FACTORS RELATED TO SELF-MEDICATION AND ITS EFFECTS ON THE HEALTH OF UNIVERSITY STUDENTS IN UGANDA

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REG NO: 2014- M282-20039

UGANDA MARTYRS UNIVERSITY

OCTOBER, 2016

Factors Related to Self-Medication and its Effects on the Health of University Students in Uganda

A postgraduate dissertation

Presented to

Faculty of Health Sciences

in partial fulfillment of the requirements for the award of

a degree of Master of Public Health-Health Promotion

Uganda Martyrs University

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2014-M282-20039

October, 2016

DEDICATION

I dedicate this dissertation to my parents Mr and Mrs Rubariita John Francis for the social spiritual and material support throughout my education.

May the almighty God bless you abundantly.

ACKNOWLEDGEMENTS

My appreciation to all of you, whose assistance in one way or the other has finally led to the accomplishment of this work. Although I cannot list all your names here, I will forever remain grateful to you and also to the following. May the Lord bless you abundantly and replenish whatever you lost for my sake a hundredth fold.

The Dean of the Faculty of Health Sciences Prof John Francis Mugisha, for ensuring that our education was a success at Uganda Martyrs University.

My supervisor Dr Miisa Nanyingi, for your support and the faith you had in me, that I could accomplish this work even though the concept was initiated late.

Ms Viviane Laing and other lecturers teaching the Master of Public Health Programme for always being available to answer my questions both online and face to face whenever I raised you.

Special appreciation goes to my classmates especially Gwaita Aggrey, Keneth Musinguzi and Wycliffe Turyasingura; my research assistants Tumwekwase Dominic, Twinomuhangi Julius, Karamuzi Cosmas and Taleme Paul for being there for me throughout the difficult times of the course.

Special thanks goes to the administration and staff of Kampala School of Health Sciences for their material and moral support that has enabled me to complete my studies.

Last but not least to my family for the care and support given to me that has enabled me to complete this master's programme.

May the almighty God reward you abundantly

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ABBREVIATIONS/ACRONYMS

ADR	Adverse Drug Reactions
HBM	Health Belief Model
KIU	Kampala international University
KYU	Kyambogo university
MDGs	Millennium Development Goals
MOH	Ministry of Health
MOH	Ministry of Health
MPH HP	Master of Public Health- Health Promotion
MU	Makerere University
NIH	National Institutes of Health
OTC	Over the Counter
SGS	Sustainable development goals
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Effect: A change or changed state occurring as a direct result of action by some body or something.

Health: Is the state of complete well being physically, socially, spiritually and mentally and not merely the a absence of disease or infirmity (WHO, 1948)

Health literacy: Refers to the degree to which individuals have the capacity to obtain, process and understand the basic health information and services needed to make appropriate health decisions (NIH, 2004).

Health Outcomes: Refers to change in the health status of an individual, group or population which is attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status.

Prescription Refers to a written order issued by a physician or other qualified practitioner that authorizes a pharmacist to supply a specific medication for a patient, with instructions on its use.

Self-Management Refers to decisions and actions taken by someone who is facing a health problem or issue in order to cope with it and improve his or her health (heath Canada, 2005).

Self-medication: The world health organization (WHO) defines self-medication as "use of pharmaceutical or medicinal products by a consumer to treat self-recognized disorders or symptoms, the intermittent or

	continued use of medication previously prescribed by a physician for chronic or recurring disease or symptom, or use of medication recommended by lay sources or health workers not entitled to prescribe medicine" (WHO, 2000).
Student	Refers to a person who is learning at a college or university, or sometimes at a school
University	Refers to a college or collection of colleges at which people study for a degree

ABSTRACT

Self-medication is a common practice in most parts of the world (Joseph et al, 2011) and it is of public health concern worldwide.

The purpose of the study was to determine the factors related to self-medication and its effects on the health of University students in Uganda. The objectives were to determine the magnitude of self-medication, to identify factors related to self-medication and to examine the effects of self-medication on the health of university students in Uganda. The study used a descriptive cross sectional design using both quantitative and qualitative methods of data collection. Quantitative data was collected from sample of 443 respondents who were asked to participate by filling a self-administered questionnaire and were selected using purposive sampling technique. While qualitative data was collected from 9 key informants and 6 focus group discussions.

The response rate was at 90.3% and the prevalence of self-medication among the university students was 65.5%. The majority (73.2%) of the study respondents generally used the painkillers for self-medication and paracetamol was the medicine used by the majority (62%).The majority of the respondents (85.7%) accessed the medicines from the pharmacies and drug shops.
The prevalence of self-medication was high (50.4%) among the age group of 21-23 years and, among students (85.7%) who had no medical insurance. However males (70.2%), exhibited higher prevalence than their female (29.8%) counterparts.
Regarding factors related to self-medication, most of the respondents (42.2%) who self-medicated complained of having a runny nose followed by cough (24.1%). Majority of the respondents (43.4%) also self-medicated for convenience purposes and saving time (37.2%) and most of the respondents (43.4%), said that their own experiences influenced their selection of medicines.

The self-medication negative effects reported were prolonged hospitalization and poor academic performance, drug resistance, adverse drug reactions like vomiting and dizziness and development of disease complications. However some respondents reported positive effects like getting quick recovery.
It can be concluded that self-medication was generally high among university students and the drugs commonly used for self-medication on pain killers**.** Factors like convenience, Cost saving lack of awareness on the existence of medical services at the university health facilities, contributed highly towards students ‘self-medication. Effects of self-medication included prolonged hospitalisation, development of disease complications and adverse drug reactions.

There is urgent need for university management to routinely sensitise the students on the health services they provide in their health facilities especially during the period of orientation and also organize health education programmes intended to promote responsible self-medication so as to reduce its dangers and increase its benefits.

CHAPTER ONE

INTRODUCTION

1.1 Back ground to the study

Self-medication is a common practice in most parts of the world and it refers to the use of medicines to treat self-diagnosed disorders without a prescription and medical supervision (Joseph et al, 2011).

The World Health Organization (WHO) also defines self-medication as "use of pharmaceutical or medicinal products by a consumer to treat self-recognized disorders or symptoms, the intermittent or continued use of medication previously prescribed by a physician for chronic or recurring disease or symptom, or use of medication recommended by lay sources or health workers not entitled to and is of public health concern worldwide prescribe medicine" (WHO, 2000).

Self-medication is widely practiced both in developed and developing countries. The people who prefer to use self-medication may face challenges of incorrect medication, delay in seeking health care, un anticipated side effects of the medication, inappropriate usage of antibiotics leading to drug resistance and taking of wrong medicines. All the fore mentioned can lead to adverse drug interaction and addiction (Osemene and Lamikanra, 2012).

Despite the known challenges of self-medication, some sections of the population find it convenient and economical especially when the targeted disease condition is perceived to be minor (Osemene and Lamikanra, 2012). Notwithstanding these advantages, self-medication possesses a high risk to the public as its disadvantages outweigh its benefits in the health care system.

Self-medication patterns are usually influenced by age, gender, education level, family, society, medical knowledge, perception of illness, self-care orientation and drug advertisements (Afolabi et al, 2008). The easy availability but uncertain scientific validity of information regarding health problems and treatment on the electronic media has also had both beneficial and detrimental effects.

Studies have found that educated people have a greater tendency to practice self-medication than illiterates (Klemenc-Ketis et al, 2010). However this keeps one wondering to why the educated people should practice self-medication. Yet, their level of education and health seeking behaviors should discourage such practices like self-medication in favour of seeking professional help. Many reasons have been documented to why the educated people like university students may prefer self-medication, the most common being mild illness, prior experience of self or a friend taking medicine, medical knowledge, perception of illness, or to save money and time (Sawalha, 2008).

In another study, it was found that 55% of medical students practiced self-medication when compared to 34% non-medical students (Yasmin, 2011; Zafar, 2008). This may be because medical students are more exposed to diseases and treatments.

The commonly used drugs for self-medication globally are antimicrobial agents especially antibiotics with over 50% purchased and used without a prescription (Cars & Nordberg, 2005).

The prevalence and nature of self-medication varies in different countries and from culture to culture worldwide (Sharma, et al, 2005). A study carried out in Nigeria reported that 57.3% of the university students used antibiotics without prescription (Skliros et al, 2010). The evidence of

the benefits and risks of drugs used in self-medication by patients is mostly obtained from past experiences with similar drugs. However these medicines may also possess rare but serious adverse effects whose occurrence can potentially outweigh their benefits (Brass, Lofstedt &Renn, 2011).

Swalha (2008) investigated sex, type of school, level of self-care orientation and level of medication knowledge as the potential factors associated with self-medication revealed that only the type of school was a significant predictor for self-medication practices, with non- medical students reporting a greater likelihood of self-medication. The same study also reported that sex, level of self-care orientation, and medication knowledge were significant predictors of self-medication practices and had significant influence on self-medication practices within specific therapeutic classes.

In using non-prescription drugs, patients take responsibility of recognizing the appropriate indication, appropriate dosage regiment or seeking medical advice in cases where adverse events may occur or when the illness does not improve (Ocan, et al, 2014).

This is a challenge especially to patients in developing countries where there are high illiteracy levels. In addition information used to help guide decision making on drug use is mostly obtained from friends/relatives, previous prescriptions and past experiences of using specific medications. The lack of adequate information to support decision making on drug use in self-medication and the challenges in regulation of drug supply and dispensing in developing countries contributes to the inappropriate use of medicines (Pirzadeh & Mostafavi, 2014).

Antimicrobial resistance is currently a major concern to developing countries where the burden of infectious diseases is high yet with limited choices of therapy (Asiimwe, 2000).

Studies have reported self-medication to be associated with poor health outcomes. Health Outcomes are a change in the health status of an individual, group or population, which is attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status (Michael et al, 2007).

Although, not encouraged by the health care professionals and the entire health care system, self-medication is one of the interventions used by some people in the management of their illnesses. In one study, it was found that 80% of medical students practiced self-medication despite being aware of some health effects (Nalini, 2010). Such undesirable health effects included development of drug tolerance, adverse side effects, over dose, under dose, and consequently drug resistance and treatment failure.

However, community treatment of common diseases using self-medication is being encouraged by the World Health Organization (WHO), as this is thought to help reduce the burden on health care services (WHO, 2000).

Self-medication is considered to be of benefit especially to developing countries where there is a challenge of limited healthcare infrastructure and human resource. However, to achieve this intention of WHO, self-medication needs to be carried out under a regulated frame work so that it does not cause more harm than good especially in developing countries like Uganda where both prescription and non-prescription drugs can be obtained without any regulatory mechanism.

Health literacy, which refers to the degree to which individuals have the capacity to obtain, process and understand the basic health information and services needed to make appropriate health decisions (NIH, 2004), has been reported to be a predictive factor to health outcomes.

The study conducted by Michael et al (2007), revealed that individuals who have limited health literacy and self-medicate themselves are likely to have very poor health effects compared to those with high levels of health literacy. This also keeps one wondering whether the levels of health literacy possessed by the university students who are engaged in the practice of self-medication are low or there could be other factors be related to it.

The current study seeks to assess the factors related to self-medication and its effects on the health of university students in Uganda.

1.2 Back ground to the study area

The study was conducted in three selected universities which included Makerere University, Kyambogo University and Kampala International University. All the three selected universities are located in Kampala, the capital city of Uganda.

Makerere University is the oldest public university in Uganda with a student population of about 50,000. It is located in Kawempe division, which is one of the divisions that make up Kampala city. The students admitted at the university come from all parts of Uganda. It has about 11 colleges and trains students in the fields of humanities, engineering and design, communication and information technology, business studies, law, health sciences, veterinary medicine and education. The study was conducted at the main campus although it has a number of branches throughout the country.

