ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF DIABETIC SELF CARE PRACTICES AND ASSOCIATED FACTORS AMONG TYPE II DIABETIC PATIENTS IN TIKUR ANBESSA SPECIALIZED HOSPITAL ENDOCRINOLOGY UNIT, ADDIS ABABA,ETHIOPIA.

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THIS THESIS BY **KALAYOU KIDANU BERHE** IS ACCEPTED IN ITS PRESENTED FORM BY BOARD OF EXAMINERS IN SATISFYING THESIS REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING.

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ACRONYMS

1. **LMICS**: Low and Middle Income Country
2. **IDF**: International Diabetic Foundation
3. **IDA**: International Diabetic Association
4. **TASH**: Tikur Anbessa Specialized Hospital
5. **HIV** : Human Immuno deficiency Virus
6. **IDDM:** Insulin Dependent Diabetic Mellitus
7. **NIDDM**: None Insulin Dependent Diabetic Mellitus
8. **SMBG**: Self Measuring of Blood Glucose
9. **RFDF**: Risk Factors for Diabetic Foot
10. **HE**: Health Education
11. **DM**: Diabetic Mellitus
12. **BMI:** Body Mass Index
13. **ICU**: Intensive Care Unit
14. **SDSCA**: Summary of Diabetes Self-Care Activities
15. **AHA**: America Heart Association
16. **ADA:** America Diabetic Association
17. **FPG**: Fasting plasma glucose
18. **FBS:** Fasting Blood Sugar
19. **PI:** Principal investigator
20. **WHO:** World Health Organization
21. **S.T.D:** Sexually Transmitted Disease
22. **SMBG:** Self Monitoring of Blood Glucose
23. **AOR:** Odds Ratio
24. **COR:** Crud Odds Ratio
25. **OHA:** Oral Hypoglycemic Agent

ABSTRACT

Background*:* Diabetes 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 are type I diabetes, type II diabetes, and gestational diabetes. Type II diabetes mellitus resulting from the combination of resistance to insulin action and inadequate insulin secretion. It is a serious public health problem that threatens the quality of life, the success of long-term maintenance therapy for diabetes depends largely on the patients' adherence with self-care practices.

Objective: Was to assess diabetic self care practices and associated factors among type II diabetic patients in Tikur Anbessa Specialized Hospital, Addis Ababa City.

Method*:* institutional based cross sectional study design was utilized, 323 study subjects were selected using systematic random sampling technique and the data was collected using interviewer administered structured questioner, data was entered in to EPI-INFO version 3.5.1 and analyzed using SPSS version 16. Frequencies and other descriptive statistics were computed. Bivariate and Multivariate logistic regression were computed to assess statistical association between the outcome variable and selected independent variables using Odds ratio, significance of statistical association was assured or tested using 95%CI 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 99.1%, of all respondents 167(52.2%) and 153(47.8%) were Female and Male respectively. The majority of the study participants 232 (72.5%) were in the age group of 30 to 60 years. Most of the respondents were orthodox Christian 257 (80.3%) by religion and Amara184 (57.2%) by ethnicity. Of the total respondents 182(57%), 246(77%), 211(66%) and 139(43%) were attended formal education, married, unemployed and had very low monthly income respectively Respondents' self-care practices were, the majority 270 (84.4%) respondents were not adhered to SMBG practice. A total of 311(97.2%) respondents were adhered to anti-diabetic

medication. The majority 252 (78.8%) respondents were not adhered to recommended diet management practices. one hundred seventy (53.1%) were reported adhered to physical activity that meet the recommended guidelines .Of all study participants, 213(66.6) respondents were adhered to the recommended diabetic foot care practices. Overall self-care practices (SDSCA) were reported as adhered in 178 (55.6%) participants. There was a significant association between level of education, monthly income, Presence of glucometry at home, marital status, diabetic complication, age and gender and self-care practices. But there was no a 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 complication**,** findings of this study were indicated that most patients had no adherence to self-care practices especially in SMBG and diet management. Generally adherence to self-care practice was suboptimal among type II diabetic patients in TASH Endocrinology unit. Hence healthcare personnel must increase patients' awareness on the importance of all domains of self-care practice and strongly promote the practice through effective IEC programme.

Keywords: Adherence, Self-care, Self-care practices, diabetic complications, associated factors

1. NTRODUCTION

1.1 Background

Diabetes 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 are type I diabetes, type II diabetes, and gestational diabetes. Type II diabetes mellitus comprises an array of dysfunctions resulting from the combination of resistance to insulin action and inadequate insulin secretion. It is characterized by hyperglycemia and associated with micro vascular (i.e., retinal, renal, possibly neuropathic), macro vascular (i.e., coronary, peripheral vascular), and neuropathic (i.e., autonomic, peripheral) complications (1, 2).

The prevalence of diabetes has reached epidemic proportions. World Health Organizatio predicts that developing countries will bear the brunt of this epidemic in the 21st century. Currently, more than 70% of people with diabetes live in LMICS**.** An estimated 285 million people were live with diabetes in 2010. The number is expected to grow to 438 million by 2030 and the largest age group currently affected by diabetes is between 40-59 years. By 2030 this "record" is expected to move to the 60-79 age groups with some 196 million cases. While the global prevalence of diabetes is 6%, the prevalence varies from 10% in the Western Pacific to 4% in the African region. However, the African region is expected to experience the highest increase in coming years with estimated prevalence rates of 98% for sub-Saharan Africa, and 94% for North Africa and the Middle East (1, 3, 4).

The IDF Atlas estimated that 10.8 million people have type II diabetes in sub-Saharan Africa in 2006 and that this would rise to 18.7 million by 2025, an increase of 80%, as such exceeding the predicted worldwide increase of 55%. Type II diabetes is responsible for 85-95% of all diabetes in high-income countries but Type II diabetes accounts for well over 90% of diabetes in Sub-Saharan Africa

even in other low- and middle-income countries and population prevalence proportions ranged from 1% in rural Uganda to 12% in urban Kenya . World Health Organization 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. In this respect, there is lack of information in the country (5, *6).* 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. More than 80% of diabetes deaths occur in low- and middle-income countries (LMICS). World Health Organization projects that diabetes deaths will double between 2005 and 2030 (7).

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 microalbuminuria. Diabetes is likely to increase the risk of several important infections in the region, including tuberculosis, pneumonia and sepsis. Self-care is believed to play an important role in diabetes management this is because ,there is a significant link between blood glucose control using self care practices and the later development of diabetes complications and with improved glycemic control the patient could decrease the risk of these complications (5) So the aim of this study will be to assess diabetic self care practices and the influence of demographic characteristics and clinical status on their self care practices in patients with type II diabetics attending in Tikur Anbessa Specialized Hospital, diabetic center, Addis Ababa City.

1.2 STATEMENT OF THE PROBLEM

Today's nurse is faced with challenges of providing high quality evidence-based care to clients/patients in traditional as well as new innovative health care settings for both acute and chronic illnesses. 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 diabetic patients visit clinics regularly and their blood glucose levels still remain high despite the treatment they receive is a problem that calls for attention. This is a very common observation in many diabetic patients. Sometimes, slight symptoms that these patients could take care of at home bring them back to the hospitals for medical checks. A good number of them, however, 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, 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 diabetic patients. The Behavioral Risk Factor Surveillance System for North Carolina revealed that 83% of respondents with type II 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 of self-care activities to achieve and maintain desirable blood glucose levels, researchers increasingly have begun to investigate correlates of perceived barriers to type II diabetes self-care behaviors. For example study found that the following personal characteristics were associated with problems in type II diabetes mellitus self-care: lower education and socioeconomic status, higher level of depression, male gender, being unmarried and younger age (30-49 years old). However, although it is useful to identify general characteristics that relate to poor self-care behaviors, it may be of greater utility from a public health perspective to identify and understand inconsistent self care practices and associated factors of diabetic patients, as cited by Nancy E. Schoenberg (9).

Furthermore, although the studies cited above have begun to illuminate our understanding of some of the predictors of differences in diabetes self-care, we currently lack an in-depth understanding or information of level and associated factors of type II diabetes patients to ward diabetes self-care practices especially this is more obviously true in Ethiopia, Tikur Anbessa specialized Hospital.

To promote optimal self-care practices, it is important to understand the level to which adults with type II diabetes mellitus integrate self-care recommendations into their lives as well as its associated factors. The major problematic condition about diabetic 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 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 diabetic center, Addis Ababa City.

1. 3. SIGNIFICANCE AND RATIONAL OF THE STUDY

In sub Saharan Africa like Ethiopia even though the HIV epidemic has captured the world's attention, recent data indicate that the global mortality due to diabetes and HIV are similar. Diabetes poses a great economic burden on government resources. For example developing country spent 800 million annually. Study result in Tikur Anbessa Specialized Hospital showed that the overall prevalence of retinopathy was 37.8%, 36% had background retinopathy, and 1.7% had proliferative retinopathy, most of the diabetic patients were affected with moderate to severe degree of periodontal disease (96%) and a large proportion (57%) of the total cost was utilized for treatment of acute and chronic complications of diabetes. (9,5, 10).

As a result diabetes related problems affects patients' physical, emotional and psychological status, leading to many diseases and complications which burden patients, family, community, Country economy and development. Due to the above reasons studying diabetic related issue is very important and justifiable particularly Studying patients' self care practices with its associated factors will help in determining patients need for care and further activities needed to be undertaken. Based on the result gained achieving unmet needs through implementing suitable care will reduce admission rates, the length of stay or hospitalizations through decreasing the frequency of complications and diabetic related deaths. This study will also help in raising related professional awareness, increasing motivation to help for those with poor diabetic self care practices and use as an information for providing improved educational and caring programs for those patient. Beside to this the result of this study could be used as a base line data for other activities or researches.

2. LITERATURE REVIEW

2.1 INTRODUCTION

2.1.1 Type 2 Diabetes Mellitus

2.1.1.1 Definition: Type 2 diabetes mellitus comprises an array of dysfunctions resulting from the combination of resistance to insulin action and inadequate insulin secretion. It is characterized by hyperglycemia and associated with micro vascular (i.e., retinal, renal, possibly neuropathic), macro vascular (i.e., coronary, peripheral vascular), and neuropathic (i.e. autonomic, peripheral) complications. Another older term for type 2 diabetes mellitus was adult-onset diabetes. Currently, because of the epidemic of obesity and inactivity in children, type 2 diabetes mellitus is occurring at younger and younger ages. Although type 2 diabetes mellitus typically affects individuals 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).

2.1.1.2 Etiology: Presumably, type 2 diabetes mellitus develops when a diabetogenic lifestyle (i.e., excessive caloric intake, inadequate caloric expenditure, obesity) is superimposed upon a susceptible genotype. About 90% of patients who develop type 2 diabetes mellitus 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 actions of insulin (e.g., Cushing syndrome, acromegaly, pheochromocytoma). The major risk factors for type 2 diabetes mellitus 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 a first-degree relative (eg, parent or sibling), Hypertension (>140/90 mm Hg) or

dyslipidemia (high-density lipoprotein [HDL] 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 >9 lb, Polycystic ovarian syndrome (which results in insulin resistance) as cited by Romesh Khardori (2).

2.1.1.3 Diabetes-associated mortality and morbidity: Diabetes mellitus is one of the leading causes of morbidity and mortality in the United States because of its role in the development of cardiovascular, renal, neuropathic, and retinal disease. These complications, particularly cardiovascular disease (approximately 50-75% of medical expenditures), are the major sources of expenses for patients with diabetes mellitus. Diabetes mellitus is the major cause of blindness in adults aged 20-74 years in the United States; diabetic retinopathy accounts for 12,000-24,000 newly blind persons every year. The National Eye Institute estimates that laser surgery and appropriate follow-up care can reduce the risk of blindness from diabetic retinopathy by 90%. Diabetes mellitus, and particularly type 2 diabetes mellitus, is the leading contributor to end-stage renal disease (ESRD) in the United States. Diabetes mellitus is the leading cause of nontraumatic lower limb amputations in the United States, with a 15- to 40-fold increase in risk over that of the nondiabetic population. In 2004, about 71,000 nontraumatic lower limb amputations were performed related to neuropathy and vasculopathy. The risk for coronary heart disease is 2-4 times greater in patients with diabetes than in individuals without diabetes. Cardiovascular disease is the major source of mortality in patients with type 2 diabetes mellitus. Approximately two thirds of people with diabetes die of heart disease or stroke (2).

2.1.1.4 Clinical Presentation: Classic symptoms are polyuria, polydipsia, polyphagia, weight loss. Other symptoms that might suggest hyperglycemia include blurred vision, lower extremity paresthesias, or yeast infections, particularly balanitis in men. However, many patients with type 2 diabetes 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

at least 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).

2.1.1.5 Diagnostic Considerations: Type 2 diabetes mellitus can usually be differentiated from type 1 diabetes mellitus on the basis of history and physical examination findings and simple laboratory tests

2.1.1.6 Management: The goals in caring for patients with diabetes mellitus are to eliminate symptoms and prevent, or at least slow, the development of complications. Microvascular (ie, eye and kidney disease) risk reduction is accomplished through control of glycemia and blood pressure (BP); macrovascular (ie, coronary, cerebrovascular, peripheral vascular) risk reduction, through control of lipids and hypertension, smoking cessation, and aspirin therapy; and metabolic and neurologic risk reduction, through control of glycemia. Diabetes care requires appropriate goal setting, dietary and exercise modifications, medications, appropriate self-monitoring of blood glucose (SMBG), regular monitoring for complications, and laboratory assessment. Ideally, blood glucose should be maintained at near-normal levels (preprandial levels of 90-130 mg/dL and hemoglobin A1C [HbA1c] levels < 7%). However, focus on glucose alone does not provide adequate treatment for patients with diabetes mellitus. Treatment involves multiple goals (ie, glycemia, lipids, BP) and is best provided by a multidisciplinary team of health professionals with expertise in diabetes. Adherence to diet and exercise should continue to be stressed throughout treatment, because these lifestyle measures can have a large effect on the degree of diabetic control that patients can achieve.

