

WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE

DEPARTMENT OF NURSING

DIABETIC FOOT ULCER PREVENTIVE PRACTICE AND ASSOCIATED FACTORS AMONG DIABETIC PATIENTS ATTENDING DIABETIC CLINIC AT WOLKITE UNIVERSITY SPECIALIZED TEACHING HOSPITAL GURAGE ZONE ETHIOPIA 2023.

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WOLKITE, ETHIOPIA

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ACRONYMS

WHO	World health organization
BSc	Bachelor of sciences

ABBREVIATIONS

AOR	Adjusted odds ratio
BMI	Body mass index
CI	Confidence interval
COR	Crude odds ratio
DM	Diabetes mellitus
DF	Diabetic foot
DFU	Diabetic foot ulcer
ETB	Ethiopian birr
IRB	Institutional review board
Nf	Number of final samples
SD	Standard deviation
SPSS	Statistical package for social science
WUSTH	Wolkite University Specialized Teaching Hospital

SYMBOLS

D	Margin of error
N	Number of samples
P	Probability

ABSTRACT

Background: Diabetic foot ulcer is one of the chronic devastating complications of diabetes mellitus that occurs because of long-term complications that damage to the nerves and reduced blood supply in lower extremity. It is one of the leading causes of lower extremity amputation in adults of working age in developing countries.

Objective: This study aims to assess the level of preventive practice of diabetic foot ulcers and associated factors of diabetes patients who have follow-up at Wolkite University Specialized Teaching Hospital, Gurage Zone.

Methods and Materials: An institution-based cross-sectional study was conducted from May 20 to June 30,2023 at Wolkite University Specialized Teaching Hospital, Gurage Zone, South western Ethiopia. A convenient sampling method was used to select 295 patients with diabetes included in the study. Data was collected using semi-structured questionnaires after pre-test have been done. Descriptive statistics and logistic regression were performed using SPSS version 24.

Result: A total of two hundred ninety-five diabetic patients were participated in this study with the response rate of 100%. Around half (50.8%) of the respondents have good diabetic foot ulcer preventive practice. Sex (being male) (AOR: 4.771, 95% CI: 1.107, 20.570), family history of diabetes (AOR: 4.89, 95% CI: 1.05, 22.56), history of diabetic foot ulcer (AOR: 10.93, 95% CI: 1.40, 111.4) and blood glucose level check-up (AOR: 3.78, 95% CI: 1.11, 12.77) are positively associated with good foot ulcer preventive practice while, whereas occupation (being farmer) is negatively associated.

Conclusion and recommendation: The magnitude of diabetic foot ulcer preventive practice was found to be less, where only around half (50.8%) of them had good practice. Sociodemographic factors, Diabetic related information's, Behavioral factors and Clinical factors were the independent predictors of diabetic foot ulcer preventive practice in the study participants. So, health professionals are recommended to enhance patients' level of preventive

practices through teaching and coaching them on activities of preventive practices. They also should give special emphasis during follow-up for the patients who are farmers and educating the patients to regularly to check their blood glucose. Regional health bureau and Zone's health department should give emphasis on enhancing the preventive measures of DFU as one of the major services for the DM patients that prevents serious foot complication.

Key Words: Diabetic foot, preventive practice, ulcer

CHAPTER ONE: INTRODUCTION

1.1 Background

Diabetes mellitus is one of the metabolic diseases characterized by increased levels of blood glucose above everyday range, resulting from defects in insulin secretion and or resistance of tissues towards its motion (1). It is broadly speaking classified under type I, type II, and others. From the total cases of diabetes, type II diabetes accounts for 90% to 95% of all diabetes instances (2). The incidence of diabetes mellitus is escalating globally in relation to longer life expectancy and shifting to a sedentary life-style and adjustments in weight loss plan (2,3). Diabetes should have been ended up with its overwhelming acute and persistent complications if not well controlled (4). The problems of DM can additionally be categorized as micro-vascular, such as neuropathy, nephropathy, and retinopathy, or macro-vascular, which includes cardiovascular and peripheral vascular disease. Enhancing self-care exercise and health looking for conduct with glycemic manipulate and life style modification play a vast role in prevention of such issues (5).

DFU is one of the essential long-term issues of diabetes. It is a pores and skin sore with full thickness loss of pores and skin around the foot following neuropathic and/or vascular (peripheral artery disease) complications. These complications mostly occur in relation to hyperglycemia which brings three pathophysiologic change particularly neuropathic, vascular, and immune system components (1,6). DFU may additionally later develop in tissue necrosis which can result in a want for lower extremity amputation (7). Among diabetic patients with such problems, the majority of patients have been type II diabetes (97.2%) (3,7,8). The proportion of persons with diabetes and a history of foot ulceration is understandably higher than the proportion with an active ulcer; 3.1 to11.8% of persons with diabetes, or 12.9 million to 49.0 million persons worldwide and 1.0 million to 3.5 million in the United States alone, have a history of foot ulceration (9). Implementation of interprofessional clinical guidelines for the prevention of neuropathic diabetic foot ulceration has demonstrated positive effects regarding ulceration and amputation rates (10). According to the modified version of international working group of diabetic foot (IWGDF) classification the overall danger of DFU is around 45% (11).

DFU is the most preventable complication of DM with proper foot care. For which diabetes patients need acceptable training and focus (12,13). Once a man or woman knows that he/she is diabetic, and or develop DFU or has any of its manifestation, it is essential to work intensively with the individual to practice the preventive measures of DFU which avoids an amputation (14).

DFU was strongly prejudiced with lack of foot self-care practice. Such as washing and drying their toes regularly in a proper manner, using suitable footwear both in indoors as well as outdoors always and not walking bare foot.

Implementing those practices could lessen the occurrence of DFU, however want strong multi-disciplinary dedication to empower diabetic patients in their foot care practice (3,15,16). So, educating clients on foot self-management and self-care, motivating them on better glycemic control, and developing adequate competencies to maximize the use of preventive methods are regarded as the cornerstone to stop DFU.

1.2 Statement of Problems

The intricate complications of diabetes mellitus and occurrence of diabetes mellitus are increasing due to population expansion, urbanization, increased aging, reduced physical activity and dietary changes (3). Currently, the calculated worldwide prevalence of diabetes among adults aged 20–79 years, the prevalence of diabetes is 9.3% with 463 million people living with diabetes worldwide (18). Among those, over 80% live in middle and low-income countries (16). If this trend continues, there will be 578 million adults with diabetes by 2030, and 700 million by 2045 present with the high coverage of type II diabetes globally (18).

Patients with diabetes face an excessive risk of developing series health conditions including diabetic foot ulcer. Those complications are becoming the predominant of the world health contributing to a major reason of morbidity and mortality (19). Peoples developed DFU worldwide was estimated that 9 to 26 million According to the international diabetic record of WHO 2019 (4). At some point about 10–15% of people with diabetes develop foot ulcer. On the other way, about 5–24% of the DFUs will leads to limb amputation (9,13). If necessary, care is not provided, DFU can results in infection, gangrene, amputation, and even death. In general patients with DM is 15 times higher limb amputation than patients without diabetes. It is

estimated that about 50%-70% of all lower limb amputations are resulted by DFU (20).

DFU place a significant financial burden on healthcare and society, and become the source of major suffering and costs for diabetic patients in general (17). It can also be the reason for long-term hospitalization, increased medical costs, short life expectancy and poor quality of life (18). These undesired effects are farther worsen in diabetes sufferers if amputated (4,8).

