COMPLIANCE TO MEDICATION AMONG HYPERTENSIVE PATIENTS AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL, SOUTHWESTERN UGANDA

BY

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ABSTRACT
Hypertension has become an essential public-health challenge globally and is estimated to cause 7.1 million deaths annually, accounting for 13% of all deaths globally. It’s noted that non adherence is the major cause of uncontrolled hypertension and its sequel.

Purpose of the study: To assess the level of compliance to medication among hypertensive patients at Kampala International University Teaching Hospital (KIUTH), southwestern Uganda.

Methods: A cross sectional study design was used employing a purposeful sampling technique, 37 hypertensive patients at KIUTH were enrolled and data was obtained using well-structured questionnaires. The Data obtained was analyzed using statistical package for social scientists (SPSS).

Results: There were 21 (56.8%) Females and 16 (43.2%) males. The age range was between 30 and 80 years with mean age of 54.5 years. 56.8% diagnosed more than 2 years ago. Compliance medication was 62.2%. Reans for non-compliance included, with running out of drugs 38%, forgetfulness 31% and lack of funds to buy drugs 31% as the main reasons for missing medication. Other reasons for noncompliance included drug side effects (10.8%) and feeling better (5.4%). Compliance to exercise – 73% while 14% for diet. Solutions to the drug non-compliance included; improved health education (86.5%), making drugs affordable (64.9%), and making drugs available and accessible (54%).

Conclusion: compliance to hypertensive medication, exercise and diet which are non-pharmacological management of hypertension was 62.2%, 73% and 14% respectively. The solutions to non-compliance include; improved health education, making drugs affordable, available and accessible.

Recommendation There should be an empowerment in health education to hypertensive patients and to ensuring that there’s availability and accessibility of the drugs to the patients.
DECLARATION

I Namubiru Kauthara declare that this work is original and solely done by me and has never been submitted and will not be presented to any other nursing school for a similar or any other award.

Signature……………………………

Date………………………………

NAMUBIRU KAUTHARA

M15/U011/DNE/032
APPROVAL

I hereby affirm that this research dissertation entitled “Compliance to Medication among Hypertensive Patients at Kampala International University Teaching Hospital, Southwestern Uganda” has been produced under my close supervision and submitted with my approval for the partial fulfillment of the requirement for the award of diploma in nursing science of Kampala International University.

Supervisor

Name:..............................................

Signature:...................................... Date:..........................................................

Principal

Name:..............................................

Signature:................................. Date:.....................................................

Student

Name:..............................................

Signature:................................. Date:.....................................................
DEDICATION

This work is dedicated to the family of Hajji Salim Mutebi, for the wonderful work he has done for me during my research and to colleagues who have also played a big part in my work. I am grateful for the work done by the almighty God reward them.
ACKNOWLEDGEMENT

Many people have contributed in one way or the other from the beginning of writing the research proposal.

I would like to appreciate Mr. Byarugaba Francis who was my supervisor, the school of nursing and its staffs, my family and my colleagues who also helped in the process of my research for their tireless assistance.

I thank you all for contributing to my work
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DEFINITION OF KEY TERMS

Hypertension – Is an average systolic blood pressure 140 mm Hg or greater, diastolic blood pressure 90 mm Hg or greater.

Compliance - The consistency and accuracy with which a patient follows the regimen prescribed by a physician or other health professional.

Adherence- is the ability and willingness to abide by a prescribed therapeutic regimen.
ACRONYMS

KIUTH – Kampala International University Teaching Hospital

HTN – Hypertension

SSA – Sub-Saharan Africa

WHO – World Health Organization

MOH – Ministry of health

SPPS – Statistical Package for Social Sciences
CHAPTER ONE

1.1 Background

Hypertension is defined as an average systolic blood pressure 140 mm Hg or greater, diastolic blood pressure 90 mm Hg or greater measured at three different intervals (Miller, Berra, & Long, 2009).

Currently, Hypertension has become an essential public-health challenge globally. Prevention, detection, treatment, and control of this condition should receive high priority because if Left uncontrolled, HTN poses serious health problems on sufferers including heart attack, heart failure, and stroke (Behnood-Rod et.al, 2016).

In 2006, The World Health Organization (WHO) estimated that about 62% of cerebrovascular disease and 49% of ischemic heart disease burden worldwide are attributable to suboptimal blood pressure levels where high blood pressure is estimated to cause 7.1 million deaths annually, accounting for 13% of all deaths globally (WHO,2006).