A. Pharmacologic Therapy: Some of types of medications use to treat diabetic type II patients are Sulfonylureas, Meglitinides, Biguanides,Metformin., Alpha-glucosidase., Thiazolidinediones (glitazones), Incretin., Dipeptidyl peptidase IV inhibitors, Amylin analogs

B. Management of Glycemia: At the time of diagnosis, management of hyperglycemia in most patients with type 2 diabetes mellitus should begin with lifestyle modification (diet and activity) implemented by health care professionals, in combination with metformin. If the patient fails to achieve or sustain glycemic goals within 2-3 months, another medication should be added—generally, either insulin or a sulfonylurea.

C. Self-monitoring of blood glucose Daily SMBG is important for patients treated with insulin or insulin secretagogues to monitor for and prevent hypoglycemia and optimize the treatment regimen. The optimal frequency of SMBG for patients with type 2 diabetes is unresolved, but it should be sufficient to facilitate reaching glucose goals. Patients using multiple insulin injections should use SMBG at least 3 times a day.

D. Dietary Modifications: Caloric restriction is of first importance. After that, individual preference is reasonable. Modest restriction of saturated fats and simple sugars is also reasonable. However, some patients have remarkable short-term success with high-fat, low-carbohydrate diets of various sorts. Modest weight losses of 5-10% were associated with significant improvements in cardiovascular disease risk factors (ie, decreased HbA1c levels, reduced blood pressure, increase in HDL cholesterol, and decrease in plasma triglycerides) in patients with type 2 diabetes mellitus. Risk factor reduction was even greater with losses of 10-15% of body weight.

E. Activity Modifications: Most patients with type 2 diabetes mellitus can benefit from increased activity. Aerobic exercise improves insulin sensitivity and may improve glycemia markedly in some patients. Structured exercise training of more than 150 minutes per week is associated with greater HbA1c reduction; however, physical activity helps lower HbA1c only when combined with dietary modifications.

2.1.1.7 Monitoring for Diabetic Complications: The ADA recommends initiation of complications monitoring at the time of diagnosis of diabetes mellitus. This regimen should include yearly dilated eye examinations, yearly microalbumin checks, and foot examinations at each visit. A study by Cigolle et al found that middle-aged and older adults with diabetes have an increased risk for the development of geriatric conditions. These conditions substantially contribute to morbidity and functional impairment. The authors concluded that adults with diabetes should be monitored for the development of geriatric conditions at a younger age than was previously considered. For example, the risk for early development of Parkinson disease is 36% higher in those with diabetes mellitus. However, a systematic review from Cereda et al found no conclusive evidence on this association. Additionally, a high overall risk for pancreatic neoplasm is noted in individuals with diabetes mellitus, particularly in those aged 45-65 years. Incidence of complications widely vary among the Asian subgroups, suggesting the need for an ethnic stratified nuanced approach in evaluation and surveillance.

2.1.1.8 Prevention of Type 2 Diabetes Mellitus: Guidelines from the American College of Clinical Endocrinologists for prevention of type 2 diabetes mellitus in patients at risk recommend weight reduction, proper nutrition, regular physical activity, cardiovascular risk factor reduction, and aggressive treatment of hypertension and dyslipidemia as cited by Mirka Kneckt (2).

2.1.2 Diabetic self care

Various terms 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 diabetes self-care regimens established co-operatively 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 a more suitable term than compliance to describe diabetes care and it is therefore used in this study. as cited by Mirka Kneckt (11).

2.2 Diabetes self-care practices

2.2.1 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 diabetic patients were able to do self blood glucose monitoring at home. Fifty one percents of patients didn't have urine analysis, BUN, creatinine and lipid profile in the previous 1-2 years. None of diabetic patients had hemoglobin Alc (HbA1c) determination. About 87% of the diabetics had regular follow ups at their respective health centers and hospitals. (6).

A survey was conducted on factors associated with self-monitoring of glycaemic control among persons with diabetes in Benin City, Nigeria and result showed that Seventy-two (72%) subjects practiced glucose self-monitoring, 63% by testing urine, 8% by testing blood glucose, and 1% person by tasting his/her urine. Most tested once a week, and the frequency of testing differed on the basis of the method employed and also the level of education (12).

Another study was conducted Self-monitoring of blood glucose among diabetes patients attending government health clinics in Negeri Sembilan, Malaysia and result showed that among those who performed SMBG, the majority (83.5%) monitored less than once per day and only 16.5% monitored at least once a day. One-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 regime 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 healthcare personnel must increase awareness on the importance of SMBG and strongly promote the practice among diabetic patients (13).

A study done in India, its result showed that only 121 (35%) respondents were monitoring their urine sugar level regularly. 227 (66%) of respondents were aware regarding self blood sugar examination and just 11 (3%) were monitoring their blood sugar level at home(14). Another study result in Malaysia showed that only 15% of the subjects practiced SMBG(15). Study done in U.S.A revealed that 78% respondents were practiced self-monitoring of blood glucose (16). 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 that 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 (17).

2.2.2 Medication adherence condition

A study was 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=<0.001)(15). .Another study done in Egypt revealed that 9%, 37% and 54% respondents were showed poor, fair and good adherence to prescribed diabetic medication(17). 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 (18).

Another study was done on assessment of adherence to anti-diabetic drug therapy and self management practices among type-2 diabetics in Nigeria & results of the study showed that only 44% (88) of cohorts had adequate glycemic control; of these, 93% (82) were adjudged 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 patient judged adherent with their prescribed anti-diabetic medications ($P < 0.05$) Author's conclusion was Majority of patients with type 2 diabetes in an ambulatory tertiary care setting in Nigeria are managed with OHA combinations, mainly glibenclamide and metformin. While the current prescribing strategy achieved glycemic control in about one third of patients, majority are still not meeting the recommended blood glucose targets due to poor adherence with prescribed drug regimen, and poor knowledge and practice of successful self-management (19). Study in Finland indicated that majority of subjects accomplished their insulin treatment as scheduled but had more difficulties with other aspects of self-care (20).

2.2. 3 Diet management practices adherence condition

A study was conducted on assessment of Dietary Practice among diabetic Patients in the 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% (21).

A study result done in India indicated that more women (52%) than men (32%) followed the recommended diet schedules (14). 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%), 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 ($p = 0.04$)(15). Study in Egypt indicated that 19%, 39% and 42% respondents were showed no, less frequent and more frequent compliance to diet management practices (17). 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 (18).

A study was 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 level of self-management across diabetes type II 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 the Diabetes Control and Complications Trial finding(22).

2.2.4 Physical Activity Adherence condition

A cross sectional study was done on Physical Activity and Reported Barriers to Activity Among Type 2 Diabetic Patients in the United Arab Emirates and 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 (23). Study done in Iran indicated that 34%

male and 54% female respondents were poorly adhered to physical activity and 66% male and 46% female respondents had good adherence(18).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% of the women followed this advice (14). Study in Malaysia revealed that 54% respondents were inactive in daily life and had thing higher mean fasting blood glucose level(P=0.004) (15). 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 U.S.A indicated that 47.8% of patients exercised once a week or less (24).

2.2.5 Diabetic Foot care adherence condition

A cross-sectional study was conducted on Knowledge and practices to ward diabetic Foot Care among Patients Attending Three Tertiary Hospital 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 the first 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 footwear. Illiteracy and low socioeconomic status were significantly associated with poor knowledge and practice of foot care (25).

Institutional based descriptive study was done on Self care and risk factors of diabetic foot care in patients with type II diabetes mellitus & The study result of diabetic foot care assessment showed that 36% had deficient 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 its being a priority. Educational interventions are required to motivate health workers and patients, especially those with most RFDF, in the area of SC (26).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 the respondents had significant statistical association with knowledge (p-value<0.001) and practices (p-value <0.001) regarding foot care. Sex and income per capita had shown no significant statistical association with knowledge and practices regarding foot care The author was conclude 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 the knowledge and practices related to foot care in diabetic patients (27).

A study done in India showed that Knowledge of the respondents regarding eye, foot and skin care was 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 diabetics had knowledge regarding dental care and 11 (3%) were visiting a dentist regularly (20). Study in U.S.A indicated that 61% had their feet inspected by health care provider at least once with one year and 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 a provider (3.4 [1.9-7.2]); and feet inspected at least once (2.1 [1.5-2.9]) (15).

2.2.6 over all self-care practices (SDSCA) adherence condition

A study was conducted on Assessment of Self-Care Practice and Its Associated Factors among Diabetic Patients in Iran and result showed that patients' self-care practice was good in 15.1%,

moderate in 58.7%, and poor in 26.2%. 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 practice of patients (18). A study done in India indicated that despite the fact that all respondents were aware that diabetes is not a curable disease and regular follow up is very important, only 168 (48%) were showing compliance to this advice(14). Study done in Finland indicated that a fifth (19%) of the respondents were 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 diseases and complications as a result of diabetes increased the risk, but had no significant association with adherence to or neglect of self-care the author concluded that the findings demonstrated that 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 (20).

Study done in Island indicated that there were significant differences on reported self-management recommendations across different subgroups. Comparisons on level of self-management across diabetes type II 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 the 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. The current findings may help health professionals better understand the levels and correlates of diabetes self-management and direct future research (17).

2.3 Reasons for Poor Diabetic self care/ associated factors

There are various reasons for poor diabetes self-care. Diabetes self-care is very complex, and life-long commitment, which requires modification 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 lifestyle, education in self-management skills, cues to action, perceived barriers, locus of control and motivation. as cited by Mirka Kneckt (11).

It can be concluded that the overall findings of the studies showed that most patients have poor self care practices and diabetes self care practices should be viewed from the physical, psychological, social and environmental perspectives. Subjective motivation can be considered important for good diabetes self-care. While psychological features can affect motivation, it is suggested that health behavior models could be useful for analyzing health behavior

2.4 Diabetes health behavior and diabetes status

A central concern in self-care practices keeps the level of blood glucose close to normoglycemia. The insulin regimens 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 (11, 28).

2.5 Summary

The overall summary of the literature review themes is, all in all the patients' self-care practices are indeed a very crucial 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 respondents were adhered to prescribed medication, diabetic foot care, diet management practices and physical activity except SMBG which is sub-optimal in most study subjects or a minority of study subjects performs SMBG. And it has been seen that self-care practices are affected by numerous variables, such as financial resources, emotional support or family support, types of medication, perceived inefficacy of prescribed medication, educational level, age, diabetic complication and duration of disease but it has no significant association with gender, ethnicity, and religion.

2.5 Conceptual framework

The conceptual framework 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 or core concepts 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 integrated functioning under stable or changing environmental conditions, and maintaining or bringing about a condition of well-being (29).

The person's ability to perform self-care as well as the kind and amount of self-care required are influenced by 10 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 (30).

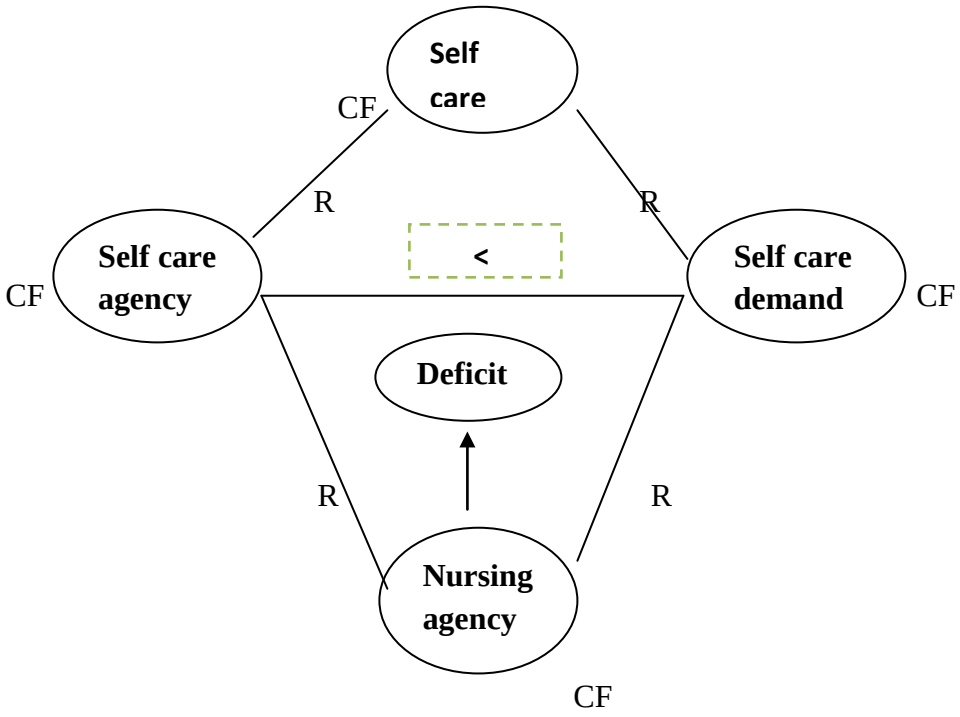


Fig.1 A conceptual frame work for Nursing. R, Relationship; <, deficit relationship, Current or projected, CF: Conditioning Factors (31).