Epidemiological surveys endorse that Africa has the second highest global prevalence of DFU among diabetics and the occurrence of foot ulcer in Ethiopia is about 15.5% with one amputation (20). As the reports of most of the studies, different factors like age, sex, residence, academic status, period of DM, household records of DM, and co-morbidity have been of the factors appreciably associated with the preventive practices of DFU. Diabetic patients who had practiced DFU prevention were less vulnerable to develop DFU than those Diabetic patients who had poor foot self-care(3). Despite the huge burden of DFU, the preventive activity used to be so poor which degrees from not practicing at all to the list bit even with excessive risk of creating foot ulcer (24). The prevalence of DFU in Ethiopia is relatively increasing, ranging from 11.27% to 13.6 % (3,19,21). Even though the prevalence and self-care practice of DFU has been studied in some hospitals of Ethiopia, almost all were conducted in hospitals other than Wolkite University Specialized Teaching Hospital with the low proportions of patients practicing DFU preventive measures. Additionally, according to our experience, no one gives that much emphasis on the preventive practices of DFU, and no studies indicated the level of DFU preventive practice and associated factors at this hospital level.

The prevalence of DFU and its level of preventive practice is not known in this hospital. Therefore, this study aims to determine, the level of preventive practice and associated factors of diabetic foot ulcer among adult diabetic patients attending diabetic follow up/ chronic care at Wolkite University Specialized Teaching Hospital, Gurage Zone, South western Ethiopia a

1.3 Significance of the study

This study was determining the preventive practice of diabetic foot ulcers among diabetic patients attending diabetic follow-up clinics at Wolkite University Specialized Teaching Hospital. Also, it would help to identify associated factors which determine the preventive practice of DFU in the study area. Determination of the level of DFU preventive practice would help to understand the extent of its impact to create appropriate strategies and guidelines for the prevention of the problem. So that, hospital administrators and other stakeholders may utilize the findings for the development or enhancement of programs which focus on DFU prevention. Additionally, this study could provide the input and evidence-based data on DFU preventive practice for health professionals who act up on patients with DM especially for nurses. Finally, the finding would also be the baseline for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A diabetic foot ulcer is a severe and complicated complication of diabetes that is characterized by occurrence of lesions in the deep tissues related with the neurologic and peripheral vascular impairment of the lower limb under the ankle (22). The prevention of foot ulcers desire to contain a multidisciplinary team with extraordinary applicable due on prevention of lower limb amputation. This group desires to contain the diabetic affected man or lady as an active member that work with the group and majorly practice the measures that help to quit accidents or DFU (23). And a complete of fifty-two preceding studies involving DFU, risk factors, its prevalence, guidelines, preventive practice, reports and distinctive many related literatures on DFU have been reviewed which had been posted between 2014 and 2021. Then the prevalence, preventive practices of DFU and related factors, detect out about methods, and gaps in the study will be severely analyzed.

2.2 The Prevalence of DFU preventive practice

Study performed at Chinese general hospital reveals that, related to the stage of practice on foot self-care, solely 22.4% had properly practiced while 71.2% and 6.4% had good and poor scores, respectively (24). Prevention of diabetic foot were generally not satisfactory in most diabetic patients practically (8). A cross sectional study conducted in Southern India confirmed that 40% respondents exhibited desirable practice of foot care (25). A cross sectional study con ducted at a clinic in Raze Hospital, affiliated to Gallian University of Medical Sciences, also showed that the practice level of diabetic foot care was only 8.8% with a good practice; most of the individuals 91.2% had a poor practice, and the mean score of patients' practice was 7.6 (± 2.5) (12)**.** The level of knowledge and practice remained poor in China even they had multiple admissions for diabetic foot issues. The number of patients with poor practice was also higher with 61.8% with the score of less than median in terms of practice (26). According to the study carried out in Indonesia the average standard score for foot-care practice was once 47.4%, which can be classified as poor based on the operational definition of the study (27). The other study

accomplished in Iraq revealed that the majority of contributors have been on average practice (40%) and the total mean practice of this study is (5.9 ± 2.1 SD) (28).

According to Africa, study accomplished in Tanzania showed that; from the preventive practices, only foot self-inspection was carried out regularly (6–7 days a week) by way of 37.9 percent of patients, the majority of whom already had DFU (29). The other study carried out in Sudan showed that only 42.6 percent of the study individuals had properly self-care practice towards prevention of DFU (30).

Among some studies conducted in Ethiopia, there were one which conducted at Gondar Referral Hospital, North West Ethiopia, mentioned that; involving diabetic foot self-care practice, precise foot self-care exercise was observed amongst 36.6% of contributors and the final 63.4% of study contributors poorly practiced foot self-care (3). Other study performed in Oromia region confirmed that about more than half of the respondents 57.8% carried out regular foot care, whereas 42.2% participants did not perform annual foot care check-up (31). Additionally, study performed in Bahir Dar Felegehiwot Hospital showed that regarding the standard diabetic foot self-care practice of study participants 54.6% had appropriate foot care practice and 45.4% had poor foot care practice (32). Study conducted in Dessie referral clinic showed 39% of sufferers with DM had appropriate practice on diabetic foot self- care (33). Study conducted at Debre Berhan referral hospital confirmed that 44.7% of participants had appropriate self-care practices, among them 59.3% mentioned they checked their feet every day (34). And study carried out at Benishangul Gumuz Regional clarify that a significant range of diabetes patients had a low level of self-care practice which was directly not mentioned (35).

2.3 Factors associated with DFU preventive practice

According to different literatures, there were different factors associated with the preventive practices of diabetic foot ulcer. Those factors are basically categorized under Socio demographic factors; diabetes related factors, clinical factors and or behavioral factors. Based on the reviewed literatures, some of them are described below.

2.3.1 Socio demographic factors

The study carried out in India revealed there was relatively high-quality correlation between educational level and diabetic foot ulcer preventive practice with Pearson value 0.493 (p-value < 0.001). And it is to be cited right here that sufferers trained with secondary level and above were having good practice rankings (25).

The other study performed in Iran revealed that income, location of residence, marital conditions were the predictors of preventive practice in sufferers with diabetes (12). Additionally, study conducted at Saudi Arabia stated that mean practice scores differed significantly according to age of patients, sex of the sufferers (male sufferers had an extensively greater mean practice score than females, and patients' marital status (patients who were no longer married had the worst mean score (5.71±2.27), while married patients had the absolute best mean ratings (6.59±1.82). Educational level had significant effect on patients' practice scores ($p<0.001$). Those who had university education had the highest mean practice scores (7.51±1.56), while those who were illiterate had the lowest mean practice scores (5.18±1.96). As regard patients' occupation, unemployed patients had lowest mean practice scores (5.43±1.90), while employed patients had the highest mean practice scores (7.67±1.52). According to patients' occupation there were statistically significant differences in practice scores ($p<0.001$), Prevention of DFU and the mean practice scores related to foot care are least among patients within the age group >60 years, females, widowed, illiterate and unemployed participants (8). In the other study conducted at Iraq, the practice score was significantly higher among urban residents, patients with higher socio-economic status and age group (40–70 years) ($P < 0.05$) (32). According to the one study conducted in Sudan, the practice was highly correlated with an higher level of education, medium income, unemployment and increase in ages (≥51 years) (30). According to the study performed to verify the barriers of proper foot self-care practices in Dessie, Ethiopia, revealed that, the practice of DM sufferers on diabetic foot self-care used to be considerably associated with sex, age, marital status, and residence. Females had 2.07 greater practice than males (23). Patients with age 21–30 years had 6.42 times ((AOR: 6.42, 95% CI (1.54–26.8)), patients with 31–40 years had 7.4 times ((AOR: 7.4, 95% CI (1.42–39.05)), and patients with