The university owns a hospital which provides free medical services to all registered students and university staff. The hospital is headed by the director and provides different health services ranging from medical, dental, laboratory, opthalmomolgy, family planning, antenatal and postnatal care. It has the in-patient and outpatient departments and is open 24 hours. It has highly qualified health workers manning the different departments. Makerere university hospital is located outside main perimeter wall of the university campus and students have to move outside the university gate to access the medical services. The students reside in the university hostels while others stay in the hostels outside the university.

The second university was Kyambogo University, which is also a public university having a population of about 20,000 students. It is located in Nakawa division, which is one of the divisions that make up Kampala city. The students admitted at the university come from all parts of the country. It has a number of faculties and trains students in the fields of humanities, engineering and design, communication and information technology, business studies, education and many more.

The university owns a health centre which provides free medical services to all registered students and university staff. The health center is headed by the Director Health Services and provides a range of different health services.

The health center has both the in-patient and outpatient departments and is open 24 hours and is located within the main perimeter wall of the university campus, which make it easy for the students to access the medical services. It has well qualified health workers manning the different departments of the health center. The students reside in the university hostels while others stay in the hostels outside the university.

The third University was Kampala International (KIU) Kansanga branch, which is a private university and has a population of about 10,000 students and is located in Makindye, which is one of the divisions that makes Kampala city. The university admits both national and international students. It trains students in the fields of humanities, engineering and design, communication and information technology, business studies, law, computer science and many more. The study was conducted at KIU Kansanga branch although it has a number of branches throughout the country and main campus in the western part of Uganda.

The university owns a clinic which provides free medical services to all registered students and university staff. The hospital is over seen by the office of the Dean of Students and provides medical and laboratory services. The university clinic is located within main perimeter wall of the university campus and is easily accessed by students. The university has very few hostels and most of them stay outside the campus which makes it hard to access the health services in case the student fell sick at night.

1.3 Problem statement

Self-medication is becoming a common type of self-care behavior among the population of many countries (Uppal1, Agarwal, and Vandana, 2014); Yet, the medicines used may also possess rare, but serious adverse effects whose occurrence can potentially outweigh their benefits (Brass, Lofstedt & Renn, 2011).

The importance of self-medication as a phenomenon has attracted the interest of health professionals including physicians and policy-makers, especially when drugs become deregulated and change from prescription status to be sold over the counter (OTC) *(*Alghanim, 2011).

Many international and national studies have investigated the prevalence and nature of self-medication practices at the population level. One of such studies carried out on patterns and predictors of self-medication in Northern Uganda revealed that a high proportion (75.7%) of the respondents practiced antimicrobial self-medication. In a selected population like that of students, one study showed that 94% of the university students in Nigeria were reported to be practicing self-medication (Marwa et al, 2014). However, the high prevalence of self-medication is associated with increasing cases of adverse drug effects such as drug resistance and poor treatment outcomes among the people who practice it.

Higher levels of education and professional status have been associated with and considered as a predictive factor for self-medication (Martins, 2002). In Isfahan University, 85% of students had experienced self-medication at least for one disease during the past 6 months (Pirzadeh, & Mostafavi, 2014). This high prevalence of self-medication in the educated class especially among the students is of public health concern. This is because these students are expected to become change agents in the communities they go to soon after their graduation and instead are likely to promote it.

Many countries, Uganda inclusive lack the capacity to regulate self-medication among the population making it difficult to have a responsible framework for controlling the practice despite the number of poor health effects like drug tolerance, drug resistance, drug over doze and sometimes giving a wrong drug for a wrong disease that compromises treatment benefits and subsequently increasing the mortality and morbidity rate of the individuals.

In Uganda just like many developing countries, medicines are freely available over the counter with or without a prescription. In fact in many instances the personnel manning these drug

outlets advise the patients on what to take. We also have drug hawkers within the public commuter taxi parks and bus stations who likewise advise patients on what medication to take including antibiotics.

Many students prefer to go and purchase drugs in the nearby pharmacies and drug shops around the universities whenever they develop an illness before consulting a medical practitioner or going to the hospital without putting in consideration the likely adverse effects they are likely to cause. However, there is no documented information on the factors related to self-medication and its effects among the university students in Uganda.

Therefore, understanding of the factors related to self-medication and its effects on the health of University students would guide the design of different interventions. The information generated if used would also help policy makers to develop approaches to help in the planning of interventions to improve the self-use of medicines and prevent the poor health outcomes that might result from it.

1.4 Goal

The goal of the study was to determine the factors related to self-medication and its effects on the health of university students in Uganda so that interventions can be made through public education to raise awareness and prevent the problems that may arise from inappropriate use of medicines.

1.5 Specific objectives

1.5.1 To determine the magnitude of self-medication among university students in Uganda.

1.5.2 To identify factors related to self-medication among university students in Uganda.

1.5.3 To examine the effects of self-medication on the health of university students in Uganda.

1.6 Research Questions

1.5.4 What was the magnitude of self-medication among university students in Uganda?

1.5.5 What factors were related to self-medication among university students in Uganda?

1.5.6 What were the effects of self-medication on the health of university students in Uganda?

1.7 Scope of the study

1.7.1 The geographical scope

The researcher conducted the study from three selected Ugandan universities (Makerere University, Kyambogo University and Kampala International University (Kansanga branch)), located in the central part of Uganda.

1.7.2 Technical scope

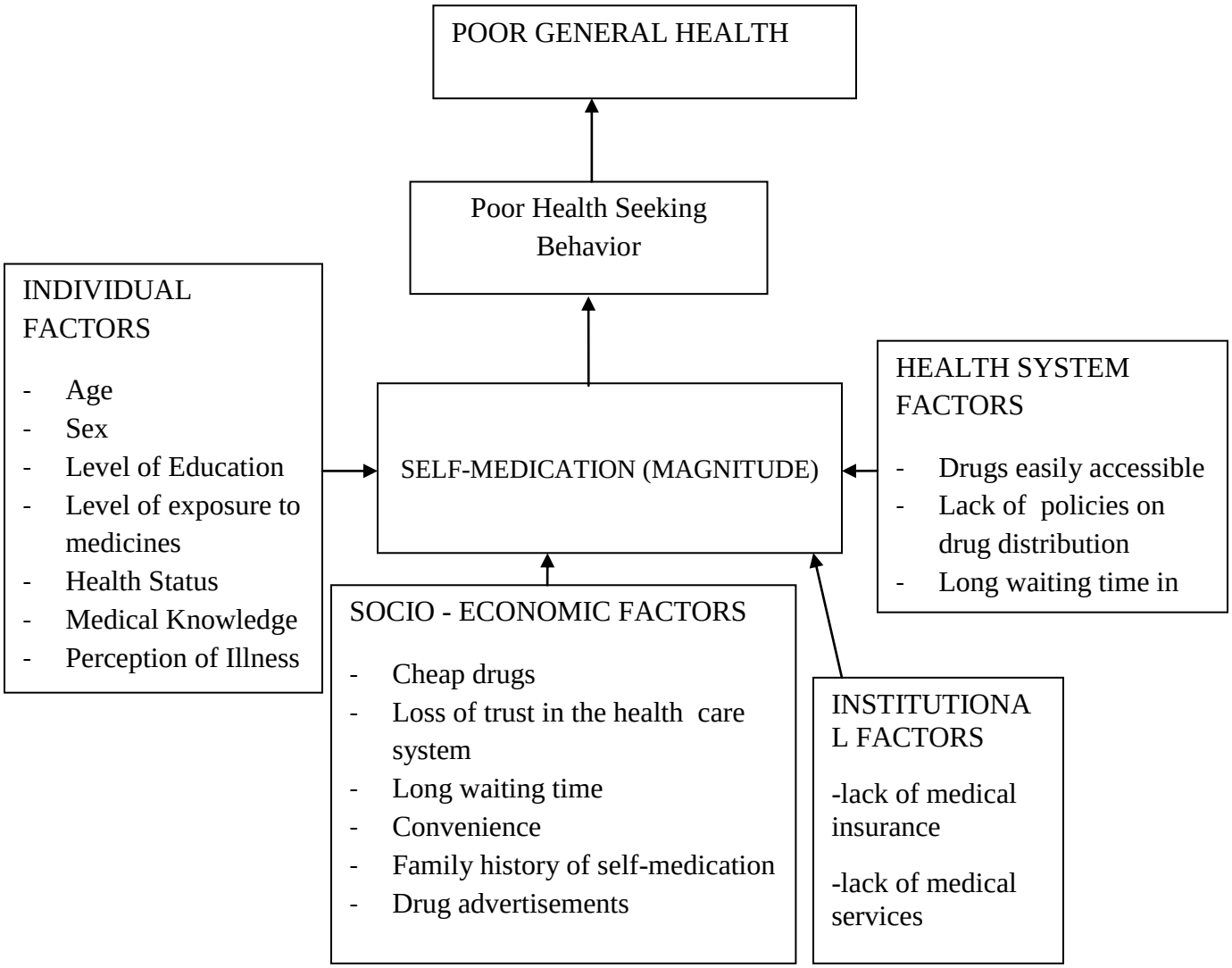
The study assessed the factors related to self-medication and its effects on the health of university students in Uganda.

1.7.3 Time scope

The study was carried out in the months of June and July 2016

1.8 CONCEPTUAL FRAME WORK

Figure 1. 1: Conceptual frame work



This study was built on the concept that several factors like individual, socio-economic, institutional and health system factors contribute to self-medication and its magnitude. The individual factors included age, sex, level of education, level of exposure to medicines, health status, medical knowledge, perception of illness and self-care orientation. Socio-economic factors included cheap drugs, loss of trust in the health care system, convenience, family, society and drug advertisements. The institutional factors included lack of medical insurance and lack of

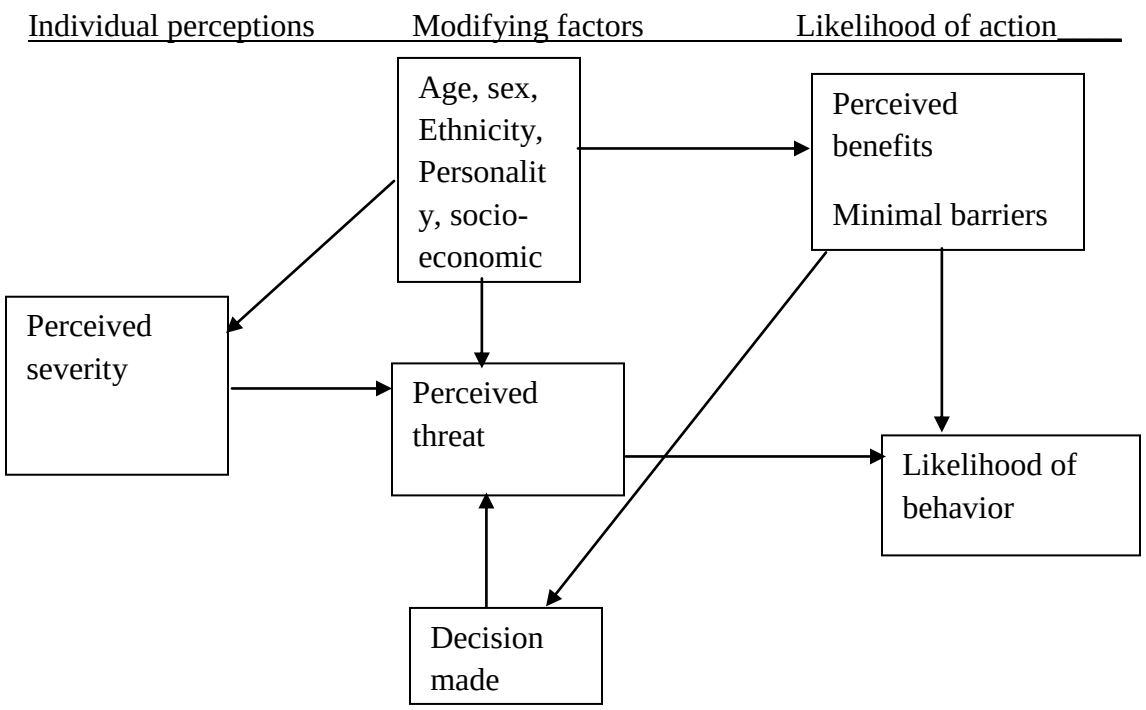
medical services while the health related factors included drugs being easily accessible, lack of strong policies on drug distribution and long waiting time in health facilities (Figure 1). However literature also points out that when the magnitude of self-medication increases, it carries the potential of causing adverse health effects which in turn cause poor general health (Figure 1).