3. OBJECTIVE

3.1 General objective

The overall objective for this study was

To assess diabetic self care practices and associated factors among type II diabetic patients in Tikur Anbessa Specialized Hospital, Endocrinology unit, Addis Ababa City from Sept 2011 to May 2012.

3.2 Specific objectives

The specific aims within this objective were as follows:

1. To assess status of self care practices among type II diabetic patients
2. To assess the association between self care practices and socio demographic data of the patients
3. To describe the association between self care practices and clinical status of the patients

4. METHODOLOGY

4.1 Study area and period

The study area, TASH 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 by the named as Tikur Anbessa. The hospital was attempted to occupy 500 beds. The hospital has provided the appropriate medical services in the internal medicine, gynecological and obstetrics, Surgical, pediatrics and emergency departments. The hospital also have special units (Referral clinics) those are Chest, Renal, Neurology, cardiology, Dermatology and S.T.D, Gastro intestine, Infectious diseases, Orthopedics, General surgical, gynecologic and obstetrics, Endocrinology , Hematology, Medical ICU, Surgical ICU Units.

Endocrinology unit is one of the specialty units of the hospital with estimated annual 950 Type II diabetic patients flow that could be used as referral clinic for all diabetic patients from every corner of the country. This Endocrinology unit is chosen for my study not only because of it is the largest diabetic center currently found in the city even in the country and it is also the only referral unit with its retinal screening and treatment unit and which is the first and well equipped center for all diabetic patients from every corner of the country as a result of this enough sample could be achieved for my study in a specified and limited data collection period. According to central statistics agency house and population censuses report the dominant ethnic group of Addis Ababa City is Amara, language is Amharic, religion is Orthodox and the other dominant ethnic groups are: Oromo, Gurage, Selte, and Tigre respectively. The study period was from September 2011 to May 2012.

4.2 Study design

The study design was institutional based cross-sectional study design.

4.3 Source population

The source population was all patients who visit the endocrinology unit of the hospital during the study period (March 1st week to April 2nd week, 2012).

4.4 Study population

The study population was all Type II diabetic patients who visit the hospital's endocrinology unit at the time of data collection period and fulfilling the inclusion criteria.

4.5 Inclusion criteria

Study subjects included in this study were those who full fill the following inclusion criteria

1. Age greater than 18 years
2. Diagnosed with type II diabetes and made follow up for at least six months and consented

4.6 Exclusion criteria

Study subjects excluded from this study were those who full fill the following exclusion criteria, they are those who

1. were unable to answer the questions because of altered mental state or mentally unstable
2. Diagnosed as type I 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: $Z_{a/2}$- Standard normal score at 95% CI =1.96, d = degree of accuracy or margin of error 0.02 to get maximum sample size., n_o - Sample size desired (initial) , n_f - Final sample size, N= Estimated annual patients flow of type II diabetic:950, P =5.0%, which is population proportion prevalence of diabetic in Ethiopia(urban), So initial sample size will be

$$n_o = \frac{(Z\alpha/2)^2 P(1-p)}{d2}$$

Where, $\mathbf{n_o}$ = Initial sample size, Z α/2= Standard normal score at 95% CI =1.96, P= assumed the highest population proportion prevalence of diabetic mellitus in Ethiopia (urban) = 5%, d= precision (marginal error) =2% to get maximum sample size, There for the value based on the given formula calculated as follow: $n_o = \frac{(1.96)^2 * 0.05 * 0.95}{(0.02)^2} = 456$

The final sample size is determined as follow using the following Correction formula

$$n_f = \frac{n_o}{[1 + n_o / N]} = \frac{456}{[1+456/950]} = 308$$

Thus by adding 5% for possible non-response rate, a total sample size was **323**

4.8 Sampling procedure

Systematic random sampling technique was utilized for this study. K value was calculated as K=nf/N, where nf = final sample size =323 and N= total Number of type II DM patients who are attending the unit per week=72. Xo total number of days use for data collection=18, Ko= nf/Xo 323/18=18 and K=N/ko 36/18 =2. So using the K value, patients was selected using patient registration number in every 2 number intervals and the first study subject will be selected by lottery method and averagely 54 study subjects was interviewed weekly.

4.9 Data collection procedure

Data was collected using standardized structured questionnaire and two diploma completed Nurses with previous experience of data collection and multi lingual ability were recruited. Continuous follow up and supervision was made by the principal investigator throughout the data collection period. Data collection was accomplished within six weeks duration ((March 1st week to April 2nd week, 2012)..

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 SDSCA, which was used to measure five areas or domains of diabetes self care practices: general diet, specific diet, exercise, medication, and self blood glucose monitoring. Beside to this the revised SDSCA also it contain items on foot care and smoking. The SDSCA questioner was adopted contextually and its reliability and validity already tested in U.S.A among similar study subjects (32).

4.11 Pre-test: The questionnaire was pre-tested prior to the actual data collection on 10 respondents in the study area and the respondents were excluded from the actual study.

4.12 Data quality assurance:

To assure data quality, training and orientation was given for the data collectors by the principal investigator. The questionnaire was initially prepared in English and then translated in to Amharic version. The Amharic version was again translated back to English to check for consistency of meaning. However since the dominant ethnic group is Amara with Amrigna language then the study subjects were interviewed with Amharic version questioner. Moreover questionnaire was pre-tested and necessary corrections and amendment was considered. 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.

4.13 Data entry and analysis: The data was entered in to EPI-INFO version 3.5.1, exported to SPSS then the data was cleaned and analyzed using SPSS version 16 software statistical packages. Frequencies and other descriptive statistics was used to describe the study population in relation to relevant variables. Logistic regression was computed to assess statistical association via

Odds ratio, and significance of statistical association was assured or tested using 95% confidence interval and P-value (<0.05). Bivariate and Multivariate analysis was employed to examine the relationship or statistical association between the outcome variable and selected independent variables. Results were presented using tables, figures and texts.

4.14 Ethical consideration

Ethical clearance was secured from the AAU-college of health science department of Nursing and Midwifery IRB (research committee). Official permissions was obtained from TASH medical director office, department of internal medicine after official letter was granted from department of nursing and mid-wifery and respondents was informed about the purpose of the study then information was collected after obtaining verbal consent from each participant. 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 period.

4.15 Operational definitions

1. Self-care practice is defined as activities that individuals initiate and perform on their own behalf in maintaining life, health, and well being.

2. Physical activity the minimum physical activity level was determined as 30 minutes moderate activity for at least 3 days per week

3. 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 the selection of appropriate footwear daily.

4. Adherence with dietary regimen was graded as: adherence was recorded when the patient strictly followed 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.

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

6. **Adherence with Self measurement of blood glucose:** Responses was rated on a 6-point scale (twice a day, daily, every other day, twice a week, once a week, or never).

7. Based the numbers of days they adhered within 7 days: No adherence, rarely or none of the time (0-2 days), moderately adherence, occasionally or moderate amount of the time (3-4 days), Good Adherence, Most of the time (5-7 days)

8. The total score of each item of the questionnaire was calculated out of 100. Considering to the total score, the level of self-care practice was classified into: Not adhered (<49%), Adhered (50% and above) .this scoring method is adopted from previously done research (23, 33)

4.16 Communication of the results

The results of this study will be communicated to the Nursing and mid wife department, Ethiopian Nurses Association, and Ethiopia Diabetic Association, TASH medical director office, department of internal medicine endocrinology unit and other concerned bodies accordingly. Moreover, efforts will be made to publish the paper in scientific journals.

4.17 Study variables

4.17.1 Independent variables

I. **Socio-demographic characteristics:** Age, Religion, Marital status, education level, Sex, monthly income, ethnicity, and occupation.

II. **Clinical or disease state:** Age of diabetes onset, Duration of the disease, Family history of diabetes, Complications of diabetes, Treatment intensity

4.17.2 Dependent Variable

The outcome variables of the study was self care practices of the patients

5. RESULT

5.1 Socio-demographic characteristics

A total of 323 male and female adult type II diabetic patients were interviewed using standardized structured questionnaire and included in the analysis. Three respondents were excluded from the analysis for gross incompleteness and inconsistency of responses, made a response rate of 99.1 %. Of all respondents 167(52.2%) and 153(47.8%) were Female and Male respectively. The majority of the study participants 232 (72.5%) were in the age group of 30 to 60 years. Mean age of the respondents was 55.03 ± 10.7 years [(95% CI) (44.33—65.73)] with minimum age of 30 and maximum age of 85. Most of the respondents 257(80%) were orthodox Christian by religion and Amara184 (57%) by ethnicity. A significant number 182 (57%) of the respondents did attend formal education. Two hundred forty six (77%) of respondents were married currently. From the total respondents two hundred eleven (66%) were unemployed and majority of the study participants 139(43%) were had very low monthly income (Table 1).

Table1: Socio demographic data of Type II Diabetes patients in TASH Endocrine Unit, Ethiopia,2012

Sr. NO	CHARACTERISTICS	ALTERNATIVE RESPONSE	FREQUENCY	
			No	%
1	Gender	1. Male	**153**	**48**
		2. Female	**167**	**52**
		Total	**320**	**100**
2	Age category [b]	1.Adult 30-60 years	**232**	**73**
		2.Geratric 61-70 years	**71**	**22**
		3. Geriatric 71 years and above	**17**	**5**
		Total	**320**	**100**
3	Monthly Income [a]	1. Very Low	**139**	**43**
		2. Low	**36**	**11**
		3. Average	**79**	**25**
		4. Above average	**32**	**10**
		5. High	**34**	**11**
		Total	**320**	**100**
4	Ethnic origin	1. Amara	**184**	**57**
		2. Oromo	**57**	**18**
		3. Guragie	**38**	**12**
		4. Tigray	**21**	**7**
		5. Seltie	**9**	**3**
		6. Other [c]	**11**	**3**
		Total	**320**	**100**
5	Level of education	1. Illiterate	**53**	**17**
		2. Primary School	**99**	**31**
		3. Secondary School	**83**	**26**
		4. college/ University	**85**	**27**
		Total	**320**	**100**
6	Marital status	1. Married	**246**	**77**
		2. Divorced	**16**	**5**
		3. Widowed	**38**	**12**
		4. Single/ never married	**20**	**6**
		Total	**320**	**100**
7	Occupation/ employment	1. Employed	**81**	**25**
		2. unemployed	**211**	**66**
		3. Merchant	**28**	**9**
		Total	**320**	**100**
8	Religion	1. Orthodox	**257**	**80**
		2. Muslim	**36**	**11**
		3. Protestant	**19**	**6**
		4. Catholic	**3**	**1**
		5. Jehovah witness	**5**	**2**
		Total	**320**	**100**

a Monthly income category: Very Low <420 Birr, Low=421-1200Birr, Average=1201-2500Birr, Above Average= 2501-500Birr and High >5001Birr

b Age category was adopted from research article (a study done in Egypt) (17)

c Ethnic origin.: Other-Hadiya, Gamo, Sidama

5.2. Health status data

The mean age in which diabetic disease started was 42.5±10.03 years [(95% CI) (32.2—52.53)] with minimum age of 30 and maximum age of 75. The mean duration of diabetes was 12.3± 7.6years [(95% CI) (4.7–19.9)] with minimum of 6 months and maximum of 41 years. The majority of the study participants 205 (64%) had multiple injection treatment (two injections per day). Of all respondents 101(32%) and 14(4%) had oral hypoglycemic agent or both treatment intensity respectively. Two hundred twenty six (71%) of the respondents did not have family history of diabetes and only 119 (37%) respondents had glucometry at home. Almost half of the participants 157 (49%) had long term diabetic complication confirmed medically. Only six (2%) of all respondents have the habit of Smoking and thirty seven (12%) had history of smoking in the past. Table2 show the detail description.

