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ASSESSMENT OF SELF REPORTED KNOWLEDGE, PRACTICE, AND BARRIERS OF DIABETIC FOOT SELF-CARE AMONG PATIENTS ATTENDING FELEGE HIWOT REFERRAL HOSPITAL, BAHIR DAR, AMHARA REGIONAL STATE, NORTH WEST ETHIOPIA

BY

AWOLE SEID (BSc)

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AWOLE SEID (BSc)

ADVISOR: YOSEF TSEGIE (BSC, MSN, LECTURER)

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Internal Examiner:

_____ _____ _____

Full Name Rank Date

Research Advisor/Supervisor:

_____ _____ _____

Full Name Rank Date

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Abbreviations/Acronyms

AOR	Adjusted Odds Ratio
COR	Crude Odds Ratio
DFU	Diabetic Foot Ulcer
DM	Diabetes Mellitus
DSME	Diabetic Self Management Education
FA	Filipino Americans
HIV	Human Immunodeficiency Virus
IRB	Institutional Review Board
LEA	Lower Extremity Amputation
MFTPA	Mossy Foot Treatment and Prevention Association
NAFF	Nottingham Assessment of Functional Foot care
OPD	Out Patient Department
PI	Principal Investigator

Abstract

Introduction: Diabetic foot ulcers and the resulting lower extremity amputations are a common, complex, costly, and disabling complication of diabetes. An estimated 15% of patients with diabetes will develop a lower extremity ulcer during the course of their disease. The risk of diabetic foot complications can be reduced by 49-85% through proper preventative measures, patient education and foot self-care.

Objective: The aim of this study was to assess knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital.

Method: Institution based descriptive cross sectional study was employed from March to April, 2014 using pre-tested, interviewer administered questionnaire. A total of 313 patients whose age was 18 year and above, were recruited from inpatient and outpatient department using convenient sampling technique. Furthermore, descriptive statistics, chi square, binary and multi-variate logistic regression analyses were employed to assess the predicators of knowledge and practice of foot self-care among patients with diabetes.

Result: Majority of respondents were males (64.9%). The mean age was 39.1±16.1years and majority (28.1%) lies between 18 and 25 years. The mean knowledge score was 7.5±2.02 of which 56.2% had good knowledge, 23.6% had satisfactory and 20.1% had poor knowledge. Two hundred fifty (79.9%) were unaware of smoking increases risk of foot ulcer; 74.1% were unaware to the level of temperature of water used to wash feet. The mean practice score was 25.2 ±6.466 of which 54.6% had good and 45.4% had poor foot care practice. Moreover, 36.1% inspect their feet once per week or less; 38.7% never checked their shoe before putting on; 45.7% never checked their shoes when taking off; more than 90% washed their feet at least once a day. Of the total participants 59.1% never dry their feet; 69.3% never dry between toes; only 15.3% and 9.6% walk indoor and outside the house respectively and 75.7% never apply dry dressing on blisters, cut, or burn before.

Age, educational status, occupational status, place of resident and duration of diabetic therapy were significantly associated with knowledge and practice of diabetic foot self-care.

Conclusion: Generally, only about half of the study participants had good knowledge and practice of diabetic foot care. Majority of the respondents had good practice in washing of feet

but drying of feet and between toes were poorly practiced. Married individuals have better knowledge of foot care but farmers had poor foot care practices. Participants residing in urban areas and on long duration of diabetic therapies had better knowledge of foot care.

Recommendation: Policy makers should initiate well organized interventional foot care education program throughout the regional state. The hospital administration should establish a specialized DM clinic in which foot care education is integrated as part follow up service.

Key words; Diabetic foot ulcer, knowledge, practice, foot care

1. INTRODUCTION

1.1. Background

Diabetes Mellitus (DM) is a chronic debilitating condition that is associated with significant morbidity, mortality and increasing health care cost. It is one of the foremost causes of death in many countries and a leading cause of blindness, renal failure, and non-traumatic amputation (1).

The world prevalence of diabetes among adults (aged 20-79 years) is 6.3%, affecting 285 million adults, in 2010, and will increase to 7.7% and 439 million adults by 2030. Between 2010 and 2030, there will be a 69% increase in numbers of adults with diabetes in developing countries and a 20% increase in developed countries (2).

Although new treatments and technology have aided in controlling the disease in many individuals, the challenges of diabetes self-management are overwhelming for most. Diabetes is a chronic disease for which control of the condition demands patient self-management. Self-management behaviors include monitoring blood glucose levels, taking medication, maintaining a healthy diet, regularly exercising and for most patients, it is important to conduct daily foot exams (3).

According to the International Working Group on the Diabetic Foot, a Diabetic Foot Ulcer (DFU) is a full-thickness wound penetrating through the dermis (the deep vascular and collagenous inner layer of the skin) located below the ankle in a diabetes patient. If a foot ulcer goes untreated and does not heal, it may become infected (4).

DFU was found to affect 10-15% of diabetics. It occurs as a result of many risk factors which include long duration of diabetes, poor metabolic control, foot deformities, older age, and peripheral vasculo-pathy and poor knowledge of diabetics (5).

The risk of foot ulceration and limb amputation increases with age and the duration of diabetes. The prevention of diabetic foot is crucial, considering the negative impact on a patient's quality of life and the associated economic burden on the healthcare system (6).

It is estimated that about 5% of all patients with diabetes present with a history of foot ulceration, while the lifetime risk of diabetic patients developing this complication is 15%. The majority (60–80%) of foot ulcers will heal, while 10–15% of them will remain active, and 5-24% of them will finally lead to limb amputation within a period of 6–18 months after the first evaluation (6).

Foot infection is the most common reason for hospital admission for patients with diabetes in the United States. Foot ulceration leads to deep infection, sepsis and lower extremity amputation. Prophylactic foot care has been shown to decrease patient morbidity, decrease utilization of expensive resources and decrease the risk of amputation and premature death (7).

Diabetes does not spare Africa. Although the current estimated prevalence in Africa is relatively lower (3.8%), the region is expected to experience the highest increase in its diabetes prevalence in the next two decades (8).

Foot complications from diabetes are one of the main causes of amputation and its subsequent physical and emotional problems. Peripheral vessels and nerve disorders may lead to foot ulcers, and superadded infection can cause foot gangrene. This problem is one of the main reasons for admission of diabetic patients to hospital, and leads to billions of dollars in medical expenses worldwide (9).

A review of the epidemiology of diabetic foot problems in Africa highlighted not only the frequency of neuropathy, but the increasing frequency of peripheral vascular disease, presumably a result of increasing urbanization and additional factors like: unhygienic conditions, poverty, frequent coexisting HIV infection, barefoot gait, low income, and cultural practices were also evident as a risk factor (10).

Diabetes mellitus is emerging as one of the major chronic health problems in Ethiopia, although its incidence and prevalence are still unknown in the general population (11).

A study conducted in Tikur Anbesa General Specialized Hospital concluded that, lack of regular patient follow up and diabetes education on foot care, poor glycemic control, delay in patient presentation and surgical intervention as well as patients' refusal to undergo surgical interventions were the reported contributing factors for the observed high mortality due to diabetes mellitus (11).

It has been estimated that up to 50% of the major amputations in diabetic patients can be prevented with effective education (12).

As the prevalence of diabetes continues to increase, foot care for people with diabetes will be an increasingly important area of both research and clinical care. Therefore, this study was aimed at investigating knowledge, practice and barriers of foot care among diabetic patients attending Felege Hiwot Referral Hospital, North West of Ethiopia, Bahirdar town.

1.2. Statement of the problem

Diabetes is a chronic health problem with devastating, yet preventable consequences. Diabetic foot disease is one of the most common, serious, feared and costly complications of diabetes. Patients with diabetes are at a 15 to 40 fold higher risk of a lower limb amputation than a non-diabetic patient (13).

The American Diabetes Associations Task Force reviewed the National Standards of Diabetes Self Management Education (DSME) and found that there was a four-fold increase in diabetic complications for those individuals with diabetes who did not receive formal education concerning self-care practices. The Task Force also found that the majority of people with diabetes did not receive formal diabetes education (14).

Diabetic foot ulcer is a major complication of diabetes mellitus, and probably the major component of the diabetic foot. It occurs in 15% of all patients with diabetes and precedes 84% of all lower leg amputations. Major increase in mortality among diabetic patients, observed over the past 20 years is considered to be due to the development of macro and micro vascular complications, including failure of the wound healing process (15).

In addition to causing pain and morbidity, foot lesions in diabetic patients also have substantial economic consequences, beside the direct costs of foot complications, there are also indirect costs relating to loss of productivity, individual patients' and family costs and loss of health related quality of life. The lifetime risk of a person with diabetes developing a foot ulcer could be as high as 25%, and it is believed that every 30 seconds a lower limb is lost somewhere in the world as a consequence of diabetes (16).

As to the complication, more than 60% of non-traumatic Lower Extremity Amputation (LEA) in the United States occurs among people with diabetes, in whom the rate is 6 to 10 times higher than for people without diabetes. After a first LEA, up to 50% of patients require another amputation within 3–5 years. Furthermore, the 5-year mortality after LEA is approximately 50%, with the risk considerably higher for diabetic compared with non-diabetic patients (17).

On the other hand, DFU is more common in patients with previous history of foot ulceration or amputation. A descriptive study on 873 patients showed a DFU amputation recurrence rate of 34% after 1 year and 70% after 5 years. Risk of DFU development in patients with history of previous ulcer is 57 times more than that of patients without this history. Of total cases, 22.4% had history of previous hospitalization because of DFU and 16.3% had preceding lower-limb amputations. Therefore, recurrence of DFU is a major point of concern in DM patients, which underscores the importance of DFU prevention in DM patients and appropriate patient education to prevent secondary ulcers (18).

An understanding of the causes of foot diseases in diabetics will enable high-risk patients to be recognized early. It has been estimated that up to 50% of the major amputations in diabetic patients can be prevented with effective education. A potentially preventable initiating event was identified in 86%, most often minor trauma that caused cutaneous injury. Inappropriate footwear is the most common source of trauma which illustrates the importance of frequent examination of the feet in diabetic patients (19).

In the same studies conducted among 109 patients with identified antecedent contributory factors for their foot problem, ill-fitting or new shoes accounted for 24.0%, and another 50.0% had cataract, which made visual inspection of their feet difficult. This implies that emphasizing on appropriate footwear and systematic self-foot examination among high-risk diabetics can reduce the incidence of foot ulcer and subsequent complications. It is clear now that diabetics with impaired vision are at greater risk of foot ulceration than others (20).

Presence of amputations among 4.8% of the diabetic population highlights the importance of diabetic foot care. In developing countries walking barefoot is a common practice among rural population. This poses an additional risk for the development of diabetic foot complications (21).

As to the economic consequences, a study in Nigeria showed that, especially in low income countries where inadequate healthcare facilities and lack of skilled healthcare personnel, increasing the knowledge, awareness and self- care of the foot among diabetic patients have found to be cost effective ways of preventing DM foot ulceration (22).

A cross sectional study done to evaluate high-risk foot among 223 Ethiopian diabetic patients showed high prevalence of foot abnormalities. Inspection of the feet during the study revealed that 61.4% had skin cracks, corns, mycosis and blisters (11).

Another study conducted in Jimma University Specialized Hospital showed that, emphasis to diabetes health education at the clinic and in Ethiopia in general is inadequate. To date, there are no diabetes nurse educators and diabetes dietitian in the country which imply a knowledge gap about all life style modifications including about diabetic foot care important to control the disease and potential complications (23).

A study conducted in Bahirdar to investigate knowledge and practice of DM showed exercise and diet were reported as a life style modification for prevention of DM in 73.2 % and 47.6% respondents respectively. However, less than 10 % of study participants knew weight reduction as life style modification for prevention of diabetes related complications. 29% of respondents reported that they received motivation from health professional about self-care (24).

Beside the absence of study conducted on knowledge and practice of foot care among diabetic patients in the study area even in the country at large, the investigator noticed that, communities in the study area are walking with bare foot, most are farmers by occupation, and from the previous study of Jimma, foot care checking and self-care motivation were the two main aspects of diabetes care ignored by most of the treating practitioners which imposes cumulative risk for foot ulcer. Moreover, the adverse effects of DFU includes high financial burden caused by the disease, foot amputation, physical disability, low quality of life, and a high mortality rate and long term treatment of DFUs is difficult, ulcers often reoccur even after healing, all the above factors insists prevention of DFU is very important. Thus, to fill this gap the investigator was motivated to assess knowledge and practice as well as barriers of diabetic foot self-care of patients attending at Felege Hiwot Referral hospital to contribute in the efforts made to control those devastating outcomes.

1.3. Significance of the Study

Firstly, this study will serve as the basis for policy makers in developing health education programs which may serve as interventions to improve foot care practices, reduce the rates of major and minor amputations, and mortality related to sepsis in diabetic populations.

As one of the role of nurses is to promote self- care and quality of life of chronically ill patients, this study is significant to stress training of future diabetic nurse educators, because it will provide indispensable facts about the existing knowledge gap and challenges that hinder self-care behaviors associated with prevention of foot ulcer.

Since patients are the "captain" of chronic diseases that require a self-care and active involvement of them in the course of disease management, this study would also provide a clue for other researchers who are interested in area of general self-care practice of diabetic patients related to medication, nutrition, and other life style modification measures.

Again, future researchers will benefit from this study that, it will provide them the baseline facts needed to compare their study results as necessary.

Finally, the study result could implicate for Ethiopian Diabetic Association, programmers other stakeholders that, emphasizing on increasing knowledge, awareness and self care practices on foot of diabetic patients will be cost effective ways of preventing DM foot ulceration and its devastating complications.

Health care providers working in the hospital will also utilize to mirror their gaps of providing inadequate service and it will contribute in efforts made to improve performance services delivered in the hospital.

2. LITRATURE REVIEW

1.1. Incidence of Amputation rate as marker of Diabetic Foot Care

The number of people with diabetes is increasing due to population growth, aging, urbanization, and increasing prevalence of obesity and physical inactivity (25).

A study conducted in Sirilanka showed that, out of 4477 participated in the study, the prevalence of Diabetic Peripheral Neuropathy according to the DNS score among all diabetic patients was 48.1%, and specifically patients with already established diabetes, and newly diagnosed diabetes was 59.1% and 28.8% respectively. This is one of the common risk factor for diabetic foot ulcer and lower extremity amputation (26).

Another similar study conducted in Tanzania tertiary hospitals showed that, Complication of diabetes mellitus (majority were Wagner's classification stage 4 & 5) was the main indication for the major limb amputations in 41.9% patients followed by trauma in 38.4% patients and vascular disease in 8.6% patients respectively. Specifically, the major indications for upper limb amputations were trauma 42.3% and malignancies 24.6% while diabetic gangrene 45.5% and trauma 32.2% were the most common causes of amputation in lower limbs (27).

