ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF SELF CARE PRACTICES AND ASSOCIATED FACTORS AMONG TYPE 2 DIABETIC PATIENTS AT TIKUR ANBESSA SPECIALIZED HOSPITAL ADDIS ABABA, ETHIOPIA

BY:

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A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN ADVANCED ADULT HEALTH NURSING IN DEPARTMENT OF NURSING AND MIDWIFERY.

JUNE, 2014

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ADDIS ABABA, ETHIOPIA

APPROVED BY THE BOARD OF EXAMINERS

This thesis by **Feyissa Lemessa** is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of master in Adult Health Nursing.

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Acknowledgements

First and foremost, I would like to thank the almighty GOD who gives me complete health to perform this final research thesis, thank you lord!

I am deeply indebted to my advisor, assistant professor Asrat Demissie, for his unfailing support, wisdom and guidance in all research period time. I am also grateful for the suggestions and contributions of academic staffs of AAU, Department of Nursing and midwifery. I especially thank the participants of this study, coordinators, data collectors, all staffs of TASH at diabetic centre and administrative workers of AAU, department of nursing and midwifery. Finally my thanks go to my family and colleagues who gives me an advice directly or indirectly for accomplishment of this final research thesis.

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Acronyms and abbreviations

ADA: American Diabetic Association

AIDS: Acquired Immune Deficiency Syndrome

AHA: America Heart Association

AOR: Adjusted Odds Ratio

BMI: Body Mass Index

COR: Crudes Odds Ratio

DM: Diabetes Mellitus

FBS: Fasting Blood Sugar

FPG: Fasting Plasma Glucose

GDM: Gestational Diabetes Mellitus

HE: Health Education

HIV: Human Immune Deficiency Virus

ICU: Intensive Care Unit

IDA: International Diabetic Association

IDDM: Insulin Dependent Diabetes Mellitus

IDF: International Diabetic Foundation

IRB: Institutional Review Board

NIDDM: Non Insulin Dependent Diabetic Mellitus

OHA: Oral Hypoglycemic Agent

PI: Principal Investigator

RFDF: Risk Factors for Diabetic Foot

SDSCA: Summary of Diabetes Self Care Activities

SMBG: Self Monitoring Of Blood Glucose

SPSS: Statically Package for Social Science

STD: Sexually Transmitted Disease

TASH: Tikur Anbessa Specialized Hospital

T2DM: Type 2 Diabetes Mellitus

WHO: World Health Organization

Abstract

Background: Diabetes is a general term for a group of metabolic disorder that affects the body's ability to process and use sugar (glucose) for energy. The three most important forms of diabetes are type I, type II and gestational diabetes. Type 1 diabetes results from cell destruction usually leading to absolute insulin deficiency. Type 2 diabetes results from a progressive insulin secretary defect on the background of insulin resistance. Diabetes is a serious public health problem that threatens the quality of life, the success of long term maintenance therapy for diabetes depends largely on patients' adherence with self care practice.

Objectives: To assess diabetes self care practices and associated factors among diabetic patients in Tikur Anbessa Specialized Hospital, Addis Ababa.

Methods: Institutional based cross sectional study design was utilized, 328 study subjects were selected using systematic random sampling technique and the data was collected using interviewer administered structured questionnaires, data was entered in to EPI INFO version 3.5.4 and analyzed using SPSS version 20. Frequencies and cross tab was computed. Bivariate and multivariate logistic regression was computed to assess statistical association between the outcome variable using Odds Ratio, significant of statistical association was assured or tested using 95% and p value (<0.05). Scoring method was employed to classify patients' self care practice level as adhered or not adhered.

Results: The response rate was 98.8% of all respondents 174(53.7%) and 150(46.3%) were female and male respectively. The majority of study subjects 221(68.2%) were in the age group of 30 to 60 years. Most of respondents were orthodox Christian 259(79.9%) by religion and Amhara 170(52.5%) by ethnicity. About 243(75%), 238(73.5%), 187(57.7%), 72(22.2%) were

attended formal education, married, unemployed and had very low monthly income respectively. Majority 207(63.9%) respondents were not adhered to SMBG practice.

A total of 204(63%) respondents were adhered to anti-diabetic medications. The majority 191(58.9%) were not adhered to recommended diet management practices, one hundred fifty nine (49.1%) were reported adhered to physical activity that meet the recommended guidelines. Of all study participants about 172(53.1%) respondents were adhered to the recommended diabetic foot care practices. Over all self care practices (SDSCA) were reported as adhered in 167(51.5%) participants. There was a significant association between level of education, monthly income, presence of glucometry at home, marital status, age and gender and self care practices. But there was no significant association between duration of diabetes, occupation and family history of diabetic and self care practices.

Conclusion: Despite the important role of self care practices in management of diabetes were recognized to be useful and effective in achieving diabetes control and preventing its serious complications, finding of this study were indicated that most patients had no adherence to self care practice especially in SMBG and diet management. Generally, adherence to self care practice was suboptimal among type II diabetic patients in TASH Endocrinology unit.

Recommendation: Health care personnel must increase patient's awareness on the importance of all domains of self care practices and strongly promote the practice through effective IEC program.

Keywords: adherence, self care, self care practice, diabetic complications, associated factor

1. INTRODUCTION

1.1. Background

Diabetes Mellitus (DM) is a general term for a group of metabolic disorders that affect the body's ability to process and use sugar (glucose) for energy. The three most common forms of diabetes mellitus are Type 1 Diabetes Mellitus, Type 2 Diabetes Mellitus, and Gestational diabetes. Type 1 diabetes (results from cell destruction usually leading to absolute insulin deficiency). Type 2 diabetes mellitus (T2DM) results from a progressive insulin secretory defect on the background of insulin resistance (1).

Other specific types of diabetes due to other causes, e.g., genetic defects in cell function, genetic defects in insulin action, diseases of the exocrine pancreas (such as cystic fibrosis), and drug or chemical induced (such as in the treatment of HIV/AIDS or after organ transplantation). Gestational diabetes mellitus (GDM) diabetes diagnosed during pregnancy that is not clearly overt diabetes) (2).

The prevalence of diabetes has reached epidemic proportions. According to IDF (International Diabetes Federation) Atlas, 6th edition 2013 report, currently, more than 80% of people with diabetes live in Low and Middle Income Countries**.** An estimated 382 million people were living with diabetes in 2013. The number is expected to grow to 592 million by 2035 (one adult in 10 will have a diabetes). This equates to approximately 3 new cases every 10 seconds or almost 10 million per year and the largest age group currently affected by diabetes is between 40-59 years. The African region is expected to experience the highest increase in coming years with estimated increase in prevalence rates of 98% for sub-Saharan Africa, and 94% for North Africa and the Middle East (3).

The International Diabetes Federation (IDF) Atlas 6th edition 2013 report (ARF) revealed that in 2013, 19 million adults in the Africa Region are estimated to have diabetes, with a regional prevalence of 3.8%. The top six countries with the highest number of people with diabetes make up just over half of the total number in the region. This would rise to 28 million by 2030 with prevalence of 4.3%, an increase of 80%, as such exceeding the predicted worldwide increase of 55% (4).

Type 2 diabetes is responsible for 85-95% of all diabetes in high-income countries but Type 2 diabetes accounts for well over 90% of diabetes in Sub-Saharan Africa. Based on the IDF Atlas 5th edition, 2012 report ,number of cases of diabetes in Ethiopia to be estimated about 1.4 million in 2010 (5).

When it is not prevented and properly managed diabetes is one of the major causes of premature illness and death worldwide. Non- communicable diseases including diabetes account for 60% of all deaths worldwide and more than 80% of diabetes deaths occur in low- and middle-income countries According to IDF Atlas 5th edition 2012 report Diabetes caused 4.6 million deaths in 2011 globally. World Health Organization projects that diabetes deaths will double between 2005 and 2030. Statistics for medical complications from diabetes are also concerning. Proportions of patients with diabetic complications in sub Saharan region ranged from 7-63% for retinopathy, 27-66% for neuropathy, and 10-83% for nephropathy. Diabetes is likely to increase the risk of several important infections in the region, including tuberculosis, pneumonia and sepsis (6). Diabetes being a chronic illness requires continues self care practices by sufferers so that they can contribute meaningfully in the management of their lives. A situation where diabetes patients visit clinics regularly and their blood glucose levels still remain high despite the treatment they receive is a problem that calls for attention (7).

This is a very common observation in many diabetes patients. A large number of them report to the hospital with severe complications, like gangrene that may lead to amputation and possible premature death, this might be because of lack of appropriate self care practices (8).

Despite the benefits of engaging in a recommended self-care regimen, research remains limited on determining recommended self-care practices level and its associated factors among diabetes patients. The Behavioral Risk Factor Surveillance System for North Carolina revealed that 83% of respondents with type 2 diabetes mellitus performed blood glucose monitoring and more than 93% had visited a health care provider for diabetes care in the past year.

Other researchers have suggested that self-care activities vary extensively according to the nature of the activity itself, with taking of medication often occurring as recommended and exercise frequently falling below recommended levels. For example, results from one study showed that 97% of respondents with diabetes always or usually took their medication, whereas only 41% always or usually exercised, as cited by Nancy E. Schoenberg (9).

Furthermore, although the studies have begun to illuminate our understanding of some of the predictors of differences in diabetes self-care, we currently lack an in-depth understanding of level and associated factors of diabetes patients to ward diabetes self-care practices. The major problematic condition about diabetes self care practices is that there are limited research findings on patients who are found in sub Saharan Africa especially in Ethiopia, even there is no sufficient enough published material and little research is done. To address these deficits, this research explores and highlights patient's level of knowledge and associated factors to diabetes self-care regimens in Tikur Anbessa Specialized Hospital endocrinology unit, Addis Ababa.

1.2 Statement of the Problem

Today's nurse is faced with challenges of providing high quality evidence based care to clients in traditional as well as new innovative health care settings for both acute and chronic illness. Diabetes being a chronic illness requires continues self care practices by so that it can contribute meaningfully in the management of their lives. A situation where diabetic patients visit clinics regularly and their blood glucose level still remains high despite of the treatment they receive is a problem that need for attention. This is very common observation in many diabetic patients. Sometimes, slight symptoms that these patients could take care of at home bring them back to hospitals for medical checkups. Many number of them however report to hospital with severe complication like gangrene that lead to amputation and possible pre mature death which may be due to lack of appropriate self care practices as cited by Okolie, V. uchenna and Ehiemere, O. Ijeoma et al (8).

Despite the benefits of engaging in a recommended self-care regimen, research remains limited on determining recommended self-care practices level and its associated factors among diabetes patients. The Behavioral Risk Factor Surveillance System for North Carolina revealed that 83% of respondents with type 2 diabetes mellitus performed blood glucose monitoring and more than 93% had visited a health care provider for diabetes care in the past year. Other researchers have suggested that self-care activities vary extensively according to the nature of the activity itself, with taking of medication often occurring as recommended and exercise frequently falling below recommended levels. For example, results from one study showed that 97% of respondents with diabetes always or usually took their medication, whereas only 41% always or usually exercised, as cited by Nancy E. Schoenberg (9).

Because of the importance self care activities to achieve and maintain desirable blood glucose levels, researchers increasingly have begun to investigate correlates of perceived barriers to T2DM self care behaviors. For example a study found that personal characteristics like lower education, socioeconomic status, and higher level of depression, male gender, being unmarried and younger age (30-49 years old) were associated with problems in T2DM self care. However, even if it is useful to identify general characteristics that related to poor self behavior, it may be of greater utility from public health perspective to identify and understand inconsistence self care practices and associated factors of diabetic patients as cited by Nancy E. Schoenberg (9).

Furthermore, although the studies have begun to illuminate our understanding of some of the predictors of differences in diabetes self-care, it is difficult to understand and associated factors of type 2 diabetes patients to ward diabetes self-care practices. The major problematic condition about diabetes self care practices is that there are limited research findings on patients who are found in sub Saharan Africa including Ethiopia, even there is no enough published material and little research is done. To address these deficits, this research explores patient's level and associated factors to diabetes self-care regimens in Tikur Anbessa Specialized Hospital endocrinology unit, Addis Ababa City.

1.3. Significance of the Study

Diabetic Mellitus is a common incurable chronic disease which emerged as an important clinical and public health problem throughout the world. Likewise in Ethiopia, diabetes has become more common and it is a fast growing disease. WHO estimated the number of cases of diabetics in Ethiopia to be about 800,000 in 2000, and projected that it would increase to about 1.8 million by the year 2030. It requires continual medical care and education to prevent its acute and chronic complications by comprehensive education in self-management to prevent these complications and early death from diabetes self care for diabetic (6).

Although the importance of self care is well established, it is often not achieved. Based on previous literature, there are various factors associated with self care practices.

Contribution of poor self care practice is due to the paucity of information available to patients about the importance of compliance to self care practice and adherence to diabetes self-care behaviors and to healthcare providers about patients' barriers to compliance to and practicing diabetes self-care behaviors. For that reason, this thesis attempts to provide a holistic overview on patients' diabetes self care practice and adherence to diabetes self-care behaviors and the assessment of their associated factors. Therefore, the study will provide a clue for early detection and prevention of acute and chronic complications by promulgating self care practice. So, to prevent the complications it is important to find out how patients with diabetes Type 2 in the Tikur Anbessa Specialized Hospital practice self-care.

2. LITERATURE REVIEW

The 6th edition of the International Diabetes Federation (IDF), Atlas confirms the precipitous rise in diabetes over the last few years. In 2013, 382 million people estimated to have diabetes, with dramatic increases seen in countries all over the world. The overwhelming burden of the disease continues to be shouldered by low- and middle-income countries. Socially and economically disadvantaged people in every country carry the greatest burden of diabetes and are often the most affected financially. Africa has the highest proportion of undiagnosed diabetes which is about 78 per cent; this is according to a study by the International Diabetes Federation (IDF) published in the world diabetes Atlas. It said Sub-Saharan Africa has more than 15 million of the 371 million people living with diabetes in the world. It said an estimated 344,000 deaths in the region could be attributed to diabetes, which represents 6.1 per cent of deaths from all causes (2).

2.1 Type 2 diabetes mellitus

I. Definition: Type 2 diabetes mellitus (T2DM) comprises an array of dysfunction resulting from the combination of resistance to insulin action and inadequate insulin secretion. It is characterized by hyperglycemia and associated with micro vascular (retinal, possibly neuropathic), macro vascular (coronary, peripheral vascular) and neuropathic (autonomic, peripheral) complications. Currently because of epidemic of obesity and inactivity in children T2DM is occurring at younger ages. Although T2DM typically affects individual older than 40 years it has been diagnosed in children as young as 2 years of age who have a family history of diabetes as cited by Romesh Khardori (2).

II. Etiology: presumably Type 2 Diabetes Mellitus (T2DM) develops when a diabetogenic lifestyle (excessive caloric intake, inadequate caloric expenditure, obesity) is superimposed upon a susceptible genotype. About 90% of patients who develop T2DM are obese.

Diabetes mellitus may be caused by other conditions. Some studies suggest that environmental pollutants may play a role in the development and progression of type 2 diabetes mellitus. Secondary diabetes may occur in patients taking glucocorticoids or when patients have conditions that antagonize the action of insulin (cushing syndrome, acromegally, pheochromocytoma). The major risk factors for type 2 DM are the following: age greater than 45 years (though as noted above, type 2 Diabetes Mellitus is occurring with increasing frequency in young individuals), weight greater than 120% of desirable body weight. Family history of type 2 diabetes in first degree relative (e.g. parent or sibling), hypertension (>140/90 mmHg) or dyslipidemia (high density lipoprotein cholesterol level < 40 mg/dl or triglyceride level > 150 mg/dl), history of gestational diabetes mellitus or of delivering a baby with a birth weight of > lb, polycystic ovarian syndrome (which result in insulin resistance) as cited by Romesh Khardori (2).

III. Diabetes associated mortality and morbidity: Diabetes mellitus is one of the leading causes of morbidity and mortality in United States because of its role in development of cardiovascular, neurophatic, and retinal disease. These complications ,particularly cardiovascular disease (up to 50-75% of medical expenditure) are the major sources of expenses for patients with DM. Diabetes mellitus is the major cause of blindness in adults aged 20-74 years in the United states ;diabetic retinophaty accounts for 12,000-24000 newly blind persons every year.

Also T2DM is a leading cause of non traumatic lower limb amputation in the united states with a 15-40 fold increase in risk over that of non diabetic population (about 71000 non traumatic lower limb amputation were performed related to neuropathy and vasculopathy in 2004).

The risk of coronary heart disease is 2-4 times greater in patients with diabetes than in individual without diabetes. Cardiovascular disease is the major source of mortality in patients with T2DM. Approximately two third of people with diabetes die of heart disease or stroke (2)

IV. **Clinical presentation:** Major symptoms are polyuria, polydipsia, polyphagia,weight loss. Other symptoms that might suggest hyperglycemia include blurred vision, lower extremity paresthesiasis. However, many patients with T2DM are asymptomatic and their disease remains undiagnosed for many years. Studies suggest that at the time of diagnosis the typical patient with type 2 diabetes has had diabetes for atleast 4-7 years. Among patients with type 2 diabetes 25% are believed to have retinopathy, 9%neuropathy and 8%nephropathy at the time of diagnosis (2).

Diabetes self care

Various terms are have been used to describe patients' own practices concerning diabetes treatment. Adherence to diabetes self care regimens has been defined as the level to which the patient daily follows the diabetic self care regimens established cooperatively by the patient and health care professionals. Self care can be either strict adherence to prescribed regimens or active self care. Active self care refers to self monitoring, dietary adjustments, insulin dosage for daily purposes and regular exercise adherence is more suitable term than compliance to describe diabetes care and it is therefore used in this study,as cited by Mirka Knecht (10) .

2.2. Diabetes self care practices

I. blood and urine sugar testing adherence condition

A study was conducted in Ethiopia selected health institutions and results showed that, only 21% of patients had access for blood glucose monitoring at the same health institutions.

The emphasis given for diabetic education (24%) was less than expected. Only 11(5%) of diabetes patients were able to do self blood glucose monitoring at home. 51% of patients didn't have urine analysis, BUN, creatinine and lipid profile in the previous 1-2 years. None of diabetic patients had hemoglobin A1C (HbA1c) determination. About 87% of diabetics had regular fellow ups at their respective health centers and hospitals (6).

A survey was conducted on factors associated with self monitoring of glycemic control among persons with diabetes in Benin City, Nigeria and result showed that 72% subjects practiced glucose self monitoring, 63% by testing urine, 8% by testing blood glucose and 1%person by testing his/her urine. Most tested once in week and the frequency of testing differed on the basis of the method employed and also the level of education (11).

Another study was conducted SMBG among diabetes patients attending government health clinics in Negeri Sembilan, Malaysia and the result showed that among those who performed SMBG, the majority (83.5%) monitored less than once per a day and only 16.5% monitored atleast once a day. Once third of patients adjusted their medications based on their SMBG results. The higher patient's level of education ($p=0.024$, CI 1.29-35.3); the higher total family income ($p=0.041$, CI 1.26-4.79); the longer duration of diabetes ($p<0.01$, CI 2.22-7.29); and treatment regimen which includes insulin ($p<0.001$, CI 2.05-9.24) were significant predictors of SMBG practice. Although SMBG is recognized to be useful and effective in achieving diabetes control, this study has found that only a minority of patients with diabetes performed SMBG.

Hence, health care personnel must increase awareness on the importance of SMBG and strongly promote the practice among diabetes patients (12).

A study done in India, its result showed that only 35% respondents were monitoring their urine sugar level regularly. 227(66%) of respondents were aware about their blood sugar at home (13).

Another study result in Malaysia showed that only 15% of subjects practiced SMBG (14).

Study done in USA revealed that 78% respondents were practiced SMBG (15).

A study in Egypt showed that only 21.4%, 26%, and 53% respondents were good, poor and no adherence to blood glucose test respectively. In this research it also indicated thjat there was no gender difference regarding self care of diabetes. Younger age group had more glycemic control than older age; longer duration of diabetes was significantly associated with poor glycemic control (16).

II. Medication adherence condition

A study done on medication adherence of Malaysian adults with diabetes and result of this study revealed that 46% respondents were non adherence and also tended to have higher fasting blood glucose level. Oral anti hyperglycemic medication showed association with poor self care practice ($p \leq 0.001$) (14).

Another study done in Egypt revealed that 9%, 37%, and 54% respondents were showed poor, fair and good adherence to prescribed diabetic medication (16).

Cross sectional study was done in Iran and reported that 30% male and 18% female, 45% male and 54% female and 25% male and 28% female respondents had poor, moderate and good adherence to prescribed medication respectively (17).

Another study done on assessment of adherence to anti diabetic drug therapy and self management practices among type 2 diabetes in Nigeria and results of the study showed that only 44% of cohorts had adequate glycemic control; of these 93% were adjusted adherent with prescribed anti diabetic drugs. Of the total study subject 59% of patients were non adherent with the previous anti diabetic drugs due to lack of finance (51.7%); side effects (34.5%); perceived inefficacy of prescribed anti diabetic drugs leading to self medication with local herbs (13.8%) . however, it was significantly higher among patients judged adherent with their prescribed anti diabetic medications($p<0.05$) (18).

A study in Finland indicated that majority of subjects accomplished their insulin treatment as scheduled but had more difficulties with other aspects of self care (19).

III. Diet management practices adherence condition

A study was conducted on assessment of Dietary practice among diabetes patients in United Arab Emirates and the result showed that only 24% read food labeling, 76% reported being unable to distinguish clearly between low and high carbohydrate index food items and no one reported counting calorie intake, 46% reported that they had never been seen by dietician since their diagnosis. Their overall risk profile, notably body weight, lipid profile and blood pressure, was very unfavorable; more than half of the study sample had uncontrolled hypertension and uncontrolled lipid profile and the majority was overweight (36%) or obese (45%). Abdominal obesity was particularly common (59%). Only 31% had an HbA1c of less than 7% (20).

A study result done in India indicated that more women (52%) than men (32%) followed the recommended diet schedule (13).

Study done in Malaysia indicated that, subjects who consumed more meals per day (80%) or who did not include their regular sweetened food intakes in their daily meal plan (80%), and had higher mean fasting blood glucose levels (p=0.04) and predictors of knowledge deficit and poor self care were low level of education (p=<0.01), older subjects (=0.04) (14).

The study in Egypt indicated that 19%, 39% and 42% respondents were showed no, less frequent and more frequent compliance to diet management practices (16).

A study done in Iran revealed that 4% male and 0% female, 38% male and 33% female and 59% male and 67% female respondents had poor, moderate and good adherence to diet management instructions respectively (17).

A study conducted on diabetes self management in island and result of the study showed that the levels and patterns of self management were consistent with those found in previous studies, i.e. individuals least regularly followed recommendations for lifestyle changes of diet and exercise. There were significant differences on reported self management recommendations across different subgroups. Comparisons on the levels of self management across diabetes type 2 revealed significant differences for diet and glucose testing. Differences were also found on self management levels for a number of individual characteristics, including age, working status and type of insurance along with knowledge of diabetes control and complications trial finding (21).

IV. Physical activity adherence condition

A cross sectional study was done on physical activity and reported barriers to activity among type 2 diabetes patients in United Arab Emirates and the result of the study showed that of the 390 patients recruited, only 25% reported an increase in their physical activity levels following the diagnosis of diabetes and only 3% reported physical activity levels that meet the recommended guidelines. Only 32% had an acceptable glycemic control (22). Study in India indicated that of the total study subjects 82% of the respondents were aware that regular physical exercise is

helpful; but only 9% of the men and 4% the women followed this advice (13). Study in Malaysia revealed that 54% respondents were inactive in daily life and had thing higher mean fasting blood glucose level (p=0.004) (14).

Study result from island indicated that the levels and patterns of self management were consistent with those found in previous studies i.e. individuals least regularly followed recommendations for lifestyle changes of diet and exercise. Study in USA indicated that 47.8% of patients exercised once a week or less (23).

V. diabetes foot care adherence condition

A cross sectional study was conducted on knowledge and practices to ward diabetic foot care among patients attending three tertiary hospitals in Nigeria and result showed that of 352 diabetes patients, 30.1% had good knowledge yet only 10.2 % had good practice of DM foot care and the majority (78.4%) of patients with poor practice had poor knowledge of foot care. With regard to knowledge, 68.8% were unaware of firs thing to do when they found redness/bleeding between their toes and 61.4% were unaware of the importance of inspecting the inside of the footwear for objects. Poor foot practices include; 89.2% not receiving advice when they bought footwear and 88.6% failing to get appropriate size foot wear. Illiteracy and low socioeconomic status were significantly associated with poor knowledge and practice of foot care (24).

Institutional based descriptive study was done on self care and risk factors of diabetic foot care in patients with type 2 DM and the study result of diabetic foot care assessment showed that 36% had deficit or very deficient hygiene; 73% did not go regularly to the chiropodist, 76% used scissors , 75% did not check the inside of the shoe. 38% had signs of neuropathy and 17% of peripheric vasculopathy, 25% were at high risk of diabetic foot. Women had more RFDF.

The author concludes that the amount of self care is very low, especially in hygiene, which did not improve over time. HE on foot care is extremely poor despite of its being priority.

Educational intervention is required to motivate health workers and patients, especially those with most RFDF, in the area of SC (25).

A descriptive cross sectional study was done to describe knowledge and practices regarding foot care in diabetic patients visiting diabetic clinic in Jinnah hospital , Lahore, Pakistan and the result showed that only 14%respondents had good practices for foot care , 54% had satisfactory practices and 32% had poor practices. Education of respondents had significant statistical association with knowledge (p-value<0.001) and had practices (p-value<0.001) regarding foot care. Sex and income per capita had shown no significant statistical association with knowledge and practice regarding foot care. The author concluded that about one third of diabetic patients had poor knowledge about foot care and only very few patients had good practices for foot care. Literacy has significant association with knowledge and practices related to foot care in diabetic patients (26). A study done in India showed that knowledge of respondents regarding eye, foot and skin care painfully low, only 52(15%), 57(17%) and 38(11%) of respondents respectively were aware of these and practice was lower still. A minimum 23(7%) of the diabetes had knowledge regarding dental care and 11(3%) were visiting a dentist regularly (19).

A study in USA indicated that 61% received a dilated eye examination. Controlled for age and sex, the odds ratios (ORs) for insulin use were for self monitoring (OR [95% CI]; 4.0 [2.6-6.1]; having heard of HbA1c or receipt of a dilated eye examination (1.9[1.4-2.5]; at least one visit to provider (3.4[1.9-7.2]; and feet inspected at least once (2.1 [1.5-2.9] (14).

VI. over all self care practices adherence condition

A study was conducted on assessment of self care practice and its associated factors among diabetic patients in Iran and the result showed that patients' self care practice was good in 15.1%, moderate in 58.7% and poor in 26%. There was a significant association between education (p=0.030), duration of disease (p=0.04) and treatment intensity (p=0.001) and self care of patients (17).

A study done in India indicated that despite the fact that all respondents were aware that diabetes is not a curable disease, and regular fellow up is very important, only 168 (48%) were showing compliance to this advice(13). Study done in Finland indicated that a fifth (19%) of the respondents was neglecting their self care. The others undertook flexible (46%), regimen adherent (16%) or self planned self care (19%). The subjects who were adherent to self care had better metabolic control than those who neglected self care. According to logistic regression analysis, poor metabolic control (p=0.003), smoking (P=0.009) and living alone (p=0.014) were associated with neglect of self care, gender, concurrent disease, and complications as a result of diabetes increased the risk, but had no significant association with adherence to self care does not always lead to good metabolic control, but neglect of self care is likely to lead to poor metabolic control (19).A study done in Island indicated that there were significant differences on reported self management recommendations, across different sub groups. Comparisons on level of self management across diabetes type 2 revealed significant differences for diet and glucose testing. Differences were also found on self management levels for a number of individual characteristics, including age, working status, and type of insurance, along with knowledge of diabetes control and complications trial finding. The author concluded that these findings provide important information on perceived self management recommendations and the specific self management levels and patterns in individuals with diabetes (16).

2.3. Reasons for diabetic self care/associated factors

There are various reasons for poor diabetic self care. Diabetes self care is very complex, and lifelong commitment, which requires modifications of one's personal life style. These aspects have been shown to decrease adherence to self care regimens. It has been suggested that self management behaviors are affected by numerous variables such as financial resources, emotional support, complexity of regimen, disruption of life style, education in self management skills, cues to action, perceived barriers, locus of control and motivation, as cited by Mirka Kneckt (10).

2.4. Diabetes health behavior and diabetes status

A central concern in self care practices keeps the levels of body glucose close to normoglycemia. The insulin regimen should be physiologically based, with multiple daily insulin injections. The individual glycemic responses to food intake and exercise affect insulin dosage. Blood glucose measurements should be made at least three to four times per day by the patient, to determine the adjustments needed in insulin dosage. Differences in insulin absorption , insulin sensitivity, exercise, stress , food absorption, hormonal changes caused by puberty, menstrual cycle and pregnancy as well as illnesses and travelling cause variability in blood glucose level as cited by Mirka Kneckt (10,27).

As summary, the overall theme of the literature review is, all in all patients' self care practices are indeed very important part of maintaining a good diabetes status. They are especially significant because there are good possibilities to enhance them the above research findings showed that the majority of respondents were adhered to prescribed medication, diabetes foot care, diet management practices and physical activity except SMBG which is suboptimal in most study subjects or a minority of study subjects performs SMBG and it has been seen that self care practices are affected by enormous variables such as financial resources, emotional or family support, complexity of regimen, disruption of life style, education in self management skills, cues to action, perceived barriers, locus of control and motivation, educational level, age, diabetes complication and duration of disease.

2.5. Conceptual frame work

The conceptual frame work that guided this study will be Orem's model which focuses on each individual's ability to perform self care. Orem's conceptual model is constituted from six central core components and one peripheral concept. The central concepts are self care, self care agency, therapeutic self care demand, self care deficit, nursing agency and nursing system. The peripheral concept is basic conditioning factors.

Self care: is defined as action directed by individuals to themselves or their environments to regulate their own functioning and development in the interest of sustaining life, maintaining or restoring integrating functioning under stable or changing environmental conditions and maintaining or bringing about a condition of well being (28).

The person's ability to perform self care as well as the kind and amount of self care required are influenced by ten internal and external factors called basic conditioning factors: age, gender, developmental state, health state, socio cultural orientation, health care system factors; for example, medical diagnostic and treatment modalities, family system factors, patterns of living including activities regularly engaged in, environmental factors and resource availability and adequacy (29).

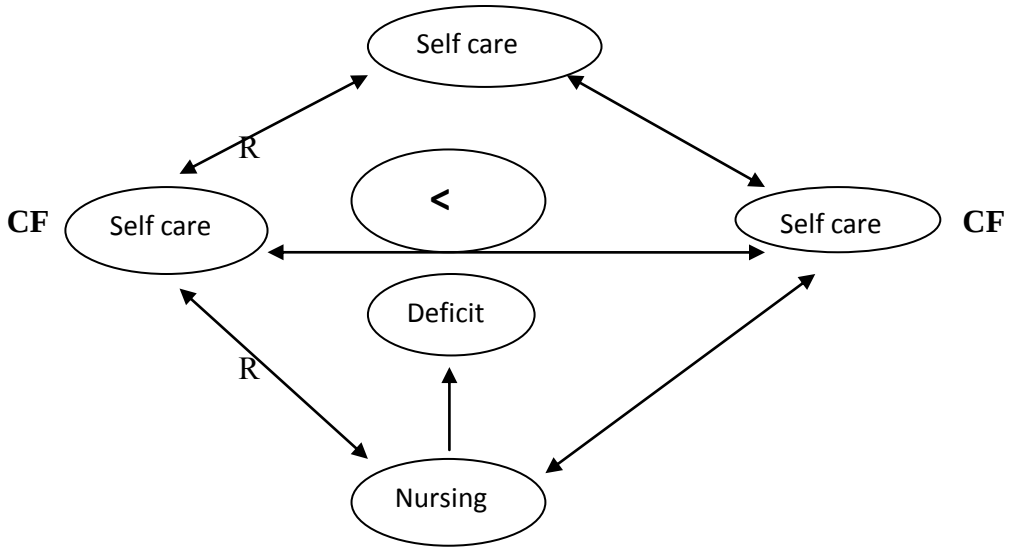


Figure 1: A conceptual fame work for nursing R=Relationship; < (**deficit), current or projected; CF=Conditioning factors (age, sex, treatment modalities, resource availability) (30).**

3. OBJECTIVE

3.1 General objective:

- To assess Diabetes self-care practices and associated factors among type 2 adult diabetes patients at the Tikur Anbessa Specialized Hospital.

3.2 Specific objectives:

- To assess status of self-care practices of adults with DM at a diabetic follow-up clinic at the Tikur Anbessa Specialized Hospital
- To assess the association between self care practices and socio demographic data of patients
- To describe the association between self care practice and clinical status of the patients

4. METHODS AND MATERIALS

4.1. Study area and period

The study area was Tikur Anbessa Specialized Hospital. It is found in Addis Ababa City, Lideta Sub City. The hospital has been inaugurated by the title "Prince Mokonnen" Memorial Hospital on 3/11/1973. On 24/5/1975 named as Tikur Anbessa Hospital. Endocrinology unit is one of the specialty units of the hospital, which provide service for total of 3186 Type 2 diabetes patients in 2003 E.C as new and follow up cases. According to the 2007 census report by Central Statistical Agency of Ethiopia (CSA), the dominant ethnic group of Addis Ababa City is Amhara, language is Amharic, religion is Orthodox and the other dominant ethnic groups are: Oromo, Gurage, Selte, and Tigre respectively (31).

The study period was from March to April 2014. A facility-based cross sectional study was conducted amongst diabetic patients at the follow-up clinic of Tikur Anbessa Specialized Hospital, to assess the diabetic self-care practices and factors associated with it. The data was collected over a period of 18 days.

4.2. Study design

The study design was institutional based cross-sectional.

4.3. Source of population

The source populations were all diabetic patients who are living in Addis Ababa.

4.4 Study population

The study populations were all diabetic mellitus patients who visit Tikur Anbessa hospital endocrinology unit at the time of data collection period and fulfilling the inclusion criteria.

4.5. Inclusion criteria

A patient included in the study if he or she is 18 years of age or older and diagnosed with type 2 diabetes and made follow up for at least 6 months and consented.

4.6. Exclusion criteria

- Patients with mental health problems, hearing impairments or any other serious health problems and those patients who were unable to provide the appropriate information were excluded.
- If diagnosed as type 1 and gestational diabetics

4.7. Sample size determination

The sample size for the study was determined using the following assumptions and using single population proportion formula:

- P= assumed the highest population proportion prevalence of diabetes mellitus in Ethiopia (urban)5%,
- 2% marginal error (d) to get maximum sample size and
- Confidence interval (CI) of 95%.

❖ Based on this assumption the sample size was calculated by a single population proportion formula and correction formula:

$$n = \frac{Z^2_{\alpha/2}\, p\,(1-P)}{d^2} = \underline{456}$$

The final sample size will be determined as follows by using the following correction formula:

nf = no/[1 + no/N], where

nf = the final sample size,

ni = initial sample size 456 and N = estimated annual total diabetic patients type 2 (1000).

$$nf = \frac{no}{1+\frac{no}{N}} = \frac{456}{1+\frac{456}{1000}} = \underline{313}$$

Considering a 5% non-response rate, the total sample size was:

$$\frac{5}{100} \text{ X } 313 = \frac{1565}{100} = 15.65,\ 15 + 313 = 328$$

- So, By adding non response rate to the final simple size it gives **328**
- Hence, 328 T2DM patients were included in this study.

4.8. Sampling procedure

Patients were selected according to criteria settled. A systematic sampling technique was used to select patients. Based on the decision to collect data over the course of 18 days, k=nf/N, where nf= final sample size=328 and N=total number of DM patients who were attending the unit per week=74, Xo total number of days use for data collection=18, Ko=nf/Xo=328/18=18 and K=N/Ko=36/18=2

So, using the K value the patients were selected using patient registration number in every 2 number intervals and the first study subjects were selected by lottery method.

4.9. Data collection procedure

Patients were interviewed using structured questionnaires. Questionnaires was prepared in English and translated into Amharic and translated back into English to check its consistency. The Amharic version was used for data collection after pretesting on 10% of the actual sample size in other similar settings. These instruments were adapted from similar studies.

Data was collected by using standardized structured questionnaires and two nurses with previous experience of data collection and multilingual ability were recruited. Continuous follow up and supervision was made by principal investigator throughout the data collection period.

4.10. Data Collection Tool

Interviewer administered structured questionnaire data collection tool was used, it contains three parts. Part I was used to collect socio demographic data, part II was used to collect clinical status data of the study subjects and part III is the original SDCA, which was used to measure five areas or domains of diabetic self practices: general diet, specific diet, exercise, medication and self blood glucose monitoring. Beside to this the revised SDCA also contain items on foot care and smoking. The SDCA questionnaire adopted contextually and its reliability and validity already tested in USA among similar study subjects (32).

4.11. Study variables

The independent variables:

- Socio-demographic characteristics,
- Age of diabetes onset,
- Duration of the disease,
- Family history of diabetes,
- Complications of diabetes,
- Treatment intensity

Dependent variable

- Self care practices of the patients

4.12. Operational definitions

Self care: Activities that individual initiate and perform on their own behalf in maintaining life, health and well being

Physical activity: The minimum physical activity level was determined as 30 minutes, moderate activity for at least 3 days per week.

Foot care: good foot monitoring/ care should be on a daily basis, adherence to the proper care of the foot including nail and skin care and selection of appropriate foot wear daily.

Adherence with dietary regimen: adherence recorded when the patient strictly follows the prescribed dietary regimen and non adherence when he/she did not follow the regimen at all or follow for less than 3 days per week.

Adherence with anti diabetic drugs: assessed by the extent of adherence of the diabetic patients to prescribed doses of medications. Adherence recorded when diabetic patient took all medication, done all self management in accordance with prescription.

Adherence with self management of blood glucose: A responses was rated on a 6 point scale (twice a day, daily, every other day, twice a week, once a week or never).

Based on numbers of days the patient adhere within 7 days: No adherence, rarely or none of the time (0-2 days), moderately adherence, occasionally or moderate amount of time (3-4 days), good adherence, most of the time (5-7 days).

The total score of each item of the questionnaires was calculated out of 100. Considering to the total score, the level of self care practice was classified into not adhered (<49%), adhered (50% or above). This scoring method is adopted from previous done research (22, 33).

4.13. Data quality Assurance

Before actual data collection time the tool was pretested for validity and reliability on the same group of source population there by possible, adjustment or modification was made on the tool. The collected data was reviewed and checked for completeness and consistency by principal investigator on daily bases at the spot during the data collection time.

4.14. Data processing and analysis

The data was entered in to EPI-INFO version 3.5.4, exported to SPSS then the data was cleaned and analyzed by using Statistical Package for Social Science (SPSS) version 20.

The data was analyzed by Descriptive statistics and used for most variables such as socio-demographic data; a Chi-square test was employed to determine the presence of the association between glycaemic control and self-care practices with socio-demographic characteristics. Variables that show significant association on bivariate analyses was fitted into a multi-variable logistic regression model.

4.15. Ethical consideration

Ethical clearance was secured from the AAU-college of health science department of Nursing and Midwifery IRB (research committee). Respondents were informed about the purpose of the study then information was collected after obtaining verbal consent from each participant. Verbal consent was sought from all the informed respondents before the start of each interview. Respondents were allowed to refuse or discontinue participation at any time they want. Information was recorded anonymously and confidentiality and beneficence was assured throughout the study.

5. RESULTS

5.1 Socio demographic characteristics

A total of 328 male and female adult type II diabetic patients were interviewed using standardized structure questionnaire and included in the analysis. Four respondents were excluded for the analysis for gross incompleteness and inconsistency responses made a response rate of 98.8. Of all respondents 174 (53.7%) and 150 (46.3%) were female and male respectively. The majority of the study participants 221 were in age group of 31 to 60 years. Mean age of respondents was 52.80±12.25 years with minimum age of 22 and maximum age of 84. Most of the respondents 259(79.9) were orthodox Christian by religion and Amhara 170(52.5%) by ethnicity. A significant number 243(75%) of the respondents did attend formal education. Two hundred thirty eight (73.5%) of the respondents were married currently. From the total respondents one hundred thirty (40.1%) were unemployed and majority of the study participants 112(34.6%) were had low monthly income (Table 1).

Table 1: Socio demographic data of type II Diabetes patients in TASH, AA, Ethiopia, 2014.

Sr.No	Characteristics	Alternative response	Frequency	
			In number	%
1	**Sex**	1.Male	150	46.3
		2.Female	174	53.7
		Total	324	100
2	**Age category**	1.18-30	19	5.9
		2.31-60	240	68.2
		3.61-70	63	19.4
		4.71 and above	21	6.5
		Total	324	100
3	**Monthly income**	1.very low	72	22.2
		2.Low	112	34.6
		3.Medium	64	19.8
		4.Average	42	13
		5.High	34	10.5
		Total	324	100
4	**Ethnic origin**	1.Amhara	170	52.5
		2.Oromo	65	20.1
		3.Guragie	29	9
		4.Tigre	47	14.5
		5.Seltie	9	2.8
		6.other	4	1.2
		Total	324	100
5	**Level of education**	1.illiterate	81	25
		2.primary school	92	28.4
		3.secondary school	78	24.1
		4.college/university	73	22.5
		Total	324	100
6	**Marital status**	1.married	238	73.5
		2.divorced	29	9
		3.widowed	25	7.7
		4.single	32	9.9
		Total	324	100
7	**Occupation**	1.Employed	101	31.2
		2.unemployed	187	57.7
		3.merchant	36	11.1
		Total	324	100
8	**Religion**	1.Orthodox	259	79.9
		2.Muslim	37	11.4
		3.Protestant	22	6.8
		4.Catholic	4	1.2
		5.Other	2	0.6
		Total	324	100

5.2 Health status data

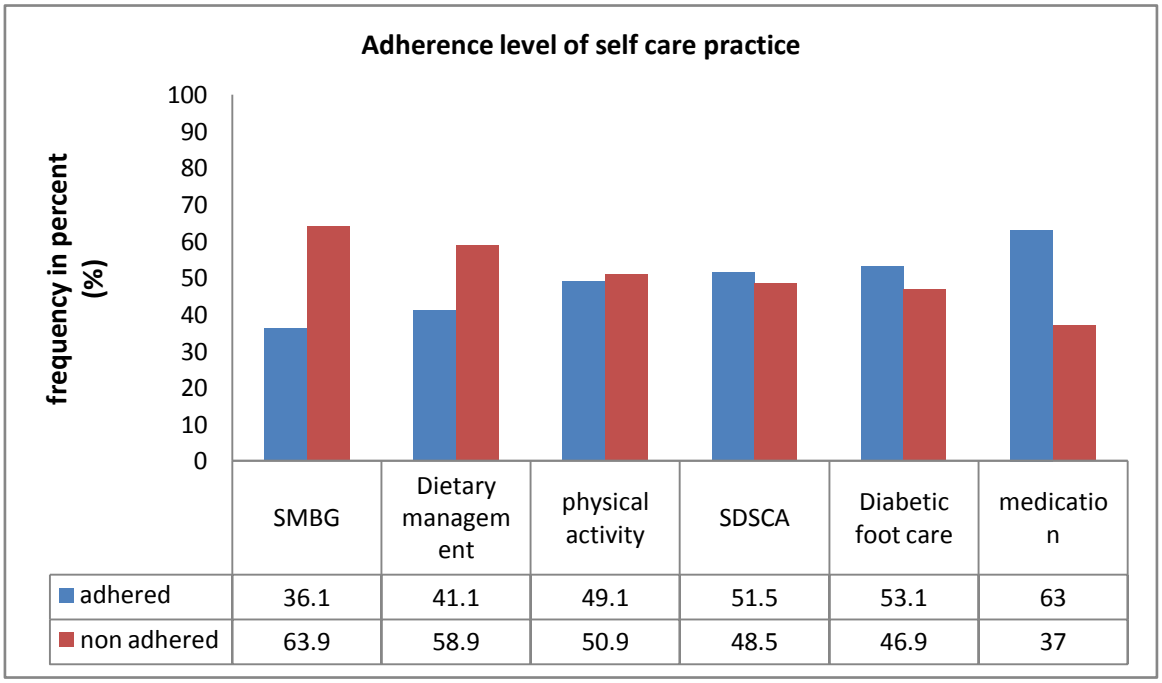
The mean age in which diabetes disease started was 41.73±11.19 years with minimum age of 22 and maximum age of 72. The mean duration of diabetes was 11.08±8.05 years with minimum of 6 months and maximum of 40 years. Of the study participants about 152(46.9%) and about 80(24.5%) had oral hypoglycemic agents and used both insulin therapy as well as oral hypoglycemic agents respectively. One hundred ninety seven (60.8) of the respondents did not have family history of diabetes and only 158(48.8%) respondents had glucometry at home. About 136 (42%) participants had long term diabetes complication confirmed medically. Only 19(5.8%) of all respondents have the habit of smoking and fifty eight (17.7%) had history of smoking in the past (Table2).

Table 2: Health status of type II diabetes mellitus patients in TASH, AA, Ethiopia, 2014.

Serial number	Characteristics	Alternative response	Frequency	
			In number	In percent
1	**Duration of disease (n= 324)**	1.Less than one year	18	5.6
		2.One year to five years	61	18.8
		3.Greater than five years	245	75.6
		Total	324	100
2	**Family history of DM**	1.No	197	60.8
		2.Yes	127	39.2
		Total	324	100
3	**Treatment intensity**	1.OHA	92	28.4
		2.Insulin therapy	193	59.6
		3.Both	39	12
		Total	324	100
4	**Currently have their own Glucometry at home**	1.No	166	51.2
		2.Yes	158	48.8
		Total	324	100
5	**Diabetic complication**	1.No	188	58
		2.Yes	136	42
		Total	324	100
6	**Have smoked cigarette, even a puff, in the past SEVEN DAYS**	1.No	305	94.2
		2.Yes	19	5.8
		Total	324	100

5.3. All self care practice Domains adherence conditions

Respondents self care practices were, majority 207(63.9%) respondents were not adhered to SMBG practice. A total of 204(63%) respondents were adhered to anti diabetic medication. The majority 190(58.6%) respondents were not adhered to recommended diet management practices. From the total respondents one hundred fifty nine (49.1%) were reported adhered to physical activity that meet the recommended guidelines. Of all study participants about 172(53.1%) respondents were adhered to the recommended diabetic foot care practices. Overall self care practices (SDSCA) were reported as adhered in 167(51.5%) participants (Fig 2.below shows the detail).



	SMBG	Dietary management	physical activity	SDSCA	Diabetic foot care	medication
adhered	36.1	41.1	49.1	51.5	53.1	63
non adhered	63.9	58.9	50.9	48.5	46.9	37

Figure 2: Showing self care practice adherence level of type II diabetes patients in TASH, AA, Ethiopia, 2014.

5.4. Adherence to self monitoring blood glucose (SMBG) practice

Majority of participants 207(63.9%) were not adhered to Self monitoring of blood Glucose which means, monitored less than 1-2 times per week, even almost all respondents were said that they did SMBG practices when they had symptoms of hyperglycemia or hypoglycemia or at the time of health care visit and so that only 117(36.1%) were adhered which means monitored at least 3-4 times per week. Presence of glucometry at home, education and monthly income was found to have statistically significant association with adherence to SMBG practice. Respondents who have glucometry at home were three times less risk not to adhered to the practice when compared with those who didn't have [$p<0.001$,AOR(95%)=3.252(1.969-5.370)] and those who are with both higher level of education and estimated monthly income were adhered two times more than counterpart [$p=0.043$,AOR(95%CI)= 2.015(1.065-3.604)] and [$p=0.051$,AOR(95%CI)= 2.010(1.542-3.621)] respectively (Table 3).

Table 3: Logistic regression analysis results of adherence to SMBG practice among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	SMBG Practice		COR (95%CI)	P-value	AOR(95%CI)	P-value
	Adhered	Not adhered				
Age(n=324)						
Adults<60 yrs	91(37.9%)	149(62.1%)	0.672(0.274-1.644)	0.38		
Geriatrics 60-70yrs	16(25.4%)	47(74.6%)	0.374(0.134-1.046)	0.06		
71 and above	10(47.6%)	11(52.4%)	1			
Gender						
Male	52(34.7%)	98(65.3%)	1			
Female	65(37.4%)	109(62.6%)	1.124(0.713-1.772)	0.615		
Marital status						
Married	87(36.6%)	151(63.4%)	1			
Divorced	9(31.0%)	20(69.0%)	0.781(0.341-1.791)	0.559		
Widowed	6(24%)	19(76%)	0.548(0.211-1.424)	0.217		
Single	15(46.9%)	17(53.1%)	1.531(0.729-3.219)	0.261		
Occupation						
Employed	31(30.7%)	70(69.3%)	0.554(0.253-1.210)	0.138		
Unemployed	70(37.4%)	117(62.6%)	0.748(0.364-1.538)	0.430		
merchant	16(44.4%)	20(55.6)	1			
Level of education						
Illiterate	23(28.4%)	58(71.6%)	1			
Primary	36(39.1%)	56(60.9%)	1.621(0.856-3.072)	0.138	0.453(0.175-1.060)	0.924
Secondary school	23(29.5%)	55(70.5%)	1.055(0.531-2.093)	0.879	0.234(0.056-1.108)	0.812
College/university	35(47.9%)	38(52.1)	3.323(1.193-4.523)	**0.013**	**2.015(1.065-3.604)**	**0.043**
Monthly income						
Very low	22(30.6%)	50(69.4%)	1			
Low income	21(22.8%)	71(77.2%)	0.672(0.334-1.352)	0.265	0.312(0.212-1.021)	0.876
Medium	38(45.2%)	46(54.8%)	1.877(0.970-3.634)	0.062	0.461(0.435-2.311)	0.637
Average	19(45.2%)	23(54.8%0	1.877(0.854-4.128)	0.117	0.583(0.322-2.013)	0.591
High	17(50%)	17(50%)	**2.273(1.982-5.258)**	0.050	**2.010(1.542-3.621)**	**0.051**
Presenceof glucometry at home						
No	37(22.3%)	129(77.7%)	1			
Yes	80(50.6%)	78(49.4%)	**3.576(2.212-5.782)**	**0.000**	**3.252(1.969-5.370)**	**<0.001**

**Statistically Significant at p<0.05

5.5 Adherence to prescribed medications

A total of 204(63%) study participants were adhered with prescribed anti diabetic drugs but out of the total study subjects 120(37%) were not adhered. Of the whole adhered respondents 105(60.3%) and 99(66%) were female and male respectively. In other hand the treatment intensity of the respondents were oral hypoglycemic agents 92(28.4), insulin therapy 193(59.6%) and both treatment 39(12%). Binomial logistic regression analysis results showed that there was significant association between prescribed medication adherence condition and the type of treatment they took. Individuals who took insulin injection as treatment intensity were three times adhered than those who took oral hypoglycemic agents [p=0.049, AOR (95%CI) = 3.023(1.081-3.957)]. However, no association to other health status data and socio demographic characteristics were found (Table 4).

Table 4 logistic regression analysis result of adherence to prescribed medication among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	Medication adherence		COR (95%CI)	P-value	AOR(95%CI)	P-value
	Adhered	Not adhered				
Age(n=324)						
Adults<60years	152(63.3%)	88(36.7%)	0.69(0.25-1.84)	0.462		
Geriatric60-70years	37(58.7%)	26(41.3%)	0.56(0.19-1.65)	0.307		
Geriatrics 71^{+}yr	15(71.4%)	6(28.6%)	1			
Gender						
Male	99(66%)	51(34%)	1			
Female	105(60.3%)	69(39.7%)	0.784(0.498-1.235)	0.294		
Marital status						
Married	151(63.4%)	87(36.6%)	1			
Divorced	16(55.2%)	13(44.8%)	0.790(0.386-1.544)	0.386		
Widowed	17(68%)	8(32%)	1.224(0.507-2.954)	0.652		
Single	20(62.5%)	12(37.5%)	0.960(0.448-2.059)	0.917		
Level of education						
Illiterate	45(55.6%)	36(44.4%)	1	0.50		
Primary	59(64.1%)	33(35.9%)	1.430(0.776-2.636)	0.32		
High school	49(62.8%)	29(37.2%)	1.352(0.716-2.550)	0.26		
College/university	51(69.9%)	22(30.1%)	1.855(0.954-3.606)	0.18		
Treatment intensity						
OHA	50(54.3%)	42(45.7%)	1			
Insulin injection	98(64.5%)	54(35.5%)	3.773(1.042-4.883)	**0.034***	**3.023(1.081-3.957)**	**0.049**
Both	56(70%)	24(30%)	1.344(0.626-2.887)	0.448		
Duration of dm						
6months to 1 year	14(77.8%)	4(22.2%)	1			
2-5 years	36(59%)	25(41%)	0.41(0.12-1.39)	0.15		
6 and above years	154(62.9%)	91(37.1%)	0.48(0.15-1.51)	0.21		
Diabetic complication						
No	110(58.5%)	78(41.5%)	0.63(0.39-1.00)	0.052		
Yes	94(69.1%)	42(30.9%)	1			

**Statistically Significant at p<0.05

5.6 Adherence to diet management

The majority 190(58.6%) of the study participants were not adhered to recommended diet management practices which means apply the recommended diet management practices for about less than 1-2 times per week, and only 134(41.4%)of respondents were adhered which means follow recommended diet management practices at least 3-4 times a week. In this study variables like once own educational level, estimated monthly income and diabetic complication were showed statistically significant association with the adherence to diet management practices. Participants with high level of education were about three times more likely to be adhered to diet management practices when compared with their counterparts [p= 0.004, AOR (95%CI) =2.754(1.281-5.732)]. Respondents with high monthly income were showed six times more engaged in diet management practices when compared with very low monthly income (p=0.002, AOR (95%CI) =5.570(1.911-16.238)]. Table5 shows the details of logistic regression analysis result of diet management practice adherence condition and health status data and demographic characteristics.

Table 5: logistic regression analysis result of adherence to diet management activities among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	Adherence to diet mgt		COR(95%CI)	P-value	AOR(95%CI)	P-value
	Adhered	Not adhered				
Age(n=324)						
Adults <60 years	98(40.8%)	142(59.2%)	0.51(0.21-1.27)	0.152		
Geriatric60-70 yrs	24(38.1%)	39(61.9%)	0.46(0.17-1.25)	0.131		
Geriatrics 71^{+}yrs	12(57.1%)	9(42.9%)	1			
Gender						
Male	67(44.7%)	83(55.3%)	1.28(0.82-2.00)	0.265		
Female	67(38.5%)	107(61.55)	1			
Marital status						
Married	101(42.4%)	137(57.6%)	0.65(0.31-1.36)	0.252		
Divorced	8(27.6%)	21(72.4%)	0.33(0.11-0.98)	0.463		
Widowed	8(32%)	17(68%)	0.41(0.14-1.23)	0.116		
Single	17(53.1%)	15(46.9)	1			
Occupation						
Employed	37(36.6%)	64(63.4%)	0.51(0.24-1.11)	0.091		
Unemployed	78(41.7%)	109(58.3%)	0.64(0.31-1.31)	0.223		
Merchant	19(52.8%)	17(47.2%)	1			
Level ofeducation						
Illiterate	26(32.1%)	55(67.9%)	1			
Primary	37(40.2%)	55(59.8%)	1.42(0.76-2.66)	0.269	1.21(0.560-1.844)	0.205
Highschool	26(33.3%)	52(66.7%)	1.05(0.54-2.05)	0.868	1.01(0.283-1.531)	0.543
College/university	45(61.6%)	28(38.4%)	3.4(1.75-6.60)	**0.000**	**2.754(1.281-5.732)****	**0.004****
Monthly income						
Very low	21(29.2%)	51(70.8%)	1			
Low income	27(29.3%)	65(70.7%)	1.009(0.512-1.987)	0.980	1.214(0.584-2.524)	0.603
Average	37(44%)	47(56%)	3.946(1.767-8.816)	0.057	2.238(1.007-4.975)	0.048
Above average	26(61.9%)	16(38.1%)	1.912(0.982-3.722)	0.001	**4.172(1.550-11.227)**	**0.005****
High income	23(67.6%)	11(32.4%)	5.078(2.106-12.243)	**0.000**	**5.570(1.911-16.238)****	**0.002****
Diabetic complication						
No	86(45.7%)	102(54.3%)	1.55(0.98-2.43)	0.06		
Yes	48(35.3%)	88(64.7%)	1			

**Statistically Significant at p<0.05

5.7 Adherence to exercise regimen

Of the total study participants one hundred fifty nine (49.1%) were reported adhered to physical activity that exactly meet the recommended guidelines and about one hundred sixty five were not adhered. Participants who were single in marital status and those who attended higher level of education had statistically significant association with their adherence condition about five times and two times more likely to be engaged in physical activity relatively when compared with their counterparts [p=0.003,AOR(95%CI)= 5.388(1.751-16.573) and p=0.012, AOR(95%CI)=2.031(1.087-4.743)] respectively. In the same manner also respondents who had above average monthly income were adhered to the physical activity practices about three times than their counterparts [p= 0.049, AOR (95%CI) =2.723(1.003-7.392)]. Table 6 shows the details of logistic regression analysis result of physical exercise regimen practice adherence condition and health status data and demographic characteristics.

Table 6: logistic regression analysis result of adherence to physical activities among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	Adherence to exercise		COR(95%CI)	P-value	AOR(95%CI)	P -value
	Adhered	Not adhered				
Age(n=324)						
Adults <60yrs	147(61.2%)	93(38.8%)	1.437(0.587-3.516)	**0.427**		
Geriatrics 60-70yr	40(63.5%)	23(36.5%)	1.581(0.583-4.290)	0.368		
Geriatrics 71 + yr	11(52.4%)	10(47.6%)	1			
Gender						
Male	93(62%)	57(38%)	1.072(0.685-1.679)	0.761		
Female	105(60.3%)	69(39.7%)	1			
Marital status						
Married	140(58.8%)	98(41.2%)	1			
Divorced	15(51.7%)	14(48.3%)	0.750(0.346-1.624)	0.466	0.896(0.400-2.009)	0.790
Widowed	15(60%)	10(40%)	1.050(0.453-2.434)	0.909	1.431(0.586-3.496)	0.431
Single	28(87.5%)	4(12.5%)	4.900(1.666-14.414)	0.004	5.388(1.751-16.573)	0.003
Occupation						
Employed	53(52.5%)	48(47.5%)	0.552(0.249-1.223)	0.143		
Unemployed	121(64.7%)	66(33.3%)	0.917(0.431-1.950)	0.821		
Merchant	24(66.7%)	12(33.3%)	1			
Levelof education						
Illiterate	41(50.6%)	40(49.4%)	1			
Primary	54(58.7%)	38(41.3%)	1.386(0.760-2.530)	0.287	1.096(0.541-2.219)	0.799
Highschool	47(60.3%0	31(39.7%)	1.479(0.789-2.774)	0.222	1.336(0.685-2.604)	0.395
College/university	56(76.7%0	17(23.3%)	3.214(1.602-6.445)	0.001**	**2.031(1.087-4.743)**	**0.012**
Monthly income						
Verylow income	43(59.7%)	29(40.3%)	1			
Low income	46(50%)	46(50%)	0.674(0.362-1.258)	0.216	0.919(0.471-1.795)	0.805
Average	52(61.9%)	32(38.1%)	1.096(0.575-2.088)	0.781	1.283(0.605-2.718)	0.516
Above average	33(78.6%)	19(21.4%)	2.473(1.031-5.930)	0.042	**2.723(1.003-7.392)**	**0.049**
High income	24(70.6%)	10(29.4%)	1.619(0.675-3.884)	0.281	1.711(0.603-4.855)	0.313
Diabetic complication						
No	114(60.6%)	74(39.4%)	0.954 (0.606-1.500)	0.695		
Yes	84(61.8%)	52(38.2%)	1			

**Statistically Significant at p<0.05

5.8. Adherence to foot care

Of 324 respondents about one hundred seventy two (53.1%) were adhered to recommended diabetic foot care practices and about one hundred fifty two participants were not adhered. This study identifies as gender and age were found to have statistically significant association with adherence to diabetic foot care practice, and females and younger participants were about two times more likely to be participated and engaged in the practice of foot care when compared with their counterparts [p= 0.045, AOR (95%CI) =2.032(1.053-3.754)] and [p= 0.051, AOR (95%CI) = 1.500(1.020-2.127)] respectively. Table 7 demonstrates the details of logistic regression analysis result of diabetic foot care practice adherence condition, health status and demographic characteristics.

Table 7: logistic regression analysis result of adherence to diabetic foot care practices among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	Adherence to foot care		COR(95%CI)	P-value	AOR(95%CI)	P-value
	Adhered	Not adhered				
Age(n=324)						
Adults <60yrs	124(51.7%)	116(48.3%)	1.534(1.208-3.371)	0.010	**1.500(1.020-2.127)**	**0.051****
Geriatrics 60-70 y	34(54%)	29(46%)	0.586(1.208-2.648)	0.031	0.316(0.854-2.045)	0.065
Geriatrics 71 +	14(66.7%)	7(33.3%)	1			
Gender						
Male	78(52%)	72(48%)	2.085(1.700-4.680)	0.016	**2.032(1.053-3.754)**	**0.045****
Female	94(54%)	80(46%)	1			
Marital status						
Married	126(52.9%)	112(47.1%)	0.375(0.162-1.868)	0.122		
Divorced	11(37.9%)	18(62.1%)	0.204(0.068-1.610)	0.412		
Widowed	11(44%)	14(56%)	0.262(0.085-2.806)	0.087		
Single	24(75%)	8(25%)	1			
Occupation						
Employed	44(43.6%)	57(56.4%)	0.503(0.233-1.087)	0.080		
Un employed	114(61%)	73(39%0	0.920(0.449-1.884)	0.819		
Merchant	14(38.9%)	22(61.1%)	1			
Levelofeducation						
Illiterate	36(44.4%)	45(55.6%)	1			
Primary	45(48.9%)	47(51.1%)	1.197 (0.657-2.179)	0.557		
Secondary school	41(52.6%)	37(47.4%)	1.385(0.742-2.586)	0.306		
College/university	50(68.5%)	23(31.5%)	2.717(1.404-5.259)	0.003		
Duration of dm						
6 months- 1 yr	8(44.4%)	10(55.6%)	0.685(0.261-1.794)	0.441		
2-5 years	32(52.5%)	29(47.5%)	0.945(0.539-1.657)	0.842		
>=6years	132(53.9%)	113(46.1%)	1			
Diabetic complication						
No	94(50%)	94(50%)	1			
Yes	78(57.4%)	58(42.6%)	1.345(0.863-2.097)	0.191		

**Statistically Significant at p<0.05

5.9 Adherence to overall self care practice

Self care practice were reported adhered in 167(51.5%) respondents and not adhered in 157(48.5%) participants. Study participants who are female and with higher level of education were found to have statistically significant association with adherence level to overall diabetic self care practice and about two and three times more likely to be engaged in self care practices when compared with male and illiterate participants [p=0.051, AOR (95%CI) = 1.563(1.0504-2.430) and (p=0.020, AOR (95%CI) = 3.021(1.560-5.321) respectively. Similarly those participants who have high income were adhered two times more than the counterparts [p=0.051, AOR (95%CI) = 2.180(1.549-5.367)]. By bivariate analysis the marital status of once own respondents had showed that significant association, respondents who were single practiced the overall practice of self care about three times than their counterparts [p=0.05,COR(95%CI)= 3.175(1.322-7.622) but it lost during the AOR analysis. Table 8 displays the details of logistic regression analysis result of overall self care practice adherence condition and health status data and demographic characteristics.

Table 8: logistic regression analysis result of adherence to over all self care practices among type II diabetic study subjects in TASH, AA, Ethiopia, 2014.

Variables	Adhered to SDSCA		COR(95%CI)	P-value	AOR(95%CI)	P-value
	Adhered	Not adhered				
Age (n=324)						
Adults <60yrs	125(52.1%)	115(47.9%)	0.988(0.405-2.414)			
Geriatrics 60-70 yr	31(49.2%)	32(50.8%)	0.881(0.328-2.367)			
Geriatrics 71 +	11(52.4%)	10(47.6%)	1			
Gender						
Male	80(53.3%)	70(46.7%)	1		1	
Female	87(50%)	87(50%)	1.875(1.565-3.355)	0.035	**1.563(1.0504-2.430)**	**0.051**
Marital status						
Married	126(52.9%)	112(47.1%)	1		1	
Divorced	7(24.1%)	22(75.9%)	0.283(0.116-0.687)	0.112	0.296(0.117-1.749)	0.109
Widowed	9(36%)	16(64%)	0.500(0.213-1.176)	0.010	0.619(0.250-1.533)	0.300
Single	25(78.1%)	7(21.9%)	3.175(1.322-7.622)	**0.005**	3.074(1.218-7.754)	0.117
Occupation						
Employed	40(39.6%)	61(60.4%)	0.656(0.305-1.410)	0.280		
Unemployed	109(58.3%)	78(41.7%)	1.397(0.684-2.857)	0.359		
Merchant	18(50%)	18(50%)	1			
Levelof education						
Illiterate	32(39.5%)	49(60.5%)	1		1	
Primary	43(46.7%)	49(53.3%)	1.344(0.734-2.461)	0.339	0.872(0.424-1.792)	0.213
Secondary school	39(50%)	39(50%)	1.531(0.816-2.872)	0.184	1.181(0.600-2.323)	0.104
College/university	53(72.6%)	20(27.4%)	4.058(2.055-8.013)	0.000	**3.021(1.560-5.321)**	**0.020**
Monthly income						
Very low	38(52.8%)	34(47.2%)	1		1	
Low income	34(37%)	58(63%)	0.525(0.280-0.982)	0.151	0.656(0.332-1.295)	0.709
Average	42(50%)	42(50%)	0.895(0.476-1.680)	0.729	0.904(0.429-1.907)	0.630
Above average	30(71.4%)	12(28.6%)	2.237(0.991-5.047)	0.053	2.008(0.813-5.466)	0.672
High income	23(67.6%)	11(32.4%)	1.871(0.796-4.397)	0.044	**2.180(1.549-5.367)**	**0.051**
Diabetes complication						
No	95(50.5%)	93(49.5%)	0.908(0.584-1.412)	0.669		
Yes	72(52.9%)	64(47.15)	1			

****Statistically Significant at p<0.05**

Table 9: self care practice recommendations by health professionals of type II diabetes subjects at TASH, AA, Ethiopia, 2014.

S.No	Advice	Alternative response	FREQUENCY			
			Yes		No	
			No	%	No	%
1	DIET MGT	A. Follow a low fat eating plan	238	73.5	86	26.5
		B. Follow a complex carbohydrate diet	135	41.7	189	58.3
		C. Reduce the number of calories you eat to lose weight	151	46.6	173	53.4
		D. Eats lots of food high in dietary fiber	183	56.5	141	43.5
		E. Eat lots (at least 5 serving per day)of fruits and vegetables	196	60.5	128	39.5
		F. Eats very few sweets (E.g. desserts, on diet sodas, candy bars	176	54.3	148	45.7
		G. I have not been given any advice about my diet by health care team	55	17	-	-
2	**PHYSICAL EXERCISE**	A. Get low level exercise (such as walking) on daily basis	187	57.7	137	42.3
		B. Exercise continuously for a least 20 minutes at least 3 times a week	198	61.1	126	38.9
		C. Fit exercise into your daily routine (E.g. take stairs instead of elevators, park a block away and walk, etc	164	50.6	160	49.4
		D. Engage in specific amount , type, duration and level of exercise	62	19.1	262	80.9
		E. I have not been given any advice about exercise by my health care team	59	18.2	-	-
3	**SUGAR LEVEL**	A. Test your blood sugar using a drop of blood from your finger and a color chart	25	7.7	299	92.3
		B. Test your blood sugar using a machine to read the results	223	68.8	101	31.2
		C. Test your urine for sugar	164	50.6	160	50.4
		D. I have not been given any advice about my blood or urine sugar level by my health team	83	25.6	-	-
4	**SMOKING**	A. At your last doctor's visit, did anyone ask about your smoking status	34	10.5	290	89.5
		B. If you smoke, at your last doctor's visit, did any one counsels you about stopping smoking	5	1.5	319	98.5
		C. Do not smoke (Never smoke)				
		D. When did you last smoke cigarette? Never smoked	2	0.6	322	99.4
		E. When did you last smoke cigarette? More than 2 yrs ago	2	0.6	322	99.4
		F. When did you last smoke cigarette? 1-2 yrs	1	0.3	323	99.7
		G. When did you last smoke cigarette? 4-12 months ago	0	0	324	100
		H. When did you last smoke cigarette? 1-3 months ago	2	0.6	322	99.4
		I. When did you last smoke cigarette? Within the last month				
		J. When did you last smoke cigarette? Today	14	4.3	310	95.7

***Total will not add up to 324 or 100%, as multiple responses were possible**

6. DISCUSSION

There is limited information about the self care practices of patients with type II diabetes mellitus in Ethiopia. Thus this study has tried to assess the self care practices and associated factors among type II diabetic patients in TASH, Endocrinology unit, Addis Ababa, Ethiopia. In this study the majority of subjects 68.2%were found to be in the age group of 30 to 60 years and above. The present study showed that 59.6% and 28.4% of the sample were taking insulin injection and oral hypoglycemic agents respectively compared to 35% and 57% in a study done in Egypt. But study that was carried out in a united states revealed that three quarters of the patients received hypoglycemic agents (oral or insulin)(17,24).

Diabetes self management behaviors such as diet and exercise involve and depend on guidance from the health care provider ,meal preparation in family context and exercising with a partner or in a group. Glucose monitoring is relatively quick and straightforward procedure; diabetes is managed via a regimen of control. Health professional advice adults living with type II diabetes to control blood sugar levels by monitoring diet, maintaining regular exercise and adherence to medication. The extent to which individuals are able to adhere to such recommendation varies. Despite increasing prevalence of diabetes, improved understanding of the disease, and varieties of new medications, glycemic control does not appear to be improving. SMBG is one strategy for improving glycemic control; however, patients' adherence is suboptimal and proper education and follow-up are very important cited by Eman M.Mahfouz and Halal (17).

This study also showed that only 36%were adhered to SMBG practices. This result is higher than study done in Ethiopia 16%, India 3% and Nigeria but lower than USA78%. But similar with studies done in Malaysia 15%. A study done in Malaysia showed that level of education, family income, duration of diabetes and treatment regimen (insulin) was significant predictors of SMBG practice.

Similarly in this study level of education, income and presence of glucometry at home showed significant association to SMBG practices. Although SMBG is recognized to be useful and effective in achieving diabetes control, this study has found that only a minority of respondents with diabetes were perform SMBG (self monitoring of blood glucose) practices. This is probably related to lack of awareness on its importance in the management of diabetes and there are relevant financial barriers to purchase the device and its strips (6, 12, 14, 15, 16).

In this study only 37% were unable to adhere with prescribed medicine. This result was higher than study result of Egypt (9%), but lower than study result of Malaysia (46%) and Nigeria (46%). This study indicated that there was significant association between medication adherence and treatment intensity (type of treatment). But study done in Nigeria report that lack of finance, drug side effect and perceived inefficacy of the prescribed medications had significant association with the practice. As in this study indicated adhered participants were higher than the not adhered individuals, this might be because the participants were well informed and have good perception about the prescribed medications especially to insulin injection.

Concerning adherence to diet management practice this study showed that only 41% participants were adhered. This were lower than study done in Egypt 81%,india women 52% and men 58% and Iran 96% male and 100% female were followed the recommended diet instructions. Study done in UAE indicated that only 24% respondents were read food labeling. 76% reported being unable to distinguish clearly between low and high carbohydrate index food items and no one reported counting calorie intake. 46% reported that they had never been seen by dietician since their diagnosis. Their overall risk profile notably body weight, lipid profile and blood pressure, was very unfavorable; more than half of the study sample had uncontrolled hypertension and uncontrolled lipid profile and the majority was overweight (36%) or obese (45%).

Abdominal obesity was particularly common (59%). Only 13% had an HbA1c of less than 7%. As this study indicated that similar to the SMBG practice adherence condition, adherence to diet management practices were lower than the other studies, this might be because of finance barrier, poor perception toward the importance of fruits and vegetables, lack of awareness on the importance of the practices and most respondents had not any idea even how to prepare and follow healthy diet plan at all, socio cultural variation and life style difference (14, 17, 18, 21).

A study done in Egypt shows that there was statistically significant difference between education and adherence to dietary management of diabetes, nearly one quarter (26%) of illiterates were not adhered to dietary management of diabetes and also revealed that younger age group and shorter disease duration had a positive impact on dietary management practices adherence condition (17). Similarly this study also showed that subjects with high level of education, monthly income, who are married and without diabetic complication were more adhered to dietary management practices than the counterparts but occupation and duration of disease did not show significant association. This might be due to small sample size.

In this study 49% respondents were adhered to physical activity that meets the recommended guidelines. This result is higher than studies done in the UAE only 3%, in India only 9% of the male and 4% of the women adhered to the practices. But almost similar with study done in Malaysia 46% and in Iran 66% male and 46% female respondents were active in daily life, in USA 52% of participants were exercise once a week or more.

The result is higher than the other study is might be due to most patients did not sedentary life as they have physical activity daily at least simple walk for half an hour in each day. Study in Malaysia indicated that there was significant association between level of education, age and anti hyperglycemic medication type and self care practices. But this study showed there is significant association between marital status, level of education, monthly income (14, 15, 18, 23, 24).

In this study almost half (53.1%) of all respondents were adhered to recommended diabetic foot care practices. This result is higher than studies done in Nigeria which is only 10% had adherence to practices of DM foot care, but almost nearly similar with studies done in Pakistan 68%, USA 64% of all participants had adherence to practices. The result this study showed that male and older participants were less adherent to diabetic foot care practices.

While study done in Nigeria revealed that illiteracy and low socio economic status were significantly associated with poor practices (25, 26, 27).

In this study 51.5% of participants were adhered to over all self care practices domains. This result is lower than study done in Iran 74%, Finland 81% respondents were adhered to over all self care practice domains. The result of this study is lower than the other studies. This might be due to financial barrier, lack of awareness on the importance of the practices, socio cultural variation and life style difference (18, 20). A study done in Iran indicated that insulin therapy, high educational status and duration of diabetes had positive effect on the level of self care practice. This study also revealed that educational level is an important variable in improving the self care practices. Another study done in Finland also revealed that poor metabolic control, smoking and living alone were associated with neglect of self care but gender, co-morbidity and diabetic complications increase the risk but had no significant association with adherence to or neglect of self care practice. In contrary this study showed that gender had significant association on adherence condition to overall self care practice domains (18, 20).

6.1. Strengths and limitations of the study

- **Strength**
  - Use adopted standardized questionnaires
  - High response rate
- **Limitations**

- Social desirability bias due to sensitive and personal question related to diabetic self care especially about financial issues
- Limitation of related literatures to compare and discuss some of the findings
- Because the data are cross sectional, the direction of causal relationship between variables can't always be determined.

7. CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

Despite the important role of self care practices in management of diabetes were recognized to be useful and effective in achieving diabetes control and preventing its complication, findings of this study were confirm previous findings concerning self care among people with type II diabetes; prescribed medication adherence practice was accomplished as recommended in majority respondents but the other aspects of self care practices were more problematic.

The SMBG practice and diet management practices especially warrants. However, self monitoring of blood glucose and diet management practices are said to be the corner stone of self care practices and glycemic control. Generally, adherence to self care practices was suboptimal among type II diabetic patients in TASH Endocrinology unit.

7.2. Recommendation

- Family members should be informed about their important roles in encouraging patients to undergo a glycemic control or self care practices.
- Health care personnel must increase patient's awareness toward the importance of all types of self care practices domains and strongly promote the practice among diabetes patients via strengthening IEC program, diabetic association.
- Staff members of the endocrinology unit and department of internal medicine need to participate in strengthening the overall awareness of the patients toward their self care practice.
- Nursing research should be carried out to investigate the adherence to self care in broader social context and larger sample size.

Practices implications of the study in nursing profession

This study should contribute to the development of effective nursing education strategies to promote health for adults with suboptimal diabetes self care practices. This study should also contribute to the nurse researchers as the base line data in order to carried out in broader social context and larger sample size to investigate adherence to self care and achieve a deeper understanding about the subjective experience of being chronically ill, but still feeling healthy and doing well. Finally this study should contribute to the development of effective nursing practices in order to promote health and be adhered to self care practices.

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ANNEXES:

Annex I: English version Information sheet for study subjects

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE DEPARTEMENT OF NURSING AND MIDWIFERY INDIVIDUAL INFORMATION SHEET FOR THE STUDY ON ASSESSMENT OF SELF CARE PRACTICES AND ASSOCIATED FACTORS AMONG TYPE 2 DIABETIC PATIENTS AT TIKUR ANBESSA SPECIALIZED HOSPITAL ADDIS ABABA, ETHIOPIA, 2014.

You are kindly invited to participate in this study, which involves all types of diabetes patients visiting diabetic center of TASH. The aim of this study is to assess self care practices and its associated factors among diabetic patients. Diabetes self care practices are the corner in regulating diabetic complications. Strict fellow of those diabetes self care practice are crucial to prevent complication of the disease and deaths. Therefore, this study will be important by giving evidence about self care practices status of diabetes patients.

a) **Purpose**: Is to assess of self care practices and associated factors among type 2 diabetic patients at Tikur Anbessa Specialized Hospital.
b) **Duration**: The duration of this study will be from March 1 to April 10.
c) **Procedures to be carried out**: The procedure of sample collection is easy and straight forward; data concerning your socio demographic characteristics, clinical status and about self care practices using standardized questioner by two interviewers (nurse).
d) **Risk and discomfort**: There will be no any risk associated during data collection.
e) **Expected benefit**: The finding of this survey will be useful for all diabetic patients in the future because this study result will be able to understand the self care condition of patients which is useful in delivering improved health service based on patient need and self care practices status.
f) **Confidentiality**: All your personal information collected for the purpose of the present study will be kept confidential.
g) **Compensation**: No compensation will be provided by participating in this study.
h) **Termination of the study**: Participation in the study is voluntary, and refusal to participate involves no penalty or loss of benefits to which you are otherwise entitled. The study participants have a right to keep hold information; decline to cooperate in the study, to refuse provision of data. I would also like to inform you that this study will be approved by Department of Nursing.

Annex II: Amharic version Information sheet for study subjects

የጥናቱ ተሳታፊዎች መረጃ ቅጽ ለጥናቱ ቃለመጠይቅ ከተደረገ በኋላ ለግለሰቦች የሚሰጥ ቅጽ የጥናቱ ተሳታፊዎች መረጃ ቅጽበአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ ትምህርት ክፍል የአዳልት ኤልዝ ነርሲንግ ድህረ ምረቃ ትምህርት ፕሮግራም በጥቁር አንበሳ እስፔሻላይዝድ ሆስፒታል ስኳር ህመም ማዕከል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶች እና ሴቶች ስለ የግል እንክብካቤ ተግባራት ለማጥናት ቃለ መጠይቅ ለማድረግ የግለሰቦች ፍቃደኝነት መጠየቂያ ፎርም፡፡ በቅድሚያ በዚህ ጥናት እንዲሳተፉ ስንል በአክብሮት ጥያቄያችንን እያቀረብን ጥናቱ በጥቁር አንበሳ እስፔሻላይዝድ ሆስፒታል ስኳር ህመምተኞችን ስለግል እንክብካቤያቸው ሁኔታ ማጥናት ነው፡፡ የግል እንክብካቤ ችግር በስኳር ህመም በተያዙ ህመምተኞች ላይ ጎልቶ የሚታይ ሲሆን ይኸውም ለተጨማሪ ህመምና ሞት ይዳርጋል፡፡ ስለዚህ ጥሩ የሆነ የግል እንክብካቤ ተጨማሪ ህመምና ሞት ለመከላከል በጣም ወሳኝ ነው፡፡ ስለሆነም ይህ ጥናትና የስኳር ህመምተኞች ስለግል እንክብካቤ ሁኔታ በማጥናት በቀጣይ ከፍተኛ አስተዋጽኦ ይኖረዋል፡፡

ሀ. የጥናቱ ዓላማ በዚህ ጥናት የስኳር ህመምተኞች ስለግል እንክብካቤያቸው ሁኔታ ማትናት ነው፡፡

ለ. የሚፈጀው ጊዜ ይህ ጥናት የካቲት 2006 እስከ መጋቢት 2006 ባለው ጊዜ ውስጥ ይጠናቀቃል፡፡

ሐ. የናሙና እና የመረጃ አወሳሰድ ሂደት በዚህ ጥናት ከሚሳተፍ የስኳር ህመምተኞች ሶሽዲሞግራፊክ መረጃን የጤንነት ሁኔታ መረጃን እና ስኳር ህመም የግል እንክብካቤ ሁኔታ መረጃን መጠየቅን በሁለት መረጃ ሰብሳቢ ነርሶች ይሰበሰባል፡፡

መ. ሊደርስ የሚችል አደጋ በዚህ ጥናት አደጋ የሚደርስ ድርጊት የለም፡፡

ሠ. የሚገኝበት ጥቅም በዚህ ጥናት መረጃ ለሰጡ በሽተኞች ልዩ እና ቀጥተኛ የሚባል ጥቅም የለውም፡፡ የዚህ ጥናት ጠቅላላ ውጤት ግን የስኳር ህመም ታማሚዎች የግል እንክብካቤ ሁኔታ በማሳየት አሁን እየተሰጠ ያለውን ህክምና ማገዝ እና በተለይ ደግሞ አግባብ ያለው የመከላከያ ህክምና የጤና ትምህርት ለመስጠት ከፍተኛ ጥቅም ይኖረዋል፡፡

ረ. ሚስጢራዊነት የማንኛውም መረጃ የጥናቱ መረጃ በሚስጥራዊነት ይያያዛል፡፡ የእያንዳንዱን ግለሰብ መረጃ ከዋናው ተመራማሪ እና አማካሪዎች በስተቀር ማንም ሊያገኘው አይችልም፡፡

ሰ. በፈቃደኝነት ስለማቆረጥ በዚህ ጥናት ውስጥ የመሳተፍ መብት ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረተ ነው፡፡ በጥናቱ ለመሳተፍ ፈቃደኛ መሆን ወይም እራስዎን ማግለል ይችላሉ፡፡ እንዲሁም በጥናቱ ባለመሳተፎ ምክንያት በአሁን ወይንም የወደፊቱ የህክምና እርዳታዎ ላይ ተፅእኖ አይኖረውም፡፡

አድራሻ ማወቅ ካስፈለግዎ፡

የዋናው ተመራማሪ አድራሻ፡

ስም፡ ፈይሳ ለሜሳ፣ **ሞባይል**፡ 0920405878፣

ኢ.ሜል: feyissalemessa@gmail.comየIRB አድራሻ፡ የአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ፡ የነርሲንግ እና ሚድዋይፍሪ ትምህርት ክፍል፡ የመ.ሳ.ቁ. 9086፣ ስልክ፡ +25101155128765፣ ኢ-መይል: aaumfirb@yahoo.com

Annex III: English version Study subject consent form

My name is----------.Am working at research team of Addis Ababa University Department of Nursing and Midwifery at Tikur Anbessa Specialized Hospital diabetic centre, by interviewing adult men and women patients with diabetes mellitus to assess self care practices and associated factors. I believe that this study will help to bring change in diabetes self care. I would like to assure you, your name will not be mentioned in questionnaire and the information you give us will be kept confidentially and only used for research purpose.

You have full right to refuse to take part or to interrupt the interview at any time. But the information that you give us is quite useful to achieve the objective of the study and to bring change in diabetes self management based on the patients need and it is also helpful in improving health education program given to diabetes patients.

Are you willing to participate in the study? 1. Yes 2. No

If Yes, thanks!! Conduct the interview. If the answer is No Thanks!!

Don't force or reinforce an individual to participate in the survey.

Interview's code--------- Name---------- signature -----

Date of interview---------

Supervisor's name---------- signature ----------

Time of interview began ---------- time of interview finished----------

Checked on---------- date ----------month/2014 G.C

Completeness: 1.Complete 2.Incomplete 3.Other (specify) ----------

Annex IV: Amharic Version Study Consent Form

ለጥናቱ ቃለ መጠይቅ ለማድረግ የግለሰቦች ፍቃደኝነት መጠየቂያ ቅጽ

በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ ትምህርት ክፍል የጎልማሶች ጤና ነርሲንግ ድህረ ምረቃ ትምህርት ፕሮግራም በጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል ስኳር ህመም ማዕከል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶችና ሴቶች ስለ የግል እንክብካቤ ተግባራት ለማጥናት ቃለ መጠይቅ ለማድረግ የግለሰቦች ፈቃደኝነት መጠየቂያ ፎርም፡፡

ስሜ _____ ይባላል፡፡ እኔ ከአዲስ አበባ ዩኒቨርስቲ የጥናት ቡድን ጋር አብሬ እየሰራሁ ነው፡፡ አሁን በዚሁ በጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶችና ሴቶች ስለ የግል እንክብካቤ ተግባራት ለማጥናት ቃለ መጠይቅ እያደረግን ነው፡፡ ይህ ጥናት ለስኳር ህመምተኞች የስኳር ህክምና ክትትል ለሚያደርጉ ሰዎች ህክምና አሰጣጥ ላይ ለውጥ ያመጣል ብለን እናምናለን፡፡

ስምዎ በዚህ መጠይቅ ውስጥ የማይጠቀስ መሆኑንና በቃለ መጠይቁ የሚሰጡትን መረጃ ሁሉ በሚስጥር ተይዞ ለጥናት አገልግሎት ብቻ የሚውል መሆኑን ላረጋግጥልዎ እወዳለሁ፡፡ እርስዎ በዚህ ጥናት ላይ የመሳተፍ ያለመሳተፍ ወይንም በማንኛውም ወቅት ቃለ መጠይቁን የሚቋረጥ ሙሉ መብት አልዎት ነገር ግን እርስዎ በጥናቱ ተሳትፈው የሚሰጡትን መረጃ ጥናቱን ውጤታማ ለማድረግና ለስኳር ህመምተኞች ህክምና አገልግሎት አሰጣጥ ላይ ለውጥ ለማምጣት ከፍተኛ ጠቀሜታ አለው፡፡ በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት?

1- አዎን (መልሱ አዎን ከሆነ አመስግነው ቃለ መጠይቁን ያካሂዱ)

2- አይደለሁም (መልሱ አይደለሁም ከሆነ አመስግነው ወደ ሌላ ተጠያቂ ይለፉ)

የጠያቂው ኮድ _____ስም _____ ፊርማ _____

ቃለ መጠይቁ የተካሄደበት ቀን _____ወር_____ 2006 ዓ.ም

የገምጋሚው ኮድ ___ስም _____ ፊርማ _____

የተመረመረበት ቀን _____ ወር _____ 2006 ዓ.ም

የተሟላ 1 ያልተሟላ 2 ሌላ ካለ ይገልጽ _____

Annex V: English version Questionnaires

Part I: Socio demographic and health status data

1. Gender male ☐ female ☐
2. Age (in years): _____
3. Estimated monthly income (in Ethiopian birr)

   No income ☐ low ≥ 320☐ medium 320-1500☐

   Average 1501-2499 ☐ high ≥ 2500 ☐
4. Ethnic origin

   Amhara ☐ Oromo☐ Guragie ☐ Tigre ☐ Siltie ☐

   ☐ Other (specify) _____
5. Level of education

   Illiterate ☐ primary ☐ high school ☐ college / university ☐

   Graduate school ☐
6. Relationship status (marital status)

   Married ☐ divorced☐ widowed ☐ Single/ never married ☐
7. Occupation / employment :

   Employed ☐ unemployed ☐ merchant ☐ house servant☐

   Daily laborers ☐
8. Religion:

   Orthodox ☐ Muslim ☐ protestant ☐ catholic ☐ others _____
9. Age at which the Diabetic Mellitus occurred (in years): _____
10. Duration of disease: _____
11. Family history of diabetes :

    Yes☐ No ☐
12. Treatment intensity (insulin therapy, oral agents, Diet): _____

    ☐ Oral hypoglycemic agent ☐ Insulin therapy ☐ both
13. Currently do you have your own glucometry at home?

    No ☐ Yes ☐
14. Diabetes complication

    No ☐ Yes☐

Part II: Summary of diabetes self care activities questionnaires: The questions below ask you about your diabetes self care activities during the past 7 days. If you were sick during the past 7 days, please think back to the 7 days that you were not sick.

	Diet	**Number of days**						
		1	2	3	4	5	6	7
15	How many of the last SEVEN DAYS have you followed a healthful eating plan?							
16	On average over the past month, how many DAYS PER WEEK have you followed your eating plan?							
17	On how many of the last SEVEN DAYS did you eat five or more servings of fruits and vegetables?							
18	On how many of the last SEVEN DAYS did you eat high fat foods Such as red meat or full fat dairy products?							
19	On how many of the last SEVEN DAYS did you space carbohydrates evenly through the day?							
	Physical Activity							
20	On how many of the last SEVEN DAYS did you participate in at least 30 minutes of physical activity?(total minutes of continuous activity, including walking)							
21	On how many of the last SEVEN DAYS did you participate in a specific exercise session (such as swimming, walking, biking) other than what you do around the house or as part of your work?							
	Blood sugar testing							
22	On how many of the last SEVEN DAYS did you test your blood							

	sugar?							
23	On how many of the last SEVEN DAYS did you test your blood sugar the number of times recommended by your health care provider?							
	Foot care							
24	On how many of the last SEVEN DAYS did you check your feet?							
25	On how many of the last SEVEN DAYS did you inspect the inside of your shoes?							
26	On how many of the last SEVEN DAYS did you wash your feet?							
27	On how many of the last SEVEN DAYS did you soak your feet?							
28	On how many of the last SEVEN DAYS did you dry between your toes after washing?							
	Medication							
29	On how many of the last SEVEN DAYS did you take your recommended diabetes mellitus?							
30	On how many of the last SEVEN DAYS did you take your recommended insulin injections?							
31	On how many of the last SEVEN DAYS did you take your recommended number of diabetes pills?							
	Smoking							
32	Have you smoked a cigarette, even a puff in the past SEVEN DAYS?							

Part III: Self care recommendations

33. Which of the following has your health care team (doctor, nurse, dietitian, or diabetes educator) advised you to do? please check all that apply:

a. Follow a low fat eating plan ☐
b. Follow a complex carbohydrate diet ☐
c. Reduce the number of calories you eat to lose weight ☐
d. Eat lots of food high in dietary fiber ☐
e. Eat lots (at least 5 servings per day) of fruits and vegetables ☐
f. Eat very few sweets (for example desserts, non diet sodas, candy bars) ☐
g. Other (specify): _____
h. I have not been given any advice about may diet by my health care team ☐

34. Which of the following has your health care team (doctor, nurse, dietitian or diabetes educator) advised you to do? Please check all that apply:

a. Get low level exercise (such as walking) on a daily basis ☐
b. Exercise continuously for at least 20 minutes at least 3 times a week ☐
c. Fit exercise into your daily routine (for example, take stairs instead of elevators park a block away and walk) ☐
d. Engage in a specific amount, type, duration, and level of exercise ☐
e. Other (specify) : _____
f. I have not been given any advice about exercise by my health care team ☐

35. Which of the following has your health care team (doctor, nurse, dietitian, or diabetes educator) advised you to do? Please check all that apply:

a. Test your blood sugar using a drop of blood from your finger and color change ☐
b. Test your blood sugar using a machine to read the results ☐
c. Test your urine for sugar ☐
d. Other (specify): _____
e. I have not been given any advice about my blood or urine sugar level by my health care team. ☐

36. Which of the following medications for your diabetes has your doctor prescribed? Please check all that apply:

a. An insulin shot 1 or 2 times a day ☐
b. An insulin shot 3 or more times a day ☐
c. Diabetes pills to control my blood sugar level ☐
d. Other (specify): _____
e. I have not been prescribed either insulin or pills for my diabetes

37. At your last doctor's visit, did anyone ask about your smoking status?

No ☐ Yes ☐

38. If you smoke, at your last doctor's visit, did anyone counsel you about stopping smoking or offer to refer you to a stop smoking program?

No ☐ Yes ☐

39. When did you last smoke a cigarette?

a. More than two years ago or never smoked ☐
b. One to two years ago ☐
c. Four to twelve months ago ☐
d. One to three months ago ☐
e. Within the last month ☐
f. Today ☐

Annex VI: Amharic version Questionnaires on Assessment of self care Practices and associated factors among Type 2 diabetic patients at Tikur Anbessa Specialized Hospital Addis Ababa, Ethiopia

ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	መልስ
	ክፍል I: ማህበራዊ ኢኮኖሚያዊና የጤንነት ሁኔታና ተያያዥ መረጃዎች		
1	ፆታ	1. ወንድ 2. ሴት	
2	እድሜ (በአመት) _____	1. 18-60 አመት 2. 61-70 አመት 3. 71 እና ከዚያ በላይ አመት	
3	ወርሃዊ ገቢ /በኢት.ብር/	1. ምንም ገቢ የለኝም 2. ዝቅተኛ ≤320 ብር 3. መጠነኛ 320-1500 4. መካከለኛ 1501-2499 5. ከፍተኛ ≥2500	
4	ብሔር	1. አማራ 2. ኦሮሞ 3. ስልጤ 4. ጉራጌ 5. ትግሬ 6. ሌላ_____	
5	ትምህርት ደረጃ/የትምህርት ሁኔታ	1. ማንበብ መፃፍ የማይችሉ 2. 1ኛ ደረጃ 3. 2ኛ ደረጃ 4. ኮሌጅ/ዩኒቨርሲቲ 5. ድህረ ምረቃ	
6	የትዳር ሁኔታ	1. ያገቡ 2. አግብተው የፈቱ 3. የትዳር አጋራቸው የሞተባቸው 4. ያላገቡ 5. ሌላ	
7	የስራ ሁኔታ	1. ተቀጣሪ ሰራተኛ 2. ስራ የሌላቸው 3. የንግድ ስራ/ነጋዴ/ 4. የቤት ሰራተኛ 5. የቀን/ጉልበት/ ሰራተኛ	
8	ሃይማኖት	1. ኦርቶዶክስ 2. እስልምና 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ	
9	ህመሙ ሲጀመር የነበርዎት እድሜ_____	_____	
10	ህመሙ ከጀመርዎት ስንት ጊዜ ሆነው_____	_____	
11	በቤተሰብ ውስጥ የስኳር ህመም ያለው ሰው አለ?	0. የለም 1. አለ	
12	የሚወስዱት የመድኃኒት አይነት/ህመሙን በምን አይነት ዘዴ ነው የሚቆጣጠሩት/_____	1. በአፍ የሚወሰድ ክኒን 2. መርፌ 3. ሁለቱም 4. ሌላ	
13	በአሁን ጊዜ በቤትዎ በደም የግልኮስ መጠን የሚለካ መሳሪያ አለዎት	0. የለም 1. አለ	
14	በህክምና የተረጋገጠ ማንኛውም አይነት በስኳር ህመም ምክንያት የመጣ ህመም (ስኳር ህመም ኮምፕሌክሽን) አልዎት?	0. የለኝም 1. አለኝ	

ክፍል II: ስኳር ህመም የግል እንክብካቤ ተግባራት መጠይቅ

ከዚህ በታች የተዘረዘሩት ጥያቄዎች ባለፉት ሰባት ቀናተ ውስጥ ስለ ስኳር ህመምዎ የግል እንክብካቤ ተግባራትን በተመለከተ ምን እንደሚመስል የሚጠይቁ ናቸው፡፡

ሆኖም ግን ባለፉት 7 ቀናት ውስጥ ታመው ከነበሩና እራስዎ በራስዎ መንከባከብ ካልቻሉ ተጨማሪ 7 ቀናት ወደኋላ በመሄድ ጤነኛ በነበሩበት ጊዜ ያደረጉት እንክብካቤ ሁኔታ መውሰድ ይችላሉ፡፡

ተ.ቁ	ጥያቄዎች	የቀናት ብዛት አማራጭ መልሶች	መልስ
	ስኳር ህመም የግል እንክብካቤ ተግባራት መጠይቅ		
	አመጋገብን በተመለከተ	0 1 2 3 4 5 6 7	
15	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው ጤነኛ አመጋገብ እቅድ የነበርዎት?	0 1 2 3 4 5 6 7	
16	በአማካኝ ባለፈው ወር ምን ያህል ቀን/ናት በሳምንት ውስጥ ይህን የአመጋገብ እቅድዎን ይከተላሉ?	0 1 2 3 4 5 6 7	
17	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት 5 እና ከዚያ በላይ ጊዜ አትክልትና ፍራፍሬ ይመገባሉ?	0 1 2 3 4 5 6 7	
18	ባለፉት 7 ቀናተ ውስጥ ምን ያህል ቀን/ናት ከፍተኛ የስብ መጠን ያለው ምግብ ይመገባሉ፣ /ለምሳሌ ቀይ ሥጋ ወይም በስብ የተሞላ የእንስሳት ተዋጾአ?/ (ፆም ከመጀመሩ በፊት ያለው ጊዜ ይውሰዱ)	0 1 2 3 4 5 6 7	
19	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ቀናት ነው ሀይል ሰጪ ምግብ በአንድ ቀን ውስጥ በእኩል በማመጣጠን የወሰዱት?	0 1 2 3 4 5 6 7	
	የአካል እንቅስቃሴ ማድረግ በተመለከተ		
20	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ለ30 ደቂቃ ያክል የአካል እንቅስቃሴ ተሳትፏል (ሁሉም እንቅስቃሴ፣ ወከን ጨምሮ፣ ጠቅላላ ደቂቃ)?	0 1 2 3 4 5 6 7	
21	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት በተወሰኑ የአካል እንቅስቃሴ ተሳትፏል? ይህም ቤት ውስጥና ስራ ቦታ ከሚያረጉት እንቅስቃሴ ውጭ	0 1 2 3 4 5 6 7	
	በደም የስኳር መጠን ምርመራን ማድረግ በተመለከተ		
22	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት የስኳር መጠን መርመራ አካሂደዋል (ቤትም ከቤት ውጭም)?	0 1 2 3 4 5 6 7	
23	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት የጤና ባለሙያዎ/ሀኪም በነገርዎት ብዛት ልክ የስኳር መጠን ምርመራ ያካሂዳ?	0 1 2 3 4 5 6 7	
	እግርና የእግር ጣቶች እንክብካቤን በተመለከተ		
24	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት እግሮችዎና የእግሮችዎ ጣቶች መሀል ፍተሻ ያረጋሉ?	0 1 2 3 4 5 6 7	
25	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት የጫማዎ ውስጥ ክፍል ምልከታ /ፍተሻ ያረጋሉ?/	0 1 2 3 4 5 6 7	
26	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው እግርዎተን የታጠቡት?	0 1 2 3 4 5 6 7	
27	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው እግሮችዎን የዘፈዘፉት?	0 1 2 3 4 5 6 7	
28	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው ከታጠቡ በኋላ እግሮችዎን የእግሮችዎን ጣቶች መሃል በለስላሳ ፎጣ እንዲደርቅ የሚያደርጉት?	0 1 2 3 4 5 6 7	
	መድኃኒትን በተመለከተ	0 1 2 3 4 5 6 7	
29	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው የተዘዘልዎትን መድኃኒት በትክክል የወሰዱት? ወይም	0 1 2 3 4 5 6 7	
30	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው የታዘዘልዎትን መርፌ በትክክል (መጠን፣ ጊዜ፣ ሰአት) የወሰዱት?	0 1 2 3 4 5 6 7	
31	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው የታዘዘልዎትን ክኒን በትክክል (መጠን፣ ጊዜ፣ሰአት) የወሰዱት?	0 1 2 3 4 5 6 7	
	ሲጋራ ማጨስን በተመለከተ	0 1 2 3 4 5 6 7	
32	ባለፉት 7 ቀናት ውስጥ ሲጋራ አጭሰዋል? ለአንድ ጊዜም ቢሆን?	0 1 2 3 4 5 6 7	
	ክፍል III: ስለ የግል እንክብካቤዎ ምክሮችን በተመለከተ	0 1 2 3 4 5 6 7	

33	ከዚህ በታች ከተዘረዘሩት ውስጥ በጤና ባለሙያ ተግባራዊ እንዲደረጉ የተመከሩ የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጡ)	1. ዝቅተኛ የስብ መጠን ያለው የአመጋገብ 2. ኮምፕሌክስ ካርቦ ሀይድሬት ምግብ መመገብ 3. ክብደትን ለመቀነስ የካሎሪ መጠን 4. ፋይበር/አሰር መጠናቸው ከፍተኛ የሆኑት ምግቦች ማዘውተር 5. መጠኑ ከፍተኛ የሆነ አትክልትና ፍራፍሬ /በቀን እስከ 5 ጊዜ/ መመገብ 6. መጠኑ ዝቅተኛ የሆነ ጣፋጭ ምግቦች መውሰድ 7. ሌላ ካለ ይጥቀሱ 8. ምንም አይነት ምክር አላገኘሁም	
34	ከዚህ በታች ከተዘረዘሩት ውስጥ በጤና ባለሙያ ተግባራዊ እንዲያደርጉ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጡ)	1. በየቀኑ ዝቅተኛ ደረጃ የአካል እንቅስቃሴ ማድረግ 2. ቀጣይነት ባለው ቢያንስ በሳምንት ሶስት ጊዜ/ቀን ለ20 ደቂቃ የአካል እንቅስቃሴ ማድረግ 3. በእለት ተእለት ተግባራት ውስጥ የአካል እንቅስቃሴ ማካተት 4. በመጠን፣ በአይነት፣ ጊዜ፣ ደረጃ ውስን የሆነ የአካል እንቅስቃሴ ራስህን መጥመድ 5. ሌላ ካለ ይጥቀሱ 6. ምንም አይነት ምክር አላገኘሁም	
35	ከዚህ በታች ከተዘረዘሩት ውስጥ ተግባራዊ እንዲያደርጉት በጤና ባለሙያ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጡ)	1. ከለር ቻርተ በመጠቀም ጠብታ ደም ተጠቅሞ ስኳርን መለካት 2. ግልኮሜትር በመጠቀም በደም የስኳር መጠን መለካት 3. በሽንትዎ ስኳር መኖሩን መመርመር 4. ሌላ ካለ ይጥቀሱ 5. ምንም አይነት ምክር አላገኘሁም	
36	ከዚህ በታች ከተዘረዘሩት ውስጥ ተግባራዊ እንዲያደርጉ በጤና ባለሙያ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጡ)	1. የኢንሱሊን መርፌ በቀን 1 ወይንም 2 ጊዜ መውሰድ 2. ኢንሱሊን መርፌ በቀን 3 እና ከዚያም በላይ ጊዜ መውሰድ 3. የስኳር መጠን ለመቆጣጠር የስኳር ህመም መድኃኒት ክኒን መውሰድ 4. ሌላ ካለ ይጥቀሱ 5. ምንም አይነት ምክር አላገኘሁም	
	ሲጋራ ማጠስን በተመለከተ		
37	ባለፈው የህክምና ቀጠሮም ጊዜ ስለ ሲጋራ ማጨስ የጠየቅዎት ሰው/ጤና ባለሙያ አለ	0. የለም 1. አለ	
38	ሲጋራ የሚያጨሱ ከሆነ ባለፈው ህክምና ቀጠሮ ጊዜ ስለ ሲጋራ ማጨስ ማቆም የመከርዎ ሰው አለ ወይም ይህን ጉዳይ የሚመለከተው ኦፊሰር ወደ ሲጋራ ማጨስ ማቆም ፕሮግራም ሪፈር ያሎዎት አለ	0. የለም 1. አለ 2. ሲጋራ አላጨስም	
39	ለመጨረሻ ጊዜ ሲጋራ ያጨሱት መቼ ነው	1. ከ2 ዓመት በላይ በፊት ወይም አጭሴ አላቅም 2. ከ1 እስከ 2 ዓመት በፊት 3. ከ4 እስከ 12 ወራት በፊት 4. ከ1 እስከ 3 ወራት በፊት 5. በባለፈው ወር ውስጥ 6. ዛሬ	

DECLARATION

I, **Feyissa Lemessa**, the undersigned declare that this is my original work and has not been presented in this or any other University for a similar or any other degree award and all sources of materials used for this thesis have been fully acknowledged.

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This proposal has been submitted for examination for approval as University

Advisor: **Asrat Demissie (BSc, MSc, Asst.Proff.)**

Signature: _____

Date: _____