

**KNOWLEDGE ATTITUDE AND PRACTICES ABOUT PREVENTION OF DIABETIC  
FOOT ULCERS AMONG DIABETIC CLIENTS AT KAMPALA INTERNATIONAL  
UNIVERSITY-TEACHING HOSPITAL  
BUSHENYI DISTRICT**

**A RESEARCH REPORT SUBMITTED TO UGANDA NURSES AND MIDWIVES  
EXAMINATIONS BOARD IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF DIPLOMA IN  
NURSING SCIENCE**

**BY**

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## **ABSTRACT**

Globally, diabetic foot is a major medical, social and economic problem. In most developed countries, the annual incidence of foot ulceration amongst people with diabetes is about 2%. In these countries, diabetes is the most common cause of non-traumatic amputation. In Uganda 10 to 15% of diabetic patients develop foot ulcers. In addition nearly 50% of all diabetes related admissions are due to diabetic foot problems. To assess knowledge, attitudes and practices of diabetic clients attending Kampala International University Teaching Hospital (KIU-TH) about prevention of diabetic foot ulcers, a cross-sectional study design quantitative in nature was used to recruit 67 respondents for the study. Out of whom 67 questionnaires were returned completely filled thus a response rate of 100%. 66% of the respondents stated that daily inspection and cutting of toe nails might be helpful in the prevention of diabetic foot ulcers, 58% of the respondents agreed that performing foot care is cumbersome and 63% of the respondents strongly agreed that drying between toes and cutting toe nails can help prevent foot ulceration. The researcher concluded that Knowledge about prevention of diabetic foot ulcers was not good enough as only less than half of the respondents knew how to maintain foot hygiene. Attitudes about prevention of diabetic foot ulcers were as well not good as more than half of the respondents agreed that performing foot care is cumbersome and Practices about prevention of diabetic foot ulcers were fairly good despite inadequate knowledge and unfavourable attitudes as more than half of the respondents strongly agreed that daily washing of feet and moisturizing can help prevent foot ulceration.

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## **LIST OF ACRONYMS**

**KIU-TH**-Kampala International University Teaching Hospital.

**LEAP**-Lower Extremity Amputation Prevention program.

**PN**-Peripheral Neuropathy.

**SPSS**-Statistical Package for Social Scientists.

**DFU**-Diabetic foot ulcers

## **DEFINITION OF TERMS**

**Amputation**-Surgical removal of a limb or part of a limb.

**Diabetes Melitus**-Hyperglycemic state arising from insulin deficiency or insulin resistance.

**Glycemic control**-Maintaining blood sugar at normal level.

**Hyperglycemia**- Elevated blood glucose.

**Neuropathy**-Nerve damage.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background

According to Ostermann, (2008), diabetic foot ulcers are the most common foot injuries among patients with Diabetes Melitus (DM) leading to lower extremity amputation. The long term effects of hyperglycemia contributes to vascular and neuropathic complications leading to foot ulceration. The foot is particularly vulnerable to circulatory and neurological disorders so that even minor foot injuries can lead to ulcerations and infections. Foot ulcers and amputations are a major cause of morbidity, disability and costs for people with diabetes (Linda *et al.*, 2010).

Unlike Patients with most diseases who simply carryout their physician's instructions, people with diabetes must make important daily decisions on their own regarding their medical care. These decisions determine in large part how well the patient's diabetes is controlled and thus how susceptible they are to complications. All of this demands a rather sophisticated knowledge base by the patient, one that can be formed only through ongoing education with the support of a multidisciplinary team approach (Ostermann, 2008).

More than 120 million people in the world have diabetes mellitus and too many of these patients suffer from diabetic foot ulcers which may eventually lead to an amputation. Epidemiological studies have indicated that between 40% and 70% of all lower amputations are related to diabetes (Namrata, 2009).

A study done by Lakhwinder *et al.*, (2008) urged that huge discrepancies exist across the world in the provision of foot care for people with diabetes. Specialists in foot care (podiatrists) who are key members of the diabetes team are found in only 20 countries,

including the USA and UK, the Benelux and Scandinavian countries, South Africa, Australia and New Zealand.

The majority of countries, and indeed continents, are severely lacking in podiatry services. Similarly, the availability of specialist diabetic foot clinics varies enormously (Madden *et al.*, 2010).

A study conducted by Reiber *et al.*, (2011) among veterans in the US to identify risk factors for lower extremity amputation in individuals with diabetes mellitus and to estimate the incidence of lower extremity amputation found that the age adjusted incidence among men for lower extremity amputation standardized to the 1991 US male diabetic population was 11.3/1,000 patient years.

In low income countries, the lack of access to adequate health care (70%), together with economic (80%) and geographical factors (51%), in many cases prevent people with diabetes from seeking medical treatment for foot lesions until these have become grossly infected. In some islands of the Caribbean, for example, where the prevalence of diabetes is approaching 20%, foot lesions and gangrene are amongst the most frequent conditions seen on surgical wards (Loeb and Smith, 2010).

As the incidence of diabetes mellitus is increasing globally, increase in complications is also unquestionable. overall 15% of individuals with diabetes mellitus will have foot ulcer during their lifetime and the annual incidence is 2-3% . Diabetic foot ulcer is becoming major concern of diabetic patients and those who treat them from quality of life, social and economical stand point (Agwou *et al.*, 2010).

According to the 2005 international diabetic federation report 85% of diabetes related lower extremity amputations are preceded by a foot ulcer. Foot problems account for up to

15% of healthcare resources in developed countries and 40% in developing countries (Ahmed *et al.*, 2009).

Among Ethiopian diabetic patients foot ulcer is major health problem. Foot ulcer associated with sepsis results in 12% of death. Low follow-up and poor glycemic control are major contributing factors (Akanji and Adetuyidi, 2011).

Akinboboye *et al.*, (2013), understanding of the influential factors of foot ulcer in diabetics will enable high-risk patients to be recognized early. Even though studies have shown that up to 85% of all amputations related to diabetic foot ulcer can be prevented by using simple interventions, the problem is still worsening. In addition preventative strategies may become more effective with new research into how patients with diabetes experience and interpret their health threats (Amoussou *et al.*, 2012).

In a study conducted in Bushenyi in Western Uganda, results showed that men statistically had more knowledge on the right footwear to use in that more men answered that comfortable and closed were better foot wear for diabetic patients. In relation to attitude, 70% of the women answered they would perform foot self care. Thus, women showed they were more willing to include foot self-care practices in their routine (Asumanu *et al.*, 2010).

A formal comprehensive programme at the Gillis W. Long Hansen's Disease Centre known as the Lower Extremity Amputation Prevention programme (LEAP) consists of 5 simple activities for prevention diabetic foot ulcers which include; Annual foot screening to identify people who have lost protective sensation, patient education in self-care or management, daily self inspection of foot, appropriate foot wears selection, proper



management of simple foot problems such as dry skin, cutting of nails, care of calluses and basic wound management (Vileikyte, 2011).

## **1.2 Statement of the problem.**

Globally, diabetic foot is a major medical, social and economic problem. In most developed countries, the annual incidence of foot ulceration amongst people with diabetes is about 2%. In these countries, diabetes is the most common cause of non-traumatic amputation (Wild *et al.*, 2014).

