

**Addis Ababa University**

**College of Health Sciences**

**School of Allied Health Sciences**

**Department of Nursing and Midwifery**

**Prevalence of Depression and Associated Factors among Adult Diabetic Patients Attending Outpatient Department, at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2016.**

**BY: - Teshager W/giorgis (BSc.N)**

**A Thesis Submitted to School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Masters of Science in Advanced Adult Health Nursing in Department of Nursing and Midwifery.**

June, 2016

Addis Ababa, Ethiopia.

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## **APPROVED BY THE BOARD OF EXAMINERS**

This thesis by Teshager W/giorgis (BSc) is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Masters of Science in Adult Health Nursing.

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## LIST OF ACRONYMS AND ABBREVIATIONS

AAU	Addis Ababa University
BDI	Beck Depression Inventory
CES- D	Center for Epidemiologic Studies Depression
CI	Confidence Interval
CSA	Central Statistical Agency
DM	Diabetes Mellitus
DSM	Diagnostic Statistical Manual of Mental Disorders
ETB	Ethiopian Birr
FBS	Fasting Blood Sugar
FHRH	Felege Hiwot Referral Hospital
HADS	Hospital Anxiety and Depression Scale
IDF	International Diabetic Federation
MDD	Major Depressive Disorder
NCD	Non-Communicable Diseases
NGOs	Non-Governmental Organizations
NWE	North West Ethiopia
OR	Odds Ratio
PHQ	Patient Health Questionnaire
SD	Standard Deviation
SPSS	Statistical Package For Social Science
WHO	World Health Organization

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## ABSTRACT

**Background:** Diabetes and depression are a highly prevalent, devastating and disabling condition associated with high morbidity, mortality, and healthcare consumption. Co-existing depression in people with Diabetes mellitus (DM) results in decreased adherence, poor health outcome, decreased quality of life, increased disability, lost productivity increased and risk of death. Prevalence and contribute factors were varies from pace to place and data on depression in the diabetes patients in Ethiopia are scarce particularly in the study area that which needs further investigation.

**Objective:** The aim of this study was to determine the prevalence and associated factors of depression among outpatients with diabetes in Felege Hiwot Referral Hospital.

**Method:** Institution based cross-sectional study was conducted on outpatients from Felege Hiwot Referral Hospital. A face to face interview was conducted using structured questionnaire by trained and experienced health professionals. The participants were selected by using systematic random sampling technique. Depression was assessed by Patient Health Questionnaire- 9 (PHQ 9) and data was analyzed by using simple descriptive, univariate and multivariate logistic regression analysis method.  $P < 0.05$  with 95% CI was considered statistically significant.

**Result:** Of 416 people interviewed; 25.72% fulfilled the criteria for mild, 6.73% for moderate, 5.53% for moderately severe, and 2.40% for severe form of depression two weeks prior to the study period respectively. The overall prevalence of depression among patient with diabetes was 40.4% when a cut-off score of PHQ 9  $\geq$  5 was used. Poor social support (AOR 5.82, 95% CI (2.821, 12.004)); age 45-54 years old (AOR: 2.717, 95% CI (1.041, 7.096)); oral hypoglycemic treatment regime (AOR: 2.213, 95% CI 1.174, 4.171)) and high fear of complication (AOR 9.129, 95% CI (4.97, 16.769)) were found statistically significant factors.

**Conclusion:** This study revealed a relatively high prevalence of depression episodes in diabetic outpatients. High perceptions for fear of complication, less level of social support, oral hypoglycemic treatment regime and adult age (45-54) were found to be the most important risk factors for depressive episodes. Therefore, providing social support co-morbid depression could help ameliorate some of the deleterious effects of depressive symptoms in DM outpatients.

**Keywords:** Diabetes; Depression; Adult patient; Co-morbidity; Associated factors.

# 1. INTRODUCTION

## 1.1. Background information

Diabetes mellitus (DM) is a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, protein and fat metabolism resulting from defects in insulin secretion, action, or both(1). There are two types of DM, type 1 and 2. Type 1 DM usually strikes children and young adults, although its onset can occur at any age and the cause is idiopathic. In adult, it accounts for 5% while type 2 accounts for about 90% to 95% of all diagnosed cases which associated with older age, obesity, family history, history of gestational diabetes, physical inactivity, and race/ethnicity(2).

DM is a major life-threatening condition to global public health and rapid getting worse; biggest impact on adults of working age group and world widely 3.2 million deaths every year, 8,700 deaths every day; 6 deaths every minute; and it also a high risk for receiving a non-traumatic lower-extremity amputation and mental health disorder(3). The prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030; the total number of people with DM is projected to rise from 171 million in 2000 to 366 million in 2030 and double the urban population in developing countries(4).

Increasing trends towards obesity, unhealthy diets and sedentary lifestyles leads to increment of DM cases (5). In Ethiopia work on non-communicable diseases (NCDs) including DM at government level is in its infancy(6). According to International Diabetic Federation(IDF) report in 2014, among 42,487.98 Ethiopian adult population(age 20-79): diabetic cases were 1,852.23, national DM prevalence was 4.36, diabetic related deaths were 34,262 and impaired glucose tolerance were 2,915(7). The national prevalence of depression was 9.1% which increases funding for effective depression & DM prevention and management (8).

Depression is more than just feelings of unhappiness (an inability to shake this feeling of sadness), more than just feeling the "blues", or having a "down" day which last at least two weeks (4). It is mood disorders which affect the ability to do a day-to-day activities be harder to perform self-management of lifelong conditions like diabetes, as well as negatively impact social relationships. Coexisting depression in DM is a high cause of mortality and morbidity relative to non-depressive diabetic patients (9).

Serious depression is common in people with diabetes and DM also doubles the risk for depression; one of every three people with diabetes experiences symptoms of depression and depression in diabetic patients is more frequent, more pertinent to be severe and more liable to be recurrent and difficult to treat since it strongly correlated with diabetes complications(10). Depression affects about 20% to 25% of diabetic patients, nearly twice as many as the general medical populations(11). It is common and serious psychiatric condition all around the globe because it can affect all parts of life, including changing appetite, sleep patterns, interest in everyday activities, work productivity, and relationships with others(12). DM and depression appear to have a consistent bidirectional relationship, with depression often preceding the development of type two DM in adults(13).

## 1.2. Statement of the problem

Depression and DM are causally related and deserves attention from clinicians to ensure better management(14). Depression in DM is high prevalence and responsible for high burden of associated with non-fatal health outcomes like disability(15). It is commonly found as a co- morbid condition in chronic medical illnesses in general, and DM in particular(16). It also a complications of DM like medical one such as nephropathy leading to renal failure(1). Even though depression is common, it is often ignored, undiagnosed or untreated in DM patients (17).

Strong links between depression and DM is very common that is one in five people will have depression in adult lifetime and having DM more than doubles the risk of developing depression(18). Living with DM, coping with biological, hormonal factors, needing to manage the condition increase the risk of depression, along with the threat of developing diabetes complications and a rigors managing of DM can be stressful that worsen symptoms of depression(12). Recognition and treatment for depression is below ideal, particularly most DM patients receive care which end up with depressions that lead to poor lifestyle decisions, such as unhealthy eating, less exercise -all of which are risk factors for DM, affects ability to perform tasks and think clearly that interfere the ability to successfully manage of diabetes(19).