Table2: Patient Health Statues data of type II diabetes Patients in TASH Endocrine Unit, Ethiopia, 2012

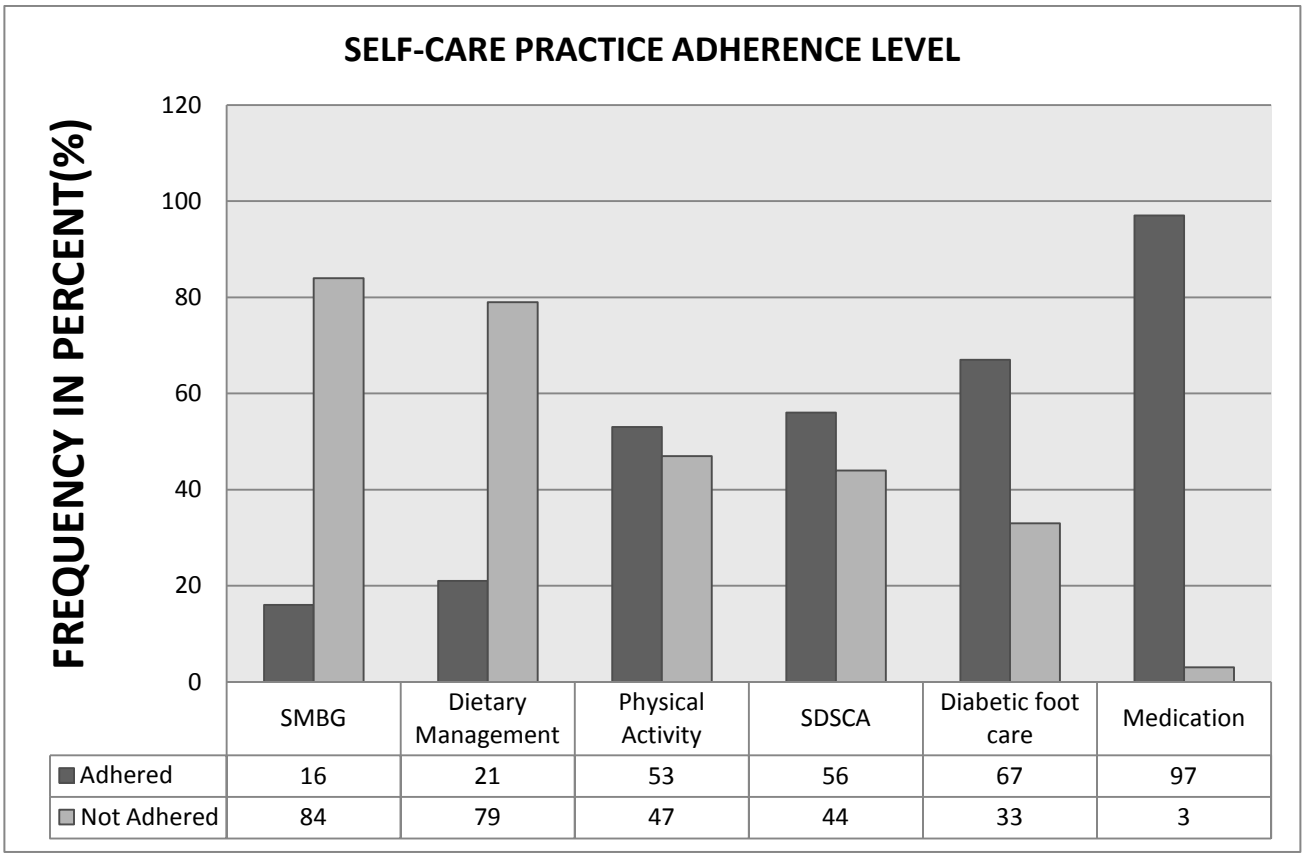
Sr. No	Characteristics	Alternative response	Frequency No	Frequency %
1	Duration of the disease [a]	1. Less than one year	**6**	**2**
		2. One year to five years	**58**	**18**
		3. Greater than five years	**256**	**80**
		Total	**320**	**100**
2	Family history of diabetes	1. No	**226**	**71**
		2. Yes	**94**	**29**
		Total	**320**	**100**
3	Treatment intensity	1. Oral Hypoglycemic agent	**101**	**32**
		2. Insulin therapy	**205**	**64**
		3. Both	**14**	**4**
		Total	**320**	**100**
4	Currently do you have your own glucometry at home	1. No	**201**	**63**
		2. Yes	**119**	**37**
		Total	**320**	**100**
5	Diabetic complication	1. No	**163**	**51**
		2. Yes	**157**	**49**
		Total	**320**	**100**
6[b]	Have you smoked a cigarette, even a puff, in the past SEVEN DAYS	1. No	**314**	**98**
		2.Yes	**6**	**2**
		Total	**320**	**100**

a. Diabetic disease duration category was adopted from research article (study done in Egypt) (17)

b. Past SEVEN DAYS means, a week before time of data collection (March to April 2012)

5.3 All Self care practice Domains Adherence Condition

Respondents' self-care practices were, the majority 270 (84%) respondents were not adhered to SMBG practice. A total of 311(97%) respondents were adhered to anti-diabetic medication. The majority 252 (79%) respondents were not adhered to recommended diet management practices. From the total respondents one hundred seventy (53%) were reported adhered to physical activity that meet the recommended guidelines .Of all study participants, 213(67%) respondents were adhered to the recommended diabetic foot care practices. Overall self-care practices (SDSCA) were reported as adhered in 178 (56%) participants. Of all respondents 311(97%) were adhered to prescribed anti-diabetic medications. Fig2 show the detail.



	SMBG	Dietary Management	Physical Activity	SDSCA	Diabetic foot care	Medication
Adhered	16	21	53	56	67	97
Not Adhered	84	79	47	44	33	3

* NB. Total Sample size analyzed was 320

Fig.2 A Bar graph showing Self care practice adherence level of type II diabetes Patients in TASH Endocrine Unit, Ethiopia, 2012 (N=320)

5.4. Adherence to Self Monitoring Blood Glucose (SMBG) Practice

The majority 270 (84%) of the study participants were not adhered to Self Monitoring of Blood Glucose which means, monitored less than 1-2 times per week, even almost all participants were said that they did SMBG practices when they had symptoms of hyperglycemia or hypoglycemia or at the time of health care visit and only 50(16%) were adhered which means monitored at least 3-4 times a week. Presence of glucometry at home, education and Monthly income was found to have statistically significant association with adherence to SMBG practice. Those who have glucometry at home were eight times less risk not to be adhered to the practice when compared with those who didn't have [P<0.001, AOR (95% CI) = 8.19 (3.718-18.070)] and those who are with higher level of education and monthly income were adhered thirteen and four times more than counterpart [P=0.033, AOR (95% CI) = 12.71(1.233-131.145)] and [P=0.036, AOR (95% CI) = 3.56(1.086-11.694)] respectively.

Table3 shows the details of Logistic regression analysis result of diet management practice and health status data and demographic characteristics

Table3 Logistic regression analysis result of Adherence to SMBG practice
Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 2012 (N=320)

Factor	SMBG Practices		COR	CI of 95 %		AOR	CI of 95%
	Not adhered	Adhered					
	No. (%)	No. (%)					
Age		**P-Value=0.183**					
Adults <60 years	191(59.7)	41(12.8)	1.00				
Geriatric 60–70 years	65(20.3)	6(1.9)	0.43	(0.175	1.060)		
Geriatric >70 years	14(4.4)	3(0.9)	0.99	(0.274	3.633)		
Total	**270(84.4)**	**50(15.6)**					
Gender:		**P-value=0.780**					
Male	130(40.6)	23(7.2)	1.0				
Female	140(43.8)	27(8.4)	1.09	(0.595	1.997)		
Total	**270(84.4)**	**50(15.6)**					
Marital status		**P-Value=0.745**					
Married	204(63.8)	42(13.1)	1.00				
Divorced	15(4.7)	1(0.3)	0.32	(0.042	2.519)		
Widowed	31(9.7)	7(2.2)	1.09	(0.453	2.657)		
Single/Never married	20(6.2)	0(0.0)	0.00	(0.000	-)		
Total	**270(84.4)**	**270(84.4)**					
Occupation:		**P-Value=0.037**					
Employed	61(19.1)	20(6.2)	1.96	(0.609	6.356)	0.75	(0.188-3.039)
unemployed	185(57.8)	26(8.1)	0.84	(0.271	2.624)	0.47	(0.119-1.905)
Merchant	24(7.5)	4(1.2)	1.00			1.00	
Total	**270(84.4)**	**50(15.6)**					
Level of education:		**P-Value=0.006**					
Illiterate	52(16.2)	1(0.3)	1.00			1.00	
Primary	88(27.5)	11(3.4)	6.50	(0.816	51.80)	6.26	(0.691-56,815)
High School	67(20.9)	16(5.0)	12.4	(0.816	96.70)	8.01	(0.863-74.333)
college/university	57(19.7)	22((6.8)	**18.1**	**(2.367**	**139.3)**	**12.71**	**(1.233-131.145)****
Total	**270(84.4)**	**50(15.6)**					
Monthly income		**P-Value=0.006**					
Very Low income	122(38.1)	17(5,3)	1.00			1.00	
Low income	33(10.3)	3(0.9)	0.65	(0.180	2.361)	0.61	(0.159-2.341)
Average income	68(21.2)	11(3.4)	1.16	(0.514	2.621)	1.07	(0.452-2.567)
Above Average income	26(8.1)	6(1.9)	1.65	(0.596	4.604)	1.40	(0.417-4.711)
High income	21(6.6)	13(4.1)	**4.44**	**(1.884**	**10.476)**	**3.56**	**(1.086-11.694)****
Total	**270(84.4)**	**50(15.6)**					
Presence of glucometry at home		**P-Value<0.001**					
No	191(59.7)	10(3.1)	1.00			1.00	
Yes	79(24.7)	50(12.5)	**9.67**	**(4.610**	**20.288)**	**8.19**	**(3.718-18.070)****
Total	**270(84.4)**	**50(15.6)**					

** Statistically associated Variable P=<0.05

*Variable were showed Statistical Association in COR but lost during AOR Analysis,

NB: P-Value is, Value of COR analysis result

5.5 Adherence to Prescribed medication

A total of 311(97%) study participants were adhered with prescribed anti-diabetic drugs but out of the total study subjects 9(3%) were non-adhered. Of the total adhered respondents 163(51%) and 148(46%) were Female and Male respectively and out of all not adhered respondents 5(2%) and 4(1%) were male and female respectively. Treatment intensity of the study participants were oral hypoglycemic agent 101(31.6%), insulin therapy 205(64.1%) and both treatment 14(4.4%). Binomial logistic regression analysis result showed that there was significant association between prescribed medication adherence condition and types of treatment they took, those who took insulin injection were six times adhered than those who took oral hypoglycemic agent [P=0.044,AOR (95% CI) = 5.64(1.061-30.081)]. But no association to other health status data and socio demographic characteristics.Table4 shows the details of Logistic regression analysis result of adherence to medication and health status data and demographic characteristics

Table4 Logistic regression analysis result of adherence to prescribed medication Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 2012, (N=320)

Factor	Medication Adherence		COR	CI of 95%	AOR	CI of 95%
	Not adhered	Adhered				
	No. (%)	No. (%)				
Age	**P-value=1.000**					
Adults <60 years	9(2.8)	223(69.7)	0.00	(0.000 -)		
Geriatric 60–70 years	0(0.0)	71(22.2)	1.00	(0.000 -)		
Geriatric >70 years	0(0.0)	17(5.3)	1.00			
Total	**9(2.8)**	**311(97.2)**				
Gender:	**P-Value=0.638**					
Male	5(1.6)	148(46.2)	1.00			
Female	4(1.2)	163(50.9)	1.37	(0.363 5.223)		
Total	**9(2.8)**	**311(97.2)**				
Marital Status	**P-Value=0.777**					
Married	6(1.9)	240(75.0)	2.10	(0.241 18.400)		
Divorced	1(0.3)	15(4.7)	0.78	0.046 13.693		
Widowed	1(0.3)	37(11.6)	1.94	(0.115 32.883)		
Single/Never Married	1(0.3)	19(5.9)	1.00			
Total	**9(2.8)**	**311(97.2)**				
Level of education:	**P-Value=0.996**					
Illiterate	0(0.0)	53(16.6)	5.91	(0.000 -)		
Primary	3(0.9)	96(30.0)	1.17	(0.230 5.959)		
High School	3(0.9)	80(25.0)	0.97	(0.191 4.978)		
college/university	3(0.9)	82(25.6)	1.00			
Total	**9(2.8)**	**311(97.2)**				
Treatment intensity	**P-Value=0.040**					
Oral hypoglycemic agent	6(1.9)	95(29.7)	1.00		1.00	
Insulin injection	3(0.9)	202(63.1)	**4.25**	**(1.041 17.370)**	**5.64**	**(1.061-30.081)****
Both	0(0.0)	14(4.4)	1.02	(0.000 -)	6.74	(0.000 -)
Total	**9 (2.8)**	**311(97.2)**				
Duration of diabetes	**P-value=0.098**					
6 Months to 1 year	1(0.0)	5(1.6)	1.00			
2–5 years	3(0.9)	55(17.2)	3.66	(0.319 42.124)		
≥ 6 years	5(1.6)	251(78.4)	10.0	(0.984 102.41)		
Total	**9(2.8)**	**311(97.2)**				
Diabetic Complication	**P-Value=0.779**					
No	5(1.6)	158(49.4)	0.82	(0.218 3.134)		
yes	4(1.2)	153(47.8)	1.00			
Total	**9(2.8)**	**311(97.2)**				

** Statistically associated Variable P=<0.05

NB: P-Value is, Value of COR analysis result

5.6 Adherence to diet management

The majority 252 (79%) 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 68(21%) study participants were Adhered which means follow the recommended diet management practices at least 3-4 times a week. Variables like education level, monthly income, presence of diabetic complication and marital status were showed statistically significant association with adherence to diet management practices. Respondents with high level of education and who are married were about five and ten times more likely to be engaged in diet management practices when compared with their counter parts [P=0.001, AOR (95% CI) = 5.36 (1.304-22.031)] and [P=0.033, AOR (95% CI) = 9.95(1.199-82.665)] respectively and respondents with high monthly income and out diabetic complication were showed four and two times more adhered when compared to their counterpart [P=0.001, AOR (95% CI) = 4.10 (1.738-9.677)] and [P=0.035, AOR (95% CI) = 1.85(1.046-3.278)] respectively. Table5 shows the details of Logistic regression analysis result of diet management practice adherence condition and health status data and demographic characteristics

Table5 Logistic regression analysis result of adherence to diet management Activities Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 2012,(N=320)