41–50 years had 8.4 times ((AOR: 8.4, 95% CI (1.4–50.6)) proper practice than those higher than sixty years. Patients not married were 65% less proper practice than married patients (AOR: 0.35, 95% CI: 0.150–0.81). Those patients residing in the rural area were 69% less than those dwelling in urban (AOR: 0.319, 95% CI: 0.18–0.545), and participants whose educational level is of grades 9–12th are 2.968 times more probably to practice diabetic foot care as compared to illiterates. On the other hand, individuals whose occupation is government employees are 5.63 times more probably to practice foot care as compared to farmers (33). The study carried out in Bahir Dar also confirmed that there is an association between place of residence and inconveniency ($\chi 2$ = 61.617, P = 0.000) (32)**.** And the study performed in Western Oromia showed that, being female, residing in urban, married, having good, and merchant were associated with self-management practice (31).

2.3.2 Diabetic information related factors

The study carried out in Iran showed that records of hospital stay due to DFU was once the predictors of preventive exercise in sufferers with diabetes. Another study performed at China, the duration and family records of diabetes had been determined to be significant. Those with more than 10 years of diabetes (AOR 0.54, 95% CI, 0.30 to 0.98) and with household records of diabetes (AOR 0.52, 95% CI, 0.30 to 0.89) had been 50% much less possibly to have good practice scores (12,24). According to fasting blood sugar control, mean practice scores were significantly different ($p<0.001$). Patients with acceptable blood sugar control have highest mean practice scores (6.60±1.80).According to the study conducted at Saudi Arabia, patients with poor fasting blood sugar control and type 2 diabetes were significantly associated with DFU preventive practice (8). And according to the study conducted at Iraq, the practice score was significantly higher among patients with longer duration of DM and those with family history of DM,(P < 0.05) (37). The study conducted in Sudan showed that the practices was notably correlated with longer duration of diabetes > 10years, family history, and training about diabetes issues and diabetic foot care (30). And the study performed at Bahir Dar showed having support from family had been related with self-management activity which may also in-turn influences DFU preventive practices (31).

2.3.2 Clinical factors

Patients with type 2 diabetes had significantly lower mean scores than patients with type 1 diabetes (5.99±2.01, 8.08±1.16, respectively, $p<0.001$) (8). And in the study conducted at Iraq, the practice score was significantly greater among obese sufferers (28). Study conducted at Dessie, Ethiopia showed, the practice of patients with DM on diabetic foot self-care was highly associated with co-morbidity. Those sufferers with no co-morbidity had 60% less ((AOR: 0.406, 95% CI (0.18–0.88)) practice than those with co-morbidity indicating that co-morbid sufferers had been extra practicing DFU preventive measures (33).

2.3.3 Behavioral factors

According to the study conducted at Saudi Arabia mean practice scores related to foot care and prevention of DFU are least among patients who were smokers than Nonsmokers. Nonsmokers had significantly higher mean scores than smokers (6.12±2.02, 5.39±1.92, $p=0.022$) (8). The other study performed in Sudan showed that the practices was highly correlated with managed diabetes mellitus which indicating correct adherence to diabetic therapy (30). Good glycemic management is necessary in preventing neuropathy and peripheral vascular disease; which are the two major complications predisposing to DFU. So, controlling blood glucose stage in a normal/ suitable range is one of the preventive practices for DFU (38).

2.5 Conceptual framework

Conceptual framework is developed after assessment of preceding researches, foot care guidelines, and global diabetic records. It primarily developed from some literatures which investigate their association (3,8,12,25,32,37). The graph indicates the relationship between preventive activity of DFU and the viable influential elements like socio-demographic factors, behavioral factors, clinical factors, and diabetes-related factors.

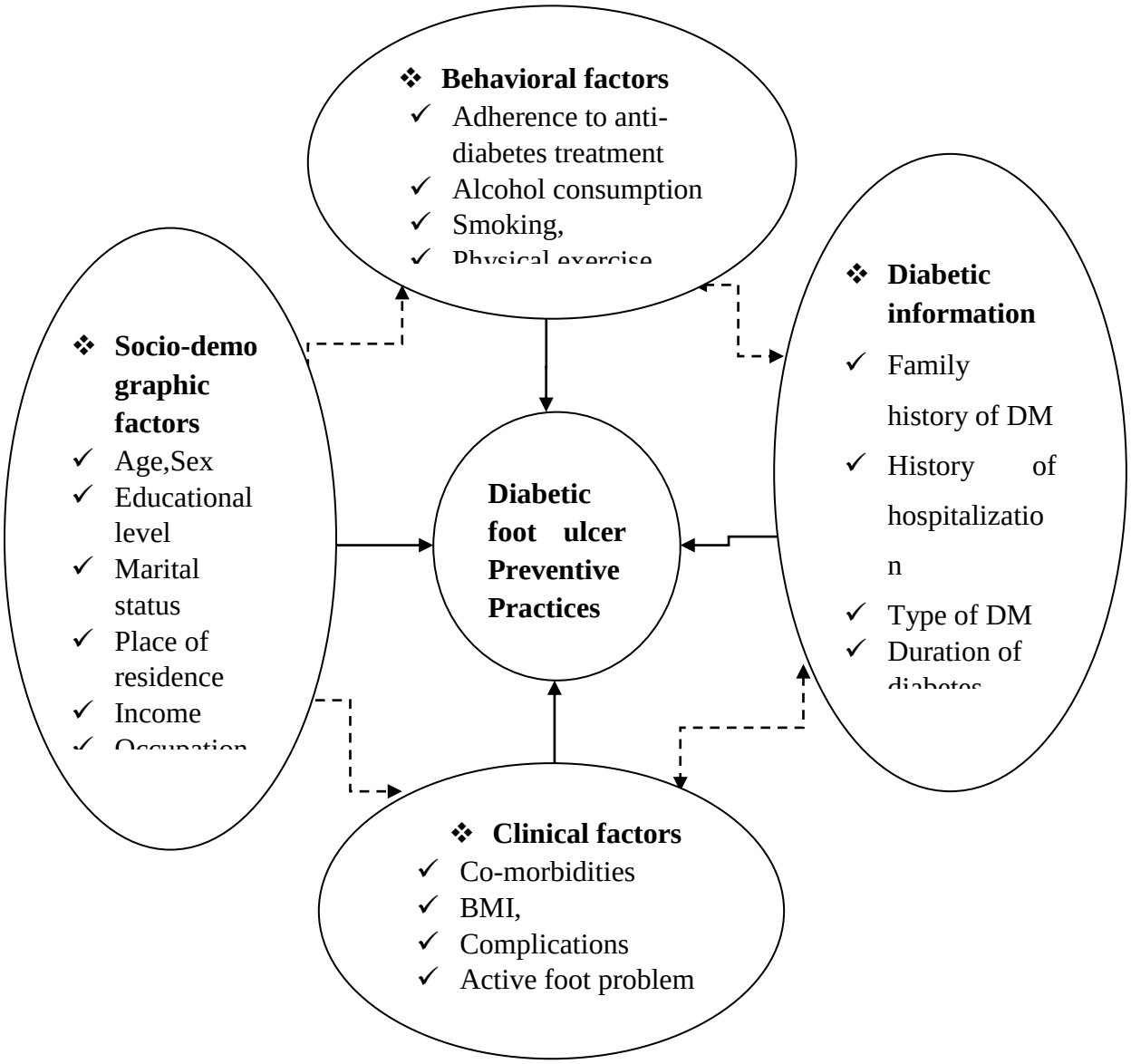


Figure 1: Conceptual framework of Diabetic foot ulcer Preventive Practices and associated factors at Wolkite University Specialized Teaching Hospital, Gurage Zone,2023.