Lower extremity amputation, a devastating consequence of diabetes, remains a very common outcome of diabetic foot complications. Indeed, people with diabetes are 10–15 times more likely to require lower extremity amputation than non-diabetic individuals, with a 30%–50% higher risk of undergoing a second amputation. Furthermore, the mortality rate for patients undergoing amputation is 6% (28).

A study conducted in Saudi Arabia indicated that, a prevention team consisted of a vascular surgeon, a diabetologist, an infectious disease internist, a diabetic educator, surgical and medical nurses, and a general surgeon who aimed to determine a diabetic foot education program on the prevention and outcomes of diabetic foot complications showed the overall amputation rate before and after diabetic foot education program was 70% and 61.9% respectively and at the same time toe amputation and below-knee amputation rate were lower in the after intervention group (28).

1.2. Self Care Practice Of Diabetic patients

Self-care has been defined as "the activities individuals, families, and communities undertake with the intention of enhancing health, preventing disease, and restoring health. These activities are derived from knowledge and skills from the pool of both professional and lay experience. They are undertaken by people on their own behalf, either separately or in participative collaboration with professionals (29). Again self-care in diabetes has been defined as an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of the diabetes in a social context. Because the vast majority of day-to-day care in diabetes is handled by patients and/or families, there is an important need for reliable and valid measures for self-management of diabetes (30).

There are seven essential self-care behaviors in people with diabetes which predict good outcomes. These are healthy eating, being physically active, monitoring of blood sugar, compliant with medications, good problem-solving skills, healthy coping skills and risk-reduction behaviors (31).

Self-report is by far the most practical and cost-effective approach to self-care assessment and yet is often seen as undependable. Diabetes self-care activities are behaviors undertaken by people with or at risk of diabetes in order to successfully manage the disease on their own (31).

All these seven behaviors have been found to be positively correlated with good glycemic control, reduction of complications and improvement in quality of life. In addition, it was observed that self-care encompasses not only performing these activities but also the interrelationships between them. Diabetes self-care requires the patient to make many dietary and lifestyle modifications supplemented with the supportive role of healthcare staff for maintaining a higher level of self-confidence leading to a successful behavior change (32).

A study on self-care indicated that, the vast majority of participants followed standard medication recommendations six out of seven days, while dietary and foot care activities were followed an average of five days per week. Checking blood sugar levels was practiced about four days of the week, whereas exercising occurred relatively infrequently, only three out of seven days (33).

Self-monitoring of glycemic control is a cornerstone of diabetes care that can ensure patient participation in achieving and maintaining specific glycemic targets. The most important

objective of monitoring is the assessment of overall glycemic control and initiation of appropriate steps in a timely manner to achieve optimum control. Self-monitoring provides information about current glycemic status, allowing for assessment of therapy and guiding adjustments in diet, exercise and medication in order to achieve optimal glycemic control. Irrespective of weight loss, engaging in regular physical activity has been found to be associated with improved health outcomes among diabetics (34).

Although previous research has found that older adults may not have confidence in their abilities to undertake diabetes self-care activities, 60% of the participants in the present study did not believe their ability to undertake diet, exercise, or self-glucose monitoring was a barrier to them (35).

A study conducted on adherence and self management practices among type-2 diabetics in south Ethiopia indicated, only 41.8% of the patients had adequate glycemic control. The knowledge and practice of basic components of diabetes self management practices were generally low among the patient studied. However, it was significantly higher among patients who were never missed their medication and those that have excellent and very good adherence to their prescribed anti diabetic medications. These findings indeed underscore educational empowerments of patients awareness and practice of diabetes self management behaviors in improving adherence to drug therapy, ensuring achievement of adequate glycemic control and minimizing the likelihood of diabetic complication (36).

Another study in Harrar showed, from the total study respondents, 39.2% practiced the recommended self care practices. Before the last three days of the interview, about more than half of the respondents 57.7% followed the recommended dietary intake. Only 31.1% had exercise for thirty minutes per day and 25.7% did not have exercise before the last three days of the interview. Blood glucose monitoring in the last three days before the date of interview showed that 41.9% measured one day and 42.3% did not measure at all. Majority of the respondents 78.4% had taken the prescribed drugs appropriately whereas 4.5% did not take at all (37).

In the same study, according to the result of the multivariate analysis, patients with less frequent information were 0.3 times less likely performed self-care than patients with more frequent information about the disease. Similarly, Individuals with elementary educational status were

around four times more likely to perform self care than unable to read and write individuals; diabetic patients with very high income were 0.2 times less likely to perform self care than with less income; individuals of high perceived severity of the disease and its complications were 12.3 times more likely to perform self care than less perceived severity (37).

A study done on similar study area on general self care showed that, Participants who were in the age group of 18-32 yrs, 33-41 yrs and 42-50 yrs were 6.2 times , 3.3 times and 3.1 times respectively more likely to have good knowledge as compared to individuals who were at the age of 50 and above. Similarly, those participants were in grade 1-8, grade 9-12 and those who attended higher education and above were 3.4 times, 4.7 times and 7.2 times respectively more likely to have good knowledge as compared to those who were un able to read and write. The likely hood of good knowledge among individuals who were on DM therapy for 3-5 years,> 5 years were 6 times and 6.3 times respectively higher compared to individuals who were on treatment for < 1 year. The likelihood of good knowledge among individuals who had type II DM were nearly 47 % less compared to individuals who had type I DM (24).

1.3. Knowledge and Practice of Diabetic foot self- care

Meticulous attention to foot care and proper management of minor foot injuries are key to preventing ulcer formation. Daily foot inspection by the patient (or a caretaker if the patient lacks sufficient visual acuity or mobility to perform the examination) is the cornerstone of proper foot care.

It is expected that those with the greatest knowledge will have a fuller understanding on how to deal with their diabetes on a daily basis and will be able to make the biggest impact in delaying the progression of the disease and preventing risk of complications.

Optimum foot self-care practices include daily inspection of feet and inside of shoes; daily washing of feet and careful drying afterwards (especially the areas in between the toes); not walking barefoot; wearing proper footwear (use of therapeutic shoes with pressure-relieving insoles and not sandals or poorly fitting shoes); cutting toenails straight across; not removing ingrown toenails, calluses, corns, or warts oneself; avoiding the use of antiseptic lotions and

adhesive tape on the feet; obtaining prompt professional healthcare treatment if new lesions, cuts, bruises, and wounds are noted; and screening of feet regularly, or at least once annually, by a healthcare provider to identify feet at risk for diabetic foot complications (38).

Individualized self-management education is the essence of diabetic foot care prevention. several publications reported that, self-management education to assist individuals at high risk for foot ulcers and amputation should include (1) assessment and feedback on current self management behaviors, (2) collaborative setting of specific self-management goals, (3) identification of barriers and social environmental supports to accomplish goals, (4) developing individually tailored problem-solving strategies to overcome obstacles and (5) including strategies for follow-up support (39).

Regarding the level of foot self-care being performed in one study, foot self-care behaviors performed with the highest frequency on 6 to 7 days per week were washing the feet (75.6%) and not soaking the feet (79.2%). Conversely, 23% of participants reported not checking their feet at all, and 54% did not inspect their shoes before wearing them. The percentage of the sample adhering to recommended foot care practices, defined as performing the practice at least 6 days per week, ranged from 35.6% for inspecting shoes to 75.6% for washing the feet and 79.2% for not soaking the feet. Most concerning was that 28% of the sample reported checking their feet fewer than 3 days per week and that 60% checked inside their shoes fewer than 3 days per week. At least three quarters of the participants in this study had foot care index scores lower than the 6 to 7 range, demonstrating the need for health care providers and educators to continually remind their patients who have diabetes to perform foot self-care (40).

For health characteristics, median foot care index scores were greater for persons with diabetes duration $\geq$10 years compared to those with diabetes duration <10 years. Some factors were independently associated with foot self-care scores. Women were more likely than men to engage in foot self-care activities. Participants who did not receive support caring for their feet had better foot care practices overall than those who were receiving support in the care of their feet (40).

A study conducted to determine the knowledge and practice of foot care in patients with chronic diabetic ulcer in Sirilanka indicated that, more than 50% of the study sample had knowledge on diabetic foot care principles but practice is sub-standard. Among all diabetic foot care principles,

only regular foot observation was carried out by 65.5%. The practice of other foot care principles was below 50%. The knowledge of the foot care principles according to the scoring system that ranges from 0-10, showed the mean knowledge score is 8.37 out of 10, which is highly satisfactory and can be said knowledgeable. The mean Practice score is 4.55 out of 10. There are 22.7% of patients who has scored 0, While 8.2% had scored 10. From cumulative percentages 47.3% has scored 4 and below while rest 52.7% has scored 5 and above. Prior to investigation, 80% of sample population had been educated by a medical person as a part of management. But unfortunately, 51% of them educated on foot care management prior to occurrence of complications. Finally, this study found, diabetic foot problem is mainly concentrated on elderly population and importance of regular screening of all micro vascular and macro vascular complications of diabetes when a patient with diabetic foot is encountered in medical practice (41).

A study on foot care education and self management behaviors on veterans demonstrated that, more than 50% of respondents reported they “know enough” in only the following three categories, “check feet regularly”, “keep feet clean” and “wearing shoes always”. Always wearing protective footwear indoors is a priority for patients with diabetes, yet among veterans who “knew enough” about this topic, 19%–56% walked barefoot indoors in the last month. The trend continues with avoidance of extreme water temperatures when bathing (a source of foot injury/burns) with 60% of American Indian/Pacific Islanders and 39% of Whites reporting “never” testing water temperature, even though half of each group felt they “knew enough” on the topic (42).

Furthermore, the study also demonstrates there is a difference in knowledge about foot care among different ethnicities living in America. For instance, Whites and American Indian/Pacific Islanders were more likely to report knowing enough about foot care self-management, while Asians and African Americans more often reported knowing nothing but reported foot hygiene practices were highest in Asians (42).

An interesting trend emerges here is that, of those who “knew enough” about checking feet regularly, one third of Whites and more than half of African Americans never looked at the soles of their feet. Therefore, “knowing enough” about foot care doesn’t necessarily indicate practicing the behavior. For example, 60% of Whites knew enough about always wearing shoes, but they

were also the most likely to walk barefoot inside. Finally, the study highlights the importance of understanding racial differences when attempting to create a personalized self-management plan. Regarding the specific foot care practices 32% of respondents looked their feet daily; 33% checked their shoes daily; 58% washed feet daily; 24% used lubricants on feet on daily and 41% walked barefoot inside routinely (42).

Another study which was conducted on behaviors of diabetics towards foot care in Saudi Arabia depicts that, about 37% lacked adequate knowledge about the negative effect of DM on the feet, between 9-22% suffered from different symptoms of diabetic neuropathy. More than half of the diabetics checked their feet regularly, while 47% did not. Dry feet and foot fissures were found in 32% and 17% of diabetics respectively. Fungal infections were detected in 31% of diabetics and weak or absence of dorsalis pedis pulse was found in 6% of patients. Fungal infection was more common in diabetics with long duration of DM. Even though, organizations recommended self-care of the foot as a means of early detection of any abnormality, in this study, about half the diabetics (47%) did not check on their feet at all, less than one fifth (19%) checked their feet daily, and 18% walked barefooted. This study also found that, there was good foot hygiene in 98% of the diabetics which is explained as the result of washing of the feet daily before prayer (wadue). However, the practice of drying the feet after "wadue" was low (32%). The moisture left between the toes heightened the possibility of the occurrence of infections. Coarse skin of the feet and fissures were found in 31% and 17% respectively. Again this study underscores difference of foot care practice among different religion that should be addressed before diabetic education (5).

Before a survey was conducted among Filipino American Women with Type 2 Diabetes Mellitus on Foot Self-care Practices, the days per week were clustered in duration as "0 days" (foot self-care was never performed during the past week), "1 to 3 days" (representing foot self-care performed on fewer than 50% of days in the past week), "4 to 6 days" (indicating foot self-care performed more than 50% of days in the past week), and "7 days" (foot self-care done every day during the past week). After measurement of behavior defined, it was found most Filipino Americans (FA) women reported that, they washed their feet, dried their feet (in between the toes), and checked their feet every day during the previous week. However, less than one-third of the women inspected the insides of their shoes every day during the past week; most of them had

not inspected the insides of their shoes during the previous week. Younger FA women and those with higher educational attainment reported that they washed their feet and checking of feet more frequently than FA women who are older and lower educational attainment. With respect to inspecting the inside of shoes, in all, 32% of the participants reported that they did not inspect the insides of their shoes during the past week. About 23% reported that they performed the foot self-care practice approximately 1 to 3 days during the last week, while slightly over 16% reported that they performed the foot self-care practice on about 4 to 6 days during the past week. Almost 29% of the participants reported that they inspected the insides of their shoes every day during the previous week. Finally the study associates poor diabetes foot care knowledge and lack of foot self-care (e.g. infrequent washing of feet, drying of feet in between toes, checking of feet, and inspecting the inside of shoes) have been associated with an inability to sense minor injuries to the foot and a tendency toward ulceration (38).

Another study conducted at Dr Yusuf Dadoo district hospital of Johannesburg to determine awareness and practices of foot self-care in patients with diabetes indicated that, a large number of the respondents representing more than 75% of the patients had no knowledge of foot care and 28.3% hadn't cared for their feet personally when asked. Participants' general knowledge of diabetes and foot self-care was poor with 36.7% knew the type of diabetes, and only 24.2% were aware of the need to conduct foot self-care. Regarding foot self care practices; only 4.2% used talcum powder to keep their feet dry; 47.5% inspected their feet almost every day and a significant number of them of about 21.7% had inspected their feet only in 1 to 4 days of the last seven days; 86.7% washed their feet almost daily (between 5 to 7 days) in the last seven days while 11.7% washed between 1-4 days in the last seven days. However, 1.7% did not wash their feet at all in the last seven days. About 45.8% had not inspected their shoes before wearing them. 43.3% had inspected their shoes between 5 to 7 days in the last seven days before wearing them, and about 10.8% had done this between 1-4 days of the week. A large proportion of the respondents (75%) reported not walking barefoot both indoors and outdoors while 25.0% walked barefoot. The use of talcum powder to keep the feet dry has been said to be effective in preventing foot ulceration but surprisingly, most of the patients studied about 92.5% had not used talcum powder at all to keep their feet dry in the last seven days whereas 3.3% of them had used talcum powder to keep their feet dry in 1-4 days of the last seven days. Only a minority of 4.2% had used talcum powder to dry their feet in the last 5-7 days of the

week. Although 71.7% of participants reported having cared for their own feet, only 32.5% had had their feet examined by a doctor or nurse, and 5.8% by a podiatrist. Foot problems that were found on examination showed that, the majority of participants (63.3%) had at least one foot problem. Athlete's foot was the most common, found in 16.2% of participants, while foot ulcers and amputation of any part of the foot were found in 5% and 0.9% respectively. Cigarette smoking was the only variable that was significantly associated with the finding of a foot ulcer (43).