DM is doubles risk of having depression in type 2 DM patients (20). Not only these but also Depression found in DM patient was not appropriately managed and under reported; such as, out of 294 patients, 117 were screened and they have depression, none were being treated(21) and from 294 participants of types 2 diabetic patients, none of the participants recalled being informed that they had depression and taking medications for it (22). Untreated depression in diabetes can increase the risk for DM related complications such as heart disease, blindness and sexual dysfunction (23). Without patient's adherence to the effective therapies, there would be persistent sub-optimal control, increase DM related complications, causing deterioration in quality of life, resulting in enhanced healthcare utilization and burden on healthcare systems(24).

Depression and DM treatment involves a coordinated approach that monitors both symptoms of DM and depression(18).In Ethiopia; the prevalence of depression in DM patient was 13-43.6% (Addis Ababa and Jimma respectively) and mental health has been one of the most disadvantaged health programs, both in terms of facilities and trained manpower even high the prevalence was high (8).

In most cases, chronic disease management focuses on only single conditions like diabetes, coronary artery disease, and hypertension but does not meet the needs of patients with multi-morbidities. DM patients under screen to depression than other co-morbid diseases like blindness, renal failure. The impact of co-morbid depression in DM patient and its importance as a public health problem little is known. Opportunities are missed to improve health outcomes when mental illness is under recognized and under treated. Not only the above problems but also the prevalence and contribute factors were varies from place to place in our country which needs further investigation. Data on depression in the diabetes patients in Ethiopia are scarce particularly in the study area. Therefore, the major aim of this study was to investigate the prevalence and associated factors leading to depression among adult DM patients.

### **1.3. Significance of the study**

This study would be helpful to provide basic information for diabetes educator and other health care practitioners those who might be aimed to inquiring the relationship between depression & diabetes mellitus. It might be also helped health care provider to initiate early screening, diagnosing and management of depression in diabetic patient based on the finding. Additionally it could be contributed to a body of knowledge to further study and other researchers who might be to conduct a study on related topic and also for organizations working with diabetes patients. Finally it could be aided support to make policy program, healthcare providers, patients and their families in the encouraging early recognizing, screening and managing depression symptoms in diabetes patient properly.

## 2. REVIEW OF LITERATURE

### 2.1. Depression and diabetes mellitus

The reported prevalence of depression in patients with diabetes varies widely. A Cross-sectional retrospective clinical study conducted in Bahrain identified the prevalence of depression among the study participants according to Beck Depression Inventory( BDI) scale was 33.3% with a mean score of  $13.11 \pm 9.637(25)$ . A similar study conducted at Al- Makhfiah primary healthcare center, Nablus, Palestine showed that the depression symptoms score distribution was positively skewed with the majority of participants 174(59.2%) scored less than 16 while 120 (40.2%) patients scored  $\geq 16$  in the depression scale(21).

A study conducted in University of Medical Sciences in Iran revealed high prevalence of depression symptoms among diabetic patients (type I and II)(26) and a five year follow up cohort study identified that patients having Patient Health Questionnaire-9(PHQ-9) scores of 5 to 9 or  $\geq 10$  were significantly more likely to meet criteria for major depression and of 158 patients, 99 of them (62.7%)  $\geq 10$ , 32 (20.3%) 5 to 9 and only 27 (17.0%)  $< 5$  had a PHQ score of respectively (27). A General hospital based study found that 142 patients had depression according to BDI scores  $\geq 14$ , the prevalence of co-morbid depression in the diabetic population was 5.7 % (28).

Study also on depression and associated factors in diabetic patients attending an urban hospital of Bangladesh revealed the proportion of depression was 34.8 % Center for Epidemiologic Studies Depression ((CES- D) score  $\geq 16$ ), in which 14.6% (CES-D score 16 to 21) with mild to moderate depression and 20.2% (CES-D score  $\geq 22$ ) with severe depression(29). The same study in this country, on prevalence of co-morbid depression in out-patients with type 2 DM, the prevalence of depressive was 34% (PHQ-9 score  $\geq 5$ ) and 36% World Health Organization-5 well-being index (WHO-5 score  $< 52$ )(30).

A Behavioural and clinical factors associated with depression among individuals with diabetes in the Islamic Republic of Iran found that out of 295 patients, 128 (43.4%) met the diagnostic criteria for depression (BDI score  $\geq 15$ ); 36.3% were minor (BDI score 16–30), 5.8% moderate (BDI score 31–45) and 1.3% severe depression (BDI score  $\geq 47$ )(31). Another cross sectional study on depression among patient with Type 2 DM in North-East coast Malaysia , the prevalence of depression was 12.3% (32 out of 260 respondents)(32).

Similarly, randomized controlled trial by Ell W. et al identified that of 1,803 diabetes patients screened, 545(30.2%) met criteria for major depressive disorder( $p < 0.001$ )(33). Hospital based cross-sectional study was conducted in Jimma University Specialized Hospital; Southwest Ethiopia showed that the prevalence of depression among people with diabetes was 146 (43.6%) and from the total participants 26.6%, 14.3% and 2.7% were found to have mild, moderate and severe form of depression respectively(34). Similarly study in Black Lion General Specialized Hospital demonstrated that depression is a common co-morbid health problem in type 2 diabetic outpatients with a prevalence rate of 13%(35).

## **2.2. Factors Associated with Co-morbid depression in diabetic patient**

### **2.2.1. Demographical factors**

Depression was most strongly associated with demographical factors. A Cross-sectional study conducted at Al-Makhfiah primary healthcare center, Nablus, Palestine; female diabetic patients, low level of education, having no current job were significantly associated with depression score of  $\geq 16$ , but education at college level were less likely to have depression (O.R = 0.24; (0.09 – 0.66) than those with lesser level and those who with no current job were more likely to have depression (O.R= 2.78, (1.23 – 6.27)) than those who are currently working(21).

Similar study conducted in Bahrain indicated that depression in diabetic was associated with sex difference; from a total of 264 participant, females (72.7%) patients who had scored  $\geq 16$  on BDI scale more depressed than males (27.3%); the difference was statistically significant at  $p = 0.004$  and the relative risk for depression was almost twice among females than males at OR= 1.7 and 95% CI=1.16-2.58. On the other hand, there was no statistically significant regarding age, marital status and educational level(25).

Demographic variables that found statistically significant were also gender low income, older age, lower education level and urban residence; and the symptoms of depression in female was more than 3 times higher males for the PHQ-9 (OR 3.4; 95% CI 2.2-5.4) (30). On the contrary younger age and female gender were not associated with higher depression scores and lower educational attainment was associated with a higher Hospital Anxiety and Depression Scale (HADS) score(36).

A cross sectional study on depression among Type 2 DM in North-East coast Malaysia, level of education (OR: 0.38,  $p < 0.05$ ) were significantly associated with depression(32) and a similar study conducted in Iran , sex were significantly associated with depression- men, 23%- mild; 12% - moderate and 3% severe depression and women (18%) moderate and 10% had severe depression (26). A study on depression and associated factors in DM patients attending urban hospital of Bangladesh, females ( $p < 0.001$ ), singles ( $p < 0.001$ ), less educated ( $p < 0.005$ ) and housewives ( $p < 0.005$ ) had a significant association with the development of co-morbid depression in DM; and duration of DM showed positive correlation ( $r = 0.171$ ,  $p < 0.05$ ); housewives suffered from severe and retired persons from mild to moderate depression ( $p < 0.05$ ) (29).

Demographic factor that had significantly associated in varying degree with depression in people with diabetes, patients who were  $\geq 50$  years had a significantly higher risk of having depression than those  $< 50$  years (OR 1.64, 95% CI: 1.21–2.42) ( $P < 0.01$ ); 81.3% depressed patients who had low educational level than 68.3% non-depressed patients who had high educational level ( $P < 0.05$ ); 64.1% depressed who had low income than 52.4% non-depressed who had high income) ( $P < 0.05$ ); patients who were married (97.4%) than non-married (92.9%) ( $P < 0.05$ ); more women (45.9%) than men (37.8%) had depression scores on the BDI but this was not statistically significant. However, mean BDI scores for women were significant at  $P < 0.02$  (31).

