due date (miscarriage) and also protect mother and foetus from witches (Abasiubong et al., 2012). These mind-sets or discernments are strongly held traditional beliefs that influence the health seeking behaviours of people, including pregnant women. Malan & Neuba, (2011) mentioned that in some areas of Africa, herbal medicines are used to assist pregnant women deliver a beautiful baby or to enhance smooth delivery. A study conducted in Cote d"Ivoire among pregnant women have elaborated factors such as the desire to have babies that are cheerful and dark in complexion (Malan & Neuba, 2011). Drugs and herbs are self-medicated to make nice babies, to bring about easy labour, and to prevent miscarriages (Malan & Neuba, 2011). Although these beliefs may look strange to many, they do have significant effects, and they affects the health seeking behaviour of people in various parts of the world, both educated and uneducated.

Availability and accessibility of drugs in the open market can influence pregnant woman chances of self-medicating. Thus pregnant women who have easy access to drugs in terms of it availability and affordability are more likely to self-medicate compare to those who lives in areas where accessibility to drugs at the chemical chops is a major problem. Also pregnant woman who have access to a health facility as well as affordable health care is likely not to engage in self-medication. The availability and easy accessibility motivate pregnant women to seek for appropriate medical care therefore reducing the incidence of self-medicine (Bonti, 2017)

2.5 Most Frequently used drugs for Self-Medication

Across various continents and among different cultures of the world, various types of drugs are self-medicated and sometimes over used. There are some medicines that, all over the world are common as self-medicated drugs. Antibiotic over use for example is common world-wide (Okumura et al., 2002). In a study of 605 mothers in Vietnam for example, Okumura et al., (2002) disclosed that 96 different types of antibiotics were kept in 76 different households and that 84 of these antibiotics had been bought without prescription. Togoobaatar et al., (2010) also revealed that almost 50% of antibiotic use globally is privately purchased without prescription. The high use of antibiotics world-wide could be explained by its effectiveness against some of the most common disease conditions like colds and flu, coughs, and diarrhoea. Since these disease conditions are common and generally seen to be less dangerous, they are more likely to be manage with medicines like antibiotics, which can easily be bought over the counter.

In addition to antibiotics, other studies have revealed that, the most commonly self-medicated drugs are those drugs for the management of pain, stomach ulcer, cough and colds, flu, and throat infections. Some of these drugs are analgesics like diclofenac, paracetmol, antacid, antihistamines, cough syrups, vitamins, and steroids (Okandeji-Barry, Otovwe, & Orakwe, 2016). Furthermore, (Arikpo et al., 2010) disclose that in addition to the modern medicines that are self-medicated, some people take other drugs to treat their ailments. Unconventional drugs are among the common drugs used worldwide. Tabatabaee (2011) suggest that a quiet number of people globally, have tested at least one herbal product before. Pregnant women, often use herbal medicines that are mostly self-medicated (Kennedy et al., 2013). Traditional medicine and herbs of various combinations have been used by pregnant women

mostly without more knowledge of the effects of these medications (Abasiubong et al., 2012).

Available literature pointed out that in most Africa countries, the use of herbs during pregnancy is common (Malan & Neuba, 2011), and common in Cote d‟Ivoire, Ghana, Nigeria and other African states (Fakeye et al., 2009). Fakeye et al., (2009) noted that research evidence revealed self-medication of herbal medicines to be common among pregnant women in Finland, Australia and United States. Moreover self-medication with herbal medicines has been reported all over among pregnant women particularly in Africa (Yussuf & Omarusehe, 2011).

In some communities, older people in the community as well as other local persons seen as knowledgeable in drug issues, seems to have information on drugs and as a source of drugs per se (Malan & Neuba, 2011). In a study, Bright, (2013) found that respondents, who believed in the potency of herbal medicine, expressed a willingness to recommend it to others. Thus, people who have earlier experience with self-medicated drugs are also a source of information on these drugs for others since they are seen as experts of that sorts on self-medication. Concerning herbal medicines, people in developing countries mostly have unregulated access to them since they can be sourced from backyard gardens, trees and from flowers (Fakeye et al., 2009).

2.6 Disease Conditions for which Drugs are Self-Medicated

Self-medication is very common among persons living in high malaria prevalent areas (Okanbi et al., 2005). Consequently, malaria is one of the main disease conditions for which pregnant women self-medicate drugs (Okanbi et al., 2005). In addition, since pregnancy is usually accompanied by nausea, vomiting, back and waist pain, pregnant women often self-medicate to treat these ailments as well (Yussuf and Omarusehe, 2011). Chisolm et al., (2010) also join the argument that pregnant women mostly self-

administer drugs to cure a condition known as depression. According to these researchers, evidence regarding the relative benefits of antidepressant use during pregnancy is growing. The decision to prescribe an antidepressant medication to a pregnant woman is complex and requires an individualized appraisal of risk to the foetus of medication exposure, risks to the mother, foetus, and neonates approximately 4–11% of women are exposed to at least one prescribed psychotropic medication. Many depress women, in consultation with their physicians, proactively decide to take an antidepressant during pregnancy. In addition to self-medicating drugs to treat depression, other disease conditions for which drugs are self-medicated include fever; body pains, indigestions, and diarrhoea (Jain et al., 2011). Stomach upset and bowel irregularity are other conditions usually treated with self-medication (Eticha, Mesfin, Unnikrishnan, Rekha, & Mithra, 2014).

Togoobaatar et al., (2010) in their study of mothers in Mongolia also found a high incidence antibiotic use for respiratory tract infections and for non-specific diarrhoea or sore throat.

Though some research has been done on self-medication among the general Ghanaian populace, there are very little research on self-medication among pregnant women in Ghana. Available literature for example does not give sufficient insight on which groups of pregnant women are more likely to self-medicate, which drugs often used in self-medication, the factors influencing self-medication perception and practice among pregnant women. For example the Ghana Maternal Health Survey (GMHS, 2009); the Ghana Living Standards Survey (GSS, 2008); and Ghana Demographic Health Survey (GDHS, 2008); do not directly address the issue of self-medication and its potential effect on the health of pregnant women and their foetuses. This clearly shows a major gap and weakness in literature which this research seeks to address.

CHAPTER THREE

3.0 Methods

3.1 Introduction

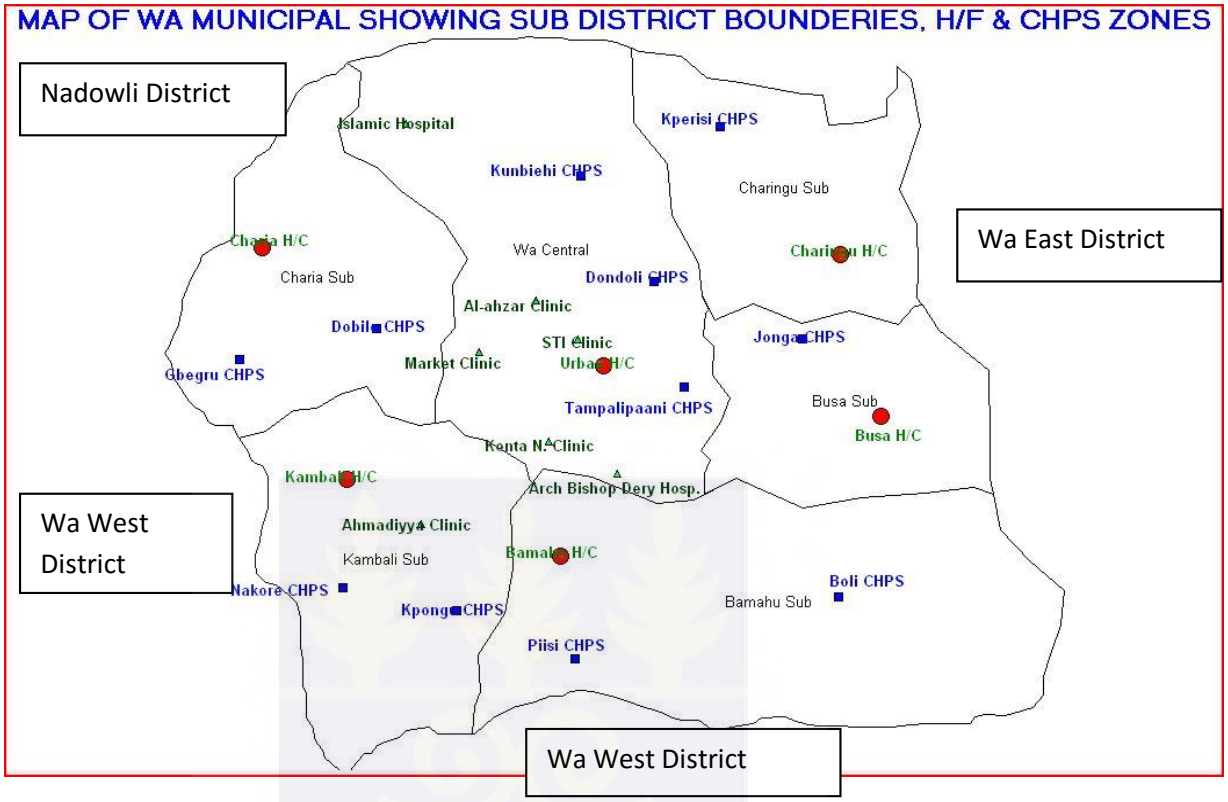
This chapter describes the procedures that were carried out in order to achieve the objectives of the study. It provides information on the study type, research design, study location, study population and study variable. It also provides information on sample size, sampling methods, and data collection methods, data analysis procedure and ethical clearance.

3.2 Study Design

The study is a quantitative study. A cross-sectional study design was used to achieve the objectives of the study because the study pertains to a large population and aims at quantifying the variables at a point in time. It provided quick and easy data gathering with regard to limited time allocated for the study to be accomplished. It was able to capture the required data necessary for analysis based on the outlined objectives of the study. The study was conducted in three health facilities among pregnant women. During this study, pregnant women attending Antenatal Care were studied to determine the proportion of pregnant women that had practiced self-medication, the factors that influence pregnant women to self-medicate, the drug mostly used for self-medication and the conditions for which non-prescribed drugs were used to treat. The entire duration of the study was six (6) months and field work was done for a period of four (4) weeks between 15th May to 15th June, 2017 using structured questionnaire.

3.3 Study Location

Figure 2: Map of Wa Municipal



Source: Wa Municipal Health Directorate

3.3.1 Description of study site

The 2010 population census gave Wa Municipal a total population of 107,214. The Municipal has a population of 12,032 for the year 2016 projected from 2010 population census, using a growth rate of 1.9% *(Source: Ghana Statistic Service, 2011*). It has 132 communities with paramouncy, 4 area councils and 1 urban council. The major ethnic groups in the municipality are the Walas and Dagaabas, and other tribes in the minority. It is a male dominated community with polygamy and discrimination against women in life's choices including health, education and engagement in economic activities. Ethnic groups help in the choice of languages to use at the various media station to reach the general public.

3.3.2 Education

It is estimated that only about 15% of the adult population of the municipal are literate. There are a total of 110 primary, junior and secondary/technical schools and two higher institutions; integrated development studies faculty of the University for Development Studies (UDS) and the Wa Polytechnic. These impacts on the burden of health service delivery when they are on campus.

3.3.3 Health Structures

The municipality has 35 facilities comprising 6 sub municipals, 22 CHPS zones, 4 satellite clinics and private facility. There are 132 communities with 264 Community Based Surveillance Volunteers and 264 Community Based Agents. All these structures would assist in social mobilization, dosing of eligible children etc. for the success of the campaign.

3.4 Variables of study

3.4.1 Dependent variable

The main dependent variable is self-medication.

3.4.2 Independent variables

The primary independent variables that were studied to achieve the objectives of the study are: availability and accessibility of drugs, availability of chemical shops, cultural norms and beliefs, stage of pregnancy, educational level, national health insurance status, availability and accessibility of health facility, availability of health professionals, availability of medicine in the health facility, waiting time, nature of illness and previous experience with self-medicated drug. Other variables include age, marital status, religion, ethnicity, occupation, and, place of residence, number of

children. Appendix 3 (Table 3.2, 3.3 and 3.4) shows the variable understudy, their scale of measurement and the type of variables.