A similar study conducted on self reported knowledge and practice of diabetic foot care among patients attending three tertiary Hospital of Nigeria indicated that the mean knowledge score was 5.8 ± 3.3 (range 0-11). Of the total DM patients, 75% were unaware that smoking causes poor circulation of the feet, 68.8% were unaware of the first thing to do when they found redness/bleeding between their toes and likewise 62.2% if they found a corn/ hard skin lesion. Majority of the respondent 61.4% were unaware of the importance of inspecting the inside of the footwear for objects or torn lining. On classifying the knowledge score of the study participants, 30.1% had good knowledge of diabetic foot care (score ≥70%), 23.9% had satisfactory score (score 50-69%) and 46.0% had a poor knowledge of diabetic foot care (score <50). Regarding the current practice of foot care, the mean practice score was 5.7 ± 1.9. The range of the current practice score obtained in this study was 2-10 out of maximum possible score of 11. Less than half of the respondents (40.9%) regularly inspect their feet, 46% regularly wash their feet with warm water and 47.7% inspect the inside of their footwear. On classifying the practice score of the study participants, only 10.2% had good practice of diabetic foot care (score ≥70%), 40.3% had satisfactory score (score 50-69%) and 49.4% had a poor practice of diabetic foot care (score <50). It also determined the effect of knowledge on the practice of foot care, 174 patients with poor practice score were stratified by their knowledge score and the result showed that 78.2% had a poor knowledge score, 18.4% had a satisfactory score while 3.4% had a good score. As to the self reported barriers to foot care practice, in this study, lack of knowledge of foot care was reported by 33.0%, 5.7% cited poverty and 2.6 % cited poor communication between patients and their physician. When student- t test was employed to compare the mean of the scores of variables, poor education attainment and low socioeconomic status were significantly associated with lower knowledge and practice score (44).

1.4. Barriers to Diabetic Foot Self-care practice

As stated in the literature, it is the perceived benefits minus the barriers that determine which behaviors the patient chooses to act on or comply with. Therefore, prior to discussing the benefits of adhering to diabetes self-care activities it would be beneficial to know the most commonly perceived barriers in the population. There are many types of barriers those with diabetes may encounter related to their medical care. Following diabetes recommendations must be perceived as beneficial and worth overcoming any barriers (45).

Barriers can be patient perceived or provider perceived. A study showed that, subjects who were experiencing financial and access problems were least likely to perform self-glucose monitoring a minimum of twice per week. Once the patient's perceived barriers are addressed he or she can often begin to focus on the benefits of behaviors. Unfortunately, the barriers a patient experiences are frequently not what the health care provider perceives the patient as experiencing, making it difficult for the health-care provider to help. Providers believed affordability was a barrier, but did not generally believe lack of services was a barrier. Healthcare providers' perception of their patients' abilities will undoubtedly have an effect on their recommendations of self-care activities and should be included in an assessment of older adults with diabetes (46).

A qualitative study to explore barriers related to use of foot wear in rural highland Ethiopia showed financial issues was the main barriers to consistent use of shoes. Secondly, they reported that the shoes typically owned by farmers were unsuitable for farming activities, meaning that farmers preferred to work barefoot to avoid the discomfort caused by soil and mud entering shoes or sandals: Participants who considered themselves to be at low risk of disease were also unlikely to wear shoes consistently: and finally fear of stigma and labeling related to shoes collected from Mossy Foot Treatment and Prevention Association (MFTPA) were another barriers (47).

A qualitative study to determine patients' perspectives on factors that influence diabetes self-care showed patient perceived barriers were clustered with the following 5 themes; (a) Physical barriers; (b) Psychological barriers; (c) Educational barriers; (d) Social barriers; and (e) Care system barrier. The physical barriers consisted of physical effects of diabetes, long-term health conditions, physical effects of treatment, and no symptom cues. Feelings of listlessness/apathy, and faintness were the most cited physical effects of diabetes that influenced self–care. The

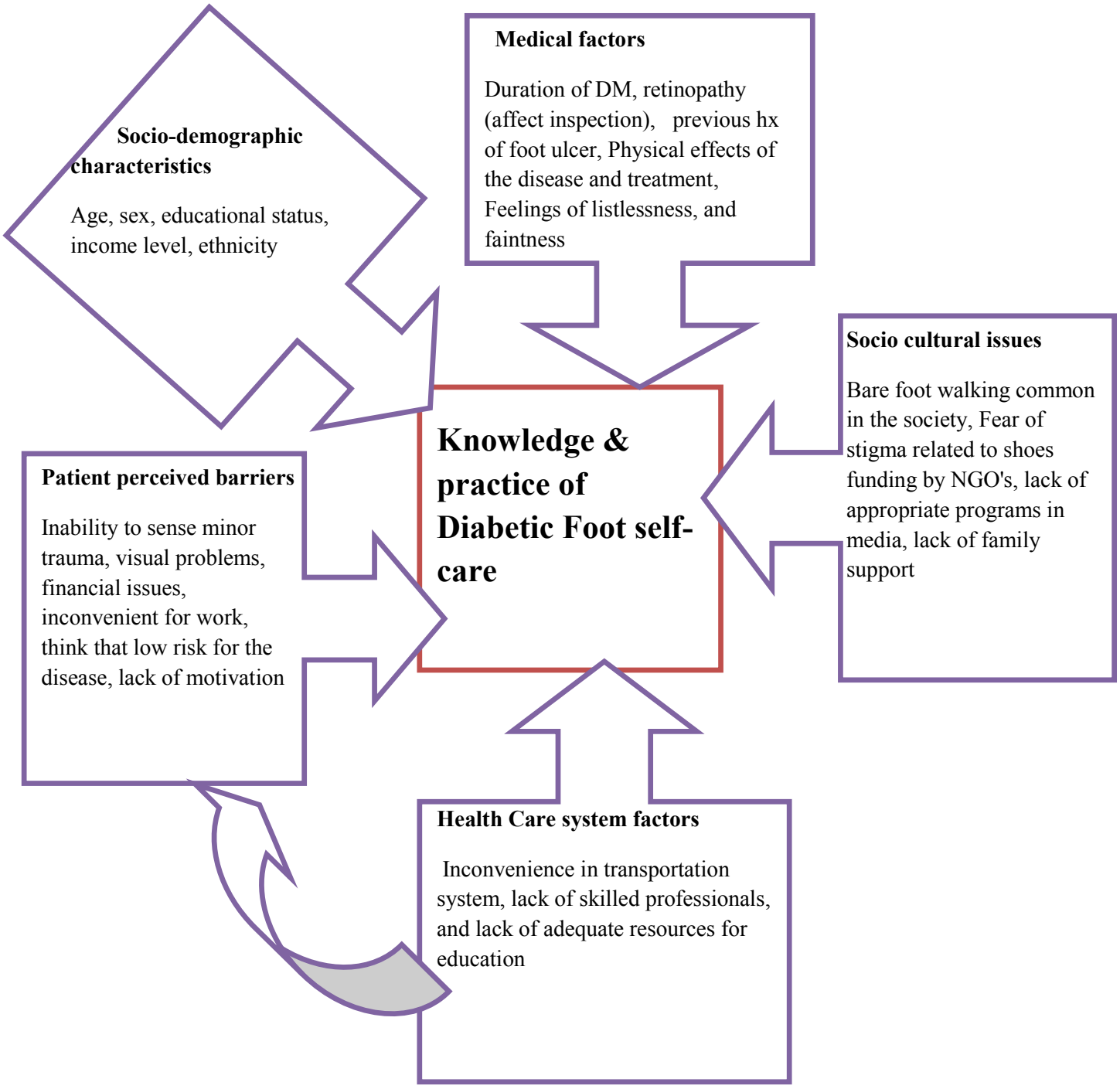
psychological barriers consisted of health beliefs, cognitive barriers, negative perception of time, negative perceptions of medicines, and stigma. Psychological barriers such as lack of motivation and negative attitudes played an important role in determining self care activities. The participants cited that they had little knowledge related to diabetes. They described the following factors as educational barriers: lack of knowledge about diabetes, health services life-style requirements and alternative therapies. Social barriers comprised group pressure, lack of family support, lack of public awareness of diabetes, unsupportive macro-environment, and various difficulties in the social system, lack of appropriate programs in media, and lack of standard resources to educate people. Participants also mentioned some insufficiencies in the health care system like making long trips to receive services, location of the clinics, the inconvenience they had to bear in transportation system. The majority of respondents had financial problems and was unable to afford the cost of care (48).

Among listed barriers of diabetic foot care in a study conducted in veterans, most participants (38%) reported "I couldn't reach my feet" and the least (7%) barrier reported was "I didn't think it was important" which suggests inability as a cause for poor practice (42).

To the investigator's knowledge there is no a similar study done in Ethiopia which will obligates to use other references done elsewhere when future comparison of study result is needed.

3. CONCEPTUAL FRAMEWORK

Concepts that are directly and indirectly related to the major variables of the study i.e. knowledge and practice of diabetic foot self-care are derived from literature review. Among these variables socio-demographic characteristics, medical factors, socio cultural factors, health care system factors and patient perceived barriers with their breakdown subtopics are expected to affect the dependent variable of the study. Diagrammatically, it is showed as follows:



Conceptual frame work of the study

4. OBJECTIVES

4.1. General Objective

The general objective of this study was to assess self-reported knowledge, practice and barriers of Diabetic foot self-care among patients attending in Felege Hiwot Referral Hospital, Bahir Dar City, Amhara Regional State, North West Ethiopia.

4.2. Specific Objectives

The specific objectives of this study were to:

- Assess knowledge of foot self -care among the study participants
- Determine the various practices of foot self -care among the study participants
- Identify the barriers to good foot self-care practice of the study participants

5. METHODS AND MATERIALS

5.1. Study Area

The study was conducted at Felege Hiwot Referral Hospital found in Bahir Dar which is capital city of Amhara region located 565kms from Addis Ababa in North West of Ethiopia. Based on central statistical agency in 2010 this city has an estimated total population of 274,836. Felege Hiwot Referral Hospital is a tertiary health care level hospital serving the population of Bahir Dar town and remote areas of northwest Ethiopia. The total population served by the hospital is about 12 million. It is the only government hospital in the city and the regional referral hospital serving the population in the region as referral center. It has 200 beds. There are three medical OPD serves for medical patients of which one serves as referral clinic for patients with chronic diseases. DM patients constitute larger number among attending in the follow up clinic. The follow up clinic was opened three years ago. There are 1,678 DM patients following in the clinic.

5.2. Study Design

A health institution based descriptive cross sectional study was employed to achieve the aim of this study. This design was used because of the short time period of the study and aid for data collection on the spot in time.

5.3. Study Period

The study period was from March 1 to April 1, 2014 during the routine working hours of the hospital.

5.4. Source Population

The source population were all adult (≥18 years) diabetic patients attending in the study institution.

5.5. Study population

Adult diabetic patients aged 18 years and above attending at Felege Hiwot Hospital (both outpatient and inpatient) during data collection period till sample size reached constituted the study population**.**

5.6. Inclusion and Exclusion criteria

5.6.1. Inclusion criteria

Patients who were volunteer to participate, and not in serious clinical state were enrolled.

5.6.2. Exclusion criteria

Patients who did not give informed consent, newly diagnosed during the study period and those in serious clinical states who could not consent or communicate were excluded from the study sample.

5.7. Sample Size

The overall minimum sample size, was determined using single proportion sample size calculation formula $n=Z^2_{\alpha/2}(P\ (1-P)/d^2$

$$\mathbf{n_0} = \frac{\mathbf{Z^2 p(1-p)}}{\mathbf{d^2}} = \frac{(\mathbf{1.96})^2\ (\mathbf{0.5})^2}{(\mathbf{0.05})^2} = 384$$

n = Sample Size**,**

p = prevalence of knowledge of foot care among DM patients

Z = standard normal deviation usually set at 1.96 which correspond to the 95% confidence interval**.**

d = is a tolerable margin of error (d=0.05)

Since the study was conducted on finite population and from the medical OPD report the total number of diabetic patients (N) starting from beginning of diabetic follow up service in the hospital were 1,678. Therefore, using single population correction formula:

$$n_f = \frac{ni}{1+\frac{ni}{N}}$$

$$= \frac{3\ 8\ 4}{1+\frac{384}{1,6\ 7\ 8}} = 312.2 \sim \mathbf{313}$$

Therefore, the final sample size was **313**.

5.8. Sampling technique

The study institution is conveniently chosen because chronic patients usually follow in referral hospitals than district hospitals and health centers. Convenient sampling technique was used in which all consecutive patients were interviewed until the sample size was reached. Simple or

systematic random sampling was not used because DM patients were appointed every 4 months which cannot be possible to wait for the investigator. This is due to the paper was done for academic qualification.

5.9. Measuring Instrument

The measuring instrument had three parts; Knowledge of foot care, practice of foot care, and barriers of foot care. The knowledge score is adapted from similar study conducted before which is taken from diabetic foot care educations recommended by American College of Foot and Ankle Surgeons.

On the other hand, diabetic foot self-care practice questionnaire is adopted from validated instrument of Nottingham Assessment of Functional Foot care (NAFF) (49). Responses to questions will be recorded on a categorical scale (scored 0–3) according to the frequency of occurrence of the behavior; for example, 'Never', 'Rarely', 'Sometimes' or 'About once a week', with the actual categories determined by the nature of the specific foot care behavior in question. The correct answers were determined as those endorsed by health care professionals and literatures related diabetes self-care.

A higher total score indicates better foot care behavior; a score of <50% suggests that further evaluation of foot care is needed. Even though NAFF consist 29 independent questions; this study used only 16 of it. This is due to the participants in study area have different socioeconomic status and the rest questions are inappropriate to accurately measure the intended behavior.

On the other hand, barriers of foot self-care questions are adapted from previous qualitative and quantitative studies. Finally, the overall tool was translated to Amharic (local language) to make it easy for study participants and data collectors and back translated in to English language by another person to check its semantic equivalence.

The questionnaire collected data on:

1. Participants' socio-demographic characteristics.
2. Residential and clinical characteristics
3. Knowledge/awareness of foot care
4. Foot self-care practices.
4. Barriers of foot self-care practice

5.10. Data Collection Procedure

Data was collected by the principal investigator and one trained nurse working in medical referral OPD using face to face interview method.

The researcher and data collector went to the waiting room of patients on routine working days to identify diabetic patients who are 18 years and above. Thereafter, a letter of introduction explaining who the researcher is, and the purpose of the study was orally explained to eligible patients by way of addressing them in a group. Then the researcher states the aims, objectives, motivations and the methodology and during data collection they were encouraged to clarify any area they did not understand. They are given consent form to sign after explanation and making sure they understood the content of the consent form. Data collectors interviewed eligible and voluntary patients in the waiting area of chronic diseases follow up OPD.