Similarly a cross sectional study found being single was a significant risk factor (OR 2.51; 95 % CI: 1.29–4.90;  $P = 0.007$ ) than being married. On the contrary, no significant differences were observed among the patients in different age group (28) and hospital based cross-sectional study also in Jimma and Black lion revealed that sex (OR: 1.96, 95% CI (1.263, 3.039)); age (OR: 2.238, 95% CI (1.081, 4625)); marital status (OR: 2.800, 95% CI (1.406, 5.575)); Khat chewing behavior (OR: 0.480, 95% CI (0.270, 0.853)) (34) and female sex, residence outside Addis Ababa, religion (Muslim and protestant), ethnicity, educational status (37) were found to have statistically significant association with depression among diabetic patients respectively.

### 2.2.2. Medical factors

Depression was most strongly associated with physical factors and functional impairment. Such as a study identified duration of DM, higher number of medical co-morbidity and DM complications like poorer glycemic control ( $P < 0.001$ ), treatment with insulin ( $\beta = 0.35$ ,  $P < 0.001$ ) had more severe depressive symptoms but not in patients using oral agents alone ( $\beta = -0.08$ )(38) and study conducted in Iran reported that the same as above ( $P$ -value =0.001) and males with type 1 DM experiencing moderate depression symptoms than with type 2 (26).

A cross-sectional study in Ireland identified that people with types 1 and 2 diabetic had high levels of depression symptoms; and diabetes complications were significant predictors of higher HADS depression scores but there was no association type 2 patients insulin user (36). The same study at Al-Makhfiah primary health care center, diabetic patients with multiple additional illnesses were more likely to have depression (O.R = 1.81 (1.05 – 3.11)) than those with  $\leq 1$  co-morbid (21). A study on psycho-social and clinical variables associated with depression in patients with type 2 diabetes patients by Žana S. et al found that psychiatric heredity, neuropathy (OR=8.699;  $p=0.039$ ) and higher level of DM related distress (OR=1.084;  $p=0.000$ ) were statistically significant predictors of depression(39).

Different scholars reported that depression were statistically significant associated with medical complication, type and co-morbidity of DM. These are history of retinopathy, macrovascular event and/or a coronary procedures(27); diabetic foot, retinopathy and neuropathy (OR: 3.09,  $p < 0.05$ )(32); DM-leg ulcer, kidney failure and types of DM ( $P = 0.002$  and  $P = 0.019$ ) (26). A study also found that depression score was higher among insulin users than those orally users ( $p < 0.005$ ) and DM complications associated with higher depression ( $p < 0.05$ ) (29). Other medical factors that had significantly associated with depression in people with diabetes included treatment intensity and smoking (31).

DM patients with symptoms of depression had a longer duration of DM (  $P = 0.002$ ), and greater number of complications (  $P = 0.00$ ); fewer hours of sleep per day (  $P < 0.001$ ); fewer exercise sessions (  $P < 0.001$ )(28) ; insulin or combined insulin and oral treatment, those taking a higher number of medications and with co-morbid heart disease or a higher number of co-morbidities, and higher FBS were all found to be significantly associated with a greater risk for depression(30).

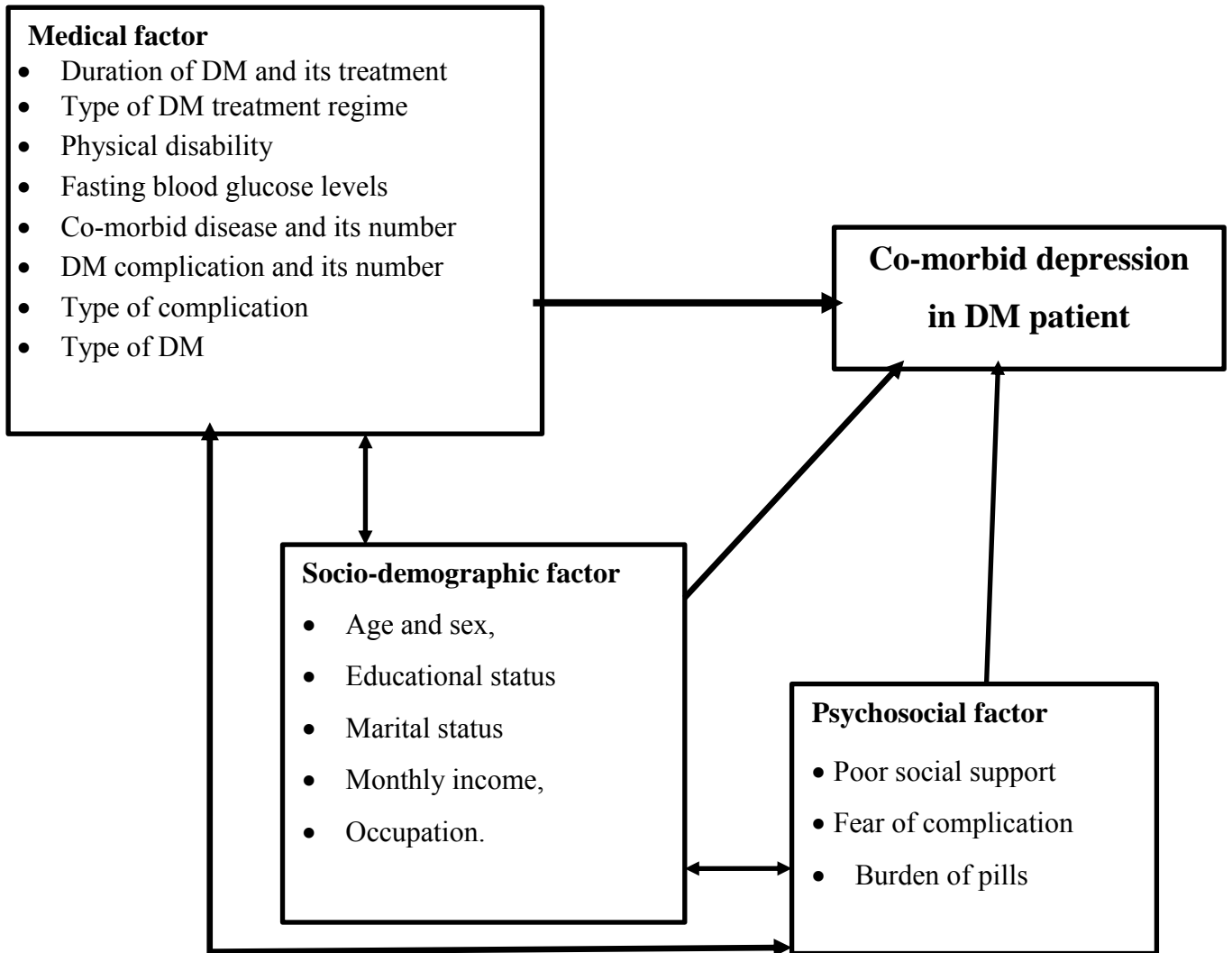
Randomized controlled trial by Ell W. et al, major depression severity was significantly associated with number of DM complications, medical co-morbidity, anxiety and dysthymia (33). Another cross sectional study on associated factors of depression among type 2 diabetic patient in Black Lion hospital found the statistically significant risk factors were diabetic retinopathy (OR 2.6, 95% CI 1.09-6.31,  $p= 0.03$ ) and number of diabetic complication from 1 to 2 (OR 2.5, 95% CI 1.04-6.19,  $p=0.04$ )(37).

