

**UNIVERSITY OF GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH**

**FACTORS INFLUENCING SELF-MEDICATION AMONG STUDENTS OF
UNIVERSITY OF GHANA, LEGON**

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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA,
LEGON IN PARTIAL FULFILLMENT FOR THE REQUIREMENT FOR THE
AWARD OF MASTER OF PUBLIC HEALTH (MPH) DEGREE**

JULY, 2017

DECLARATION

I, COSMOS ELIKPLIM GBADAGO hereby declare that, with the exception of cited literature, this study is the result of my own original research and has not been presented elsewhere either in part or in whole.

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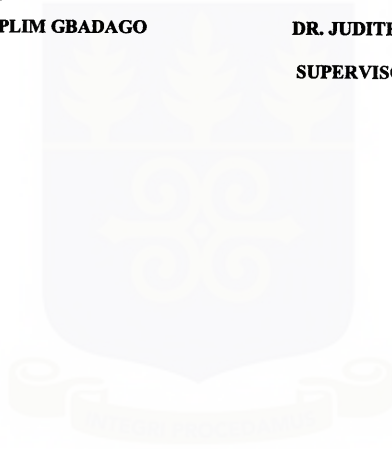
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DEDICATION

This work is dedicated to God Almighty, my Parents (Mr. & Mrs. James Gbadago), my siblings (Prosper, Lawrence, Valentine, and Patrick) and to Dr. Leonard Derkyi-Kwarteng, Mr. Fianko Klutse and Mrs. Kyeraa Ama Thomford.



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God bless you!!!

ABSTRACT

Self-medication is the act of obtaining and consuming drug(s) without the advice of a physician for treatment of self-diagnosed symptoms or illness. This praxis plays a major role in self-care and hence its adoption worldwide. According to International Pharmaceutical Federation (F.I.P) and World Health Organization (W.H.O), the public is well informed in recent times and as a result, have made their health care a more inclusive personal concern. W.H.O in collaboration with governments has encouraged prudent and discreet self-care only when it is backed with quality information and knowledge about the drugs used. The youth, many of which are students contributes a greater proportion to this practice.

This study used a cross-sectional approach to determine the factors influencing self-medication among students of the University of Ghana, Legon. Primary data was gathered from 396 students using a questionnaire through a random sampling technique. The data was entered and analyzed using STATA 14.1 and the chi-square test was used to determine associations between variables.

The prevalence of self-medication among students was forty-eight percent (48.0%). The practice of self-medication was common among females (54.8%) than in males (45.2%). Logistic regression analysis shows a significant difference ($p < 0.05$) between the race of respondents and the practice of self-medication. The most commonly used drug classes were antibiotics (37.1%), antimalarials (17.9%) and analgesics (13.2%). Most students obtain their drugs from the pharmacy (71.3%), friends/roommates (8.9%) and medicines from home (7.2%).

Majority practiced self-medication because they believed the condition did not merit a physician visit (40.4%) while others felt they were aware of treatment options (35.4%). Major sources of good medical information from students were from pharmacists, doctors, and the internet. A proportion of 15.38% of the student had suffered one form of Adverse Drug Reaction as a result of the act.

Although medical charges have been embedded in the fees of students, most students would still practice self-medication. Students have shown inadequate knowledge on the implication of drugs aside side effects. The high incidence of ADR among students as a result of self-medication raises public health concerns.

Keywords: Adverse Drug Reaction, Self-medication, Students

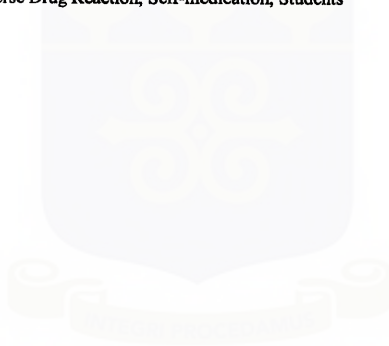


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LIST OF ABBREVIATION

| | |
|---------------|--|
| ADE | Adverse Drug Effect |
| ADR(s) | Adverse Drug Reaction(s) |
| DR | Drug Resistance |
| FDA | Food and Drug Authority |
| GI | Gastro Intestinal |
| G6PD | Glucose-6-Phosphate-Dehydrogenase |
| IPF | International Pharmaceutical Federation |
| OTC | Over-the-Counter Drugs |
| SC | Self-care |
| SPSS | Statistical Package for Social Sciences |
| SM | Self-medication |
| UG | University of Ghana |
| WHO | World Health Organisation |

CHAPTER ONE

INTRODUCTION

1.1 Background

Self-medication involves the use of medicines to treat self-recognized diseases or symptoms; or the intermittent or continued use of prescribed medication for chronic or recurring disease or symptoms; or the use of medications of family members (WHO, 2000). Drugs for self-medication are called Over-the-Counter drugs (OTC). Self-medication is an adopted worldwide practice even though people are not restricting themselves entirely to non-prescription medicine or Over-the-Counter (OTC) drugs (Omolase *et al.*, 2007). The consumer is normally being sold Over-the-Counter drugs usually without a prescription or note from a primary healthcare provider. Self-medication or non-prescription drugs have been accepted to have a leading role in health care alongside a conscious improvement in people's education, knowledge and socioeconomic status (WHO, 2008). These factors have led to the successful integration of self-medication in health care systems across the globe.

Cooper, (2013) has however, laid emphasis on the need for responsible self-medication in the quest to use drugs as prophylaxis or in the treatment of symptoms and ailments that need less medical consultation or oversight. The practice over the years has aided in minimizing the pressure on the medical services in performing their day to day routine. This helps indigenes of remote or rural communities especially those who have difficulty in accessing medical services. The need to seek professional health care only arises when the condition fails to respond to the drug and the condition still persists (Afolabi, 2012).

The populace fails to appreciate the fact that drugs are natural or man-made chemical substances designed to mimic the immune system of the body to fight an infection when administered and absorbed based on the principles of pharmacodynamics and pharmacokinetics of the drug (Handelsman *et al.*, 2004). Drugs can, therefore, be harmful when guidelines and or indications for the use of drugs are disregarded.

Most fields of science (behavioral, parasitology, ethnobotany, chemical ecology, conservation) and physicians have developed an interest in the rapidly increasing act of self-medicating due to the rate of the abuse of OTC drugs and the resistance and or adverse effect the drugs pose (Clayton *et al.*, 1993). Balamurugani and Ganesh (2011) associated high self-care practices to the lack of knowledge of self-medicating and possible implications. Is this really the Problem? According to Dabney, (2015) however, the medical or health community especially physicians and pharmacists are not entirely immune to the enigma of drug abuse since a high prevalence of the practice was recorded amongst them. Ironically, the very people hypothetically thought to preserve the moral code of the drug profession are ill-users of the tool of their trade (Dabney, 2015). Hence not only does general knowledge of drug pose as a determinant for self-medication but also the availability and access to prescription medications.

Drugs have been irrationally used over the years (WHO). Drugs used during self-medication practice are more as compared to prescribed drugs in developing countries due to the lack of adequate health services that lead to readily available drugs (Shankar *et al.*, 2002). In developing countries, people tend to treat themselves with any medicine they may think of without considering its toxic or harmful effects which may arise (Tillement & Delaveau, 2007).

Some of the factors influencing self-medication according to Galato *et al.*, (2009) are; life style, drug availability, the drive to cope with certain sicknesses through self-care, advertisement exposure, high level of education, professional status and lack of healthcare facility. Some other determinants influencing the act of self-medication are patient satisfaction with the healthcare provider, high charges during private doctor consultations, long waiting times, high price tag on drugs, educational status, gender and age (Sherazi *et al.*, 2012). Rural or distant community to the medical facility could have even more terrible situations that deprive them socially, economically and educationally. Adults tend to practice self-medication to boost their sexual activity (Sherazi *et al.*, 2012). Females in Mexico are reported to practice self-medication more than males (Leyva-Flores *et al.*, 2001).

A consequence of self-medication is an Adverse Drug Reaction (ADR); a response that is noxious and unintended, and occurs normally at doses used in man for the prophylaxis or treatment of disease, or for the modifications of physiological function (WHO). ADRs may occur following a single dose or prolonged administration of a drug or the result of a combined effect of two or more drugs. According to Arikpo and Eja, (2010), majority of the population in Nigeria practice self-medication. Most of the drugs used include antibiotics, analgesics, herbs and other chemicals as remedies.

Most adverse drug reaction cases resulted from drugs such as; Non-Steroidal Anti-inflammatory Drugs (NSAID), diuretics, warfarin, acetylcholine inhibitors, antidepressants, B-blockers, opiates, Digoxin, Prednisolone among others (Pirmohamed *et al.*, 2016).

The contributing adverse effects of these drugs range from acute effects such as; constipation, rash, wheezing, to chronic effects such as; Gastro Intestinal (GI) bleeding, peptic ulceration, hemorrhagic cerebrovascular accident, osteoporotic fracture, Steven Johnson's disease and G6PD defect. A study done in the United Kingdom by (Pirmohamed *et al.*, 2016) suggests that out of all admissions about 6.5% are as of adverse drug reactions as against 5% estimated from a pooled data from several studies worldwide (Einarson, 1993). Unfortunately, however, pathogens have increasing been resistant towards drugs over the years subsequently exacerbating clinical situations (Nino *et al.*, 2006).