CHAPTER THREE: OBJECTIVES

3.1 General Objective

To assess the level of diabetic foot ulcer preventive practice and associated factors among diabetic patients attending diabetic clinics in Wolkite University Specialized Teaching Hospital, Gurage Zone, 2023.

3.2 Specific Objectives

- ✓ To determine the level of diabetic foot ulcer preventive practice among diabetic patients attending Wolkite University Specialized Teaching Hospital, Gurage Zone in 2023.
- ✓ To identify factors associated with the preventive practice of diabetic foot ulcer among DM patients attending Wolkite University Specialized Teaching Hospital, Gurage Zone in 2023.

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study setting

The study was conducted at Wolkite University Specialized Teaching Hospital (WUSTH) from May 20 – June 30. WUSTH is 158km from Addis Ababa to the south in the Gurage zone, Southern Nation, Nationalities, and Peoples Region. The hospital serves as a teaching and referral hospital. Currently, it is providing emergency services, outpatients' services, inpatients services, major and minor surgeries, maternal care, pediatrics services, antiretroviral therapy (ART) and Tuberculosis (TB) treatment clinics, laboratory, radiography services, and EPI services for the community.

4.2 Study design and period

An institutional based cross-sectional study was conducted in May 20 – Jun, 2023.

4.3 Population

4.3.1 Source Population

The sources population of the study was all patients with DM who attend diabetic or chronic care clinics of Wolkite University Specialized Teaching Hospital, Gurage zone.

4.3.2 Study Population

The study population was adult patients with DM having follow-up during the study period at the diabetic or chronic care clinics Wolkite University Specialized Teaching Hospital, Gurage zone.

4.3.3 Study Subjects

All the selected DM patients who fulfill the inclusion criteria

4.4 Eligibility Criteria

4.4.1 Inclusion Criteria

Adults (18 years and above) who are known DM patients for the past 6 months and have an appointed within the data collection period at Wolkite University Specialized Teaching Hospital was included in the study.

4.4.2 Exclusion Criteria

Those patients with DM who are critically ill and not able to communicate in the study was excluded from the study.

4.5 Sample Size Calculation and Sampling Procedure

4.5.1 Sample Size Calculation

Sample size (n) is calculated using single proportion formula. Considering the following assumptions: standard normal distribution with confidence interval (CI) of 95% (Z=1.95), tolerable margin of error (d=0.05), and anticipated proportion of diabetic foot ulcer preventive practice of 39 % (p) taken from a study conducted in Dessie (33)

The total registered patients with DM at WCSH are 1000. Therefore:

$N=\frac{Z\alpha/2^2(p(1-p))}{d^2} = \frac{(1.96)^2\ (0.39\ (1-0.39))}{(0.05)^2} = 366$

Since the total population is less than 10,000, a correction formula is used

$$Nf = \frac{no}{1+\frac{no}{N}} = \frac{366}{1+\frac{366}{1000}} = 268$$

*By adding a non-response rate of 10 %, the final sample size will be 295.

4.5.2 Sampling Procedure

To reach the study subjects, first we got the patient flow of WUSTH. Then, to select study subjects at this hospital, Convenience sampling was used based on daily patient flow. The patient's follow-up register with appointment date in the Diabetic or Chronic Care Clinic was used as a sampling frame (to prevent obtained double data and to get clinical related data with corresponding study participants). Finally, the real data was collected from those who full fill the inclusion criteria.

4.6. Variables

4.6.1 Dependent Variable

Magnitude of DFU preventive practice

4.6.2 Independent Variables

Socio-demographic factors: Age of the patient, Sex, Education level, Place of Residency, Income of the patient, and Occupation

Diabetic related information: Type of DM, Duration of diabetes, Type of diabetic management and Family history of DM

Clinical factors: Co-morbidity, active foot ulcer or its history

Behavioral factors: Adherence to treatment, Alcohol consumption, Physical activity and or Smocking

4.7 Operational Definition

Diabetic foot ulcer: Non traumatic lesions of the skin (partial or full thickness) on the foot of a person who has diabetes mellitus (39).

Good Diabetic Foot Ulcer Preventive Practice: Those patients who score above mean score for diabetic foot ulcer preventive practice questions (above mean score of 1.4695).

Poor Diabetic Foot Ulcer Preventive Practice: Those patients who score less than or equals to mean score for diabetic foot ulcer preventive practice questions (less than or equals to mean score of 1.4694)

4.8 Data Collection Tools

Data was collected using semi- structured questionnaire and record review. The questionnaire has five-parts, Part I; Socio-demographic variables with 8 items, Part II; Diabetic related information with 9 items, Part III; Behavior related factors with 7 items, Part IV; Clinical factors with 9 items will be taken from patient chart and Part V; Practice related questions which are 15 items having yes/no response.

The validity would be maintained through content validity by sharing the tool to experts who have research experience on the topic area.

4.9 Data Quality Control

To ensure quality of the data, the questioner was examined by senior experts to the area of study for content-validity.

To maintain reliability of the tool, the questioner was first be translated from English to Amharic languages then back to English by language expertise. Three BSc nurses was collected the data and all completed data collection forms was examined for completeness and consistency during data management, storage, cleaning and analysis. Then the data was entered and cleaned by principal investigator before analysis.

4.10 Data Processing and Analysis

The collected data was checked and cleaned for any missing and inconsistency, and then it was entered into Epi Data version 3.1 and then exported to SPSS version 24 for analysis. Descriptive statistics was performed to identify the distribution of socio-demographic characteristics of the study participants. Then the outcome variable was dichotomized based on operational definition and the proportion was determined. In addition, bivariate logistic regression was used to assess the association between dependent and independent variables. To control confounding effect, those variables having p-value <0.25 in bi-variate logistic regression was entered to multivariable logistic regression.

Finally, AOR was determined and those variables having p-value <0.05 as well as CI not including number 1 in the final model of logistic regression analysis was considered as statistically significant.

4.11 Ethical Consideration

Ethical clearance and an approval letter were obtained from the Wolkite University College of Medicine and Health Science. Support letters was also obtained from Zone Health Department to the hospital. After fully explaining the purpose, aim and possible benefit of the study, written informed consent was obtained from each patient before starting the data collection.

The study participants would be informed about their rights to refuse to join, ask any question or withdraw at any particular point during the data collection process without being frustrated. The

collected data was kept confidential by using codes and put in enveloped Posta after data collection and used only for this research purpose not to expose the respondents' information.

4.12 Dissemination Plan

The study findings were disseminated to Wolkite University library to be used as some source of information regarding the topic. It was also being sent to Gurage zone health Department and further the public hospitals of the zone, to be used as an input or as a baseline to develop some strategy which may focus on diabetic foot ulcer preventive measures. The finding was also being presented in different conferences and was submitted for publication.