The number of people worldwide with hypertension rose from 600million in 1980 to nearly 1 billion in 2008 yet according to WHO poor adherence is estimated at 50-70% of hypertensive patients. The burden of hypertension is particularly high in sub-Saharan African countries. The increasing rates of hypertension in sub-Saharan Africa have been attributed to rapid epidemiologic transition from an agricultural lifestyle to more westernized lifestyle, with increasing rates of obesity, unhealthy diet, and physical inactivity(Boima et al., 2015; Farahat, et al, 2016)
Its noted that Blood pressure control in sub-Saharan Africa among hypertensive patients is generally poor and is supposedly related to the complex interplay of patient, provider, and socioeconomic factors in this region (Boima et al., 2015). These may include, patients’ lack knowledge about hypertension, or having beliefs that are conflicting with those of the traditional medical model regarding the causes and treatment of hypertension and consequently these practices affect medication adherence hence uncontrolled BP. Additionally, is the enormous cost of the medication and insufficient time and resources for the medical practitioners to provide the necessary education and treatment to then patients. Consequently about half of the sample (139 cases, 49.6%) showed low adherence to medication in a research done in Iran (Behnood-rod et al., 2016).

In Lesotho adherence to medication, diet and exercise was 64.3%, 37.1% and 7.1% respectively while in in a study in Nigeria Good compliance with drug treatment was observed in 51% of the subjects and in Tanzania only 53.3%, were treatment compliant (Joho, 2012; Keneuoe, Tumelo, Mopa, Lekotoane, & Varsay, 2015; Osamor & Owumi, 2011a)

In a Ugandan survey in Mulago and St. Francis Nsambya, Only 17% of the study participants (112) were highly adherent to their prescribed anti-hypertensive treatment compared to 77% who were poorly adherent according to the Morisky drug scores and The foremost reasons for poor drug adherence were lack of knowledge of the chronicity of hypertension (73 %), cost of the drugs (63 %) and access to health care provision (15 %). However, 19 % of the study
participants were not able to provide a reason for the poor drug adherence. (Mugwano, Kaddumukasa, et al., 2016)

It's noted that non-adherence to the antihypertensive drugs is the major cause of Uncontrolled hypertension, and patients understanding their drug regimens plays an important role in improving their adherence, thus preventing the complications of hypertension which are incapacitating and if not prevented can increase the burden of a disease that is already on the increase (Kumar & Halesh, 2010).

1.2 Problem statement

Hypertension is one of the largest contributors to global burden of disease, accounting for 7% of global disability-adjusted life years with the number of people worldwide suffering with hypertension rising from 600 million in 1980 to nearly 1 billion in 2008. This burden of hypertension has been growing unremittingly in Sub-Saharan Africa over the past few decades and Uganda inclusive (Boima et al., 2015; Feven et al., 2015).

This has potentially severe consequences in the region as a huge proportion of those with hypertension probably remain undiagnosed, untreated, or inadequately treated, hence are at high risk for morbidity and mortality from potentially preventable complications of hypertension such as stroke and heart disease for example in Korea Among 33,728 eligible hypertensive subjects, 670 (1.99%) died of coronary heart disease or stroke during follow-up. Poor medication adherence had worse mortality from ischemic heart disease cerebral hemorrhage, and cerebral
infarction than those with good adherence and it’s expected that cardiovascular disease is sub-Saharan Africa is expected to double by year 2030. (Feven et al., 2015; Soyeun et al., 2016).

However incidence of complications can be reduced through compliance to medication, diet and lifestyle modifications but various studies show that despite the recent advances in drug therapy world over, the majority of diagnosed hypertensive patients are poorly controlled with control rates for hypertension ranging from as low as 2 to 40% in SSA, 66.7% in Nigeria, 53.3% in Tanzania and 17% in Uganda. (Boima et al., 2015; Joho, 2012; Keneuoe et al., 2015; Mugwano, Kaddumukasa, et al., 2016)

And there’s limited data documenting the cause of poor compliance in southwestern Uganda hence the need to carry out this study in KIUTH southwestern Uganda.

1.3. Purpose of the study

It was to assess the level of compliance to medication among hypertensive patients at Kampala international university teaching hospital, southwestern Uganda.

1.3.1 Specific objectives

1. To determine the proportion of treatment compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda

2. To identify factors contributing to low compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda
3. To determine solutions on how to improve treatment compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda

1.4 Research questions

1. What is the proportion of treatment compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda?

2. What are the factors contributing to low treatment compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda?

3. What should be done to improve treatment compliance among hypertensive patients attending Kampala international university teaching hospital, southwestern Uganda?