Most major causes of antibiotic resistance include the non-adherence to doses and times as prescribed by the physician, or the consumption of two or more drugs inappropriately or the unreasonable use of antibiotics when they are not needed and inability to complete the full course of the drug. In developing countries, worst situations are envisaged since only a few of all the cases are being reported. It is always tempting to use an antibiotic for a previous illness that has led to one's recovery when experiencing a similar symptom. Nevertheless, it is the physician's work to perform an examination to ascertain what illness it is and prescribe a drug to that effect. Many winter illnesses might bring about similar outcomes but do not necessarily require same treatment option.

1.2 Problem Statement

Self-medication has drawn global concerns over the years due to the increasing rate in the ill-use of Over-the-Counter drugs. The prevalence of self-medication in Greece, Palestine, India, and Pakistan is 77.9%, 98%, 71% and 76% respectively (Zhu *et al.*, 2015). In developing countries, it is considered a normal practice as such; the prevalence of self-medication is higher as compared to developed countries (Novignon *et al.*, 2011; Tillement & Delaveau, 2007). In Ghana, the practice is even common among health care practitioners (Boateng, 2009). Virtually everyone contributes a quota to this health issue; families, friends, neighbors, healthcare providers, advertisement in newspapers or magazines, televisions or radio and the internet are obvious sources places where information about drugs and drug use are learned (Sherazi *et al.*, 2012). Thus, if people have knowledge on how susceptible they are to implications of self-medications, the severity of the implications, they will not indulge into self-medication carelessly. On the contrary, they will ensure they seek hospital intervention for proper examination, diagnosis, and treatment for their illnesses. More so, the driving force behind self-medication differs from place to place (Novignon *et al.*, 2011).

The practice is prevalent among the youth especially students. Students are not exempted from this menace as the prevalence of self-care is within 24% - 95% across countries (Pan *et al.*, 2012; Aditya & Rattan, 2013; Zhu *et al.*, 2015). Self-medication amongst first-year medical students in India was 52.8% amongst female participants against male participants 47.2% (Kasulkar & Gupta, 2015).

Furthermore, students are also using prescription-only drugs such as antibiotics and antimalarials in self-care, Arikpo and Eja, (2010) and consequently predisposing themselves to the risk of developing resistance. High level of education ironically increases the practice of self-care. Amongst the self-treated Chinese students, 43.5% holds the perception that antibiotic was appropriate for use of infections with viral origin. Gutema *et al.*, (2011) reported that out of 307 surveyed students a prevalence of 43.24% was recorded among health science students of Mekelle University, Ethiopia.

The aftermath of self-medication include; wastage of resources, increased resistance of microbes to drugs and implicated health perils such as Adverse Drug Reaction and prolonged suffering (Osemene & Lamikanra, 2012). Studies revealed that the youth contributes more to self-medication practice Osemene and Lamikanra (2012) and as such the consequences will increase in magnitude. ADR is implicated as a cardinal cause of mortality and morbidity in health care. In January 2000, the Institute of Medicine in the US reported that from 44,000 to 98,000 deaths that occur per annum from medical errors, a projected 7,000 deaths occur due to ADRs (FDA, 2014).

According to FDA, *“If these estimates are correct, then there are more than 2,216,000 serious ADRs in hospitalized patients, causing over 106,000 deaths annually. If true, then ADRs are the 4th leading cause of death—ahead of pulmonary disease, diabetes, AIDS, pneumonia, accidents, and automobile deaths.” “However, whatever the true number is, ADRs represent a significant public health problem that is, for the most part, preventable.”*

The University of Ghana has numerous pharmacy shops surrounding it from inside out hence this study will aim at collecting data to determine whether proximity to pharmacies in the presence or absence of free medical service at the University Hospital contributes to self-medication.

This study will gather data on some of the factors contributing to self-medication among students of the University of Ghana.

1.3 Research Question

1. What is the burden of self-medication among University of Ghana students?
2. What are the factors influencing self-medication among students?
3. What are the commonly used self-medicated drugs?

1.4 Objectives

The general objective of the study is to determine the factors influencing self-medication among students of the University of Ghana. The specific objectives are:

1. To determine the drug classes commonly used among students.
2. To determine the common sources of the drugs used.
3. To find the determinants of self-medication among students.
4. To assess the students' knowledge about self-medication and its implication on health and health seeking behavior.

1.5 Conceptual Framework

Frame work on self-medication among students

The conceptual framework is presented as Figure 1.1 as depicted below. The framework shows the factors that contribute to self-medication among students. Most Adverse Drug Reactions are associated with practices of self-medication.

There is an overlap among individual differences, personal information, general information and drugs in the sense that at each point a student per his/her age or education would self-medicate or is even more likely to self-medicate if the drugs are available to him/her.

Perception of students about health care systems or attitudes of health practitioners could also lead to self-medication. People or students per their own experiences and perceptions about drugs would tend to self-medicate because they have a perceived severity of a disease condition and hence would take any drug at a certain dosage or time to alleviate the disease condition being treated. Sometimes students may be attempted to combine two or more drugs disregarding the combined effect of the drugs.

In this 21st century, technology is a tool for development and destruction, as such students with per their educational background would check online on a particular disease condition and its management practice rather than visiting the hospital for a more accurate and efficient management practice. The media may play a role in promoting self-medication practices with the increasing rate of advertisement on drugs and their usage. Ghanaians are very noted for their hospitality and hence would prescribe a drug he/she might have taken to a fellow who apparently is suffering from a similar health condition.

Generally, students do not prefer talking about their ill-health conditions and or their health insurance status and therefore would on their own purchase any drug from the pharmacy or drug store. Irrespective of specific individual differences and past history, students tend to purchase these drugs disregarding their own allergies, skin problems, hypersensitivity, and resistance to pathogens and or adverse drug effects of the use of these drugs.

In a nutshell, education about drug and drug usage is limited, while most of the information out there is misleading and tends to promote the irrational abuse of drugs amongst students. The health care providers should educate students on responsible self-medication.

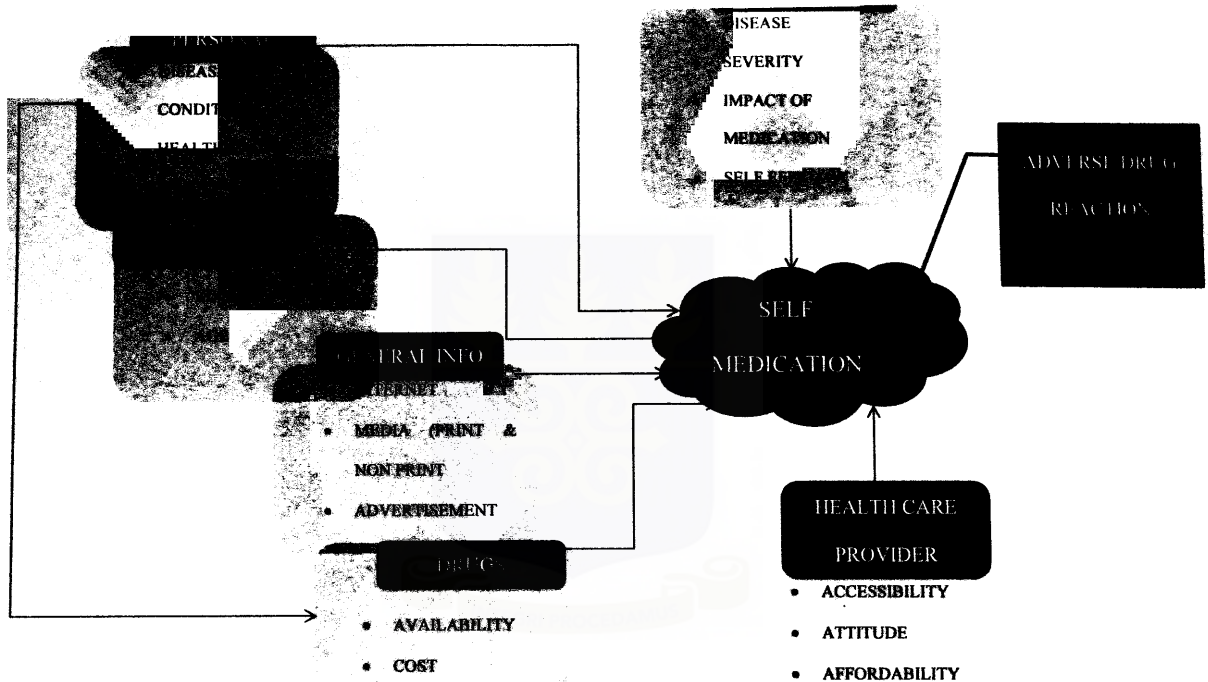


Figure 1.1: Conceptual framework of the self-medication among

1.6 Justification

Self-medication predisposes one to potential harmful effects of medicines and also results in a delay in seeking hospital intervention, consequently complicating one's condition. Surprisingly, in spite of the harmful effects and implications associated with self-medication the practiced of self-medication is prevalent. Literature suggests a high prevalence level and this can be attributed to the lack of quality information about the potentially deleterious effects and other implications of the increased exposure to drugs. Studies have also emphasized the increase in self-medication due to the potential to self-manage health at a lower cost.