CHAPTER FIVE: RESULTS

5.1. Socio-demographic characteristics

Two hundred ninety-five diabetic patients participated in this study with the response rate of 100%. The mean age of the study population was 43.26 ± 15.59 years with the minimum age of 16 years and maximum 75 years. Among the study participants, 168 (56.9%) were males, 173 (58.6%) were urban dwellers and 196 (66.4%) were married. Fifty-one (17.3%) had educational status of unable to read and write, eighty-six (29.2%) can read and write, sixty-three (21.4%) had diploma and above, around half of participants were orthodox Christianity followers (52.9%), 19.00% of study populations were farmers and around 60% of the respondents had monthly income of 1000-5000ETB.

Table1: Socio demographic distribution of diabetic patients attending diabetic/ chronic care clinic at Wolkite Specialized Teaching hospital, 2023 (n = 295).

Items	Responses	Frequency	Percent
Sex	Male	168	56.9
	Female	127	43.1
Age	18-45	165	55.9
	>45	130	44.1
Place of residency	Urban	173	58.6
	Rural	122	41.4
Marital status	Married	196	66.4
	Single	57	19.3
	Divorced	12	4.1
	widowed	30	10.2
Religion	Protestant	42	14.2
	Orthodox	156	52.9
	Catholic	6	2.0

	Muslim	91	30.8
Occupation	Merchant	56	19.0
	Government employee	34	11.5
	Farmer	56	19.0
	Non-governmental employee	46	15.6
	Student	52	17.6
	Other**	51	17.3
Educational status	Unable to write and read	51	17.3
	Can read and write	86	29.2
	Primary	50	16.9
	Secondary	45	15.3
	Diploma	20	6.8
	Degree and above	43	14.6
Income	<1000 ETB (low)	38	12.9
	1000-5000 ETB (medium)	177	60.0
	5000-10000 ETB (good)	15	5.1
	>10000 ETB (better)	65	22.0
Total		295	100.0

Other**- carpenter, butcher, daily laborer, shoe shine…etc.

5.2. Behavioral characteristics

236 (80.8%) of the respondents reported they were taking medication properly and 209 (70.8%) had regular follow up (6.9% weekly, 22.9% every two weeks, 35.3% every two month and 34.9% when needed) and 86 (29.2%) did not attend their follow up regularly. One hundred thirty-one (44.4%) of the study participants were checking their blood glucose level regularly. Concerning to smoking status 34 (11.5%) of the study populations were smokers and 174 (59%)

of the respondent's examined their feet. Among those 21.3% examined by their self and 78.7% by health professionals. Among the study participants, 141 (47.79%) performed regular exercise.

Table2: Behavioral characteristics of diabetic patients attending diabetic/ chronic care clinics of Wolkite Specialized Teaching Hospital, 2023. (n=295)

Items	Responses	Frequency	Percent
Reported as taking medications properly	No	59	19.2
	Yes	236	80.8
Frequency of follow-up	Weekly	24	6.9
	Every two week	73	22.9
	Every two month	95	35.3
	When needed	103	34.9
Regular blood glucose check-up	No	164	55.6
	Yes	131	44.4
Smoking	No	261	88.5
	Yes	34	11.5
Feet examined	No	119	40.4
	Yes	176	59.6
Total		**295**	**100.0**

5.3. Clinical and diabetes related information

Around 77.6% of the respondents were with type two diabetes. Considering body mass index, majority of the study population 224 (75.9%) had normal BMI (18.5–24.9kg/m^2). Looking to the blood pressure, 101 (34.2%) of the study population were hypertensive. Among the study population around (21.0%) of them were diabetic for less than 5 years, whereas 30.8% were diabetic for more than 10 years and above. Most of the study participants, 174 (59.0%) were diagnosed as diabetic at public hospitals and 40.5% had chronic kidney disease or co- morbidity other than diabetes. Concerning diabetic foot ulcer, 28.8% of study participants had history of foot ulcer and 13.2% had at least one symptom of diabetic foot ulcer and only 14.2% had active DFU.

Table 3: Clinical characteristics and diabetes information related factors of diabetic patients attending diabetic/ chronic care clinic of Wolkite University Specialized Hospital, 2023 (n = 295)

Items	Response	Frequency	Percent
Place of diagnosis	Health center	101	34.2
	Public hospital	174	59.0
	Private health institution	20	6.8
Family history of DM	No	197	66.8
	Yes	90	30.5
	Don't know	8	2.7
Type of DM medication	Insulin	139	47.6
	Oral anti-diabetic agents	107	36
	Both	21	7.2
	Only life style modification	28	9.2
Past history of DFU	No	210	71.2
	Yes	85	28.8
Duration since diagnosis of DM	<5 years	62	21.0
	5-10 years	142	48.1
	>10 years	91	30.8
Active Diabetic foot ulcer	No	253	85.8
	Yes	42	14.2
Any symptom of diabetic foot	No	256	86.8
	Yes	39	13.2
Type of diabetes	Type one	66	22.4
	Type two	229	77.6
Hypertension	No	194	65.8
	Yes	101	34.2
Chronic kidney disease	No	175	59.5

	Yes	120	40.5
Peripheral vascular disease	No	163	53.3
	Yes	132	44.7
Peripheral neuropathy	No	268	90.8
	Yes	27	9.2
BMI	Under weight	12	4.1
	Normal weight	224	75.9
	Over weight	59	20

5.4. Diabetic foot ulcer preventive practices

The proportion of study participants that reported good diabetic foot ulcer preventive practice was 150 (50.8%). Foot washing everyday was the most performed activity reported 221 (74.9%) and checking water temperature before washing was the least performed activity 60 (20.3%) of the participants. Among the participants, 41.7% inspected their feet in every day manner and 43.4% trim toenails carefully. Concerning footwear, 84.1% reported as they have comfortable kind of shoes, 54.6% check before putting them on and 56.3% wear clean, dry socks regularly with half of them changing it daily. More than half (64.7%) of the respondents crossed their legs while sitting and 62.7% walked bare foot around.

Table 4: Diabetic foot ulcer preventive practices of diabetic patients attending diabetic/ chronic care clinic of Wolkite University Specialized Hospital, 2023 (n = 295)

Items	Responses	Frequency	Percent
Able to reach and see the bottoms of feet	No	130	44.1
	Yes	165	55.9
Inspect feet every day	No	172	58.3
	Yes	123	41.7
Wash feet every day	No	74	25.1
	Yes	221	74.9
After washing, dry well between the toes	No	134	45.4
	Yes	161	54.6
Put moisturizing creams or lotions on feet	No	208	70.5

	Yes	87	29.5
Trim toenails carefully	No	167	56.6
	Yes	128	43.4
Wear comfortable kind of shoes	No	47	15.9
	Yes	248	84.1
Check shoes before putting them on	No	134	45.4
	Yes	161	54.6
Wear clean, dry socks regularly	No	128	43.1
	Yes	167	56.3
Change socks daily	No	101	34.2
	Yes	66	22.4
Ever soak feet	No	194	65.8
	Yes	101	34.2
Always check water temperature before foot in	No	235	79.7
	Yes	60	20.3
Use hot water bottle or heating pad on feet	No	232	78.6
	Yes	63	21.4
Ever walk around with bare feet	No	110	37.3
	Yes	185	62.7
Crossed legs while sitting	No	104	35.3
	Yes	191	64.7

The overall level of DFU preventive practice in the study area remains moderate in which around half of the study participants perform good practice 150 (50.8 %) (95% CI: 46.9, 57.5).