### **2.2.3. Psychosocial factors**

As with demographic and medical associated factors, the effect of psychosocial factor on co-morbid depression in patients with DM supported in different studies by different scholars; such as an observational study design revealed that the patients with persistent symptoms had higher were low social functioning ( $p=0.0005$ ; role emotional  $p=0.02$ ; mental health problem ( $p=0.16$ )(40). A cross-sectional study in Iran, 2/3 of participants had depression and anxiety; and there was negative correlation between anxiety, depression and non-supportive family behaviors with mental health, quality of life and self-care(41).

Similarly factors that had significantly associated with symptoms of depression was lower levels of social support ( $t = 12.60$ ;  $P < 0.001$ ); the patients covered by Urban Employees Basic Medical Insurance (OR 2.38; 95 % CI: 1.12–5.04;  $P = 0.024$ ) (28). Randomized controlled trial by Ell W. et al showed, major depression severity was significantly associated with worry about medication cost and financial situation, social stress, and poorer quality of life (33), medication burden(43) and less social support(45-46). A study on associated factors of depression among type 2 DM in Black Lion General Specialized , poor social support was a statistically significantly associated risk factor for depression in type 2 diabetic patients(OR 14.7, 95% CI 1.94-111.89,  $p= 0.01$ )(37).

## Conceptual framework



**Figure 1:** conceptual framework and variable specification for the study on outpatient department at Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia, 2016(developed from in the sited articles (37)).

### 3. OBJECTIVES OF THE STUDY

#### 3.1. General objective

To assess the prevalence of depression and associated factors among adult diabetic patients, outpatient department at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2016.

#### 3.2. Specific objectives

1. To determine the prevalence of depression among adult diabetic patients in the respective study area.
2. To identify factors associated with depression among adult diabetic patients in the respective study area.

## 4. METHODS

### 4.1. Study area

A study was conducted among diabetic patients at outpatient follow up department at Felege Hiwot Referral hospital which is found in Bahir Dar city administration, Northwest Ethiopia. Bahir Dar is a capital city of Amhara region and located 550 kms (Tana high-level forum on security in Africa; Bahir Dar city profile: 2015) from Addis Ababa, the capital city of the country. Currently, Felege Hiwot referral hospital is the only public hospital in Bahir Dar city and it serves the population in the region and those from Beneshangul Gumuez population as referral center and opens for 24 hours for emergency service. It provides promotive, preventive, curative and rehabilitative services to those populations.

In Felege Hiwot Referral Hospital, there were different departments, units and clinics that provide specialized service for clients and patients such as mental health clinic, ophthalmology, internal medicine, outpatient chronic follow up, dermatology, pediatrics, gynecology/obstetric, surgery, dentistry and physiotherapy department, hospital pharmacy ; intensive care unit, operation room unit, anti-retroviral therapy and tuberculosis clinic. In outpatient follow-up department run five days weekly (from Monday to Friday). The service was rendered by physician and nurses and around 1484 patients were registered for follow-up in the previous year. Those diabetic patients were used to collect their medication on every two to three monthly basis. In outpatient chronic follow up department approximately 300 adult diabetes mellitus patients were seen weekly. The reason to select this hospital because DM patient flow was high and when I observed DM patients during student supervision in this hospital the patient worry about their condition.

### 4.2. Study design and period

A facility-based cross sectional study was conducted from 01 March to 08 April 2016.

### 4.3. Source population

The source population was all adult diabetes out-patients who had follow up treatment at Felege Hiwot Referral Hospital-outpatient department.

### 4.4. Study population

The study population was randomly selected adult diabetic patients on follow up at the respected Hospital.

## **4.5. Inclusion and Exclusion criteria**

### **4.5.1. Inclusion criteria**

All diabetic patients aged 18 years and older who had been on regular follow up treatment for DM regardless of ethnicity and religion were included in the study.

### **4.5.2. Exclusion criteria**

Hearing and/or verbalize impairment, serious ill and newly diagnosed during data collection were excluded in the study. Participants were hearing and/or verbalizing impairment those who did not provide coherent answers to the demographic questions. Participant were defined as serious ill to participate who had severe medical or psychiatric illness that made it impossible to complete the study questionnaire in one setting, who were requested to terminate the interview for medical reasons, or the data collectors were perceived that the participant was too sick to participate. Participants were newly diagnosed means that they diagnosed before six months by considering newly diagnosed participant could be perceived them awareness of inadequacy of the disease during participate the demographic questions.

## **4.6. Study variables**

### **4.6.1. Dependent variables**

- i. Depression

### **4.6.2. Independent variables**

- i. Demographic factors: age, sex, ethnicity, educational and marital status and monthly income;
- ii. Medical factors: DM complication and type, FBS level, physical activity and co-morbid disease, Pill burden, duration of illness and treatment, diagnostic age and number of co-morbidity.
- iii. Psychosocial factors: poor social support, pills burden and fears of diabetic complication.

#### 4.7. Operational definition

1. No depression: Patient Health Questionnaire 9 score was 0
2. Minimal depression: Patient Health Questionnaire 9 score was 1-4
3. Mild depression: Patient Health Questionnaire 9 score was 5-9
4. Moderate depression: Patient Health Questionnaire 9 score was 10-14
5. Moderately severe depression: Patient Health Questionnaire 9 score was 15-19
6. Severe depression: Patient Health Questionnaire 9 score was 20-27

#### 4.8. Sample size determination and Sampling procedure

The sample size was calculated by assuming 5% marginal error (d), 95% CI (alpha=0.05) and 43.6 the proportion of depression among DM patients (34).

Based on this assumption, the sample size was calculated by single population proportion formula:

$$n = \frac{(z \frac{\alpha}{2})^2 p(1 - p)}{d^2}$$

Where; n= initial sample size, P=proportion of success, that was the prevalence of depressive symptom in DM patients, q=not a proportion of success, that was no depressive symptoms in DM patients.

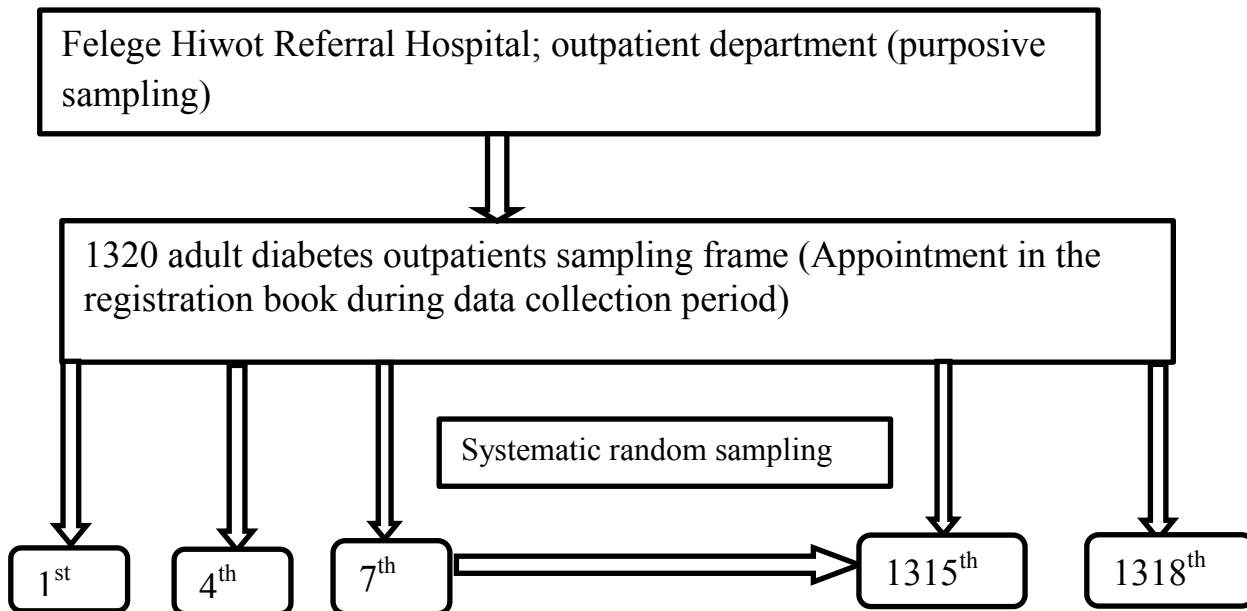
$Z_{\frac{\alpha}{2}}$  =critical value for normal distribution at 95 % CI (1.96) (Z value at alpha =0.05)