5.11. Procedure for data processing and data analysis

Epi info version 3.5.4 and SPSS version 20 were used for data entry, cleaning and analysis. The results are presented by employing frequency tables, percentages, means, odds ratio and 95% confidence limit and P- values will be reported as statistically significant if <0.05 or 5%. Moreover, to determine the association between variables, correlation, chi square, bivariate and multi-variate logistic regression analysis were used as necessary.

5.12. Data quality management

Pre-test was done on 10% of sample size on similar patients following in Tikur Anbesa Hospital which is different from the study area.

Depending on the result of the pre test, correction and modification was made on the questionnaire before applied on the study population. The principal investigator reassures data collection process, check for completeness of the data, correctness of the data collection procedure, and correction was made as necessary.

5.13. Study Variables

5.13.1. Dependent variables

- Knowledge of foot self-care
- Practice of foot self-care

5.13.2. Independent variables

- Socio demographic variables: age, sex, marital status, educational status, income, occupational status, ethnicity, religion
- Duration of DM, type of DM, previous history of foot ulcer,
- Barriers of foot self-care: inability to self-care, Family support, financial issues, lack of education by health care providers, unsuitable for work, in accessibility of health services, presence of other complications (peripheral neuropathy, visual disturbance related to retinopathy, peripheral vascular disease), lack of motivation or negligence.

5.14. Operational Definitions

1. **Good knowledge of foot care:** Patients' scored ≥70% of knowledge questions.
2. **Satisfactory (moderate) knowledge foot care:** Patients' scored 50-69% of knowledge questions
3. **Poor knowledge of diabetic foot care:** Patients' scored <50% of given knowledge questions.
4. **Good foot care practice –** A total score of ≥50% **(** ≥ 24) out of 48 maximum score
5. **Poor foot care practice –** A total score of <50% (< 24) out of 48 maximum score

5.15. Ethical consideration

Ethical clearance was obtained from Institutional Review Board (IRB) of Addis Ababa University, Department of Nursing and Midwifery. Support letter was also issued from the department then delivered to the respective health institution. In addition, informed consent was obtained from study participant to confirm their willingness for participation after explaining the objective of the study. The respondents were notified that they have the right to refuse or terminate at any point of the interview. Respondents were told that, their name will not be mentioned and information provided by each respondent will be kept confidential.

5.16. Dissemination of the result

Finally the findings of the study will be submitted to the Department of nursing and midwifery, Addis Ababa University. It will be also communicated to, regional health bureau and will be presented and a copy of it will be submitted to the respective health facility. It will be presented in seminars and workshops as well as further effort will be made to publish the findings on national and international peer reviewed journal.

6. RESULT

6.1. Response rate

A total of 313 diabetes patient were involved in the study with the response rate of 100% as consecutive respondents were recruited until sample size was reached and they did not have problems with participating in the study.

6.2. Socio-demographic characteristics

Among the total of 313 respondents, 203(64.9%) and 110(35.1%) were males and females respectively. The mean age was 39.1(SD±16.1) years and majority of the patients 88(28.1%) lies between 18 and 25 years. More than half of the participants 196(62.6%) were married and almost all 310(99%) were Amhara.

Regarding the religion of respondents, majority were Orthodox followed by Muslim which accounts 287(91.7%) and 20(6.4%) respectively.

The result on educational status showed a large proportion of participants 103(32.9%) were illiterate followed by grade 1-8th which accounts 71(22.7%).

As to the occupational status of respondents, majority of them 125(39.9%) were farmer, 72(23.0%) were government employee and the least 11(3.5%) were high school and university students.

Furthermore, Substantial proportion 124(39.6%) reported as they get an average estimated monthly income of 501-1000 and 118(37.7%) get above 1000 Ethiopian birr (Table 1).

Table 1. Socio-demographic characteristics of diabetic patient in Felege Hiwot Referral Hospital, Bahir Dar, 2014

Variables		Frequency (%)
Age (years)	18-25	88(28.1)
	26-35	59(18.8)
	36-45	60(19.2)
	46-55	55(17.6)
	>55	51(16.3)
	Total	**313(100.0)**
Sex	Male	203(64.9)
	Female	110(35.1)
	Total	**313(100.0)**
Ethnicity	Amhara	310(99.0)
	Tigray	2(0.6)
	Gurage	1(0.3)
	Total	**313(100.0)**
Marital status	Married	196(62.6)
	Single	81(25.9)
	Divorced	23(7.3)
	Widowed	10(3.2)
	Separated	3(1.0)
	Total	**313(100.0)**
Religion	Orthodox	287(91.7)
	Muslim	20(6.4)
	Protestant	6(1.9)
	Total	**313(100.0)**
Educational status	Illiterate	103(32.9)
	Can read and write	37(11.8)
	Grade1-8th	71(22.7)
	Grade9-12th	54(17.3)

	College and above	48(15.3)
	Total	**313(100.0)**
Occupational status	Farmer	125(39.9)
	Merchant	16(5.1)
	Government employee	72(23.0)
	NGO employee	16(5.1)
	Daily laborer	23(7.3)
	House wife	50(16.0)
	Student	11(3.5)
	Total	**313(100.0)**
Monthly income(birr)	≤500	71(22.7)
	501-1000	124(39.6)
	>1000	118(37.7)
	Total	313(100.0)

5.3. Clinical and residence of study participants

Table 2. Distribution of clinical characteristics of diabetic patients, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Questions	Yes (%)	No (%)
Have you ever received any information about Diabetic Foot Ca before?	263(84.0%)	50(16.0%)
Did you have any history of foot problems after diagnoses of DM	120(38.3%)	193(61.7%)
Have you had your feet examined by your doctor or nurse?	82(26.2%)	231(73.8%)

Regarding the clinical history of the study participants, of the total 313 subjects 263(84.0%) ever heard information about diabetic foot self-care principles before. Likewise, majority of the respondents 193(61.7%) reported as they didn't have any history of foot problems after diagnosis of DM and where as the remaining 120(38.3%) had history of foot ulcer ranges from as simple as superficial laceration to deep wound infection that ends up amputation.

As to the care by health professionals, 231(73.8%) reported that their feet weren't examined by nurses or physicians during their follow up.

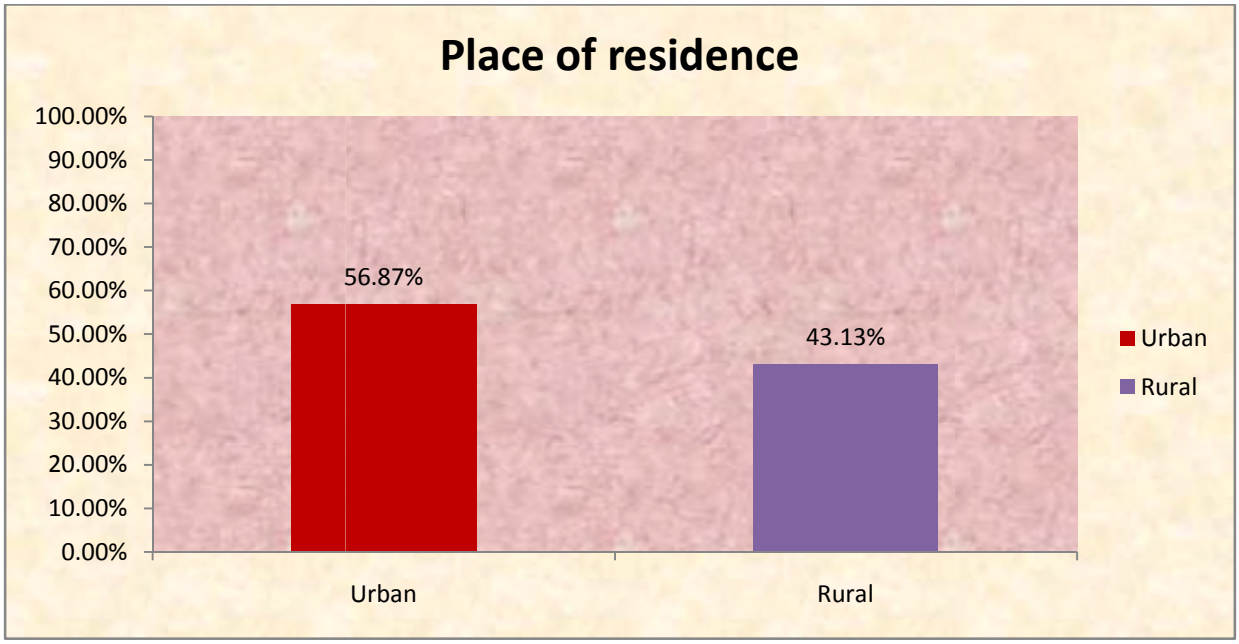


Figure 1. Place of residence of diabetic patients, Felege Hiwot Referral Hospital, Bahir Dar, 2014

As it is depicted on figure 1, more than half 178(56.9%) of the study participants resides in urban areas where as the rest 135(43.1%) lives in rural places.

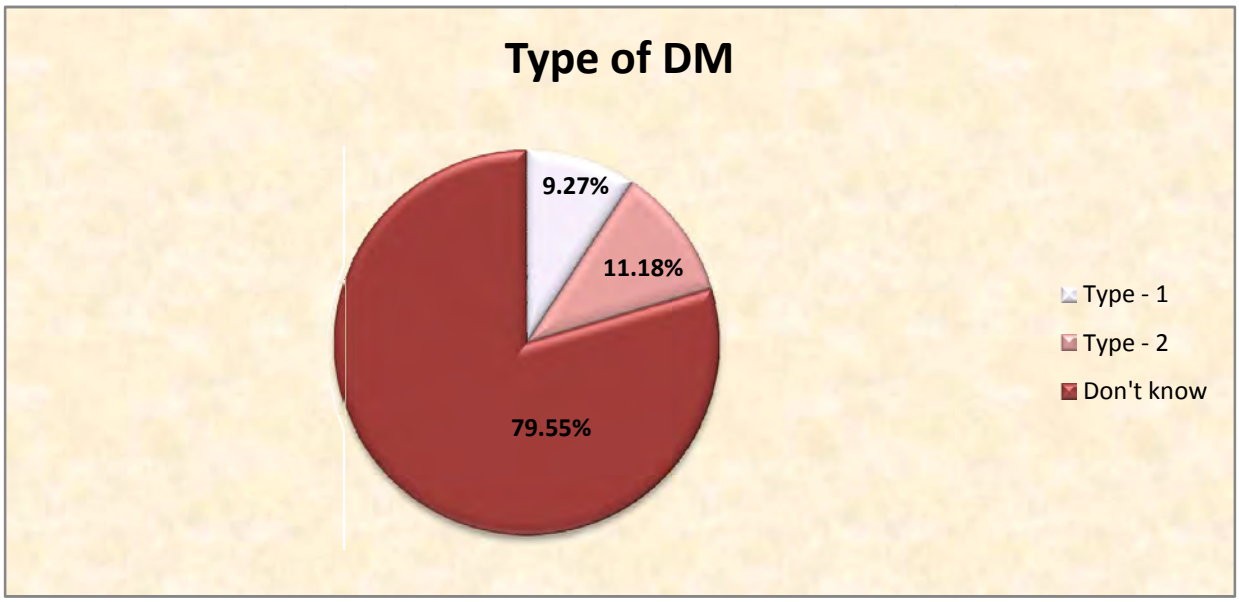


Figure 2. Self--reported awareness of type of Dm, Felege Hiwot Referral Hospital, Bahir Dar, 2014

It is also interesting to note that apart from knowledge of principles of diabetic foot self-care, majority of the patients 249(79.6%) did not know the type of diabetes they are suffering where as the remaining reported type 1 and type 2 which accounts 29(9.3%) and 35(11.2%) respectively (Figure 3).

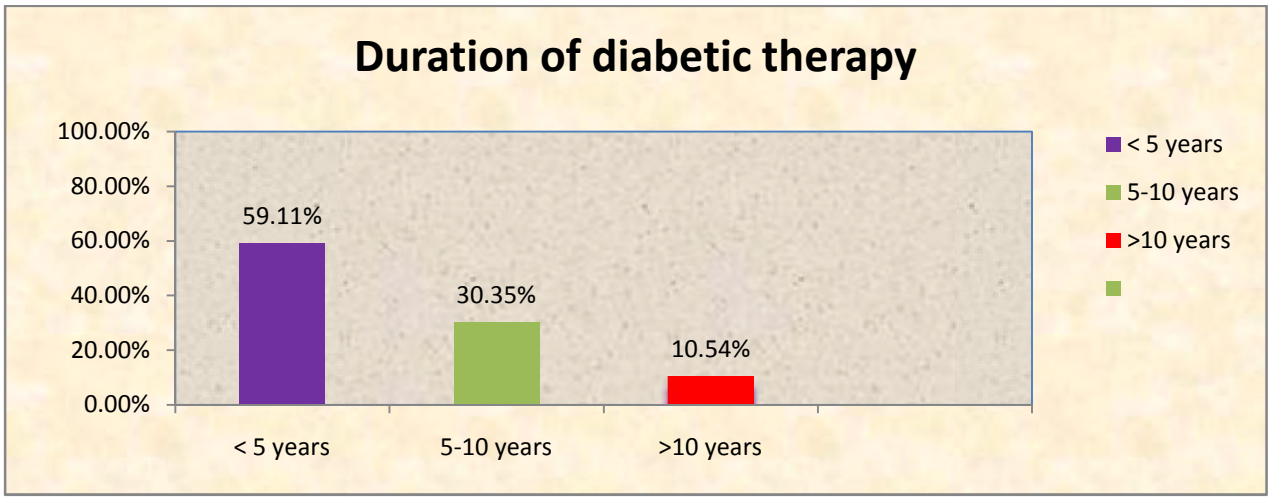


Figure 3. Percentage distribution of duration of diabetic therapy, Felege Hiwot Referral Hospital, Bahir Dar, 2014

The other finding on durations of stay with the disease showed the minimum and maximum duration was 4 months and 26 years respectively. As shown in (Fig.3) majority of the respondents 185(59.1%) live with diabetic for lower than 5 years followed by 5-10 years which accounts 95(30.4%).

5.4. Knowledge of study participants to principles of diabetic foot care

The mean knowledge score was 7.5±2.02. The range of the knowledge score obtained in this study was 1-11 out of maximum possible score of 11. Two hundred fifty (79.9%) of the DM patients were unaware that smoking causes poor circulation to the feet and similarly, 232(74.1%) of respondents were unaware to the level of temperature of water diabetic patients should use to wash their feet.

On the other hand, 307(98.1%) of participants had an awareness to DM patients should take medication regularly because they are liable to get DM complication. Likewise, 300(95.8%) of the respondents were aware about how often their feet should be washed (Table 3).

On classifying the knowledge score of the study participants, 176(56.2%) had good knowledge of diabetic foot self-care (score ≥70%), 74(23.6%) had satisfactory score (score 50-69%) and 63(20.1%) had poor knowledge of diabetic foot self-care (score <50).