1.9 Theoretical Framework

There are many theories advanced to explain the factors related to self-medication and its effects on the health of University students and how interventions could be implemented in order to cause a change in the self-medication behavior. Since self-medication is a behavior, therefore theories like the Health Belief Model (HBM) could help to explain how self-medication as a behavior can be overcome.

The Health belief model (HBM) can also be used to explain how the self-medication behavior can be overcome among students and the society as a whole. HBM states that the perception of a personal health behavior threat is itself influenced by at least three factors; general health values, which include interest and concern about health; specific health beliefs about vulnerability to a particular health threat; and beliefs about the consequences of the health problem. Once an individual perceives self-medication as a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweighs his/her perceived risks, then that individual is most likely to undertake the recommended health action to prevent self-medication (Shamsi, Tajik, Mohammad Beigi, 2009).

Figure 1. 2: Theoretical frame work



1.10 Significance of the study

It was hoped that the results generated from this study would convince the management of Makerere University Kampala (MUK), Kyambogo University (KYU), Kampala International University (KIU) and the Ministry of Health (MOH) to design interventional strategies and policies to curb on the increasing rate of self-medication among students and the entire general population.

Furthermore, it was anticipated that the result generated would convince the management of MU, KYU, KIU and MOH to address the factors associated with self-medication thereby reducing magnitude of self-medication and its poor health effects which would further contribute to the enhancement of the quality of health care.

In addition, the study results would be available in the UMU library and if possible published so as to be referred to by other researchers when working in a similar area.

Finally, undertaking of this study was in partial fulfilment of the requirements for a master's degree in Public Health- Health Promotion (MPHHP).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter explores available literature concerning the factors related to self-medication and its effects on the health of university students in Uganda. It starts by explaining the magnitude of self-medication among university students, followed by factors related to self-medication among university students and lastly the effects of self-medication on the health of university students in Uganda. The main argument underpinning this research is that self-medication has a number health of effects on the health of university students and therefore any efforts to deal with this issue should properly assess the factors related to self-medication and its effects on the health of university students. The researcher however followed the order of his study objectives.

2.1 The magnitude of self-medication

The magnitude of self-medication among the university students varies depending on the sex, culture, type of school attended, nature of the disease being treated and its seriousness, and the ease with which the people access the drug.

Various studies have reported on the magnitude of self-medication to be increasing among university students especially in developing countries like Uganda. A study conducted among University students in Ethiopia, showed that the prevalence of self-medication was as high as 50% (Olayemi, 2010). Similarly, the prevalence of self-medication was found to be 76% in Aga Khan University Karachi (Syed,2008).Another study conducted among university students in India also revealed that more than 80% of students said that they used self-medication (Uppal1, Agarwal and Roy, 2014). However, the trend for use of self-medication as the first line drug was

more in non-medical students (25%) when compared with medical students (10%) (Syed Nabeel Zafar, 2008).

The symptoms for which self-medication was used ranged from fever, headache, running nose, diarrhea, body pains, gastric acidity to mention but a few (Uppal1, Agarwal and Roy, 2014).Similarly, a study on assessment of self-medication among Medical, pharmacy and health Science students also indicated that fever and headache were the most frequently reported causes of morbidity; respiratory and gastrointestinal tract diseases were the second and third most common causes of morbidity, with a frequency of 24.8%, 23.9%, and 13.2% respectively (Abay and Amelo, 2010). The study conducted by Mena et al (2016) reported that pain (29.9%) and respiratory problem (23.1%) are most common illness where self-medication was being used.

A related study conducted in the southern part of Ethiopia showed that 15% of the persons with perceived illnesses practiced self-medication (Afolabi, 2014). Another study indicated that, diarrhoea, sore throat and common cold were the major symptoms for which the respondents self-medicated with antibiotics (Abasaeed et al, 2009).

Similarly in a study carried out on antibiotic use, knowledge and behavior at a Ugandan University indicated that the most common symptoms reported as the primary reason for antibiotic use was cough at 16%, followed by sore throat at 7.1% and common cold at 6.1% (Nambatya et al, 2011). This means that many students were most likely to self- medicate whenever they suffered from such illnesses.

Studies have also reported the common drugs used for self-medication and the various places where medicines were obtained. A study conducted among university students in Karachi

showed that students mostly obtained these drugs from a pharmacy (64.6%) or/and stocks kept at home (64.4%) or from friends (9.7%) (Syed, 2008). Similarly Nambatya et al (2011), reported that the common antibiotics used in self- medication among the students during the last infection were amoxicillin (20.9%); metronidazole (7.5%) and 6.1% used co-trimoxazole as single drugs and the sources of drugs used in self-medication were reported to be from first aid kit in 46.5% of students, followed by chemists (38%).

Mena et al (2016) reported that the most common drugs used for the students who had used self-medication over the past six months, were analgesic drugs with a percentage of 76.1%. Similarly, ALBashtawy (2014) reported that analgesic drugs were the most common used medicine among students. Ehigiator, and Ehikhamenor (2010) showed that amoxicillin was the most common antibiotic used for self-medication.

Donkor (2010), also reported that the sources of drugs that were commonly used for self-medication were obtained from the pharmacy or drug shop without prescription (72%), 5.9% from their friends, 3.6% from drugs left over from prior use, and the remaining 8.5% from plant (traditional medicines).

2.2 Factors related to self-medication

Self-medication is one of the self-management interventions that is usually opted for by most of the patients especially when the disease is assumed to be minor or when the costs of accessing health care services seem to be very high (WHO, 2010).

Various scholars have documented the various factors associated with self-medication among the university students. These factors include, but not limited to socioeconomic factors, lifestyle,

ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products (Osemene and Lamikanra, 2012).

Abasaeed et al (2009) indicated that the main factors influencing the choice of antibiotics were previous experience with the same illness and advice from pharmacy staff. Similarly, Mena (2016) revealed that most of the students (45.3%) chose self-medication due to saving time and money, and because it resolved complaints they previously suffered from. Also Kayalvizhi and Senapathi (1998) found that reasons for self-medication were time saving, economical, convenient and providing quick relief in common illnesses.

In India Uppal et al (2014), revealed that among the factors that influenced students to practice self-medication included the fact that self-medication saves time (66%).While 58.5% of students agreed that self-medication was economical and it was higher among non-medical students. However, the study also revealed that self-medication provided quick relief, but maximum number of medical students (45%) disagreed on the fact that self-medication provided confidence in comparison to non-medical students (28%).

Socio-demographic factors are potential predictors of self-medication and the commonest being age, sex and level of education (Malangu, 2007). Younger respondents were about twice more likely to practice self-medication than older ones (Alghanim, 2011). Similarly,the WHO (1998) reported that drug use is influenced by the socio-demographic characteristics of drug consumers such as gender, morbidity, age, attitudes about life and health, stress, and social roles.

Educated people have a greater tendency to practice self-medication than illiterates (Klemenc-Ketis, Hladnik, and Kersnik, 2010). This could be due to the fact that most educated people have

easy access to information on the current common medications on use which could influence their self-medication practice. The easy availability, but uncertain scientific validity of information regarding health problems and treatment on the electronic media has had both beneficial and detrimental effects. The factors that are associated with self-medication practices remain issues of an intense debate in academic discourse especially when educated people are involved. Yet, they are expected to serve as change agents in their communities (Osemene and Lamikanra, 2012).In another study, the findings revealed that 80% medical students practiced self-medication despite being aware of harmful effects and this may be because medical students are more exposed to diseases and treatments (Mumtaz et al, 2014).

Many reasons have been documented to why the educated people like university students may prefer self-medication, the most common being mild illness, prior experience of self or a friend taking medicine, medical knowledge, perception of illness, or to save money and time (Sawalha, 2008). Higher levels of education and professional status have been associated with and considered as a predictive factor for self-medication.

Nalini (2010), also reported other factors to have contributed to self-medication where the most common being mild illness, prior experience of self or a friend taking the medicine, or to save money and time. Similarly, Abay and Amelo, (2010) on Assessment of Self-Medication Practices among Medical, Pharmacy, Health Science Students in Gondar University, Ethiopia revealed that the factors associated with self-medication included previous experience of treating a similar illness (35.4%), the illness being mild and did not require the service of a physician (30.5%)and Cost-effectiveness and emergency use of some drugs.

Despite the various researches that have been published, questions like whether the patients well-informed on what constitute minor illness; whether the working hours of the primary health care facilities suitable and how patients perceived the quality of health services provided to them are still not properly answered.

Likewise self-medication has been reported among both highly educated and those with minimal formal education and was well documented among urban as well as rural dwellers. A study conducted by Malangu, (2007) reported that students who came from rural areas were less likely to self-medicate with antibiotics than those who came from urban areas. Reports have shown that health care personnel may drive self-medication and misuse of antibiotics due to their prescription patterns from which the community picks its cues (Grigoryanet al, 2007).

2.3 Effects of self-medication

A number of studies have been conducted to establish the effects of self-medication on the health of the people who practice it. This is because drug-related problems are an important cause of morbidity and mortality and a significant burden on healthcare resources. A high rate of adverse drug reactions (ADRs) has been demonstrated in hospitalized patients (Mumtaz et al, 2014), potentially leading to death. Similarly, a study conducted among university students in Karachi showed that 87% of students knew that self-medication could be harmful (Syed, 2008).

The World Health Organization Guideline for the Regulatory Assessment of Medicinal Products for use in self-Medication indicated that self-medication may result into adverse drug reaction (ADR). However, in many countries, the possibility of reporting ADR to self-medication products is not available since many conventional ADR reporting schemes operate through

health care professionals and those outside the health care system may pass on un noticed (WHO, 2000).

A systematic review and meta-analysis study conducted by Maria et al (2014) reported that adverse effects had been experienced by 31.1% of the females and 19.6% males, with the main effect as treatment failure reported in 46.5% of the girls and 38.1% of the boys.

Mena et al (2016),revealed that the most adverse effects caused by self-medication, were vomiting, nausea and diarrhea (37.3%). However, another study found that bleeding was the most frequently adverse self-medication effect diagnosed, followed by neurologic and psychiatric adverse effects (Asseray et al, 2013). Similarly, the study also found that analgesic drugs were significantly associated with adverse effects related to self-medications.

Kayalvizhi and Senapathi (1998), reported in India that 50% of antibiotics used were associated with development of adverse effects and the reported adverse effects were vomiting, hyperacidity and gastrointestinal discomfort. The same study also reported that self-medication resulted in misdiagnosing an illness that could have been resolved easily with the doctor's advice, may become a major problem over time. Mena et al (2016)showed that most (48.7%) of the students stopped taking drugs whenever they developed adverse effects related to self-medication like hyperacidity, skin rashes and nausea.

The same study also reported that people who practice self-medication could become addicted with prescription drugs such as antacids, cough syrups and pain relievers.