Factor	Adherence to Diet mgt		COR	CI of 95 %		AOR	CI of 95%
	Not adhered	Adhered					
	No. (%)	No. (%)					
Age	**P-Value=0.069**						
Adults <60 years	175(54.7)	57(17.8)	2.44	(0.542	11.007)		
Geriatric 60–70 years	62(19.4)	9(2.8)	1.08	(0.213	5.571)		
Geriatric >70 years	15(4.7)	2(0.6)	1.00				
Total	**252(78.8)**	**68(21.2)**					
Gender:	**P-value=0.679**						
Male	122(38.1)	31(9.7)	1.12	(0.654	1.917)		
Female	130(40.6)	37(11.6)	1.00				
Total	**252(78.8)**	**68(21.2)**					
Marital status	**P-Value=0.099**						
Married	186(58.1)	60(18.8)	**6.12**	**(0.803**	**46.752)**	**9.95**	**(1.199-82.665)****
Divorced	15(4.7)	1(0.3)	1.26	(0.073	21.970)	2.43	(0.131-45.415)
Widowed	32(10.0)	6(1.9)	3.56	(0.398	31.889)	6.03	(0.609-59.740)
Single/Never Married	19(5.9)	1(0.3)	1.00			1.00	
Total	**252(78.8)**	**68(21.2)**					
Occupation:	**P-Value<0.001**						
Employed	51(15.9)	30(9.4)	2.15	(0.786	5.916)	1.13	(0.368-3.474)
unemployed	179(55.9)	32(10.0)	0.65	(0.247	1.743)	0.69	(0.233-2.095)
Merchant	22(6.9)	6(1.9)	1.00			1.00	
Total	**252(78.8)**	**68(21.2)**					
Level of education:	**P-Value<0.001**						
Illiterate	50(15.6)	3(0.9)	1.00			1.00	
Primary	84(26.2)	15(4.7)	2.97	(0.821	10.791)	2.37	(0.635-8.910)
High School	65(20.3)	18(5.6)	4.61	(1.288	16.544)*	3.19	(0.852-11.974)
college/university	53(16.6)	32(10.0)	**10.0**	**(2.898**	**34.945)**	**5.36**	**(1.304-22.031)****
Total	**252(78.8)**	**68(21.2)**					
Monthly income	**P-Value<0.001**						
Very Low income	121(37.8)	18(5.6)	1.00			1.00	
Low income	33(10.3)	3(0.9)	0.61	(0.170	2.202)	0.58	(0.162-2.778)
Average income	57(17.8)	22(6.9)	2.59	(1.291	5.214)*	2.49	(1.232-5.280)
Above Average income	20(6.2)	12(3.8)	4.03	(1.689	9.630)*	3.96	(1.649-9.550)
High income	21(6.6)	13(4.1)	**4.16**	**(1.777**	**9.742)***	**4.10**	**(1.738-9.677)****
Total	**252(78.8)**	**68(21.2)**					
Diabetic Complication	**P-value=0.023**						
No	120(37.5)	43(13.4)	**1.89**	**(1.090**	**3.284)***	**1.85**	**(1.046-3.278)****
yes	132(41.3)	25(7.8)	1.00			1.00	
Total	**252(78.8)**	**68(21.2)**					

** Statistically associated Variable P<0.05

*Variable were showed Statistical Association in COR but lost during AOR Analysis NB

NB: P-Value is, Value of COR analysis result

5.7 Adherence to exercise regimen

From the total study participants one hundred seventy (53%) were reported adhered to physical activity that meet the recommended guidelines and 150 (47%) were not adhered. Respondents who were single and those who were attended higher level of education had statistically significant association with their adherence condition to physical activity and about three times more likely to be engaged in physical activity when compared with their counter parts [P=0.047, AOR(95% CI)=2.99 (1.015-8.837) and P=0.006, AOR(95%CI)= 2.79(1.942-5.832)] respectively. Similarly those respondents who had above medium monthly income and had not diabetic complication were adhered to the practices three and two times more than the counterpart [P=0.011, AOR (95% CI) = 2.74(1.069-7.064) and P=0.016, AOR (95%CI)=1.79(1.118-2.888)] respectively Table6 shows the details of Logistic regression analysis result of physical exercise regimen practice adherence condition and health status data and demographic characteristics.

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Table6 Logistic Regression Analysis result of adherence to Physical Activities Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 2012, (N=320)

Factor	Adherence to Exercise		COR	CI of 95%		AOR	CI of 95%
	Not adhered	Adhered					
	No. (%)	No. (%)					
Age	**P-Value=0.091**						
Adults <60 years	100(31.2)	132(41.2)	1.88	(0.694	5.127)		
Geriatric 60–70 years	40(12.5)	31(9.7)	1.10	(0.378	3.240)		
Geriatric >70 years	10(3.1)	7(2.2)	1.00				
Total	**150(46.9)**	**170(53.1)**					
Gender:	**P-Value=0.200**						
Male	66(20.6)	87(27.2)	1.33	(0.858	2.073)		
Female	84(26.2)	83(25.9)	1.00				
Total	**150(46.9)**	**170(53.1)**					
Marital status	**P-Value=0.038**						
Married	119(37.2)	127(39.7)	1.00			1.00	
Divorced	4(1.2)	12(3.8)	2.81	(0.882	8.957)	3.00	(0.914-9.877)
Widowed	22(6.9)	16(5.0)	0.68	(0.342	1.360)	0.64	(0.316-1.307)
Single/Never Married	5(3.3)	15(4.7)	**2.81**	**(0.991**	**7.973)**	**2.99**	**(1.015-8.837)****
Total	**150(46.9)**	**170(53.1)**					
Occupation:	**P-Value=0.112**						
Employed	34(10.6)	47(14.7)	0.65	(0.264	1.623)		
unemployed	107(33.4)	104(32.5)	0.46	(0.199	1.064)		
Merchant	9(2.8)	19(5.9)	1.00				
Total	**150(46.9)**	**170(53.1)**					
Level of education:	**P-Value=0.009**						
Illiterate	36(11.2)	17(5.3)	1.00			1.00	
Primary	44(13.8)	55(17.2)	**2.64**	**(1.315**	**5.330)**	**3.05**	**(1.484-6.305)****
High School	32(10.0)	51(15.9)	**3.37**	**(1.632**	**6.980)**	**3.41**	**(1.626-7.186)****
college/university	38(11.9)	47(14.7)	**2.61**	**(1.277**	**5.370)**	**2.79**	**(1.342-5.832)****
Total	**150(46.9)**	**170(53.1)**					
Monthly income	**P-Value=0.001**						
Very Low income	79(24.7)	60(18.8)	1.00			1.00	
Low income	16(5.0)	20(6.2)	1.64	(0.787	3.443)	1.55	(0.710-3.422)
Average income	25(7.8)	54(16.9)	2.84	(1.591	5.084)	2.54	(1.326-4.896)
Above Average income	10(3.1)	22(6.9)	**2.89**	**(1.277**	**6.573)**	**2.74**	**(1.069-7.064)****
High income	20(6.2)	14(4.4)	0.92	(0.431	1.973)	0.89	(0.337-2.398)
Total	**150(46.9)**	**170(53.1)**					
Diabetic Complication	**P-Value=0.003**						
No	63(19.7)	100(31.2)	**1.97**	**(1.264**	**3.080)**	**1.79**	**(1.118-2.888)****
yes	87(27.2)	70(21.9)	1.00			1.00	
Total	**150(46.9)**	**170(53.1)**					

** Statistically associated Variable p<0.05

*Variable were showed Statistical Association in COR but lost during AOR Analysis

NB: P-Value is, Value of COR analysis result

5.7 Adherence to Diabetic Foot care

Among 320 study participants 213(66.6) respondents were adhered to the recommended diabetic foot care practices and 107(33.4%) were not adhered. Gender and age were found to have statistically significant association with adherence to diabetic foot care practices and females and younger were about two times more likely to be engaged in the practices when compared with the counterpart [P=<0.001,AOR (95% CI) =2.03(1.256-3.297)] and[P=0.040,AOR (95% CI) =1.45(0.524-4.060)]. Table7 shows the details of Logistic regression analysis result of diabetic foot care practice adherence condition and health status data and demographic characteristics

Table7 Logistic Regression Analysis result of adherence to Diabetic foot care practices Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 201,(N=320)

Factor	Adherence to foot care		COR	CI of 95%		AOR	CI of 95%
	No adherence	Adhered					
	No. (%)	No. (%)					
Age	**P-value=0.040**						
Adults <60 years	68(21.3)	164(51.2)	**1.68**	**(0.617**	**4.619)**	**1.45**	**(0.524-4.060)****
Geriatric 60–70 years	32(10.0)	39(12.2)	0.85	(0.292	2.495)	0.83	(0.281-2.472)
Geriatric >70 years	7(2.2)	10(3.1)	1.00			1.00	
Total	**107(33.4)**	**213(66.6)**					
Gender:	**P-Value=0.001**						
Male	65(20.3)	88(27.5)	1.00			1.00	
Female	42(13.1)	125(39.1)	**2.19**	**(1.368**	**3.532)**	**2.03**	**(1.256-3.297)****
Total	**107(33.4)**	**213(66.6)**					
Marital Status	**P-Value=0.852**						
Married	81(25.3)	165(51.6)	0.87	(0.324	2.356)		
Divorced	5(1.6)	11(3.4)	0.94	(0.227	3.922)		
Widowed	15(4.7)	23(7.2)	0.65	(0.207	2.089)		
Single/Never Married	6(1.9)	14(4.4)	1.00				
Total	**107(33.4)**	**213(66.6)**					
Occupation:	**P-Value=0.478**						
Employed	23(7.2)	58(18.1)	1.63	(0.664	4.010)		
unemployed	73(22.8)	138(43.1)	1.22	(0.544	2.749)		
Merchant	11(3.4)	17(5.3)	1.00				
Total	**107(33.4)**	**213(66.6)**					
Level of education:	**P-Value=0.479**						
Illiterate	21(6.6)	32(10.0)	1.00				
Primary	36(11.2)	63(19.7)	1.14	(0.578	2.281)		
High School	26(8.1)	57(17.8)	1.43	(0.700	2.955)		
college/university	24(7.4)	61(19.0)	1.66	(0.808	3.445)		
Total	**107(33.4)**	**213(66.6)**					
Duration of diabetes	**P-Value=0.725**						
6 Months to 1 year	2(0.6)	4(1.2)	1.00				
2–5 years	22(6.9)	36(11.2)	0.81	(0.138	4.844)		
≥ 6 years	83(25.9)	173(54.1)	1.04	(0.187	5.805)		
Total	**107(33.4)**	**213(66.6)**					
Diabetic Complication	**P-Value=0.193**						
No	49(15.3)	114(35.6)	1.00				
yes	58(18.1)	99(30.9)	0.73	(0.460	1.169)		
Total	**107(33.4)**	**213(66.6)**					

** Statistically associated Variable P<0.05

*Variable were showed Statistical Association in COR but lost during AOR Analysis

NB: P-Value is, Value of COR analysis result

5.9 Adherence to over all self care practices (SDSCA)

Self-care practices were reported adhered in 178 (55.6%) participants, and not adhered in 142 (44.4%) 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 practices and about two and four times more likely to be engaged in self care practices when compared with male and illiterate participants [P=0.003, AOR (95% CI) =2.37 (1.353-4.167) and P=0.009, AOR (95%CI) =3.69(1.390-9.830)] respectively. Similarly those respondents who are without diabetic complication were adhered three times more than the counterpart [P=<0.001, AOR (95% CI)=2.509 (1.535-4.104)]. Age showed that significant association but it is protective which means younger respondents had 60% chance to be adhered than Geriatric individuals [P=0.013, AOR (95% CI) =0.46 (0.241-0.879)].Table8 shows the details Logistic regression analysis result of overall self-care practice adherence condition and health status data and demographic characteristics.