Results of this study will be critical in facilitating the development of strategies that will be deployed in addressing the factors contributing to the increased prevalence of self-medication among students. This study will also form a basis to address limitations of students in seeking health care from the University Hospital. This will intend to intensify students' knowledge on drugs and its associated consequences on the health of individuals and the world at large.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The concept of self-medication entails diagnosing, prescribing and treating oneself upon ill-health. Public health concerns have been raised with regards to the practice backed by adequate knowledge on the implications associated with the practice. On a global scale, the prevalence of self-medication is quite high but differs from place to place as reasons or factors which facilitate the practice are diverse.

2.1 Self-medication

The concept of self-medication or self-care or self-prescription is an adopted worldwide practice (Omolase *et al.*, 2007). Self-prescription takes two forms; one that permits one to purchase the drug from the pharmacy and one that occurs through the improper use of prescribed drugs from a physician. Self-medication is therefore defined as the act of obtaining and consuming drugs without the advice of a physician either for diagnosis, surveillance or monitoring of treatment (Montastruc *et al.*, 1997). Though the concept of self-medication is generally high globally; especially in developing countries and in Africa in particular, it is quite alarming and has reached a crisis. People are not restricting themselves entirely to non-prescription medicine or Over-the-Counter drugs (Omolase *et al.*, 2007). Interestingly everyone contributes a quota to this health issue; families, relatives, friends, neighbors, the pharmacist, advertisement in newspapers on televisions or popular magazines or radio are sources of self-medications (Sherazi *et al.*, 2012).

This chapter reviews the factors influencing self-medication theoretically and empirically among the general populace.

2.2 Knowledge of self-medication

Non-prescription drugs play a leading role in healthcare giving individuals the opportunity to make self-governing and binding decisions in regards to their health. In the presence of continual improvement in quality and substantial education of the populace, overall knowledge and socioeconomic status, self-care has been accepted to have a leading role in health care (WHO, 2008). Responsible self-medication is however paramount in other to maintain quality health care at lower costs (Cooper, 2013; Biduki, 2013). The practice leads to self-empowerment as it builds confidence and enable one to be responsible for ones' own health (Azhar *et al.*, 2013). Globally, self-medication minimizes the pressure on health care facilities and saves productive time spent on waiting to see the doctor. The public patronizes OTC drugs as it has been hailed to be safer, beneficial and effective than prescription medicines (Bissell, Ward, & Noyce, 2001; Hughes *et al.*, 2002; Grime *et al.*, 2007). This knowledge has consequently led to abuse of OTC medicines. More so, lack of knowledge of the health consequences or hazards of self-medication is contributing to the increase act of self-medication even to the extent of using substances believe to have got medicinal properties (Tillement & Delaveau, 2007; Balamurugani & Ganesh, 2011).According to Arikpo and Eja, 2010, 99.4% of Nigerians self-medication using drugs such as antibiotics, pain killers, herbs and chemical remedies and as such it is rare a-practice to consult physicians.

The above study supports findings that revealed self-medication prevalence of 95% amongst market women in Lagos, Nigeria (Afolabi, 2008). In Sudan, Malawi and Kenya the prevalence of self-medication was 73.9%, 56%, and 53.5% respectively (Awad, 2005; Novignon *et al.*, 2011; Monjeza, 2013).

Some of the sources gathered about self-medication to have led to self-medication are; friends, relatives, pharmacists, textbooks, media and the internet (Mehta & Sharma, 2015; Levson & Monjeza, 2013; Kayalvizhi & Senapathi, 2007). Other factors contributing to self-medication among people with less knowledge about self-medication is due to the lack of adequate health services that lead to the ready availability of a wide-ranging of drugs (Partha & Shenoy, 2002; Shankar *et al.*, 2002). Most studies, however, suggests that students have good knowledge on self-medication (Mehta & Sharma, 2015; Levson & Monjeza, 2013; Kayalvizhi & Senapathi, 2007). The practice of self-medication persists even though the knowledge on the use of certain drugs used in the treatment of cold, cough, diarrhea, dysmenorrhea, catarrh, fever, vomiting and nausea is low (Mehta & Sharma, 2015; Levson & Monjeza, 2013; Kayalvizhi & Senapathi, 2007). Most of the commonly used drugs among students are analgesics, antipyretics, antibiotics, anti-allergies and antihistamines. But availability and access to drugs also contribute to self-medication and this was evident in a study conducted among doctors and pharmacists in Korle-Bu Teaching Hospital, Ghana (Boateng, 2009).

2.3 The Practice of self-medication

Self-medication is a global practice but the factors influencing it differ from place to place (Novignon *et al.*, 2011). Countries themselves contribute to the menace since the laws and regulations on drugs and drug use and advertisement is either lax or not functioning effectively. Self-medication is prevalent in Greece, Palestine, India, and Pakistan at a rate of 77.9%, 98%, 71% and 76% respectively (Zhu *et al.*, 2015). Self-medication is promoted in Tanzania due to illegal operators of pharmacies that have made drugs readily available to patients (Kagashe *et al.*, 2010). Such was the case of Amina Ibrahim, a 12-year-old girl who died in Nigeria after patronizing a drug from a quack chemist in Nigeria (Punch, 2016).

It is of great concern when people use medications without prescription from the legitimate prescriber as they may take inappropriate drugs for their conditions, at inappropriate doses, frequency or duration, resulting into development of harmful effects, resistance and even delay them in seeking for hospital intervention, thereby complicating their conditions (Azhar *et al.*, 2013). For instance, some patients in the eye clinic developed blindness as a result of self-medication for eye infections (Kagashe & Massawe, 2012).

Some of the factors influencing self-medication according to Galato *et al.*, (2009) are; life style, drug availability, the initiative to manage certain illnesses through self-care, and lack of healthcare facility, exposure to the adverts, the level of education and occupational status.

Over-the-counter (OTC) medications are intended for self-medication and are of evidenced efficacy and safety, but their incorrect usage due to the deficiency in knowledge of the precise dose, side-effects and interactions could pose serious implications on the well-being of a person (Kumar *et al.*, 2015). Irrational use of OTC comes with associated disadvantages such as; waste of resources, the intense resistance of pathogens and implicated health hazards such as Adverse Drug Reaction and elongated suffering (Osemene & Lamikanra, 2012). Most Adverse Drug Reactions (ADRs) befalls an individual upon the ingestion of doses usually used in man for the prophylaxis, diagnosis, or analysis of disease (Davies & O'Mahony, 2015). Sawalha, (2008) reported an association of Over-The-Counter (OTC) drugs with adverse health reactions and fatalities.

The public has been informed to perceive OTC drugs to be safer, beneficial and effective than prescription medicines (Bissell *et al.*, 2001; Hughes *et al.*, 2002; Grime *et al.*, 2007), but other studies have shown some potentially harmful effects of OTC drugs (Lessenger & Feinberg, 2008). This knowledge has consequently led to misuse or abuse of OTC medicines and their potential to cause addiction and dependency.

Widespread usage of antimicrobials without medical guidance may up shoot the consequence of incorrect, inappropriate or undue therapy, missed diagnosis, pathogen resistance and increased morbidity (Sherazi *et al.*, 2012). Some OTC medicines may also have severe interactions with prescribed medicines (Honig & Gillespie, 1998).

Even though responsible self-medication subjectively minimizes the cost of management and visiting the doctor, it would be appropriate if consumers have sufficient knowledge about the pharmacokinetics (the body's way of absorbing, distributing, metabolizing excreting or eliminating drugs) and pharmacodynamics (actions of the drugs on the body) of the drugs they use. The lack of information and knowledge about the drugs can, however, lead to serious health implications such as antibiotic resistance, skin problem hypersensitivity and allergy (Bennadi, 2013).

Thus, if people have knowledge on how susceptible they are to implications of self-medications, the severity of the implications, they will not indulge into self-medication carelessly; rather will ensure they seek hospital intervention for proper examination, diagnosis, and treatment for their illnesses.

According to Afolabi, 2012 high illiteracy rate and poor exposure to medical information in most developing countries could be some of the contributing factors to the high prevalence of self-medication. However, in a medical school in India, Self-medication amongst first-year students was 52.8% in female participants against male participants 47.2% (Kasulkar & Gupta, 2015). Studies revealed that the youth contributes more to self-medication practice (Osemene & Lamikanra, 2012). Socioeconomic factors, individual life style, accessibility and availability to drugs, the drive to treat certain illnesses through self-care, the lack of healthcare facility, exposure to advertisement, educational status and professional status (Galato *et al.*, 2009).

2.4 Fake drugs and self-medication

Counterfeit and substandard pharmaceutical products are increasingly circulating and distributed around the world especially in the developing countries (WHO, 2006). These drugs are normally in high demands and used for the prevention and treatment of highly prevalent diseases such as antimalarial drugs in endemic countries. This inevitably contributes to morbidity, mortality and drug resistance and further leads to spurious reporting of resistance and toxicity and loss of confidence in health-care systems (Newton *et al.*, 2006). It behooves on governments to tighten up their drug regulatory laws, policies and surveillance in their countries to curb the increase in fake drugs imported, manufactured and sold by fake or pharmacists or chemists.