3.5 Study Population

The total population of pregnant women in Wa Municipality is 4,950.The study was conducted among pregnant women attending ANC in three selected health facilities providing ANC service in Wa municipality. These facilities are

1. Wa Regional Hospital
2. Wa Urban Health Center
3. Kambali Health Center

3.5.1 Inclusion criteria

- Pregnant women above 18 years attending ANC.
- Pregnant women who visited the facilities within the data collection period
- Pregnant women who were not in labour or with obstetric emergency

3.5.2 Exclusion criteria

- All pregnant women below 18 years
- Pregnant women who have visited the facilities more than one.

3.6 Sampling

3.6.1 Sample Size Determination

Sample size for the study was determined using the formula formula; $n= Z^2 (1-P)/d^2$, where

N= Sample size

Z= Z value for 95% confidence interval =1.96

P= estimated proportion =68%=0.68 (Prevalence of pregnant women in Ghana; Boateng, 2015)

Q= 1-P =1-0.68=0.32

D= distance on either side of the mean in confidence interval = 5% =0.05

$N= (1.96^2 \times 0.68 \times 0.32)/ 0.05^2$

N= 334+ 10%

N= 334+33=367

10% of the calculated sample was added to the sample size to cater for refusals and non-respondents. Therefore the total sample size would be 367.

Estimated proportion was obtained from a study on self-medication among pregnant women done in Ghana by Boateng (2015).

Table 3.1: Proportionate distribution of sample size by health facility

Name of Health Facility/ ANC site	Average Monthly Attendance	Proportionate sample Distribution	Sample Required Daily
Regional Hospital Wa	308 (34%)	124	12 daily
Wa Urban Health Centre	388 (43%)	156	156daily
Kambali Health Centre	215 (23%)	87	9 daily
Total	911 (100%)	367	35 daily

Data was collected for two weeks (10 working days)

3.6.2 Sampling method

Both probability and non-probability sampling techniques were used in this study. Purposive sampling technique was used to select three health facilities namely Wa Regional Hospital, Wa Urban Health Centre and Kambali Clinic, from which pregnant women were sampled. These health facilities were purposively selected basically because, records from the Municipal Health Directorate have shown that these three facilities serve as the main health facilities for a greater number of pregnant women in the municipality with average monthly ANC attendance of 308, 388, 215 respectively for three months from July to September 2016.

Simple random sampling technique was used to select pregnant women from these three facilities in the study. The simple random sampling is appropriate for selecting respondents because it gives every pregnant woman an equal opportunity of been selected for the study for fairness in order to avoid bias. The selection of the number

of respondents from each facility was based on the ratio of the three facilities which was obtained from data on the average daily attendance of pregnant women in each facility. The selection of participant for the study using simple random sampling was done by random balloting with replacement where yes and no responses was written on a paper and put in a bowl. Pregnant women that have consented to take part in this study were asked to pick one of the ballot paper containing an option from the bowl. The number of ballot papers was based on the sample size required from each facility on daily bases as well as respondents who refused to partake for some reasons. Those who picked yes but later on refused to take part were replaced by those who picked no the first time but were willing to participate. Among them, those that picked yes were recruited. Moreover, pregnant women recruited on previous day and interviewed were not included in subsequent recruitment when they come for another visit within the period of study.

3.7 Data collection methods and tools

Structured questionnaire was used to collect data from 367 participants from two health centers and the Regional hospital in Wa Municipality. The questionnaires were designed in English, but the questions were asked in the local dialects which are Wale, Dagari and Twi for better understanding of participants who did not have any formal education. The questionnaire was constructed using 33 close ended questions and one open ended question. The questions in the questionnaire were constructed to reflect the variables of the study. The questions focus on age, marital status, educational status, occupational status, place of residence, number of children, stages of pregnancy, factors that inform the practice of self-medication and the drugs often used in self-medication and the most conditions on which self-medication is done. The tool was pretested among 25 pregnant women attending antenatal clinic in

Bamboi and some corrections were made to question 12, 32, 33 and 34 to ensure that accurate information is provided by participants. Questionnaires were administered by the principal investigator and three research assistants. In each selected facility the purpose of the study was first explained to the participants and consent from each participant was obtained before questionnaires were administered. Responses were immediately entered on a computer to reduce the possibility of missing out certain information and to ensure a safe keep of information gathered.

3.8 Data collection procedure

Data was collected by a team comprising four members, the principal investigator (PI) and three research assistants (RAs). A one-day training session was organized by the PI and four research assistants. Research assistants were trained on issues on privacy and confidentiality, consent seeking before interview and how to ask questions on the questionnaire. The principal investigator and one research assistant were located in the Regional hospital. The other two RAs were in the other two facilities.

3.9 Quality control

Each questionnaire was pre-labelled with a unique respondent identification number for easy identification and correction. Questionnaires were cross-checked daily by the PI after data collection to determine the validity of the data and to make corrections where possible. Data cleaning was done by ensuring that only data from completed questionnaires were used for analysis. Data from complete questionnaires were keyed in to both Microsoft Access and Microsoft Excel 2013 by two (2) different data entry clerks to check for data entry error.

3.10 Data processing and analysis/ Statistical methods

Data were processed using Microsoft excel before it was exported to STATA version 14 for analysis. To ensure accuracy and completeness, data was cleaned by running frequencies of all variables to check for incorrect coding using stata 14. After double checking with raw data, all necessary corrections were made before analysis. The number of pregnant women that, have practiced self-medication were reported as a proportion with a confidence interval. Descriptive analysis was performed on the background characteristics of respondents. Frequencies were generated to describe the distribution covariates and the practice of self-medication while continuous variables were expressed as arithmetic mean and standard deviation. Pearson's chi-square and Fisher's exact test were used for comparison of proportions. These two test were both done to compare variables in each case to see if there will be any variation of the independent variables association with the dependent variable when these two different test were performed, although both test measures association. Bivariate analysis was employed to assess the crude association between potential predictors and the practice of self-medication. Multiple logistic regression was used to estimate associations between the dependent variable and each independent variable after controlling for other covariates. . STATA software version 14 was used to perform all analysis. The strength of associations was reported as odds ratios. Statistical significance was set at $p<0.05$ for all analyses.

3.11 Ethical issues

Because the study was conducted within the health service, ethical clearance was obtained from the Ghana Health Service Ethical Review Committee (Approval Number: GHS-ERC: 15/12/2016) through the School of Public Health – University of Ghana. Appendix 4 is a copy of the ethical approval letter. Approval was also sought

from the Regional Health Directorate and a permission letter for the commencement of the study was sent to all heads of facility as well as unit heads from the Regional Health Directorate in the study sites. Participation was voluntary and the decision to participate depends on the individual participants. Participants were informed that they could decide to refuse to participate in the study or withdraw from the study at any time. They were also made to understand that refusal to participate in the study or withdrawal from the study would not be a reason for compromised quality of care on the day of interview or after. Informed consent was sought from participants before interview.

Appendix 1 is a copy of the informed consent form Study procedure as well as confidentiality and privacy issues were explained to participants clearly in a language they understand. Participants were made to understand that their identity would not be disclosed and would not be traceable since the questionnaire use codes and not names. Participants were informed that findings from the study would be used solely for the academic purpose for which it is intended for and would not be disclosed to a third party. Completed questionnaires from the study are in the possession of the PI under lock and would not be accessed by unauthorised personnel. Computer files from the study are password protected to avoid unauthorised access.

There was no reward of any kind for participants and this was explained to participants before they decided to participate in the study. The PI has no conflict of interest regarding the conduct of this study.

The study was financed by the principal investigator.

3.12 Pre-test of research tool or pilot study

To ensure validity of the instruments for the study, the questionnaire was given to course mates and the Supervisor to read through. Suggestions that were made helped the investigator to modify and restructure the questionnaire appropriately.

Pretesting of questionnaires was done a week before the actual start of the study, which was not in the study area (pretest was done at Bamboi) but share common characteristics with the selected ones in the municipality. This was done to avoid cross contamination. Identified errors were rectified before data collection. During the pretest, it was realized that an extra option (not applicable) must be added to options in most of the questions where respondents that did not self-medicate have to tick. Responses obtained from pretest of the questionnaire were consistent with results of the study. The questionnaire also measured accurately, the objectives of the study. Appendix 2 is a copy of the questionnaire.

3.13 Sources of data

This study used of data from both primary and secondary sources. Primary sources of data were sourced through field survey. Secondary sources of information and data were sourced through an extensive search.

CHAPTER FOUR

4.0 RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the study on demographic characteristics of respondents, prevalence of self-medication in Wa Municipality, factors influencing self-medication and most drugs used and condition treated for. The results had been presented in frequencies and percentages using both tables and figures. Statistical analysis in the form of chi-square analysis, bivariate and multivariate logistic regression analysis were equally conducted and the results presented in this section.

4.2 Background Characteristics of Respondents

A total of 367 questionnaires were administered, they were all used for analysis because they did not contain any errors or missing values. The ages of respondents were between 18 and 45 years with a mean age of 28.6 ±4.9. Majority of the respondents, 68.9% (253) were aged 25-34 years. Married women constituted 83.4% (306) of the respondents of the study. Most of the respondents 45.5% (167) has no formal education while 26.7% of respondents have secondary education and above. Self-employed constituted 45.5% of respondents. Again 41.1% of respondents were in their third trimester representing majority of respondents in the study. Table 4.1 below gives a detailed description of the respondents.

Table 4.1: Background characteristics of respondents (N=367)

Variable	Number of respondents	Percentages (%)
Age of respondents (years)	mean=28.6, SD= ±4.9	
18-24	72	19.6
25-34	253	68.9
35-45	42	11.4
Marital Status of respondents		
Single	30	8.2
Married	307	83.7
Cohabitating	13	3.5
Religion of respondents		
Christian	96	26.2
Muslim	259	70.5
Traditionalist	12	3.3
Place of residence of respondents		
Own apartment	190	51.8
Rented	146	39.8
Living with parents	31	8.4
Ethnicity of Respondents		
Dagari	126	34.3
Wale	178	48.5
Sisala	40	10.9
Akan	9	2.5
Other specify	13	3.8
Educational status of Respondents		
Not been to school	167	45.5
Primary	55	15.0
JHS	47	12.8
Secondary+	98	26.7
Occupational status of Respondents		
Students	22	6.0
Self-employed/ Private Business	167	45.5
Government employee	45	12.3
Unemployed	133	36.2
Number of children of Respondents		
None	111	30.2
1	106	28.9
2	95	25.9
3+	55	15.0
Stages of pregnancy		
First trimester	79	21.5
Second trimester	135	36.8
Third trimester	153	41.7

4.3 Proportion of Respondents Engaged in Self-Medication

Findings from table 4.2 shows that out of the 367 pregnant women enrolled in this study, 74% have practiced self-medication. Majority of the respondents 68.4 % (186) were engaged in self-medication through buying drugs from private pharmacy or drug shops without prescription, and the rest self-medicated by obtaining non-prescribed drugs from their friends or relatives (5.9%), 9.9% took herbal medicine, left over

drugs from previous visit (15.8%). Thus the prevalence rate of self-medication in Wa Municipality among pregnant women age above 18 years was 74% (95%, CI 69.6-78.6).

Table 4.2: Proportion of Respondents Engaged in Self-Medication (N=272)

Practice of self-medication	Frequency	%
Taking drugs obtained from chemical shop without prescription	186	68.4
Taking drugs given by relatives and friends	16	5.9
Took herbal medicine	27	9.9
Left over drugs from previous visit	43	15.8

4.4 Comparison between Respondents Engaged in Self-Medication and those that did not Self-Medicate.

Most of the respondents 75.5% engaged in self-medication were aged between 25-34 years while 69% of respondents were aged between 35-45 years. Among respondents who were cohabitating, 92.3% have taken drug without a physician prescription while 7.7% did not self-medicate. Also 73.4% of Muslim (259) enrolled in this study were engaged in self-medication. Majority of respondents, 45.5% have no formal education, out of which 71.9% had practiced self-medication whereas 26.7% of respondents who attained secondary education and above, 67.3% were engaged in self-medication. It was also revealed that, a higher number of respondents 45.5% were self-employed, out of which 75.4% self-medicated. Majority of the respondents 80.9% were having NHIS. Even though most of the respondents had NHIS about

71.3% of them have practiced self-medication while the few that did not have NHIS 85.7% were engaged in self-medication.