In Sub Saharan Africa, foot ulcers and amputations are sadly very common. Often, poverty, a lack of sanitation, hygiene, and barefoot walking interact to compound the impact of diabetes foot damage (Asumanu *et al.*, 2010).

In East Africa, Diabetic foot ulcer is a common problem among diabetic patients for example in Tanzania 1 out of 10 patients with diabetes mellitus suffer from diabetic foot ulcer (Amoussou *et al.*, 2012).

Apelqvist *et al.*, (2009) found out that in Uganda 10 to 15% of diabetic patients develop foot ulcers. In addition nearly 50% of all diabetes related admissions are due to diabetic foot problems. If little is done about prevention of diabetic foot ulcers, the prevalence of diabetic foot ulcers among diabetic clients can grow even more higher and become a national concern requiring more resources for treatment compared to its prevention.

At KIU-TH like any part of Uganda, prevalence of diabetic foot ulcers is an issue of concern though no study has ever been done about knowledge, attitudes and practices about prevention of diabetic foot ulcers hence a need to assess knowledge, attitudes and practices about prevention of diabetic foot ulcers.

### **1.3 Purpose of the study.**

To assess knowledge, attitudes and practices of diabetic clients attending Kampala International University Teaching Hospital (KIU-TH) about prevention of diabetic foot ulcers.

### **1.4 Study objectives.**

- 1.4.1 To assess knowledge of diabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers
- 1.4.2 To determine attitudes of diabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers.
- 1.4.3 To find out practices of diabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers.

### **1.5 Resaerch questions.**

- 1.5.1 What is the level of knowledge of diabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers?
- 1.5.2 What are the attitudes of diiabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers?
- 1.5.3 What are the practices of diabetic clients attending KIU-Teaching Hospital about prevention of diabetic foot ulcers.

### **1.6 Justification.**

Preventive care provided by nurses to sufferers of diabetic foot involves several stages, but starts with the identification of patients at risk by means of a detailed clinical exam that observes structural evaluation, investigation of neuropathy and distal pulse measurements.

The findings of this study will therefore be beneficial to;

Nursing practice; To become active participants and advocates of prevention of diabetes and its complications more so, the diabetic foot ulcers.

Nursing education; The study findings may be incorporated in the nursing curriculum to enhance teaching and learning of student nurses about prevention of diabetic foot ulcers among diabetic clients.

Nursing research; The study findings may be used as a reference by other researchers with similar interest in assessing knowledge, attitude and practices of diabetic clients about prevention of diabetic foot ulcers.

Nursing administration/management; The study findings will help nurse managers to identify areas that need improvement in the provision optimum care to the diabetic clients.

KIU-Teaching Hospital community; The study findings may help the hospital community to identify their strength and weaknesses in the care of diabetic clients and therefore act accordingly for improved health service delivery.

## **CHAPTER TWO**

## LITERATURE REVIEW

### 2.0 Introduction.

This chapter deals with review of literature relevant for the study and is presented in relation to the study objectives that include; To assess knowledge, attitudes and practices about prevention of diabetic foot ulcers. The literature was obtained from nursing and medical journals, textbooks and internet.

### 2.1 Knowledge about prevention of diabetic foot ulcers.

A study by Apelqvist *et al.*, (2009) has found that one of the reasons for the 90% of poor outcome of foot complications in developing countries is the lack of patient education. Due to the multifactorial pathology of diabetic foot ulceration, the person with diabetes should receive health education which is tailored to the individual risk status, promote self-care and address misconceptions.

A study conducted by Pecoraro *et al.*, (2010) in America to examine differences in self-reported diabetes foot care, self-management behaviours and barriers to good foot care among veterans with diabetes by race and ethnicity reported that the majority (78%) of respondents felt that they did not know enough about foot self-care. It found large gaps between self-reported knowledge and actual foot care practices.

Diabetes knowledge; In Lahore Pakistan, Shahi *et al.*, (2012) found out that about 29.3% had good knowledge, while 40% had satisfactory knowledge and 30.7% had poor knowledge about foot care while in Thailand in a study of factors associated with diabetic foot ulceration reported that diabetic patients with foot ulcers had significantly lower diabetic knowledge and foot care practice scores among others (Assal *et al.*, 2012).

In South Africa, a study conducted in Kwa- Zulu Natal to assess the level of knowledge of diabetes mellitus among diabetic patients found that only 53% of the study population was knowledgeable on basic foot hygiene (Leung, (2007)

In Nigeria study by Unachukwu *et al.*, (2010) which investigated on knowledge regarding foot care, 49.4% of the respondents stated that they did not know how to perform correct foot hygiene; 45.9% stated that drying should consist of passing a towel between their toes; 49.4% did not know what a person with diabetes should observe in their feet; and only 18.8% answered that comfortable and closed footwear is ideal. In relation to nail care, 56.5% did not know how to cut their nails correctly.

Results from a study in Kenya showed that 49.4% of the respondents did not know how to perform foot hygiene or what they should observe in their feet, 56.5% did not know the correct way to cut their toe nails ( Nyamu *et al.*, 2013).

A study Snyder and Hanft, (2009) in Uganda revealed that most diabetics, even after claiming they know how to perform hygiene correctly, could not explain which or how to adequately conduct these practices, and were also unaware of the ideal footwear and how to cut their toe nails correctly. Knowledge on the correct foot care can delay the onset of alterations that lead to ulcers and amputations, enable changes in incorrect behaviour and promote cooperation of patients in relation to treatment and subsequently, self-care (Ogbera *et al.*, 2008).

## **2.2 Attitudes about prevention of diabetic foot ulcers.**

Studies conducted by Khan *et al.*, (2011) showed that around the globe about attitudes to prevent foot ulcers have revealed that most patients (82.4%) would put the foot physical exam into practice if they received the necessary information to prevent foot-related complications.

In a related Study conducted by Manda *et al.*, (2011) in Pakistan about diabetic foot care attitudes, 80% of the respondents stated that performing self-care on their feet on a daily basis was cumbersome and time wasting.

The findings of the study in Nigeria revealed that 70% of the respondents had positive attitudes towards using moisturizers or oils during foot care to prevent their feet from becoming dry and on a daily basis (Akanji and Adetuyidi, 2011).

A study in Kenya by Akinboboye *et al.*, (2013) in relation to attitudes about care to prevent chronic foot complications, 100% of the respondents had positive attitudes towards foot washing, 64.7% drying every time, 43.5% moisturizing and 34.1% massaging feet.

Snyder and Hanft, (2009) stated that in Uganda study most of the respondents were in agreement with measures to prevent foot ulceration if they were less costly or provided free for example for example 87.1% stated that they would use open sandals and more than half (54.1%) stated that they would always inspect their footwear before use. When asked about the habit of cutting their nails, (91.8%) answered positively.

## **2.3 Practices to prevent diabetic foot ulcers.**

There is strong historical and anecdotal suggestion that certain foot care behaviours can prevent diabetes related foot pathology. However, the evidence suggest that people with

diabetes often fail to employ the behavioural strategies suggested in educational interventions (Awori and Ating'a, 2009).