1.5 Justification

The findings from this study will increase the knowledge available concerning treatment compliance among hypertensive patients in southwestern Uganda and the country at large. Additionally, the findings will be used by policy makers and stakeholders to come up with interventions on how to reduce the burden of hypertension and how to improve on the treatment compliance of patients thus reducing the burden of disease and improving on the quality of life.
CHAPTER TWO

2.0 Literature review

2.1 Hypertension

Hypertension is defined as an average systolic blood pressure 140 mm Hg or greater, diastolic blood pressure 90 mm Hg or greater and it is an important public-health challenge worldwide. Prevention, detection, treatment, and control of this condition should receive high priority (Miller et al., 2009)

Hypertension is a common but treatable public health problem globally. It is estimated to cause 7.5 million deaths annually, about 12.8% of all deaths worldwide. Globally, the prevalence of hypertension in adults was approximately 40% in 2008. The number of people worldwide with hypertension rose from 600 million in 1980 to nearly 1 billion in 2008. The burden of hypertension is particularly high in sub-Saharan African countries. The increasing rates of hypertension in sub-Saharan Africa have been attributed to rapid epidemiologic transition from an agrarian lifestyle to a more westernized lifestyle, with increasing rates of obesity, unhealthy diet, and physical inactivity. Blood pressure control is generally poor among hypertensive patients in sub-Saharan Africa, and efforts to improve BP control are needed (Behnood-rod et al., 2016)

The World Health Organization (WHO) has estimated that about 62% of cerebrovascular disease and 49% of ischemic heart disease burden worldwide are attributable to suboptimal blood pressure levels where by high blood pressure is estimated to cause 7.1 million deaths annually,
accounting for 13% of all deaths globally (WHO, 2006) and Kearney et al, 2005 projected that the number of adults with hypertension will increase by 60% to a total of 1.56 billion (1.54 billion–1.58 billion) in 2025. (Kearney, Whelton, Reynolds, & Whelton, 2005)

Antihypertensive are effective in controlling hypertension and nearly half of the cases (127 patients, 45.3%) in a study in Iran were taking one class of antihypertensive for their condition. Among these, angiotensin-receptor blocker (74 cases, 26.4%) was the most prevalent medication used, followed by selective beta-blockers (22 cases, 7.9%), hydrochlorothiazide (13 cases, 4.6%), angiotensin-converting enzyme inhibitor (10 cases, 3.6%), calcium-channel blocker (7 patients, 2.5%), and finally alpha-blocker (one patient, 0.4%). Others (153 cases, 54.6%) were taking more than one class of antihypertensive to control their high BP. One-hundred sixty patients (57.1%) had a concomitant condition other than HTN. The most common comorbidity was ischemic heart disease (with or without having undergone coronary artery bypass grafting (CABG) or minimally invasive percutaneous interventions; PCI) which was documented in 28 patients (10.0%). Then, diabetes mellitus (23 cases, 8.2%) and dyslipidemia (12 cases, 4.3%) were, respectively, most common comorbidities. (Behnood-rod et al., 2016)

2.2 Proportion of treatment non-compliance

The ultimate aim of any prescribed medical therapy is to achieve certain desired outcomes in the patients concerned. These desired outcomes are part and parcel of the objectives in the management of the diseases or conditions. However, despite all the best intention and efforts on the part of the healthcare professionals, those outcomes might not be achievable if the patients
are non-compliant. This shortfall may also have serious and detrimental effects from the perspective of disease management. Hence, therapeutic compliance has been a topic of clinical concern since the 1970s due to the widespread nature of non-compliance with therapy and therapeutic compliance not only includes patient compliance with medication but also with diet, exercise, or lifestyle changes. (Jing, Grant, Vernon, & Shu, 2008)

Therapeutic non-compliance occurs when an individual’s health-seeking or maintenance behavior lacks congruence with the recommendations as prescribed by a healthcare provider. And adherence is defined as the ability and willingness to abide by a prescribed therapeutic regimen. It’s worth noting that non-compliance could have a major effect on treatment outcomes and direct clinical consequences. Non-compliance is directly associated with poor treatment outcomes in patients with diabetes, epilepsy, AIDS (acquired immunodeficiency syndrome), asthma, tuberculosis, hypertension, and organ transplants. In hypertensive patients, poor compliance with therapy is the most important reason for poorly controlled blood pressure, thus increasing the risk of stroke, myocardial infarction, and renal impairment. (Jing et al., 2008)

Hypertension (HTN) is a major public health challenge in many parts of the world. Left uncontrolled, HTN poses serious health problems on sufferers including heart attack, heart failure, and stroke. Health care providers should make use of all armamentariums available for better control of HTN. Beside regular checkups, medication intensification, health surveillance, and patient education, a factor that health care providers should be more aware about in facing
this population is assessing the extent to which hypertensive patients comply with medications as prescribed for them (i.e. adherence to medication).