Again majority of the respondents 41.7% were in their third trimester, among them 78.8% had practiced self-medication while 55% respondents in their first trimester were engaged in self-medication. This may be due to the physiological changes which occur at each stage during pregnancy. Table 4.3 below gives a detailed description of the respondents.

Table 4:3 comparison between self-medicated and non-self-medicated Respondents

Variable	Number of respondents N=367	Self-medication %	
		Yes	No
Age group	Mean age=28.6, SD= ±4.9		
18 - 24	72(19.6)	52(72.2)	20(27.7)
25 - 34	253(68.9)	191(75.5)	62(24.5)
35 – 45	42(11.5)	29(69.0)	13(31.0)
Marital status			
Single	47(12.8)	37(78.7)	10(21.3)
Married	307(83.7)	223(72.6)	84(27.4)
Cohabitating	13(3.5)	12(92.3)	1(7.7)
Religion of respondents			
Christian	96(26.2)	74(77.1)	22(22.9)
Muslim	259(70.5)	190(73.4)	69(26.6)
Traditionalist	12(3.3)	8(66.7)	4(33.3)
Ethnicity			
Dagari	126(34.3)	91(72.2)	35(27.8)
Wale	178(48.8)	131(73.6)	47(26.4)
Sisala	40(10.9)	32(80.0)	8(20.0)
Akan	9(2.5)	9(100)	0(0.0)
Other specify	14(3.8)	9(64.3)	5(35.7)
Place of residence			
Own apartment	190(51.8)	133(48.9)	57(30.0)
Rented	146(39.8)	111(40.8)	35(24.0)
Living with parents	31(8.4)	28(10.3)	3(9.7)
Educational status			
No formal education	167(45.5)	120(71.9)	47(28.1)
Primary	55(15.0)	47(85.5)	8(14.5)
JHS	47(12.8)	39(83.0)	8(17.0)
Secondary+	98(26.7)	66(67.3)	31(31.6)
Occupational status			
Students	22(6.0)	18(81.8)	4(18.2)
Self-employed/ private Business	167(45.5)	126(75.4)	41(24.6)
Government	45(12.3)	25(55.6)	20(44.4)
Unemployed	133(36.2)	103(77.4)	30(22.6)
Number of children			
None	111(30.2)	84(75.7)	27(24.3)
1	106(28.9)	80(75.5)	26(24.5)
2	95(25.9)	72(75.8)	23(30.5)
3+	55(15.0)	36(65.5)	19(34.5)
NHIS status			
Insured	297(80.9)	212(71.3)	85(28.6)
Not insured	70(19.1)	60(85.7)	10(14.3)
Stage of pregnancy			
First trimester	79(21.5)	55(69.6)	24(30.4)
Second trimester	135(36.8)	98(72.6)	37(27.4)
Third trimester	151(41.7)	119(78.8)	34(22.2)

4.5 Factors Associated with Self-Medication

The mean age of pregnant women who self-medicated is 28.4 and standard deviation of 4.8 whereas pregnant women that did not self-medicate, the mean age is 29.1 and a standard deviation of 5.2. The practice of self-medication across the age groups is not different although majority 75.5% of pregnant women who have practiced self-medication are between the age group of 24-35 years. Therefore age is not statistically significantly associated with self-medication. Also in a sample of 367 respondents, 90.3% of respondents who self-medicated were living with their parents whereas 70% live in their own apartment. Chi-square and fishers exact test revealed that place of residence was significantly associated with self-medication. This means that, the practice of self-medication is different among respondents place of resident. In otherwise, where a respondent live or stay has an influence on the persons chances of practicing self-medication.

Moreover, majority 45.5% (167) of the respondents have no formal education, out of which 71.9% (120) had practiced self-medication whereas, 13.6% (50) of respondents who attained secondary education and above, 67.3% (28) of them were engaged in self-medication. Practice of self-medication is different among respondents with various educational level. Educational status is statistically significantly associated with self-medication (p=0.004).

Also 76.2% of the respondents that self-medicated were self-employed and 77.4% been unemployed. Among 18.2% (22) of the student's respondents that took part in this study, 81.8% have practiced self-medication. The practice of self-medication is different across the various occupational status. Student are more likely to self-medicate compared to other occupational status. Occupational status is statistically significantly associated with self-medication (p= 0.039).

From table 4.3, 71.4% of those who self-medicated have national health insurance whereas 85.7% represent those without NHIS but have practiced self-medication. Respondents without NHIS were more likely to self-medicate compared to those with National health insurance. National health insurance status is statistically significantly associated with self-medication (p=0.014).

Table 4.4:Chi-square/ Fishers exact test of factors associated with self-medication (N=367)

Variable	Number of respondents	Self-medication		Chi-square (x^2) value	p-value
		Yes	No		
		N (%)	N (%)		
Age group				0.95	0.623
18 - 24	72(19.6)	52(72.2)	20(27.7)		
25 - 34	253(68.9)	191(75.5)	62(24.5)		
35 – 45	42(11.5)	29(69.0)	13(31.0)		
Marital status[a]				3.11	0.211
Single	47(12.8)	37(78.7)	10(21.3)		
Married	307(83.7)	223(72.6)	84(27.4)		
Cohabitating	13(3.5)	12(92.3)	1(7.7)		
Religion[a]				0.86	0.613
Christian	96(26.2)	74(77.1)	22(22.9)		
Muslim	259(70.5)	190(73.4)	69(26.6)		
Traditionalist	12(3.3)	8(66.7)	4(33.3)		
Ethnicity[a]				4.81	0.299
Dagari	126(34.3)	91(72.2)	35(27.8)		
Wale	178(48.8)	131(73.6)	47(26.4)		
Sisala	40(10.9)	32(80.0)	8(20.0)		
Akan	9(2.5)	9(100)	0(0.0)		
Other specify	14(3.8)	9(64.3)	5(35.7)		
Place of residence[a]				6.19	0.039
Own apartment	190(51.8)	133(48.9)	57(30.0)		
Rented	146(39.8)	111(40.8)	35(24.0)		
Living with parents	31(8.4)	28(10.3)	3(9.7)		
Educational status				15.24	0.004
No formal education	167(45.5)	120(71.9)	47(28.1)		
Primary	55(15.0)	47(85.5)	8(14.5)		
JHS	47(12.8)	39(83.0)	8(17.0)		
Secondary+	98(26.7)	66(67.3)	31(31.6)		
Occupational status[a]				10.09	0.049
Students	22(6.0)	18(81.8)	4(18.2)		
Self-employed/ private	167(45.5)	126(75.4)	41(24.6)		
Business	45(12.3)	25(55.6)	20(44.4)		
Government	133(36.2)	103(77.4)	30(22.6)		
Unemployed					
Number of children				2.43	0.487
None	111(30.2)	84(75.7)	27(24.3)		
1	106(28.9)	80(75.5)	26(24.5)		
2	95(25.9)	72(75.8)	23(30.5)		
3+	55(15.0)	36(65.5)	19(34.5)		
NHIS status				6.72	0.010
Insured	297(80.9)	212(71.3)	85(28.6)		
Not insured	70(19.1)	60(85.7)	10(14.3)		
Stage of pregnancy				2.06	0.356
First trimester	79(21.5)	55(69.6)	24(30.4)		
Second trimester	135(36.8)	98(72.6)	37(27.4)		
Third trimester	151(41.7)	119(78.8)	34(22.2)		

[a]= Fisher exact test

4.6 Frequencies and Chi-square of factors influencing the practice of self-medication

Findings from this study revealed that, 60.8% of respondents that perceived illness as minor, 84.7% were engaged in self-medication while 39.2% of those that did not perceive illness as minor 57.6%, took medication without physician prescription. Table 4.5 below indicates that out of 182 respondents who described the waiting time at health facilities to be long, 80.8% of those respondents had practiced self-medication and 84.7% (122) of respondents who always experienced non-availability of medication, any time they visit the facility (144) for health care had admitted to have self-medicated as they think that coming to the hospital is a waste of time, in that at the end, the drugs will be prescribed on a prescription form to go and buy from the pharmacy. Also 129 respondents who indicated that getting means of transport to the health facility is difficulty, 81.4 % (105) had self-medicated. Majority of respondents in this study 332 indicate having pharmacies and chemical shops in the area or village where they live with 76.5% (251) been involved in self-medication and 79.5% (66) reported staying very close to where these pharmacy and chemical shops are located out of 87 respondents where as 71.5% of those who have said to be staying far from the pharmacies/ chemical shops have self-medicated. Although quite a number of respondents 251 said there are enough skilled health professional to take care of them, 70.9% (183) still practiced self-medication whereas 81.7% (89) out of 109 that said health facilities do not have adequate skill professional had practiced self-medication.

Out of the 367 respondents, 259 respondents had admitted that, they have bought medications from pharmacy or drug store without prescription from a physician for treatment of their illness, among which 91.9% (250) have self-medicated. Although minority of respondents (114) indicated that there are some cultural beliefs and norms

associated with self-medication with herbs or traditional medicine, out of which 86.8% (99) had practiced self-medication for various reasons. Moreover, among those who belief in the potency of herbal medicine over orthodox medicine (64) out of the 367 respondents, 90.6% (58) had used herbal medicine either for treatment or for other health services such as cleansing the worm and for easy delivery while 89.3% of those who indicated that, it depends on the purpose and condition for which herbs and traditional medicine are being used for, have either used herbal medicine or traditional medicine. Findings from table 4.5 below reveals that, perceived illness as minor, long waiting time, non-availability of drugs in the health facility, cost of transportation, difficulty getting transportation, availability of chemical shops, easy access of non-prescribed drugs, cost of drugs bought from the chemical shop cultural norms and beliefs and potency of traditional medicine

Table 4.5: Frequency and chi-square test of factors influencing the practice of self-medication

Variable	Number of respondents	Self-medication		Chi-Square value	P-value
		Yes	No		
		N (%)	N (%)		
Perceived illness as minor	223(60.8)	189(84.7)	34(15.2)	33.53	<0.001
Yes	144(39.2)	83(57.6)	61(42.4)	35.57	
No					
Prior experience about medication				35.57	1.341
Yes	145(39.5)	83(57.2)	62(42.8)		
No	222(60.5)	189(85.1)	33(14.9)		
Availability of health facilities				44.84	0.261
Yes	241(65.7)	183(75.9)	58(24.1)		
No	126(34.3)	89(37.6)	37(29.4)		
Far distance from health facility				3.54	0.060
Yes					
No	187(50.9)	145(77.5)	42(22.5)		
	180(49.1)	127(70.6)	53(29.4)		
Availability of enough skilled personnel				7.22	0.057
Yes	258(70.3)	183(70.9)	75(29.1)		
No	109(29.7)	89(81.7)	20(18.3)		
Waiting time at health facility				6.42	0.040
Normal	88(24.0)	60(68.2)	28(31.8)		
Short	97(26.4)	65(67.0)	32(37.0)		
Long	182(49.6)	147(80.8)	35(19.2)		
Number of times told there is no medicine at the facility				14.65	0.001
	50(13.6)	36(72.0)	14(28.0)		
Never	173(47.1)	114(65.9)	59((34.1)		
Sometimes	144(39.2)	122(84.7)	22(15.3)		
Always					
Difficulty getting transportation to health facility				5.49	0.019
Yes	129(35.1)	105(81.4)	24(18.6)		
No	238(64.9)	167(70.2)	71(29.8)		