Table8 Logistic Regression analysis result of adherence to over all self care practices (SDSCA) Among Type II diabetic study subjects in TASH Endocrinology unit, Ethiopia 2012, (N=320)

Factor	Adherence to SDSCA		COR	CI of 95%		AOR	CI of 95%
	Not adhered	Adhered					
	No. (%)	No. (%)					
Age	**P-Value=0.001**						
Adults <60 years	88(27.5)	144(45.0)	1.00			1.00	
Geriatric 60–70 years	45(14.1)	26(8.1)	**0.35**	**(0.204**	**0.613)**	**0.40**	**(0.219-0.738)****
Geriatric >70 years	9(2.8)	8(2.5)	0.54	(0.202	1.460)	0.85	(0.300-2.438)
Total	**142(44.4)**	**178(55.6)**					
Gender:	**P-value=0.023**						
Male	78(24.4)	75(23.4)	1.00			1.00	
Female	64(20.0)	103(32.2)	**1.67**	**(1.073**	**2.611)**	**2.37**	**(1.353-4.167)****
Total	**142(44.4)**	**178(55.6)**					
Marital Status	**P-Value=0.533**						
Married	112(35.0)	134(41.9)	0.51	(0.191	1.378)		
Divorced	6(1.9)	10(3.1)	0.71	(0.177	2.875)		
Widowed	18(5.6)	20(6.2)	0.47	(0.151	1.502)		
Single/never married	6(1.9)	14(4.4)	1.00				
Total	**142(44.4)**	**178(55.6)**					
Occupation:	**P-value=0.004**						
Employed	23(7.2)	58(18.1)	2.18	(0.901	5.300)	1.10	(0.385-3.151)
unemployed	106(33.1)	105(32.8)	0.85	(0.390	1.892)	0.86	(0.330-2.272)
Merchant	13(4.1)	15(4.7)	1.00			1.00	
Total	**142(44.4)**	**178(55.6)**					
Level of education:	**P-Value=0.002**						
Illiterate	33(10.3)	20(6.2)	1.00			1.00	
Primary	50(15.6)	49(15.3)	1.61	(0.818	3.195)	1.66	(0.785-3.551)
High School	33(10.3)	50(15.6)	2.50	(1.231	5.076)*	2.02	(0.906-4.505)
college/university	26(8.1)	59(18.4)	**3.74**	**(1.819**	**7.708)**	**3.69**	**(1.390-9.830)****
Total	**142(44.4)**	**178(55.6)**					
Monthly income	**P-Value=0.025**						
Very Low income	73(22.8)	66(20.6)	1.00			1.00	
Low income	19(5.9)	17(5.3)	0.99	(0.475	2.062)	1.01	(0.434-2.377)
Average income	30(9.4)	49(15.3)	1.80	(1.029	3.173)*	1.80	(0.898-3.639)
Average income	10(3.1)	22(6.9)	2.43	(1.074	5.512)*	1.39	(0.484-4.026)
High income	10(3.1)	24(7.5)	2.66	(1.182	5.963)*	1.28	(0.392-3.231)
Total	**142(44.4)**	**178(55.6)**					
Diabetic Complication	**P-Value<0.001**						
No	54(16.9)	109(34.1)	**2.57**	**(1.636**	**4.052)**	**2.50**	**(1.535-4.104)****
yes	88(27.5)	69(21.6)	1.00			1.00	
Total	**142(44.4)**	**178(55.6)**					

** Statistically associated Variable P<0.05

*Variable were showed Statistical Association in COR but lost during AOR Analysis

NB: P-Value is, Value of COR analysis result

5.10 Self -care recommendation (Health professionals Advice)

Twenty one percent said that they never got any advice concerning diet management practices, while 25% never had any advice on physical exercise and 34 % had no professional advice or education about glucose monitoring using blood or urine test. This might be the reason why majority of the study participants had no adherence to self-care practices specially SMBG, diet management practices. Table9 shows the details of Self care recommendation (health professional advice on self-care practice)

Table9: Self-care recommendations (Health professional advice) to Type II Diabetes study subjects

In TASH Endocrine Unit, Ethiopia, 2012

Sr.No	Advise	ALTERNATIVE RESPONSES	FREQUENCY			
			Yes		No	
			No	%	No	%
1	DIET MANAGEMENT	A. Follow a low-fat eating plan	**197**	**62**	**123**	**38**
		B. Follow a complex carbohydrate diet	**105**	**33**	**215**	**67**
		C. Reduce the number of calories you eat to lose weight	**118**	**37**	**202**	**63**
		D. Eat lots of food high in dietary fiber	**115**	**36**	**205**	**64**
		E. Eat lots (at least 5 servings per day) of fruits and vegetables	**115**	**55**	**143**	**45**
		F. Eat very few sweets (for example, desserts, non-diet sodas, candy bars)	**181**	**57**	**139**	**43**
		G. I have not been given any advice about my diet by my health-care team	**68**	**21**	**-**	**-**
2	PHYSICAL EXERCISE	A. Get low level exercise (such as walking) on a daily basis	**168**	**53**	**152**	**48**
		B. Exercise continuously for a least 20 minutes at least 3 times a week	**173**	**54**	**147**	**46**
		C. Fit exercise into your daily routine (for example, take stairs instead of elevators, park a block away and walk, etc.)	**104**	**33**	**216**	**68**
		D. Engage in a specific amount, type, duration, and level of exercise	**60**	**19**	**260**	**81**
		E. I have not been given any advice about exercise by my health-care team	**80**	**25**	**-**	**-**
3	SUGAR LEVEL	A. Test your blood sugar using a drop of blood from your finger and a color chart	**51**	**16**	**269**	**84**
		B. Test your blood sugar using a machine to read the results	**203**	**63**	**117**	**37**
		C. Test your urine for sugar	**162**	**51**	**158**	**50**
		D. I have not been given any advice about my blood or urine sugar level by my health-care team	**108**	**34**	**-**	**-**
4	SMOKING	A. At your last doctor's visit, did anyone ask about your smoking status	**27**	**8**	**293**	**92**
		B. If you smoke, at your last doctor's visit, did anyone counsel you about stopping smoking	**20**	**54**	**17**	**46**
		C. Do not smoke (Never Smoke)	**283**	**88**	**37**	**12**
		D. When did you last smoke a cigarette? never smoked	**283**	**88**	**57**	**12**
		E. When did you last smoke a cigarette? More than two years ago	**15**	**41**	**22**	**59**
		F. When did you last smoke a cigarette? One to two years ago	**11**	**30**	**26**	**70**
		G. When did you last smoke a cigarette? Four to twelve months ago	**1**	**3**	**36**	**97**
		H. When did you last smoke a cigarette? One to three months ago	**4**	**11**	**33**	**89**
		I. When did you last smoke a cigarette? Within the last month	**3**	**8**	**34**	**92**
		J. When did you last smoke a cigarette? Today	**3**	**8**	**34**	**92**

***Total will not add up to 320 or 100%, as multiple responses were possible.**

6. DISCUSSION

In Ethiopia, there is limited information about the self care practices of patients with type II diabetes mellitus. 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 73% were found to be in the age group 30 to 60 years and 28% of the respondents were in the age of 61 years and above. Similarly study done in Egypt showed that 66% and 44% respectively. The present study showed 64% and 32% of the sample were taking insulin injection and oral hypoglycemic agent respectively compared to 35% and 57% in a study done in Egypt. But study carried out in 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 a health care provider, meal preparation in a family context and exercising with a partner or in a group. Glucose monitoring is a relatively quick and straightforward procedure; diabetes is managed via a regimen of control. Health professionals advise adults living with type II diabetes to control blood sugar levels by controlling diet, maintaining regular exercise, and adherence to medication. The extent to which individuals are able to adhere to such recommendations varies. Despite the increasing prevalence of diabetes, improved understanding of the disease, and a variety 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 a proper education and follow-up are crucial, cited by Eman M. Mahfouz , and Hala I (17).

The finding of this study also showed that only 16% were adhered to SMBG practices. This result is higher than a study done in Ethiopia 5%, India 3% and Nigeria 8% but lower than U.S.A 78%. 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 regime (insulin) was significant predictors of

SMBG practice. Similarly in this stud level of education, monthly 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 a 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 3% were unable to adhere with prescribed medicine. This result was lower from study result of Egypt (9%), 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 non adhered individuals, this might be because of the participants were well informed and have good perception about the prescribed medications especially to insulin injection.

Concerning adherence to the diet management practices, this study showed that only 21% participants were adhered. This is lower than a study done in Egypt 81%, India women 52% and men 32% and Iran 96% male and 100% female were followed the recommended diet instructions. Study done in U.A.E 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 31% 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 financial 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 in Egypt showed that there was a 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 counterpart but occupation and duration of disease did not show significant association this might be cause of small sample size.

In this study 53% respondents were adhered to physical activity that meet the recommended guidelines. This result is higher than studies done in the U.A.E only 3%, in India only 9% of the male and 4% of the women adhered to the practices. But almost similar with studies done in Malaysia 46 % and in Iran 66% male and 46% female respondents were active in daily life, in U.S.A 52% of participants were exercise once a week or more. The result is higher than the other study this might be because of most patients did not live sedentary life, as they have physical exercise daily at least simple walk for half an hour 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 that there is significant association between marital status, level of education, monthly income and diabetic complication 14, 15,18, 23, 24).

In this study more than half (67%) of all respondents were adhered to the recommended diabetic foot care practices. This result is higher than studies done in Nigeria only 10% had adherence to practices of DM foot care. But almost similar with studies done in Pakistan 68%, U.S.A 64% of all participants

had adherence to practices. The result of this study showed that male and older participants were less adherent to diabetic foot care practices, while study in Nigeria revealed that illiteracy and low socioeconomic statues were significantly associated with poor practices (25,26, 27).

In this study 56% of participants were adhered to overall self care practices domains. This result is lower than study done in Iran 74%, Finland 81% respondents were adhered to the overall self care practice domains. The result of this study is lower than the other studies this might be because of 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 effects on level of self-care practice. This study also revealed that educational level is an important variable in improving self-care practice. Another study in Finland revealed that poor metabolic control, smoking and living alone were associated with neglect of self care but gender, Co-morbidity and diabetic complication increase the risk, but had no significant association with adherence to or neglect of self-care practice. In contrary this study showed that gender, age and diabetic complication had significant association on adherence condition to overall self-care practice domains (18, 20)

7. Strengths and Limitations of the study

7.1 Strength

1. Use of contextually adopted standardized questionnaire.
2. High response rate.
3. Since there is no similar study conducted in the area (country), it can contribute a lot as baseline information for future studies.

7.2 Limitations

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

8. Conclusion and Recommendation

8.1 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 serious complication**,** findings of this study were confirm previous findings concerning self-care among people with type II diabetes: Prescribed medications adherence practice was accomplished as recommended in majority respondents, but the other aspects of self-care practice 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 cornerstone of self-care practices and glycemic control. Generally adherence to self-care practice was suboptimal among type II diabetic patients in TASH Endocrinology unit

8.2 Recommendations

Hence Interventions aiming at improving diabetes control should be multifaceted and should involve more effective measures of awareness creation on the importance of the self-care practice and more frequent clinic visits. Family members should be informed about their important roles in encouraging patients to undergo a glycemic control or self-care practice. Increase access to health education through a multidisciplinary approach via IEC programme this could improve the

glycemic control in patients with DM. Policy decisions for improving diabetes outcome should target barriers to health care access and utilization and focus on developing programs to help population groups at high-risk of neglecting their self-care practice. Similarly healthcare personnel must increase patients' awareness toward the importance of all types of self-care practices domains and strongly promote the practice among diabetic patients via strengthening IEC program and providing quality care at all level and the 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 and providing equitable service to all patients regardless of patients socio-economic status. As to the adherence to the prescribed diet and SMBG practices, patients should be well informed and the diet regimens are recommended to be simplified. In nursing, we can provide informational and emotional support by planning the care together, listening to the people and respecting their expertise. It is also suggested that nursing research should be carried out to investigate adherence to self-care in a broader social context and larger sample size. Further studies are needed in order to achieve a deeper understanding about the subjective experience of being chronically ill, but still feeling healthy and doing well.

8.3 Practice 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 sub-optimal diabetes self-care practices. This study should also contribute to the nurse researcher as a base line data in order to carried out in a 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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10. ANNEX

10.1. ANNEX I: ENGLISH VERSION

10.1.1. INFORMATION SHEET FOR STUDY SUBJECTS

ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH SCIENCE DEPARTMENT OF NURSING AND MID-WIFERY INDIVIDUAL CONSENT FORM FOR THE STUDY ON ASSESSMENT OF SELF CARE PRACTICES AND ASSOCIATED FACTORS AMONG TYPE II DIABETIC PATIENTS IN TASH, DIABETIC CENTER, ADDIS ABABA CITY. FROM SEPTEMBER 2011 TO MAY 2012

You are kindly invited to participate in this study, which involves all type II diabetic patients visiting diabetic center of Tikur Anbessa Specialized Hospital. The aim of this study is to assess self care practices and its associated factors among type II diabetic patients. Diabetic self care practices are the corner stone in regulating diabetic complications. Strict follow of those diabetic self care practices are crucial to prevent complication of the disease and deaths. Therefore this study will important by giving evidence about self care practices status of diabetic patients.

A. Purpose: the purpose of this research study is to assess self care practices & its associated factors among type II diabetic patients in diabetic center of Tikur Anbessa specialized Hospital, Addis Ababa city, Ethiopia

B. Duration: The duration of this study is from February 2012 to March 2012

C. Procedures to be carried on: 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 no any risk associated during data collection

E. Expected benefits: You will not get special and direct benefit from this study. However, the finding of this survey will be useful for all diabetic patients in the future because this study result

will be able us to understand the self care condition of the patients which is useful in delivering improved health service based on patient need & 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 and midwifery research and ethical Review Committee (IRB) and approved by Department of Internal medicine. If you have any question about the right of the study participant the address is:

College of health Science, Addis Ababa University

Office of Associate Dean, Postgraduate Programs and Research

P.O. Box 9086. Addis Ababa, Ethiopia

Tel. 251-011-551-28-765

If you have question about the study the address of the principal investigator is:

KALAYOU KIDANU BERHE

Department of Nursing & Mid-wifery

College of Health Science, Addis Ababa University

P.O. Box. 9086, Addis Ababa, Ethiopia

Tel: 0910898225, e mail address : Kalushaibex@yahoo.com

10.1.2. STUDY SUBJECT CONSENT FORM

My name is ----------. I am working with the research team of Addis Ababa University department of Nursing & Mid-wifery. At ----------Hospital Diabetic center, we are interviewing adult men and women patients with Type II diabetic Mellitus to assess Self care practices and associated factors. We believe that this study would help to bring change in diabetic self care. We would like to assure you, your name will not be mentioned in the questionnaire and the information that you will give us will be kept confidential 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 will give us is quite useful to achieve the objective of the study and to bring change in diabetic self management based on the patients need and it is also helpful in improving health education program given to diabetic patients.