WHO, (2000) also reported that the problems associated with self-medication such as masked diagnoses, use of excessive drug dosage, prolonged duration of use, drug interactions, polypharmacy and super infection can occur in self-medicating individuals.

In Uganda just like many developing countries, antibiotics are commonly misused and self-medication has been reported to be on the rise. However, this information has been limited to the newspapers and local radios, but very few studies have been documented and published for the public consumption.

However, much of the risks of self-medication have been documented, there is no study in Uganda that has been conducted to assess the health effects of self-medication.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter dealt with the description of the techniques that were applied in carrying out the study, how data was collected and also analysed the ethical considerations.

3.1 Study Area

The study was conducted in three selected Ugandan universities i.e. Makerere University, Kyambogo University and Kampala International University all found in Kampala, which is the capital city of Uganda. These universities were selected because they enrol the highest number of students in Uganda, were representative of both public and private, and were in easy reach of the principal investigator (PI).The information generated from such a study area could easily convince the management of the organizations to adopt the recommended actions.

3.2 Study design

The study was a descriptive cross sectional study which assessed the factors related to self-medication and its effects on the health of university students in Uganda.

The approach that was used to collect and analyse data was predominantly quantitative though with some qualitative elements during data collection.

The qualitative approach used key informant interviews and focused group discussions for health workers working in university health facilities and undergraduate students respectively. Both the health workers and the undergraduate students were interviewed to give their opinion on factors related to self-medication and its effects on the health of university students in Uganda.

Thirdly, the quantitative information obtained on self-medication among university students was quantified, analysed and results generated using Statistical Package for Social Sciences (SPSS) (version 20) software programme in accordance with the research objectives. Finally, questionnaires were administered to students in order to determine the magnitude and factors related to self-medication.

3.3 Study Population

The study population comprised of health workers working in University health facilities and undergraduate students from MU, KYU and KIU. Both the health workers and the undergraduate students were interviewed to give their opinion on factors related to self-medication and its effects on the health of university students in Uganda.

These undergraduate students were from different fields of study likeHumanities, Health sciences, Engineering and design, Business studies, computing and information technology education and external studies among others. It was therefore, from that vast pool that the study units were selected. These students were selected because they were believed to have practiced self-medication at least in the last six months. The health workers were selected because they were believed to be involved in the diagnosis and management of students with effects of self-medication.

Furthermore, this population was more easily accessible and more likely to respond than other populations. Also the fact that the universities had a very high population of students in different fields of study generated a sample whose results could easily be generalised to the entire population.

3.4 Study Unit

The study units were students studying various disciplines at the universities and the health workers who worked in the universities' health facilities.

3.5 Sample Size

The sample size was calculated using Kish Leslie's (1967) formula which stated**;**

$$N = {P(1-P)Z2}/{d2}$$

Where N= Number of respondents needed

P= Estimated proportion of students who had self-medicated in the last six months.

Z= Z-score corresponding to 95% confidence interval which is 1.96

d = Maximum error the researcher is willing to allow at 0.05

Since there is no study done on estimate of self-medication among the University students in Uganda, the researcher considered 50% as the worst scenario.

N= $\frac{\mathbf{0.5x0.5x\ (1.96)^2}}{0.05x0.05}$ = 385

Using 15% none response rate, the total sample size of 443 was used.

3.6 Sampling Technique

Purposive sampling was used to obtain respondents from the different universities. This technique was used because the researcher needed to interact only with the students who had practiced self-medication in the last six months. The same technique was also used to select the

key informants, the health workers who had at least three years' experience of working in the university health facilities. The reason why the health workers should have had at least three years' experience in the University health facility was that they were thought to have been involved in the medical care of students and therefore would have interacted with most students practising self-medication, including those who would have had side effects to self-medication.

3.7 Inclusion and exclusion criteria

All the students from the three universities who had, had an illness in the last six month before the study and accepted to consent were selected to participate in the study as respondents. Also, all the health workers who had at least three years' experience of working in the University health facilities and accepted to consent for the study were selected to participate.

All the students who never had an illness in the last six months and did not accept to consent were not selected for the study as respondents. Also, all the health workers who never had at least a three years' experience of working in the University health facilities and did not accept to consent for the study were not selected to participate.

3.8 Variables and data sources

The variables and data sources are summarized in the table below

Objectives	Variables	Measurement	Indicators	Sources of data	Data collection methods/tools
1) To determine the magnitude of self-medication among university students	Magnitude of self-medication	-Number of students practising self-medication in the last six months -Conditions/ symptoms commonly treated with self-medication	-Drugs taken without a medical prescription –Drugs taken without consultation from a competent health professional	-Students -University hospital staff	- Questionnaire - Interview guides -Focus group discussions
2) To determine factors related with self-medication among university students	- Age - Sex - Level of Education - Level of exposure to medicines - Health Status - Medical Knowledge - Perception of Illness - Self-Care orientation - Drugs easily accessible - Lack of	To what extent have these factors influenced self-medication	- the age group that commonly self-medicates - The sex that commonly self-medicates -Health literacy levels	-Students -University hospital staff	- Questionnaire - Interview guide -Focus group discussions

	policies on drug distribution - Drugs are cheap - Loss of trust in the health care system - Convenience - Presence of left over drugs - Drug advertisements - Long waiting time in health facilities - Lack of medical insurance - Lack or poor health services				
3) To examine the effects of self-medication among university students	-Development of disease complication - Drug over dose - Prolonged hospitalisation -Drug addiction and tolerance - General poor health - Development of drug resistance	-Ever got worse due to self-medication -Ever delayed to seek health care -Ever got addicted to medication	The number of students who developed adverse health effects following self - medication	- Students - University hospital staff	- questionnaire - Interview guide - Focus group discussions

Source: Author (2016) with ideas from Mutesi, (2013); WHO (2010) and Shipp, (1998)

3.9 Data collection and study instruments

Questionnaire was used to obtain quantitative data from the respondents. The questionnaire was divided into two parts, that is A and B. Part A collected data on the magnitude of self-medication and part B collected data on factors related to self-medication among the University students in Uganda. Qualitative data was collected using key informant interviews and focus group discussions on the above two objectives and the third objective of examining the effects of self-medication on the health of university students in Uganda.

3.10 Data management and data analysis.

The data collected was checked for completeness before the researcher left the respondents/participants. Where necessary the missing data was filled in the questionnaire. The data was later stored in double locked cupboards where the key was only accessed by the researcher.

Data collected was analysed using the excel computer programme, Statistical Package for the Social Sciences (SPSS) version 20. Finally the results were presented in chapter four in form of tables and narratives.

Similarly, qualitative data was analysed using thematic analysis where related information was first grouped under themes before they were analysed.

3.11 Quality Control

The following quality control measures ensured that the data collected and presented was complete and captured what it intended to capture.

Reliability

The quantitative tool was developed in English and pre tested in Ndejje University on 5% of anticipated participants before its final use. Research assistants were trained on how to use both quantitative and qualitative tools, systematically recording and transcribing data. They were also be supervised during data collection. Therefore, another person could use the same data to draw a similar conclusion.

Validity

The validity of the findings was ensured through member checking. This was intended to ensure that the responses from the members were accurate.

Validity depended on generalization of findings, which were determined by the number of participants and context of the study setting.

Credibility of the findings was established by spending enough time with participants to check alteration of data, also explored their experience in detail during interviews and FGDs by tape recording for comparison with recorded data. The uncertain findings were explained to participants and cross checked with the available sources of data from researchers' records, field notes and diaries (Rudestam& Newton, 2007).

Dependability was ensured by training research assistants so that they could systematically record and transcribe data. This was through coding raw data in a way that another person can understand the themes and attain similar conclusions (Rudestam& Newton, 2007)

This was carried out through pre-testing of the questionnaires to ensure that what was captured is what was intended. Pretesting of the questionnaires was carried out from Ndejje University where a sample of 22 students was used.

3.12 Ethical Consideration

The research proposal was approved by the researcher's supervisor and the Faculty of Health Sciences in Uganda Martyrs University before data collection was embarked on. Secondly, the proposal was submitted to the Institutional Review Board of Makerere University, Kyambogo University and Kampala International University together with the permission request from the school of postgraduate studies of UMU, and approval was sought prior to conducting the research. Considering the fact that the study was not on a sensitive issue that could bring about adverse effects, it was largely accepted by the students and health workers in the universities. Finally, consent forms were read and signed by the study participants who were assured of confidentiality of their information. The information obtained was kept confidential.

3.13 Scope and study limitations

Self- medication does not only affect the selected students, but all the students in the university. Ideally, it would have been good to study all, however, due to limited resources this study only focused on 443 students from the three universities.

Another study limitation was time since the researcher was having other activities other than data collection and this was solved through use of properly trained research assistants.

3.14 Plan for dissemination of results

The findings obtained from this study were provided to the management of Makerere University, Kyambogo University and Kampala International University to enable decisions to be made regarding the reduction of factors related to self-medication and its effects on the health of university students in Uganda. Furthermore, the results obtained were disseminated through a PowerPoint presentation to all the universities where data collection was carried out to enable them appreciate the need to control the adverse effects of self-medication. Copies were also made available to the Faculty of Health Sciences and library of Uganda Martyrs University where other researchers and academia can lay hands for further research and information.

3.15 Budget and the Work plan

The estimated amount of money to spend on the study as per budget was 6,030,000/= but the actual amount spent was 5,233,000/= which was slightly less than the one on the budget.

The data collection period was expected to take two months i.e. June and July, 2016, but data was collected in the month of July due to delay in clearance for study. However one month was sufficient and all data was collected as planned and the entire study took a period of nine (09) months as had been stipulated on the work plan.

3.16 Conclusion

After having gone through the process as explained above to collect data, the results were put together, analysed and discussed in the following chapters.

CHAPTER FOUR

ANALYSIS AND RESULTS

4.0 Introduction

This chapter presents the results of the study on factors related to self-medication and its effects on the health of university students in Uganda. In this study the following objectives were followed in data collection which included; determining the magnitude of self-medication, finding out the factors related to self-medication and examining the effects of self-medication among university students. This order of objectives was also followed during analysis, interpretation and presentation of results. These results were obtained from 400 students who completed self-administered questionnaires, nine key informants and six focus group discussions. The study participants were from Makerere University, Kyambogo University and Kampala International University. The results are presented in tables and narratives.

The response rate for administered questionnaires was 90.3 %; 400 of 443 questionnaires administered to respondents. Forty three respondents did not properly fill the questionnaire, probably due to inadequate guidance, lack of interest in the study and/or time constraint. Consequently, their questionnaires were not used for the study. For easy referencing, all participants were given participant identification codes as indicated in appendix VII

4.1 Magnitude of self-medication among university students in Uganda

4.1.1 Objective one quantitative findings

This section, presents the magnitude of self-medication and the indicators which were used to measure it.

Table 4. 1: Shows the first step taken by the respondents when they felt sick

Self-medication Magnitude Indicator	**Frequency (f)**	**Percentage (%)**
First step taken when sick		
Took medication without prescription from a health professional	258	65.5
Took medication with prescription from a health professional	142	35.5
Total	**400**	**100**

The results in table 4.1 above suggest that the prevalence of self-medication among the respondents was generally very high, 258(64.5%)of the respondentsreported that that they took medication without prescription from a health professional.