2

d= margin of error that was tolerated, 5% (0.05)  $n = \frac{(1.96)^2 \times 0.436 \times 0.564}{(0.05)^2}$

This yields a sample size of 378.

By considering 10% non-response rate, 416 diabetic patients were planned and included in the study. A list of diabetic patients was obtained to identify the participants from the outpatient follow up department and used as a sampling frame. The patients' records were listed in follow up appointment order. Then, the respondents were selected by using systematic random sampling technique. Based on the decision to collect data over the course of one month, the sampling interval was determined by dividing the expected number of diabetic patients per month (1320) into the sample size (416) which gives a sampling interval of three. Thus, every three patient coming to a follow-up service was interviewed until the total sample size was reached.



**Figure 2:** schematic presentation of sampling procedure for the study outpatient department at Felege Hiwot, Referral Hospital, Bahir Dar, Ethiopia, 2016.

#### 4.9. Method of data collection

Patients were interviewed using structured questionnaires. The questionnaire of socio demographic related information was assessed using a structured questionnaire developed by reviewing similar related articles. Other independent variables that could affect the occurrence of depression among patient with diabetes were also included to the questionnaire by reviewing other similar studies. Patients with established diabetes mellitus were evaluated for depression by administering nine-item Patient Health Questionnaire- 9 (PHQ -9) adapted from Pfizer Inc. using local language (Amharic). It was an easy depression screening tool which was a brief questionnaire that scores each of 9 DSM-IV criteria for depression as “0” (not at all) to “3” (nearly every day).

PHQ-9 score  $\geq 10$  had a sensitive of 88% and specificity of 88% for major depression(47). PHQ-9 scores of 5, 10, 15, and 20 represent mild, moderate, moderately severe and severe depression, respectively. Since the questionnaire was prepared in English, it was translated in to Amharic language for appropriate and easiness in interviewing the study subjects in Amharic language. The Amharic version was again translated back to English to check the consistency of meaning. Translation of questionnaire was done by language experts in both cases.

#### **4.10. Data quality assurance**

Two weeks prior to the actual data collection, the questionnaire was pre-tested on 5% (20) of the sample among diabetes patient who were not included in the main study area, in Debre-Markos hospital. The purpose of the pre-test was to ensure that the respondents were able to understand the questions and to check the wording, logic and skip order of the questions in a sensible way to the respondents. Amendments were made accordingly after the pre-test. Data were collected by four trained diploma nurses and two supervisors (BSc nurse). Additionally, on each data collection day, the collected data was reviewed and checked for its completeness by principal investigator and appropriate design and sampling procedure were applied. Moreover, the exclusion criteria were considered

#### **4.11. Data processing and analysis**

Data were entered and edited in to EPI-data version 3.1, and cleaned and analyzed by using SPSS for windows program version 20. The data were checked for its distribution and outliers before analysis. It was processed by using descriptive analysis, including frequency distribution, cross tabulation and summary measures. Association was investigated to assess the association between dependent and explanatory variables using binary logistic regression. All explanatory variable with p-value  $\leq 0.20$  in bivariate logistic analysis were fitted in to multivariate logistic regression to identify independently associated factors in the final model; the degree of association was interpreted by using ORs with 95% CI and P-value  $< 0.05$  was considered statistically significant.

#### **4.12. Ethical considerations**

After followed the ethical and legal standards of scientific investigation, ethical clearance was secured from ethical institutional review board of Addis Ababa University College of health science. Permission and supportive letter was obtained from respective hospital medical director before data collection. Participation was voluntary and information was collected anonymously after obtaining written consent from each respondent by assuring confidentiality throughout the data collection period and also after the study. Individuals who were unwilling to participate from the beginning or any part of the interview were allowed to do so. There was no any risk of danger or hazardous procedure putting the participants at harm. Patients found to have severe depression were referred to psychiatry clinic for further assessment and treatment.

## 5. RESULTS

### 5.1. Sociodemographic characteristics

Four hundred and sixteen study participants were interviewed with the response rate of 100%, 290(69.7%) were married, 242(58.2%) were male, and 120(28.8%) were governmental employees. Regarding age distributions, the mean and Standard Deviation (SD) of age and age at diagnosis of the participants were  $45.5 \pm 16.7$  and  $39.2 \pm 16.3$  years, respectively. Besides, more than two third of respondent 316 (76%) lived in urban. Likewise, the median of family monthly income of the study participant was 2000 ETB ( $\geq 1401$  ETB); and around 109 (26.2%) of the respondents attended college/university level (table 1).

Table 1 : Sociodemographic Characteristics of Study Participant at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2016(N=416).

Variable	Category	Frequency	Percent
Sex	Male	242	58.2
	Female	174	41.8
Current age	18-34	124	29.8
	35-44	81	19.5
	45-54	82	19.7
	>=55	129	31.0
Residency	Urban	316	76.0
	Rural	100	24.0
Age at diagnosis in year	<18	39	9.4
	18-34	137	32.9
	35-44	82	19.7
	45-54	85	20.4
	>=55	73	17.5
Marital status	Single	65	15.6
	Married	290	69.7
	Divorced	32	7.7
	Widowed	6	1.4
	Separated	23	5.5
Educational status	Can't read and write	124	29.8
	Read and write	47	11.3
	Primary school(1-8)	52	12.2
	Secondary school(9-12)	84	20.2
	College/University	109	26.2
Occupational status	Farmer	103	24.8
	Civil servant	120	28.8
	Private worker	55	13.2
	Merchant	64	15.4
	House wife	55	13.2
	Others	19	4.6
Monthly income	<=650	113	27.2
	651-1400	99	23.8
	>=1401	204	49.0

## **5.2. Clinical characteristics**

About 178 (42.8%) and 238 (57.2%) patients were found to have type-I and type-II DM respectively. Regarding to their diabetes medication, types of comorbidity and DM complication; all patient with type-I DM were on injectable form (insulin) and 60 (14.4 %) were on oral hypoglycemic and insulin treatment regime; and 70(16.8%) were with cardiovascular diseases (hypertension and heart failure), 60 (14.4%) were with sexual dysfunction, and 53 (12.7%) were with diabetic retinopathy respectively. Among respondent who had co-morbid, 92 (22.1 %) were reported that they had 1-2 co-morbid disease which was evidenced by review of patients' card and their reports. Similarly, 35(8.4%) of the respondents were reported physical disability; and 319 (76.7%) and 321 (77.2%) were living with diabetes mellitus and taking physician prescribed medication at least for 8 years respectively. Regarding the laboratory reported fasting blood glucose level, 268 (64.7 %) was within 101 to 126 mg/dl (table 2).