(Behnood-rod et al., 2016)

According to a study done in rural china, 21.3% of patients were adherents to medication and that 78.7% of patients were non-adherents. Most of the participants (71.4%) took medication more than three times daily; only 18.2% of patients took one antihypertensive tablet at a time. Multivariate logistic regression showed that the following variables were associated with medication adherence: age, household income, duration of diagnosis, number of antihypertensive tablets taken in each dose, daily frequency of taking medication, and social support.(Chunhua, 2016)

The association between socio-demographic factors and treatment compliance was explored by Angelina Alphonse Joho in Dar es Salaam and it showed that as the age increases, there is a tendency to decrease treatment compliance in hypertensive patients. The participants with less than 64 years of age (56.8) had high proportion of those who were compliant to treatment compared to participants with 65 years age (53.2). Furthermore the study revealed that females had higher proportion of treatment compliant individuals 48(63.2) than males 27(45.8) with (P = 0.044) (Joho, 2012).
2.3 Factors contributing to low compliance

There are a number of factors that contribute to therapeutic non-compliance and these factors can be categorized to: patient-centered factors like; age, ethnicity, level of education; Patient’s beliefs, motivation and negative attitude towards therapy, Smoking or alcohol intake and Forgetfulness. Therapy-related factors include route of administration, treatment complexity, and duration of treatment period, medication side effects, degree of behavioral change required, taste of medication and requirement for drug storage. Finally, Social and economic factors, like time commitment, cost of therapy, income and social support to the patients..(Jing et al., 2008)

According to Almas et al (2006) February 2005 at Aga Khan University Pakistan on factors affecting compliance to antihypertensive therapy indicates that noncompliance was affected by forgetfulness, deliberately missing doses, due to side effects, increased number of tablets, not properly counselled, and due to cost issues. (Almas, Hameed, Ahmed, & Islam, 2006)

A study done in Dar es Salaam showed that 48% of patients reported that they frequently stopped medication because they couldn’t afford to buy drugs, and 23% reported frequently stopped using medication when feeling well (when there is no symptoms). About 21% reported frequently not using medication due to fear of side effects, while 16.3% of respondents reported that they frequently stopped medication in order to avoid drug addiction while about 10% reported that they frequently stopped medication and use tradition medicine. Additionally patients without formal education level (55.6%) had high treatment compliance compared to those with high education level (37.5%).and it was suggested to be due to the reason that
patients with lower educational level might have more trust in physicians’ advice compared to those with higher level of education. (Joho, 2012)

Therefore, Doctors/Nurse must educate hypertensive patients about their disease and the importance of complying with hypertensive medications, and the consequences of non-compliance with treatment. Patients should be told that the drugs are for long term use (for life) and the disadvantage of skipping the doses and also expound on the importance of complying with medication whether they have symptoms or not, by doing so it removes the barriers (lack of motivation because hypertension cannot be cured) of using antihypertensive treatment so that patients will comply with their treatment. (Boima et al., 2015; Mugwano, Kaddumukasa, et al., 2016)

**2.4 solutions to improve treatment compliance**

Lack of knowledge affects compliance to medication and counselling is one of the preventive methods to drug non-compliance. In a study in Hyderabad, India, Post counselling resulted in improved Knowledge from 1.5 to 2.07, Attitude improved from 1.66 to 2.41, and Practice improved from 2.4 to 3.7. There was an improvement (22.51% to 34.55%) observed after counselling in the adherence of hypertensive patient. Therefore, hypertension prevention and control in the community without awareness is currently a pivotal challenge. And awareness can be achieved by counselling thus improved compliance. (Sultana et al., 2016)
Because polypharmacy and complexity of treatment regimen are known to be 2 of the determinants of poor medication compliance, efforts have been made to simplify the drug regimen. Interventions aimed at simplifying the drug regimen for patients (e.g., daily dosing as opposed to twice daily dosing) have been shown to improve patients’ compliance. In a meta-analysis based on the 9 studies, Fixed-dose combinations resulted in a 26% decrease in the risk of non-compliance compared with free-drug component regimen (non-compliance rate: 35% vs 38%; \( P < .0001 \)). (Bangalore, Kamalakkannan, Parkar, & Franz H. Messerli, 2007)

several strategies including the referral of patients to other health centers can be put in place to minimize the impact of drug stock outs on compliance. It was noted as well that patients receiving multiple drug antihypertensive therapy were more likely to have poor blood pressure control than patients on monotherapy. (Keneuoe et al., 2015).
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter gives an overview of the methods that were used in the collection of data and the measures taken to avoid unethical behavior. It also contains research design used and the rationale for its choice, description of research setting and materials used in data collection.

3.2 Study design and rationale

A descriptive cross-sectional study design was used, to assess the factors contributing to the low compliance to medication among hypertensive patients attending Kampala international university teaching hospital southwestern Uganda. The method was used because it’s easier to work with and would provide the necessary information.

3.3 Study Area and rationale

The study was conducted from KIU-TH which is located in Ishaka, Ishaka- Bushenyi municipality in Bushenyi district, southwestern Uganda. It’s located approximately 65kms by road from Mbarara town, the largest town in the region and 360kms from Kampala the Capital City of Uganda. KIU-TH serves people from Bushenyi district with population of 241,500 people and surrounding districts of Rubirizi, Mitooma, Buhweju and Sheema. Most of the residents are banyankole-bakiga and runyakitara is the common language spoken. Majority of the people are farmers growing matooke as their major food crop. Other activities carried out include cattle keeping and tea planting. The area was selected because it’s a referral center for
Bushenyi, Buhweju, Kitagata, and Buhweju among others and serves a large population of people.