A 6 year analysis of the effectiveness of preventive foot care has shown that those diabetic patients at high risk for foot problems who complied with preventive programs had at least a 13 fold decrease in first foot ulcers compared to those patients who did not comply with the foot care recommendation. In the group who complied, the cumulative incidence of foot ulcer was 3.1% compared to 31.6% among those who did not (Bouguerra *et al.*, 2010).

A study done Bahebeck *et al.*, (2010) in America examined the level of preventive foot care practices among patients in north Carolina with diabetes mellitus and determined the factors associated with these practices; it found that 71.6% of 1,245 adult respondents reported that they had their feet examined within the past year and that foot care was more among blacks than whites.

Similarly according to Boulton, (2009) found out in the context of a nationwide outcomes research program on type 2 diabetes study in Ethiopia which investigated physician and patient practices related to foot care that more than 50% of the patients had not had their feet examined by their physician. Foot self-examination was not performed by 33% of the patients.

A study conducted in Tanzania by Ephraim, *et al.*, (2013) to gain insight in the prevalence of peripheral neuropathy (PN) and foot ulcers in patients with diabetes mellitus at a tertiary centre reported that correct foot care practices were followed by 20.5% of study population and concluded that poor adherence to foot care practices predispose to foot problems in people with diabetes (Diouri *et al.*, 2012).

Two large population based studies in Kenya by Akinboboye *et al.*, (2013) found out that only 20% of participants with diabetes inspected their feet daily and 23% to 25% never inspected their feet.

A study in Eastern Uganda by Feleke *et al.*, (2008) about care and practices to prevent chronic complications of the feet, all the interviewees stated they practiced some foot hygiene method, albeit incomplete and/or inadequate, such as drying between the toes, nail cutting and the adopted instrument (pointed-tip scissors).



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter presents the research methodology which is the detailed procedure of the study. The chapter comprises of the following sections; study design, study setting, study population, selection criteria, sample size determination, sampling technique, study variables, data collection techniques and instruments, data management, and data analysis. Quality control techniques, ethical considerations of the study, study limitations and dissemination of results.

#### **3.2 Study Design and rationale**

This study was conducted through a cross-sectional study design quantitative in nature. This study design was selected because it aids in rapid data collection and allows a snap short interaction with a small group of respondents at one point in time thus allowing conclusions across a wide population to be drawn. The study design was used to examine respondents about knowledge, attitude and practices about prevention of diabetic foot ulcers.

#### **3.3 Study setting.**

The study was carried out at Kampala International University Teacching Hospital (KIUTH), a private not for profit hospital located within Ishaka municipality in Bushenyi district, Western Uganda. The hospital is approximately 365 Km south west of Kampala, Uganda's capital city. The hospital was established 2005 to aid training of nursing and

medical students studying at Kampala International University. The hospital offers general as well as specialised medical services. It has a bed capacity of over 700 beds. The hospital specifically serves Bushenyi, Rubizirizi, Sheema and Mitooma districts.

### **3.4 Study Population**

The study population consisted of all diabetic clients present at the diabetic clinic in KIU-Teaching Hospital

#### **3.4.1 Sample size determination.**

The sample size for the respondents at Kampala International University Teaching Hospital was calculated using Sloven (1962) formula with precisions of +/- 5% at confidence level of 95%. It is given by the expression;

$$n = \frac{N}{1 + N(e)^2}$$

Where N=Target population, N=80 (number of diabetic clients reviewed in past 3 months 2017).

e=Fixed error, e=0.05

$$n = \frac{80}{1 + 80(0.05)^2}$$

n=67 respondents

Therefore 67 respondents were recruited for the study.

### **3.4.2 Sampling procedure**

Convenient sampling method which is a non probability sampling technique where participants are selected because of their convenient accessibility and proximity to the researcher was used for recruiting respondents for the study as it is fast, easy, readily available and cost effective.

### **3.4.3 Selection criteria**

#### **Inclusion criteria**

The study included all diabetic clients who were willing to consent for the study.

#### **Exclusion criteria**

Undiagnosed diabetic clients and diabetic clients who were very sick at the time of interview were excluded from the study.

## **3.5 Study variables**

### **3.5.1 Dependent variable**

Factors affecting prevention of diabetic foot ulcers.

### **3.5.2 Independent variable**

Knowledge about prevention of diabetic foot ulcers.

Attitudes about prevention of diabetic foot ulcers.

Practices about prevention of diabetic foot ulcers.

### **3.6 Research Instruments**

A structured questionnaire was used as a tool for gathering information. The structured questionnaire was divided into four sections; The first section was used to collect data about socio-demographic profile, the second section was used to assess knowledge about prevention of diabetic foot ulcers, the third section was used to assess attitudes towards prevention of diabetic foot ulcers and the fourth section was used to assess practices about prevention of diabetic foot ulcers.

### **3.7 Data collection procedure**

The researcher introduced herself to the prospective participants and read to the individual participants the consent form that detailed the title and purpose of the study as well as the rights of the participant. Whenever a participant agreed to be interviewed he/she was asked to provide written consent by signing or fingerprinting. If they refused to participate the interview would not proceed.

After obtaining the written consent, the researcher entered the questionnaire serial number and date of interview and proceed from the first up to the last question using a language understood by the participant. The researcher entered responses given by the participants by ticking the appropriate response and entering the same number in to the coding box. This was done to ensure data quality as the response number ticked was supposed to be the same as the one entered in the coding box. If the numbers were different it would not be a valid response. The researcher reviewed the questionnaires on a daily basis to ensure they were being completed correctly and any errors corrected to avoid being repeated. The process of data collection continued until every effort to contact every study participant in

the sample had been exhausted. All completed questionnaires were kept safe by the researcher until the time of analysis.

### **3.7.1 Data management**

Completed questionnaires were checked for accuracy and completeness on a daily basis after data collection at the end of the day. This was followed by coding and entry of the data using Epi info 3.4.1 software for Windows and double entry into Statistical Package for Social Scientists (SPSS) version 20 software for analysis.

### **3.7.2 Data analysis and presentation**

Data was analysed by descriptive statistics using SSPS version 20 software and presented in frequency tables, piecharts and bargraphs.

### **3.8 Quality control techniques.**

For reliability and validity, questionnaire was pretested with a tenth of the sample size outside the study area. The questionnaire was then revised and content adjustments made accordingly. After data collection, questionnaires were checked daily, for completeness, clarity, consistency and uniformity by the researcher.

### **3.9 Ethical consideration**

A letter of introduction was obtained from Kampala International University Western Campus School of Nursing sciences to permit the researcher to carry out the research.

Permission was obtained from Executive Director Kampala International University Teaching Hospital.

All participating respondents were selected on the basis of informed consent.

The study was on voluntary basis and information was kept private and confidential. Participants' anonymity was kept. The study was conducted while upholding the professional cord of conduct in a manner that did not compromise the scientific inclinations of research.

### **3.10 Anticipated study limitations.**

It was hard to obtain audience from patients as they were in a hurry to obtain treatment as quickly as possible this was however be overcome by creating rapport and administering a questionnaire as quickly as possible.

Language barrier as the researcher does not speak the local language. This was overcome with the help of translators whenever necessary.

### **3.11 Dissemination of results.**

Copies of results were disseminated to Bushenyi district health office for appropriate interventions, Kampala International university western campus library, and Uganda Nurses and Midwives examinations board for marking.