Table 2: Clinical Characteristics of Study Participant at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2006 (N=416).

Variable	Category	Frequency	Percent
Types of diabetes mellitus	Type 1	178	42.8
	Type 2	238	57.2
Diabetes treatment regime	Oral hypoglycemic and insulin	60	14.4
	Oral hypoglycemic agent only	124	29.7
	Insulin only	232	55.8
Duration of DM (years)	<=8	319	76.7
	9-16	80	19.2
	>=17	17	4.1
Duration of DM Rx(years )	<=8	321	77.2
	9-16	75	18.0
	>=17	20	4.8
Comorbid disease	Cardiovascular disease	70	16.8
	Respiratory disease	9	2.2
	Neurological disease	12	2.9
	Renal disease	11	2.6
	Others disease	13	3.1
Complication of diabetes	Diabetic retinopathy	53	12.7
	Diabetic nephropathy	8	1.9
	Diabetic neuropathy	14	3.4
	Sexual dysfunction	60	14.4
Fasting blood glucose level	<=100 mg/dl	90	21.3
	101-126 mg/dl	268	64.7
	>=127 mg/dl	58	14.0
Number of co-morbidity	0	316	76.0
	1-2	92	22.1
	>=3	8	1.9
Number of prescribed medication admi. per day	<=2	346	83.2
	3-5	58	13.9
	>=6	12	2.9
Number of DM complication	0	316	76.0
	1-2	92	22.1
	>=3	8	1.9
Physical disability	Yes	35	8.4
	No	381	91.6

Rx =treatment, admi=administration, DM=diabetes mellitus

### 5.3. Psychosocial Attributes

From study participant, about 214 (51.4 %) of study subjects had gotten adequate/relevant information about anti diabetic medication administration technique from both nurses and physicians. Regarding to social support out of the study respondents, 345 (82.9 %) and 71 (17.7%) had good and poor social support respectively; and 346 (83.2%) had relatively low burden of medications. While 108 (26%) of respondents“ had fear of complication for their future life due to their DM disease burden like worry about long term of complication, losing eye sight, increase the chance of heart disease, kidney transplantation, foot problems and stroke.

Table 3: Psychosocial characteristics of study participants at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2016(N=416).

<b>Variables</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percent</b>
Social support	Good	345	82.9
	Poor	71	17.1
Fear of complication	High	108	26.0
	Low	308	74.0
Adequate and relevant information from health worker	Physicians only	79	19.0
	Nurses only	110	26.0
	Physician and Nurse	214	51.4
	Others	3	0.7
	No information	10	2.4
Burden of medication	$\leq 3$	346	83.2
	$\geq 4$	70	16.8

#### **5.4. Prevalence of Depression**

The overall prevalence of depression among patients with diabetes was 40.4% [95% CI: 35.3%-44.7%] when a cut-off score of PHQ-9  $\geq 5$  was used. From the total participants; 25.72% fulfilled the criteria for mild, that was, PHQ9 score 5-9, 6.73% for moderate, that was, PHQ 9 score 10–14, 5.53% for moderately severe, that was, PHQ9 score 15–19, and 2.4% for severe, that was, PHQ 9 score 20–27 form of depression two weeks prior to the study period respectively. Among governmental employees, farmers, merchants and private employees; 50 (30.0%), 49(29.2%), 28(16.7%) and 20(11.9%) were found to be depressed respectively. Regarding the age distribution of depression, 52(31.0%) of 18-34, 43(25.6%) of 45-54, and 36(21.4%) of  $\geq 55$  years old were depressed. Concerning educational status, the prevalence of depression was 48(28.6%) for who cannot write and read; 19(11.3%) for both those able to only read and write, and primary school (1-8) and 35(20.8%) for those secondary school (9-12) education.

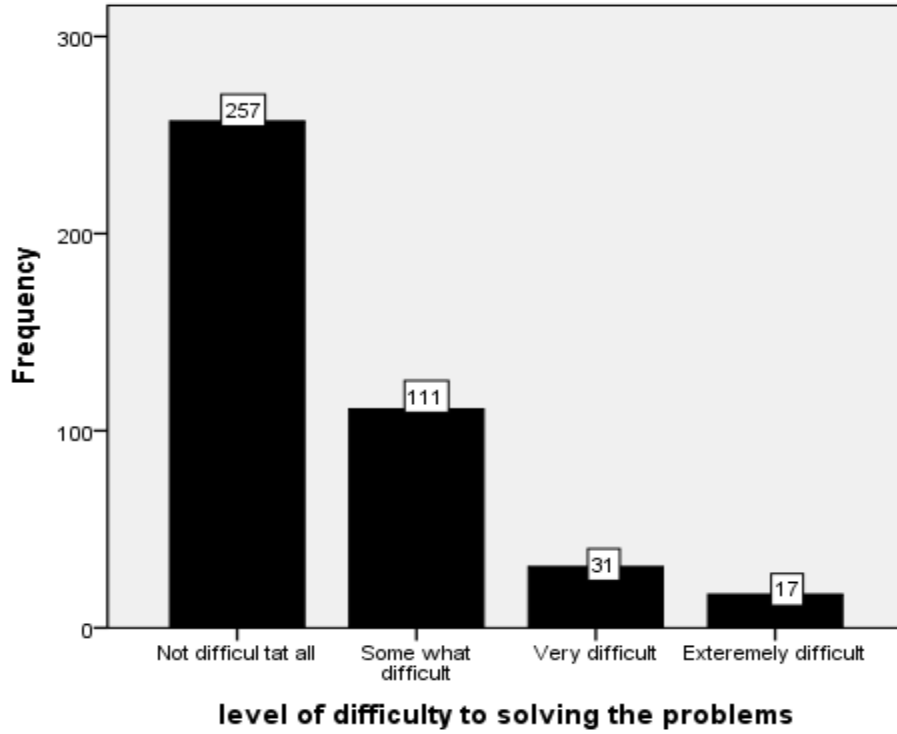


Figure 3: Level of difficulty among depressive symptoms of study participants to do their work, take care of things at home, or get along with other people at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia, 2016.

### **5.5. Factors associated with depression**

In the binary logistic regression analysis; sex, age at diagnosis, physical disability, fasting blood sugar level from 101-126 and  $\geq 127$  (mg/dl) and getting adequate and relevant information from Physician were found to have statistically greater risk factor of depression among diabetic patients. In the final multivariate logistic regression analysis after controlling the potential confounders; age 45-54 (AOR: 2.72, 95% CI (1.04, 7.09)), oral hypoglycemic treatment regime (AOR: 2.21, 95% CI 1.17, 4.17)), high fear of complication (AOR 9.13, 95% CI (4.97, 16.78)) and poor social support (AOR 5.82, 95% CI (2.82, 12.00)) were found to be independent predictors of depression among diabetic patients (table 4).

Age of respondents 45- 54 years were 2.7 times greater to have depression than those aged  $\geq 55$  years old; and participant who have taken oral hypoglycemic treatment regime were 2.2 times risk to have depression than those who have taken injection (insulin) hypoglycemic treatment regime, high feels for fear of complication had 9.1 times greater to be having depression than those who did less feels for fear of complication; and poor social support were 5.8 times had risk to develop depression than those who had good social support (table 4).

Table 4: Logistic Regression Examining the Associations between Demographic, Clinical and Psychosocial Factors; and Depression Symptoms among Diabetic outpatients at Felege Hiwot Referral, Bahir Dar, Ethiopia, 2016(N=416).