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

If the answer is yes, thanks! Conduct the interview. If the answer is no, Thanks!

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

Interviewer's code ---------name ---------- signature ----------

Date of interview ---------- date ----------month/2012 G. C.

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

Time of interview began _____ hours: minutes, Time of interview finished_____ hours: minutes

Checked on ----------date----------month/2012 G.C.

Complete 1 Incomplete 2 Other (specify) ----------

10.1.3 Questionnaire

i. Socio demographic and health statues data

1. Gender: □ Female □ Male
2. Age(in years): _____
3. Estimated monthly income (in Eth birr) : _____

□ No income □ low ≤ 320 □ Medium 320-1500

□ Average 1501-2499 □ High ≥ 2500

4. Ethnic origin

□ Amara □ Oromo □ Guragie □ Tigrian □ Silite □ Other: _____

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 O □ thers_____

9. Age at which the diabetic mellitus occurred (in years): _____

10. Duration of disease: _____

11. Family history of diabetes : □. No □. Yes

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. Diabetic complication □. No □. Yes

Summary of Diabetes Self-Care Activities Questionnaire

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 last 7 days that you were not sick.

Diet

Number of Days

15. How many of the last SEVEN DAYS have you followed

a healthful eating plan? □0 □1 □2 □3 □4 □5 □6 □7

16. On average, over the past month, how many DAYS PER WEEK have

you followed your eating plan? □0 □1 □2 □3 □4 □5 □6 □7

17.On how many of the last SEVEN DAYS did you eat five or more

servings of fruits and vegetables? □0 □1 □2 □3 □4 □5 □6 □7

18. On how many of the last SEVEN DAYS did you eat high-fat foods, such as red meat or full-fat dairy products? □0 □1 □2 □3 □4 □5 □6 □7

19. On how many of the last SEVEN DAYS did you space carbohydrates evenly

through the day? □0 □1 □2 □3 □4 □5 □6 □7

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).* □0 □1 □2 □3 □4 □5 □6 □7

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? □0 □1 □2 □3 □4 □5 □6 □7

Blood Sugar Testing

22.On how many of the last SEVEN DAYS did you test your blood sugar? □0 □1 □2 □3 □4 □5 □6 □7

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? □0□1□2□3□4□5□6□7

Foot Care

24. On how many of the last SEVEN DAYS did you check your feet? □0□1□2□3□4□5□6□7

25. On how many of the last SEVEN DAYS did you inspect the inside of your shoes?

□0□1□2□3 □4□5 □6□7

26. On how many of the last SEVEN DAYS did you wash your feet? □0□1□2 □3□4 □5□6 □7

27. On how many of the last SEVEN DAYS did you soak your feet? □0□1□2 □3□4□5□6□7

28. On how many of the last SEVEN DAYS did you dry between your toes after washing?

□0 □1 □2 □3 □4 □5 □6 □7

Medication

29. On how many of the last SEVEN DAYS, did you take your recommended

diabetes medication? □0 □1 □2 □3 □4 □5 □6 □7 ***OR***

30. On how many of the last SEVEN DAYS did you take your recommended

insulin injections? □0 □1 □2 □3 □4 □5 □6 □7

31. On how many of the last SEVEN DAYS did you take your recommended

number of diabetes pills? □0 □1 □2 □3 □4 □5 □6 □7

Smoking

32. Have you smoked a cigarette, even a puff, in the past SEVEN DAYS? □0 No □1 Yes

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 my 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 a 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, etc.)

☐d Engage in a specific amount, type, duration, and level of exercise

☐e Other (*specify:* _____)

☐fI 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 a color chart

☐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

Smoking

37. At your last doctor's visit, did anyone ask about your smoking status? ☐0 No ☐1 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? ☐0 No ☐1 Yes ☐2 Do not smoke

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

10.2 ANNEX-II: Amharic Version

10.2.1. Subject information

<u>የጥናቱ ተሳታፊዎች የመረጃ ቅጽና</u> ለጥናቱ ቃለ መጠይቅ ለማድረግ የግለሰቦች ፍቃደኝነት መጠየቂያ ቅጽ

10.2.1. የጥናቱ ተሳታፊዎች የመረጃ ቅጽ

በአዲስአበባ ዩንቨርስቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ ትምህርት ክፍል የአዳልት ሄልዝ ነርሲንግ ድህረ ምረቃ ትምህርት ፕሮግራም በጥቁር አምበሳ ስፔሳላይœድ ሆስፒታል ስኳር ህመም ማዕክል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶችና ሴቶች ስለ የግል ዕንክብከቤ ተግባራት ለማጥናት ቃለ መጠይቅ ለማድረግ የግለሰቦች ፈቃደኝነት መጠየቂያ ፎርም ። በቅድሚያ በዚህ ጥናት እንዲሳተፉ ስንል በአክብሮት ጥያቂያችንን እያቀረብን ጥናቱ በጥቁር አንበሳ ስፔሻላዝ ሆስፒታል ሰኳር ህክምና ማእከል እየተመላለሱ ለሚታከሙ የስኳር ህመምተኞችን ያካትታል።ጥናቱ የሚያተኩረው የስኳር ህመምተኞችን ስለ ግል እንክብካቤያቸው ሁኔታ ማጥናት ነው። የግል እንክብካቤ ችግር በስኳር ህመም በተያዙ ህመምተኞች ላይ ጎለቶ የሚታየ ሲሆነ ይህውም ለተጨማሪ ህመምና ሞት ይዳሪጋል ስለዚህ ጥሩ የሆነ የግል እንክብካቤ ተጨማሪ ህመምና ሞት ለመከላከል በጣም ወሳኝ ነው። ስለሆነም ይህጥትና የስኳር ህመምተኞች ስለ ግል እንክብካቤ ሁኔታ በማጥናት በቀጣይ ከፍተኛ አስተዋኦ ይኖረዋል።

ሀ. **የጥናቱ ዓላማ፡** <u>በ</u>ዚህ ጥናት የስኳር ህመምተኞች ስለ ግል እንክብካቤያቸው ሁኔታ ማጥናት ነው፡

ለ. **<u>የሚፈጀዉ ግዜ</u>** ይህ ጥናት የካቲት 2004 አስከ መጋቢት 2004 ባለው ግዚ ውስጥ ይጠናቀቃል

ሐ. **የናሙናና የመረጃ አወሳሰድ ሄደት፡-** በዚህ ጥናት ከሚሳተፉ የስኳር ህመምተኞች ሶሽ ዲሞግራፊክ መረጃን፣የጤንነት ሁኔታ መረጃን ና፣ ስኳር ህመም የግል እንክብከቤ ሁኔታ መረጃን በመጠይቅ በ ሁለት መረጃ ሰብሳቢ ነርሶች ይሰበሰባል።

መ. **<u>ሊደርስ የሚል አደጋ</u>**፡- በዚህ ጥናት ውስጥ አደጋ የሚያደርስ ድርጊት የለም።

ሠ. **<u>የሚገኝበት ጥቅም</u>**፡- በዚህ ጥናት መረጃ ለሰጡ በሽተኞች ልዩና ቀጥተኛ የሚባል ጥቅም የለውም። የዚህ ጥናት ጠቅላላ ውጤት ግን የሰኳር ህመም ታማሚዎች የግል እንክብካቤ ሁኔታ በማሳየት

አሁን እየተሰጠ ያለውን ህክምና ማገዝና በተለይ ደግሞ አገባብ ያለው የመከላከያ ህክምና ና የጤና ትምህርት ለመስጠት ከፈተኛ ጥቅም ይኖረዋል፡፡

ረ. ሚስጥራዊነት፡- የማንኛውም የጥናቱ ተሳታፊ መረጃ በሚስጥራዊነት ይያዛል፡፡ የእያንዳንዱን ግለሰብ መረጃ ከዋናው ተመራማሪና ከአማካሪዎቸቹ በስተቀር ማንም ሊያገኘው አይችልም፡፡

ሠ. ፈቃደኝነትን ስለማቋረጥ በዚህ ጥናት ውስጥ የመሳተፍ መብትዎ ሙለ በሙለ በፈቃደኝነት ላይ የተመሰረተ ነዉ፡፡በጥናቱ ለመሳተፍ ፈቃደኛ መሆን ወይም ራስዎን ማግለል ይችላሉ፡፡ እንዲሁም በጥናቱ ባለመሳተፍዎ ምክንያት በአሁ ወይንም የወደፊት የህክምና እርዲታዎ ላይ ተፅእኖ አይኖርም፡

አድራሻ ማወቅ ካስፈለግዎ፡-

ጤና ሳይንስ ኮሌጅ ፤አዲስ አበባ ዩኒቨርሲቲ

የድህር ምረቃ ፕሮግራምና ምርምር የተባባሪ ዲን ቢሮ

የመ.ሳ.ቁ. 9086 አዲስ አበባ

ስልክ.251-011-551-28-765

የዋናው ተመራማሪ አድራሻ ፤

ካልአየ ኪዳኑ በርሀ

ነርሲንግ ና ሚድዋይፈሪ ትምህርት ክፍል

ጤና ሳይንስ ኮሌጅ ፤አዲስ አበባ ዩኒቨርሲቲ

የመ.ሳ.ቁ. 9086 አዲስ አበባ

ሞባይል ፡ 0912117719

ኢሜል፡ Kalushaibex@yahoo.com

10.2.2፡Concent Form

ለጥናቱ ቃለ መጠይቅ ለማድረግ የግለሰቦች ፍቃደኝነት መጠየቂያ ቅጽ

በአዲስ አበባ ዩንቨርስቲ ጤና ሳይንስ ኮሌጅ በነርሲንግ ትምህርት ክፍል የጎልማሶች ጤና ነርሲንግ ድህረ ምረቃ ትምህርት ፕሮግራም በጥቁር አምበሳ ሰፔሻላይዝድ ሆስፒታል ስኳር ህመም ማዕክል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶችና ሴቶች ስለ የግል አንክብከቤ ተግባራት ለማጥናት ቃለ መጠይቅ ለማድረግ የግለሰቦች ፈቃደኝነት መጠየቂያ ፎርም ::

ስሜ----------ይባላል:: አኔ ከአዲስ አበባ ዩኒቨርስቲ የጥናት ቡድን ጋር አብሬ አየሰራሁ ነው:: አሁን በዚሁ በ----------ሆስፒታል የስኳር ህመም ህክምና በመከታተል ላይ ያሉ ወንዶችና ሴቶች ስለ የግል አንክብከቤ ተግባራት ለማጥናት ቃለ መጠይቅ አያደረግን ነዉ ::ይህ ጥናት ለስኳር ህመምተኞች የስኳር ህክምና ክትትል ለሚያደርጉ ሰዎች ህክምና አሰጣጥ ላይ ለውጥ ያመጣል ብለን እአናምናለን ::

ስምዎ በዚህ መጠይቅ ውስጥ የማይጠቀስ መሆኑንና በቃለ መጠይቁ የሚሰጡትን መረጃ ሁሉ በሚስጥር ተይዞ ለጥናት አገልግሎት ብቻ የሚዉል መሆኑን ላረጋግጥልዎ አወዳለሁ :: አርስዎ በዚህ ጥናት ላይ የመሳተፍ ያለመሳተፍ ወይንም በማንኛዉም ወቅት ቃለ መጠይቁን የማቋረጥ ሙሉ መብት አልዎት ::ነገር ግን አርስዎ በጥናቱ ተሳትፈዉ የሚሰጡትን መረጃ ጥናቱን ዉጤታማ ለማድረግና ለስኳር ህመምተኞች ህክምና አገልግሎት አሰጣጥ ላይ ለዉጥ ለማምጣት ከፍተኛ ጠቀሜታ አለዉ::በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት? 1-አዎን 2- አይደለሁም

መልሱ አዎን ከሆነ አመስግነዉ ቃለ መጠይቁን ያካሒዱ

መልሱ አይደለሁም ከሆነ አመስግነው ወደ ሌላ ተጠያቂ ይለፉ

ግለሰቡን በመጠይቁ ለማሳተፍ ምንም አይነት ማስገደጃ ወይም ጫና መደረግ የለበትም

የጠያቂው ኮድ ---------- ስም----------ፊርማ ----------

ቃለ መጠይቁ የተከሄደበት ቀን --------- ወር ----------2004ዓ.ም

የገምጋሚዉ ኮድ------- ስም ---------- ፊርማ ---------

የተመረመረበት ቀን --------- ወር -------- 2004 ዓ.ም

የተሟላ 1 ያልተሟላ 2 ሌላ ካለ ይገለጽ----------

10.2.3፡Questionner Table10 **ዋናው መጠየቂያ ቅጽ**

ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	መልስ
	I. ማህበራዊ ፣ ኢኮኖሚያዊ ና የጤንነት ሁኔታና ተያያዥ መረጃዎች		
1	ፆታ	1. ወንድ 2 ሴት	
2	እድሜ (በአመት)_____	1.18-60 አመት 2. 61-70 አመት 3. 71 እና ከዚ 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	ብሄር	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 /ዩኒቨሪስቲ 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	ሀይማኖት	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 የመድሀኒት አይነት /ህመሙን በምን አይነት ዘዴ ነው የሚቆጣጠሩት/_____	1. በአፍ የሚወሰድ ክኒን 2. መርፌ 3.ሁለቱም 4.ሌላ	
13	በአሁን ግዜ በቤትዎ በደም የግሉኮስ መጠን የሚለካ መሳሪያ አለዎት	0. የለም 1. አለ	
14	በህክምና የተረጋገጠ ማንኛውም አይነት በስኳር ህመም ምክንያት የመጣ ህመም (ስኳር ህመም ኮምፕሊኬሽን) አልዎት?	0. የለኝም 1. አለኝ	

II. ስኳር ህመም የግል እንክብካቤ ተግባራት መጠይቅ

- ከዚህ በታች የተዘረዘሩት ጥያቄዎች ባለፉት ሰባት ቀና ውስጥ ስለ ስኳር ህመምዎ የግል እንክብካቤ ተግባራትን በተመለከተ ምን እንደሚመስል የሚጠይቁ ናቸው፡፡
- ሆኖም ግን ባለፉት 7 ቀናት ውስጥ ታመው ከነበሩና እራስዎ በራዎ መንከባከብ ካልቻሉ ተጨማሪ 7 ቀናት ወደኋላ በመሄድ ጤነኛ በነበሩበት ግዜ ያደረጉት እንክብካቤ ሁኔታ መውሰድ ይችላሉ፡፡

ተ.ቁ	ጥያቄዎች	የቀናት ብዛት (አማራጭ መልሶች)	መልስ
	II. ስኳር ህመም የግል እንክብካቤ ተግባራት መጠይቅ		
	ሀ. አመጋገብን በተመለከተ		
15	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት ነው ጤነኛ አመጋገብ እቅድ የነበርዎት?	0 1 2 3 4 5 6 7	
16	በአማካኝ ባለለፈው 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 ቀናት 5ና ከዚያ በላይ ጊዜ አትክልትና ፍራፍሬ ይመገባሉ?	0 1 2 3 4 5 6 7	
18	ባለፉት 7 ቀናት ውስጥ ለምን ያህል ቀን/ናት ከፍተኛ የስብ መጠን ያለው ምግብ ይመገባሉ፣ /ለምሳሌ፣ቀይ ስጋ ወይም በስብ የተሞላ የእንስሳት ተዋፅኦ?(ፆም ከመጀመሩ በፊት ያለዉ ጊዜ ይዉሰዱ)	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	
	ለ. የአካል እንቅስቃሴን ማድረግ በተመለከተ		
20	ባለፉት 7 ቀናት ውስጥ ለምን ያህል ቀን/ናት ለ30 ደቂቃ ያክል የአካል እንቅስቃሴ ተሳትፏል (ሁሉም እንቅስቃሴ፣ዎክን ጨምሮ፣ ጠቅላላ ደቂቃ) ?	0 1 2 3 4 5 6 7	
21	ባለፉት 7 ቀናት ውስጥ ለምን ያህ ቀን/ናት በተወሰኑ የአከካል እንቅስቃሴ(ም/ሌ ዋና መዋኘት ፡ ብስክሌት መንዳት፡ እግር ጉዞ ተሳትፏል? ይህም ቤት ዉስጥ ና ስራ ቦታ ከሚያረጉት እንቅስቃሴ ዉጭ	0 1 2 3 4 5 6 7	
	ሐ. በደም የስኳር መጠን ምርመራን ማድረግ በተመለከተ		
22	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን/ናት የስኳር መጠን ምርመራ አካሂደዋል (ቤትም ከቤት ዉጭም)?	0 1 2 3 4 5 6 7	
23	ባለፉት7ቀናት ውስጥ ምን ያህል ቀን/ቀናት የጤና ባለሞያዎ/ሀኪም በነገርዎተት ብዛት ልክ የስኳር መጠን ምርመራ ያካሂዳሉ?	0 1 2 3 4 5 6 7	
	መ. የእግርና የእግር ጣቶች እንክብካቤን በተመለከተ		
24	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት እግሮቸዎና የእግሮቸዎ ጣቶች መሀል ፍተሻ ያረጋሉ?	0 1 2 3 4 5 6 7	
25	ባለፉት 7 ቀናተት ውስጥ ምን ያህል ቀን /ቀናት የጫማዎ ውስጥ ክፍል ምልከታ /ፍተሻ ያረጋሉ?	0 1 2 3 4 5 6 7	
26	ባለፉት 7 ቀናት ውስጥ ምን ያህ ቀን /ቀናት ነው እግሮቸዎን የታጠቡት?	0 1 2 3 4 5 6 7	
27	ባፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት ነው እግሮችዎን	0 1 2 3 4 5 6 7	

	የዘፈዘፉት?		
28	ባፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት ነው ከታጠቡ በኋላ እግሮችዎና የእግሮችዎን ጣቶች መሃል በለስላሳ ፎጣ እንዲደርቅ የሚደርጉት?	0 1 2 3 4 5 6 7	
	ሠ. መድሀኒትን በተመለከተ		
29	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት ነው የታዘዘሎትን መድሀኒት በትክክል የወሰዱት? **ወይም**	0 1 2 3 4 5 6 7	
30	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት ነው የታዘዘሎትን መርፌ በትክክል (መጠን፣ግዜ፣ሰአት) የወሰዱት?	0 1 2 3 4 5 6 7	
31	ባለፉት 7 ቀናት ውስጥ ምን ያህል ቀን /ቀናት ነው የታዘዘሎትን ክኒን በትክክል (መጠን፣ግዜ፣ሰአት) የወሰዱት?	0 1 2 3 4 5 6 7	
	ረ. ሲጋራ ማጨስን በተመለከተ		
32	ባለፉት 7 ቀናት ውስጥ ሲጋራ አጭሰዋል? ለአንድ ጊዜም ቢሆን?	0. የለም 1. አዎ	
	ሰ. ስለ የግል እንክብካቤዎ ምክሮችን በተመለከተ		
33	ከዚህ በታች ከተዘረዘሩት ውስጥ በጤና ባለሙያ ተግባራዊ እንዲያድረርጉ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጡ)	1.ዝቅተኛ የስብ መጠን ያለው የአመጋገብ እቅድ መከተል 2.ኮምፕልክስ ካርቦ ሀይድሬት ምግብ መመገብ 3.ክብደትን ለመቀነስ የካሎሪ መጠን መቀነስ 4. ፋይበር/አሰር መጠናቸው ከፍተኛ የሆኑት ምግቦች ማዘውተር 5.መጠኑ ከፍተኛ የሆነ አትክልትና ፍራፍሬ /በቀን እስከ5ጊዜ/ መመገብ 6.መጠኑ ዝቅተተኛ የሆነ ጣፋጭ ምግቦች መውሰድ 7.ሌላ ከላለ ይጥቀሱ __ 8.ምንም አይነት ምክር አላገኘሁም	
34	ከዚህ በታች ከተዘረዘሩት ውስጥ በጤና ባለሙያ ተግባራዊ እንዲያደርጉ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጠ)	1.በየቀኑዝቅተኛ ደረጃ የአካል እንቅስቃሴ ማድረግ 2.ቀጣይነት ባለው ቢያንስ በሳምንት ሶስት ጊዜ/ቀን ለ20 ደቂቃ የአካል እንቅስቃሴ ማድረግ 3.በአለት ተእለት ተግባራት ውስጥ የአካል እንቅስቃሴ ማካተት 4.በመጠን፣ በአይነት ፣ጊዜ፣ደረጃ ውሱን የሆነ የአካል እንቅስቃሴ ራስህን መጥመድ 5.ሌላ ካለ ይጥቀሱ ___ 6.ምንም አይነት ምክር አላገኘሁም	
35	ከዚህ በታች ከተዘረዘሩት ውስጥ ተግባራዊ	1.ከለር ቻርት በመጠቀም ጠብታ ደም	

	እንዲደርጉት በጤና ባለሙያ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጠ)	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 እንዲደርጉት በጤና ባለሙያ የተመከሩት የትኞቹ ናቸው (የተመከሩትን ሁሉ ይምረጠ)	1.የኢንሱሊን መርፌ በቀን 1 ወይንም 2 ጊዜ መውሰድ 2. ኢንሱሊን መርፌ በቀን 3 ና ከዚያ በላይ ጊዜ መውሰድ 3. የስኳር መጠን ለመቆጣጠር የስኳር ህመም መድሀኒት ክኒን መውሰድ 4. ሌላ ካለ ይጥቀሱ _____ 5. ምንም አይነት ምክር አላገኘሁም	
	ሸ. ሲጋራ ማጨስን በተመለከተ		
37	ባለፈው የህክምና ቀጠሮዎ ጊዜ ስለ ሲጋራ ማጨስ የጠየቅዎት ሰው/ጤና ባለሞያ አለ	0.የለም 1.አለ	
38	ሲጋራ የሚያጨሱ ከሆነ ባለፈው ህክምና ቀጠሮ ጊዜ ስለ ሲጋራ ማጨስ ማቆም የመከርዎ ሰው አለ ወይም ይህን ጉዳይ የሚመለክተው ኦፊሰር ወደ ሲጋራ ማጨስ ማቆም ፕሮግራም ሪፈር ያሎዎት አለ	0.የለም 1.አለ 2.ሲጋራ አላጨስም	
39	ለመጨረሻ ጊዜ ሲጋራ ያጨሱት መቼ ነው	1.ከ 2 ዓመት በላይ በፊት ወይም አጭሴ አላቅም 2.ከ 1 እስከ 2 ዓመት በፊት 3.ከ 4 እስከ 12 ወራት በፊት 4.ከ 1 እስከ 3 ወራት በፊት 5.በባለፈው ወር ውስጥ 6. ዛሬ	

10.3 ANNEX-III: BIBLIOGRAPHY OF PRINCIPAL INVESTIGATOR

KALAYOU KIDANU BERHE

P.O. Box: 1871 C/O Mekelle University College of Health Science
Tigray Region, Mekelle City, Ethiopia Mobile: +251912117719

E-mail. kalushaibex@yahoo.com or kalushaibex@gmail.com

RESUME / CV

1. PERSONAL DATA

Name:	**KALAYOU KIDANU BERHE**
Date of birth:	Oct 17, 1980 G.c
Place of birth:	Mekelle, Tigray
Nationality:	Ethiopian
Gender:	Male
Language:	Amharic (Reading, Writing, speaking)
	English (Reading, Writing, Speaking)
	Tigrigna (Reading, Writing, Speaking)

2. EDUCATIONAL BACKGROUND

I. High School

Name of school:	Atse Yohannes comp. sec. school (high school)
Place:	Mekelle, Ethiopia
Kind of education:	Academic stream
Award:	Certificate

II. Higher Education

- Type of education: **Nursing (oct. 2001-oct. 2003)**

  Institution: Mekelle Mid-level health professional training institute

  Place: Mekelle, Ethiopia

  Award: Diploma (Nursing) on Oct 28, 2003

- Type of education: **Bsc. In Nursing (Degree)**

  Institution: Addis Ababa University

  Place: Addis Ababa, Ethiopia

  Award: Bachelor of Science in Nursing on July, 2009

- Type of education: **MSc. In Nursing (Masterate degree)**

  Institution: Addis Ababa University

  Place: Addis Ababa, Ethiopia

  Award: Masterate degree in Nursing (Candidate, 2nd year)

3. TRAINING

- Basic ART training from Oct. 14 to 16, 2004
- Comprehensive ART training in may, 2009
- IMNCI pre-service case management training from march 11 to 14, 2009
- Online education pedagogical & technical Skill for e-learning training

  from 16th to 20th November 2009

4. WORK EXPERIENCE

- Clinic manager (Nov. 2001 to oct.2004) & work as a Nurse for 2 years
- Academic staff and Nursing Department head in Mekelle Mid-level Health Professionals Training Institute for 2 year and 09 months (Nov. 2004 to July 2006)
- Academic & research team staff of **Mekelle University** since Sep. 2009 to date
- Academic staff(teaching) in privet health colleges as par-timer for 9 years
- Data collection activities for Tigray Health Beauro & Education Beauro

5. SKILLS:

- Good Computer Knowledge on Basic applications
- Excellent Communication Skill & Good team wore

6. REFERENCE

- Ato Amala Equar (RN, BSC in PH, MPH)

Tigray regional integrated family health program (path finder Ethiopia) regional manager, Mobile phone No: +251914722161

- Sr. Hareg Alemu (RN, BSC in PH, MPH)

Tigray region Clinton Foundation , regional manager, Mobile phone No: +251914743752

- Ato Haftu Berhe (BSCN, MSCN)

Mekelle University College of Health Science Nursing department Head, Mobil phone No: +251913584670

10.4 ANNEX-IV SIGNED DECLARATION

I THE UNDERSIGNED DECLARE THAT THIS THESIS IS MY ORIGINAL WORK AND HAS NOT BEEN PRESENTED FOR A DEGREE IN THIS OR ANY OTHER UNIVERSITY AND THAT ALL SOURCES OF MATERIALS USED FOR THIS THESIS HAVE BEEN DULY ACKNOWLEDGED.

NAME: **KALAYOU KIDANU BERHE (RN, BSC,MSN Candidates)**

SIGNATURE: _____

PLACE: ADDIS ABABA UNIVERSITY

DATE OF SUBMISSION_____

THIS THESIS HAS BEEN SUBMITTED FOR EXAMINATION WITH MY APPROVAL ASTHE UNIVERSITY ADVISOR.

NAME OF THE ADVISOR: **ASRAT DEMISSE (RN, BSCN, MSCN, ASSIT. PROFESSOR.)**

SIGNATURE_____

DATE_____