Variable	Number of respondents	Self-medication		Chi-square value	*P*-value
		Yes	No		
Cost of transportation to the facility				9.29	0.002
Expensive	124(33.8)	104(83.9)	20(16.1)		
Not expensive	243(66.2)	168(69.1)	75 (30.9)		
Availability of chemical shops and pharmacies				4.02	0.045
Yes	332(90.5)	251(75.6)	81(24.4)		
No	35(9.5)	21(60.0)	14(40.0)		
Closeness of chemical shops				0.28	0.963
Very close	87(23.7)	66(75.9)	21(24.1)		
Close	177(48.2)	131(74.0)	46(25.9)		
Far	68(18.5)	50(73.5)	18(26.5)		
Very far	35(9.5)	25(71.4)	10(28.6)		
Easy access to drugs without prescription				72.97	<0.001
Yes	243(66.2)	214(88.1)	29(11.9)		
No	124(33.8)	58(46.8)	66(53.2)		
Cost of medicine bought from the chemical shop	144(39.2)	115(79.9)	29(20.1)	4.08	0.043
Expensive	223(60.8)	157(70.4)	66(29.6)		
Not expensive					
Presence of Cultural norms and beliefs				13.96	<0.001
Yes	114(31.1)	99(86.8)	15(13.2)		
No	253(68.9)	173(68.4)	80(31.6)		
Potency of traditional medicine over orthodox medicine				16.61	<0.001
Yes	64(17.5)	58(90.6)	6(9.4)		
No	275(74.9)	189(68.7)	86(31.3)		
Depends on the condition	28(7.6)	25(89.3)	3(10.7)		

4.7 Logistic Regression Analysis of Demographic Characteristics of Respondents

Most of the study respondents were aged 25-34 years as indicated in Table 4.6 below. Again, respondents that were self-employed and unemployed were 1.4 and 1.2 odds of not practicing self-medication compared to students whereas Government employee were 3.3 odds of not engaging in self-medication. Though respondents who were single (30) and cohabitating (13) were few in the study, 86.7% and 92.3% of them practiced self-medication. Respondents who cohabitating were 1.8 times odds of

engaging in self-medication compared to those that were single. Respondents with primary and JHS education are more likely to self-medicate compare with those with above secondary education who are 2 times less likely to self-medicate compare to those with no formal education (Not been to school). Also respondents living with their parents were 2 times and 1.5 time more likely to self-medicate compare to those living in their own apartments.

Regarding stage of pregnancy, findings from table 4. 6 revealed that majority, 41.7% of the respondents in this study were in their third trimester. 43.8% of those in the third trimester had practiced self-medication more compared to their counterparts in the first and second trimester. Simple logistic regression analysis revealed that stage of pregnancy was not significantly associated with self-medication. This means that, the practice of self-medication is not different across the three stages of pregnancy.

Table 4.6: Logistics Regression analysis of demographic characteristics of participates

Variable	Respondents N=367 Frequency %	Crude Odds ratio	95% Confidence Interval	p-value
Age(years)				
18 – 24	72 (19.6)	Ref		
25 – 34	253(68.9)	1.2	0.65-2.13	0.573
35 – 45	42(11.5)	0.9	0.37-1.97	0.719
Marital Status				
Single	30(8.2)	Ref		
Married	307(83.7)	0.7	0.34-1.51	0.381
Cohabitating	13(3.5)	3.2	0.38-28.01	0.285
Educational status of respondents				
Not been to school	167(45.5)	Ref		
Primary	55(15.0)	2.3	1.01-5.23	0.047
J HS	47(12.8)	1.9	0.83-4.38	0.128
Secondary	48(13.1)	1.5	0.68-3.22	0.314
Tertiary	50(13.6)	0.5	0.25-0.95	0.036
Place of residence				
Own apartment	190(51.8)	Ref		
Rented	146(39.8)	1.4	0.83-2.22	0.220
Living with parents	31(8.4)	4	1.17-13.69	0.027
Occupational status respondents				
Students	22(6.0)	Ref		
Self-employed	151(41.1)	0.7	0.23-2.23	0.558
Government	45(12.3)	0.3	0.08-0.95	0.042
Private Business	16(4.4)	0.5	0.11-2.22	0.354
Unemployed	133(36.2)	0.8	0.24-2.43	0.647
Number of children				
None	111(30.2)	Ref		
1	106(28.9)	0.9	0.53-1.84	0.922
2	95(25.9)	1.0	0.53-1.91	0.985
3+	55(14.9)	0.6	0.30-1.23	0.168
NHIS Status				
Insured	297(80.9)	Ref		
Not Insured	70(19.1)	2.4	1.18-4.92	0.016
Stage of pregnancy				
First trimester	79(21.5)	Ref		
Second trimester	135(36.8)	1.2	0.63-2.13	0.848
Third trimester	153(41.7)	1.5	0.83-2.82	0.165

4.8 Logistics Regression Analysis of Factors influencing Self-Medication

Respondents who perceived illness to be minor were 4.1 times odds of practicing self-medication compared to their counterparts who indicated otherwise. Self-medication is significantly associated with perceive illness as minor (COR=4.1 95% CI 2.49-6.69 $p<0.001$)

From the simple regression analysis in Table 4.7 below shows that, respondents who had described waiting time at the health facility to be long, 49.6% (182) are 2 times more likely to self-medicate compare to those who said waiting time at the facilities was normal ($p=0.049$). Also respondents who indicated unavailability of medications at the facilities are 2.2 odds of self-medicating compared to those who indicated that, they have never been told non-availability of drugs at the facility ($p<0.049$). Again, availability of pharmacies and chemical shops as indicated by majority of the respondents and cost of transportation to the health facility were 2.2 times and 2.5 times odds of practicing self-medication compare to their counterparts that indicated otherwise. Therefore waiting time at facilities, availability of medications at the facilities, availability of pharmacies and chemical shops and cost of transportation to the health facilities are statistically significant associated with self-medication. There is no much difference between those who stay very close to the pharmacy and chemical shops or very far from them in relation to self-medication. Hence proximity of pharmacy and chemical shops are not statistically associated to self-medication.

Table 4.7: Logistics Regression analysis of factors influencing self-medication

Variables	Respondents N=367	Crude odds ratio	95% Confident Interval	P-value
Perceived illness as minor				
Yes	223(60.8)	4.1	2.49-6.69	<0.001
No	144(39.2)	Ref		
Prior experience about medication				
Yes				
No	145(339.5)	0.9	0.50-2.01	1.241
	122(60.5)	Ref		
Availability of health facilities				
Yes	241(65.7)	1.3	0.80-2.13	0.272
No	126(11.2)	Ref		
Proximity of health facilities				
Yes	180(49.1)	1.5	0.98 -2.52	0.061
No	187(50.9)	Ref		
Availability of enough skilled health personnel				
Yes	258(70.3)	Ref	0.41 -1.20	1.203
No	109(29.7)	0.7		
Waiting time at health facility				
Normal	88(24)	Ref		
Short	97(26.4)	0.9	0.511 -1.756	0.865
Long	182(49.6)	2.0	1.04 -3.29	0.035
Number of times told there is no medicine at the health facility				
Never	50(13.6)	Ref		
Sometimes	173(47.1)	0.8	0.37-1.50	0.419
Always	144(39.2)	2.2	1.00-4.64	0.049
Difficulty of transportation to the health facility				
Yes	129(35.1)	1.9	1.10-3.14	0.020
No	238(64.9)	Ref		
Cost of transportation to the health facility				
Expensive	124(33.8)	2.5	1.34 -4.02	0.003
Not expensive	243(66.2)	Ref		
Availability of chemical shops and pharmacies				
Yes	332(90.5)	2.1	1.00-4.24	0.049
No	35(9.5)	Ref		
Closeness of chemical shops				
Very close	87(23.7)	Ref		
Close	177(48.2)	0.9	0.49 – 1.64	0.745
Far	68(18.5)	0.9	0.42 – 1.83	0.740
Very far	35(9.5)	0.8	0.32 - 1.92	0.611

4.9 Logistics Regression Analysis of Factors Influencing Self-Medication

The results from table 4.8 below, revealed that majority 243 (66.2%) of respondents who said medicines were sold easily to them by pharmacist and chemical seller without request for physician prescription proved to have practiced self-medication more (78.7%) compare to 124 (33.8%) who indicated that medicines were only sold to them, upon presentation of prescription form from physician to the pharmacist or chemical seller. The odds of respondent practicing self-medication was 8.4 among those who have easy access to medicine without prescription compared to those who do not have easy access. Easy accessibility of drugs without a physician prescription was statistically significantly associated with self-medication (OR=8.4 95% CI 4.97-14.18, $p<0.001$). Findings from this study have revealed that among 39.2% respondents who indicated that, the cost of self-medicated drugs was expensive, out those respondents, 79.9% (115) have practised self-medication whereas out of 225 (60.8%) respondents that said cost of non-prescribed drugs was cheap, only 70.4% were engaged in self-medication. Even though most of the respondents said cost of non-prescribed drugs was cheat, yet only few were engaged in self-medication. This means that, majority of respondents that said cost of non-prescribed drugs was expensive were even more engaged in self-medication compared to those that said cost of medication was cheap. Those who indicated that non-prescribed medication was expensive are 1.7 times odds of engaging self-medication compared to those who said cost of medication was cheap. This results might be due to the fact that, majority of those who were engaged in self-medication were those that expressed that cost of non-prescribed drug were expensive. A simple logistic regression analysis from table 4.6, shows that cost of non-prescribed drugs was statistically significantly associated with self-medication (OR=1.7 95% CI 1.01-2.74, p=0.045). Thus those who said cost

of drugs was expensive were 1.7 times more likely to engage in self-medication compared to their counterparts.

Again, traditional and cultural norms and beliefs of respondents was revealed to be statistically significantly associated with self-medication. Thus from table 4.5, out of the 114 respondents who indicated that cultural norms and belief influenced them to self-medicate, about 86.8% were engaged in self-medication while 68.4% among 253 respondents who did not self-medicate under the influence of traditional and cultural norms and beliefs have self-medicated. Findings from this study in table 4.7, shows that those who indicated that, cultural norms and belief has an influence in self-medication were 3.1 times more likely to self-medicate compared to those that said cultural norms and beliefs has no influence on self-medication. Therefore cultural norms and beliefs are statistically significantly associated with self-medication (OR= 3.1 95% CI 1.67 -5.59, $p<0.001$).

Table 4.8: Logistics Regression analysis of factors influencing self-medication

Variable	Respondents N=367	COR	95% Confidence Interval	*P*-value
Easy access to medications without prescription				
Yes	243(66.2)	8.4	4.97 -14.18	<0.001
No	124(33.8)	Ref		
Cost of medicine bought from the chemical shop				
Expensive(yes)	144(39.2)	1.7	1.012-2.74	0.045
Not expensive(No)	223(60.8)	Ref		
Presence of cultural norms and beliefs that motivate respondents to self –medicate				
Yes	114(31.1)	3.1	1.668 -5.58	<0.001
No	253(68.9)	Ref		
Potency of traditional medicine over orthodox medicine				
Yes				
No	64(17.5)	4.4	1.84 -10.58	0.001
Depends on the condition	275(74.9)	Ref		
	28(7.6)	3.8	1.12 -12.90	0.033

4.10 Multiple Logistic Regression Analysis of Factors Influencing Self-Medication

Multiple logistics regression model revealed that, perceived illness as minor (AOR=5.0 95% CI 2.53-8.27, p<0.001), access to non-prescribed drugs (AOR=8.4 95% CI 4.97-14.18, p=<0.001) and traditional norms and beliefs (AOR=4.4 95% CI 1.579-1.006, p=0.004) were significantly associated with self-medication after adjusting for all the independent variables that initially proved to be significantly associated. Hence the factors that influence the practice of self-medication in Wa Municipality among pregnant women were: perceived illness as minor, easy access of non-prescribed drugs and cultural norms and beliefs.