Variable and Categories	Depression(n)		Univariate	Multivariate
	Yes	No	COR (95% CI)	AOR (95% CI)
Sex				
Male*	147	95	1.00	1.00
Female	101	73	1.72(1.12, 2.60 )	1.50(0.89, 2.50)
Current age category				
18-34	52	72	1.88(1.10,3.15)	3.20(0.94, 10.88)
35-44	37	44	2.17(1.21, 3.88)	2.45(0.77, 7.77)
<b>45-54</b>	43	39	2.85(1.59, 5.08)	<b>2.72(1.04, 7.09)</b>
≥55*	36	93	1.00	1.00
Age at diagnosis				
<18	18	21	2.62(1.15, 5.97)	1.27(0.72, 5.99)
18-34	55	82	2.05(1.08, 3.85)	1.13(0.29, 4.38)
35-44	41	41	3.06(1.54, 6.06)	1.69(0.46, 6.13)
45-54	36	49	2.25(1.13, 4.45)	1.99(0.24, 5.36)
≥55*	18	55	1.00	1.00
Physical disability				
Yes	9	26	2.05(0.94, 4.54)	1.14(0.44, 2.93)
No*	159	222	1.00	1.00
Diabetes treatment regimen				
Insulin only*	79	153	1.00	1.00
Insulin + oral hypoglycemic	24	36	1.29(0.72, 2.31)	1.275(0.600, 2.707)
<b>Oral hypoglycemic</b>	65	59	2.13(1.37, 3.33)	<b>2.21(1.17, 4.17)</b>
Fasting blood sugar (mg/dl)				
≤100mg/dl*	27	61		
101-126	113	155	2.11(1.06, 4.18)	0.565(0.295, 1.082)
≥127	28	30	1.65(0.98, 2.75)	1.01(0.47, 2.17)

...Continued...

Social support				
Good *	111	234	1.00	1.00
<b>Poor</b>	57	14	18.75(9.48, 37.08)	<b>5.82(2.82, 12.00)</b>
Fear of complication				
Low fear*	80	228	1.00	1.00
<b>High fear</b>	88	20	12.54 (7.25, 21.69)	<b>9.13(4.97, 16.78)</b>
Adequate and relevant information				
No information	6	4	0.75(0.05, 11.31)	1.17(0.22, 6.23)
Physicians and nurses*	91	123	1.00	1.00
Physicians only	22	57	0.52(0.29, 0.90)	0.58(0.28, 1.18)
Nurse only	47	63	0.19(0.02, 2.24)	0.86(0.47, 1.56)
Others	2	1	0.37(.033, 4.24)	0.87(0.04, 17.76)

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\*=Reference category; p-value=significant, <0.05; COR= Crude Odds Ratio; AOR=Adjusted

## 6. DISCUSSION

### 6.1. Prevalence of depression

The aim of medical care in chronic disease such as DM is not only physical treatment, but also to ameliorate of quality of life and decrease mental health consequences. However, in spite of the huge impact of comorbid depression and diabetes on the individual and its importance as a public health problem, little is known about the existence of depression in people with diabetes in Ethiopia especially in the study area. This study had tried to address this issue. The purpose of this study was to assess prevalence and associated factor of comorbid depression in a random sample of outpatients with diabetes mellitus in Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia.

In this study, among 40.4% respondents who were depressed, 25.7% of them to be needed watchful waiting (actively following with a PHQ-9 once a month) and 14.7% of them to be needed both watchful and active treatment with medication and/or psychotherapy and/ or refer to specialty mental health care; and 28.4% of patients were reported minimal depression symptoms (1-4 of PHQ-9) but not eligible for watchful waiting and/ or clinical interventions; and 31.3% of patients did not report any of depressive symptoms. In our study the overall prevalence of depression was 40.4% when a cut-off score of PHQ 9  $\geq$  5 was used.

This finding was comparable with the result from a cross-sectional study done in Islamic Republic of Iran, Palestine, Bangladesh, Jimma and Addis Ababa using on Beck Depression Inventory Score (BDIS), Hospital Anxiety and Depression Scale (HADS) and PHQ-9 psychometric tool, depicted that the prevalence of depressive symptoms using BDIS (score  $\geq$  15) and PHQ-9 (score  $\geq$  5) was 43.4%, 40.2% , 34%-34.8%, 43.6% and 49.4% respectively; when a cut-off value (PHQ-9 $\geq$ 10) indicative of moderate to severe depression was used; the prevalence in Bangladesh and Addis Ababa and others was to be 16.5% , 13% as respectively (21, 29-31, 35).

This similarity could be explained by the path of physiological (biological) similarities of DM across the countries. Since depression involves physiological changes of neuroendocrine system; the underlying cause of depression is thought to be related to changes in the neurotransmitters in the brain such as serotonin (5-HT), dopamine (AD), and norepinephrine (NE) which affect mood and behavior (48). There might be psychological stress counter regulatory hormones are activated and biological pathways through which depression might be impact in diabetes and its complications including abnormalities, alteration in glucose transport function, and increased immune inflammatory activation.

On the other hand this finding relatively lower than a cross-sectional study conducted in South East of Iran from 100 patients full filled the criteria 38% for mild depression, 30% for moderate depression and 13% for severe depression and also the total prevalence of depression (40.4%) in our study was a bit higher than the studies done in Spain (30.2%). In contrast to the above studies, this finding was relatively higher than a cross-sectional study conducted in Saudi Arabia, Malaysia and China ; the prevalence of depression from those countries were 33.3%, 12.3%, and 5,7% respectively(25, 28, 32-33). These discrepancies of prevalence might be due to variation in attributes of study participants, use of different psychometric scale, study design and setting, time frame, health care inequities and the level of country development. Since they did not used PHQ-9, small sample size (<290), used retrospective clinical study and relatively good health care delivery systems in those study setting.

## **6.2. Associated factors and depression**

Our study revealed that depression was most strongly associated with age 45-54 years, oral hypoglycemic treatment agent, poor social support and high fear of DM complications. A study conducted in different setting by different scholars found that sex, residence and employment status had no significant association with the development of co-morbid depression among diabetic patient (26, 29, 32, 41). Those were in agreement with our study that was the above variables were no significant association in this study; but in our study a univariate logistic regression analysis result showed that; being female, age (18-44 and  $\geq 55$ ) and age at diagnosis were a greater risk factors of depression in diabetic patients, even though they are not statistically significant (i.e. means the observed association occurred by chance).

However, handful of earlier published articles reported the prevalence rates of depression were significantly higher in females than males but not in our study (21, 25, 29, 34, 37). The difference based on sex with specific type of DM might be due to gender difference in both social and economic related activities among countries and hormonal difference among sex. Other demographic risk factors were significantly associated in varying degree such as older age (31), less education (21, 32); being unmarried (28, 29) and having no current job (21). In this study only age adult age was found to be independent predictors of depression among diabetic outpatient. The difference could be due to the screening psychometric scales and the sample size, ways of health care delivery system in DM patient and attention of screening depression in DM patients during follow up visits. Since they did not used PHQ-9, used small sample size (<290), used cross-sectional retrospective clinical Study and relatively good health care delivery systems in those study setting.