Table 4. 2: Other indicators used to measure the magnitude of self-medication

Indicator of self-medication	Magnitude of Self-medication (n=258)	Percentage (%)
Sources of medicines for self-medication		
Community pharmacies and drug shops	222	86
Traditional herbalists	09	3.5
Left over drugs	22	8.5
Others specify	5	1.9
Type of drugs (medicine)		
Pain killers	189	73.3
Antibiotics	52	20.2
Herbal medicines	10	3.9
I don't know	04	1.6
Others specify	03	1.2
Medicines commonly used for self-medication		
Paracetamol	160	62.0
Diclofenac	37	14.3
Septrin	04	1.6
Coartem	10	3.9
Other(s) specify	47	18.2
Number of times the respondents self-medicated		
1-2 times	120	46.5
3-4 times	50	19.4
5 or more times	88	34.1

The results from the table 4.2 above, indicated that the majority of the respondents 222 (85.7%) who were self-medicating accessed the medicines from the pharmacies and drug shops while the minority 5 (1.9%) accessed medicines from other sources like fellow students and relatives. This indicated that the community pharmacies and drug shops served as the main outlets from which most of the respondents accessed drugs.

The results also revealed that the majority189 (73.2%) of the study respondents used painkillers for self-medication and the medicine the majority160 (62%) used was Paracetamol. One hundred twenty (46.5%) of the respondents had self-medicated at least 1-2 times in the last six months, whereas 88 (34.1%) of the respondents had self-medicated five or more times.

Table 4. 3: Number of times respondents self-medicated by gender in the last six months

Number of times the respondents self-medicated in the last six months	Gender(n=258)	
	Male	Female
1-2	84 (46.4%)	36 (46.8%)
3-4	36 (20%)	14(18.2%)
5 or More times	61 (33.6%)	27(35.1%)
Total	181	77

The results in table 3 above revealed that females self-medicated more times compared to their male counter parts.

4.1.2 Objective one: Qualitative findings

In-depth investigation on the magnitude of self-medication through focus group discussions of students and key informant interviews of the health workers working in the university health

facilities was carried out. The findings also revealed that the magnitude of self-medication among university students was still high. One of the health workers from Makerere University Hospital said that

> [*"...Almost every student who comes to the hospital complaining of an illness reports a history of having taken some drugs without consulting a doctor or visiting a health facility. ..."*](MUKI 2)

The sources of drugs the participants used for self-medication were commonly obtained from the community drug shops, clinics, friends and fellow students especially those staying in the hostels and left over drugs from the previous prescriptions of the past health problem.

One participant from Kampala International University said that

> [*"...I prefer to go and buy drugs in the nearby drug shops whenever I feel some kind of sickness especially when it is not serious..."*](KIUFGD F 1.5)

The findings also revealed that self-medication was a common practice among the participants who perceived their illnesses to be common to them and therefore taking them not to be serious. Some respondents even felt that they could treat themselves with the medicines of their choices and the source of the information was from their previous experiences with the same drug. In actual words, one of the participants from Kyambogo University said that

> [*"...I usually take pain killers to get pain relief whenever I experience painful periods because even if I go to the doctor he might give me the same drugs..."*](KYUFGD F 1.1)

4.2 Factors related to self –medication among the university students

In this section I investigated the association between demographic factors (age, gender, year of study, field of study and respondents' health insurance) and self-medication. In addition the association between non-demographic factors and self-medication was also explored.

4.2.1: Objective two: Quantitative findings

Table 4.4: Shows association between self-medication and respondents' demographic factors

Respondents' demographic factors	Self-medication (n=258)	No self-medication (n=142)	*p*-value
Age			0.932
18-20	54 (20.9%)	33 (23.2%)	
21-23	130 (50.4%)	67 (47.2%)	
24-26	44 (17.1%)	25 (17.6%)	
27 and above	30 (11.6%)	17 (12%)	
Gender			0.812
Male	181 (70.2%)	98(69%)	
Female	77 (29.8%)	44 (31%)	
Year of Study			0.242
First year	70 (27.1%)	46 (32.4%)	
Second year	103 (39.9%)	60 (42.3%)	
Third year	68 (26.4%)	25 (17.6%)	
Fourth year and above	17 (6.6%)	11 (7.7%)	
Field of study			0.000
Humanities	23 (8.9%)	18 (12.7%)	
Health sciences	55 (21.3%)	25 (17.6%)	
Engineering and design	72 (27.9%)	46 (32.4%)	
Business studies	14 (5.4%)	01 (0.7%)	
Computing and information technology	69 (26.7%)	6 (4.2%)	
Other(s) specify	25 (9.7%)	41 (28.9%)	
Medical insurance			0.28
Yes	37 (14.3%)	15(10.6%)	
No	221 (85.7%)	127(89.4%)	

Results from table 4.4 shows that the prevalence of self-medication was generally high (50.4%) among the respondents of age group of 21-23 years while the lowest prevalence (11.6%) was among the age group of 27 years and above. These findings of the prevalence of self-medication being generally high among the age group of 21-23 years correspond with the age the students enroll in the universities. However, males (70.2%) exhibited higher prevalence of self-medication than their female (29.8%) counterparts. This implies that the males self-medicated more than their female counterparts indicating that the males had poor health seeking behaviors.

Regarding the year of study, the prevalence of self-medication was generally high among the second years (39.9%) while the low prevalence was observed from 4^{th} year and above. Self-medication was also slightly high (27.1%) among the students who were in the field of engineering and design while it was lowest (5.4%) among the students who were in the field of business studies. The highest prevalence (85.7%) of self-medication was exhibited among the students who had no health insurance compared to their counterparts who had it. This was a clear indicator that inability to afford the cost of the health services was a factor related to self-medication since those with health insurance self-medicated less.

Conclusively, from table 4.4 above, it was clear that the field of study of respondents was significantly associated with self-medication (p-value $0.000<0.005$) while other factors like age, sex, year of study and health insurance were not significantly associated with self-medication.

Table 4. 4: Shows non-demographic factors related to self-medication

Non-demographic factors	Self-medication(n=258)	Percentage (%)
Complaints that led to self-medication		
Running nose	109	42.2
Nasal congestion	21	8.1
Cough	63	24.4
Sore throat	08	3.1
Fever	19	7.3
Diarrhoea	0	0
Vomiting	0	0
Aches and pains	27	10.4
Skin wounds	3	1.1
Others specify	8	3.1
Reasons for self-medication		
Cost saving	96	37.2
Convenience	112	43.4
Lack of trust in prescribing doctor	6	2.3
Long waiting time at health facilities	28	10.9
Others	16	6.2
Factors influenced the choice of the medicines		
Advice by community pharmacist	61	23.6
Opinion of family members	38	14.7
Opinion of friends	21	8.1
My own experience	112	43.4
Previous doctor's prescriptions	21	8.1
The advertisements	1	0.3
Others specify	2	1.5
Ability to understand the instructions that come with the package inserted in medicine for treatment		

Yes, always	143	55.4
Yes, sometimes	79	30.6
Never	39	14.0
How much the instructions were understood		
Fully understood	156	60.4
Partially understood	93	36.0
Did not understand at all	09	3.6
How the dosage was determined		
By checking packet insert	94	36.4
By consulting a doctor	31	12.0
By consulting pharmacist	59	22.8
By consulting family members	23	8.9
From media (newspaper, TV, Magazines)	03	1.1
Internet	03	1.1
From previous experience	40	15.5
By guessing dosage by myself	05	1.9
Whether the respondents thought that they can treat the common infectious diseases with medicines successfully		
Yes I can	109	42.2
Not sure	123	47.7
No I cannot	26	10.1
What respondents thought about self-medication with medicines for self-health care		
Good practice	77	29.8
Acceptable practice	92	35.7
Not acceptable practice	89	34.5

The results from table 4.5 above shows other factors other than demographic factors related to self-medication. The results showed that most of the respondents 109(42.2%) who self-medicated complained of having a runny nose followed by cough 63(24.1%) while the least of the respondents 3(1.1%) self-medicated due to skin wounds. However some complaints like vomiting and diarrhea according to the study findings were not rated. These findings suggested that running nose and cough contributed highly towards self-medication of students in Universities. The findings like vomiting and diarrhea that were not rated meant that respondents could seek help from the health care system.

Majority of the respondents 112(43.4%) reported to have self-medicated themselves for convenience purposes, followed by 96 (37.2%) who reported cost saving compared to the minority 6 (2.3%) who did it due to lack of trust and confidence in the prescribing doctor. These findings suggest that cost saving and convenience are major reasons for self-medication of students in universities in Uganda.

Most of the respondents said that their own experiences influenced them towards selection of medicine 112 (43.4%), while the minority 1(0.3%) reported to have been influenced by advertisements. These results indicate that individual experiences contribute highly towards the students' choice of medicine. However, these experiences are not based on professional advice and skills which might create health problems to students.

Most of the respondents 143(55.4%) indicated that they always checked on packet for prescription while the minority 39(14%) said that they had never checked on the packet inserts. These findings showed that at least university students doing self-medication can read prescriptions. Surprisingly students who showed that they never read prescriptions indicate a

serious health hazard among university students since they took medicines ignorantly without any information to guide them.

Majority of the respondents 156(60.4%) revealed that they fully understood instructions compared to 93(36%) who partially understood instructions while the least (3.6%) did not understand them at all. The above findings also revealed that it would be essential if they understood the prescription but as students with little knowledge of medical language their full or partial understanding may be discredited. It is even worse for the students who did not understand the instructions at all.

However, when asked how they knew the dosage of medicine, the majority 94(36.4%) reported that they checked on the packet inserted while the minority 3(1.1%) knew the dose from internet and media. The above findings indicate that most of the participants rely on the information offered on the package insert, consulting a pharmacist and a doctor and very few from internet and media which are good sources of drug dosages. However, other ways like previous experiences, consulting family members, guessing, would highly be detrimental to the health of university students.

The findings from table 4.5further showed that study respondents 123(47.6%) were not sure whether they could treat common infectious diseases compared to 109(42.4%) who were sure that they can ably treat them while 26(10%) reported that they could not. This implied that to a great extent that a significant number of respondents were not sure that they could treat infectious diseases and this in turn is possesses a great risk of even complicating them further.

Most of the respondents 92(35.6%) were of the view that the practice of self-medication is acceptable, followed by 77(35.6) who said it was a good practice while 77(29.8%) said that it

was not an acceptable practice. These findings suggest that the health literacy of university students is still wanting as most students are not aware that medicines have to be prescribed by a trained health professional.

4.2.2 Objective Two: Qualitative data

When I tried to understand further the factors related to self-medication among university students in Uganda using the focus group discussions and key informant interviews, respondents revealed other factors which were related to self-medication.

The study findings revealed like students being ignorant on the availability of the health services at the universities, lack of trust in the health care system, the medical services being expensive, long waiting time and influence of the internet and the media.

The findings of the study revealed that a number of participants expressed ignorance of the existence of medical services in their Universities. Some did not even know that their universities had a hospital or health center where they could seek treatment in case they fell sick.

In actual words, one health worker from Makerere University said that

> *['…Some students appear to the university hospital first time on the day when they are clearing for their graduation and most of them seem surprised that the University even has a hospital…"]*(MUKI 3)

These results suggest that the students are not well sensitized and health educated on the existence of the university health care facilities and the importance of giving the professional health care respectively. The fact that some university health facilities are located outside the perimeter wall complicate the process of accessing the health services they provide.

The findings also revealed that some students deliberately refused to come to the university health facilities where the services were free claiming that the drugs they provided were not effective and would prefer to purchase drugs which are more effective from the pharmacies where they are expensive. In actual words, one health worker from Kyambogo University said that

> *['....There are students who take for granted the health services we provide here at the university health center, claiming that since they are free, they may not be of good quality and therefore prefer to purchase drugs they think are of quality to treat their self-diagnosed disorders ...']*(KYUK3 1)

These findings also revealed that participants lacked enough information to take appropriate health decisions as they did not know the importance of seeking medical advice from the health professionals. However, this is a bad behavior and should not be left to thrive as it increases the morbidity and mortality rate of treatable and preventable diseases among the of university students.