Table 4.9: Multiple Logistic Regression analysis of factors influencing self-medication among pregnant women

Variable	AOR	95% Confident interval	P-value
Educational status	**0.9**	0.76-1.10	0.348
Place of residence	**1.2**	0.76-2.09	0.369
Occupational status	**0.9**	0. 77- 1.15	0.557
NHIS status	**1.3**	0.53- 2.53	0.579
Perceived illness as minor	4.6	2.53- 8.27	<0.001
Waiting time at facility	1.1	0.88-1.42	0.358
Accessibility of transport	1.5	0.56 - 1.88	0.920
Availability of chemical shops	1.0	0.79- 4.47	0.153
Less expensiveness of self-medicated drugs	1.9	0.82-2.89	0.175
Cost of transportation	1.5	0.89 -3.67	0.101
Easy access to non-prescribed drugs	8.5	4.71-15.55	<0.001
Traditional and cultural norms and beliefs	2.9	1.41-6.10	0.004

4.11 Frequency distribution of Drugs mostly used for Self-Medication

From table 4.10 below, Out of 272 respondents who had practiced self-medication, 32% (88) of the respondents representing the majority had used tramadol for the treatment of symptoms or disease conditions associated with the stages of pregnancy followed by paracetamol representing 79% with only 1.1% of respondent's haven used diazepam. However after running a multiple logistic regression for all the drugs (medications), Ibuprofen, tramadol, coartem, amoxicillin, worm expel and diclofenac have shown to be statistically significantly mostly used self-medicated drug. Thus

these drugs are according to the statistical test have proven to be the most commonly used drugs for self-medication with diclofenac and worm expel been the most likely used drugs. The frequent used of pain killers in this, can be attributed to the discomfort associated with the stages of pregnancy where waist pain, lower abdominal pains, backache are the most common symptoms women complained of when pregnant.

Table 4.10: Drugs mostly used for self-medication among pregnant women

Drugs Generic name (Brand name)	Frequency of drugs used N=272	Percentage (%)
Acetaminophen (Paracetamol)	79	29
Cotrimaxazole (Septrin)	14	5.2
Ibuprofen (Parafen, Brufen, Ibutex, Ibucon, Ibugesic)	15	5.5
Metronidazole (Flagyl, Metizol)	25	9.2
Tramadol (Ultracet Ultram)	88	32.4
Procold (procold)	6	2.2
Artemether and Lumefantrine (Coarterm, Novarti)	44	16.2
Amoxicillin (Amoxil, Apo-Amoxi, Trimox, Wymox)	21	7.7
Worm expel	7	2.6
Antacid Mist	18	6.6
Omeprazole (Losec,Prilosec)	9	3.3
Cough syrup	21	7.8
Piriton	8	3.0
Promethazine (Prothazine, Prorex, Anergan, Phenergan)	10	3.7
Vitamins	7	2.6
Herbal Medicine	28	10.3
Diclofenac (Apo-Diclo, Athrotec, Cataflam, Voltarol)	19	7.0
Diazepam (Valium)	3	1.1

Total=421 Multiple responses total does not add up to 272(100%)

4.12 Sources of information on drug use among pregnant women

Majority of the respondents 68.4% who had practiced self-medication obtained drug information from prescriptions made by physician/ nurses on previous visits usually due to the unavailability of medications at the facilities. These respondents requested the medications or drugs by presenting prescriptions made on previous visit to the pharmacy or chemical shops. A few of them also indicated that on visiting pharmacy shops, they usually requested the drugs by telling the symptoms of their ailments. Again 15.8% of the respondents who self-medicated were either given the drug to treat their ailments or mention the name of the drug to them to go and buy by relatives or friends. Showing an old sample of the drug was reported by 9.9% of respondents as a way of requesting for the drug to buy. Only 5.9% of the respondents did indicates that, they obtained information from herbalist. These respondents said they were introduced to the herbalist by relatives and friends.

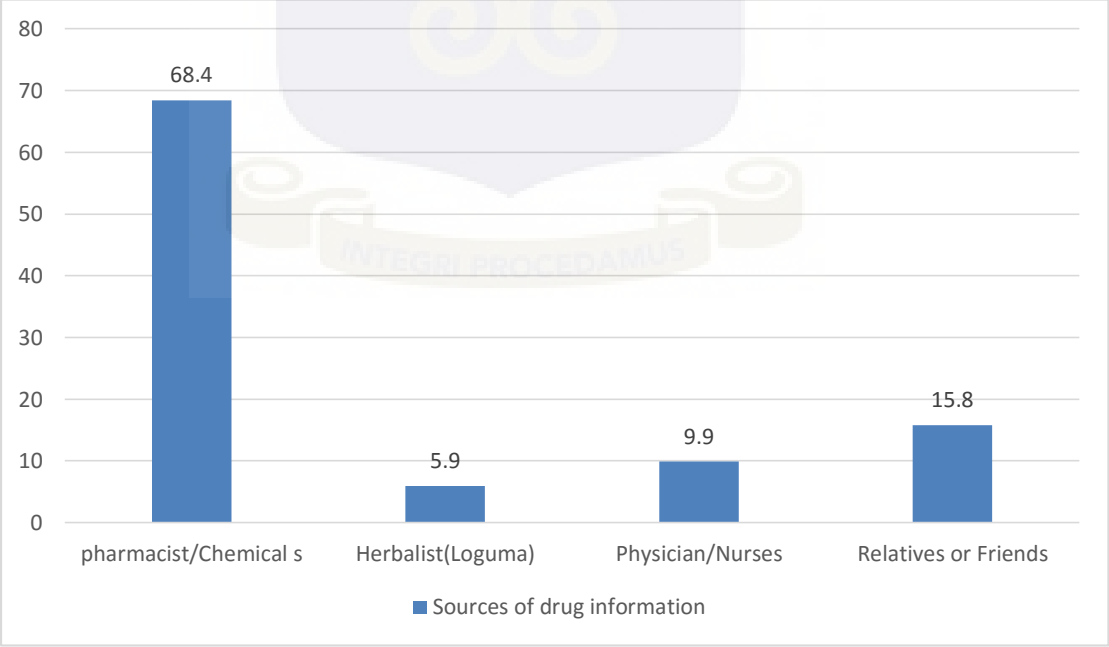


Figure 4.0: Sources of information on drug use among pregnant women

4.13 Conditions mostly treated for Self-Medication among pregnant women

From table 4.11 below, a frequency distribution table shows that, headache (34.2%), backache (33.1%), waist pain (32.7%), malaria (16.2%) and lower abdominal pain (20.6) were the most conditions for without a physician prescription.

Table 4.11: Conditions mostly treated for self-medication among pregnant women

Conditions	Number of respondents	Percentage (%)
Lower abdominal pain	56	20.6
Back pain	90	33.1
Headache	93	34.2
Malaria	44	16.2
Vomiting	8	2.9
Nausea	1	0.4
RTI	27	9.9
Waist pain	89	32.7
STI	15	5.5
Insomnia	3	1.1
Indigestion/PUD	18	6.6
Bleeding PV	6	2.2
Skin Rashes	4	1.5
Acute Enteritis	12	4.4
Anaemia	7	0.3

Key: RTI – Respiratory tract infection, STI – Sexually transmitted infection, PUD – Peptic ulcer disease, PV- Per vagina

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

The study investigated the perception and practice of self-medication among pregnant women aged above 18 years in Wa Municipality.

Most of the respondents were between the ages of 25-34 years representing about 68.9%. The proportion of the pregnant women that self-medicated among the same age stratum was high (75.5%). Simple logistic regression analysis and Chi-square test show that age was not significantly associated with self-medication. Although age was not associated with self-medication in this study, majority of pregnant women aged between 25-34 years were engaged in self-medication because, it is at this age range most of the respondents became pregnant for the first time in their life and has never experienced the discomfort associated with pregnancy. This inexperience on the part of most respondents within this age group propel them to treat any pain and discomfort they might have considered unbearable and therefore are tempted to buy non-prescribed medicine prescribed by physicians due to the inconveniences they usually encounter at the health facilities especially public health facilities which constitute 95% of all health institutions in the Municipality as well as respondents perceiving illness as minor. This result is in line with a study conducted by Gebremedhin & Gomathi, (2014) which revealed that, out of 400 pregnant women who had participated in the study, majority 49.8% (199) of the women were in the age group of 26-36 years with the mean age of 1.66 ± 0.64 years. However a bivariate and multivariate logistic regression analysis show that, no significant association was found with the participant's age. The similarity in results due to the fact that, respondents in both studies share similar socio-demography characteristics such as

religion of respondents and marital status where most pregnant women married at that age range and in both study area, religion forbid premarital sex as a result one can only get pregnant after marriage. Again, according to Mbarambara et al., (2016), findings have revealed that, there was no significant association between age and self-medication practice. Respondents aged between 25 and above years reported the highest prevalence of self-medication. However, in logistic regression, that relationship proved not statistically significantly associated with self-medication (Mbarambara et al., 2016). However, this findings differ from a study conducted by Befekadu, Dekama, & Adem (2014) which revealed that, a significant association was observed between self-medication practices with age. Again, findings in this study is inconsistent with findings by Emmanuel et al., (2014) which revealed that a statistical test suggested that, practice of self-medication is different across ages. The younger a person is, the higher the tendency of practicing self-medication. This implies that health education about the dangers of self-medication should be focused more on younger women in a situation of scarce resources. This differences of study results could be due to an unequal age distribution of respondents enrolled in various studies as well as difference in age categorisation.

Findings from this study revealed that occupational status of respondents and self-medication was statistically significantly associated. This means that, the practice of self-medication is different across the various occupations of respondents. The proportion of self-employed respondents who have self-medicated was high (76.2%) compared to all other occupations in this study. Again a simple logistic regression analysis shows that occupational status was significantly associated with self-medication. Even though the odds of practicing self-medication show significant association with occupational status, this association was only significant for

respondents that were government employee. Government employees were 3.3 times less likely to self-medicate compared to self-employed and unemployed respondents who were 1.4 and 1.5 times less likely to self-medicate. This means that, the majority of self-employed respondents were more likely to self-medicate compared to respondents who were students and government employee. This is because most of the self-employed respondents in this study are in polygamous marriages which is largely accepted and practiced as it conforms to their Islamic faith dominated in the study area. It is interesting and surprising to note that, some of these pregnant women have to work very hard to support their husbands due to large family size in the management of their homes especially in paying the school fees of their wards and sometimes to the extent of providing food for the family. This usually made it almost impossible for them to leave their business unattended to and visit the hospital for medical attention. There has been studies to suggest a relationship between self-medication and people who are self-employed. Self-employed people are often independent and are used to making autonomous decisions about their lives including their health (Figueiras et al., 1999). This independence, in addition to the fact that self-employed people may be unwilling to leave their businesses unattended and visit the hospitals, especially when the disease condition is considered as not so serious might have contributed to the high prevalence of self-medication practice within this sample of respondents. Again, findings of this current study is also consistent with a similar study by Agyei-Boateng (2015) in Ghana where it was reported that self-employed respondents were more likely to self-medicate than their counterparts in the study.

Majority 70.5% (259) of the study respondents were Muslim while the least religious denomination were African Traditionalist. While 69.9% of the Muslim have practiced

self-medication, only 2.5% of the African traditionalist practiced self-medication. Religion is not significantly associated with self-medication. Thus the practice of self-medication is the same across the various religious groups (no difference among them in relation to self-medication). The high percentage 69.9% of Muslims engaged in self-medication were mainly due to their cultural practices and norms. In most sections where the study was conducted, most respondents believe in the services of a herbalist locally called loguma who they visit regularly for services such as protection against evil people, treatment of vaginal bleeding and for easy delivery. This was found to be consistent with a study conducted by Befekadu, Dhekama, et al., (2014) where one hundred and forty four (47.5%, n=144) of the women were Muslims and six respondents were Catholic. However this finding disagree with results by Agyei-Boateng (2015) which revealed that 79.3% of respondents were Christians while Muslims constituted 19.7%. The different in result might be due to the fact that these studies were done at different locations and setting. Given this high percentage of Christians and Muslims in the sample, therefore it is not surprising that 83.7% of the pregnant women interviewed indicated that they were married. This is because both religions (Christianity and Islam) frown on pre-marital sex, as well as getting pregnant out of wed-lock (Agyei-Boateng, 2015).