3.4 Study population

The study population composed of hypertensive patients attending Kampala international university teaching hospital. The majority of the people in the district are small scale subsistent farmers and the main cash crop is Matooke and tea. Other crops grown include coffee, millet, potatoes, beans, cassava and sweet bananas. The animals kept are mainly cattle for beef and milk, goats, sheep and chicken. Other activities involved in are stone quarrying, fishing and transport. The population is represented mainly by Banyankore, Bakiga and Bakonjo tribes. (www.bushenyi.go.ug)

3.4.1 Sample size determination

The sample size was determined using the formula according to Kish lisle, 1965 for cross sectional studies, in which the sample size is given by the expression below;

\[ n = \frac{Z^2 PQ}{d^2} \]

Where \( n \)-required sample size,

\( n \)- Desired sample size (if targeted population is greater than 10,000)

\( Z \) – Standard normal deviation at 95% confidence interval (1.96)
P – Proportion of estimated population of patients per month in KIUTH (KIUTH reports approximately 2.5% of the population)

Q = (P-1) which gives 0.975

d- Accepted degree of error (0.05)

By substitution you get

n = 1.96² (0.025×0.9775)/ 0.05²

n = 37.4

n = 37 participants

3.4.2 Sampling procedure

A purposeful sampling method was used where any hypertensive patient who was accessible and consents to the study would be recruited until the required sample size was obtained. This method was chosen because it’s convenient, quick and time saving.

3.4.3 Inclusion

1. Patients of age 18 years and above,

2) Participants with a hypertension diagnosis for at least 6 months with or without other co-morbid conditions.
3) Participants who have been taking antihypertensive treatment for at least past six months.

4) Patients who agreed and consented to participate in the study

3.4.4 Exclusion criteria

1) Patients less than 18 years of age

2) Patients who had not started antihypertensive

3) Patients on antihypertensive medication who could not consent to participate in the study.

4) Patients who were too sick to be interviewed

3.5. Definition of variables

3.5.1 Dependent variables

The major dependent variable in this study was compliance to hypertensive medications and solutions to low compliance

3.5.2 Independent variables

The independent variables in this study included life style, beliefs and practices, level of knowledge on hypertension, cost of antihypertensive drugs and drug side effects.

3.6. Research instruments

Well-structured questionnaires with both open and close ended questions were used to collect data from the participants.
3.7 Data collection procedure

After obtaining approval from the school of nursing I proceeded to the executive director of the KIUTH to obtain permission to run the study in the hospital. After permission from the hospital director I approached the individual participants for consent. For each participant I approached, time would be taken to build rapport so as to make them comfortable and enable the interaction to flow fluently. The questionnaires were designed in English but they were translated to Runyakitara by research assistant to the persons being interviewed in case he or she was not familiar with the English language.

3.7.1 Data management and quality control

The research tool was first pretested in a pilot study in Bushenyi health center IV in order to do data cleaning and address any matter arising like unclear questions and irrelevant data being collected. One day training was done to the Research assistants who would help in collecting data.

3.7.2 Data analysis and presentation

Data was first analyzed electronically by feeding into MS-Excel software and exported to SPSS for analysis to generate descriptive statistical information which was presented in the form of tables, figures, and charts.
3.8 Ethical considerations

An introductory letter from the school of nursing of Kampala international university –western campus after approval of the research.

The approval letter was forwarded to KIU-TH for acceptance into their facilities and consent was sought from every participant.

3.9 Limitations

Time was a limiting factor since I had to work on the research project as well as other studies for the course. This was managed by programing myself well to meet both goals.

Language barrier for the new immigrants and the researchers which was solved by getting interpreters.

Insufficient funds limited the work since this was individually funded research. However, the little funds available for research was well budgeted for and used carefully to meet the basic requirements of the research.