Most of the study participants said that they preferred self-medication because it was convenient for them. This is because the pharmacies and drug shops are widely distributed and open most of the time throughout Kampala. Also, there is no time lost in waiting to aces the drugs while at the drug shops and pharmacies. In actual words, one participant from Kampala International University reported that;

> [*"... Whenever I fall sick, I prefer to go to the nearby drug shop because there is no delay in giving me the drug as long as I have my money to purchase them..."*](KIUFDGF5)

These findings revealed that most of the students had poor health seeking behaviors since did not take their sicknesses seriously and always seemed to purchase the drugs while on hurry. Students when sick should not go and purchase the medicines because of convenience, but rather should visit the health professionals or the health facility for proper diagnosis and treatment.

The availability of the drug related information on the internet was also an important factor related to self-medication. Other drug related information was obtained from the hawkers of drugs on commuter taxies and buses. One participant from Kyambogo University reported that

> [*…Whenever I fall sick, I prefer to first go and read about my sickness on the internet the drugs I need to take in order to get better. It is only when I don't get better that I go to the hospital to seek medical help…"*] *(KYUFGDM 2)*

These findings revealed that the level of education could be a potential factor related to self-medication since the students would be able to read and understand medical related information, implying an increase in their level of health literacy. This also meant that health could also be promoted through e-health especially if used to provide health information only. However, since these medicines are not prescribed by the health professional, they may not be in their right doses, frequencies and right duration which may either lead to over or under dose, and consequently leading to poor health outcomes.

Conclusively, the results on factors related to self-medication revealed that the field of study of respondents was significantly associated with self-medication (p-value $0.000<0.005$) while other factors like age, sex, year of study and health insurance were not significantly associated with self-medication. Other factors related to self-medication included convenience in accessing

drugs, cost saving of that same medicine and previous experience. Ignorance of the existence of the university health facilities, lack of trust in the services provided, use of internet and drug hawkers from commuter taxis to access information related to the drugs. However, the information obtained from other sources to guide health decision making other than health professionals may not be enough to guide on the treatment needed by an individuals.

4.3 The effects of self-medication among university students

Data collected on effects of self-medication on the health of university students was analyzed qualitatively and organized in sub themes as follows

4.3.1 Drug resistance

The results from the study revealed that drug resistance is one of the effects of self-medication. This was because most of the participants who self-medicated took the responsibility of diagnosing their ailments, decided on the drug to take and the dose required. As students carry out self-medication they are not guided as a result they end up taking incomplete doses which increases the risk of drug resistance. The findings also showed that even if they are offered proper treatment afterwards it may not be effective since the previous incomplete doses made micro-organisms resistant.

In actual words, one of the health workers from Makerere university hospital said that

> [*"…Self-medication makes the infectious agents resistant and occurs due to taking incomplete doses which do not clear away all the disease causing micro-organisms from the body..."*](MUKI 3)

This implied that taking incomplete doses by university students causes drug resistance as the drugs may not be able treat the same disease if used again.

4.3.2 Development of disease complications and poor general health

The participants reported that self-medication was responsible for complicating diseases especially when a wrong medicine is used to treat a particular disease. The participants also reported that usually when one drug failed to cure the disease, they would continue buying others hoping to get cured or when they feel the disease is severe and they go to the hospital. One of the participants from Kyambogo University said that

> [*"…I purchased drugs for flu from the drug shop in the morning thinking that I was suffering from flu but by the time it got in the evening I developed severe headache and fever and my father took me to hospital where I was diagnosed with malaria…"*](KYUFGDM6)

This finding implied that confusing the health problem and treating it with a wrong drug gives the disease causing micro-organisms an opportunity to spread to other organs in the body which in turn leads to more severe complications. Also basing on the Health Belief Model (HBM), students would prefer to seek for professional help or adopt proper health seeking behaviours if their perceived severity or threat from the disease was high and consequently makes them to take the decisions that would stop the behaviour.

Delay or improper management of the disease following self-medication may result into long term effects like prolonged hospitalisation and poor academic performance. Self-medication builds false hope in the individuals who practice it thinking that they are taking the right treatment even when the disease is becoming worse. The delay may translate into serious complications that require even the patient to be admitted for even a longer period of time than

would have been if the proper diagnosis was made and right treatment was given from the beginning.

One of the health workers from Kampala International University reported that

> *[…some students who are admitted with a history of self-medication take long to recover because of the complications the student has already developed due to the increase in the severity of the disease. The academic performance of such students may also deteriorate due to the physical and psychological suffering and long period of absence from school…]* (KIUKI 1)

These results reveal that self-medication can also negatively impact on the academic achievement of the student due to the prolonged period of hospitalisation without attending classes and other complications that may develop affecting the different systems of the body. The above findings also showed that self-medication creates not only health hazards on the side of the students, but also affects their academic progress.

4.3.3 Adverse drug reactions

The students who self-medicate face a number of adverse drug reactions which impact negatively on their health. The commonly reported adverse effects by the participants included drug over dose, diarrhoea, vomiting, dizziness and loss of appetite among others. In actual words, one of the health workers from Kyambogo University said that

> [*"… two months ago, I admitted one student who was un conscientious and when I took collateral history from a friend she was staying within the hostel, she told me that the colleague had started vomiting in the morning and bought some*

tablets (plasil) from the drug shop to stop vomiting. Since the vomiting could not stop immediately, she went back and bought more which she also swallowed expecting quicker relief. After two hours she told me that she had developed dizziness and latter collapsed. When I examined and investigated her, I discovered that actually she had developed side effects of the drug she had swallowed…"] *(KIUKI 3)*

The findings reveal that students who self-medicate take the responsibility of determining the diagnosis, the choice of treatment and the dosage. This arises due to the fact that the persons at the pharmacies and the drug shops may not give enough explanation to the students during the process of students acquiring drugs. However much the students understand that when they fall sick they need to seek medical care, treating themselves is a poor health seeking behaviour which even makes even their condition worse. These findings further suggest that any interventions aiming at curbing down this behaviour of self-medication should raise the perceptions of the students so that perceived severity, threats and benefits outweigh the perceived barriers.

2.3.3 Drug abuse and addiction

This study reported that self-medication may also result into drug abuse and addiction especially when drugs of abuse are taken without professional monitoring. This usually happens when the students continuously swallow the medicines with the intention of feeling a sense of wellbeing without considering the effects that the drugs would have on their health. In actual words, one participant from Kampala international University said that;

[*"… Since the time I lost my parents, I found it difficult to sleep because of the disturbing dreams I used to experience. When I shared with a friend my problem,*

she advised me to start taking a drug (diazepam) she used to buy for her mother because she was also experiencing the same problem. From the time I started taking it I started sleeping with less disturbances but I cannot sleep without taking the medicine. Also, I started by taking one tablet to get better but now I need to take two or more tablets in order to get enough sleep…"](KIU FGD F7)

Also a health worker from Makerere University health centre said that

[*"… A number of students have been coming to the university hospital and demanding seriously for certain drugs and will insist that they are the only drugs they want. When another drug is suggested for them they claim that the one they wanted makes them feel better and when the clinician insists, they just walk away in protest of the treatment given …*"]

Findings from the study revealed that adverse drug effects like addiction and abuse are on the rise among the university students. This is because of the weak policies governing the medicines regulatory frame work that make it easy for both the over the counter (OTC) and prescription medicines to be available and accessible by the students. From the above two findings, it can be deduced that once a student has developed an effect of self-medication, he or she is likely to develop more effects including complicating the existing health problem or even death.

4.3.4 Resolution of the health problem

Despite the fact that self-medication was reported to have poor health effects, some participants reported to have befitted from it especially when they were treating minor ailments. This was because the health problem they were treating healed. In actual words, one of the respondents from Kampala International University said that

[*'…Whenever I suffer from diseases like flue, cough and headache, I just need to go to the pharmacy and purchase the drugs for flue, cough and headache because I know them. Whenever I take these drugs, I get cured…''*](FGD KIU M 6)

The study findings revealed that students can use self-medication to treat some medical conditions and are cured. Responsible self-medication can help to reduce the burden on the health care system as recommend by the World Health Organisation (2000). However this behaviour should be limited to simple illnesses and restricted to only over the counter drugs (OTC) to avoid the potential risks it carries and this finding can be a potential barrier to changing the of behaviour.

The findings on the effects of self-medication on the health of university students revealed to have negative health effects on students ranging from the creation serious complications like drug addiction and drug abuse, continued hospitalization, ending up being expensive on student's side, under or over dosages that may result into death among other negative effects. However some students also reported to have got cured of their illnesses when they practice self-medication especially when those illnesses were taken to be minor.

Once an individual perceives self-medication as a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweighs his/her perceived risks, then that individual is most likely to undertake the recommended health action to prevent self-medication.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter discusses the results presented in chapter four and the discussion is in line with other similar studies and some observations that were made during data collection and is guided by the Health Belief Model. The discussion follows similar sub headings as in chapter four. This chapter also incorporates the conclusions and recommendations derived from the study as well as suggest areas for further studies.

5.1 Discussion

5.1.1 Magnitude of self-medication among university students

The findings of the study showed that the magnitude of self-medication among university students was generally high. These findings are consistent with earlier findings that reported the prevalence of self-medication to be 76% in Aga Khan University Karachi (Syed, 2008); more than 80% among university students in India (Uppal1, Agarwal and Roy, 2014) and 50% in Nigerian university students (Olayemi, 2010). This implies that there is a growing trend of self-medication among the university students worldwide and policy makers need to design a regulatory frame work to control drug use outside the formal health care system. Interventions intended to increase student's perceived severity and threat to outweigh the perceived barriers in order to take action and overcome the self-medication behavior (Shamsi, Tajik, Mohammad Beigi, 2009).

The study was also in line with Abbey and Amelo (2010)reported fever and headache as the symptoms most frequently reported as causes of morbidity among the respondents.

The findings further showed that the common sources of medicines were mainly from community pharmacies and drug shops and friends and left over drugs from previous prescriptions. This study was in line with other studies like one conducted among university students in Karachi which showed that students mostly obtained the medicines drugs from a pharmacy (64.6%) or/and stocks kept at home (64.4%) or from friends (9.7%)(Syed Nabeel Zafar, 2008).Similarly, a study conducted by Donkor (2010)revealed that the drugs commonly used for self-medication (72%) were obtained them from the pharmacy or drug shops, their friends and left over from prior use. This finding was not in agreement with Uppal1, Agarwal, and Roy(2014) who found out that the sources of drugs used in self-medication were reported to be from first aid kit in 46.5% of students, followed by chemists (38%). The cause of the disagreement could be due to the fact these studies were conducted in different countries which had different policies on drug supply and regulation. However, what is common among all the studies is self-medication is significantly practiced

The results also revealed that the majority of the study respondents generally used the pain killersand antibiotics for self-medication and the medicines commonly used was paracetamol. However most of the pain killers including paracetamol are classified as over the counter drugs (OTC) which do not require a medical prescription for them to be accessed and therefore convenient for students to access. These results are similar to the other studies conducted by Mena Rabea et al (2016) & ALBashtawy (2014) which reported that the most common drugs

used by the students who had self-medicated over the past six months, were analgesic drugs which were reported to be significantly associated with adverse effects related to self-medications. Other related findings were reported by Nambatya et al(2011)that antibiotics were commonly used in self-medication among the students during the last infection were amoxicillin (20.9%) and metronidazole. Similarly, Ehigiator, Azodo, and Ehikhamenor (2010) who reported that amoxicillin was the most common antibiotic used for self-medication.

In conclusion it is positive that self-medication levels are high among university students in Uganda.