Table 3. Distribution of patients' response to questions related to the knowledge of diabetic foot self-care in Felege Hiwot Referral Hospital, Bahir Dar, 2014

Knowledge questions	**Correct** Freq (%)	**Incorrect/don't know** Freq (%)	**Total**
DM patients should take medication regularly because they are liable to get DM complication.	307(98.1)	6(1.9)	313(100)
DM patients should look after their feet because they may not feel a minor injury to their feet	222(70.9)	91(29.1)	313(100)
DM patients should look after their feet because wounds and infection may not heal quickly	257(82.1)	56(17.9)	313(100)
DM patients should look after their feet because they may get a foot ulcer	244(78.0)	69(22.0)	313(100)
DM patients should not smoke because smoking causes poor circulation and affects the feet	63(20.1)	250(79.9)	313(100)
How often do you think you should inspect your feet?	212 (67.7)	101(32.3)	313(100)
If you found redness/bleeding between your toes what is the fi	233(74.4)	80(25.6)	313(100)
thing you do?			
How often do you think your feet should be washed?	292(93.3)	21(6.7)	313(100)
What temperature of water do you think you should wash your	81(25.9)	232(74.1)	313(100)
feet in?			
How often do you think you should inspect the inside of y	213(68.1)	100(31.9)	313(100)
footwear for objects or torn lining			
How often do you think you should wear shoes and socks?	225(71.9)	88(28.1)	313(100)

5.5. Diabetic foot self-care practices

After 16 out of 29 item was selected form Nottingham Assessment of Functional Foot Care (NAFFC) and translated to Amharic language, the mean practice score was 25.2 ±6.466 and the minimum and maximum score out of 54 were 6 and 41 respectively. Each foot care practice had four options with assigned values ranges from 0-3. Three was given if the behavior is practiced at maximum frequency and zero was given if practiced at lowest frequency.

Regarding the overall diabetic foot self-care practice of study participants 171 (54.6%) had good foot care practice (≥50%) and 142 (45.4%) had poor foot care practice (<50%).

The study revealed that less than half of the respondents (36.1%) inspect their feet *less frequently* i.e. once per week or less, and majority of the respondents (41.2%) inspect their feet daily; (38.7%) *never* checked their shoe before put on but (32.3%) *often* checked their shoe before put on. Again majority of the respondents (45.7%) never checked their shoes when take off.

Table 4. Frequency distribution of participants' response to inspection of feet, checking shoes before put on and during taking off, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Practice question		**Frequency**	**Percent**
Do you examine/inspect your feet?	More than once a day	61	19.5
	Once a day	129	41.2
	4-6 times a week	10	3.2
	Once a week or less	113	36.1
	Total	**313**	**100**
Do you check your shoes before you put on?	Often	101	32.3
	Some times	49	15.7
	Rarely	42	13.4
	Never	121	38.7
	Total	**313**	**100**
Do you check your shoes when you take off?	Often	91	29.1
	Some times	46	14.7
	Rarely	33	10.5

	Never	143	45.7
	Total	**313**	**100**

As to the frequency of washing of feet, almost half of the respondents (49.5%) wash their feet more than a day followed by once a day which accounts 44.1%. Regarding the practice of drying of after washing, of the total respondents, 59.1% and 69.3% never had a habit of drying their feet and between toes respectively (Table 5).

Table 5. Frequency distribution of participants' response to washing of feet, drying of feet and between toes after washing, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Do you wash your feet?	More than once a day	155	49.5
	Once a day	138	44.1
	Most days a week	4	1.3
	A few days a week	16	5.1
	Total	**313**	**100**
Do you check your feet are dry after washing?	Often	95	30.4
	Some times	15	4.8
	Rarely	18	5.8
	Never	185	59.1
	Total	**313**	**100**
Do you dry between your toes?	Always	67	21.4
	Often	16	5.1
	Some times	13	4.2
	Rarely/never	217	69.3
	Total	**313**	**100**

Concerning the use of moisturizing cream on feet, majority 72.5% never used cream and 14.4% use once a week basis. Majority study participants (79.2%) never use cream to moisten the space between toes but 11.2% apply once per week. Trimming of toenails is another practice of foot care in which majority 66.5% cut toenails about once a month followed by 21.1% cut toenails Less than once a month (Table 6).

Table 6. Frequency distribution of participants' response to use of moisturizing cream on feet and between toes, and trimming of toenails, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Do you use moisturizing cream On your feet?	Daily	24	7.7
	Once a week	45	14.4
	About once a month	17	5.4
	Never	227	72.5
	Total	**313**	**100**
Do you use moisturizing cream Between your toes?	Daily	20	6.4
	Once a week	35	11.2
	About once a month	10	3.2
	Never	248	79.2
	Total	**313**	**100**
How often you cut toenails?	About once a week	31	9.9
	About once a month	208	66.5
	Less than once a month	66	21.1
	Never	8	2.6
	Total	**313**	**100**

The other result on the practice of trimming of toenails showed majority 66.5% of the study participants cut toenails about once a month and 21.1% cut less than once a month. The study also showed majority 44.1% wear sandals most time of a day and only 14.7% of participants never wore open sandals. On the other hand, 55% didn't practice wearing of shoes without socks but there are also patients who often wear shoes without socks which accounts 21.7% of total participants. Additionally, majority of respondents 75.4% change socks less frequently (i.e. less than 4 times a week) followed by 4-6 times a week which accounts 21.4% (Table 7).

Table 7. Frequency distribution of participants' response of wearing sandals, wearing shoes without socks, and changing of socks, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Do you wear sandals/slippers?	Most of the time	188	44.1
	Rarely	76	24.3
	Some times	53	16.9
	Never	46	14.7
	Total	**313**	**100**
Do you wear shoes without socks/stockings?	Often	68	21.7
	Some times	31	9.9
	Rarely	42	13.4
	Never	172	55
	Total	**313**	**100**
Do you change your socks?	More than once a day	1	0.3
	Daily	9	2.9
	4-6 times a day	67	21.4
	Less than 4 times a week	236	75.4
	Total	**313**	**100**

Another finding on practice of walking on bare foot showed 73.5% and 82.7% never walk around and outside the house respectively. Despite majority of study participants never walk barefoot, still 15.3% frequently walk on barefoot while 9.6% walk barefoot outside (Table 8).

Table 8. Frequency distribution of participants' response to walking on barefoot in and outside the house, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Do you walk in the house in bare feet?	Often	27	8.6
	Some times	21	6.7
	Rarely	35	11.2
	Never	230	73.5
	Total	**313**	**100**
Do you walk outside in	Often	15	4.8

bare feet?	Some times	15	4.8
	Rarely	24	7.7
	Never	259	82.7
	Total	**313**	**100**

Regarding the habit of putting feet near the fire, majority of the respondent 84.7% never put near the fire followed by 11.2% rarely practice the behavior.

Lastly, 75.7% of the participants never apply dry dressing on blisters, cut, or burn when they exposed but 13.1% often practice it well (Table 4).

Table 9. Frequency distribution of participants' response to putting feet near fire, and applying dressing when feet gets burn/blistered, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Do you put your feet near the fire?	Often	3	1.0
	Some times	10	3.2
	Rarely	35	11.2
	Never	265	84.7
	Total	**313**	**100**
Do you put a dry dressing on blisters, cut, or burn when you get exposed?	Never	237	75.7
	Rarely	30	9.6
	Some times	5	1.6
	Often	41	13.1
	Total	**313**	**100**

5.6. Perceived barriers of diabetic foot-care

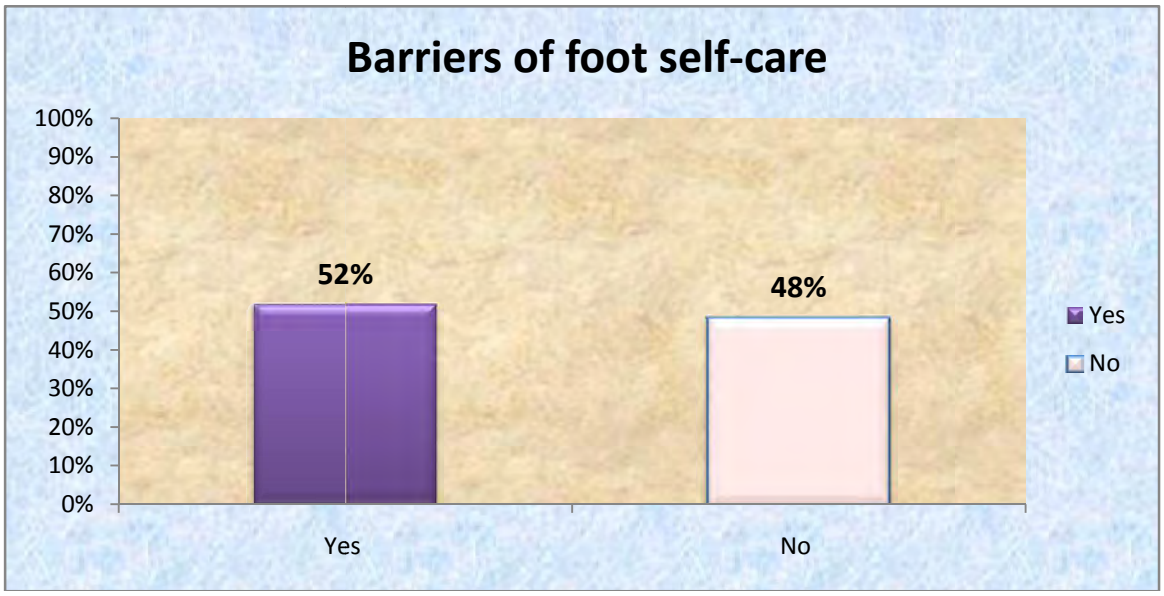


Figure 4. Distribution of participants response to whether they face barriers of foot care or not, Felege Hiwot Referral Hospital, Bahir Dar, 2014

When study participants were asked whether they encounter barriers that prevents them from proper foot care, 52% and 48% respond “yes” and “no” respectively (Figure 5)

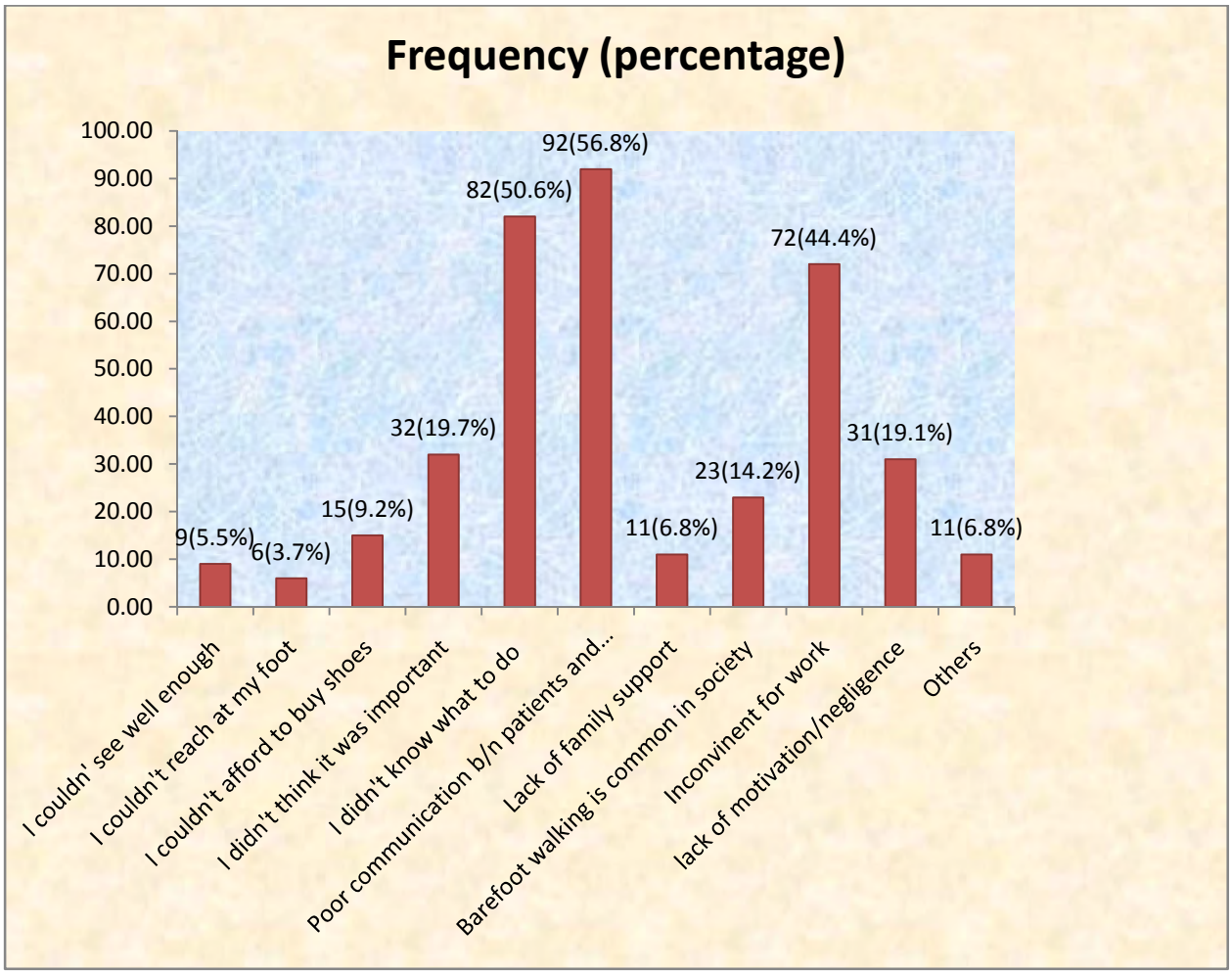


Figure 5. Frequency distribution of participants perceived barriers of diabetic foot care practice, Felege Hiwot Referral Hospital, Bahir Dar, 2014

As to the barriers of proper foot self-care practices, from self-reported data the investigator found that, from the total patient of 162 respondents who had encountered barriers, 92(56.8%) reported "poor communication between patients and health care providers", 82(50.6%) cited "I didn't know what to do", and 72(44.4%) respond "inconvenient for work" were the major barriers frequently mentioned (Figure 6).

5.7. Factors associated with knowledge to principles of diabetic foot self-care

A bi-variate and multinomial logistic regression was used to test if there was significant association between socio-demographic, clinical and residential characteristics versus knowledge of principles of diabetic foot care.

Each socio-demographic characteristics of patients were tested with the categorized knowledge score of foot care using a binomial logistic regression (COR) and the result showed there were statistically significant association ($p<0.05$) with educational status, monthly income, duration of diabetic therapy, and self-awareness of type of DM. According to binomial regression those participants whose educational status is college and above is 3.53 times more likely to be better knowledgeable as compared to illiterates (COR=3.534(1.276-9.791), p=0.015).

Additionally, participants who stay in diabetic for more than 10 years were 11.53 times more likely to have good knowledge of foot care as compared to who stay for less than 3 years (COR=11.529(1.534-86.649), p=0.018). The rest variables are displayed on Table 5.