## CHAPTER FOUR

### DATA ANALYSIS AND PRESENTATION

#### 4.0 Introduction

This chapter is concerned with analysis, interpretation and presentation of data collected.

Out of 67 respondents interviewed 67 questionnaires were returned completely filled thus a response rate of 100%.

#### 4.1 Bio demographic data.

**Table 1.1: Shows bio demographic data of the respondents (n=67)**

Bio demographic parameter		Frequency (n)	Percentage (%)
Age (Years)	18-28	-	-
	29-39	10	14.9
	40-49	40	59.7
	>50	17	25.4
	<b>Total</b>	<b>67</b>	<b>100</b>
Tribe	Munyankole	53	79.1
	Muganda	4	6
	Others	10	14.9
	<b>Total</b>	<b>67</b>	<b>100</b>
Religion	Christian	50	74.6
	Moslem	17	25.4

	Others	-	-
	<b>Total</b>	<b>67</b>	<b>100</b>
Marital status	Married	67	100
	Single	-	-
	Divorced	-	-
	Widowed	-	-
	<b>Total</b>	<b>67</b>	<b>100</b>
Employment status	Employed	4	6
	Un employed	53	79.1
	Self employed	10	14.9
	<b>Total</b>	<b>67</b>	<b>100</b>
Education level	None	-	-
	Primary	40	59.7
	Secondary	18	26.9
	Tertiary	9	13.4
	<b>Total</b>	<b>67</b>	<b>100</b>

More than half of the respondents 40 (59.7%) were in the age range between 40-49 years of age while only 10 (14.9%) were of the age range 29-39 years.

Majority of the respondents 53 (79.1%) were Banyankole while only 4 (6%) were Baganda.

Most of the respondents 50(74.6%) were Christian while only 17 (25.4%) were Moslem.

All the respondents 67(100%) were married.



Majority of the respondents 53 (79.1%) were un employed while only 4 (6%) were employed.

Most of the respondents 40 (59.7%) attained primary level of education while only 9 (13.4%) attained tertiary level of education.

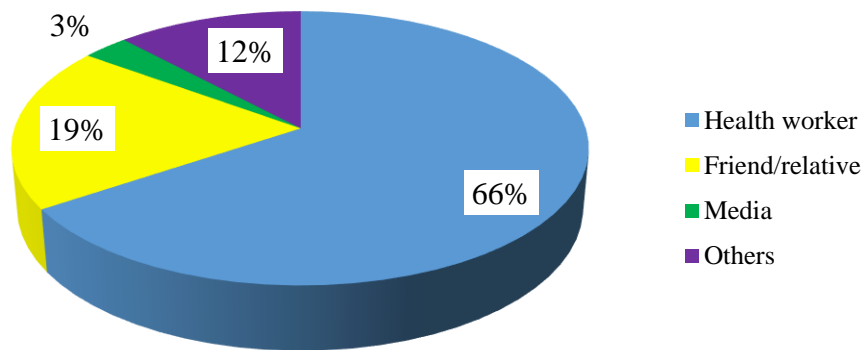
#### **4.2 Knowledge about prevention of diabetic foot ulcers.**

**Table 4.1: Shows response on whether the respondent had ever heard about diabetic foot ulcers (n=100).**

<b>Response</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Yes	67	100
No	-	-
<b>Total</b>	<b>67</b>	<b>100</b>

All the respondents 67(100%) had ever heard about diabetic foot ulcers.

**Figure 4.1: Shows response about where the respondent heard about diabetic foot ulcers from (n=67).**



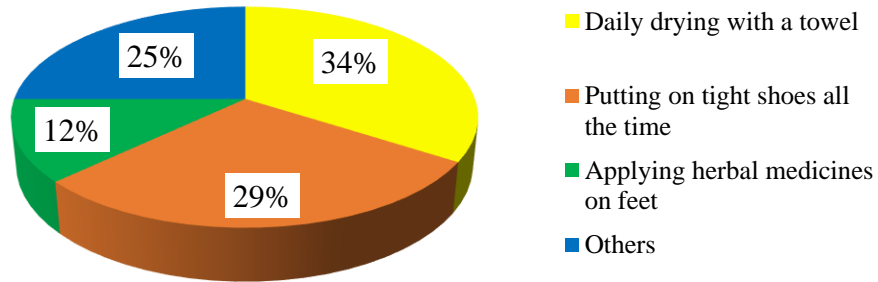
Most of the respondents 44 (66%) heard about diabetic foot ulcers from friends/ relatives while only 2 (3%) heard from the media.

**Table 4.2: Shows response about how diabetic foot ulcers can be prevented (n=67).**

Response	Frequency (n)	Percentage (%)
Daily foot hygiene	14	20.9
Taking antibiotic	46	68.7
Taking pain killers	-	-
Putting on gumboots	7	10.5
Others	-	-
<b>Total</b>	<b>67</b>	<b>100</b>

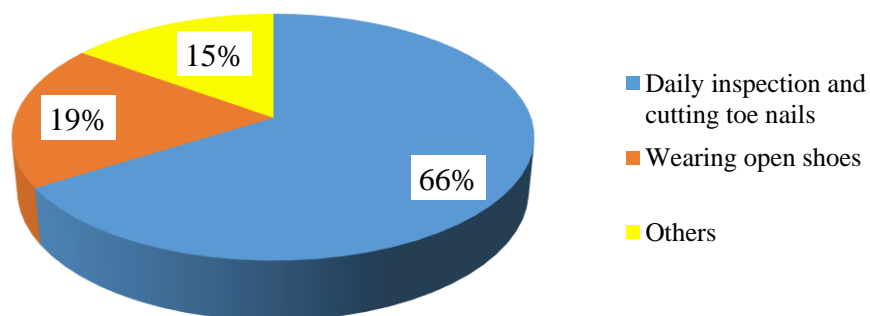
Most of the respondents 46 (68.7%) mentioned that diabetic foot ulcers can be prevented by taking antibiotics while only 7 (10.5%) stated that diabetic foot ulcers can be prevented by putting on gumboots.

**Figure 4.2: Shows response about how foot hygiene can be maintained (n=67).**



Less than half of the respondents 23 (34%) stated that foot hygiene can be maintained by daily drying with a towel while only 8 (12%) stated that foot hygiene can be maintained by applying herbal medicines on the feet.

**Figure 4.3: Shows response about what might be helpful in the prevention of foot ulcers (n=67).**



Most of the respondents 44 (66%) stated that daily inspection and cutting of toe nails might be helpful in the prevention of diabetic foot ulcers while only 10 (15%) mentioned other ways like smearing with Vaseline and massaging with hot water.