5.1.2 Factors related to self-medication among university students

The findings of the study showed that there were several factors that students reported to influence their self-medication and these included self-medication being convenient to them and costs-saving. These findings were indirect support of earlier studies like that of Osemene and Lamikanra, (2012) who revealed that factors related to self-medication included socioeconomic factors, lifestyle, ready access to drugs, the increased potential to manage certain illnesses through self-care. Similarly Uppal et al (2014) reported that self-medication saves time (66%), and 58.5% of students agreed that self-medication was economical. These findings suggest that cost saving and convenience are major reasons for self-medication of students in universities in Uganda implying that making health services pocket friendly and convenient for the users could wipe out the practice of self-medication.

The study finding also revealed that failure of the health care system particularly failure to provide adequate drugs was responsible for students' self-medication. This was in agreement with (Heisler et al., 2004) who stressed that factors responsible for self-medication included the

failure of a health care system, when there is maldistribution of health resources and a resultant growth in health care costs. This implies that if the university health facilities are well equipped, and prepared to handle the massive enrollment of the students at the universities this would reduce the self-medication behavior.

The study findings also revealed that self-medication was significantly associated with the field of study (p-value < 0.05) with the highest prevalence reported among the students in the field engineering and design. This finding was similar to the study by Swalha (2008)who reported that the prevalence of self-medication was high among medical students compared to the non-medical students.

The study findings in general showed that self-medication since the study was carried out on University students who are deemed to be elites, and then the prevalence of self-medication among the elites was high. These findings are in line with Kersnik, (2010) who found out that educated people have a greater tendency to practice self-medication than illiterates. This could be due to the fact that most educated people have easy access to information on the current common medications on use which could influence their self-medication practice. Similar findings were also reported by Nalini, (2010) who reported that higher levels of education and professional status had been associated with and considered as a predictive factor for self-medication.

The nature of the illness the individual had was found to be a predictive factor for self-medication. The common illnesses reported by respondents were running nose, cough and headache among others, a finding in agreement with Uppal1, Agarwal, and Roy(2014) who reported that self-medication was used ranging from fever, headache, running nose, diarrhea, body gastric acidity to mention but a few. Similarly, the study conducted by Mena et al (2016) reported that pain (29.9%) and respiratory problem (23.1%) were the most common illness

where self-medication was used and Abasaeed et al, (2009) and Nambatya et al (2011), similarly reported that, diarrhea, sore throat and common cold were the major symptoms for which the respondents self-medicated with antibiotics. This implies that students prefer to use self-medication when ailments they suffer from are perceived to be minor. Therefore interventions designed to curb down the behavior of self-medication should be aimed at minimizing such barriers through health education and sensitization that no illness should be taken for granted.

The study also revealed that prevalence of self-medication was generally high among the age group of 21-23 while the lowest prevalence was among the age group of 27 and years. However, males exhibited higher prevalence of self-medication than their female counterparts.

This study was in line with Alghanim, (2011) who reported that age and sex were among the socio-demographic variables statistically associated with self-medication and younger respondents were about twice more likely to practice self-medication than older ones. This implies that efforts to prevent the behavior of self-medication among the students should target the students joining the institutions of higher learning.

Deep analysis of the study findings revealed that some students lacked trust in the health services provided by the health care facilities in the universities due routine stock outs of medicines and this factor was related to self-medication. This finding was in line with the study conducted by Heisler et al (2004) who reported that other factors associated with self-medication included the failure of a health care system, especially when there is maldistribution of health resources and a resultant growth in health care costs. Similarly Alghanim, (2011) reported that the fact that the health care facilities were unavailable at times when the students needed care and less expectations /no benefit from health care facilities all significantly contributed to self-medication.

This implies that if the self-medication behavior is to be controlled, the university health facilities should stock enough drugs so that the perceived benefits could attract students to visit the health facility.

The study also revealed that a significant number of students were ignorant of the existence of medical services in their universities and instead opted for self-medication. This was mainly observed when the students would come to clear with the university health facilities which were a requirement for their graduation and were surprised that actually the university actually had a hospital. This implied that the students were not well oriented about the existence of the University health care facilities and such a gap needed to be closed by the University administration. In the literature there is no previous study matching this finding.

5.1.3 Effects of self-medication on the health of university students

The findings of the study showed that majority of the University students who practiced self-medication experienced negative health effects and were able to identify them as drug resistance, development of disease complications and prolonged hospitalization. This study was in agreement with the findings of Syed, (2008) who showed that 87% of students knew that self-medication could be harmful. Similarly a systematic review and meta-analysis study conducted by Maria et al (2014) reported that drug adverse effects had been experienced by 31.1% of the female and 19.6% male students. The study finding also resonates with that of the world health organization Guideline for the Regulatory Assessment of Medicinal Products for Use in Self-medication which indicated that self- medication may result into adverse drug reaction (ADR) (WHO, 2000). This is a surprising finding that students continued to self-medicate themselves

even when they were aware of its negative consequences. This implies that there are barriers that prevent the students from accessing the medicines from the facilities should be addressed.

The study findings further revealed that participants had suffered a number of adverse effects like drug over dose, diarrhoea, vomiting, dizziness and loss of appetite among others. These finding were also in line with the study conducted by Mena et al, (2016), which revealed that the most adverse effects caused by self-medication, were vomiting, nausea and diarrhoea. Contrary to the above findings, another study found that bleeding was the most frequently adverse self-medication effect diagnosed, followed by neurologic and psychiatric adverse effects (Asseray et al., 2013). This discrepancy could be due to the fact that side effects of particular drugs differ from one another. This implies that drugs have side effects and should be taken under the advice of qualified health workers so that proper monitoring is carried out.

The results from the study also revealed that drug resistance is one of the adverse effects of self-medication. This was because students who carry out self-medication are not guided as a result they end up taking incomplete doses which increases the risk of drug resistance. The findings also showed that even if they are offered proper treatment afterwards it may not be effective since the previous incomplete doses made micro-organisms resistant. These findings are in agreement with the study conducted by Osemene and Lamikanra, (2012) which reported that people who prefer to use self-medication may face challenges of incorrect medication, delay in seeking health care, un anticipated side effects, inappropriate usage of antibiotics leading to drug resistance. Such undesirable health effects included development of drug tolerance, adverse side effects, over dose, under dose, and consequently drug resistance and treatment failure. This implied that if this behavior is left to thrive among the students, it may not only put the students

at the risk of drug resistance but also increases the morbidity and mortality rates related to the health problem being managed.

Development of disease complications was a health effect reported by most of the study participants to be caused by self-medication. This was because when a wrong medicine is used to treat a particular disease, it in turn delayed the healing process. This finding concurred with other studies like one conducted by World Health Organization (2000) which indicated that self-medication increases the health problem of the patient. Similarly it agrees with Justin et al, (2000)who reported that a significant proportion of the patients did not benefit from the self-medication practice and yet they used a variety of tropical medicinal preparations and instead the skin disease worsened.

Furthermore, the study findings also reported long term effects like prolonged hospitalization and poor academic performance among the students who self-medicated. These usually are secondary to a delay in accessing the right medicines which may translate into serious complications that required the patient to be admitted for a longer period of time than would have been if the proper diagnosis was made and right treatment given at the beginning. These findings are in agreement with the study conducted by Kayalvizhi and Senapathi (1998) who reported self-medication resulted in misdiagnosing an illness that could have been resolved easily with the doctor's advice may become a major problem over time. This implies that self-medication behavior can also negatively impact on the academic achievement of the student due to the prolonged period of hospitalization without attending classes.

This study reported that if self-medication is practiced for a long period of time, it may result into drug abuse and addiction especially when drugs of abuse are taken without professional monitoring. This usually happens when the students continuously swallow the medicines with

the intention of a sense of wellbeing without considering the effects the drugs would have on their health. These findings are in agreement with a study conducted by Osemene and Lamikanra (2012) which showed that prolonged use of self-medication resulted into to adverse drug interaction and addiction. This implies that the policies governing the medicines regulatory frame work should ensure that only over the counter (OTC) should be accessed by the students.

Despite the many side effects reported by the participants who were self-medicating, a significant number reported to have had positive effects including having their diseases got cured and were instead encouraging the self-medication practice themselves. These findings are in agreement with the world Health Organization (WHO) which encouraged community treatment of common diseases using self-medication as, as this was thought to help reduce the burden on health care services (WHO, 2000). However to achieve this intention of WHO, self-medication needs to be done under a regulated frame work so that it does not cause more harm than good especially in developing countries like Uganda where both prescription and non-prescription drugs can be obtained without no regulatory mechanism.

In conclusion self-medication has more negative effects as it worsens and complicates the health problems, creates prolonged hospitalization which in turn affects academic achievement of the students among other health complications as discussed above.

5.2 Conclusions

From the above discussion, the following conclusions were made.

Self-medication was generally high among university students and their level of education could have enhanced the rate of self-medication. The drugs commonly used for self-medication were pain killers specifically paracetamol. However these drugs may not accurately cure their ailments.

Factors like convenience of students, drugs being less expensive, and taking some illnesses to be minor, lack of awareness on the existence of medical services at the universities, lack of trust in the medical services and lack of medical insurance all contributed highly towards students 'self-medication among universities in Uganda. Self-medication was found to be responsible for causing adverse effects on the health of students. Such effects included drug over or under dosage, development of disease complications, drug abuse and addiction and drug resistance. Therefore there is need to equip the University students with the necessary knowledge and skills through health education campaigns intended to increase their health literacy and consequently reducing the dangers associated with self-medication.

5.3 Recommendations

From the above findings, discussion and conclusions the researcher recommended that if self-medication is to be reduced among university students in Uganda the following should be carried out.

There should be a move by University administration to organize programmes to health educate students on the dangers of self-medication and in so doing the rate at which they engage in the same will reduce.

The university administration should improve on the health service delivery in their health facilities especially having well stocked drugs in order for students to gain trust in the services provided.

The medical department in the universities should ensure that the student population is routinely sensitised on the health services it provides especially during the period of orientation to narrow the gap between the service providers and service consumers.

5.4 Areas for further research

Due to a wide scope of the study area, this study was carried out on factors related to self-medication and its effects on the health of university students in Uganda. However there are several other factors which may not be worthy investigating that were not fully isolated and their effect on the health of students nor revealed. Such factor that may call for the future attention of researchers may include; qualification of health professionals, the general health service delivery in Ugandan universities, perceptions of the university service delivery, the level of health literacy among university students and quantifying the health effects of self-medication among others. Also since the study was carried out in universities located in the urban areas, another study would be recommended to be carried out in universities located in rural areas.

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APPENDICES

APPENDIX I: RESPONDENT INFORMED CONSENT

Research description

I am **Mubangizi Prosper** undertaking a study on "**Factors related to self-medication and its effects on the health of University students in Uganda"**. This will help to improve the rational drug use among the university students and the community members at large which will in turn strengthen country's health systems. Information will be collected for a period of one month through **self-administered questionnaires, focus group discussions and interviewing key informants (KI) from University health facilities.**

Risks

There are no foreseeable risks to you since the study involves interviews and questionnaires.

Benefits

There will be no special benefits to you. However, the University administration will get the final report and be able to identify which areas they need to improve on according to recommendations.

Confidentiality

Privacy during interviewing and confidentiality of information are guaranteed. You will be interviewed separately from other clients. In case you know one of the researchers, you can be interviewed by someone else or withdraw from the study. You are not required to give your name so you may not be identified as the one who gave the information. The information collected will only be accessible to the research team.

Compensation

No compensation should be expected for your time and any inconvenience caused but we are very thankful to you for taking part in this study.

Contacts

If you have any questions now please feel free to ask me. In case you have any later on, you can contact the principal investigator Mubangizi Prosper on the telephone number – **0701 748592** or Email. **mubangizip@gmail.com**

If you have any issues pertaining to your rights and participation in the study, please contact the Chairperson of the Institutional Review Board, Uganda Martyr's University.