A multivariate logistic regression was used to further limit the interaction of confounding factors with the outcome variable. Among the variables age, educational status, and marital status, duration of diabetic therapy were found to have association with knowledge of foot care. For example, participants aged above 55 years were 0.187 times less likely good knowledgeable as compared to 18-25 years of age (AOR=0.187(0.050-0.692), p = 0.012).

As to the marital status, study participants who were single are 0.194 times less likely to have good knowledge of foot care as compared to married participants (AOR=0.194(0.066-0.566), p=0.003). Educational status of participants had consistent result in both bivariate and multivariate regression results (Table 5).

Table 10. Factors affecting knowledge of diabetic patients about foot care, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Variable	**Knowledge of foot care**			
Age	**COR(95% CI)**	**p-value**	**AOR(95% CI)**	**p-value**
15-25	1.0	-	1.0	-
26-35	1.755 (0.712-4.326)	0.221	1.052(0.309-3.579)	0.936
36-45	1.790 (0.727-4.407)	0.205	0.666(0.180-2.465)	0.543
46-55	1.101(0.479-2.534)	0.820	0.364(0.098-1.359)	0.133
>55	0.551(0.254-1.192)	0.130	0.187(0.050-0.692)	0.012*
Marital Status				
	1.0	-	1.0	-

Married	0.537(0.287-1.006)	0.052	0.194(0.066-0.566)	0.003*
Single	0.429(0.163-1.130)	0.087	0.417(0.135-1.290)	0.129
Divorced	0.282(0.075-1.057)	0.060	1.510(0.343-6.647)	0.586
widowed Separated	303513459.368	0.999	209275158.796	0.999
Educational status				
Illiterate	1.0	-	1.0	-
Can read and write	1.110 (0.479-2.573)	0.808	0.798(0.298-2.132)	0.652
Grade 1-8th	3.236(1.384-7.569)	0.007*	3.195(1.191-8.566)	0.021*
Grade 9-12th	1.808(0.806-4.055)	0.151	1.831(0.660-5.081)	0.245
College and above	3.534(1.276-9.791)	0.015*	1.670(0.432-6.455)	0.458
Monthly income				
<500	1.0	-	1.0	-
501-1000	1.113(0.565-2.190)	0.758	1.242(0.560-2.755)	0.594
>1000	2.165(1.022-4.587)	0.044*	1.658(0.659-4.174)	0.283
Type of diabetes				
Type-1	4.192(0.968-18.155)	0.055	3.178(0.621-16.257)	0.165
Type-2	5.124(1.194-21.993)	0.028*	3.542(0.714-17.578)	0.122
I don't know	1.0	-	1.0	-
Duration of DM(yr)				
<5	1.0	-	1.0	-
5-10	2.273(1.163-4.442)	0.016*	2.243(1.056-4.763)	0.036*
>10	11.529(1.534-86.649)	0.018*	13.179(1.494-116.233)	0.020*
History of foot				
ulcer	1.0	-	1.0	-
No	1.723(0.944-3.146)	0.077	1.552(0.765-3.149)	0.223
Yes				

***Significant association at p value < 5%**

5.8. Practice of study participants to diabetic foot self-care

Among the socio-demographic characteristics, a bivariate logistic regression statistic showed there is an association between participants' age, educational status, and occupational status with the practice of foot self-care. With respect to the clinical characteristics, place of residence, self-reported awareness of type of DM, duration of stay with the disease and knowledge of foot care were also associated with the practice of foot self-care.

When confounding variables were adjusted and tested using multivariate logistic regression, age categories of 36-45 years, 46-55 years, and above 55 years were 2.47 times (AOR=2.478(1.014-6.057),p=0.047), 3.67 times (AOR=3.675(1.335-10.118), p=0.012), and 0.13 times (AOR=3.971(1.220-12.929), p=0.022) more likely to have good practice of foot care as compared to 18-25 years respectively. On the other hand as age increases practice of foot care will also increases.

The other finding on occupational status showed, daily laborers were 6.29 times more likely to have good foot self-care practice as compared to farmers (AOR=6.295(1.535-25.818),p=0.011).

When knowledge score of diabetic foot care principles were summed and categorized dichotomously, participants who had good knowledge of foot care were 10.46 times more likely to have good foot care practice as compared to poor knowledge of foot care (AOR=10.461(4.580-23.898), p=0.000).

Table 11. Factors affecting foot care practice of diabetic patients, Felege Hiwot Referral Hospital, Bahir Dar, 2014

Variable		Foot care practice			
		COR (95% CI)	**p-value**	**AOR(95% CI)**	**p-value**
Age	18-25	1.0	-	1.0	-
	26-35	1.215(0.627-2.353)	0.565	1.648(0.699-3.884)	0.254
	36-45	1.885(0.968-3.669)	0.062	2.478(1.014-6.057)	0.047*
	46-55	2.381(1.186-4.779)	0.015*	3.675(1.335-10.118)	0.012*
	>55	1.947(0.965-3.930)	0.063	3.971(1.220-12.929)	0.022*
Educational status					
	Illiterate	1.0	-	1.0	-

Read and write	1.303(0.607-2.797)	0.497	0.887(0.358-2.195)	0.795
Grade 1-8th	2.788(1.493-5.204)	0.001*	2.588(1.161-5.771)	0.020*
Grade 9-12th	3.723(1.849-7.497)	0.000*	3.484(1.212-10.021)	0.021*
College/above	5.132(2.385-11.041)	0.000*	1.719(0.434-6.799)	0.440
Occupational status				
Farmer	1.0	-	1.0	-
Merchant	3.068(1.045-9.004)	0.041*	2.062(0.427-9.944)	0.367
Gov't employee	6.995(3.555-13.766)	0.000*	6.468(1.591-26.305)	0.009*
NGO employee	4.050(1.323-12.401)	0.014*	3.086(0.596-15.987)	0.179
Daily laborer	3.452(1.357-8.777)	0.009*	6.295(1.535-25.818)	0.011*
House wife	2.161(1.110-4.208)	0.023*	2.640(0.804-8.666)	0.110
Student	3.222(0.894-11.612)	0.074	5.228(0.794-34.426)	0.085
Place of residence				
Urban	1.0	-	1.0	-
Rural	0.293(0.184-0.469)	0.000*	1.528	0.410
Type of DM				
Type -1	3.118(1.285-7.562)	0.012*	1.618(0.553-4.732)	0.379
Type -2	2.164(1.017-4.608)	0.045*	0.619(0.223-1.718)	0.357
Don't know	1.0	-	1.0	-
Duration of Dm				
<5 years	1.0	-	1.0	-
5-10 years	1.618(0.980-2.672)	0.060	1.300(0.709-2.386)	0.397
>10 years	3.371(1.445-7.861)	0.005*	0.961(0.347-2.661)	0.939
Knowledge status				
Good	8.404(4.174-16.921)	0.000*	10.461(4.580-23.898)	0.000*
Poor	1.0	-	1.0	

*** have significant association at p - value of less than 5%**

Finally, when bivariate correlation was done between total knowledge score versus practice score of foot care correlation coefficient (r) was calculated as 0.45 (r=0.45) and significant at $p<0.01$ level.

When r is squared which is coefficient of determination (r^2=0.2025) showed, 20.25% of variability of total practice score is explained by the knowledge difference of study participants.

7. DISCUSSION

Diabetic Foot Ulcer is one of the chronic complications of DM in which patients' ends up with disability and death if it is not effectively prevented and controlled. Indeed, this study was aimed at investigating the self-reported knowledge, practice and perceived barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital located at Bahir Dar city.

In this study, out of 313 study subjects' majority 28.1% of respondent's age was between 18-25 years category. This may be due to the fact that, type- 1 DM is more likely to occur in young age(<30 years) and has many acute poly symptoms which may insist patients to seek and follow medical care as compared to elder groups and type 2 DM patients who are usually asymptomatic and reluctant to adhere follow up. Of course this study also results about 33% of respondents were above 45 years which still increasing age is a risk factor for DM.

It is unexpected to see that, this study shows majority (39.9%) of study participants' were farmers. This result awakes policy makers and researchers because it is known that most farmers resides in rural areas and assumed to be in challenge of communicable diseases instead of chronic diseases like DM. Therefore, it gives a clue to prospect that the prevalence of chronic diseases are increasing in rural communities.

With regard to foot examined by health professionals, before the date of interview, 73.8% of patients reported that their feet weren't examined by doctors/nurses. This figure is slightly higher than the one done at Dr. Yusuf Dadoo hospital in South Africa which is 67.5%. The gap could be explained by in the study hospital there was only one referral medical OPD that serves for all type of chronically diseased patients which may impose physicians/nurses to be hurry to serve all follow up patients waiting outside. This may be the reason for physicians/nurses to poorly perform preventive examination for foot ulcer (24).

The study result on knowledge to principles of diabetic foot self-care indicated the mean knowledge score was 7.5± 2.02 indicating most study participants are knowledgeable. Furthermore, it is showed that 56.2%, 23.6%, and 20.1% of study participants had good, moderate, and poor knowledge of diabetic foot care respectively. The mean knowledge score is higher than that of a study done in Nigeria in which the score were 5.8% ±3.3 but nearly comparable to the study done in Sirilanka which was 8.3. The difference may be attributed to a

number of patents were a member of Ethiopian Diabetic Association in which they periodically meet and learn updated information with support of leaflets. Again increasing incidence of DM is seeking public Mass Medias to discuss with professionals to deliver lot of information to community. Some respondents were also reported that in-formal social meeting like coffee ceremony and some said they shared from previous experience of amputated diabetic patients from relatives, waiting areas of the hospital etc (41).

As to the classified knowledge score, in this study those whose category was moderate (23.6%) were consistent to the Nigerian which was 23%. In contrast to this study, in which only 20.1% are poorly knowledgeable, in Nigeria 46% were poorly knowledgeable to foot care principles. But this study is in line with Srilanka in which 24.5% had scored below the mean knowledge score as the reason is justified above (41, 44).

This study revealed that, age, educational status, marital status, and duration of diabetic therapy were associated with knowledge of foot care. Thus, the probability of having good knowledge is higher among individuals who stay in DM therapy for long period of time. However, participants aged above 55 years were 0.187 times less likely to have good knowledge as compared to 18-25 years of age. Previous findings on general self-care conducted 2 years back in Bahir Dar found consistent result on association between these variables. Similarly, a study conducted in Harrar also revealed similar result. The other major finding of this study was targeted at assessment of practice of diabetic foot self-care. In this study the investigator used Nottingham Assessment of Functional Foot Care (NAFFC) to measure the behavior of diabetic foot self-care. However, the investigator could not be able to find any literature that exactly used this scale and will use proportions of other studies to compare findings.

The mean practice score was 25.2 ±6.466 which is around half percent of a full score and shows having good practice in general. Regarding the overall diabetic foot self-care practice of study participants 171 (54.6%) had good foot care practice (>50%) and 142 (45.4%) had poor foot care practice (<50%). Previous finding on Sirilanka showed from cumulative percentages 47.3% has scored below the half while rest 52.7% has scored above half of given questions which was consistent to this study. However, it is contrasted to the study in Nigeria. The results may be attributable to the difference in classification system of practice score in which >70% of total score is considered as good practice which is not applied in this study (41).

The proportion of diabetic patients who inspect their feet regularly (41.2%) is in conformity with of the study of Nigeria and South Africa in which 40.9% and 47.5% regularly inspect their feet respectively. In Saudi Arabia, 47% did not check their feet regularly and only 19% checked their feet daily. Despite the socio-economic difference of respondents, the discrepancy may also be attributable to the difference in perceived risk to foot ulcer (44).

As to washing of feet is concerned, a substantial number of study participants 49.5% and 44.1% wash their feet more than a day and once a day respectively. Generally, participants had good behavior in washing of feet provided that the investigator was not sure whether they are practicing with the assumption to prevent foot ulcer or not. The result is consistent with other studies in which most patients had better foot hygiene as compared to other practices recommended for prevention of foot ulcer. For example 75.6% of Nigerian patients and 98% of the diabetics in Saudi Arabia washed their feet adequately in provided that a later may be explained by due to religion as precondition before prayer (41).

Even though participants have thankful behavior in washing feet, majority 59.1% and 69.3% poorly practiced drying of feet and between toes respectively. Thus, participants are at high risk for foot ulcer due to the fact that the area between toes is commonly affected by fungal infections. Previous studies also found similar results (22,41).

The other finding on two major behavioral risk factor of foot ulcer that is walking on barefoot indoors and outdoors showed majority never walk on barefoot. Despite majority of study participants never walk barefoot, still 15.3% of study participants *repeatedly* walk indoors on barefoot while 9.6% routinely walk on barefoot outside the house. In fact, this was one of the plausible evidence that trigger the investigator to choose the study area. Even though, majority of respondents were generally knowledgeable and had good practice score, the proportion of respondents walking on barefoot is not negligible as it is a high risk behavior of diabetic foot ulcer. When the proportion is compared with South Africa, it is compatible that majority, 75% never walk barefoot and 25% reported they walk on barefoot. Similarly, it is compatible with Saudi in which 18% walk on barefoot (22, 41, 43).

Even if most published studies conducted on this variable were qualitative, the investigator studied quantitatively by listing the redundantly described barriers reported from different

studies. This was intentionally made because one of the advantages of qualitative studies is to design an instrument for quantitative studies.

Majority of the participants reported that there is a poor and non-educative approach between clients and health care providers. The investigator tried to understand that only patients who were admitted in medical ward before starting follow up reported thought for different self-care practices including foot care. As depicted in first section of discussion the reason may be overflow of all chronic patients in one Medical Referral OPD which enable nurses and physicians to focus on curative services rather preventive educations.

On the other hand, most patients reported lack of adequate knowledge to specific diabetic foot care principles as another barrier of foot care which may be due to poor communication between patients and health care providers. Previous studies also reported similarly (44).

Of the total participants who had limitation of proper foot care, 23% of study participants reported "inconvenient for work" as main barrier. For example, farmers reported that wearing shoes during plowing is not comfortable as the area is muddy especially in summer season. This study also showed there is an association between place of residence and inconvenient for work (x^2=61.617, p=0.000). This result is in line with Nigeria study in which lack of knowledge, poverty and poor communication between nurses and patients were the most commonly cited reasons for poor foot care practices respectively (44).

7.1. Strength of the study

- Even though the study was conducted on diabetic patients, adequate sample was recruited.
- The data collection instruments especially foot care practice measurement score was adopted from validated and standardized tool of Nottingham Assessment of Functional Foot care (NAFFC).
- The high response rate to the survey interviews (100%).
- Self-report is the appropriate and cost effective approach of measuring self-care behavior.

7.2. Limitation of the study

- Convenient sampling method didn't give equal chance to all diabetic patients.

- Cross-sectional studies enable to look only the snap shot of foot care practice in the respondents and difficult to draw cause – effect relationships.
- The study may be prone to social desirability bias.