5.5. Factors affecting DFU preventive practice

A logistic regression was performed to ascertain the likelihood of association between the participants' diabetic foot ulcer preventive practices and independent variables. Among the variables, ten of them namely; gender, age, place of residency, marital status, occupation, educational level, source of information about foot care, family history of DM, history of DFU and regular checkup of blood glucose level were candidates for the final multivariable model having with p value less than 0.25 on bivariable logistic regression.

Lastly, only five variables became statistically significant in final model. Sex (being male), family history of diabetes, history of DFU and BGL check-up are positively associated with good foot ulcer preventive practice, whereas occupation (being farmer) is negatively associated with DFU preventive practice.

Males were 4.7 times more likely to apply preventive practices of diabetic foot ulcer than females' diabetic patients (AOR: 4.771, p: 0.036, 95% CI: 1.107, 20.570). Concerning occupation, farmers were 6 times less likely to practice DFU preventive practices when compared with government employees. (AOR: 0.032, p: 0.022, 95% CI: 0.06, 0.66). Diabetic patients who had history of DM in their families were 4.8 times more likely to practice diabetic foot ulcer preventive practices than patients without history of DM in their family. (AOR: 4.89, p: 0.042, 95% CI: 1.05, 22.56). Diabetic patients with history of diabetic foot ulcer apply the preventive practices 10.9 times more likely than patients without any history of DFU. (AOR: 10.93, p: 0.043, 95% CI:
1.40, 111.4).

Diabetic patients who checked their blood glucose level regularly were 3.7 times more likely to apply the diabetic foot ulcer preventive practices when compared with patients not checking their blood glucose level regularly (AOR: 3.78, p: 0.032, 95% CI: 1.11, 12.77).

Table 5: Factors affecting the Diabetic foot ulcer preventive practices of diabetic patients attending diabetic/ chronic clinic at Wolkite specialized hospital. 2023 (n=295)

		Diabetic Foot ulcer care practice				COR 95% CI	AOR 95% CI	PV
		Poor practice		Good practice				
		f	%	f	%			
Gender of respondent	Male	79	54.5%	89	59.3%	1.55(1.0, 2.4)	**4.77**(1.07,20.57)	0.036
	Female	66	45.5%	61	40.7%	1	1	1
Occupation of the respondent	Governmental employee	5	3.4%	30	20.0%	1	1	1
	Non gov't employee	20	13.8%	25	16.7%	0.208(0.068,0.63)	0.8(0.71,8.51)	0.006
	Self employed	26	17.9%	30	20.0%	0.192(0.06,0.56)	0.64(0.56,9.3)	0.003
	Farmer	41	28.3%	15	10.0%	0.44(0.2,0.9)	**0.06**(0.05,0.66)	0.022
	Student	23	15.9%	29	19.3%	0.20(0.070,0.62	0.32(0.12,10.3)	0.005
	Other	30	20.7%	21	14.0%	0.11(0.03,0.35)	0.45(0.17,7.18)	0.001
Family history of DM	No	97	66.9%	100	66.7%	1	1	1
	Yes	43	29.7%	47	31.3%	1.7(0.8,3.4)	**4.89**(1.05,22.5)	0.04
	I don't know	5	3.4%	3	2.0%		0.21(0.33,1.91)	0.006
History of diabetic foot ulcer	No	101	69.7%	109	72.7%	1	1	1
	Yes	44	30.3%	41	27.3%	1.55(1.76,2.92)	**10.93**(1.4,11.4)	0.043
Check blood glucose regularly	No	94	64.8%	70	46.7%	1	1	1
	Yes	51	35.2%	80	53.3%	1.53(1.8,2.7)	**3.78** (1.1,12.7)	0.032

CHAPTER SIX

DISCUSION

This study shows that around half of diabetic patients (50.8%) had good foot ulcer preventive practice. The current finding is consistent with the finding of the study conducted at Bahr Dar Felegehiwot Hospital (54.6%) (36) and study conducted at Oromia region (57.8%) (35) of good foot self-care practice. Whereas, the finding is slightly greater than the reports of studies from Malaysia (38.2%) (30) and Sudan, 42.6% (34) patients had good foot self-care practice. The difference might be due to socio-cultural variations between study areas, variation in sample size in which only 150 and 145 subjects participated or difference in the classification of the diabetic foot self-care practice as good, moderate or poor. The current study showed that 49.2% of the study participants had poor DFU preventive practice.

Being male gender, having family history of diabetes and blood glucose check-up are factors positively associated with DFU preventive practices. Whereas, occupation (being farmer), is negatively associated with DFU preventive practice.

This study revealed that male subjects were more likely to perform preventive practices of DFU in the study area. The variation of DFU preventive practice related to gender might be reflection of disparity in societal role between male and females in southern Ethiopia typically in the study area, females spent most of their time being busy at home when compared to males (19). However, study conducted at Dessie referral hospital revealed that females were 2 times more likely to apply good practice than males which argue with the finding of the current study's finding. The possible reason for this difference might be the proportion of educated male subjects in current study is high when compared with females. And there also difference in the number of female participants between the studies in which the proportion of female subjects in that study is high and the reverse is true in current study.

Our study finding showed that 62% of farmer diabetic patients were practicing poor preventive practice of DFU. This is consistent with study conducted in Behr Dar, Ethiopia that found government employees apply preventive practice more likely than farmers. This vindicated that

there is high prevalence of poor diabetic foot ulcer preventive practice among diabetic patients who were farmers (36). The association between occupation and diabetic foot ulcer preventive practice may be due to the fact that individuals in rural areas of Ethiopia particularly in the study area often spent most of their time in farm area or outdoors by performing their routine activities as well as the work habit itself affect them like not putting clean socks and comfortable shoes while plowing. These people are commonly subject not to apply the preventive measures in expected level due to inaccessibility of DFU preventive items like water, soap, socks, shoes, and or lotions (23).

Having family history of DM and history of DFU due to diabetes were also emerged as factors which influence the application of diabetic foot ulcer preventive practices. This might be due to sharing experience from self as well as from family and person having the history performs the measures more.

Patients having family history of DM apply the preventive practice of DFU more likely than that of patients without family history. This finding is in line with the study reports of Iraq, Sudan and Philippines (28,34,39). And patients with history of DFU apply more preventive practice, this is similar with the report of Iran (9).

Regular blood glucose level check-up was one of the determinant factors for the application of diabetic foot ulcer preventive practice in this current study. Those diabetic patients who checked blood glucose level regularly performed better preventive practice than those who do not check it regularly. This might be due to alerting and alarming them that if not controlled, the complications may arise early as well as give them access to health information about diabetic foot care from health professionals (23).

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

The level of diabetic foot ulcer preventive practice among diabetic patients in Wolkite University Specialized Hospital was found to be less, where only around half of them had good practice. Gender, occupation, family history of DM, history of DFU and regular blood glucose check-up were factors significantly associated with diabetic foot ulcer preventive practice.

7.2. Recommendations

The health care providers are recommended to enhance patients' level of preventive practices through teaching and coaching them on activities of preventive practices. They also should give special emphasis during follow-up for the patients who are females, farmers, and educating the patients to regularly to check their blood glucose as well as perform exercise regularly by taking care for foot while doing it.

Federal ministry of health, regional health bureau and Zone's health department should give emphasis on enhancing the preventive measures of DFU as one of the major services for the DM patients that prevents serious foot complication at diabetes clinic of the Wolkite specialized hospital. Patients should monitor their blood glucose level regularly to control their diabetic condition. NGOs' and Diabetic associations also should develop programs focusing on DFU preventive practices.