Voluntary Participation

Participating in this study is at your will. You have the right to refuse to take part and can withdraw at any point without any penalty.

Participant:

I understand all the conditions above and have agreed to take part in this study at own free will.

(Signature / thumb print)……..

Researcher / research assistants' signature……

Any other witness……..

APPENDIX II: QUESTIONNAIRE

Good morning / afternoon?

My name is **Mubangizi Prosper** from faculty of Health Sciences of Uganda Martyr's University. **I am studying factors related to self-medication and its effects on the health of university students in Uganda.** The information you give will enable relevant stake holders to put forward the necessary interventions to govern the availability and accessibility of drugs to the public. This questionnaire has three sections i.e. Bio data of respondents, Magnitude of self-medication and Factors related to self-medication.

Instruction: Tick the appropriate answer **Code Number_____**

CODED QUESTIONNAIRE

Instruction: Tick the appropriate answer **Code Number_____**

	SECTION A:MAGNITUDE OF SELF MEDICATION
A1	What was the first step you took when you realised you were sick? 1=Took medication without prescription from a health professional 2=Took medication with a prescription from a health professional **If your answer is (a) proceed with the rest of the questions in the questionnaire BUT if the answer is b, do not proceed.**
A2	If you took medication without prescription from a health professional, how did you access the medicines (tick more than one if applicable) 1=Community pharmacies and drug shops 2=Traditional herbalists 3=Left over from previous prescription

	4=Online shopping/E-pharmacy 5=Other(s) specify _____
A3	What type of medicine was it? 1=Painkillers 2=Antibiotics 3=Herbal medicines 4=I don't know 5=Others (specify)_____
A4	Please write down the names of the medicines you have ever taken for self medication 1=Panadol 2= Diclofenac 3=Septrin 4= Coartem _____ 5=Other (s) specify _____
A5	About how many times did you take medication without prescription from a health professional in the last six months 1=1-2 times 2=3-4 times 3=5 or more times
	SECTION B: FACTORS RELATED TO SELF MEDICATION
B6	Age (years) 1= 18-20 2=21-23

	3=24-26 4=Other (s) specify _____
B7	Gender 1=Male 2=Female
B8	Year of study 1=First year 2=Second year 3=Third year 4=Fourth year and above
B9	Field of study (College/Faculty) 1=Humanities 2=Health sciences 3=Engineering and design 4=Business studies 5=Computing and information technology 6=Others (specify)
B10	Do you have medical insurance? 1=Yes 2=No
B11	For which of the complaint (s) led you to self-medicate yourself? (tick more than one if applicable)

	1=Runny nose 2=Nasal congestion 3=Cough 3=Sore throat 4=Fever 5=Aches and pains 6=Vomiting 7=Diarrhoea 8=Skin wounds 9=Others (specify) _____
B12	What was (were) the reasons for self-medication? (tick more than one if applicable) 1=Cost saving 2=Convenience 3=Lack of trust in the prescribing doctor 4=Long waiting time in the health facilities 5=Others (specify)
B13	What factor could have influenced you to select the medicine? (tick more than one if applicable) 1=Advice by community pharmacists 2=Opinion of family members 3=Opinion of friends 4=My own experience 5=Previous doctors prescriptions

	6=The advertisement 7=Other(s) specify _____
B14	Did you ever check the instructions that come with the package inserted in medicines for self-treatment? 1=Yes, always 2=Yes, sometimes 3=Never
C15	How much did you understand the instructions? 1=Fully understood 2=Partially understood 3=Did not understand at all
C16	How did you know the dosage of medicines (tick more than one if applicable) 1=By checking the package insert 2=By consulting a doctor 3=By consulting a pharmacist 4=By consulting family members/friends 5=From newspapers, magazines or books or TV programs 6=From the internet 7=From my previous experience 8=By guessing the dosage by my self
C17	Do you think you can treat the common infectious diseases with antibiotics successfully by yourself? 1=Yes I can

	2=Not sure 3=No I cannot
C18	What do you think about self-medication with medicines for self-health care? 1=Good practice 2=Acceptable practice 3=Not acceptable practice

APPENDIX 111: CONSENT FORM FOR A FOCUSED GROUP DISCUSSION (FGD)

You have been asked to participate in a focus group Discussion (FGD) by **Mubangizi Prosper** from faculty of Health Sciences of Uganda Martyr's University. The information you give will enable relevant stake holders to put forward the necessary interventions to govern the availability and accessibility of drugs to the public.

You can choose whether or not to participate in the focus group and stop at any time. Although the focus group will be tape recorded, your responses will remain anonymous and no names will be mentioned in the report.

There are no right or wrong answers to the focus group questions. We want to hear many different viewpoints and would like to hear from everyone. We hope you can be honest even when your responses may not be in agreement with the rest of the group. In respect for each other, we ask that only one individual speak at a time in the group and that responses made by all participants be kept confidential.

I understand this information and agree to participate fully under the conditions stated above:

Signed: _____

Date: _____

APPENDIX IV: INTERVIEW GUIDE FOR THE FOCUSSED GROUP DISCUSSIONS

Engagement questions

1. Do you think self-medication is a common practice in university students?
2. What are common practices around self-medication among university students

Exploration questions

3. What factors could have influenced individuals to practice self-medication
4. What are probable health effects of self-medication on the health of university students?

Exit questions

5. Do you think self-medication should left to continue in the public?
6. What can be done to discourage students from the practice of self-medication?

APPENDIX V: CONSENT FORM FOR KEY INFORMANTS

You have been asked to participate in an interview by **Mubangizi Prosper** from the faculty of Health Sciences of Uganda Martyr's University. The study topic is **factors related self-medication and its effects on the health of University Students in Uganda**

The information you give will enable relevant stake holders to put forward the necessary interventions to govern the availability and accessibility of drugs to the public in Uganda.

You can choose whether or not to participate in the interview and stop at any time. Although the interview will be tape recorded, your responses will remain anonymous and no names will be mentioned in the report.

I understand this information and agree to participate fully under the conditions stated above:

Signed: _____

Date: _____

APPENDIX VI: INTERVIEW GUIDE FOR KEY INFORMANTS

Engagement questions

1. Do you think self-medication is a common practice in university students?
2. What are common practices around self-medication among university students

Exploration questions

3. What factors could have influenced individuals to practice self-medication
4. What are probable health effects of self-medication on the health of university students?

Exit questions

5. Do you think self-medication should left to continue in the public?
6. What can be done to discourage students from the practice of self-medication?

APPENDIX VII: PARTICIPANT IDENTIFICATION CODES

	Respondent	**Code**
1.	Makerere University Key Informant One	MUKI 1
2.	Makerere University Key Informant Two	MUKI 2
3.	Makerere University Key Informant Three	MUKI 3
4.	Kyambogo University Key Informant One	KYUKI 1
5.	Kyambogo University Key Informant Two	KYUKI 2
6.	Kyambogo University Key Informant Three	KYUKI 3
7.	Kampala International University Key Informant One	KIUKI 1
8.	Kampala International University Key Informant Two	KIUKI 2
9.	Kampala International University Key Informant Three	KIUKI 3
10.	Makerere University FGD Female	MUKFGD F 1……9
11.	Makerere University FGD Male	MUKFGD M 1…...9
12.	Kyambogo University FGD Female	KYUFGD F 1…….9
13.	Kyambogo University FGD Male	KYUFGD M1…….9
14.	Kampala International University FGD Female	KIUFGD F 1……...9
15.	Kampala International University FGD Male	KIUFGD M 1……...9

APPENDIX VIII: INTRODUCTION LETTER

Uganda Martyrs University

Making a difference

Faculty of Health Sciences
Email: health@umu.ac.ug

07-05-2016

The Responsible Officer

RE: INTRODUCING MR. MUBANGIZI PROSPER

This is to introduce to you Mr. Prosper Mubangizi as a bona fide student of Uganda Martyrs University. He is pursuing a programme leading to the award of Master of Public Health –Health Promotion . He is currently on research for his dissertation on the topic: **"Factors related to Self-medication and its Effect on health of University Students in Uganda".**

The topic and protocol have been approved by the relevant university authorities.

Any assistance rendered to him in this respect will be highly appreciated by the university.

Yours sincerely,

Dr. Miisa Nanyingi
Lecturer,
Faculty of Health Sciences,
Uganda Martyrs University

APPENDIX VIX: LETTER OF AUTHORISATION FROM MAKERERE UNIVERSITY

C/O MUBANGIZI PROSPER

P.O.BOX 14263,

KAMPALA

8/7/2016

THE ACADEMIC REGISTRAR

MAKERERE UNIVERSTITY

P.O.BOX 7062

KAMPALA

Permission is hereby Granted

14/07/2016

Dear Sir,

RE: REQUEST FOR AUTHORISATION TO CONDUCT RESEARCH IN MAKERERE UNIVERSITY

Reference to the above subject matter, I forward my request to be allowed to conduct research in in the University from 11th - 15th Jul 2016. The study topic is "**Factors related to self medication and its effects on the health of University students in Uganda".** The study units will be students and health workers in the University health facilities.

The study is entirely for academic purposes and confidentiality will be ensured for all participants. Respondents will only be included in this study after their consent has been sought.

Attached here in, is the letter of introduction from Uganda Martyrs University

Your help will be highly appreciated

Yours faithfully

MUBANGIZI PROSPER

EMAIL:mubangizip@gmail.com

Tel: 0701748592/0773748592

APPENDIX X: LETTER OF AUTHORISATION FROM KAMPALA INTERNATIONAL UNIVERSITY

C/O MUBANGIZI PROSPER

P.O.BOX 1473,

KAMPALA

8/7/2016

THE ACADEMIC REGISTRAR

KAMPALA INTERNATIONAL UNIVERSITY

KAMPALA

Dear Sir,

RE: REQUEST FOR AUTHORISATION TO CONDUCT RESEARCH IN KAMPALA INTERNATIONAL UNIVERSITY

Reference to the above subject matter, I forward my request to be allowed to conduct research in in the University from 11th - 15th Jul 2016. The study topic is **"Factors related to self medication and its effects on the health of University students in Uganda".** The study units will be University students and health workers in the University health facilities.

The study is entirely for academic purposes and confidentiality will be ensured for all participants. Respondents will only be included in this study after their consent has been sought.

Attached here in, is the letter of introduction from Uganda Martyrs University

Your help will be highly appreciated

Yours faithfully

MUBANGIZI PROSPER

EMAIL:mubangizip@gmail.com

Tel: 0701748592/0773748592

KAMPALA INTERNATIONAL UNIVERSITY
13 JUL 2016
ACADEMIC REGISTRAR

APPENDIX XI: LETTER OF AUTHORISATION FROM KYAMBOGO UNIVERSITY

KYAMBOGO UNIVERSITY

P. O. BOX 1 KYAMBOGO
Tel: 0414 -285037/285001 Fax: 0414 -220464
Email: arkyu@kyu.ac.ug, www. kyu.ac.ug

Office of the Academic Registrar

14th July 2016

Mr.Mubangizi Prosper

REQUEST FOR AUTHORIZATION

Reference is made to your letter dated 8th July 2016 in which you requested to conduct research at Kyambogo University on the research topic "Factors related to self medication and its effects on the Health of University students in Uganda"

By copy of this letter I am requesting the Director Health Services to consider your application and assist you.

Thank you.

Rose G. Bwire (Mrs)
ACADEMIC REGISTRAR

KYAMBOGO UNIVERSITY BOX 1, KYAMBOGO 14 JUL 2016 OFFICE OF THE ACADEMIC REGISTRAR

Cc: Director Health Services

RGB/mp

Please maneen, Dr Grace with the bearer of this letter and provide the information required
DHS
20/07/16

APPENDIX XII: MAP OF UGANDA SHOWING KAMPALA DISTRICT