CHAPTER THREE

METHODS

3.1 Study Design

The study used a cross-sectional quantitative approach. It attempted to measure self-medication or self-prescription practices among students through the use of a questionnaire. A structured questionnaire was used as the main tool for data collection (Appendix A).

3.2 Study Site

The University of Ghana is the Premier University established in Ghana. It was founded as the University College of the Gold Coast by Ordinance on August 11, 1948, on the mandate of providing and promoting tertiary education, learning and research. The University of Ghana is among the 13 public funded universities in Ghana. The University of Ghana is located in Accra, the Capital of Ghana and has three campuses; Legon, Korle-Bu (medical school) and Ghana Atomic Energy Commission campus. The University has its main campus based at Legon, about 12km northeast of the center of Accra. The Legon campus is sited at Ayawaso West Wagon constituency, a suburb of the Capital city. The University runs Degree, Post-graduate, Doctorate and Post-doctorate programs. The University currently has nearly 38,000 students (UG website, 2016).

3.3 Study Variable

The cross-sectional study seeks to determine the association between the information about drugs and self-medication.

Outcome Variable: Self-medication

Independent Variables:

- a. Race
- b. Education level
- c. College of students
- d. Sources of drugs
- e. Type of drugs
- f. Medical condition
- g. Knowledge of free access to health care for students
- h. Distance to hospital/health care provider

3.4 Study Population

The study targeted both undergraduate and post graduate students from the University of Ghana. The student population is made up of over 38,000 students enrolled on regular programmes, sandwich programmes, and distance education as well as students from affiliated institutions.

The school has a growing number of international students from across the globe from over 70 countries to enroll in either the regular undergraduate and graduate programmes.

There are currently 16 Halls of residence located at different sections of the campus these comprise, 5 traditional halls of which 1 is an all-male hall (Commonwealth) and another an all-female hall (Volta hall), 4 newly constructed unisex halls, 2 international hostels, 2 postgraduate hostels and 3 other privately owned hostels of which SSNIT hostel is part.

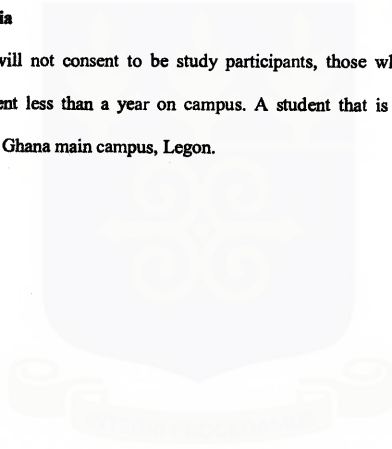
Most of these halls and hostels have shops and pharmacy centers within their premises. There is a clinic located on the campus to provide medical services to staff and students. The University also has a Hospital located few meters from the main campus.

Inclusion criteria

Must be a student pursuing a programme in the University of Ghana. The student must be resident on the Legon campus of the University.

Exclusion criteria

Those who will not consent to be study participants, those who were not feeling well/sick, spent less than a year on campus. A student that is not resident on the University of Ghana main campus, Legon.



3.5 Sampling procedure/method

The study employed the use of proportionate stratified sampling, systematic random sampling, and simple random sampling techniques. The student population was divided into subgroups based on their halls of residence.

Proportionate Stratified sampling: The halls of residence were grouped into five strata; traditional same sex halls, foreign student halls, postgraduate halls and Unisex halls (2). The two unisex halls were used while one out every other hall in the strata was selected through balloting. In effect, there were proportions (84) for the selected halls. This provided a good and less complicated avenue for the selection of the students based on the sub groups or the strata.

Systematic random sampling: A list of the total number of rooms was obtained from the hall tutors. A sample of 84 rooms in the hall was obtained by dividing the total number of rooms by 84 then every n th number of the resulting room was used.

Simple random sampling: An individual from each room was chosen via balloting in cases where they are more than one.

3.6 Data collection technique

The main tool for this study was a structured questionnaire. The questionnaire was prepared in the English language. The questionnaire was organized into three main sub-structured sections. The first was to obtain the socio-demographic characteristics of the study participants such as age, sex, race, the level of education and college.

The second part of the questionnaire contains information that was aimed at collecting the factors and attitudes towards the practice of self-medication, sources, commonly used drugs, and the factors influencing self-medication.

The third section collected information on students' knowledge on the implication of drugs and Adverse Drug Reaction. A copy is attached as Appendix A.

3.7 Sample size

The sample size was calculated using a 95% confidence interval, at a 5% margin of error and assuming 60.9% prevalence of self-medication among university of Ghana students based on the mean prevalence obtained from Nigeria, Ethiopia and China (Osemene & Lamikanra, 2012; Gutema *et al.*, 2011; Zhu *et al.*, 2015). The sample size will be calculated based on the following formula; $N = \frac{z^2 * (p) (1-p)}{d^2}$

N= required sample size,

Z=1.96 (at 95% confidence interval)

P=Prevalence of self-medication,

d=Margin of error

$$N = \frac{1.96^2 * (0.609) * (1 - 0.609)}{0.05^2}$$

With the parameters above, the sample size when calculated was 366. The size was appreciated by 15% i.e. 54 was added to sample size (n) for anticipated subjects who would refuse to participate in the study after being randomly selected and for the null and void questionnaires. Hence the sample size was subsequently 420.

3.8 Data Collection & Analysis

Initial data was collected from the questionnaire, coded sequentially and entered into STATA 14 and Statistical Package for Social Sciences (SPSS) statistical software respectively for analysis using a 95% confidence interval. Chi-square was used to establish any association between self-medication and the variables under study. Regression was used to determine the influence of socioeconomic factors on self-medication practices among students.

3.9 Quality Control

Some students were trained as field workers to administer the questionnaires. The questionnaire was pre-tested at the University of Cape Coast because it has an equally rich diversity of its student membership.

3.10 Ethical Consideration

A proposal of this study was submitted to the Ghana Health Service Ethics Review Committee for approval before the study commenced. Permission was sought from the various Hall Tutors before approaching the students in the halls of residences.

Permission and consent were sought from residential students of the University before including them in the study. They were given a detailed description of the study and its importance for them to gain understanding into the study before consenting to partake in the study. A copy of the consent form is attached as Appendix B

3.10.1 Compensation/Payment

No incentives or payment was given for participating in the study.

3.10.2 Right to refuse

Participation in this study was entirely voluntary. Participants who choose not to participate in the study declined to partake in the study. Full participation was however encouraged to ensure the questionnaires were adequately filled to avoid incomplete data.

3.10.3 Anonymity and confidentiality

Anonymity was ensured as the participants were told not to write their names and ID numbers on the questionnaires. Participation was strictly confidential as the participants were left to fill the questionnaire themselves. Personal Information of participants was not taken.

3.10.4 Consent

Consent was sought from students before their participation in the study. At the initial meeting, the study was read and explained to prospective participant. If the participant was interested in participating in the study, the written consent form which contains study procedure was read by the participant and/or by a translator and any questions raised by the participant was addressed accordingly. Participants were required to sign a statement of declaration, indicating they have understood the purpose, procedures, risks, and benefits of the study and their free-will to participate. The students were given their space to answer the questionnaire. There were no visually impaired persons in this study.

3.10.5 Data storage/ Security and Usage

All research data and records were protected against inappropriate use or disclosure in order to protect the confidentiality of subject data. Electronic data files were also stored in password protected folder with access limited to only the Principal Investigator and Supervisors.

3.10.6 Conflict of Interest

There was no conflict of interest pertaining to the study.



CHAPTER FOUR

RESULTS

4.1 Baseline characteristics of participants:

This chapter contains results from analyzed data collected from the survey questionnaire. Analysis was done with the mind eye of the objectives of the study. A total of four hundred and twenty (420) questionnaires were distributed for self-administration with a 94.3% (396/420) response rate. The demographic characteristics of the respondents and self-medication practices are shown in Table 4.1 below. There were more African respondents (92.0%) as compared to Non-African respondents (7.8%). Students were aged 17-37 years (median: 22; Mean: 22.6 \pm .173 SD; mode 22). The proportion of students that self-medicate as a first line of action was 48.0% out of which 21.7% are males and 26.3% are females. The demographic characteristics were subjected to a chi-square test to determine the level of significance. As such, there was a significant difference between the race of respondents and self-medication. In most cases across the groups, respondents would as a first line of action, practice self-medicate (48.0%) whilst others would ignore feeling (28.3%), consult a doctor (15.9%) and or pray/rest (7.8%). The table 4.1 below is the demographic characteristics of respondents and their first line of action when ill. The outcome variable is self-medicate; grouped into "self-medicate Yes" and "self-medicate No". "Self-medicate No", comprises respondents that ignore feeling, consult a doctor and pray/rest as a first line of action.