7.3. Strength and Limitations

The use of validated questionnaires, assessing of individuals factors including knowledge and practice as well as studies to identify the level of DFU preventive practice using 14 item preventive practice assessment questions can be considered as strength of this study.

Using interview administered questioner and patient medical record review only may the interpretation of the result, where practice could be better gauged with observation. Besides, there may be recall and social desirability biases on recalling duration of illness, self-reporting of patients regarding activities of diabetic foot ulcer preventive practices accurately and using of convenient sampling may affect the result.

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Annex I. Participant's information sheet English and Amharic Version Questionnaires

WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCE SCHOOL OF NURSING STUDENTS, MARCH, 2015 E.C

A Questionnaire prepared to assess diabetic foot ulcer preventive practice and associated factors among diabetic patients who are attending *WOLKITE UNIVERSITY SPECIALIZED TEACHING HOSPITAL*, GURAGE ZONE, ETHIOPIA.

Date of interview:

DD	MM	YY

Greeting: Good morning/afternoon? We are working in research team from Wolkite University, College of Medicine and Health Science School of Nursing students. We would like to ask a few questions which may take around 10 minutes. The genuine responses that you are going to give are very important to identify problems related to diabetic foot ulcer and design programs. You are selected randomly to be a participant of this study. The answers you give will not be shown to anyone and your name will not be written. Your participation will not harm you and your family. Especially we want your answers because if everyone who is selected participates, our information will be more valid and useful So You are kindly requested to participate voluntary.

Are you willing to continue?

1. Yes, please arrange for a private setting to conduct interview
2. No, end the interview.

Data collection form of English version

Part 1: - Socio-demographic Information

S.0N.	Question	Response category	Code
1	Age	_____	
2	Sex	1.Male 2. Female	
3	Place of residency	1.Urban 2. Rural	
4	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
5	Religion	1. Orthodox 2. Muslim 3. protestant 4. catholic 5. other_____	
6	Occupation	1. Government employee 2.Non-governmental employee 3. Self-employed 4. Farmer 5. Student	
7	Educational level	1. Unable to read and write 2. Can read and write 3. Primary 4. Secondary 5. Diploma	

		6. Degree and Above	
8	Income	Enter_____ birr per month	

Part II: Diabetic related factors

s. no	Question	Response	Remark
1.	Source of information on foot care	1. Diabetic care center 2. Health center 3. HEW (HP) 4. Media	
2.	How long have you been since you have diagnosed with diabetes mellitus?	----------	
3.	Where did you diagnosed as diabetic	1.Health center 2.Public hospital 3.Private health institution 4.Self-diagnosis	
4.	Family history of DM	1.No 2. yes, 3. I don't know	
5.	Type of diabetic medication	1.Insulin 2.Oral antidiabetic agents 3.Both 4.Only Lifestyle modification	
6.	Have you ever had DFU?	1.No 2.Yes how many……	If no, skip to Q #8.
7.	What measure was taken?	----------	
8.	Do you have active DFU	1.No 2.Yes	Ask and cheek for
9.	Do you have any Symptom?	1. No 2. Yes (numbness,	

		tingling, pins and needles, or itching sensation in your feet)	

Part III: Behavior related factors

S. no	Question	Response	Remark
1.	Do you take your medications properly?	1.No 2. Yes	1 Good adherence 2. Poor adherence
2.	Do you attend your follow up properly?	1.No 2. Yes	
3.	If yes, how often	1.Weekly 2.Every two week 3.Every two month 4.Only when requested by health care provider	
4.	Do you check your blood glucose regularly?	1.No 2.Yes	
5.	Have you smocking currently	1.No 2.Yes	
6.	Feet examined	1.No 2.Yes	
7.	By whom?	1.Your self 2.Others	

Part IV: Clinical factors from the patient record, laboratory investigation, and measurment

s. no	Question	Response	Remark
1	Type of diabetes	1. Type one 2. Type two 3. Other ----------	
2	Blood pressure in mmHg	----------	1.hypertensive

			2.not hypertensive
3	Result of HbA1c	----------	1.less than 7mg/dl 2.>=7mg/dl
4	Chronic kidney disease	1.No 2.Yes	
5	Peripheral vascular disease	1.No 2.Yes	
6	Peripheral neuropathy	1.No 2.Yes	
7	Height in centimeters	----------	
8	Weigh in kilogram	----------	
9	BMI	----------	1.Underweight (<=18.5) 2.Normal (18.5-24.9) 3.Over weight (25-29.9) 4.Obese(<=30)

Part V: Foot care practice

S. no	Questions	Responses	Remark
1.	Can you reach and see the bottoms of your feet?	1. No 2. Yes	
2.	Do you examine your feet every day?	1. No 2. Yes	
3.	Do you wash your feet every day?	1. No 2. Yes	
4.	Do you dry well between the toes?	1. No 2. Yes	

5.	Do you put moisturizing creams or lotions between your toes /on your feet?	1. No 2. Yes	
6.	Do you trim toe nails carefully and regularly straight across?	1. No 2. Yes	
7.	Do you wear comfortable kind of shoes?	1. No 2. Yes	
8.	Do you check your shoes before you put them on?	1. No 2. Yes	
9.	Do you wear clean, dry socks regularly?	1. No 2. Yes	
10.	If yes to Q #09, do you change it daily?	1. No 2. Yes	
11.	Do you ever soak your feet?	1. No 2. Yes	If no, skip to Q #13.
12.	Do you always check water temperature before your foot in?	1. No 2. Yes	
13.	Do you use a hot water bottle or heating pad on your feet?	1. No 2. Yes	
14.	Do you ever walk around in your bare feet?	1. No 2. Yes	
15.	Do you sit with your legs crossed?	1. No 2. Yes	

Thank you for your time and answer!!!

የተሳታፊዎች የመረጃ ወረቀት

ሰላምታ፡ ደህና አደሩ/ዋሉ? ከወልቂጤ ዩኒቨርሲቲ፣ የሕክምና እና የጤና ሳይንስ ኮሌጅ የነርስ ተማሪዎች ትምህርት ክፍል በምርምር ቲያን እየሰራን ነው። አሁን ወደ 10 ደቂቃ አካባቢ ሊወስዱ የሚችሉ ጥቂት ጥያቄዎችን መጠየቅ እፈልጋለሁ። የምትሰጡት እውነተኛ ምላሾች ከስኪር ሀመም ጋር የተያያዙ ችግሮችን ለመለየት በጣም አስፈላጊ ናቸው፣የእግር ቁስለኝት እና የንድፍ ፕሮግራሞች። የዚህ ተሳታፊ ለመሆን

በዘፈቀደ ተመርጠዋል። ጥናት የሚሰጡትን መልሶች ለማንም አይታዩም እና ስምዎ ሆንም አይፃፈ። የእርስዎ ተሳትፎ እርስዎን እና ቤተሰብዎን አይጎዳም ፣ በተለይም እኛ ትክክለኛ እና ጠቃሚ መልሶች እንፈልጋለን ምክንያቱም የተመረጡት ሁሉ የሚሳተፉ ከሆነ የእኛ መረጃ የበለጠ ይሆናል። ስለዚህ በፈቃደኝነት እንዲሳተፉ በአክብሮት እንጠይቃለን። ለመቀጠል ፈቃደኛ ነህ? 1. አዎ, እባክዎን የሚመራ የግል መቼት ያዘጋጁ ቃለ ለመጠይቅ 2. አይ, ቃለ-መጠይቁን ጨርስ።

ክፍል I:- ማህበራዊ ስነ-ህዝብ

ኮድ	መጠየቅ	የምላሽ	ይዙሉ
1	ዕድሜ	_____	
2	ጾታ	1. ወንድ 2. ሴት	
3	የሞሪያ አደረሽ	1. ከተማ 2. ገጠር	
4	የጋብቻ ሁኔታ	1.ያላገባ 2. ያገባ 3.የፈታ 4.መበ ለት 5.ሌለ _____	
5	ሃይማኖት	1.ኦርቶዶክስ 2.ሙስ ሊም 3.ጴንጤ4.ካቶሊክ 5.ሌለ _____	
6	ሥራ	1.የመንግስትሰራተኛ 2.ማሥታዊያልሆነ ሥራ 3.የግልሥራመሥረት 4.ገበሬ5.ተማሪ 6.ሌለ _____	
7	የትምህርት ደረጃ	1.ማንቡብና መጸሐፍአልተቻለም 2.ማንቡብና መጽሀፍይቻላል 3.የመጀሚያ ደረጃ 4.ሁለተኛ ደረጃ 5.ዲፕሎማ 6.ዲግሪና ከዚያ በለይ	
8	ገቢ	በወር _____ቢር	

ክፍል II: - ከስኳር በሽታ ጋር የተያያዙ ምክንያቶች

ኮድ	መጠይቅ	የምላሽ	ይዝለሉ
1	በእግር እንክብካቤ ላይ የመረጃ ምንጭ	1. የስኳር ህመምተኞች እንክብካቤ ማዕከል 2. ጤና ጣቢያ 3. ጤና ከላ 4. ሚዲያ	
2	የስኳር በሽታ እንዳለበት ካወቁ ምን ያህል ጊዜ ነዎት?	----------	
3	የስኳር ህመምተኛ መሆኑዎን የት ነው ያረጋገጡት?	1. የጤና ማዕከል 3. የግል ጤና ተቋም 2. የህዝብ ሆስፒታል 4. ራስን መመርመር	
4	ቤተሰብዎ የስኳር በሽታ ታሪክ አለው?	አይ ፣ 2. አዎ ፣ 3. አላውቅም	
5	የስኳር ህመም የሚዎስዱት ህክምና ዓይነት	1. ኢንሱሊን 2. በአፍ የሚወሰድ የስኳር መድሃኒት 3. ሁለቱም 4. የአኗኗር ዘይቤ ማሻሻያ ብቻ	
6	እግር ቁስለት አጋጥሞት ያውቃል?	1. አይደለም 2. አዎ ፣ ስንት ----------	
7	ምን ዓይነት እርምጃ ተወስዷል?	----------	
8	አሁን እግር ቁስለት አለዎት?	1. አይደለም 2. አዎ	ጠይቅ፥ ተመልከት
9	ምልክት አለዎት? የትኛውም?	1. አይ 2. አዎ (የመደንዘዝ ፣ መንቀጥቀጥ ፣ ምስማሮች እና መርፌዎች ፣ ወይም በእግርዎ ላይ የማሳከክ ስሜት)	

ክፍል III:- ከባህርይ ጋር የተያያዙ ምክንያቶች

ኮድ	መጠይቅ	የምላሽ	ይዝለሉ
1	መድሃኒቶችዎን በትክክል ይወስዳሉ?	1. አይደለም 2. አዎ	
2	ክትትልዎን በትክክል ይሳተፋሉ?	1. አይደለም 2. አዎ	
3	አዎ ከሆነ ፣ ምን ያህል ጊዜ	1. ሳምንታዊ 2. እያንዳንዱ ሁለት ደካማ 3. በየሁለት ወሩ 4. ሲያስፈልግ ብቻ	
4	በደም ውስጥ ያለውን የስኳር መጠን በየጊዜው ይለካሉ?	1. አይደለም 2. አዎ	
5	በአሁኑ ጊዜ እያጨሱ ነው?	1. አይ 2. አዎ	
6	እግሮች ተሞያሚዌል?	1. አይ 2. አዎ	
7	አዎ ከሆነ ፣ በማ ?	1. በራሱ 2. በሌላ	

ክፍል IV:-ከሕመምተኛው መዝገብ ፣ ከላቦራቶሪ ምርመራ እና መለካት

ኮድ	መጠይቅ	የምላሽ	
1	የስኳር በሽታ ዓይነት	1. አንደኛ ዓይነት 2. ሁለተኛ3. ሌላ --------	
2	የደም ግፊት በ mmHg	----------	የደም ግፊት አለው የደም ግፊት የለውም
3	አማካይ የደም የስኳር ውጤት	1. ከ 7mg / dl በታች 2.> = 7mg / dl	
4	ሥር የሰደደ የኩላሊት በሽታ	1. አይ 2. አዎ	
5	የከባቢያዊ የደም ቧንቧ በሽታ	1. አይ 2. አዎ	
6	የከባቢያዊ የነርቭ በሽታ	1. አይ 2. አዎ	
7	ቁመት በሴንቲሜትር	----------	
8	ክብደት በኪሎግራም	----------	
9	BMI	1. ከክብደት በታች (<= 18.5) 2. መደበኛ (18.5-24.9) 3. ከመጠን በላይ ክብደት (25-29.9) 4. ከመጠን በላይ ውፍረት (<= 30)	

ክፍል V:-የልምምድ ጥያቄዎች

ኮድ	መጠይቅ	የምላሽ	ይዝለሉ
1	የእግሮችዎን ታች መድረስ እና ማየት ይችላሉ?	1. አይ 2. አዎ	
2	በየቀኑ እግርዎን ይመረምራሉ?	1. አይ 2. አዎ	
3	በየቀኑ እግርዎን ይታጠባሉ?	1. አይ 2. አዎ	
4	ከታጠቡ በኋላ በጣቶቹ መካከል በደንብ ያደርቃሉ?	1. አይ 2. አዎ	
5	በእግርዎ ላይና በጣቶችዎ መካከል እርጥበታማ ክሬሞችን ወይም ቅባቶችን ያስቀምጣሉ?	. አይ 2. አዎ	
6	የጣት ጥፍሮችን በጥንቃቄ እና በመደበኛነት ቀጥ ብለው ይቆርጣሉ?	1. አይ 2. አዎ	
7	ምቹ ዓይነት ጫማዎችን ይለብሳሉ?	1. አይ 2. አዎ	
8	ጫማዎን ከመልበስዎ በፊት ይመረምራሉ?	1. አይ 2. አዎ	
9	አዘውትሮ ንጹህ ካልሲዎችን ይለብሳሉ?	1. አይ 2. አዎ	
10	ለቁጥር 11 አዎ ከሆነ ፣ በየቀኑ ይቀይራሉ?	1. አይ 2. አዎ	
11	እግርዎን ይዘፈዝፋሉ?	1. አይ 2. አዎ	አይ ከሆነ ወደ ቁ#13 ይዝለሉ
12	እግርዎ ከመግባቱ በፊት ሁል ጊዜ የውሃ ሙቀት ይፈትሻል?	1. አይ 2. አዎ	
13	በእግርዎ ላይ የሞቀ ጠርሙስ ወይም ማሞቂያ ፓድን ይጠቀማሉ?	1. አይ 2. አዎ	
14	በባዶ እግሮችዎ ሰፈር ውስጥ ተመላልሰው ያውቃሉ?	1. አይ 2. አዎ	

15	እግሮችዎን አጣጥፈው ይቀመጣሉ?	1. አይ 2. አዎ	

ለጊዜዎት አመሰግናለሁ!!!