Also, the highest self-medicated population in the study was among those who were married (83.7%). This means that married people were more likely to self-medicate. Again this findings is largely due to the fact that, most married women in this study became pregnant for the first time and are between the age range of 25-36 years where symptoms of pregnancy are entirely new to them. This make them treat any symptoms they have experienced and in most cases without a physician prescription. However a simple logistic analysis shows that, the practice of self-medication does

not depends on respondent's marital status by showing no statistical significant association. This was also reported in a similar study by Agyei-Boateng (2015) where majority (74.3%) of the respondents were married. Also another study conducted by Gebremedhin & Gomathi (2014) reported that, 95.5% of the respondents who took part in the study were married but only 9.7% were engaged in self-medication. This findings contradict with findings of this study which revealed that majority of the respondent engaged in self-medication were married. This difference in results is due to differences in age structure, educational status, employment status and cultural norms and beliefs.

Regarding their educational status, majority, 44.1% of the respondents that have self-medicated have no formal education. This study revealed that the proportion of respondents who self-medicated increases with decreasing level of education. Low level of education in this study is associated with low level of respondent knowledge on the pharmacological properties of drugs that make one less informed on the harmful effects of drugs. Because they do not know that medicines can be harmful to the body, they do not take it with caution. Persons who attained primary education were found to have self-medicated more compared to those who have attained educational level above secondary education. Simple logistic regression revealed that, those who attained primary education were 2.3 odds of engaging in self-medication compared to those with secondary education who were 1.5 odds of practicing self-medication. From table 4.7, simple logistic analysis and a Chi-square test shows that educational status was statistically significantly associated with self-medication. This association was only significant for those with primary and tertiary education. In one study, findings revealed significant association between self-medication and educational level of respondents; where illiterates and secondary

school participants practiced self-medication 3.7 times and 4.0 times more than participants with tertiary education. This might be due to lack of knowledge about the risk of using drugs without consulting health personnel during pregnancy and may be more prone to listening to advice of other lay people around them than consulting health professionals. This was also reported in a similar study by Abasiubong et al., (2012) who stated that, patients with lower educational level might have more trust in physicians' advice. Patient knowledge of drug therapy and disease still remains poor and patient's memory of instructions given by physician is poor, due to the fact that, 50% of the information will be forgotten immediately. Lack of communication and lack of patient uptake of information may account for 55% patient deviation from prescribed drugs. Similarly, study conducted in Ethiopia revealed that, educational status of respondents was statistically significantly associated with self-medication. According to the author, low maternal education increases respondents chances of practicing self-medication (Befekadu, Dekama, et al., 2014). Also another findings which was consistent with findings of this current study is a study conducted by (Afolabi, 2008) to determine the factors influencing the pattern of self-medication in adult Nigerian population. In this study, he find out that, majority of the market women who have practiced self-medication were either with low level of education or have no formal education and therefore recommended that market women should be provided with education to help reduce the prevalence of self-medication. Although findings from study by (Porandokht, Afshary, et al., 2015) have revealed that, respondents educational level was statistically significantly associated with the practice of self-medication. Most prevalence was seen in people with a university education (37.6%). According to the author, respondents with high educational level are more likely to self-medicate compared to respondent with low educational status.

Hence this finding is inconsistent with findings in this study. Some research results show that the prevalence of self- medication in educated people is more because of their access to information about drugs. However study revealed that there is no statistically significant association between educational status and self-medication (Emmanuel et al., 2014a). Again, (Figueiras, Caamaño, & J Gestal Otero, 2000) explains that higher education is related with more knowledge of medicine and drugs, less confidence in the doctor, and a greater desire for autonomy or independence over one "health decisions. Okumura et al., (2002), argues that higher education increases self-confidence about accurate drug use and with it the probability of self-medication.

Regarding stage of pregnancy, findings from table 4.3 revealed that majority (41.7%) of the respondents in this study were in their third trimester. 77.8% of those in the third trimester had practiced self-medication more compared to their counterparts in the first and second trimester. A simple logistic regression analysis revealed that stage of pregnancy of respondents was not statistically significantly associated with the practice of self-medication. This means that, the practice of self-medication is not different across the three stages of pregnancy. This findings is consistent with similar study conducted by Agyei-Boateng (2015), in which findings have revealed that majority of respondents 58.3% were in their third trimester. This is because, the third trimester of pregnancy is often associated with several disease conditions including nausea, waist pains, and headaches, among others (Yusuff & Omarusehe, 2011). Consequently, there is association between the third trimesters of pregnancy with an increase in self-medication (Yusuff & Omarusehe, 2011). The findings is inconsistent with findings in similar study which revealed that stage of pregnancy was statistically significantly associated with self-medication and odds ratio of 0.9 (Porandokht et al., 2014)

Also in a sample of 367 respondents, 48.9% of respondents who self-medicated were living in their own apartment where as 40.8% live in rented apartment with 10.3% living with their parents. Even though those living in their own apartment were the majority that self-medicated compared to respondents living with their parents, after bivariate logistic regression analysis, those living with their parents were 4 times more likely to self-medicate compare with those living in their own apartment and those living in rented apartments. This findings, is a reflection of their family ties where the problem of one person is the problem of the entire family. This invites most family members to intervene and contribute their quota to address the pertaining problem. In this case most respondents living with their parents and those living in rented houses were influenced by relatives to self-medicate by either recommending a particular medicine which has worked for them in the past with similar condition or give out left over medications to the respondents. In some cases respondents were asked to see the herbalist (Loguma) for treatment. This has motivated many pregnant women with these residential status to self-medicate. Therefore there is statistically significant relationship between place of residence and self-medication. Similarly, study conducted by Befekadu, Dekama, et al., (2014) revealed that, place of residence was statistically significantly associated with practice of self-medication. This findings is consistent with the findings of this study.

With regard to National health insurance status of respondents, 77.9% of those who self-medicated did have national health insurance whereas 22.1% of those who have practiced self-medication were not having NHIS. A Chi-square analysis revealed that respondents without NHIS were more likely to self-medicate compare to those with National health insurance. National health insurance status is statistically significantly associated with self-medication. Also bivariate logistic regression revealed that those

without national health insurance were 2.4 times more likely to practice self-medication compare to those with national health insurance. Having national health insurance had have great influenced on respondent choice of seeing the physician as it has helped to reduce the cost of health care. Although, many respondents were having NHIS, most of them were still engaged in self-medication. This is largely because most health facilities is unable to meet the demands of clients with efficiency due to the late NHIS reimbursement. Health facilities are short of medicines and logistics because they do not have money to purchase these medicines and other logistics and therefore prescriptions are usually given to respondents to go out and buy, and this discourage them to visit the hospital. This findings is in line with the results of a study which revealed that the practice of self-medication among pregnant women without healthcare insurance is 89.4% and there was a statistically significant relation between self-medication and having healthcare insurance (Porandokht Afshary et al., 2015).

A simple logistic regression analysis in table 4.5 revealed that, number of children a respondents has, is not statistically significantly associated with self-medication even though majority, 30.2% of the respondents who were having their first pregnancy with no child reported to have self-medicated more compared to those who were having more than a child. Being pregnant for the first time subjected most respondents to discomfort and pain associated with pregnancy which compelled them to take medicine for relieve. This findings is inconsistent with the findings of a study conducted by Befekadu, Dekama, et al., (2014) which revealed that number of children were statistically significantly associated with number of children.

Over the period respondents became pregnant, before this survey, the prevalence of self-medication among 367 pregnant women aged above 18 years in Wa municipality was 74.1%. This finding is surprising since respondents are eligible for free public

health services as well as majority of them have NHIS which they could have used to access health care. However, this prevalence supports the findings reported earlier by other studies conducted in Ghana and confirms the notion that self-medication is widespread among pregnant women. The prevalence of self-medication practice in this study is higher than the results in Yard, Iran (35%) (Baghianimoghadam et al., 2013), Addis Ababa (12.4%) (Kebede, Gedif, & Getachew, 2009), Peru (10.5%) (Mini et al., 2012), and Ghana at Juaben Ejisu (68.9%) (Agyei-Boateng, 2015) but lower than the results of the study done in Egypt (86%) (Rizk, Abdel-Aziz, Ashmawy, Mahmoud, & Abuzeid, 1993) and Nigeria (85%) (Emmanuel et al., 2014a). This result agrees with a study done in Uyo, Nigeria, (Abasiubong, Bassey, & John Akpan Udobang, Oluyinka Samuel Akinbami, Sunday Bassey Udoh, 2012) which reported the prevalence of self-medication among pregnancy women to be 72%. These studies conducted in different parts of the world as indicated above, vary in their estimation of the percentage of respondents who practise self-medication, with prevalence rates that range from about 10.5% to 86%. Even though comparing the results of the present study with those in the literature is difficult, the difference in result from these studies might be due to, differences in definitions of self-medication and the methodologies employed, maternal education, place of residence, occupational status and many countries also differ in their cultures, health care system and the perceived role of pharmacist and other factors. However there is a general agreement among these studies that self-medication has potential risks and despite efforts exercised by health care professionals and decision-makers to limit this problem

The factors influencing self-medication was one specific interest of this study. Findings from this study, revealed that out of the 60.8% of respondents that indicated that illness were minor, about 84.7% of them were engaged in the practice of self-

medication while 57.6% of those that did not perceived illness as minor have revealed to have practiced self-medication. Logistics regression analysis in table 4.7 revealed that, those that perceived illness as minor were 4.1 times odds of practicing self-medication compared to those that did not perceive illness as minor. Perceived illness as minor was significantly associated with self-medication. This findings is logical in that, respondents that thought, illness was minor will definitely not worry themselves to visit the health facility to seek for health care and will therefore prefer to buy non-prescribed drug from the chemical shop or private pharmacy to treat their ailments. This thought and practice to a large extent were influenced by respondents level of education in this study. Respondents that were more enlightened and had knowledge on the pharmacological property of medicines, did appreciate the need to see a physician for treatment. This findings is consistent with a similar study conducted among pregnant women attending antennal care at health centers in Bukavu, Eastern DR Congo to find out the prevalent rate and its associated factors revealed that, perceived illness was one of the major factors associated with self-medication (Mbarambara et al., 2016). Also findings from this study agrees with findings of a similar study conducted among medical students in Coastal South India to determine the perception and practice of self-medication among these respondents. Findings from that study revealed that 70.5% of respondents revealed that illness was too minor for consultation (Kumar et al., 2013).

The study found that long waiting time at the health facility increases the chance of respondents to self-medicate. The results in table 4.5 shows that, 182 (49.6%) of the respondents have indicated that, there is long waiting time at the health facilities. Among those who described waiting time to be long, 80.8% have practiced self-medication while those who said waiting time was normal and self-medicated was

68.2%. This means that, when clients waiting time in the health facilities is improved upon, many people will prefer to go to the hospital to see a physician any time they are sick and this will help reduce the prevalence of self-medication among pregnant women in the municipality. The simple logistic regression analysis in table 4.7 shows significant association between long waiting time and self-medication. Respondents who had described waiting time at the health facility to be long (182) are 2 times more likely to self-medicate compared to those who said waiting time at the facilities was normal. This findings is consistent with the results of the study conducted by Novignon et al., (2011) which revealed that longer travel and waiting time at public health facilities were the factor that could encourage self-medication. Yusuff & Omarusehe, (2011) also noted that the dissatisfaction of patients concerning the type of services they get at the public health facilities and from health personnel such as long waiting time are among the main factors influencing self-medication globally.

Results from this study also revealed that, out of the 39.2% (144) who revealed having always been told of the non- availability of medication, 84.9% did admit taken medication without a physician prescription whereas among those who have never been told of no medicine in the hospital 72% have practiced self-medication. A simple logistic analysis from table 4.6 has shown that, those who have always complained of non-availability of medicines in the health facility were 2.2 times more likely to self-medicate compare to those who have never been told of non-availability of medicine in the health facilities. Non-availability of medicine at the facility is statistically significantly associated to self-medication. Even though there was association between non-availability of medicine and self-medication, this association is only significant among those who have always been told that there is no medicine in the health facilities.