3.10 Plans for dissemination of data

On completion of the report, it was disseminated to the school of nursing of KIU, the Uganda Nurses and Midwifery examination board, Executive director of KIU-TH, and a copy to remain with the researcher for reference.
CHAPTER FOUR

4.0 Introduction

The results were from a cross sectional study carried out on medical ward of KIUTH. Study data for this analysis was obtained from 37 hypertensive patients who voluntarily consented to be interviewed, satisfied the inclusion criteria and successfully completed the questionnaires. The study was carried out between the months on July and August 2016. The socio-demographic characteristics of the study participants are as shown in table 1 below. There were 21 (56.8%) Females and 16 (43.2%) males. The age range was between 30 and 80 years with mean age of 54.5 years. More than ¾ of the participants had at most primary level of education and consequently 78.4% of the participants were peasant farmers. Majority of the participants were either married 22(59.5%) or widowed 13 (35.1%)

Table 1: socio-Demographic characteristics of the participants. N = 37

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>56.8</td>
</tr>
<tr>
<td>Males</td>
<td>16</td>
<td>43.2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 50</td>
<td>15</td>
<td>40.5</td>
</tr>
<tr>
<td>≥ 50</td>
<td>22</td>
<td>59.5</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>At most primary</td>
<td>31</td>
<td>83.8%</td>
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<tr>
<td>Secondary</td>
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<td>10.8%</td>
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<table>
<thead>
<tr>
<th>Occupation</th>
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<tbody>
<tr>
<td>Peasant farmers</td>
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<td>78.4%</td>
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<tr>
<td>Business</td>
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<td>13.5%</td>
</tr>
<tr>
<td>Others</td>
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<td>8.1%</td>
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<tr>
<th>Marital Status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Married</td>
<td>22</td>
<td>59.5%</td>
</tr>
<tr>
<td>Widowed</td>
<td>13</td>
<td>35.1%</td>
</tr>
<tr>
<td>Single</td>
<td>1</td>
<td>2.7%</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

### 4.1 Duration of the disease

Majority of the participants had suffered from the disease for more than 2 years (56.8%) while 16 (43.2%) had had the disease for less than 2 years. It was further established that 27% (10) of participants had co-morbid chronic conditions especially diabetic mellitus as shown in figure 1 below.
4.2 Medications

Majority of the participants take at least 2 types of medication 28 (75.7%) in a day with majority taking at least 3 tablets in a day 21(56.8%) as shown in the table 2 below. Further analysis showed a strong relationship between types of medication and number of tablets taken in a day (P = 0.001)
Table 2: A table showing number of tablets swallowed in a day by the participants

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>32.4</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>10.8</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.3 Proportion of non-compliance

4.3.1. Missed taking drugs

37.8 % (14) of the participants have ever missed taking drugs while 23 (62.2%) have never missed their medications. The respondents main reason for missing their medication was running out of drugs -38%, forgot -31% and no money to buy drugs -31% as shown in figure 2 below.

Figure 2: A pie-chart showing the reasons for missing medication by the respondents. N = 14
4.3.2 Alcohol on drug compliance

All the participants in the study – 37 (100%) reported not to be using alcohol therefore unable to study its effects on drug compliance.

4.3.3 Exercise

Exercise as a treatment regimen was well adhered to as 27 (73.0%) exercised regularly and 10 (27.0%) rarely exercised. This is as shown in figure 3

Figure 3: A graph showing the frequency of exercise among hypertensive patients at KIUTH during the study
4.3.4 Use of raw salt

Despite the treatment given and advices, 5 (13.5%) of the participants were still using raw salt daily in their meals while only 5 (13.5%) never used it during their meals as shown in Figure 4.

Figure 4: A pie-chart shorting use of raw salt among participants
4.4. Compliance to medication

18.9% of participants frequently forget to take medications while 5.4% frequently stop taking medications when they feel better. On the other hand 27% and 21.6% miss drugs because of the same reasons respectively. As shown in figure 5

Figure 5: A graph showing reasons for drug non-compliance among hypertensive participants at KIUTH

Additionally, 11 (29.7%) of the participants rarely stopped medication because of herbal or religious reasons while 4 (10.8%) stop medication frequently because of side effects and 14
(37.8%) frequently stop medication because of lack of money to buy medication as shown in figure 6 below.

Figure 6: A graph showing factors associated with poor compliance to medication among respondents

4.5 Possible Solutions

Improved health education, making drugs affordable and reducing number of daily dosing were mainly agreed possible solutions to drug noncompliance with 32 (86.5%), 24 (64.9%) and 18
(48.6%) respectively. Reducing the number of drugs to be taken at a session was majorly disagreed to by participants 19 (51.3%). Making the drugs available and accessible was strongly agreed to solution by the participants 20 (54%) as shown in figure 7 below.

Figure 7: A graph showing possible solutions to drug non-compliance

![Bar graph showing possible solutions to drug non-compliance](image-url)
CHAPTER FIVE
DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

Majority of the participants had suffered from the disease for more than 2 years 21 (56.8%) while 16 (43.2%) had had the disease for less than 2 years. However this was a smaller number compared to the one observe in Brazil where 84.1% had hypertension for more than 5 years. (Carolina, Godoy, & Veiga, 2013) It was further established that 27% (10) of participants had co-morbid chronic conditions especially diabetic mellitus. This therefore means that majority of the patients have lived with the disease for a long time and others have just acquired the disease.