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusion

This study was conducted to determine knowledge, practice and barriers of diabetic foot self-care intended to prevent disability and death secondary to amputation caused by foot ulcer and sepsis. Based on the finding, the study concludes the following;

- The prevalence of DM is increasing in rural communities and farmers.
- Generally, half of the study participants have good knowledge of foot care.
- Half of diabetic patients have poor practice of foot care.
- Physicians/nurses gave less attention to foot examination.
- Respondents had good foot care practices in the areas of washing of feet and not walking on barefoot.
- Participants had poor practice of drying of feet and the areas between toes

Related to the predictors,

- Increasing of age is associated with poor knowledge but good practice of foot care
- Relatively educated individuals have good knowledge and practice of foot care
- Married individuals have better knowledge of foot care principles
- Farmers have poor foot care practices
- Long duration of diabetic therapy is associated with good foot care knowledge and practice
- Finally, the study highlights poor communication between patients and health care providers, lack of adequate knowledge of diabetic foot care principles, and inconvenient for work were the most commonly cited perceived barriers of foot care practices.

8.2. Recommendations

For policy makers

- This study is suggestive of alarmingly increasing DM prevalence in rural areas. Therefore, due attention should be given to control the disease instead of focusing only infectious diseases.

- In order to emphasize foot care education, policy makers should opening a program of professional diabetic educators and may be podiatrists (foot and ankle surgeon) not to miss opportunities of foot examination as it is done elsewhere.

For the hospital

- The hospital administration should establish a specialized DM clinic in which both follow up and education services integrated.
- Diabetic foot self-care should be incorporated in the health education program of the hospital and it is better if supported with leaflets.

For physicians/nurses

- Physicians should pay due attention in examining diabetic patients for foot ulcer.
- They should educate patients individually about the principle of preventing diabetic foot ulcer beyond prescribing medications by addressing the patients' age, educational status, occupational status, duration of diabetic therapy and other factors.

For the patients

- Should adhere to all educations delivered by health care providers
- Since the risk outweighs the benefit of barefoot working, patients should search alternative shoes convenient for work rather than ignoring it.
- Patients' shall continue to marry and educated in order to change behavior of foot care practices.

For future research

- Future researchers should conduct studies in order to investigate the reason for high DM prevalence among farmers.
- On the other hand, the investigator would like to recommend researchers to conduct interventional studies in order to determine the magnitude of DFU decreased by preventive education program.

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ANNEXES

Annex 1: Information Sheet (English Version)
Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery Graduate Studies

Dear participant!

Here, I the undersigned, at Addis Ababa University College of Health Sciences, School of Allied Health Science, Department of Nursing and Midwifery Graduate Study Program, currently I will be undertaking research on a topic entitled as assessment of self reported knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital. For this study, you will be selected as a participant and before getting your consent, you need to know all necessary information related to the study which will be detailed as follows.

Purpose of the study: the purpose of this study is assessment of self reported knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital.

Participants to be included: all consecutive diabetic patients attending in both inpatient and outpatient medical department of Felege Hiwot Referral during the study period and routine working hours will be recruited until sample size is achieved.

Benefits and risk of the study:

Benefits: For your participation in the study no payment will be granted or has no any special privilege to you. Your responses to the following questions are beneficial to you and other diabetic patients as input in improvement of diabetic foot self-care practices and contribute in an effort made to prevent amputation and sepsis.

Risks: The study will be conducted through interviews and you are being asked for a little of your time, a maximum of 25 min, to help us in this study. There is no possible risk associated with participating in this study except the time spent for responding to the questionnaire.

Confidentiality: Your name will not be written in this form and any information you tell us will not be disclosed to third party. Your participation is voluntary and you are not obligated to

answer any question you do not wish to answer. If you feel discomfort with the question, it is your right to drop it any time you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator.

Address of the principal investigator:

Awole Seid Ali

Cell phone: +251921279837, E-mail: *sawlayehu@gmail.com*

Are you willing to participate in this study?

1. Yes…….. Continue to the next page

2. No …… Skip to the next participant

Annex 2: Consent form (English Version)

In undersigning this document, I am giving my consent to participate in the study entitled as "assessment of self reported knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital, Bahir Dar." I have been informed that the purpose of this study is to assess knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral Hospital. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me. I understood that participation in this study does not involve risks. I understood that Awol Seid is the contact person if I have questions about the study or about my rights as a study participant.

Respondent's signature_____

Interviewer Name_____Signature_____Date_____

Annex 3: Questionnaire (English Version)

Addis Ababa University, **College of Health Sciences**, **Department of Nursing and midwifery**

Graduate Studies

Questionnaire ID No----------

This questionnaire is designed to assess knowledge, practice, and barriers of diabetic foot self-care among patients attending Felege Hiwot Referral hospital.

Direction for Data Collectors: Put **(√)** mark on the boxes in front of options provided.

1. **Socio-demographic characteristics**

1.1. **Sex** Male ☐ Female ☐

1.2. **Age** _____(years)

1.3. **Ethnicity** Amhara ☐ Tigray ☐ Oromo ☐ Gurage ☐

Other(s) _____

1.4. **Marital Status**

Married ☐ Single ☐ Separated ☐ Divorced ☐

Widowed ☐

1.5. **Religion**

Orthodox ☐ Muslin ☐ Protestan ☐ Catholic ☐ Other (s) _____

1.6. **Educational Status**

Illiterate ☐ Read and write ☐ Grade 1-8th ☐

Grade 9-12th ☐ College and Above ☐

1.7. **Occupational Status**

Farmer ☐ Merchant ☐

Governmental employee ☐ NGO employee ☐

Daily Laborer ☐ House wife ☐ Student ☐

1.8. **Monthly Income (ETB)**

≤500 ☐ 501-1000 ☐ ≥1001 ☐

2. **OTHER CLINICAL AND RESIDENTIAL CHARACTERISTICS**

2.1. Where is your resident? Urban ☐ Rural ☐

2.2. What is your type of diabetes?

Type I ☐ Type 2 ☐ don't Know ☐

2.3. How long you have been diagnosed with Diabetes Mellitus?----------years

2.4. Have you ever received any information about Diabetic Foot Care before?

Yes ☐ No ☐

2.5. Did you have any history of foot problems after diagnoses of DM?

Yes ☐ No ☐

2.6. Have you had your feet examined by your doctor or nurse?

Yes ☐ No ☐

3. **KNOWLEDGE/AWARENESS OF DIABETIC FOOT SELF-CARE**

NB: wrong is any answer other than the correct one

3.1. DM patients should take medication regularly because they are liable to get DM complication.

Correct ☐ wrong /don't know ☐

3.2. DM patients should look after their feet because they may not feel a minor injury to their feet.

Correct ☐ wrong /don't know ☐

3.3. DM patients should look after their feet because wounds and infection may not heal quickly.

Correct ☐ wrong/ don't know ☐

3.4. DM patients should look after their feet because they may get a foot ulcer.

Correct ☐ wrong /don't know ☐

3.5. DM patients should not smoke because smoking causes poor circulation to the feet.

Correct ☐ wrong /don't know ☐

3.6. How often do you think you should inspect your feet?

Every day ☐ Any wrong answer /don't know ☐

3.7. If you found redness/bleeding between your toes what is the first thing you do?

Apply dry dressing/seek medical help ☐ Any wrong answer /don't know ☐

3.8. How often do you think your feet should be washed?

Every day ☐ Any wrong answer /don't know ☐

3.9. What temperature of water do you think you should wash your feet in?

Warm/not hot water ☐ Any wrong answer /don't know ☐

3.10. How often do you think you should inspect the inside of your footwear for objects or torn lining

Every day/during taking off ☐ Any wrong answer /don't know ☐

3.11. How often do you think you should wear shoes and socks?

All the times ☐ Any wrong answer/don't know ☐

4. FOOT SELF-CARE PRACTICE.

4.1. Do you examine (inspect) your feet?

More than once a day (3) ☐ Once a day (2) ☐

4-6 times a week (1) ☐ Once a week or less (0) ☐

4.2. Do you check your shoes before you put them on?

Often (3) ☐ Sometimes (2) ☐ Rarely (1) ☐ Never (0) ☐

4.3. Do you check your shoes when you take them off?

Often (3) ☐ Sometimes (2) ☐ Rarely (1) ☐ Never (0) ☐

4.4. Do you wash your feet?

More than once a day (3) ☐ once a day (2) ☐

Most days a week (1) ☐ A few days a week (0) ☐

4.5. Do you check your feet are dry after washing?

Often (3) ☐ Sometimes (2) ☐ Rarely (1) ☐ Never (0) ☐

4.6. Do you dry between your toes?

Always (3) ☐ Often (2) ☐ Sometimes (1) ☐ Rarely /never (0) ☐

4.7. Do you use moisturizing cream on your feet?

Daily (3) ☐ Once a week (2) ☐

About once a month (1) ☐ Never (0) ☐

4.8. Do you put moisturizing cream between your toes?

Daily (0) ☐ About once a week (1) ☐

About once a month (2) ☐ Never (3) ☐

4.9. How often you cut toenails?

About once a week (3) ☐ About once a month(2) ☐

Less than once a month (1) ☐ Never(0) ☐

4.10. Do you wear sandals/slippers?

Most of the time (0) ☐ Sometimes (1) ☐ Rarely (2) ☐ Never (3) ☐

4.11. Do you wear shoes without socks/stockings/tights?

Often (0) ☐ Sometimes (1) ☐ Rarely (2) ☐ Never (3) ☐

4.12. Do you change your socks/stockings/tights?

More than once a day (3) ☐ Daily (2) ☐

4-6 times a week (1) ☐ Less than 4 times a week (0) ☐

4.13. Do you walk around the house in bare feet?

Often (0) ☐ Sometimes (1) ☐ Rarely (2) ☐ Never (3) ☐

4.14. Do you walk outside the house in bare feet?

Often (0) ☐ Sometimes (1) ☐ Rarely (2) ☐ Never (3) ☐

4.15. Do you put your feet near the fire?

Often ☐ Sometimes (1) ☐ Rarely (2) ☐ Never (3) ☐

4.16. Do you put a dry dressing on blisters, cut or burn when you get one?

Never(0) ☐ Rarely(1) ☐ Sometimes(2) ☐ Often(3) ☐

5. BARRIERS TO GOOD FOOT SELF-CARE.

5.1. Have you encounter any barriers that prevent foot self-care practice?

Yes ☐ No ☐

5.2. If yes to Q.5.1. What is (are) the perceived barrier(s) of foot self-care? **Tick all that apply**

I couldn't see well enough ☐

I couldn't reach my feet ☐

I couldn't afford it (money to buy shoes) ☐

I didn't think it was important ☐

I didn't know what to do ☐

Poor communication between patients and physician/nurses ☐

Lack of family support ☐

Bare foot walking common in the society ☐

Inconvenient for work ☐

Lack of motivation ☐

Other possible barrier (s)

_____

_____

Thank you for your cooperation!!

Name of data collector ----------

Signature ----------Date----------

Sign. of supervisor/PI----------

Annex 4: Information Sheet (Amharic Version)

የጥናቱ አጠቃልይ ምንነት ማብራሪያ

<u>በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የነርሲንግ እና ሚድዋይፈሪ ትምህርት ክፍል የድህረ ምረቃ መርሃ ግብር</u>

<u>የተከበሩ የጥናቱ ተሳታፊ!</u>

እኔ ከዚህ በታች የማስፈርምዎት በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ እና ሚድዋይፈሪ ትምህርት ክፍል የድህረ ምረቃ መርሃግብር ተማሪ ስሆን በአሁኑ ወቅት በፈለገ ህይወት ሪፈራል ሆስፒታል የሚከታተሉ የስኳር ህሙማን በእግር ንጽህና አጠባበቅ ዙሪያያላቸውን እውቀት፣ ተግባር እና እንቅፋቶች ላይ ጥናት እያካሄድኩ እገኛለሁ፡፡ በመሆኑም በዚህ ጥናት ዉስጥ እርስዎ እንዲሳተፉ የተመረጡ ሲሆን ከመሳተፍዎ በፊት ግን የጥናቱን ጠቅላላ ይዘት እና ዓላማ እንደሚከተለው አብራራለዎታለሁ፡፡

የጥናቱ ዓላማ፡ ይህ ጥናት የሚያተኩረው በፈለገ ህይወት ሪፈራል ሆስፒታል የሚከታተሉ የስኳር ህሙማን በእግር ንጽህና አጠባበቅ ያላቸውን እውቀት፣ ተግባር እና እንቅፋቶችን ማጥናት ነው፡፡

የጥናቱ ተሳታፊዎች ማንነት፡ በፈለገ ህይወት ሪፈራል ሆስፒታል ተመላላሽ ህክምና እና ተኝተው የሚታከሙ የስኳር ህሙማን በዚህ ጥናት ውስጥ ይሳተፋሉ፡፡

በመሳተፍዎ የሚያገኙት ጥቅም እና ጉዳት፡ በጥናቱ ስለተሳተፉ ቀጥተኛ የሆነ ገንዘብም ሆነ ሌላ ጥቅም አያገኙም፡፡ ነገር ግን የእርስዎ ድምጽ በስኳር በሽታ ምክንያት የሚመጣን አላስፈላጊ የሆነ የእግር መቆረጥ እንዲሁም ኢንፌክሽንን ለመከላከል ይጠቅማል፡፡ በሌላ መልኩ በጥናቱ ስለተሳተፉ ቢበዛ 20 ደቂቃ ከመስጠት ዉጭ ምንም አይነት የአካል ወያም የስነልቦና ጉዳት አይደርስብዎትም፡፡

የመረጃን ሚስጢር መጠበቅ፡ የእርስዎ ስም በመጠይቁ ወረቀት ላይ አይፃፍም፡፡ የሚሰጡን መረጃ በምንም መልኩ ለሶስተኛ ወገን አይታይም፡፡ በጥናቱ ዉስጥ የመሳተፍም ያለመሳተፍም እንዲሁም በፈለግዎት ጊዜ የማቋረጥ መብትዎ የተጠበቀ ነው፡፡ ስለጥናቱ ማንኛውም ዓይነት ጥያቄ ቢኖርዎት ወይም ስለጥናቱ የመጨረሻ ውጤት ማወቅ ቢያስፈልግዎት በሚከተለው የዋናው ተማራማሪ አድራሻ ማግኘት ይችላሉ፡፡

የዋናው ተማራማሪ አድራሻ

ስልክ፡ 0921279837፣ **ኢሜይል**. *sawlayehu@gmail.com*

Annex 5: Consent Form (Amharic Version)