With regard to cost of transportation, 83.9% of respondents (124) who indicted that cost of transportation was expensive have practiced self-medication whereas 69.1% of those who did indicate that transportation cost was not expensive self-medicated. Those with high cost of transportation to health facilities are 1.9 times more likely to practice self-medication compared to those with low transportation cost. A simple logistic regression from table 4.7 shows that cost of transportation was statistically significantly associated with self-medication. Findings from this study is consistent with findings from another study where the author revealed that it is better known for Ghanaians to treat themselves first when sick, instead of seeking professional medical care from health personnel at the health facility. This conduct among the entire Ghanaian populace is primarily to lower cost of transportation to and from the hospital or health care facilities particularly for the rural areas where residents have to travel for considerable distance to access health care (Salisu and Prince, 2009). Regarding difficulty getting means of transport to the hospital, simple logistics regression analysis from table 4.6 revealed statistically significant association with self-medication. Those who were faced with transportation difficulty have 1.9 odds of practicing self-medication compared to those with easy access to means of transport to the health facility. This findings is consistent with findings of a similar study which revealed that, difficult access to transportation influence people to self-medicate as well as delay in seeking health care until illness become serious or emergency (Tenkorang, 2016).

Again, majority (75.6%) of the respondents that revealed the availability of chemical shops and have self-medicated were 2.1 times more likely to self-medicate compared to those who indicated non-availability of chemical shops in their area or community

(60%). Therefore availability of chemical shop is statistically significantly associated with self-medication.

The results from table 4.7 revealed that majority (88.1%) of respondents who said medicines were sold easily to them by pharmacist and chemical seller without request for physician prescription proved to have practiced self-medication more compare to 33.8% who indicated that medicines were only sold to them, upon presentation of prescription form from physician to the pharmacist or chemical seller. The odds of respondent practicing self-medication was 8.4 among those who have easy access to medicine without prescription compared to those who bought medicine with a physician prescription. Easy access to drugs without a physician prescription was statistical significantly associated with self-medication. This findings is in line with a study findings which revealed that, in developing countries, the incidence of self-medication becomes more dangerous by poor regulation, distribution and sale of non-prescription drugs (Togoobaatar et al., 2010).This lack of control, in addition to high costs of health care, has been cited as some of the causes of self-medication (Togoobaatar et al., 2010).

Findings from this study have revealed that, 39.2% respondents who indicated that, the cost of self-medicated drugs was expensive, 79.9% have practiced self-medication whereas out of 60.8% of respondents that said cost of non-prescribed drugs was cheap, only 70.4% were engaged in self-medication. Even though most of the respondents said cost of non-prescribed drugs was cheat, yet not many of them were engaged in self-medication. This means that, majority of respondents that said cost of non-prescribed drugs was expensive were even more engaged in self-medication compared to those that said cost of medication was cheap. Those who indicated that non-prescribed medication was expensive were 1.7 times more likely to self-medicate

than those who said cost of medication was cheap. This results findings might be due to the fact that, majority of those who were engaged in self-medication were those that said that, cost of non-prescribed drugs were expensive. Simple logistic regression analysis from table 4.6, shows that cost of non-prescribed drugs was statistically significantly associated with self-medication. Thus those who said cost of drugs was expensive were 1.7 times more likely to engage in self-medication compared to their counterparts.

Again, traditional and cultural norms and beliefs was revealed to be statistically significantly associated with self-medication. Thus from table 4.5, out of the 114 respondents which indicated that cultural norms and belief influenced them to self-medicate, 86.8% were engaged in self-medication while 68.4% (173) among 253 respondents who did not self-medicate under the influence of traditional and cultural norms and beliefs have self-medicated. Findings from this study in table 4.8, shows that those who indicated that, cultural norms and belief has an influence in self-medication were 3.1 times more likely to self-medicate compared to those that said cultural norms and beliefs has no influence on self-medication. Therefore cultural norms and beliefs are statistically significantly associated with self-medication. Also, 5.9% of those who have self-medicated have resorted to herbal medication. Some of the reasons respondents gave for using herbal medicine are, to make the baby beautiful and strong, cleanse the womb to from dirt on the foetus, believed to prevent them from losing her pregnancy (miscarriage), for easily delivery and to protect the foetus and the mother from evil eyes. The herbalist who gave these herbs to the pregnant women is popularly known as loguma. These findings are consistent with findings of similar study by Agyei-Boateng (2015) who revealed that traditional and

cultural norms have much influence on a person's preference on self-medication particularly the use of herbal medicine.

In addition to the factors above, there are other factors attributed to self-medication that is associated with the traditional and religious beliefs the people hold in various parts of the world. In some areas, herbal medicines for example are believed to prevent a woman from losing her pregnancy before its due date (miscarriage) and also protect mother and foetus from witches (Abasiubong et al., 2012). These mind-sets or discernments are strongly held traditional belief systems that influence the health seeking behaviours of people, including pregnant women. Malan & Neuba (2011) mentioned that in some areas of Africa for example, herbal medicines are used so as to assist pregnant mothers get a beautiful baby or to enhance smooth delivery. There are other traditional beliefs and factors for self-medicating with herbal medicines. Among some pregnant women in Cote d"Ivoire for example, pregnant women have elaborated factors such as the desire to have babies that are cheerful and dark in complexion (Malan & Neuba, 2011). Drugs and herbs are self-medicated to make nice babies, to bring about easy labour, and to prevent miscarriages (Malan & Neuba, 2011). Although these beliefs may look strange to many, they do have significant effects, and they affects the health seeking behaviour of people in various parts of the world, both educated and uneducated.

Also, among the 272 respondents who had practiced self-medication, 32.4% of the respondents which represent the majority had used tramadol for the treatment of symptoms or disease conditions associated with the stages of pregnancy followed by paracetamol representing 29% and coarterm 16.2% respectively. Also about 10.5% of the respondents have used herbal medicine with only 1.1% of respondent's haven used diazepam. The frequent used of pain killers in this study, can be attributed to the

discomfort associated with stages of pregnancy where waist pain, lower abdominal pains, backache are the most common symptoms women complained of when pregnant. This findings is similar to a study conducted by Gebremedhin & Gomathi (2014) which revealed that the most common used drugs for self-medication were pain killers (analgesics) 26 (59.1%) and anti-malaria drugs.

Moreover, from table 4.10 above, multiple logistic regression analysis shows that backache, headache, malaria, nausea and respiratory tract infection were proven to be statistically significantly associated with self-medication with backache and headache be the most likely self-medicated conditions. Headache and backache were both 0.3 times more likely to self-medicate compared to the rest of the other conditions which have shown significant association. This findings is consistent with findings from a study where majority of respondents (77%) indicated that headaches, cold and flu malaria, stomach problems were the main disease conditions that drugs were taken to treat (Agyei-Boateng, 2015). This is similar to research findings of a study conducted by Tabatabaee (2011) who, in a research of pregnant women in South Iran found that high percentage of women self-medicated or used drugs to prevent disease conditions such as common colds, nausea, and stomach problems. Because these conditions are common in sub Saharan Africa and are experienced by a lot of people, these diseases assume some form of normalcy, or become normal disease conditions often treated with self-medicated drugs (Jain et al., 2011). Similarly, Okanbi et al. (2005) has revealed that malaria is one of the main disease conditions for which pregnant women self-medicate.

Even though educational status, place of residence, occupational status, NHIS status, perceived illness as minor, long waiting hours at health facilities, non-availability of medicines at the health facility, difficult getting transportation, cost of transportation,

availability of chemical shops, easy access to drugs without prescription, less expensiveness of self-medicated drugs and traditional and cultural norms and beliefs were significantly associated with self-medication when Chi-square, fisher's exact test and simple logistic regression analysis were initially performed but after running a multiple logistic regression analysis, only perceived illness as minor, easy access to non-prescribed drugs and traditional and cultural norms and beliefs proved to be statistically significantly associated with self-medication.

Even though some factors such as availability and accessibility of health facilities, experience with previous drug, availability of skilled personnel, proximity of chemical shops were revealed by literature to be associated with self-medication, however simple and multiple logistics analysis revealed no significant association was found. Availability and accessibility of health facilities and availability of skilled personnel in this study area was not a problem to respondents as compared to other place or study where these factors were found to be strongly associated with self-medication.

5.2 Limitations of study

The research findings of this study be considered within the context of the following limitations.

First of all, there is always the likelihood of biased answers from the researcher administered questionnaire, given the hospital setting within which the data was collected and the fact that respondents may possibly want to deny ever having self-medicated and thus create a good impression of themselves for the researcher. This may have had implications for the accuracy of responses regarding the prevalence of self-medication among respondents.

Secondly, the study excluded pregnant women who did not attend ante natal clinic since the research was hospital based. The research also excluded other public health facilities and private facilities. Pregnant women in rural communities within the municipality were excluded due to limited time for data collection. This will affect the ability to generalise from the results to all pregnant women within the Wa Municipal area.

Thirdly, it was difficult for some subjects to mention the names of the medications which they used for self-medication because of the difficulty associated with names of most of the medicines. Despite using the colour and size of the medications during the interviews, it was still difficult for some of the subject to mention the medications which they used.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion Self-medication is a public health problem that needs urgent attention with prevalence rate of 74%. Easy accesses to non-prescribed medication, perceived illness as minor and cultural norms and beliefs were the main associated factors that had great influence in the practice of self-medication among pregnant women in this study area. Easy accessibility of medicines in the open market by respondents was mainly due to the proliferations and availability of many chemical shops and pharmacy and poor regulations of non-prescribed medications by the Ghana pharmacy council and the community pharmacist. Perceived illness as minor and cultural beliefs and norms of respondents were largely influenced by low level of education of most of the respondents in this study. Backache, headaches, lower abdominal pains, waist pain and malaria, and paracetamol, tramadol, coartem and diclofenac were conditions and drugs often used for self-medication by respondents. These medicines mentioned above are well known by respondents and easy accessible in the open market and are less expensive and therefore respondents were able to afford. Also backache, waist pain, headaches, lower abdominal pain and malaria are the medical conditions most respondents perceived as minor and were mostly treated without seeing a medical practitioner. It is therefore very imperative to embark on educational campaigns and strict legislation measures relating to drugs dispensing from chemical shops and private pharmacies, ensuring constant supply of medications to the government hospital and facilitate access to health services are among the important intervention (s) that may change the behaviour of respondents and protect them from potential dangers of self-medication.

6.2 RECOMMENDATIONS

In line with the findings of this research, the following recommendations are made

The Pharmacy Council of Ghana in collaboration with Ghana Health Service should ensure that strategies are formulated and policies enforced to prevent chemical sellers, drug peddlers and private pharmacist from supplying drugs to pregnant women without prescription form from physicians or indications of been to the hospital

Family members and relatives have been revealed as important sources of self-medicated drugs and drug information, health education and health promotion programs should, in addition to targeting pregnant women in hospitals, target other stakeholder groups including mothers, relatives and respected people in the community. In addition to the above, the government of Ghana should do more to control the advertisement and sale of herbal medicines in Ghanaian public places.

Ministry of Health and the Ghana Health Service, in collaboration with the Wa Health Directorate must embark on an educational program to educate the public in general and pregnant women specifically of the dangers of self–medication with herbal drugs and other non-prescribed drugs, especially since they are perceived by users as safe, even though they can actually have detrimental effects on the pregnant mother and the foetus.

Future research can be done to explore which particular herbal medicines or combinations of herbal medicines are used by pregnant women to treat which specific conditions.

Municipal Director of Health Service and the Heads of the health facilities should team up to put measures in place to help address the inconveniences such as long

waiting time, non-availability of medicines at the health facilities that is making pregnant women to indulge in the practice of self-medication.