At least 2 types of medications in a day were taken by 75.7% of the participants with majority (56.8%) taking at least 3 tablets a day. This is low compared to one observed among the Chinese population of 71.4% (Chunhua, 2016). It’s this complex treatment threatening compliance(Jin, Sklar, Min, & Oh, 2008) and in Nigeria it was observed that patients on single drugs were more compliant than others.(Osamor & Owumi, 2011b). This implies that most of the patients taking more than one medication do not comply with treatment than those taking one. This means that the people taking more than one medication are having other conditions to treat hence increasing in the number of medication and leading to non-compliance.

Compliance to medication among the participants was 62.2% this was lower than that observed in UK of 75%(Tomaszewski et al., 2014), Canada 82% (Gee et al., 2012), Lesotho- 64.3% (Keneuoe et al, 2015) but higher than one in Almadinah Almunawwarah, Saudi arabia-35.1%. 

28
The main reason for missing medication among the participants was running out of drugs, forgetfulness and lack of funds to buy drugs with 38%, 31% and 31% respectively. This agrees with a study in Nigeria (Osamor & Owumi, 2011b) and Turkey (Papatya & Kaşikçi, 2012).

73% of the participants reported to exercise regularly therefore adherent to exercise as a treatment regimen. On the other hand only 13.5 % were not using raw salt hence comply with diet regimen. In Lesotho however adherent is worse than observed in the study with 37.1% adherent to exercise while only 7.1% adhered to dietary regimen. (Keneuoe et al., 2015). While in Almadinah Almunawwah it was 5.4% compliant to exercise while 12.5% to diet. (Ibrahim & Mahmoud, 2012). Therefore in Uganda most patients do not comply to medication compared to other countries.

Frequently, 18.9% of participants forget to take medications while 5.4% stop taking medications when they feel better. This is similar to a study done in Tanzania where 28% stopped medication for feeling better and 22.7% because they forgot (Maginga, Guerrero, Koh, & Hansen, 2016). Additionally, 10.8% (4) stop medication frequently because of side effects while 14 (37.8%) because of lack of money to buy medication. Side effects from drugs was as well reported in German as the second most common reason for non-compliance with antihypertensive therapy (Jin et al., 2008). While in Turkey, price (expensive medicines) accounted for another quarter (26.5%) of the non-compliant participants. (Papatya & Kaşikçi, 2012). Most therefore are
using non pharmacological management compared to other countries, like regular exercises and avoiding raw salt.

Pertaining possible solutions to the drug non-compliance patients suggested improved health education, making drugs affordable, reducing number of dosing and making drugs available and accessible with 32 (86.5%), 24 (64.9%), 18 (48.6%) and 20 (54%) respectively. This concurs with a study in Saudi Arabia which recommends simplicity of treatment and once daily dosing with health education as a cornerstone for management. (Ibrahim & Mahmoud, 2012). These suggestions addresses the main reasons for poor drug compliance according to Mugwano et al which are lack of knowledge of the chronicity of hypertension (73%), cost of the drugs (63%) and access to health care provision (15%). (Mugwano, Mukasa, et al., 2016)

5.2 Conclusion

There was 62.2% compliance to hypertensive treatment, with reasons for missing medication as running out of drugs 38%, forgetfulness 31% and lack of funds to buy drugs 31%. Other reasons included drug side effects (10.8%) and feeling better (5.4%).

There was good adherence to exercise (73%) thou with a poor adherence to dietary regimen (86%).

The solutions suggested to curb drug non-compliance include; improved health education (85%), making drugs affordable (64.9%), making drugs available and accessible (54%) and reducing the number of drugs taken (46.6%)
5.3 Recommendations

There should be an empowerment in health education to hypertensive patients and ensuring that there’s availability of the drugs and are accessible by the patients and reducing polyphamacy. More clinics should be built in order to increase on the availability of the antihypertensive drugs. This will help to solve the problem of transport and its cost. Prices of antihypertensive drugs should be reduced so that even the poor can be in position of affording them.
REFERENCES


Joho, A. A. (2012). *FACTORS AFFECTING TREATMENT COMPLIANCE AMONG HYPERTENSION PATIENTS IN THREE DISTRICT HOSPITALS - DAR ES SALAAM.*


APPENDIX I; CONSENT FORM

Dear Respondent

I am ................................ a student of Kampala International University western campus, school of nursing sciences conducting a study entitled: “Compliance to Medication among Hypertensive Patients at Kampala International University Teaching Hospital.” The purpose of this study is to assess the level of compliance among hypertensives and to suggest possible strategies to address the problem thus improving their quality of life and reducing morbidity and mortality. Participation in this study is voluntary and you are free to opt out of the study at any time. The information that is going to be collected is for study purposes only and it will be handled with utmost confidentiality.

Cost

There will not be any payment for your participation in this study, as it’s not our wish that it should look like we are bribing you. However, this will cost you a little bit of your time.