የስምምነት ቅጽ

እኔ ከዚህ በታች የምፈርመው ግለሰብ በፊለገ ህይወት ሪፈራል ሆስፒታል የሚከታተሉ የስኳር ህሙማን በእግር ንጽህና አጠባበቅ ዙሪያ ያላቸውን እውቀት፣ተግባር፣እና እንቅፋቶች ለማወቅ በሚጠናው ጥናት ውስጥ ተሳታፊ እንድሆን መስማማቴን አየገለጽኩ ጥናቱ በፈቃደኝነት ላይ የተመሰረተ መሆኑንም ተረድቻለሁ፡፡ ከዚህ ቀጥሎ በሚገኘው መጠይቅ የምሰጠው መረጃም ሚስጢርነቱ የተጠበቀ እንደሚሆንም በሚገባ ተነግሮኛል፡፡ በጥናቱ ውስጥ ተሳታፊ መሆኔም አለመሆኔም በግሌ ሕይወት ውስጥ ችግር እንደማያመጣብኝም ተነግሮኛል፡፡ በመጨረሻም ስለ ጥናቱ እና የጥናቱ ተሳታፊ እንደመሆኔ ባለኝ መብት ዙሪያ ጥያቄ ቢኖረኝ አወል ሰይድ የተባለውን የጥናቱ ዋና ባለቤት ማናገር አንደምችልም ተረድቻለሁ፡፡

የተሳታፊው ፊርማ----------

የመረጃ ሰብሳቢው ፊርማ----------

Annex 6: Questionnaire (Amharic Version)

መለያ ቁጥር----------

በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የነርሲንግ እና ሚድዋይፈሪ ትምህርት ክፍል የድህረ ምረቃ ፕሮግራም

መጠይቅ (ከእንግሊዘኛ የተተርጎመ)

ይህ መጠይቅ በፈለገ ህይወት ሪፈራል ሆስፒታል የሚታከሙ የስኳር በሽታ ህሙማን በእግር ንፅህና ዙሪያ ያላቸዉን እዉቀት፣ ተግባር እና እንቅፋቶችን ለማጥናት የተዘጋጀ ቅፅ ነዉ።።

ለመረጃ ሰብሳቢዎች መመሪያ፡ በጥያቄዎቹ ፊትለፊት በተዘጋጀዉ ሳጥን የ "√ " ምልክት ያድርጉ።።

ክፍል አንድ. የግል እና ማህበራዊ ሁኔታ የሚመለከቱ ጥያቄዎች

1.1. ጸታ ወንድ ☐ ሴት ☐

1.2. እድሜ----------(በ አመት)

1.3. ብሔር አማራ ☐ ትግራይ☐ ኦሮሞ ☐ ጉራጌ ☐ ሌላ(ይጥቀሱ)------

1.4. የጋብቻ ሁኔታ ያገባ/ች ☐ ያላገባ/ች ☐ የተፋቱ ☐ የሞተባት/ችበት ☐

ተለያይተዉ የሚኖሩ ☐

1.5. ሐይማኖት ኦርቶዶክስ ☐ ሙስሊም ☐ ፕሮቴስታንት ☐ ካቶሊክ ☐

ሌላ(ይጥቀሱ)---------

1.6. የትምህርት ደረጃ አልተማሩም ☐ ማንበብ እና መጻፍ የሚችሉ ☐ ከ1-8ኛ ክፍል ☐

ከ9-12ኛ ክፍል ☐ ኮሌጅ እና ከዚያ በላይ ☐

1.7. የስራ አይነት ግብርና ☐ ነጋዴ ☐ የመንግስት ሰራተኛ ☐ መንግስታዊ

ያልሆነ ድርጅት ሰራተኛ ☐ የቀን ሰራተኛ ☐ የቤት እመቤት ☐ ተማሪ ☐

1.8. ወርሃዊ ገቢ (በብር) ≤ 500 ☐ 501-1000 ☐ ≥ 1000 ☐

2. በአኗኗር እና ከስኳር ህመም ጋር የሚገናኙ ጥያቄዎች

2.1. የመኖሪያዎ አካባቢ የት ነው? ከተማ ☐ ገጠር ☐

2.2. የትኛው አይነት የስኳር ህመም ነው ያለብዎት?

የመጀመሪያው አይነት ☐ ሁለተኛው አይነት ☐ አላዉቀዉም ☐

2.3. በስኳር ህመም ከተያዙ ምን ያህል ጊዜ ይሆንዎታል? ---------- ዓመት

2.4. የስኳር ህሙማን ማድረግ ስለሚገባቸው የተለየ የእግር ንጽህና አጠባበቅ መረጃ ሰምተው ያዉቃሉ?

አዎ ☐ አላዉቅም ☐

2.5. የስኳር ህመም አለብዎት ከተባሉ በኋላ በእግሮዎት አካባቢ ቁስል አጋጥምዎት ያዉቃል?

አዎ ☐ አያዉቅም ☐

2.6. ከዚህ በፊት እግርዎትን በህኪም ወይም ነርስ ተመርምረው ያውቃሉ?

አዎ ☐ አላውቅም ☐

3. <u>የስኳር ህሙማን በእግር ንጽህና እንክብካቤ ያላቸውን እዉቀት የሚገመግሙ ጥያቄዎች</u>

<u>ማሳሳቢያ</u>. የተሳሳተ መልስ (ተቀራራቢ ቢሆንም) እንደአለማወቅ ይቆጠራል።

3.1. የስኳር ህሙማን ራሳቸዉን ከተለያዩ አስከፊ ጉዳቶች ለመከላከል መድሃኒቶችን በትክክል መዉሰድ አለባቸው።

ትክክል ነው ☐ ትክክል አይደለም/አላዉቅም ☐

3.2. የስኳር ህሙማን በእግሮቻቸው ዙሪያ የሚያጋጥሟቸው ትንንሽ ጉዳቶች ላይታወቋቸው ስለሚችሉ በተለየ መልኩ እግሮቻቸውን መከታተል አለባቸው።

ትክክል ነው ☐ ትክክል አይደለም/አላውቅም ☐

3.3. የስኳር ህሙማን በእግራቸው ዙሪያ የሚያጋጥሟቸው የእግር መቁሰል እንዲሁም ኢንፌክሽን ቶሎ ላይድን ስለሚችል በተለየ መልኩ እግሮቻቸውን መንከባከብ አለባቸው።

ትክክል ነው ☐ ትክክል አይደለም/አላውቅም ☐

3.4. የስኳር ህሙማን ባልታሰበ ወቅት የእግር መቁሰል አደጋ ሊያጋጥማቸው ስለሚችል የእግራቸውን ጤንነት መከታተል አለባቸው።

ትክክል ነው ☐ ትክክል አይደለም/አላውቅም ☐

3.5. ሲጋራ ማጨስ ወደ እግር የሚዘዋወረውን የደም መጠን ስለሚቀንስ የስኳር ህሙማን ከማጨስ መቆጠብ አለባቸው።

ትክክል ነው ☐ ትክክል አይደለም/አላውቅም ☐

3.6. በየስንት ጊዜ እግሮዎትን በደንብ ማየት(መፈተሽ) አለብኝ ብለው ይገምታሉ?

በየ ቀኑ ☐ የተለየ መልስ ነው/አያውቁም ☐

3.7. በእግሮዎ ጣት መካከል በጣም የቀላ ወይም የመድማት ችግር ቢያጋጥምዎት በቅድሚያ ምን ያደርጋሉ?

በደረቅ ፋሻ እሸፍናለሁ/ወደ ጤና ተቋም እሄዳለሁ ☐ የተለየ መልስ ነው/አያውቁም ☐

3.8. እግሮዎን በየ ስንት ጊዜ መታጠብ አለብኝ ብለው ይገምታሉ?

በየ ቀኑ ☐ ትክክል አይደሉም/አያውቁም ☐

3.9. እግሮዎን በምን ያህል የሙቀት ደረጃ ባለ ውሃ ነው መታጠብ ያለብኝ ብለው ይገምታሉ?

ለብ ባለ /በጣም ባልሞቀ ውሃ ☐ የተለየ መልስ/አላውቁም ☐

3.10. የጫማዎት የዉስጥ ክፍል(ሶል) አለመቀደዱን እና እግርን የሚጎዳ ነገር አለመኖሩ መረጋገጥ ያለበት በየስንት ጊዜ ነው ብለው ይገምታሉ?

በየቀኑ/ጫማዬን ባወለኩ ጊዜ ☐ የተለየ መልስ/አላውቁም ☐

3.11. የስኳር ህመማን መቼ መቼ ነው ጫማና ካልስ መልበስ ያለባቸው ብለው ይገምታሉ::

ሁል ጊዜ ካለጫማ መሄድ የለባቸውም ☐ የተለየ መልስ/አላውቁም ☐

4. <u>የስኳር ህመማን የእግር ንጽህና አጠባበቅ ተግባር የሚገመግሙ ጥያቄዎች</u>

4.1. እግርዎትን በየ ስንት ጊዜ ትኩረት ሰጠው ያዩታል?

በቀን ከአንዴ በላይ(3) ☐ በቀን አንዴ(2) ☐

በሳምንት ከ4-6 ጊዜ(1) ☐ በሳምንት አንዴና ከዛ በታች(0) ☐

4.2. ጫማዎትን ከመልበስዎ በፊት በትኩረት ውስጡን ይፈትሻሉ?

ዘወትር(3) ☐ አንዳንድ ጊዜ(2) ☐ አልፎ አልፎ(1) ☐ አላደርግም(0) ☐

4.3. ጫማዎትን ሲያወልቁ በትኩረት ውስጡን ይመለከታሉ?

ዘወትር(3) ☐ አንዳንድ ጊዜ(2) ☐ አልፎ አልፎ(1) ☐ አላደርግም(0) ☐

4.4. እግርዎትን በየስንት ጊዜ ይታጠባሉ?

በቀን ከአንዴ በላይ(3) ☐ በቀን አንዴ(2) ☐

በሳምንት ብዙ ቀናት(1) ☐ በሳምንት የተወሰኑ ቀናት(0) ☐

4.5. እግርዎትን ከታጠቡ በኋላ በጥሩ ሁኔታ መድረቁን ያረጋግጣሉ?

ዘወትር(3) ☐ አንዳንድ ጊዜ(2) ☐ አልፎ አልፎ(1) ☐ አላደርግም(0) ☐

4.6. እግርዎትን ከታጠቡ በኋላ በእግርዎ ጣት መካከል ያለውን ቦታ በጥሩ ሁኔታ ያደርቃሉ?

ሁል ጊዜ(3) ☐ ዘወትር(2) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ/አላደርግም(0) ☐

4.7. እግርዎትን ለማለስለስ ቅባት ይጠቀማሉ?

በየቀኑ(3) ☐ በሳምንት አንዴ(2) ☐ በወር አንዴ(1) ☐ አልጠቀምም(0) ☐

4.8. በእግርዎ ጣትዎ መካከል ያለውን ቦታ ለማለስለስ ብለው ቅባት ይጠቀማሉ?

በየቀኑ(0) ☐ በሳምንት አንዴ(1) ☐ በወር አንዴ(2) ☐ አልጠቀምም(3) ☐

4.9. ጥፍርዎትን በየስንት ጊዜ ይቆርጣሉ?

በሳምንት አንዴ(3) ☐ በወር አንዴ(2) ☐ በወር ከአንዴ በታች(1) ☐ ቆርጬ አላውቅም(0) ☐

4.10. ነጠላ ጫማ ይጠቀማሉ?

አብዛኛውን ጊዜ(0) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ(2) ☐ አልጠቀምም(3) ☐

4.11. ጫማ ሲጫሙ ካልስ ወይም ታይት ሳይጠቀሙ አድርገው ያውቃሉ?

ዘወትር(0) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ(2) ☐ አላደርግም(3) ☐

4.12. የጫማዎን ካልስ በየ ስንት ጊዜ ይቀይራሉ?

በቀን ከአንዴ በላይ(3) ☐ በየቀኑ(2) ☐

በሳምንት ከ4-6 ጊዜ(1) ☐ በሳምንት ከ4ጊዜ በታች(0) ☐

4.13. በሞኖርያዎ ቤት ውስጥ በባዶ እግርዎት ይጓዛሉ?

ዘወትር(0) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ(2) ☐ አልጓዝም(3) ☐

4.14. ከሞርያዎ ቤት ዉጭ በባዶ እግርዎት ይጓዛሉ?

ዘወትር(0) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ(2) ☐ አልጓዝም(3) ☐

4.15. እግርዎትን ወደ እሳት አስጠግተው ይሞቃሉ?

ዘወትር(0) ☐ አንዳንድ ጊዜ(1) ☐ አልፎ አልፎ(2) ☐ ኡድረጌ አላቅም(3) ☐

4.16. በእግርዎት አካባቢ የመቁሰል ወይም በስለት የመቆረጥ ሁኔታ ሲያጋጥሞዎት በደረቅ ፋሻ ያስሩታል/ይሸፍኑታል?

አላደርግም(0) ☐ አልፎ አልፎ(1) ☐ አንዳንድ ጊዜ(2) ☐ ዘወትር(3) ☐

5. <u>የስኳር ህሙማንን ጥሩ የሆነ የእግር ንጽህና አጠባበቅን እንዳይተገብሩ የሚያደርጉ አንቅፋቶች</u>

5.1. የእግርዎን ንጽህና አጠባበቅ በጥሩ ሁኔታ እንዳይተገብሩ የሚያደርግ(ጉ) እንቅፋቶች/ሁኔታዎች አሉ?

አዎ ☐ የለም ☐

5.2. ለተራ ቁጥር 5.1. መልስዎ አዎ ከሆነ፤ በእርስዎ እይታ(ሃሳብ) እነዚያ እንቅፋቶች እነማን ናቸው?

ማሳሰቢያ፡ ከአንድ በላይ መልስ ሊኖርዎት ይችላል

እግሬን በደንብ መመልከት አልችልም /ያስቸግረኛል ☐

እግሬ ላይ መድረስ አልችልም ☐

ለእግር ንጽህና አጠባበቅ የሚወጣውን ወጪ መሸፈን አልችልም ☐

የእግር ንጽህናን መጠበቅ ጠቃሚ ነው ብየ አላስብም ☐

የእግር ንጽህና አጠባበቅ መርሆችን አላውቅም ☐

በጤና ባለሙያው እና በታማሚው መካከል ያለው ግኙኝነት ብዙም አስተማሪ አደለም ☐

በቤተሰብ ዉስጥ የሚረዳኝ ስሌሌለ ይከብደኛል ☐

በማህበረሰቡ ዉስጥ በባዶ እግር መሄድ የተለመደ ነው ☐

ለስራ ስለማይመቹኝ አልተገበረውም ☐

ብዙም የመነሳሳት መንፈስ/ዴንታ የለኝም ☐

ሌላ ተጨማሪ ምክንያት ካለዎት ይጥቀሱ:----------

ለትብብርዎ በጣም አመሰግናለሁ!!

የመረጃ ሰብሳቢው ስም----------ፊርማ----------ቀን----------

የሱፐርቫይዘሩ ወይም የዋናው አጥኚ ፊርማ----------

Annex 7: Declaration

This thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Principal investigator

Name_____Signature_____Date_____

Advisor

Name_____Signature_____Date_____