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APPENDIX

Appendix 1: Informed consent form

Project Title: Self-medication perception and practice among pregnant women in Wa Municipality Principal Investigator:

Adama Sina, Department of Social and Behavioural Science, School of Public Health, College of Health Sciences, University of Ghana, P. O. Box LG 73, Legon

Contact: Mobile 0201167468; Email sinaadama@gmail.com

General information about the study

This is a research study being undertaken as a requirement in the University of Ghana, School of Public Health, Legon to attain a master's degree in public health. This is useful in planning a health education program that can be implemented during antenatal sessions and public enlightment at both local and national level which will help reduce maternal morbidity and mortality as well as abortion in early cyesis and fetal malformation as a result of the tetratogenic effects of unsafe drugs on the foetus.

Although the practice of self-medication is known among the populace especially pregnant women but one cannot clearly tell the prevalence of self-medication and the factors that influences it practice as well as the drugs frequently used to self – medicate. Thus for this reason i seek to undertake this study to determine proportion of pregnant women who self-medicate, to examine the factors that influence self-medication among pregnant women and the drug often used to self-medicate. The duration of the study will be less than a year. Findings from the study will therefore be important in facilitating development of strategies that will be used in addressing the high incidence of self-medication by providing baseline information about the

current incidence of self-medication and related factors. This is useful in planning a health education program that can be implemented during antenatal sessions and public enlightment at both local and national level which will help reduce maternal morbidity and mortality as well as abortion in early cyesis and fetal malformation as a result of the tetratogenic effects of unsafe drugs on the fetus.

Procedures

Pregnant women aged above 18 years from Wa Regional Hospital, Wa Urban health center and Kambali clinic were used in this study. Eligible participates who have agreed to participate were required to complete structured questionnaire. We asked questions about their background, Factors influencing self-medication and the drugs frequently used and for which conditions.

Possible Risks and Discomforts

There is no risk or harmful consequences to your person, image or self-esteem or denial medical treatment for participation in this research. However, the only discomfort is the little time you will spend with us. But we will be very snappy so that we do not take much of your time.

Possible Benefits

There is no direct benefit to the participants of this study. This is useful in planning a health education program that can be implemented during antenatal sessions and public enlightment at both local and national level which will help reduce maternal morbidity and mortality as well as abortion in early cyesis and fetal malformation as a result of the tetratogenic effects of unsafe drugs on the fetus.

Voluntary Participation and Right to Refuse

Your participation in this study is voluntary. During the filling of the questionnaire, you can choose to ignore any questions that you are uncomfortable with and also at liberty to withdraw from the study at any time. However, we will encourage you to participate and complete the questions since your opinions are very important to us.

Confidentiality

Though we would be glad if you take part in the study, neither you nor the study will be affected or suffer if you decide not to take part in the study. All the information will be kept confidential and the data will be stored in a locked cabinet. Access will be limited to only the researcher and research supervisor. Your name, identity are not needed for the study. However, the information you would be treated strictly confidential. We assure you that your name shall not appear or be mentioned in any report that might come out from this study.

Contact for Additional Information

If you have questions later, you may contact:

ADAMA SINA

Department of social and behavioural science

University of Ghana School of Public Health

College of Health Sciences

P. O. Box LG 73, Legon

Mobile 0201167468

Email sinaadama@gmail.com

Your rights as a Participant

If you have any questions about your rights as a research participant, you can contact the Administrator of the GHS Ethical Review Committee at the following address:

Hannah Frimpong

GHS-Ethical Review Committee

Research and Development Division

Ghana Health Service

P. O. Box MB 190, Accra

Office: 0302 681 109

Mobile: 024 451 6482 Email: Hannah.Frimpong@ghsmail.org

Participant voluntary consent

I _____, declare that the above document describing the purpose, procedures as well as risks and benefits of the research titled "(Self-medication perception and practice among pregnant women in Wa municipality)" has been thoroughly explained to me in English language. I have been given the opportunity to ask any questions about the research and answered to my satisfaction. I hereby voluntarily agree to participate as a subject in this study.

_____

_____/_____/_____

Signature of Participant ……. Thump print……..

Date……. Date……

Interviewer's statement

I, _____, certify that the nature and purpose, the potential benefits and possible risks associated with participating in the study have been explained to the above individual in the English language. The participant has freely agreed to participate in the study.

_____ _____/_____/_____

Signature ¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬¬of person who obtained consent

Date

Appendix 2: Questionnaire for respondents

Dear Respondent, I am a student of University of Ghana carrying out a research on self- medication perception and practice among pregnant women in Wa municipality. Therefore I am soliciting for your support in this project and implore you to participate in it. Please, respond to the questions by giving honest and accurate answers as they will contribute to the success of this study by providing baseline information about the current prevalence of self-medication and related factors. This is useful in planning a health education program that can be implemented during ANC services, I hereby assure you that all the information that will be provided to these questions will be treated confidentially, more so, your name is **NOT** require. Thank you. **ADAMA SINA.**

Data collector (s)……. Form ID…… Data of collection

A. Socio-demographic characteristics

1	Age (in completed years)	…….	A1
No	Variables (Definition)	Response	Code
2	Marital status	(0)Single (1) Married (2) Cohabitating (3) Divorced (4) Widow	A2
3	Religion	(0) Christian (1) Muslim (2) Traditionalist (3) Other specify……	A3
4	Ethnicity	(0) Dagari (1) Wale (2) Sisala (3) Twi (4) Other specify……..	A4
5	Highest level of education	(0) Not been to school (1) Primary (2) JHS (3) Secondary (4) Tertiary	A5
6	Occupational status	(0) Student (1) Self-employed (2) Government employee (3) Private Business (4) Unemployed	A6

7	Place of residence	(0) Own apartment (1) Rented (2) Living with parents	A7
8	Number of children	(0) None (1) 1 (2) 2 (3) 3+	A8
9	NHIS status	(0) Insured (1) Not insured	A9

B. Prevalence of self-medication among pregnant women

10	Have you fallen sick or experience any symptoms for the past one months since you became pregnant?	**(1)Yes** **(0) No**	**B1**
11	If yes, what did you do?	(0)Went to the hospital/ clinic to see the doctor (1) Bought drug from the drug store (2) Took some herbal medication (3) Took some left over drugs from the previous visit (4) Took some medicine from a relative or friend	**B2**
12	Did you take drugs without physician prescription since you became pregnant?	(0)No (1)Yes	**B3**
13	How many occasions have you taken medicine without physician prescription since you became pregnant?	(0) Once (3) > three times (1) Twice (2) Thrice	**B4**

C. Which drugs are often used in self-medication among pregnant women and for what conditions?

14	Which of these drug(s) have you used in the past two months without a doctor's prescription? (Multiple answers are allowed) Check more than one if applicable**.**	(C1) Paracetamol (C12) Amoxicillin (C2) Septrin (C12) Worm expel (C3) Herbal medicine (C13) Antacid (C4) Diclofenac (C14) Ampicillin (C5) Ibuprofen (C15) cough sysrup C6) Flagyl (C19) Other specify (C16) Diazepam (C7) Tramadol (C17) Vitamins	C1-C19

		(C8) Omeprazole (C18) Piriton (C9) Coartem	
15	What is the reason for using this/ these drug(s)? Indicate which of this/ these condition(s) is/are been treated for past two months without consulting a doctor	(C20) Abdominal discomfort (C21) Malaria (C26) MSP (C22) Headache (C27) Allergies (C23) Vomiting (C28) Insomnia (C24) Nausea (C29) Indigestion/PUD (C25) RTI (C30) STI	C20-C32

D. Factors influencing self-medication

16	Did you have any passed experience with the selected drugs above?	(0) No (1)Yes	D1
17	If yes, was it the reason for using the drug without prescription?	(0)No (1)Yes	D2
18	How will you describe the sickness/ illness	(0)Illness are not serious (minor) (1)Illness are serious	D3
19	How old is your pregnancy?	……	D4
20	Is there a health facility in your village or area?	(0) No (1) Yes	D5
21	Is the facility far from where you stay or live?	(1) Yes (0) No	D6
22	Does the facility have enough skilled professional to meet your health needs?	(1) Yes (0) No	D7
23	How will you describe the waiting time at your health facility	(0) Normal (1) Short (2) Long	D8

24	How many times are you told there is no medicine in the facility since you became pregnant?	(0) Never (1) Sometimes (2) Always	**D9**
25	Is it difficult getting transportation to the health facility?	(1) Yes (0) No	D10
26	Is the cost of transportation expensive?	(0) No (1) Yes	D11
27	Are there chemical shops/	1) Yes	D12

	pharmacies in your area?	(0) No	
28	If yes, how often do you visit there to buy medicine/drug not prescribed by a doctor since you became pregnant?	(0) Never (1) Sometimes (2) Often	D13
29	How do you consider closeness of the pharmacy/chemical shop to you?	(0) Very close (1) Close (2) Far (3) Very far	D14
30	Do they sell medicines to you without a doctor prescription even when they knew you are pregnant?	(1) Yes (0) No	D15
31	Do you consider these drugs you buy from the pharmacies expensive?	(1) Yes (0) No	D16
32	Have you ever used traditional medicine and herbs for treatment since you became pregnant?	(1) Yes (0) No	D17
33	Can you share with me the reasons for using the traditional medicine and herbs?	…… ……	D18
34	Will you consider traditional medicine more potent than orthodox (modern) medicine?	(0) No (1) Yes	D19

THANK YOU FOR PARTICIPATING

Appendix 3: Definition of Variables and their scale of measurement

Table 3.2: Operational Definitions of variables and their scale of measurement

Variable	Type of Variable	Operational Definition	Scale of Measurement	Objectives
Self-medication	Dependent	Taking a drug without a physician prescription since respondents became pregnant	Nominal	One
Age	Independent	Age at last birthday of respondent on the day of interview	Nominal	Two
Marital status	Independent	Marital status on the day of interview	Nominal	Two
Religion	Independent	Religious status of respondent on the day of interview	Nominal	Two
Ethnicity	Independent	Ethnicity affiliation	Nominal	Two
Place of Residence		Respondents place of residence on the day of interview	Nominal	Two
Educational status	Independent	Respondents highest level of education attained	Ordinal	Two
Occupational status	Independent	Occupation of respondent on the day of interview	Nominal	Two
Parity	Independent	No of deliveries at the time of interview		

Table 3.3: Operational Definition of variables and their scale of measurement

Variable	Type of Variable	Operational Definition	Scale of measurement	Objective
Stage of pregnancy	Independent	Gestational age of respondent at 1st ANC visit	Ordinal	Two
NHIS status	Independent	NHIS status at time of interview	Nominal	Two
Perceived illness as minor	Independent	Illness described as not serious by respondents	Nominal	Two
Prior experience about medication	Independent	Respondents experience about a drug at the time of interview	Nominal	Two
Availability of health facility	Independent	Presence of health facility in your village	Nominal	Two
Accessibility of health facility	Independent	Proximity of health facility to respondents	Nominal	Two
Availability of skilled personnel	independent	Presence of skilled health personnel to meet respondents health care	Nominal	Two
Waiting time	independent	Length of time from when the respondents entered the OPD to the time he leave the OPD	Ordinal	Two

Table 3.4: Definition of variables and their scale of measurement

Variable	Type of Variable	Operation Definition	Scale of Measurement	Objectives
Availability of Medicine at the health facility	Independent	Respondents been served drugs prescribed by the physician	Nominal	Two
Accessibility of transportation to the health	Independent	Getting means of transport to the health facility	Nominal	Two
Cost of transportation	Independent	Affordability of cost of transportation by respondents	Nominal	Two
Availability of chemical shops	independent	Availability of chemical shop in respondents area or village	Nominal	Two
Accessibility of drugs without prescription	Independent	Respondents easy access to drugs without prescription	Nominal	Two
Cost of medicine bought from chemical shop	Independent	The cost of medicine of non-prescribed drug To respondents	Nominal	Two
Cultural norms and beliefs	independent	Presence of cultural norms and belief	Nominal	Two

Appendix 4: Ethical Approval Letter

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

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

My Ref. GHS/RDD/ERC/Admin/App/17/333
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com

Sina Adama
School of Public Health
University of the Ghana
Legon

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC: 15/12/2016**
Project Title	"Self-Medication Perception and Practice among Pregnant Women in Wa Municipality"
Approval Date	7th March, 2017
Expiry Date	6th March, 2018
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report **after completion** of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra