ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF PREVALENCE OF DIABETIC FOOT ULCER ANDASSOCIATED FACTORS AMONG DIABETIC PATIENT ATTENDING TIKUR ANBESA SPECIALIZED HOSPITAL DIABETIC CLINIC, ADDIS ABABA, ETHIOPIA, 2017.

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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE SCHOOL OF ALLIED HEALTH SCIENCES DEPARTMENT OF NURSING AND MIDWIFERY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN ADULT NURSING

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ADDIS ABABA, ETHIOPIA

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Acronyms and Abbreviation

ADA America diabetic association

BP Blood Pressure

DFU Diabetic foot ulcer

DM Diabetic Mellitus

EGFR Estimated glomerular filtration rate

FPG Fasting plasma glucose

HMIS Health monitoring information system

OPD Out patients department

PN Peripheral neuropathy

PVD Peripheral vascular disease

RBS Random blood sugar

SPSS Statistical package for social science

TASH Tikur Anbessa Specialized Hospital

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Abstract

Background

Diabetesmellitus is one of the endocrine disorders worldwide. It is estimated that, at the time of diagnosis of type 2 diabetes mellitus, more than 10 % of patients have one or two risk factors for foot disease, such as peripheral neuropathy or peripheral vascular disease. The burden of diabetic foot disease is expected to increase given the increasing global prevalence of diabetic foot ulcer Worldwide, 3 %–10 % of people with diabetes have a foot ulcer; the lifetime risk for developing is 15 %. Rates of foot ulceration in Africa vary between regions and have been estimated to be between 4 % and 19 %.Associated factors apart from as peripheral neuropathy or peripheral vascular disease , barefoot walking, inappropriate footwear, poor foot hygiene and delay in seeking medical care .

Objective: To assess prevalence of diabetic foot ulcer and associated factors at TikurAnbessa Specialized Hospital, Addis Ababa, Ethiopia, 2017.

Methods and Analyses: - An institution based cross sectional quantitative study design was conducted from April 1st to May 1st 2017. TikurAnbessa Specialized Hospitalwas selected purposively. Sample size was calculated by using single population proportion sample formula and the final sample size was 203. Study subject were selected using simple random sampling method. Data was checked for completeness, cleaned, coded and entered into EPI data version 3.1and analyzed using SPSS version 22.0. Descriptive statistics, frequency, proportion, mean and SD was used to describe variables. Binary logistic regression and multivariate regression including odds ratio with 95%CI was used to identify association between dependent and independent variables. P-value less than 0.05 were considered as significance level for associations.

Result: The prevalence ofdiabetic foot ulcer cases among diabetic patient was 26%. Of the 198 respondents, 106 (53%) were males with the remaining females. Occupation {**(AOR=8.16; CI (1.2, 9.5)}** and place of place residence **{(AOR=5.97; CI(1.47, 24.3)}** was significantly associated with diabetic foot ulcer.

Conclusion and Recommendation: The study revealed that the prevalence of diabetic foot ulcer among diabetic patients in TikurAnbesa specialized Hospital was twenty six percent. Place of residence and occupation was associated with diabetic foot ulcer. There is a need to design and iintervention to reduce the incidence of diabetic foot ulcer.

Keyword: diabetic foot ulcer, prevalence

1. INTRODUCTION

1.1 Background

Several studies have shown that a majority of people with diabetesmellites do not receive guideline-recommended foot care, including regular foot examinations [1]. In a study conducted by Basu hospital. In the United Kingdom, 33 % of people with diabetes did not recall receiving information about foot care [2]. In a study conducted at the Muhimbili National Hospital (MNH) diabetic clinic, 87 % of patients reported never inspecting their feet, and 66 % reported they were not interested in further knowledge of diabetes foot care [3].

Among the complications of diabetes, lower limb amputation is considered to be potentially preventable [4].Lower limb amputations in patients with diabetes are preceded by a foot ulcer, whose risk factors apart from PVD and PN, are barefoot walking, inappropriate footwear, poor foot hygiene and delay in seeking medical attention [5]. These non-traditional risk factors can be modified if identified early, and if patients have adequate knowledge of foot care and put that knowledge into practice [5]. In recent years, the level of interest and knowledge about DFU has grown considerably, as witnessed by the development of an international consensus, clinical guidelines to be used in both prevention and treatment of diabetic foot, and improvements in evidence-based clinical practice higher in male respondent than in female respondent [6].In Ethiopia there is lack of evidence on nurses' knowledge and practice of pressure ulcer prevention. Therefore, this study set out to assess the level of nurses' knowledge and practice on prevention of pressure ulcer and thereby generate appropriate information that can be used by program managers and stakeholders in the prevention and interventions of diabetic foot ulcer.

1.2 Statement of the problem

Diabetes mellitus is a chronic and life-threatening disease characterized by complications of various types which are also serious and debilitating in nature. Among the list of complications is diabetic foot ulcer (DFU), which is a major source of morbidity and mortality in patients diagnosed with diabetes mellitus in developing countries (1). Management of the diabetic foot requires a thorough knowledge of the major risk factors for amputation, frequent routine evaluation and meticulous preventive maintenance (2). People with active diabetic foot ulcers experience a reduction in quality of life that is reported to be as great as that of amputees (3). Foot ulceration is preventable, and relatively simple interventions can reduce amputations by up to 80%. Good control of hemoglobin, blood pressure, and lipid levels are well established as being crucial elements in the reduction of risk for complications of diabetes[‘4’5]. Regular evaluation and early treatment are the most effective mechanisms to prevent the devastating diabetic foot complications. Unfortunately, the majority of patients admitted to the hospital for diabetic foot complications receive a less than adequate lower extremity evaluation. Though there is an obvious increase in diabetic foot care awareness, there are tremendous gaps in routine foot evaluations. Among Ethiopian diabetic clients foot ulcer is major health problem. Low follow-up and poor glycemic control are major contributing factors. Understanding of the influential factors of foot ulcer in diabetics will enable high-risk patients to be recognized early [5,7].Even though studies showed that up to 85% of all amputation related to diabetic foot ulcer can be prevented by using simple interventions, the problem is still worsening [8]. This all show the need of information on identifying the factors contributing to diabetic foot ulcer may help the community to reduce the chance of getting the disease. Hence, this study is to assess prevalence and factors contributing for diabetic foot ulcer.

1.3 Significance of the study

This study has benefits of giving information for health policy makers and it is important for health professionals, especially those who work on diabetic to build up the knowledge on the areas and the result of the study can be used for health education and awareness creation of self-care practice for patients with diabetes since it show prevalence and associated factors of diabetic foot ulcer. And the findings of this study will also contribute greatly to the benefit of society considering that better diabetes self-care practice utilization results in improved wellbeing of diabetes patient. Lastly, the findings from this study will benefit researchers those interested in the field by providing information regarding to diabetic foot ulcer in the study area.

2 .LITERATUR REVIEW

2.1 Foot Ulcer

Foot ulceration is one of the common complications of diabetes mellitus patients. Foot ulceration risk factors are based on many factors and may differed community to community.

Currently, it is widely accepted that diabetic foot ulcers should be managed by a coordinated multidisciplinary team of clinicians The effectiveness of such an approach has reportedly reduced the incidence of lower limb amputations. In addition to the health professionals on a multidisciplinary team, a person with diabetes is considered a core member in that ideally, they work with team members to adopt behaviors that enable them to avoid injury or at least discover injuries in the early stages and subsequently reduce the incidence and severity of ulcers [9].

2.2 Prevalence of foot ulcer

Foot ulceration is the leading cause of hospitalization with the prevalence ranges from 4%to 10 % among person with diabetes mellitus [9].The prevalence of foot ulcer among population of Medicare FFS beneficiaries with diabetes by race in 2014 was 8.0 percent for white, 8.7 percent for African American, 4.2 percent for Asian, 8.6 percent for Hispanic, 9.6 percent for American Indian/Alaska Native, and 5.5 percent for other. [10].

As a result of cross-sectional study done inKolkataMedical College, Diabetic foot ulcers were found in 4.54% newly diagnosed diabetes mellitus patients. Neuropathic type of foot ulcer was present in 46.06% of patients (52.5% in male and 38.88% in female). Ischemic type of foot ulcer was present in 19.74% of patients (22.5% in male and in 16.66% females). Nero ischemic type of foot ulcer was present in 34.2% of patients (25% in males and 44.44% in females). Neuropathy occurred most frequently either singly or with peripheral vascular disease. General awareness about the disease, early diagnosis and proper management will prevent this dreaded complication [11].

The percentages of patients at low, intermediate and high risk of developing foot ulcers were 55.8%, 33.6% and 10.6%, respectively. Age, duration of diabetes, estimated glomerular filtration rate(GFR), history of hypertension, dyslipidemia, nephropathy, cardiovascular disease (CVA), deformity of foot, numbness, abnormal protective sensation, pulse deficit, ulcer, and amputation were factors significantly associated with a high risk of foot ulcers ($p < 0.05$), but fasting plasma glucose (FPG) and HbA1c were

not significant factors. There was an association between cerebrovascular accident and abnormal ABI.In conclusion, nearly half of these type 2 diabetes patients were in the groups with an intermediate or high risk of developing foot ulcers. Screening of patients at risk of foot ulceration is necessary in order to classify patients into risk groups and provide appropriate education, as well as proper monitoring and management [12].

2.3 Diabetics related risk factors

2.3.1 Socio demographicfactor:

A cross-sectional study was carried out during the period January 2010 to January 2011 in the department of medicine, NRS Medical College, Kolkata relation to Foot ulcer, it is one of the most common and deadest complications of diabetes mellitus. This is also a frequent cause of hospitalization and disability. Most of the patients with diabetic foot ulcers living in developing countries present to healthcare facilities fairly late with advanced foot ulcers because of poor economic status, inadequate knowledge of self-care, sociocultural reasons and poor and inadequate diabetes healthcare [11] .

Institutional based cross sectional study conducted in Ayder referral hospital from in December2013-January 2014.Diabetes mellitus is one of the most common metabolic disorders which is characterized by multiple long-term complications affecting almost every system in the body. Foot ulcer is one of the main complications of diabetes mellitus (13).

2.3.2 Clinical information:

Accordingly, Glycemic control, foot and nail care, and adherence to medication were poor among the cases. Calluses on the feet (OR 3.7) and a blood pressure (BP) above 130/80 (OR 3.05) elevated risk of developing foot ulcers, while appropriate shoes (OR 0.43), examining feet regularly (OR 0.134) and having a prescribed diet and exercise plan (OR 0.30) conferred protection from foot ulcers. No fungal infections (OR 0.2) and having appropriate foot care education (OR 0.30) were significant protective factors specifically among males and females respectively. Many risk factors for [14].

A cross-sectional study conducted at Dares Salaam, Tanzania in association to Diabetic's foot: prevalence, knowledge, and foot self-care practices among diabetic patients– At the time of diagnosis, more than 10 % of people with type 2 diabetes mellitus have one or two risk factors for foot ulceration and a lifetime risk of 15 %. Diabetic foot ulcers can be prevented through well-coordinated foot care services. The investigator elicits the following methods and results [15].

Patients were randomly selected from all public diabetic clinics in Dares Salaam. A questionnaire containing knowledge and foot care practice questions was administered to all study participants. A detailed foot examination was performed on all patients, with the results categorized according to the International Diabetes Federation foot risk categories. 404 patients included in this study, 15 % had foot ulcers, 44 % had peripheral neuropathy, and 15 % had peripheral vascular disease. In multivariate analysis, peripheral neuropathy and insulin treatment were significantly associated with presence of foot ulcer. The mean knowledge score was 11.2 ± 6.4 out of a total possible score of 23. Low mean scores were associated with lack of formal education (8.3 ± 6.1), diabetes duration of < 5 years (10.2 ± 6.7) and not receiving advice on foot care (8.0 ± 6.1). Among the 404 patients, 48 % had received advice on foot care, and 27.5 % had their feet examined by a doctor at least once since their initial diagnosis. Foot self-care was significantly higher in patients who had received advice on foot care and in those whose feet had been examined.

Accordingly the investigator put conclusion as follows, the prevalence of diabetic foot ulcer is high among patients attending public clinics in Dares Salaam. There is an urgent need to establish coordinated foot care services within the diabetic clinic to identify feet at risk, institute early management, and provide continuous foot care education to patients and health care providers [15].ned by a doctor at least once.

2.3.3 Skin texture:

Regarding foot skin texture the odd infavor of having diabetic foot ulcer among those diabetic mellituspatient with dry and cracked skin are 3.5times higher as compared to those with soft and moist skin[10].

The study concluded that 12% diabetic patients have foot ulcer. The main reasons to develop foot ulcer were poor glycemic control, wearing inappropriate Shoes dry and cracked skin texture and having no special foot care [13].

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2.3.4Diabetic information factors

Diabetes was diagnosed for the first time in 7 cases (4%) on presentation with foot ulcer. The mean glycemic level was poorly controlled in over 80% of the cases. The overall mortality rate was 21% and sepsis was the most identified cause.[16].

In Conclusion the investigators said: Lack of regular patient follow up and diabetes education on foot care, poor glycemic control, delay inpatient presentation and surgical intervention as well as patients' refusal to undergo surgical interventions were the reported contributing factors for the observed high mortality. In addition they put Recommendation as follows**:** Diabetic education on foot care, emphasis on metabolic control of diabetes, early presentation and surgical intervention when appropriate has to be highlighted in the management of diabetic patients. More studies have to be done in relation to the high-risk diabetic foot particularly in the Ethiopian setting emphasizing on preventive aspects [16].

2.3.5 Diabetics type information

According to study conducted inJimma, 189 (62.0%) of patients had type II diabetes and 163 (53.4%) of them were diabetic for less than 5 years. Seventy three of the 76 (96.1%) patients with type II diabetes mellitus had hypertension. Acute complications were observed in 93 (30.5%) of the patients of which Diabetic Ketoacidosis was documented in 66(71.0%).Forty eight (45.7%) of patients had proteinuria, 90 (29.5%) had peripheral neuropathy, 13(6.8%) had impotence. Diabetic foot ulcer, skin and/or subcutaneous tissue infection, dental problems and tuberculosis were documented in 14(4.5%), 31(10.0%), 31(10.0%), and 17(5.6%) patients, respectively (17).

Any of the chronic complications were not different by sex of the patient but age had statistically significant association with hypertension, visual disturbance and neuropathy ($p< 0.05$). Type of diabetes had statistically significant association with all the tested complications except infection ($P<0.05$) where most of the complications occurred in type II diabetics. Statistically significant association was observed between the duration of the diabetes and impotence and visual disturbances ($p < 0.05$).In Conclusion the researchers said that, majority of patients were type II diabetics. Acute complications were observed

more commonly among type I diabetics and DKA was the commonest acute complication. The frequency of chronic complications was high. Increased occurrence of retinopathy, peripheral neuropathy, hypertension and nephropathy was observed with longer duration of illness. Impotence and diabetic nephropathy were more common in type II diabetics. The study showed that age, sex, type of diabetes mellitus and duration of diabetes were significantly associated with the development of diabetic complications [17].

A cross sectional study was done to determine the various risks as well as antecedent factors, other long term complications, treatment profile and subsequent follow up of 196 patients with diabetic foot disease admitted to the TikurAnbessa Specialized Referral Hospital. Ulcers of the foot are one of the most feared and common complications of diabetes. It is a major cause of disability, morbidity and mortality among diabetic patients and about 15% develop foot ulcers in their lifetime. More than two thirds had type 2 diabetes mellitus. Among 109 patients with identified antecedent risk factors for their foot problem, ill-fitting or new shoes attributed in 48(44%). Neuro-ischaemic ulcers were seen in 113 (58%) of the cases and neuropathic ulcer in 63 (32%). Ulcer with cellulitis or gangrene was the most common mode of presentation seen in 92 (47%) of the patients. Ninety two (47%) patients had amputations. Re-amputation was necessary in 24 (26%) of these cases. Less than 40% of the total cases had a regular follow up either at a clinic or hospital [4].

2.4 Conceptual frame work

This conceptual frame work was developed after revision of previousstudyrelated to diabetics and diabetic foot ulcer. Variables in each box except the box containing diabetic foot ulcer were possible influential factors.

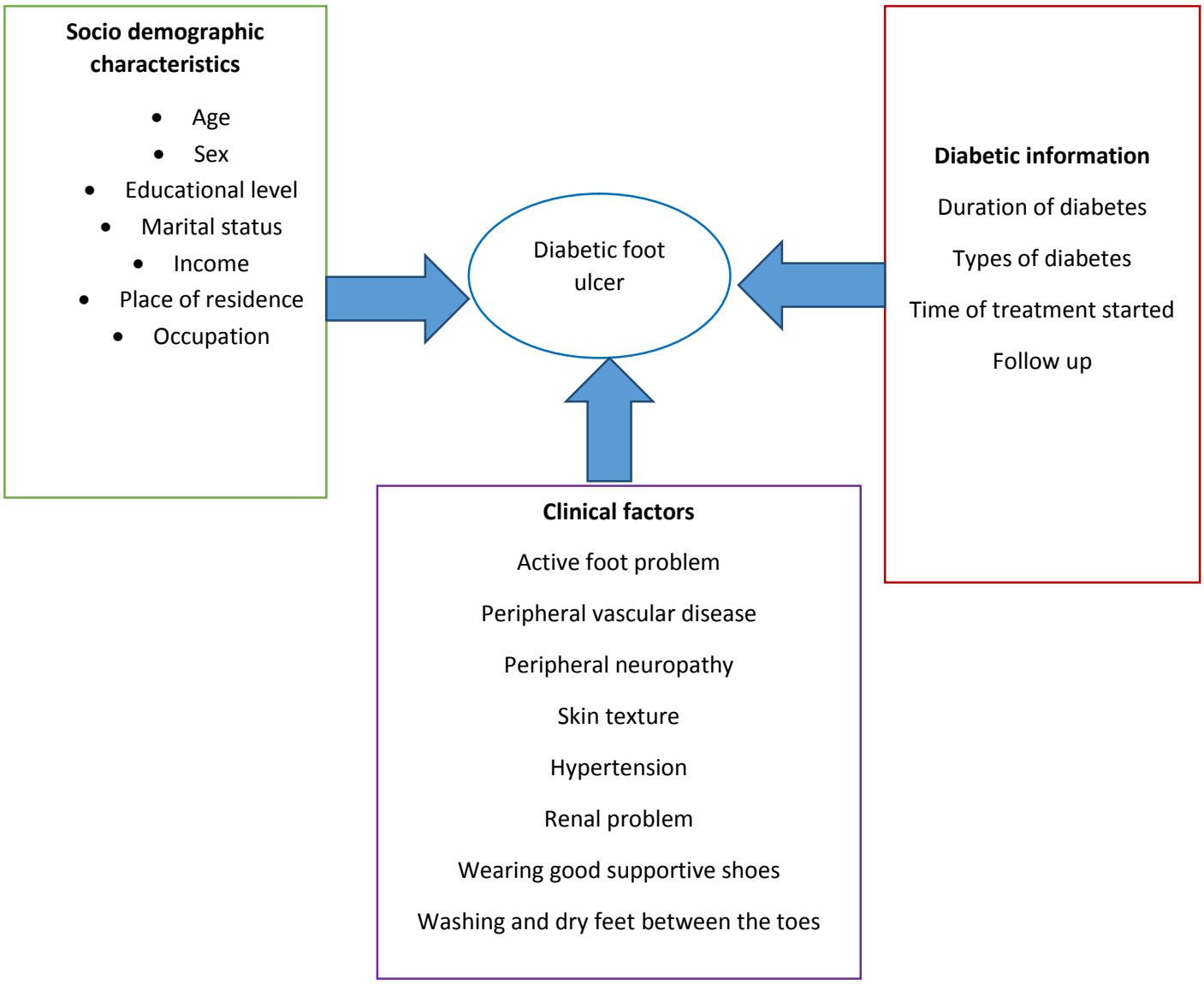

Fig 1: Diagram of conceptual frame work adopted from previous literatureamong diabetic patient (10,16).

3 .OBJECTIVE OF THE STUDY

3.1Genral objective

- To assess prevalence of diabetic foot ulcer and associated factors among diabetic patient atTikurAnbesa Specialized Hospital , from April to May2017 Addis Ababa, Ethiopia,

3.2 Specific objectives

- To determine the Prevalence of diabetic foot ulcer among diabetic patient inTikurAnbesa Specialized Hospital Ethiopia
- To identify factors affecting diabetic foot ulcer among diabetic patientinTikureAnbesa Specialized Hospital, Ethiopia

4. METHOD AND MATERIAL

4.1. Study Area

The study was conducted at TikurAnbesa Specialized Hospital. The hospital was established in 1973 GC for the memorial of prince Mekonnen, Duke. This hospital is situated at the heart of the capital city on Churchill Avenue. TikurAnbesa Specialized Hospital is government owned referral and teaching hospital under the administration of Addis Ababa University, located in Addis Ababa, Ethiopia. Currently in the center 60 to 80 patients were clerked per day and every Friday 5 to 8 patients has visiting the center with foot ulcer case and annually approximately10, 000 DM cases registered.

4.2. Study period

The study was conducted from April1st to May 1st2017.GC.

4.3. Study design

Institutional based descriptive cross sectional quantitative study design was conducted at TikurAnbesa specialized hospital

4.4. Populations

4.4.1. Source population

The source population for the study was all clients attending diabetic clinic at TikurAnbessa Specialized hospital.

4.4.2. Study population

Clients who has followup at diabetic clinic those have at least one visit atTikurAnbessa specialized hospital during study period.

4.5. Inclusion & Exclusion criteria

4.5.1. Inclusion criteria:

All diabetic clients above or equal to18 years on follow up and who had at least onevisits at out-patient clinic and those who willing to participate in the study.

4.5.2. Exclusion criteria

Diabetic clients who are critically ill and mentally incompetent who are unable to provide the required information by themselves.

4.6. Sampling technique and Sampling procedure

4.6.1 Sample size determination

TASH was selected purposively. For sample size determination, single population proportion statistical formula, considering α, 95% confidence interval, an expected prevalence14% was used

$$n = \frac{(za/2)2p(1\_P)}{d2}$$

Where n=sample size

P=14% prevalence(18)

Za/2= with 95% confidence interval is 1.96

d=5% margin of error

$n = \frac{(za/2)2p(1\_P)}{d2}$ i.e. $\frac{(1.96)^2 \quad 0.14(1- 0.14)}{(0.05)^2} = 185$

By Adding 10% nonresponse rate final sample size of was 203.

4.6.2 Sampling procedure

To select the study participants average number of patients within one month those have follow up in diabetes mellitus clinic was taken. And then the list of diabetic patients was obtained from the follow up registration book and study participants were selected by using simple random sampling technique and interviewed.

4.7 Variables

4.7.1. Dependent variable

Prevalence of diabetic foot ulcer.

4.7.2 Independent variable

Socio demographic characteristic: Age, Sex, Educational level, marital status, Income, Place of residence, Occupation

Clinical factors: Active foot problem**,** Peripheral vascular disease**,** Peripheral neuropathy**,** skin texture, Hypertension**,** Renal problem

Diabetic informationfactors: Duration of diabetes, Types of diabetes, Time of treatment started, Follow up

4.8 Operational definition of terms

Foot ulcer: This phrase refers to persons with Diabetes mellitus who had history of treatment at the leg /foot area and the wound is existed because of Diabetes mellitus

Fasting blood glucose: This phrase refers to the amount of blood glucose level between 70mg/dl---126mg/dl, when the person with DM nothing eats in the morning.

4.9 Data collection Tool and procedure

The questioner has three parts. Part -I socio demographic characteristic, Part-II history of diabetic mellitus and part- III clinical factors .The questionnaire was initially prepared in English then translated in to local language (Amharic) by experts who has good ability of the two languages then translated back to English by different person to ensure consistency. To select study subjects, primarily, effort was made in creating a good rapport from the hospital, then data was obtained and the average number of patients in a month was calculated. Study subjects were selected by usingsimple random sampling technique based on the card number of patients those have follow up within one month at diabetes mellitus clinic.

4.10 Data quality assurance

To maintain the quality of the data structured and validated English version of questionnaire was adapted and translated to Amharic. Before actual data collection is started pretest was made on 5% of the study participants in Yekatet 12 hospital. Data collector training was given for half a day to how to collect the data and completeness of the questionnaire.All the collected data was checked daily for completeness, accuracy and consistency by the principal investigator.

4.11 Data processing and analysis

The collected data was entered using Epi Data version 3.1and then analyzed was used computer program running (SPSS) version 22.0. Simple descriptive statistics such as frequencies, mean, and standard deviations was used and displayed by using tables and graphs. Bivariate and multi-variate logistic regression analysis was used to determine association factors.

4.12 Ethical consideration

Ethical clearance and approval was obtained from the Ethical Committee and review board of department of nursing and midwifery, college of health science, Addis-Ababa University. Official letters was obtain from department of nursing and midwifery and then from TikurAnbessa Specialized Hospital.

Participants were informed about the objective of the study prior to the data collection, asked for their consent before participating in the study. Participation was voluntarily and participants had the right to refuse or withdraw whenever in middle. Confidentiality was maintained by omitting their names and personal identifiers throughout the study.

5. Results

5.1. Socio-demographic characteristics

A total of 198 respondents with response rate of 97.6% were participated in the study and 2.4 of the participants not responded. Out 198 respondents, 93 (47%) and 105 (53%) were females and males respectively. The mean age of the study participants was 46, with ±14.6SD.Out of total, 130 (65.7%) respondents were married. Majority 89 (44.9 %) of the respondents were Orthodox Christian by religion. Twenty one (10.6%) are illiterate and 51(25. 8%) were completed college and above.Among the study participants majority of them 94 (47.5) were Amhara in ethnicity. Table 1 below describes socio demographic characteristics of the respondents.

Table 1 Socio demographic characteristics of diabetic foot ulcer patients in TikurAnbessa specialized Hospital, from April- May, 2017 (n=198).

Variables	Frequency	Percentage
Age		
18-27	21	10.6
28-37	31	15.7
38-47	59	29.8
≥ 48	87	43.9
Sex		
Male	105	53
Female	93	47
Marital status		
Married	130	65.7
Single	41	20.7
Widowed	20	10.1
Divorce	7	3.5
Educational level		
Illiterate	21	10.6
Read and write	13	6.6
Primary	25	12.6

Secondary	56	28.3
Preparatory	11	5.6
Vocational	21	10.6
College and above	51	25.8
Occupation		
Student	8	4
Self	55	27.8
employee	60	30.3
Non employee	19	9.6
House wife	30	15.2
Others	26	13.1
Income		
<500	46	23.2
500-1000	26	13.1
>1000	126	63.6
Ethnicity		
Amhara	94	47.5
Oromo	39	19.7
Tigre	33	16.7
Gurage	29	14.6
Others	3	1.5
Place of residence		
Rural	10	5.1
Urban	188	94.9
Religion		
Muslim	56	28.3
Orthodox	89	44.9
Catholic	12	6.1
Protestant	37	18.7
Others	4	2

5.2 Diabetic History of the study participants

Ninety five (48 %) of the respondents were diagnosed with diabetes mellitus less than five year ago, followed by 56 (28.3) were five to ten years ago and 47 (23.7%) were diagnosed greater than 10 years ago. Majority of the study participants 141 (71.2%) were diagnosed with type 2 diabetes, whereas the rest 57 (28.8%) type 1 diabetes. Among the respondents more than half (51.5%) of them have taking injection treatment where about 46 % of them taking oral treatment. Only 2.5 % of the respondents taking both injection and oral treatment for diabetes.(Table 2).

Table 2 Diabetic History of the study participantsin TikurAnbessa specialized Hospital, from April- May, 2017 (n=198).

Variables	Frequency (n=198)	Percentage
When do you diagnosed Diabetes mellitus?		
<5 years	95	48
5-10 years	56	28.3
>10 years	47	23.7
Where you got diagnosed about your Diabetes mellitus		
Health center	75	37.9
Government hospital	62	31.3
Private	57	28.8
by self	4	2
Type of diabetes		
Type 1	57	28.8
Type 2	141	71.2
Type of treatment taking now		
Injection	102	51.5
Oral	91	46
Both	5	2.5

Taking medicine regularly		
Yes	172	86.9
No	26	13.1
Coming for follow up regularly		
Yes		
No	176	88.9
	22	11.1
Do you have foot ulcer		
Yes	41	20.7
No	157	79.3
Site of ulcer		
Right	15	7.6
Left	22	11.1
Both	4	2

5.3 prevalence of diabetic foot ulcer

Among the total 198 study participants those diagnosed with diabetes mellitus, 25.8% of them developed diabetic foot ulcer while 74.2 % of them did not develop diabetic foot ulcer (Fig2).

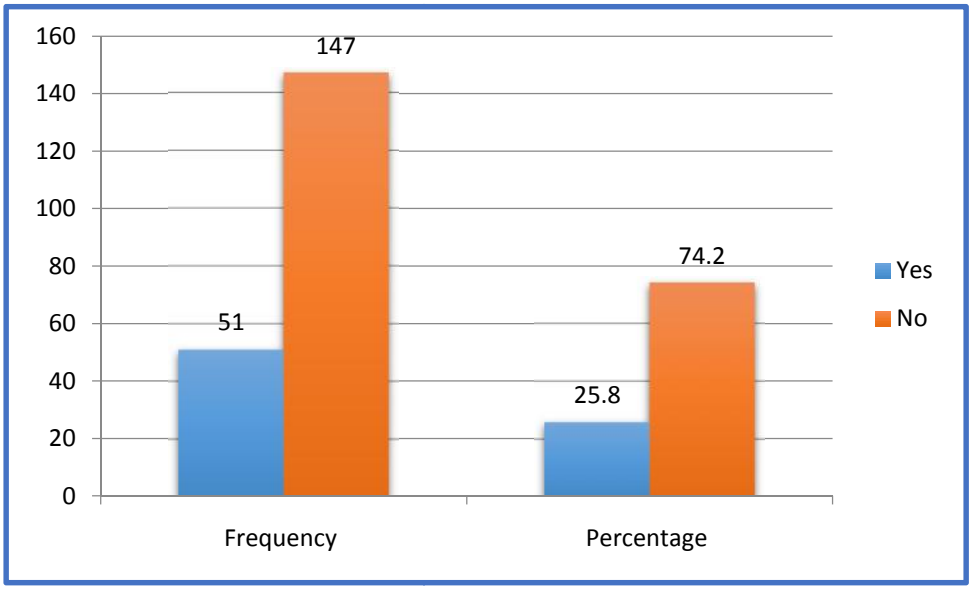

Fig:2 **Prevalence of diabetic foot ulcer among diabetic patients in in TikurAnbessa specialized Hospital, from April- May, 2017 (n=198).**

5.3 Distribution of health related risk factors

Among 198 of the respondents about 71 (35.9%) of them had history of blood pressure and 32.8% of them taking medicine for blood pressure. Regarding to kidney problem, twenty seven (13.6%) of them have the disease and 137 (69.2%) of the participants skin texture was soft. Concerning education related foot ulcer about 101 (51%) of the patients ever received foot care education (table 3).

Table 3: **Distribution of health related risk factors among diabetic patientsin TikurAnbessaHopital, from April- May, 2017 (n=198**).

Variables	**Frequency (n=198)**	**Percentage**
Diabetic patient with hypertension	71	35.9
On antihypertensive drugs	65	32.8
Diabetic patient with kidney disease	27	13.6
On kidneymedicine	21	10.6
Diabetic patient with peripheral neuropathy	36	18.2
On follow up because of peripheral neuropathy	26	13.1
skin texture		
Dry	47	23.7
Cracked	7	3.5
Soft	137	69.2
dry and Cracked	7	3.5
Diabetic patient with dermatology disease	27	13.6
Ever received foot care education	101	51
Diabetic patients those wash and dry theirfeet specially between the toes	59	29.8
Diabetic patients those have Swelling	54	27.3
Diabetic patients those have leg Pain	30	15.2

Times of checking blood sugar		
Weekly	52	26.3
Every two weeks	25	12.6
Monthly	54	27.3
By order	67	33.8
BMI		
<16	20	10.1
16-24.5	154	77.8
24.5-29.5	24	12.1
Systolic blood pressure		
≥140	73	36.9
<140	125	63.1
Diastolic blood pressure		
≥ 90	47	23.7
< 90	151	76.3

5.4 Bivariate and multivariate logistic Regression analysis of diabetic foot ulcer patients and contributing factors at Black Lion Hospital

Bivariate and multivariate analysis was performed between diabetic foot ulcer (dependent variable) and socio demographic status diabetic patients (independent variable). Binary Logistic regression was performed to assess the association of each independent variable with diabetic foot ulcer .The factors that showed a p-value of 0.2 and less were added to multivariate regression model. In multiple logistic regression analysis: Residence area and occupation were significantly associated with diabetic foot ulcer.

Patients with diabetes mellitus those live in rural areas were 8.1 times **{(AOR=8.16 ; CI (1.2, 9.5)}**more likely to develop foot ulcer compared toPatients with diabetes mellitus those live in urban areas.The other variable that was found to have association was the participants' occupation. Government employee Patients with diabetes mellitus were 5.9 times **{(AOR=5.97 ;(1.47, 24.3)}**more likely to develop foot ulcer compared toPatients with diabetes mellitus those have other occupation (table 4).

Table 4: Factors associated with diabetic foot ulcer inTikurAnbessaHopital, from April- May, 2017 (n=198).

variables	diabetic foot ulcer		**COR, 95%CI**	**AOR, 95%CI**
	yes	no		
Age				
18-27	2 (9.5%)	19 (90.5%)	0.3 (0.81-1.76)	4.22 (0.66-2.7)
28-37	7 (77.4%)	24 (22.6%)	1.04 (0.30-2.79)	0.69 (0.2-2.33)
38-47	23 (61%)	36 (39%)	2.28 (1.1-4.74)	1.35 (0.53-3.41)
≥ 48	68 (78.2%)	19 (21.8%)	1	1
Sex				
Male	26 (24.8%)	79 (75.2%)	0.89 (0.47-1.69)	0.97 (0.86-2.78)
Female	25 (26.9%)	68 (73.1%)	1	1
Education				
Illiterate	2 (9.5%)	19 (90.5%)	0.27 (0.57-1.35)	0.2 (0.002-1.61)
Read and	2 (15.4%)	11 (84.6%)	0.48 (0.94-2.44)	0.35 (0.45-2.75)
write	4 (16%)	21 (84%)	0.5 (0.14-1.72)	0.45 (0.009-

Primary	19 (33.9%)	37 (66.1%)	1.35 (0.59-3.10)	2.17)
Secondary	2 (18.2%)	9 (81.8%)	0.58 (0.113-	1.56 (0.59-4.15)
Preparatory	8 (38.1%)	13 (61.9%)	3.06)	0.87 (0.14-5.38)
vocational	14 (27.5%)	37 (72.5%)	1.62 (0.55-4.76)	1.71 (0.51-5.75)
Conational			1	1
College				
and above				
Occupation				
Student	0 (0%)	8 (100%)	1	1
Self	11 (20%)	44 (80%)	1.21 (0.24-2.34)	1.34 (0.45-3.75)
employee	26 (43.3%)	34 (56.7%)	1.37 (0.39-4.81)	1.7 (0.41-6.96)
Non-	2 (10.5%)	17 (89.5%)	0.64 (0.106-	0.99 (0.11-8.28)
employee	8 (26.7%)	22 (73.3%)	3.96)	5.23 (0.98-27.9)
House wife	4 (15.4%)	22 (84.6%)	2 (0.52-7.62)	**5.97 (1.47-**
Others			**4.2 (1.29-13.**	**24.3)****
Residence				
Rural	4 (40%)	6 (60%)	**2 (1.5-7.39)***	**8.16 (1.2-9.5)****
Urban	47 (25%)	141 (75%)	1	1
Duration of diabetes				
>5	22 (23.2%)	73 (76.8%)	1	1
5-10	9 (16.1%)	47 (83.9%)	0.63 (0.26-1.49)	0.42 (0.15-1.13)
>10	20 (42.6%)	27 (57.4%)	2.45 (1.16-5.2)	1.78 (0.69-4.55)

***P value is significant at p< 0.2** **** P value is significant at P < 0**

6. Discussion

This facility based cross sectional study has attempted to assess the prevalence and associated factor of diabetic foot ulcer among diabetes mellitus patients in TikurAnbessa Specialized hospitals in Addis Ababa, Ethiopia.

The current study revealed that the prevalence of diabetic foot ulcer was 26%. Prevalence of diabetic foot ulcer documented in this study finding was inconsistent with the findings in south Ethiopia, Arbaminch where relatively lowprevalence 14% of diabetic foot ulcer was reported(10). Another study done in Jordan reported that 5.3 % of respondents developed diabetic foot ulcer (18)anda study conducted in Indonesia showed that the prevalence of diabetic foot ulcer was 12%(19).The difference of the result might be due to difference of study area and study setting and also may be due to variation in sample size which was higher (288) than the current study. In spite of that, this study finding was consistent with the study finding in Nigeria where the prevalence rate of diabetic foot ulcer was 24.7% among diabetes mellitus patients (20).

The study found that among diabetes mellitus patients, mostly foot ulcer was developed in males rather than females and the majority of the diabetic patients with foot ulcer were from urban areas. This finding was incomparable with the study conducted in south Ethiopia where high number of foot ulcer related to diabetes mellitus was reported among females and more than half of diabetic patients with foot ulcer were from rural areas (10).This difference could be due to difference of study participants' residence area, the current study was conducted in the capital city of the country and the other explanation may be due to the fact that individuals in rural areas often spent most of their time in farm area or outdoors doing jobs that need more energy compared to women.And also these patients are less likely to take care of their foot problems

Concerning the type of diabetes, majority (80%) of the diabetic patients with foot ulcer were type 2 diabetes mellitus. This was consistent with the finding in Tal-Qroqq, Malta study where almost all of the participants with diabetic foot ulcerationwas type 2 diabetic patients (3). This may be due to common diagnosis of diabetes mellitus was type 2 and the other explanation could be the high incidence of type 2 diabetes mellitus

Regarding to diabetic related risk factors, 18.2% had peripheral neuropathy and had 13.6 % renal diseases. This was in line with findings in the study conducted in in Kenya where Neuropathic type of foot ulcer was present in 46.06% of patients, Ischemic type of foot ulcer was present in 19.74% of patients and Nero ischemic type of foot ulcer was present in 34.2% of patients (11).

A cross sectional study conducted in Saud Arab looked at the prevalence of risk factors for diabetic foot complications and found that the prevalence of hypertension among patients with diabetic foot ulcerwas 56% (21). The result is inconsistent with the current study where it was only 35.9%.This difference could be explained due to difference in study setting y and as well as the race variation between the two study populations.

Diabetic patients who lived in rural area were about 8 times higher to develop diabetic foot ulcer as compared to the urban residents, {(AOR=8.16 ;(1.2, 9.5)},which could be supported by another study stating patients living in rural areas, and those with poor socioeconomic conditions, were at a higher risk for developing diabetic foot ulcers (13).This might be due to the reason that those living in remote area have in adequate access of information that can help them to give self-care in order to reduce diabetic foot ulcer and they areless likely to take care of their foot problems.

In the current study age was not showed significant association. In the study conducted in Indonesia, age was significantly associated, age is older (P = 0.021) for development of diabetic foot ulcer (19).

Regarding to educational level and duration of diabetes mellitus there was no association with diabetic foot ulcer(19). This was consistent with the current study where there was no association between diabetic foot ulcer and educational level and duration of diabetes mellitus.

7. Limitation and strength

7.2 Strength

- High response rate
- Used simple random technique that conducted by interview

7.1 Limitation

- Since the study was cross-sectional it does not show causal relationship.
- Presence of very limited similar studies in the country for comparison purpose.
- Lack of generalizability to general population because of only conducted at TikurAnbessa Specialized hospital

8 Conclusions

The study revealed that the prevalence of diabetic foot ulcer among diabetic patients in Black Lion Hospital was about 26 %. In relation to association, place of residence and occupation were significantly associated with development of diabetic foot ulcer in multivariate logistic regression. Hypertension, Renal disease and peripheral neuropathy were among the additional disease of diabetic patients. There is a need to design and implement an intervention to reduce the incidence of diabetic foot ulcer

8.1 Recommendation

Federal ministry of health

- Increasing awareness among community on how to reduce the risk factors to develop foot ulcer on diabetic patients

Health care providers

- Providing education by designing strategy that can include all patients related to diabetes mellitus and the benefit self-care practice in order to reduce diabetic foot ulcer

Other researchers

- Further study should be conducted to identify the intervention to reduce diabetic foot ulcer.

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10. ANNEXES

Annex -i- Information sheet

***Title of Research*:** Prevalence of diabetic foot ulcer and associated factorsatTikurAnbesa Specialized Hospital diabetic center, Addis Ababa, Ethiopia, February, 2017.

***Institution*:**Addis Ababa University, College of Health Sciences, School of Allied Health Sciences, Department of Nursing and Midwifery (Graduate Program)

Name of sponsor: TikurAnbesa Specialized Hospital

***Principal Investigator*: AlewiyaYimam** (BSc)

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***Advisor*:** 1.Aklile Hailu (MSc, BSc, RN)

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: E-mail akleleu@yahoo.com

2.MrsRajalakshmiMurugan(Assistant professor)

Mobile: +251911721193

E-mail rajisomanathan@gmail.com

Purpose The aim of the study is toassesPrevalence of diabetic foot ulcer and associated factors At TikurAnbesa Specialized Hospital diabetic center, Addis Ababa, Ethiopia, February, 2017

Duration: The question that is going to be asked usually takes about 20-30 minutes.

Benefit of the study: - There is no direct benefit to you now. However, the result of the study will be helpful for all population in the future by assessing Prevalence of diabetic foot ulcer and associated factors

Risk of the study: - Participating in this study will not have any risk or harm associated with data collection.

Rights of Participants: - You have full right to participate or to refuse and you can ask question if it is not clear for you.

Confidentiality: - confidentially will be maintained, no identification will be recorded

Annex-ii-Consent form

Addis Ababa University College of Health Sciences School of Allied
Health Science Department of Nursing and Midwifery questionnaire for assessment of prevalence of diabetic foot ulcer and associated factors at TikurAnbesa specialized hospital Addis Ababa Ethiopia from April to may2017

INTRODUCTION

Hello!! Dear participants, this questionnaire is prepared by AlewiyaYimam, Masters of science Student in Addis Ababa university in the field of adult health science nursing to assess the Prevalence of diabetic foot ulcer and associated factors health institutions, Addis Ababa, Ethiopia from April to May 2017.

The aim of this Study is to determine the assessment of prevalence of diabetic foot ulcer and associated factors at TikurAnbesa Specialized Hospital Addis Ababa Ethiopia from April to May 2017

Will provide base line data to find possible solutions. During the study your response will be kept Confidentially, there is no name identified or anonymity will be kept and there will be no any Visible risk with your participation. There is no payment for your participation but we greatly thank for your participation and you have the right to refuse from

Participation at any time .Are you voluntary to participate?

1. **Yes** I have understand the above information and I am volunteer to participate in a Study conducted onto assess the prevalence of diabetic foot ulcer and associated factors at TikurAnbessa specialized hospital, Addis Ababa, Ethiopia, 2017

2. Signature ---------- Date----------

Data collector's signature---------- Date -------

2. **No** if not voluntary please stop here.

If you are voluntary to participate in the study; we kindly request you to provide you're genuine Response for the interview. Thank you for your volunteer participation!!!

Annex -III-English version questionnaire

Part one: - Socio-demographic

Q No.	Questions	Responses
101	Age	_____
102	Sex	1. Male 2. Female
103	Marital Status	1. Married 2. Single 3. Widowed 4. Divorced
104	Educational Level	1. cannot read and write 2. Can read and write 3. Primary school 4. Secondary school 5. preparatory school 6. Technical school 7. College graduate or above
105	Occupation	1. Student 2. Self employed 3. Employed 4. Unemployed 5. House wife 6. Other (Specify) ……
106	Monthly Income	…… Birr
107	Religion	1Muslim 2 Orthodox 3 catholic 4 protestant 5 other (specify)……
108	Residence	1urban 2Rular
108	Ethnicity	1Amhara 2Oromo 3Tigray 4 Other(specify)

Part two Diabetic history

	question	response
201	When do you diagnose Diabetes mellitus	…… years before/ month
202	Where you got diagnosed about your Diabetes mellitus	1 Health center 2Government Hospitals 3Private clinic 4Self-diagnosis by blood test 5others (specify)……..
203	what type of DM you have	1 Type one 2 type two
2o4	, what type of treatment taking now	1 Insulin therapy 2 Oral hypo glycemic agent 3 Combination oral hypo glycemic agent and Insulin therapy 4 only diet regulation
2o5	when started treatment	…….year/month
2o6	Are you taking medicine regularly	1 Yes 2 NO
207	Are you coming for follow up regularly	1 Yes 2 No
209	Do you have foot ulcer	1 Yes 2 No
210	where is have your ulcer	1 Yes 2 No

Part three Associated factor

301	.Do you have Blood pressure	1 Yes 2 No
302	If yes are you taking medicine	1 Yes 2 No
303	Do you have kidney disease	1 Yes 2 no
304	If yes are you taking medicine	1 Yes 2 No
305	Do you have peripheral neuropathy	1 Yes 2 No
306	If yes 1 when started 2 Do you have follow up neuron clinic	……. year(month 1 Yes 2 No)
307	Do you have any dermatology disease	1 yes 2 no
308	what is your skin texture	1 Dry 2 Moist 3Cracked
309	Do you have always wear good supportive shoes	1Yes 2No
310	Do you wash and dry your feet specially between the toes	1Yes 2No
311	Do you check the colure of the legs and feet if there is warmth, redness	1Yes 2No
312	If you have pain do you see your doctor	1Yes 2No
313	If no, why reason	_____
314	Have you annual foot examination by professional	1Yes 2No
315	Do you check fasting blood sugar	1Yes 2No
316	If yes, how many times do you check	1.every week 2.every two week 3.every month
317	Have you ever received foot care education	1Yes 2No
318	Do you perform regular exercise	1Yes 2No
319	Do you avoid going bare foot outside indoor	1Yes 2No
320	Do you check for foreign object in shoes before wearing them	1Yes 2No

Annex IV Amharic version

አባሪ1 የግልመረጃጽ

የጥናቱርዕስ፡-

በጥቁርአንበሳሆስፒታልከሚመጡየስኳርህሙማንመካከልበስኳርበሽታምክኒያትስለሚመጣየአግርቁስልስርጭትበተመለከተዳሰሳለማድረግ፡፡

ተቋም፡አዲስአበባዩኒቨርሲቲየጤናሳይንስኮሌጅየነርሲንግእናሚድዋይፍከፍል

ስፖንሰር፡የአዲስአበባዩኒቨርሲቲየጥቁርአንበሳሆስፒታል

የዋናመርማሪስም፡አለዊያይማም ስልክ፡ +251911753963

Email:alewimam5@gmail.com

የአማካሪስምእናአድራሻ፡- ሲ/ርአክሊለሀይሉስልክ +251914731228

ተባባሪአማካሪ፡ተባባሪፕርፌሰርራጃካሲሚንሙርጋስልክ +251911721193

አላማ፡

የዚጥናትአላማበጥቁርአንበሳሆስፒታልከሚመጡየስኳርህሙማንመካከልበስኳርህመምምክኒያትስለሚመጣየአግርቁስልአናተዛማጅችግሮችንበተመለከተዳሰሳለማድረግ፡፡

፡

ጥያቄውየሚወስደውጊዜ፡ 20 ደቂቃ

የዚጥናትጥቅም፡ለተጠያቂውቀጥታየሆነጥቅምየለውምነገርግንከጥናቱበሚገኘውውጤትመሰረትበማድለግህብረተሰቡንለውደፊትተጠቃሚያደርጋል።

የጥናቱጉዳት፡በዚጥናትበመሳተፋችሁየሚደርስባቹምንምአይነትጉዳትየለም።

የጥናቱተሳታፊመብት፡በጥናቱላይየመሳተፍወይምያለመሳተፍእንዲሁምያልገባችሁንየመጠየቅሙሉመብትአላችሁ።

ሚስጥርጠባቂነት፡መለያባለመመዝገብተጠያቂውየሚሰጠውንመረጃሚስጥርይጠበቃል።

የጥያቄመለያ _____

አባሪ 2፡የፍቃደኝነትመግለጫቅጽ

የጥnናቱ]ርዕስ፡-አላማ፡

በጥቁርአንበሳሆስፒታልከሚመጡየስኳርህሙማንመካከልበስኳርበሽታምክኒያትስለሚመጣየአግርቁስልስርጭትበተመለከተዳሰሳለማድረግ፡፡

ይህጥናትእናምርምርለኤምኤስሲዲግሪበከፊልማሟያበአዲስአበባዩኒቨርሲቲኮሌጅየጤናሳይንስየነርሲንግእናሚድዋይፍክፍልደጋፊነትእና መርማሪአስተባባሪነትበመከናወንላይእንዳለአውቂያለሁ፡፡

የጥናትናምርምርፕሮጀክትአላማዎችንበሚገባንቋንቋሙሉበሙሉእንዳውቅተደርጌአለሁ፡፡ይህምአላማ፡

የዚህጥናትአላማበህዝብሆስፒታልከሚመጡህሙማንመካከልበስኳርበሽታምክኒያትስለሚመጣየአግርቁስልስርጭት አናተዛማጅችግሮችንበተመለከተዳሰሳለማድረግ፡፡

በቃለመጠይቁተጠያቂውየሚሰጠውመረጃሁሉሚስጥራዊመሆኑተነግሮኛል፡፡

ጥናትናምርምሩአደጋእናሌላተጨማሪአላማየሌለውመሆኑንተረድቻለሁ፡፡እንዲሁምመረጃውንየመያዝ፣

ጥያቄዎችንሳልመልስየማለፍወይምበማንኛውምጊዜከጥናቱየመውጣትመብትእንዳለኝየወጣሁበትንምክንያትእንድገልጽማንምሰውሊጫነ ኝእንደማይችልአውቄአለሁ፡፡

በእኔየጤናጥቅምላይሙሉበሙሉተጽኖየማይኖረውመሆኑወይምባለመቀበሌየሚደርስብኝአስተዳደራዊተጽእኖአለመኖሩንአውቂያለሁ፡፡

ጥናትናምርምሩንበተመለከተቀደምብዬወይምየጥናትስራውበሚከናወንበትጊዜግልጽያልሆነውንመረጃከአዲስአበባዩኒቨርሲቲየጤናሳይን ስኮሌጅአይአርቢጽ/ቤትየመጠየቅመብትእንዳለኝአረጋግጫለሁ፡፡

የዋናመርማሪስም፡አለዊያይማምስልክ፡ +251911753963

የአማካሪስምእናአድራሻ፡- ሲ/ርአኪሊለሀይሉ(MSC)

ተባባሪአማካሪ፡ረዲትፕሮፌሰርራጃካሲሚንሙርጋ

ይህንንቅጽተረድቼዋለሁወይምከላይበተጠቀሰውሁኔታበሚገባኝእናበምግባባበትቋንቋተነቦልኛልስለዚህለመሳተፍፍቃደኛመሆኔንበፊርማ ዬአረጋግጣለሁ፡፡

በጥናቱላይለመሳተፍተስማምቻለሁ፡፡አዎ/ አይደለም (ፍቃደኛለመሆንዎአንዱላይምልክትያድርጉ)

ፊርማ ----------

የምስክርስምናፊርማ ---------- (መረጃስብሳቢ፣ሱፐርቫይዘር፣ማንኛውም 3ኛወገን)

አንደኛ ፡ ስለተጠያቂዎቹያለየግልመረጃ

ተ.ቁ	ጥያቄዎች	መልሶች
101	እድሜ	_____
102	ጾታ	1. ወንድ 2. ሴት
103	የጋብቻሁኔታ	1. ያገባ 2. ያላገባ 3. የትዳርአጋርየሞተበት 4. የተፋታ
104	የትምህርትደረጃ	1. ማንበብናመጻፍየማይችል 2. ማንበብናመጻፍየሚችል 3. የአንደኛደረጃትምህርት 4. የሁለተኛደረጃትምህርት 5. የመሰናዶደረጃትምህርት 6. የሙያትምህርት 7. የኮሌጅትምህርትወይምከዚያበላይ
105	ስራ	1. ተማሪ 2. የግልስራ 3. ተቀጣሪ 4. ስራየሌለው 5. የቤትእመቤት 6. ሌላ（ይገለጽ）。。。。
106	ወርሃዊገቢ	。。。。。。。ብር
107	ብሄር	1. አማራ 2. ያሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላከሆነይጠቀስሌላከሆነይጠቀስ
108	የመኖሪያስፍራ	1 ገጠር 2 ከተማ

ሁለተኛ ፡ ስለስኳርህመምዎታሪክመረጃ

ተ.ቁ	ጥያቄዎች	መልሶች
201	የስስኳርህመምአንዳለብዎለመጀመሪያጊዜያወቁትመቼነው	..... ዓ/ም
202	የስስኳርህመምአንዳለብዎለመጀመሪያጊዜያወቁትየትነው	1. ጤናጣቢያ 2. በመንግስትሆ/ል 3 በግልሆ/ልወይምክሊኒክ 4lበራስዎየደምምርመራበማድረግ 5
203	የትኗውአይነትየስኳርህመምአለብዎ ?	1. አንደኛውአይነት 2. ሁለተኛውአይነት
204	የትኛውንየስኳርህመምመቆጣጠረያይወስዳሉ?	1. በመርፌየሚሰጠውን 2. በኪኒንየሚሰጠውን 3. ሁለቱንምአይነት 1. አመጋገቤንበማስተካከልብቻ
205	መቼነውየስኳርህመምመቆጣጠረያመውሰድየጀመሩት?	.....ዓ/ምወር
206	መድሀኒትዎንበትክክለኛውስአትይወስዳሉ?	1. አዎ 2. አይ
207	ለህክምናክትትልዎበተገቢውስአትእናቦታይገኛሉ?	1. አዎ 2. አይ
208	የእግርላይቁስልአጋጥመዎትያውቃል	1. አዎ 2. አይ
209	የእግርላይቁስልአጋጥሟትከነበረየትኛውእግርዎነው	1. ቀኝ 2. ግራ

ሶስተኛ ፡ተዛማጅችግሮች

ተ.ቁ	ጥያቄዎች	መልሶች
301	የደምግፈትአለብዎ ?	1. አዎ 2. አይ
302	የደምግፈትዎይገለፅ ?	
303	የደምግፊትካለብዎየደምግፈትመድሀኒትይወስዳሉ	1. አዎ 2. አይ
304	የኩላሊትበሽታአለብዎ ?	1. አዎ 2. አይ
305	የኩላሊትበሽታክአለብዎመድሀኒትይወስዳሉ ?	1. አዎ 2. አይ
306	በእግርዎእናእጅዎላይየነርቭህመምአጋጥሞዎነበር	1. አዎ 2. አይ
307	የነርቭህመምህክምናክትትልአለዎት	1. አዎ 2. አይ

308	የቆዳዎአይነት ?	1. ደረቅ 2. የሚሰነጣጠቅ 3. ለስላሳ 4. ደረቅናየሚሰነጣጠቅ
309	የቆዳላይህመምአጋጥሞትነበር ?	1. አዎ 2. አይ

310	ከስ ካር ህ መምጋ ር በ ተ ያ ያ ዘ የ ጤና ት ምህ ት አ ግኝ ተ ውያ ውቃሉ ል ?	1. አ ዎ 2. አ ይ
311	እ ግ ር ዎ ን በ የ ጊ ዜ ወአ የ ታ ጠቡ ያ ደ ር ቃ ሉ በ ተ ለ ይ በ ጣ ት ዎ መ ካ ከ ል ?	1. አ ዎ 2. አ ይ
312	የ እ ግ ር ዎ ን መ ቅ ላ ት ማ በ ጥ ና ት ኩ ሳ ት በ የ ጊ ዜ ውይ መ ለ ክ ታ ሉ ?	1. አ ዎ 2. አ ይ
313	የ እ ግ ር ህ መ ም ሲ ኖ ር ዎ በ ሀ ኪ ም ይ ታ ያ ሉ ወ ይ ም ለ ተ ጨ ማ ሪ ም ር መ ራ ና ህ ክ ም ና ይ ሄ ዳ ሉ ?	1. አ ዎ 2. አ ይ
314	በ ደ ም ዎ ውስ ጥ ያ ለ ው ን የ ስ ኳ ር መ ጠ ን በ ም ን ያ ህ ል የ ጊ ዜ ል ዩ ነ ት ይ ለ ካ ሉ ሉ ?	1. በ የ ሳ ም ን ቱ 2. በ የ ሁ ለ ት ሳ ም ን ቱ 3 3. በ የ ወ ሩ 4. የ ህ ኪ ም ት እ ዛ ዝ ሲ ኖ ር ብ ቻ
315	በ ደ ም ዎ ውስ ጥ ያ ለ ው ን የ ስ ኳ ር መ ጠ ን ይ ገ ለ ጽ	
316	የ ሰ ውነ ት ዎ ክ ብ ደ ት	
317	ቁ መ ት	
317	የ አ ካ ል ብ ቃ ት አ ን ቅ ስ ቃ ሴ በ የ ስ ን ት ጊ ዜ ውያ ደ ር ጋ ሉ	
318	ሁ ል ጊ ዜ ም ቾ ት የ ሚ ሰ ጥ ዎ ት ን ጫ ማ ይ ጫ ማ ሉ	1አ ዎ 2አ ስ ቤ ወአ ላ ወ ቅ ም 3አ ን ዳ ን ድ ጊ ዜ ብ ቻ
319	ጫ ማ ዎ ን ከ መ ጫ ማ ት ዎ በ ፊ ት ባ ኧ ድ ነ ገ ር ጫ ማ ዎ ውስ ጥ አ ን ደ ሌ ለ ያ ረ ጋ ግ ጣ ሉ	1አ ዎ 2አ ይ
320	BMI	

Annex-IV- Declaration

I, the undersigned, declare that this my original work and has never been presented by another person in this or any other university and that all the source materials and reference used for this thesis have been acknowledged.

Name ALEWIYA YIMAM-

Signature ----------

Place – TIKUR ANBESA SPECIALIZE HOSPITAL-

Date of submission: ……..

This has been submitted for examination with my approval as a university advisor.

Name of advisor AKLIL.H (RN .BSc, MS) Signature…….:

Date…….