Table 4.1: Demographic characteristics of students and their first line of action when ill

| Variables | n (%) | First line of action when ill (% ± SD) | | p-value |
|--------------------------|-----------|--|----------------|---------|
| | | Self-medicate | Self-medicate | |
| | | Yes | No | |
| Sex | | | | 0.106 |
| Male | 196(49.5) | 86(21.7±.021) | 110(27.8±.023) | |
| Female | 200(50.5) | 104(26.3±.022) | 96(24.2±.022) | |
| Race | | | | 0.008* |
| African | 365(92.0) | 168(42.4±.025) | 197(49.7±.025) | |
| Non-African | 31(7.8) | 22(5.6±.012) | 9(2.3±.008) | |
| Marital Status | | | | 0.299 |
| Single | 380(96.0) | 185(46.7±.025) | 195(49.2±.025) | |
| Married | 14(3.5) | 5(1.3±.006) | 9(2.2±.008) | |
| Widowed | 2(0.5) | 0 | 2(0.5±.004) | |
| Educational Level | | | | 0.472 |
| 100 | 56(14.1) | 27(6.8±.013) | 29(7.3±.013) | |
| 200 | 60(15.2) | 28(7.1±.013) | 32(8.1±.014) | |
| 300 | 69(15.9) | 38(9.6±.015) | 31(7.8±.014) | |
| 400 | 115(29.0) | 50(12.6±.017) | 65(16.4±.019) | |
| 500 | 6(1.5) | 5(1.3±.006) | 1(0.3±.003) | |
| 600 | 66(16.7) | 32(8.1±.014) | 34(8.6±.086) | |
| Others (PhD) | 24(6.1) | 10(2.5±.008) | 14(3.5±.009) | |
| College | | | | 0.208 |
| Basic & Applied Sciences | 118(29.2) | 52(13.2±.017) | 66(16.7±.019) | |
| Education | 9(2.3) | 2(0.5±.011) | 7(1.8±.007) | |
| Health Sciences | 48(12.2) | 27(6.8±.013) | 21(5.3±.011) | |
| Humanities | 220(55.7) | 109(27.6±.022) | 111(28.0±.023) | |

P-value* < 0.05

4.2 Results of study variables

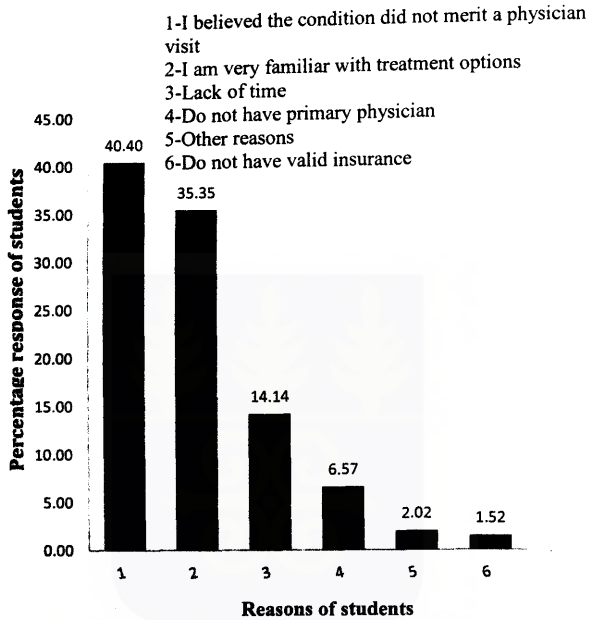


Figure 4.1: Reason for Self-medicating by students

Among 198 respondents 80 (40.00%) believed their conditions did not merit a physician visit while 70/198 noted they were familiar with treatment options. The rest 14.14% (28/198) and 6.56% (13/198) mentioned lack of time, primary physician while 2.02% (4/198) and 1.52% (3/198) had other reasons and noted it was due to an invalid insurance respectively.

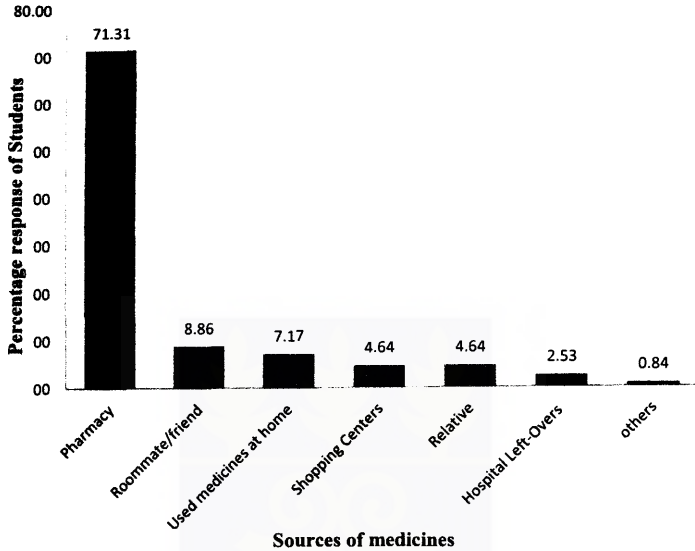


Figure 4.2: Sources of medicines used by students

One hundred and ninety (190) representing 47.98% of the subjects practiced self-medication. However there were 237 responses due to the multiple natures of the responses. Out of which, 71.31% (169/237) respondents mostly obtain their drugs from the pharmacy, 8.86% (21/237) had roommates/friends giving them the drugs, 7.17% (17/237) took used medicines from their homes, 4.64% (11/237) obtained it from shopping centers and relatives, only 2.53% (6/237) and 0.84% (2/237) obtained it as a result of left-overs from medications given at the hospitals and from other sources respectively.

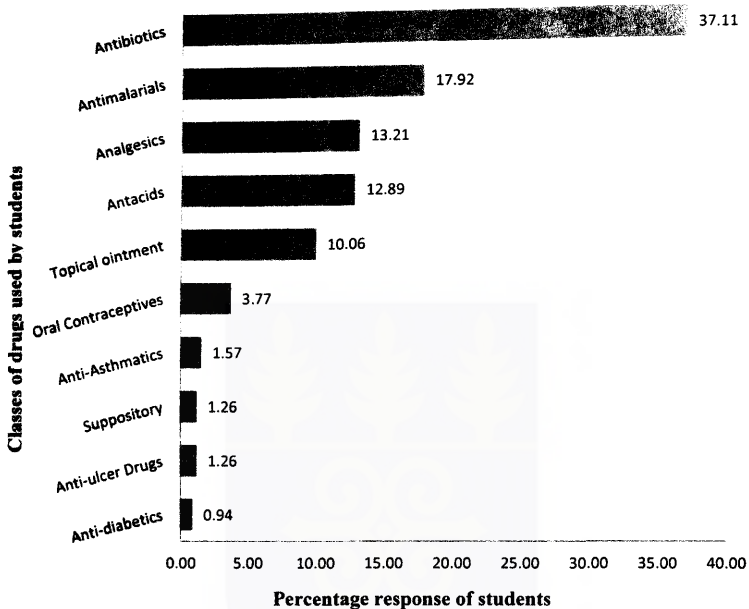


Figure 4.3: Classes of medicines used by students

Among 190 self-treated students, 98.95% (188/190) had a total of 318 responses. The most frequent drug used for self-medication was antibiotics 118 (37.11%) and in descending order antimalarials, analgesics, antacids, topical ointments, oral contraceptives, anti-asthmatics, suppository, anti-ulcer drugs, anti-diabetic drugs with proportions of 17.92% (57/318), 13.21% (42/318), 12.89% (41/318), 10.06% (32/318), 3.77% (12/318), 1.57% (5/318), 1.26% (4/318), 1.26% (4/318) and 0.94% (3/318) respectively.

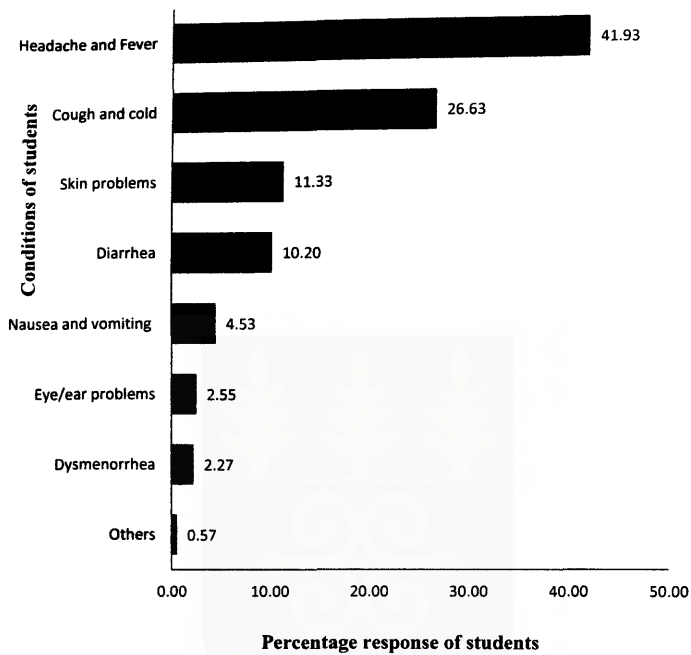


Figure 4.4: Conditions that necessitate student to self-medicate

A total of 353 responses were obtained from respondents that practiced self-medication (190); 189 valid cases and 1 missing data. Conditions that prompts respondents to resort to self-medication includes; headache and fever 148 (41.93%), cough and cold 94 (26.63%), skin problems 40 (11.33%), diarrhea 36 (10.20%), Nausea and vomiting 16 (4.53%), Eye/ear problems 9 (2.55%), Dysmenorrhea 8 (2.27%) and others 2 (0.57%).

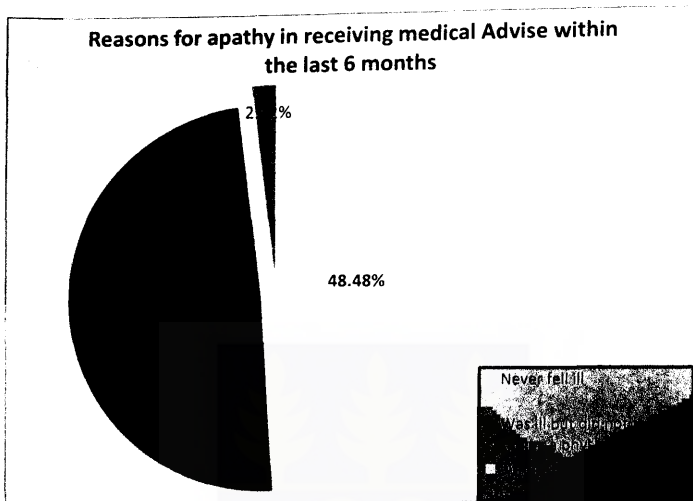


Figure 4.5: Reasons students give for not receiving medical advice within the last 6 months

Ninety- nine respondents representing 52.11% did not seek medical advice within the last 6 months. Reasons respondents gave include; never fell ill (48.48%), was ill but did not feel like seeing the physician (48.48%) and other reasons (2.02%).

Table 4.2: Precautions students take before administering drugs

| Precautions taken before administration of drugs | Frequency | % responses n (219) | % cases n (186) |
|---|------------------|--------------------------------|----------------------------|
| Read the label | 119 | 54.34 | 63.98 |
| Call the a doctor | 13 | 5.94 | 6.99 |
| Ask the pharmacist | 70 | 31.96 | 37.63 |
| Do nothing | 17 | 7.76 | 9.14 |
| Total | 219 | 100 | 117.74 |

Valid Cases: 186

Missing cases: 4

Among the 190 respondents that practice self-medication, 186 performed one form of precautionary measure while 4 respondents did not fill this portion. However, there were 219 responses since it was a multiple response question.

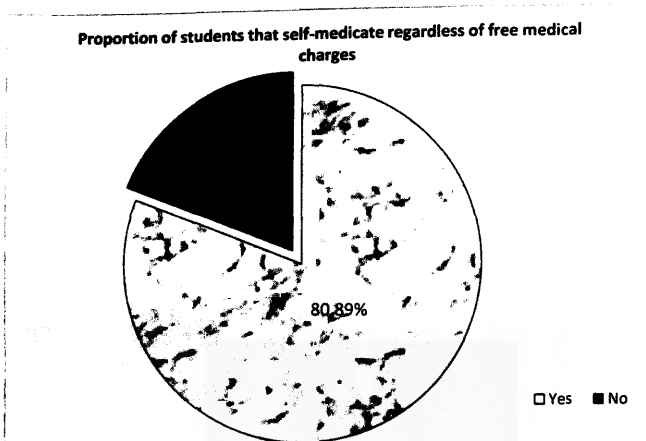


Figure 4.6: Proportion that practice self-medication amidst free medical charges

One hundred and fifty-seven (157) respondents agreed having knowledge of free medical charges in the hospital. One hundred and twenty-seven (127) representing 80.89% stated they would self-medicate regardless of their knowledge on the free medical charges.

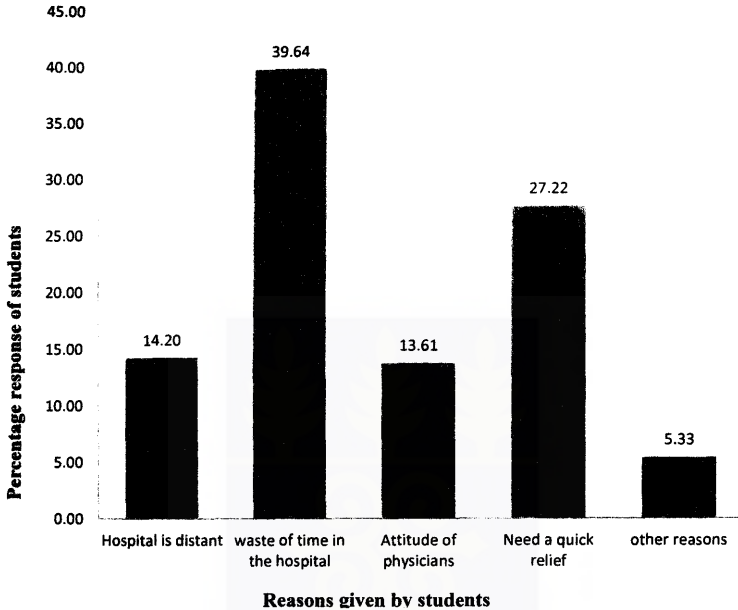


Figure 4.7: Reasons for self-medicating amidst knowledge of free medical charges.

This is out of the 127 respondents that would self-medicate amidst their knowledge on the free medical charges. There were 169 responses since it was a multiple response question. Reasons respondents indicated for self-medicating regardless of their knowledge include; waste of time in the hospital 39.64% (67/169), need a quick relief 27.22% (46/169), hospital is distant 14.20% (24/169), attitude of physicians 13.61% (23/169) and other reasons 5.33% (9/169).

Table 4.3: Sources of good medical information by students

| Sources of good medical information | Frequency | Percent of responses n (498) | Percent of cases n (385) |
|-------------------------------------|------------|------------------------------|--------------------------|
| Physicians | 301 | 60.44 | 78.18 |
| Pharmacist | 94 | 18.88 | 24.42 |
| Internet | 70 | 14.06 | 18.18 |
| Medical book | 16 | 3.21 | 4.16 |
| Relatives | 9 | 1.81 | 2.34 |
| Neighbors | 8 | 1.61 | 2.08 |
| Total | 498 | 100 | 129.29 |

Valid Cases: 385

Missing cases: 11

Out of 396 questionnaires, 97.22% (385/396) respondents filled this portion. Among the 190 students that practice self-medication, a sample of 187 responded to this question. A proportion of 56.91% noted good medical information could be obtained from physicians/doctors, 20.33% from pharmacists and 14.23% from the internet and so on.

Table 4.4: Precautions students take before administering drugs

| Precautions taken before administration of drugs | Frequency | Percent of responses n (443) | Percent of cases n (375) |
|---|------------------|-------------------------------------|---------------------------------|
| Read the label | 238 | 53.72 | 63.47 |
| Ask the pharmacist | 142 | 32.05 | 37.87 |
| Do nothing | 36 | 8.13 | 9.60 |
| Call the doctor | 27 | 6.09 | 7.20 |
| Total | 443 | 100 | 118.14 |

It is worth noting that, 53.72% of students would read the leaflet that comes with the drug, 32.05% would ask the pharmacist but 8.13% would prefer to do nothing compared to calling the doctor (6.09%).

Proportion of students that have suffered adverse Drug Reaction

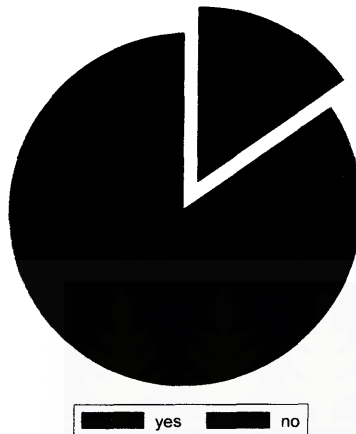


Figure 4.8: Proportion of students that suffered an Adverse Drug Reaction

Among the 190 respondents that practice self-medication as a first line of action, 15.38% (22/190) have suffered one form of Adverse Drug Reaction before.

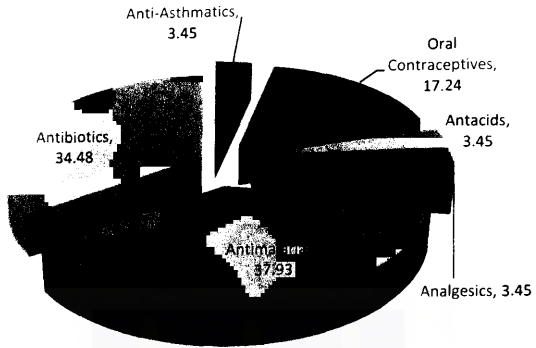


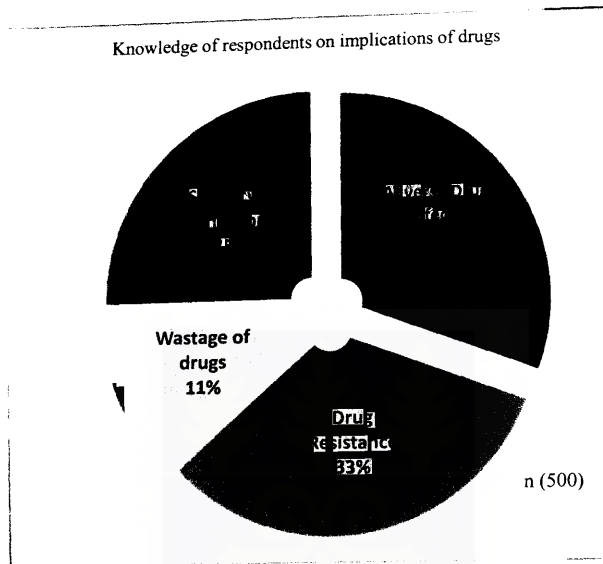
Figure 4.9: Drug classes that caused ADR among students

A total of the 22 (15.38%) students had suffered from Adverse Drug Reaction. The most class of drug that caused ADR among respondents include Antimalarials 11 (37.93%), Antibiotics (34.48%), Oral contraceptives 5 (17.24%) and 1 (3.45%) for Antacids, Analgesics, and Anti-asthmatics.

Table 4.5: Signs experienced by students as a result of ADR

| Signs of ADR | Frequency (n) | Percent (%) |
|--------------|---------------|-------------|
| Rash | 11 | 50 |
| Others | 6 | 27.27 |
| GI bleeding | 3 | 13.64 |
| Ulcer | 2 | 9.09 |
| Total | 22 | 100 |

Among the 190 respondents that practice self-medication, 22 had experience one form of ADR before.



Valid Cases: 376

Missing Cases: 20

Figure 4.10: Respondents' knowledge on the implications of drugs

The 20 missing cases did not fill this response while the valid cases were respondents that filled the response. This is a multiple response question that had 500 responses. The knowledge of respondents on the implication of drugs includes; drug resistance 33% (164/500), Adverse Drug Effects 31% (153/500), severity of condition 25% (126/500) and wastage of drugs 11% (57/500)

CHAPTER FIVE

DISCUSSION

5.1 Discussion

This study has found that self-medication is very common among students of University of Ghana, Legon. It has been reported however that the incidence of self-medication is reliant on how the questions are structured within the questionnaire (Almasdy & Sharri, 2011) where questioning current practice yielded high rates (Sawalha, 2008; Zafar *et al.*, 2008; Klemenc-Ketis *et al.*, 2010; James *et al.*, 2006; Verma *et al.*, 2010; Ali *et al.*, 2010). The study showed 48.0% of students practiced self-medication as the first line of action when ill. This is similar to reported rates of 47.9% at Jiangsu University (JSU) and 47.8% at Shantou University (STU) in China (Zhu *et al.*, 2015). However, among the proportion that self-medicate, the practice of self-medication occurs more frequently amongst females (54.8%) than in males (45.2%). This is similar to reports in China (Zhu *et al.*, 2015).

Forty per cent of the respondents that self-medicate as the first line of action believed their conditions did not merit a physician visit, (35.35%) noted they were familiar with treatment options, a proportion (14.14%) said it was due to the mere lack of time, (6.56%) explained it was due to the lack of primary physician, (2.02%) and (1.52%) had other reasons and noted it was due to an invalid insurance respectively.

Results of the present study was established in previous studies (Sawalha, 2008; Zafar *et al.*, 2008; Klemenc-Ketis *et al.*, 2010; James *et al.*, 2008; Ghosh *et al.*, 2010), the main reasons for self-medication include health problem being not serious, the illness is minor, to get quick relief of the condition and to avoid long waiting at clinics.

Similarly, findings from this study were in line with those reported among students of universities in other countries (James *et al.*, 2006; Sontakke *et al.*, 2011; Olayemi *et al.*, 2010). According to Sharif *et al.*, (2012) most students obtained their drugs from the pharmacy. Conversely this study revealed a greater proportion of medicines were obtained from the pharmacy (71.31%), (8.86%) had roommates/friends giving them the drugs possibly due to the hospitable nature of Ghanaians, (7.17%) took used medicines from their homes, (4.64%) obtained it from shopping centers and relatives, only (2.53%) and (0.84%) obtained it as a result of left-overs from medications given at the hospitals and from other sources respectively (Mehta & Sharma, 2015; Levson & Monjeza, 2013; Kayalvizhi & Senapathi, 2007).

There are a wide range of drug classes used by students in this study. The most frequent drug used for self-medication was antibiotics (37.11%) as indicated by Siddique *et al.*, (2015), followed by antimalarials (17.92%), thus can be as a result of the high prevalence of malaria cases in Ghana. Analgesics, antacids, topical ointments, oral contraceptives, anti-asthmatics, suppository, anti-ulcer and anti-diabetic drugs are in decreasing order of proportions of (17.92%), (13.21%), (12.89%), (10.06%), (3.77%), (1.57%), (1.26%), (1.26%) and (0.94%) respectively.

The uncontrollable incoherent use of antibiotics and antimalarials without the guidance of a medical practitioner may result greatly in an increased probability of inappropriate, incorrect, or undue health care, incomprehensible diagnosis, microbial resistance and accrued morbidity (Sherazi *et al.*, 2012). Medical conditions that prompt respondents to resort to self-medication include; a headache and fever, cough and cold, skin problems, diarrhea, nausea and vomiting, eye/ear problems and dysmenorrhea.

The symptoms for which self-medication was practiced reported in other studies include a headache or mild pain, eye and ear symptoms, gastric problems, cold, fever and allergy (Hughes *et al.*, 2001; James *et al.*, 2006; Sawalha, 2008; Zafar *et al.*, 2008).

Interestingly, although the cost of health care is free for students in the University's hospital, a low proportion (47.89%) visited the hospital for medical advice. This suggests that students do not go for medical consultation regardless of the avenue the University provides. This study shows that females visit the hospital more than the males as males are 0.08 times more likely to ignore the feeling rather than seeing the physician. The reasons for not visiting the hospital paints an interesting picture as 48.48% of the respondents argued they never fell ill and never sort to visit the physician, 48.48% however noted they were ill but did not feel like seeing the doctor.

As literates, it was prudent for students to read the labels on drugs before administering any drug and this was depicted in this study as 54.34% of the respondents would read the labels as a precautionary measure. Others would ask the pharmacist and or call the doctor, while some would prefer to do nothing. Free medical care is however not a means to discourage students from self-medicating since among the 157 respondents that had knowledge of free medical charges, 80.89% (127/157) of the population would self-medicate be what may. The reasons suggest that a lot of time is being wasted in the hospital (39.64%), the need for a quick relief (27.22%), distance to the hospital (14.20%) and the negative attitude of physicians (13.61%).

Balamurugani and Ganesh (2011) associated high self-care practices to the lack of knowledge of self-medicating and possible implications. This claim is however not true as it was evident that students had an idea on the implications drugs bring aside the side

effects of drugs. 33% of respondents knew about drug resistance caused by the abuse of drugs while 31% also indicated about having knowledge on Adverse Drug Effects of drugs. The knowledge is inadequate as the proportion was less than 50 percent. Interestingly, an approximate of 54% of students would read the leaflet that comes with the drug, 32% would ask the pharmacist while 8% would prefer to do nothing as compared to a proportion of 6% that would call the doctor. 15.38% of respondents suffered an Adverse Drug Reaction as a result of self-medication. The drugs that were implicated includes; anti-malarial, antibiotics, oral contraceptives, anti-asthmatics, analgesics and antacids.

A very alarming observation is the use of antibiotics for self-medication despite one-third of the participants' knowledge of the possibility of development of bacterial resistance. It is however sad to say knowledge does not translate to behavior change.

5.2 Limitations of study

Although the research has reached its aims, there were some shortcomings and limitations. First, the research was conducted late into the semester due to delayed ethical approval. Students were leaving campus; this resulted to the high response rate of finalists (level 400) who were available due to their research. Second, the study did not look into the individual drugs used by students as a first line of action. This decision was based on the pilot study conducted where students show little or no knowledge of the drugs used as a first line of action. Lastly, students were encouraged to fill the questionnaire independently but mutual influence cannot be ruled out.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Self-medication was prevalent among students of University of Ghana, Legon. The practice was most common among the female population. The three most commonly used class of drugs is antibiotics, anti-malarials and analgesics obtained from pharmacies and roommates or friends. Some determinants of the practice of self-medication were; the long hours of waiting time in the hospital, the attitude of health care practitioners and the need for a quick relief. The distance to the hospital was however, the least of reasons that prevented students from visiting the hospital. Students showed inadequate knowledge of the implication of drugs aside side effects posed by drugs. The proportion of students that had experienced an Adverse Drug Reaction whilst self-medicating was quite high. Knowledge of students on the health dangers associated with the irresponsible practice of self-medication does not translate to their behavior change. Students tend to read the labels and the leaflet that comes with the drugs before administering the drug. Thus, they do as a precautionary measure. Besides this, they would ask the pharmacist for guidance.

6.2 Recommendation

The practice of self-medication among students was quite high and should be discouraged. The University Hospital should organize public lectures to educate students on the need for responsible self-medication. Even though the pharmaceutical industry is a private business, the University Hospital should liaise with pharmacies on the campus to bridge the gap in the delivery of health care. Therefore, pharmacies on the campus should be integrated within the University's health system to ensure that prescribers have adequate knowledge on the history of students before any prescription is made. The health care system should be more patient friendly as more people tend to say ill about the attitude of health workers at the health care facility. The health facility should essentially be a place for healing; physical, psychological and social.

Since there are varied reasons why people resort to the practice of self-medication, interventions should usually aim at specific populations and risk factors. There is also the need for effective public education and implementation of laws and regulations on antibiotic and antimalarials sales/use will be effective ways to fight against Self-medication. The University of Ghana Hospital should organize public lectures to educate students and integrate an all friendly initiative to foster good health care practices among students.

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APPENDICES

APPENDIX A: Questionnaire for students in the University of Ghana

SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA



QUESTIONNAIRE FOR DATA COLLECTION

I am –Cosmos Elikplim Gbadago–, a Masters student in the School of Public Health. I am carrying out a study on “**the factors influencing self-medication among University of Ghana students**”. I would be grateful if you would take off a bit of your time and answer the questions that appear below for me.

Any information obtained would be treated with the confidentiality that it deserves. I am counting on your cooperation.

RESEARCH PARTICIPANT: STUDENTS OF THE UNIVERSITY OF GHANA

Date of interview: ____/____/ 2017

Participant's ID

No.: _____

Instructions: Check or tick (✓) the numbers that comes with the options provided.

1. SOCIO-DEMOGRAPHIC INFORMATION

| No. | Variable | Response | Code |
|-----|--------------------------|---|-------|
| 1 | Age (in completed years) | | Age |
| 2 | Sex | (1) Male (2) Female | Sex |
| 3 | Race | (1) African (2) Non-African | Race |
| 4 | Marital Status | (1) Single (2) Married (3) Divorced (4) Widow | marst |
| 5 | Education level | (1) 100 (2) 200 (3) 300 (4) 400 (5) 500 (6) 600 (7) others..... | level |
| 6 | College | (1) College of Basic and Applied Science (2) College of Education (3) College of Health Sciences (4) College of Humanities | Colle |

HEALTH SEEKING BEHAVIOUR

| No | Variable | Response | Code |
|----|--|---|------|
| 7 | What is your first action most of the time when you feel ill? | (1). self-medicate (2). Consult a doctor (3). Ignore the feeling (4). Rest/Pray | ill |
| 8 | If you self-medicate when you feel ill, please choose a reason for doing that. | (1). Lack of time (2). Do not have a primary physician (3). Don't have valid Insurance (4). I am very familiar with treatment options (5). I believed the condition did not merit a physician visit (6). Other reasons | Reas |

| | | | |
|----|--|---|--------|
| 9 | Where are some of the sources you obtain drugs for self-medication from? | (1) Pharmacy (2) shopping centers (3) left-over from the hospital (4) from a roommate/friend (5) from a relative (6) used medicines at home (7) Others (specify)..... | source |
| 10 | Which of the following drug classes have you ever used on your own without a prescription? | (1) Antacids (2) Antibiotics (3) Analgesic (4) Antimalarials (5) Oral contraceptives (6) Anti-ulcer Drugs (7) Anti-Diabetics (8). Anti-Asthmatics (9) topical ointment (10) Suppository | class |
| 11 | What conditions necessitates you to self-medicate? | (1) headache and fever (2) cough and cold (3) Nausea and Vomiting (4) diarrhea (5) Skin problems (6) Eye/ear problems (7) Dysmenorrhea (8) others (specify)..... | cond |
| 12 | In the last six months, have you received medical advice from a physician? | (1). Yes (2). No | advi |
| 13 | If No to Q12 Why? | (1). Never feel ill (2). Was ill but did not feel like seeing a physician (3). Others (specify) - ---- | wadvi |
| 14 | What precautions do you take before administering the drug? | (1) Read the label (2) Call the doctor (3) Ask the pharmacist (4) Do nothing | prec |
| 15 | Are you aware the cost of health care is free for students at the University of Ghana? | (1) Yes (2) No | cost |
| 16 | If Yes in Q15 , would you still purchase your very own drug from a pharmacy? | (1) Yes (2) No | purc |

| | | | |
|----|--|--|-------|
| 17 | If Yes in Q16 Why? | (1). Distance to the hospital is far as compared to the pharmacy (2). Waste of time in the hospital (3). Attitudes of doctors in the hospital (4). Need a quick relief (5). Other reasons ----- ----- | wpurc |
| 18 | Where do you consider obtaining good medical information from? | (1) Doctors/physicians (2) Pharmacist (3) Relatives (4) Neighbours (5) Internet (6) Medical books | info |

ADVERSE DRUG EFFECT

| No | Variable | Response | Code |
|----|---|--|-------|
| 19 | Aside from side effects of drugs, what other implications of drugs do you know of? | (1) Adverse Drug Effect (2) Drug resistance (3) Wastage of drugs (4) Severity of condition | imp |
| 20 | Have you heard about Adverse Drug Effect (ADR) | (1) Yes (2) No | adr |
| 21 | If Yes in Q20, continue from Q21 Where did you obtain knowledge about ADR from? | (1) A doctor/ physician (2) Pharmacist (3) Internet (4) Books (5) a friend/relative (6) Lectures | whadr |

| | | | |
|----|--|--|-------|
| 22 | Have you experienced ADR of a drug while self-medicating before? | (1) Yes (2) No | self |
| 23 | If YES in Q22, continue with Q23, What type of drug were you taking that led to ADR? | (1) Antacids (2) Antibiotics (3) Analgesic (4) Antimalarials (5) Oral contraceptives (6) Anti-ulcer Drugs (7) Anti-Asthmatics (8). Anti-Diabetics | drug |
| 24 | What signs were you experiencing as a result of ADR? | (1) Rash (2) Ulcer (3) GI bleeding (4) Steven Johnson Syndrome (5) others (specify)..... | signs |

End of interview. Thank you so much for accepting to participate in the study and for your responses and time.

APPENDIX B: Consent form for participation in the study

Study Title: Factors influencing Self-medication among university of Ghana students

Principal Investigator: Cosmos Elikplim Gbadago

Address: School of Public Health, University of Ghana, Legon

Greetings, my name isand I am conducting this interview on behalf of Cosmos Elikplim Gbadago an MPH student of School of Public Health (University of Ghana), Legon.

Self-medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, treatment or monitoring of treatment. Irresponsible self-medication can lead to adverse drug effect, drug resistance and waste in resources.

This study tends to determine the factors influencing students to self-medicate in the University of Ghana. This study subsequently will aid in finding solutions to better inform the health choices students make. You are invited to participate in the study because I understand you know the importance of your health, especially in regards to drugs and drug use.

This will take about 10 minutes of your time. If you agree to participate, you are among the respondent participating in saving lives in making informed decisions about drugs and their usage. Participating is entirely voluntary. You have the right to withdraw at any point you wish and will not affect your rights in any way, especially to seek your healthcare needs but would be most grateful to see you participate to the end.

There are no direct benefits or risks in participating. You will not be paid or compensated for your participation. However, the information gathered will help us to understand the factors influencing self-medication among University of Ghana students and help in

solving them. The questions are not very sensitive. However, you may feel uncomfortable answering some of them and you can choose not to answer them. Information collected from you will be treated strictly as confidential and will be used for the intended purpose only. You will not be identified by name in any dissemination reports or publications resulting from this study.

The Ghana Health Service Ethics Review Committee has reviewed and given approval for this study to be conducted. The Dean of Students has also approved that the research is conducted.

Do you have any questions or clarifications?

However, if you have any further questions regarding this study, which I could not satisfy you with the appropriate answer, you may contact;

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School of Public Health
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Hannah Frimpong,
GHS-Ethical Review Committee
0507041223
Hannah.Frimpong@ghsmail.org
ghserc@gmail.com.

Participant Consent

I have been adequately informed about the purpose, procedure, potential risks and benefits of this study. I have had the opportunity to ask questions and have been provided answers to my satisfaction. I know that I can refuse to participate in this study without any loss of benefit for which I would be entitled to. I understand that even if I agree or as I have agreed, I can withdraw my consent at any time without losing any benefits or services to which I am entitled.

I also understand that the information collected will be treated confidentially and will be used only for the purpose informed. Finally, findings/results may assist us in policy development with regards skilled delivery service improvement.

I freely agree to participate in this study.

ID of participant.....

Signature or Right Thumb Print of Participant

Date.....

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE



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Case of reply the number and date of this letter should be quoted.

My Ref: *GHS/RDD/ERC/Admin/App/51* 4
Your Ref. No.

Ghadago Cosmos Elikplim
University of Ghana
School of Public Health
Legon, Accra

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

| | |
|------------------|--|
| GHS-ERC Number | GHS-ERC: 48/02/17 |
| Project Title | Factors Influencing Self-Medication among University of Ghana Students |
| Approval Date | 10 th May, 2017 |
| Expiry Date | 9 th May, 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)

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