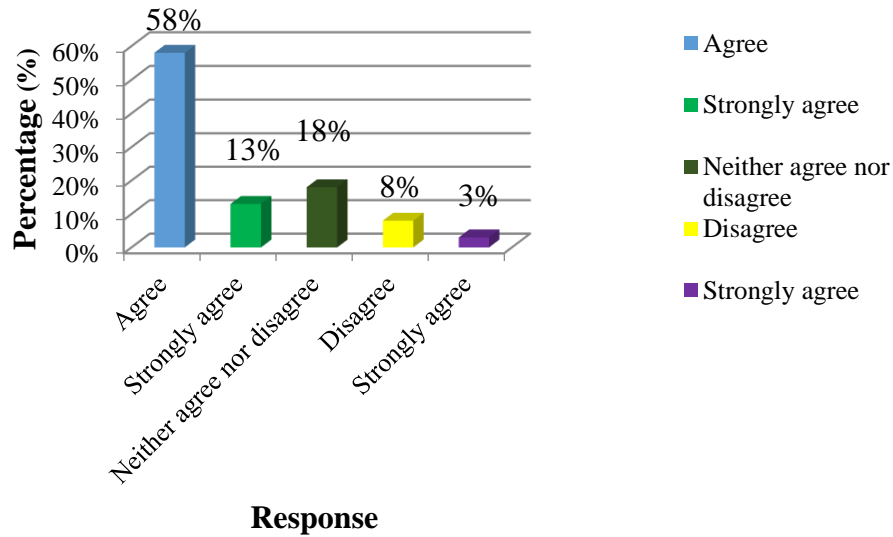
#### 4.3 Attitudes about prevention of diabetic foot ulcers.

**Table 3.1: Shows response about whether foot care should only be performed after instructions from the health worker (n=67).**

<b>Response</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Agree	51	76.1
Strongly agree	-	-
Neither agree nor disagree	11	16.4
Disagree	-	-
Strongly disagree	5	7.5
<b>Total</b>	<b>67</b>	<b>100</b>

Majority of the respondents 51 (76.1%) agreed that foot care should only be performed after instructions from the health worker while only 5 (7.5) disagreed.

**Figure 3.1: Shows response on whether performing foot care is cumbersome (n=67).**



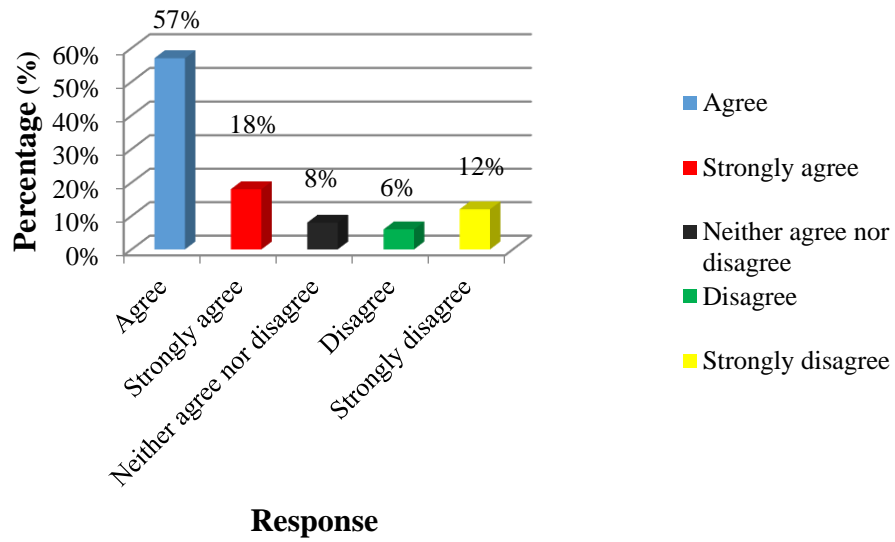
More than half of the respondents 39 (58%) agreed that performing foot care is cumbersome while only 2 (3%) strongly disagreed.

**Table 3.2: Shows response about whether foot care requires skilled training and can only be done by those with such a skill (n=67).**

Response	Frequency (n)	Percentage (%)
Agree	14	20.9
Strongly agree	42	62.7
Neither agree nor disagree	-	-
Disagree	3	4.5
Strongly disagree	8	11.9
<b>Total</b>	<b>67</b>	<b>100</b>

Most of the respondents 42 (62.7%) strongly agreed that foot care requires skilled training and can only be done by those with such a skill while only 3 (4.5%) disagreed.

**Figure 3.2: Shows response on whether foot care is costly and time wasting (n=100).**



More than half of the respondent 38 (57%) agreed that foot care is costly and time wasting while only 4 (6%) disagreed.

#### 4.4 Practices about prevention of diabetic foot ulcers.

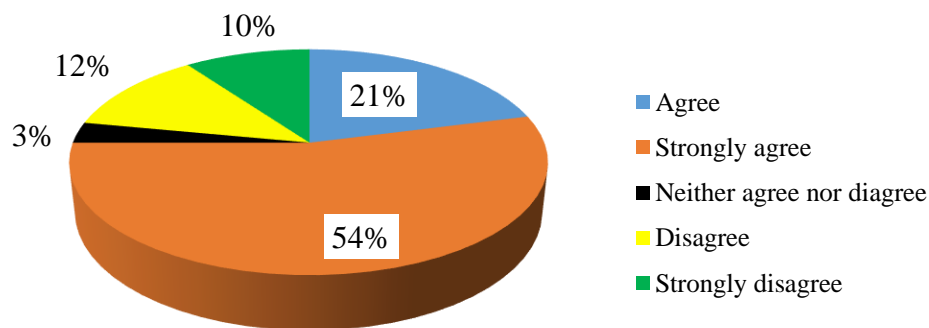
**Table 4.1: Shows response about whether patients with diabetes should always examine their feet on regular basis for evidence of infection or impending ulceration (n=67).**

Response	Frequency (n)	Percentage (%)
Agree	34	50.8
Strongly agree	27	40.2

Neither agree nor disagree	-	-
Disagree	2	3
Strongly disagree	4	6
<b>Total</b>	<b>67</b>	<b>100</b>

Slightly more than half 34 (50.8%) of the respondents agreed that patients with diabetes should always examine their feet on regular basis for evidence of infection or impending ulceration while only 2 (3%) disagreed.

**Figure 4.1: Shows response on whether compliance with recommended foot care practices minimizes the risk of ulceration (n=67).**



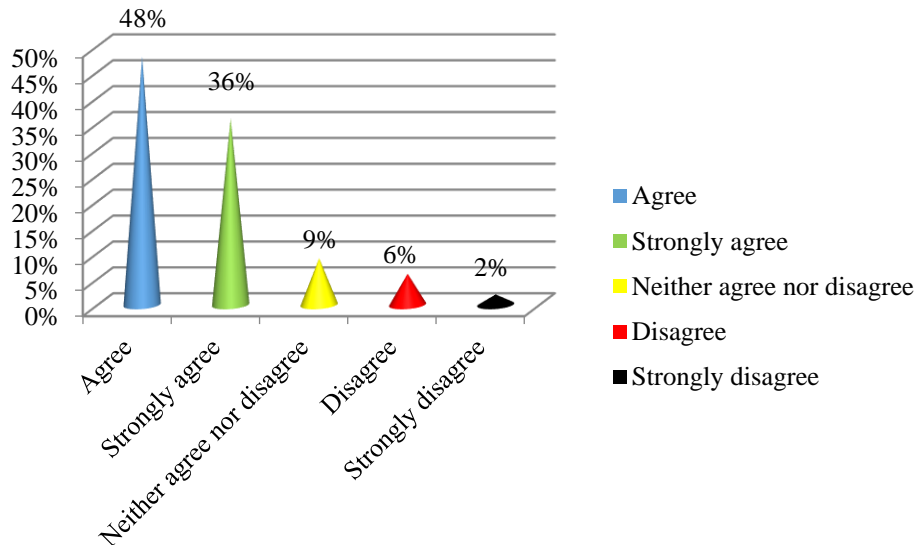
More than half of the respondents 36 (54%) strongly agreed that compliance with recommended foot care practices minimizes the risk of ulceration while only 2(3%) neither agreed nor disagreed.

**Table 4.2: Shows response about whether daily washing of feet and moisturizing can help prevent foot ulceration (n=67).**

Response	Frequency (n)	Percentage (%)
Agree	11	16.4
Strongly agree	39	58.2
Neither agree nor disagree	-	-
Disagree	10	14.9
Strongly disagree	7	10.5
<b>Total</b>	<b>67</b>	<b>100</b>

More than half of the respondents 39 (58.2%) strongly agreed that daily washing of feet and moisturizing can help prevent foot ulceration while only 7 (10.5%) strongly disagreed.

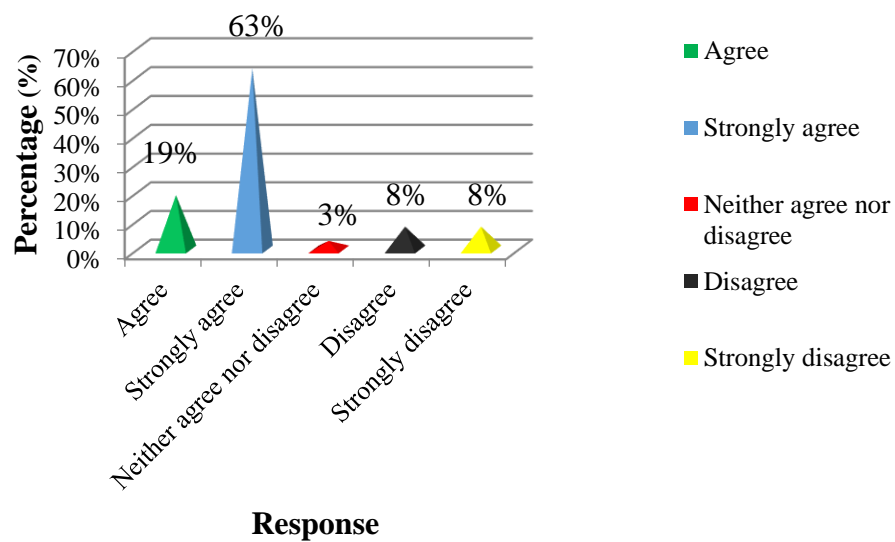
**Figure 4.2: Shows response about wearing comfortable and fitting shoes can help prevent foot ulceration (n=67).**



Less than half of the respondents 32 (48%) strongly agreed that wearing comfortable and fitting shoes can help prevent foot ulceration while only 1(2%) strongly disagreed.



**Figure 4.3: Shows response about whether drying between toes and cutting toe nails can help prevent foot ulceration (n=67).**



Most of the respondents 42 (63%) strongly agreed that drying between toes and cutting toe nails can help prevent foot ulceration while 2 (3%) neither agreed nor disagreed.

## **CHAPTER FIVE**

### **DISCUSSION OF FINDINGS, CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS TO THE NURSING PRACTICE.**

#### **5.0 Introduction.**

This chapter presents interpretation and discussion of study findings objectively in relation to the study background, statement of the problem and literature review to answer research questions, conclude and make recommendations about demographic, knowledge, attitude and practices of diabetic clients at KIU-Teaching Hospital about prevention of diabetic foot ulcers. Out of 87 respondents recruited in the study, 87 questionnaires were returned completely filled thus a response rate of 100%.

#### **5.1 Discussion of findings.**

##### **5.1.1 Biodemographic data.**

More than half of the respondents 40 (59.7%) were in the age range between 40-49 years of age while only 10 (14.9%) were of the age range 29-39 years. Different types of diabetes occur at different ages depending on genetic predisposition and other environmental factors. Age may influence knowledge, attitude and practices about prevention of Diabetic Foot Ulcers (DFU) for example the elderly may be knowledgeable through experience over a period of time and can convey it to the young generation. Attitudes and practices about prevention of prevention of DFU may also vary depending on the age of the client for example smoking and alcohol intake is common among the elders which can jeopardize attempts to prevent DFU as smoking for example may lead to foot ischaemia through a series of process like nicotine deposition in the lumen and vasospasms.

Majority of the respondents 53 (79.1%) were Banyankole while only 4 (6%) were Baganda. Though this study did not correlate between the tribe of the respondent and knowledge, attitude and practice about prevention of diabetic foot ulcers, it is worth noting that different tribes have cultural or traditional practices that can predispose to diabetic foot ulcers for example the practice of cutting any part of the body that pains with a razor blade and then smearing with ash may result in infection which can exacerbate ulcer formation.

Most of the respondents 50(74.6%) were Christian while only 17 (25.4%) were Moslem. Religious teachings can help change knowledge attitude and practices about prevention of prevention of DFU through discouraging unhealthy practices such as smoking.

All the respondents 67(100%) were married. Most married individuals share responsibility of one another's health such as ensuring dietary adherence and taking the medication in time or as prescribed. This study findings are in line with the findings Asumanu *et al.*, (2010) who found out in a study conducted in Bushenyi in Western Uganda, that men statistically had more knowledge on the right footwear to use in that more men answered that comfortable and closed were better foot wear for diabetic patients where 70% of the women had good attitude towards foot self care.

Majority of the respondents 53 (79.1%) were un employed while only 4 (6%) were employed. Foot ulceration increases cost of living for diabetic clients therefore employment influences ability to afford recommended practices and medicines for example ability to adhere to recommended diet for diabetic clients. This study findings agree with findings of Loeb and Smith, (2010) who stated that in low income countries, the lack of access to adequate health care (70%), together with economic (80%) and

geographical factors (51%), in many cases prevent people with diabetes from seeking medical treatment for foot lesions until these have become grossly infected.

Most of the respondents 40 (59.7%) attained primary level of education while only 9 (13.4%) attained tertiary level of education. Education influences knowledge, attitude and behavior change important for prevention of DFU. This study findings are related to the findings of Vileikyte, (2011) who mentioned patient education in self-care or management as one of the means to prevent foot ulceration among diabetic clients.

#### **5.1.2 Knowledge about prevention of diabetic foot ulcers.**

All the respondents 67(100%) had ever heard about diabetic foot ulcers and most of the respondents 44 (66%) who had heard about diabetic foot ulcers heard from friends/relatives while only 2 (3%) heard from the media. Diabetic foot ulcers are not uncommon today due to adoption of unhealthy lifestyles such as smoking, sedentary lifestyles and environmental factors like infections. Therefore such ulcers cannot go without mention among diabetic patients as it has resulted in serious consequences including limb loss although in some health care settings such health education talks are not commonly scheduled. This study findings are in line with the findings of Apelqvist *et al.*, (2009) who found out that one of the reasons for the 90% of poor outcomes of foot complications in developing countries is the lack of patient education and that due to the multifactorial pathology of diabetic foot ulceration, the person with diabetes should receive health education which is tailored to the individual risk status, promote self-care and address misconceptions.

Most of the respondents 46 (68.7%) mentioned that diabetic foot ulcers can be prevented by taking antibiotics while only 7 (10.5%) stated that diabetic foot ulcers can be prevented by putting on gumboots. Diabetic foot ulcers can not be prevented by taking antibiotics but in case of already established ulceration, antibiotics and proper hygiene are sufficient to prevent the ulcer from worsening. Comfortable and fitting shoes can be helpful in the prevention of foot ulceration however, tight shoes or hot shoes like gumboots may hasten ulcer formation. This study findings are similar to the findings of Pecoraro *et al.*, (2010) who in a study in America to examine differences in self- reported diabetes foot care, self-management behaviours and barriers to good foot care among veterans with diabetes by race and ethnicity reported that 78% of respondents felt that they did not know enough about foot self-care and that there were large gaps between self- reported knowledge and actual foot care practices.

Less than half of the respondents 23 (34%) stated that foot hygiene can be maintained by daily drying with a towel while only 8 (12%) stated that foot hygiene can be maintained by applying herbal medicines on the feet. Practices such as daily washing of feet and gently drying between toes before applying a moisturizing agent like vaseline can help prevent diabetic foot ulcers due to drying of the skin which breaks easing as autonomic supply to the skin is affected in patients with diabetes so sweating is reduced in this patients and can not lubricate their skins naturally. This study findings are related to the findings of Leung, (2007) who conducted a study in South Africa in Kwa- Zulu Natal to assess the level of knowledge of diabetes mellitus among diabetic patients found that only 53% of the study population was knowledgeable on basic foot hygiene. The study findings also concur with the findings of Unachukwu *et al.*, (2010) who conducted a study in Nigeria to investigated

on knowledge regarding foot care and found out that 49.4% of the respondents stated that they did not know how to perform correct foot hygiene and 45.9% stated that drying should consist of passing a towel between their toes.

Most of the respondents 44 (66%) stated that daily inspection and cutting of toe nails might be helpful in the prevention of diabetic foot ulcers while only 10 (15%) mentioned other ways like smearing with Vaseline and massaging with hot water. Daily inspection of feet helps in early detection of sores so as take precautions so that they do not get infected and worsen the condition while cutting of toe nails facilitates hygiene maintenance. This study findings are in tandem with the findings of Nyamu *et al.*, (2013) who conducted a study in Kenya and found out that 49.4% of the respondents did not know how to perform foot hygiene or what they should observe in their feet and 56.5% did not know the correct way to cut their toe nails. The study findings also agree with the findings of Ogbera *et al.*, (2008) who stated that knowledge on the correct foot care can delay the onset of alterations that lead to ulcers and amputations, enable changes in incorrect behaviour and promote cooperation of patients in relation to treatment and subsequently self-care.

### **5.1.3 Attitudes about prevention of diabetic foot ulcers.**

Majority of the respondents 51 (76.1%) agreed that foot care should only be performed after instructions from the health worker while only 5 (7.5) disagreed. Though health workers have a role to play in the education of clients about foot care, it is the responsibility of the client to ensure foot hygiene and performing other foot care activities with or without instructions from the health care worker. This study findings are in line with the findings of studies conducted by Khan *et al.*, (2011) that showed that around the globe, attitudes to prevent foot ulcers have revealed that most patients (82.4%) would put the foot physical

exam into practice if they received the necessary information to prevent foot related complications.

More than half of the respondents 39 (58%) agreed that performing foot care is cumbersome while only 2 (3%) strongly disagreed. Whether cumbersome or not, it is mandatory for all diabetic patients to take care of their feet as foot ulceration is a very common complication of diabetes mellitus leading to limb amputations. This study findings agree with the findings of Manda *et al.*, (2011) who conducted a study in Pakistan about diabetic foot care attitudes and found out that 80% of the respondents were not in favour of performing self-care on their feet on a daily basis as they deemed it cumbersome and time wasting.

Most of the respondents 42 (62.7%) strongly agreed that foot care requires skilled training and can only be done by those with such a skill while only 3 (4.5%) disagreed. Foot care can be done by client him or her though with caution to avoid causing injuries in the cause of treatment. It a simple procedure and does not require any skills training. This study findings agree with the findings of Akanji and Adetuyidi, (2011) who conducted a study in Nigeria and found out that 70% of the respondents had positive attitudes towards using moisturizers or oils during foot care to prevent their feet from becoming dry and on a daily basis.

More than half of the respondent 38 (57%) agreed that foot care is costly and time wasting while only 4 (6%) disagreed. No matter the cost and time taken while caring for the feet, it is crucial to ensure predisposing conditions to foot ulceration among diabetic patients is prevented as foot ulceration may double the cost of treatment of diabetic clients. This study

findings concur with the findings of Snyder and Hanft, (2009) who found out in a study in Uganda that most of the respondents were in agreement with measures to prevent foot ulceration if they were less costly or provided free for example 87.1% stated that they would use open sandals and more than half (54.1%) stated they would always inspect their footwear before use.

#### **5.1.4 Practices to prevent diabetic foot ulcers.**

Slightly more than half 34 (50.8%) of the respondents agreed that patients with diabetes should always examine their feet on regular basis for evidence of infection or impending ulceration while only 2 (3%) disagreed. Certain foot care behaviours can prevent diabetes related foot pathology. However, people with diabetes often fail to employ the behavioural strategies suggested in educational interventions. Daily inspection of feet enables early detection of sores and therefore taking precautionary measures so that they not escalate into ulcers. This study findings are in comparison with the findings of Bahebeck *et al.*, (2010) who found out in his study in America that 71.6% of 1,245 adult respondents reported that they had their feet examined within the past year and that foot care was more among blacks than whites. This study findings are also related to the findings Boulton, (2009) who found out in study in Ethiopia which investigated physician and patient practices related to foot care that more than 50% of the patients had not had their feet examined by their physician and that foot self-examination was not performed by 33% of the patients. The study findings also agree with the findings of Akinboboye *et al.*, (2013) who conducted a study in Kenya and found out that only 20% of participants with diabetes inspected their feet daily and 23% to 25% never inspected their feet.



More than half of the respondents 36 (54%) strongly agreed that compliance with recommended foot care practices minimizes the risk of ulceration while only 2(3%) neither agreed nor disagreed. Foot care practices including daily inspection, washing and drying appropriately, moisturising with Vaseline and putting on comfortable and fitting shoes can help to prevent development of foot ulcers. This study findings concur with the findings of Bouguerra *et al.*, (2010) who found out in his study that diabetic patients at high risk for foot problems who complied with preventive programs had at least a 13 fold decrease in foot ulcers compared to those patients who did not comply with the foot care recommendation and that in the group who complied, the cumulative incidence of foot ulcer was 3.1% compared to 31.6% among those who did not comply.

More than half of the respondents 39 (58.2%) strongly agreed that daily washing of feet and moisturizing can help prevent foot ulceration while only 7 (10.5%) strongly disagreed. Washing feet daily helps maintain foot hygiene while moisturising helps lubricating it hence preventing skin from cracking easily thereby preventing ulcer formation. This study findings are in line with the findings of Ephraim, *et al.*, (2013) who conducted a study conducted in Tanzania to gain insight in the prevalence of peripheral neuropathy (PN) and foot ulcers in patients with diabetes mellitus at a tertiary centre and found out that correct foot care practices were followed by 20.5% of study population.