Benefit;

Information obtained will be used as a mouthpiece and evidence to stake holder to come up with strategies to improve drug compliance among hypertensive patients and quality of service.

Part for the participant;
I certify that I have clearly understood the purpose of the study as explained to me and am willing to participate.

Participants signature  
Date..........................

Researcher’s signature  
Date..........................
APPENDIX II: QUESTIONNAIRE

KAMPALA INTERNATIONAL UNIVERSITY RESEARCH QUESTIONNAIRE

TITLE: COMPLIANCE TO MEDICATION AMONG HYPERTENSIVE PATIENTS AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

DEMOGRAPHIC DATA:

Gender ______

Age______

Education level completed: none ( ) primary ( ) secondary ( ) tertiary ( )

Occupation: peasant ( ) business ( ) civil servant ( ) other ( )

Marital status: married ( ) single ( ) divorced ( ) widowed ( )

<table>
<thead>
<tr>
<th>NO.</th>
<th>QUESTION AND FILTERS</th>
<th>CODING CATEGORY</th>
</tr>
</thead>
</table>
| 1   | When were you told you have high blood pressure? | a) less than a year_______  
b) a year ago____  
c) 2 years ago ___  
d) 3 years ago____   |
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 2 | Do you have any other chronic illness? | a) Yes ___  
|   |   | b) No___  
|   |   | If No go to no. 4 |
| 3 | What other chronic disease do you have? |   |
|   |   |   |
| 4 | How many types of medication are taking in a day? |   |
|   |   |   |
| 5 | How many tablets do you swallow in a day? |   |
|   |   |   |
| 7 | Have you ever missed taking your drugs? | a) Yes___  
|   |   | b) No___ |
| 8 | If yes. Why? | a) Forgot___  
|   |   | b) Ran out of drugs ___  
|   |   | c) Had no money to buy drugs ___  
<p>|   |   | d) Deliberately ____ |
| 9 | Do you drink Alcohol? | a) Yes-------- |</p>
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Option a)</th>
<th>Option b)</th>
<th>Option c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Are there times you took alcohol and you forgot to take your pills?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For no skip to no. 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>If yes. How many times has it happened?</td>
<td>Once</td>
<td>Twice</td>
<td>Many times</td>
</tr>
<tr>
<td>12</td>
<td>How often do you exercise?</td>
<td>Never</td>
<td>Regularly</td>
<td>Rarely</td>
</tr>
<tr>
<td>13</td>
<td>How often do you eat raw salt?</td>
<td>Daily</td>
<td>Rarely</td>
<td>Never</td>
</tr>
</tbody>
</table>

**B. Compliance to medication**

<table>
<thead>
<tr>
<th>How often:</th>
<th>Daily</th>
<th>Frequently</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you forget to take your medicine?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you stop taking your medicine because you</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
feel better?

<table>
<thead>
<tr>
<th>Do you stop taking your medicine because you feel worse?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you stop taking the medication because you believe that they are ineffective?</td>
</tr>
<tr>
<td>Do you stop taking medicine because you try to avoid addiction?</td>
</tr>
<tr>
<td>Do you stop medication because you are using traditional medicine (healer) or Religions belief?</td>
</tr>
<tr>
<td>Do you stop taking your medicine because you fear side effects? Or have caused side effect e.g. importance for men, Dizziness/weakness</td>
</tr>
<tr>
<td>Do you stop medication because of cost of medication</td>
</tr>
</tbody>
</table>

C) **Possible solutions**
<table>
<thead>
<tr>
<th>Possible solutions to compliance:</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved health education concerning the disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reducing the number of drugs to be taken at a session</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making the drugs available and accessible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making the drugs affordable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reducing the number of daily dosing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you for your participation
Appendix: III Letter of approval

OFFICE OF THE DEAN SCHOOL OF NURSING SCIENCE

TO WHOM IT MAY CONCERN

Dear sir/madam,

RE: NAMUBIRU KAUTHARA DNS/E/0001/151/DU

The above mentioned is a student of Kampala International University undertaking Diploma in nursing sciences Extension program and she is in her final academic year.

She is recommended to carry out her data collection as a partial fulfillment for the award of the diploma in nursing.

Her topic is COMPLIANCE TO MEDICATION AMONG HYPERTENSIVE PATIENTS AT KAMPALA INTERNATIONAL UNIVERSITY-TEACHING HOSPITAL, SOUTH WESTERN UGANDA.

Any assistance rendered to her will be highly appreciated.

Thank you in advance for the positive response.

Approved

AFONDI WINEFRED
ADMINISTRATOR SCHOOL OF NURSING SCIENCES.
APPENDIX VI: MAP OF BUSHENYI DISTRICT

KEY

KIUTH Kampala International University Teaching Hospital
Appendix VII: Map of Uganda showing location of Bushenyi District