Most of the respondents 42 (63%) strongly agreed that drying between toes and cutting toe nails can help prevent foot ulceration while 2 (3%) neither agreed nor disagreed.

Less than half of the respondents 32 (48%) strongly agreed that wearing comfortable and fitting shoes can help prevent foot ulceration while only 1(2%) strongly disagreed.

Comfortable and fitting shoes reduces risk of injury to the feet by friction or directly from external agents. This study findings are in line with the findings Feleke *et al.*, (2008) who conducted a study in Uganda about care and practices to prevent chronic complications of the feet and found out that all the interviewees practiced some foot hygiene method, albeit incomplete and/or inadequate, such as drying between the toes, nail cutting.

## **5.2 Conclusion.**

- i) Knowledge about prevention of diabetic foot ulcers was not good enough as only less than half of the respondents knew how to maintain foot hygiene.
- ii) Attitudes about prevention of diabetic foot ulcers were as well not good as more than half of the respondents agreed that performing foot care is cumbersome.
- iii) Practices about prevention of diabetic foot ulcers were fairly good despite inadequate knowledge and unfavourable attitudes as more than half of the respondents strongly agreed that daily washing of feet and moisturizing can help prevent foot ulceration.

## **5.3 Recommendations.**

- i) To Ministry of health to increase training of health workers (Chiropodists) to take care of feet of diabetic client to reduce risks of foot ulceration.
- ii) To Kampala international University Teaching Hospital to increase sensitization of diabetic clients about risk of foot ulceration through regular health education talks.
- iii) To government of Uganda to provide foot care incentives to diabetic clients such as Vaseline, nail cutters and well cushioned and fitting shoes to facilitate foot care in absence of chiropodists.

iv) To the future researchers to conduct more research on knowledge, attitude and practices about prevention of diabetic foot ulcers in other parts of the country so as to come up with more comprehensive findings and concluded appropriately.

#### **5.4 Implication to the nursing practice.**

Diabetes mellitus is a very common non-communicable disease today due to westernization of lifestyles. Therefore the findings of this study will be used by nurses to enhance advocacy for community outreach programs that target disease problem right at grass root level thereby reducing number of cases of foot ulcers due to diabetes mellitus.

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## **APPENDIX I: INFORMED CONSENT**

Dear respondent,

Am **Kugumikiriza Brenda**, a student of Kampala International University Western Campus conducting a study on **knowledge attitude and practices about prevention of diabetic foot ulcers among diabetic clients KIU-Teaching Hospital**. The purpose of this study is for partial fulfillment of academic requirements for the award of the Diploma in Nursing Science. You have been selected to participate in this study by convenience (Because of your accessibility to the researcher).

Your participation in this study is voluntary. I therefore request you to assist with answering the questions included in this questionnaire. Please note that any information which you give will strictly be confidential and I will not write down your name or any information that identifies you. You do not have to answer any question that you do not want to. You can stop the interview any time. The relevancy of this study will depend so much on your honest response to the questions asked. If you agree to participate in this

interview, you may sign below but if you do not agree, you can let me know at this point and I will not proceed with the interview. Agree [ ] or Disagree [ ]

Signature/ Thumb print of respondent.....

Date.....

## **APPENDIX II: KNOWLEDGE ATTITUDE AND PRACTICES ABOUT PREVENTION OF DIABETIC FOOT ULCERS AMONG DIABETIC CLIENTS KIU-TEACHING HOSPITAL**

### **SECTION A: BIODEMOGRAPHIC DATA**

**Instructions:** Please tick an appropriate response.

<b>!.BIODATA</b>		<b>RESPONSE (TICK)</b>
<b>a)Age</b>	18-28	
	29-39	
	40-49	
	>50	
<b>b)Sex</b>	Male	
	Female	
<b>c)Tribe</b>	Munyankole	

	Muganda	
	Others(Specify)	
<b>d)Religion</b>	Christian	
	Moslem	
	Others (Specify)	
<b>e)Occupation</b>	Employed	
	Self employed	
	Un employed	
<b>f)Marital status</b>	Married	
	Single	
	Divorced	
	Others (Specify)	

## SECTION B:KNOWLEDGE ABOUT PREVENTION OF DIABETIC FOOT ULCERS.

2a)Have you ever heard about diabetic foot ulcers?

i)Yes ☐

ii)No ☐

b)If yes to 2a above where did you hear from?

i)Health worker ☐

ii)Friend /Relative [ ]

iii)Media [ ]

iv)Others (Specify).....

c)Diabetic foot ulcers can be prevented by?

i)Daily foot hygiene [ ]

ii)Taking antibiotics [ ]

iii)Taking pain killers [ ]

iv)Putting on gumboots [ ]

iv)Others (Specify).....

d)How can foot hygiene be maintained?

i)Daily washing and drying with towel [ ]

ii)Putting on tight shoes all the time [ ]

iii)Applying herbal medicines on feet [ ]

iv)Others (Specify).....

e)Which of the following may be helpful in the prevention foot ulceration?

i)Daily inspection and cutting toe nails [ ]

ii)Wearing open shoes [ ]

iii) Others (Specify).....

### SECTION C: ATTITUDES ABOUT PREVENTION OF DIABETIC FOOT ULCERS.

<b>3.Attitudes</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
a)Foot care should only be performed after instructions from the health worker					
b)Performing foot care is cumbersome					
c)Foot care requires skilled training and can only be done by those with such a skill					
d)Foot care is costly and time wasting					

**SECTION D: PRACTICES ABOUT PREVENTION OF DIABETIC FOOT ULCERS.**

<b>4.Practices</b>	<b>Agree</b>	<b>Strongly agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
a)Patients with diabetes should always examine their feet on regular basis for evidence of infection or impending ulceration					
b)Compliance with recommended foot care practices minimizes the risk of ulceration					
c)Daily washing of feet and moisturizing can help prevent foot ulceration					
d)Wearing comfortable and fitting shoes can help prevent foot ulceration					
e)Drying between toes and cutting toe nails can help prevent foot ulceration					

### **APPENDIX III: INTRODUCTORY LETTER**

Office of the Dean - School of Nursing Sciences

IN CHARGE - ALL WARD  
Please allow this student to  
administer the questionnaire  
Thank you  
TO WHOM IT MAY CONCERN  
27 FEB 2017  
Dear Sir/Madam

RE: KUGUMIKIRIZA BREND A - DNS/E/3107/153/DU

The above mentioned is a student of Kampala International University - School of Nursing Sciences undertaking Diploma in Nursing Science 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 Science.

Her topic is KNOWLEDGE ATTITUDE AND PRACTICES ABOUT PREVENTION OF DIABETIC FOOT ULCERS AMONG DIABETIC CLIENTS AT KIU-TEACHING HOSPITAL BUSHENYI DISTRICT.

Any assistance rendered to her will be highly appreciated.

Thank you in advance for the positive response.



"Exploring the Heights"

## APPENDIX V: MAP OF UGANDA SHOWING BUSHENYI DISTRICT.





## APPENDIX VI: MAP OF BUSHENYI DISTRICT SHOWING KAMPALA

### INTERNATIONAL UNIVERSITY -TEACHING HOSPITAL