Regarding the clinical characteristics of participants, earlier studies conducted in different settings revealed that depression was most strongly associated with physical factors; functional impairment includes: diabetic treatment regimen; insulin or combined insulin and oral treatment (25, 29), and fasting blood sugar level (37) which was in agreement with our study; hypoglycemic treatment regime and results of fasting blood sugar level 101-126 and  $\geq 127$  (mg/dl) were risk factors associated in bivariate analysis but not statically significant. On the other hand oral hypoglycemic treatment regime (AOR: 2.213, 95% CI 1.174, 4.171) was found to be clinically independent predictors of depression statically significant. This similarity could be due to pathophysiological, clinical feature and path of biological similarities of DM across the countries. It might be also depression creates barriers to the management of diabetes; and the presence of behavioural disturbance might be associated with difficulties adhering to the complex self-management of diabetes.

Another earlier studies conducted in different settings revealed depression was most strongly associated with present diabetic complications and its number (30, 32, 34); neuropathy (34, 41), nephropathy (25), co-morbid disease (21, 25, 26, 30, 33,); heart disease (25); duration of DM (26); but in our study, only physical disability was risk factors associated with presence of high depressive symptoms in diabetic outpatients, but not statistically significant. This means the observed association occurred by chance, the likelihood of depression was increased in those populations with the presence of the factor but the relation was not casual. This discrepancy might be due to health care inequalities, high prevalence and low addressed of these risk factors; behaviors that can cause chronic diseases, such as tobacco and excessive alcohol use, exposure to secondhand smoke, ways of life style (physical inactivity, diets low in fruits, vegetables and high in sodium and saturated fats).

Regarding of psychosocial characteristics of participants, high fear of complication (AOC: 9.129, 95% CI 4.970, 16.769) and poor social support (AOC: 5.820, 95% CI 2.821, 12.004) were a statistically significantly associated risk factor for depression. These were in line with the studies reported that factors had a significant association with co-morbid depression comprise; increased health care costs poor social support (37, 44-46), experience chronic stressors or fear of complications (33), medication burden (42). In contrast to the above studies, higher level of emotional and social support; and high level social network were a protective factor for depression (29, 46). These difference might be social support increased or harnessed as a strategy for improving self-management for chronic conditions like DM, and such strategies might be focused on lifestyle aspects of self-management, or an attempt to remedy supporters' barriers to influencing patients medical self-management behaviors.

## 7. STRENGTH AND LIMITATION

### **Strength**

The study could be considered as base for further similar and large scale of studies, similar study in Ethiopia particularly in the study area is limited. The strengths of this study also a significant contribution to the body of knowledge in general and more specifically for Felege Hiwot Referral hospital health professional and the patients themselves. Additionally, rather than having to rely on self-report, we were able to use information from patients' medical diaries to gather information about the presence of diabetes complications, co-morbidity and FBS levels. Also, we were used a reasonable sample size.

### **Limitation**

Patient Health Questionnaire 9 psychiatric scale was used which was not the only gold standard method to assess depression status. Due to lack of sophisticated screening tests and budget constraints, diabetes complications addressed in this study were not confirmed by respective specialists instead only by patient's subjective response and their chart review was used. As the study was a simple cross-sectional study design, it was impossible to know the direction of cause and effect relationship of associated factors of depression in diabetic patients. Not only these but also it did not use control or comparison group which also limit this study.

## 8. CONCLUSION AND RECOMMENDATION

### **Conclusion**

Our study revealed a relatively high prevalence of depression episodes in diabetic outpatients in Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia in comparison with other findings (25, 28, 32-33). Most of the study subjects suffered from moderate form of depression. High fear of complication, less level of social support, oral hypoglycemic treatment regime and adult age (45-54) were found to be the most important risk factors for depressive episodes in this study. This had been worsening by a weak linkage between diabetic and psychiatric clinic facility visit for depression episodes. Hence, providing social support to patients with DM could be helped ameliorate some of the deleterious effects of depressive symptoms; by helping them identify sources of social support or serving as a source of social support particularly for individuals at highest risk for depression with less social support. Motivate the patients to maintain good BGL control to minimize a fear of complications by adhering good managing DM.

### **Recommendation**

#### **To Amhara Regional health bureau**

According to these findings, Amhara Regional Health bureau should be emphasized the management of co-morbid depression; because it is very common in people with chronic physical diseases like DM. The bureau also should collaborate with different stake holders and hospital managers to design policies and co-morbid depression management programs for DM patients that include the proactive identification and evaluation of co-morbid depressions in DM patients.

#### **To Felege Hiwot Hospitals**

We recommend for the hospital that strong referral linkage between diabetes and psychiatry clinic has to be set functional and further integration of mental health care in to diabetes clinic has to be considered

#### **To health educators and Researcher**

Health educators should be provide continuous health information, education and communication towards raising awareness about the possibilities of co-morbidities and early sign and symptoms of depression has to be delivered for patients with diabetes in regard to promoting early detection and treatment of the co morbidities for better health and quality of life, prognosis of DM and the nature of its consequence. Researchers should be further investigated and repeat the study with a comparison or control group to see the difference and the direction of relation of social support, DM treatment regime and fear complications.

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## ANNEX I: INFORMATION AND INFORMED CONSENT

**Interviewer:** Name \_\_\_\_\_ Father's name \_\_\_\_\_

Respondent's code number \_\_\_\_\_

### **Information sheet:**

Good morning/afternoon/evening dear respondent, I am \_\_\_\_\_ who is the data collector for a research to be conducted by Teshager W/giorgis, a Master's student at Addis Ababa University, Department of Nursing and Midwifery. Today, I am here to collect information on "*Prevalence of Depression and Associated Factors among Adult Diabetic Patients Attending Outpatient Department, at Felege Hiwot Referral Hospital, Bahir Dar, Northwest Ethiopia,*" If you take part in the study it would not be took us more than 30 minutes. I would like to assure you that everything from your information and records would be completely confidential to the research and the data are stored without your name and only used for the purpose of this study.

None of this would affect the care you receive from Felege Hiwot Referral Hospital, but will help in future planning for the hospital. No identifying names or characteristics will go into my report, so you may share your thoughts openly. Additionally, taking part in this study is completely voluntary. It is your choice whether to participate or not. You may skip any questions that you do not want to answer. Please ask me to stop as we go through the information and I will take time to explain. The results of the study will hopefully serve as an important input for policy and intervention programs that aim at addressing co-morbid depression problems in diabetic patient.

Do you have any questions that you need to be clarified more?

If you have any question you can contact the principal investigator at any time convenient for you using the following address: Cell phone: +251-912-886162

E-mail: [wodegiorgist@yahoo.com](mailto:wodegiorgist@yahoo.com)/[teshagert63@gmail.com](mailto:teshagert63@gmail.com)

Interview: \_\_\_\_\_ date \_\_\_\_\_ month \_\_\_\_\_ year.

## ANNEX I: INFORMED CONSENT AND QUESTIONNAIRES

### 1.1. INFORMED CONSENT SHEET

I have been briefly informed about the study and I clearly understood the objective. Since it doesn't affect my personal life, I agreed to take part in the study. Consequently, I here approve my consent to take part in the study as an interviewee with my signature.

Agreed to participate,  sign and proceed to interview

Not agreed to participate,  thank the respondent and end the interview

Signature \_\_\_\_\_ Date \_\_\_\_\_

## 1.2. QUESTIONNAIRES

Addis Ababa University College of Health Sciences; School of Allied Health Sciences Department of Nursing and Midwifery. Questionnaires on prevalence of depression and associated factors for adults DM Patient.

<b>Part I. Questionnaires on Socio- demographic characteristics of respondent.</b>			
<b>S. N</b>	<b>Question</b>	<b>Respondents possible answer</b>	<b>Code</b>
101	What is your Age? (in completed year)	_____years	
102	Sex	1. Male	
		2. Female	
103	Where are you come from/your residency?	1. Urban	
		2. Rural	
104	What is your marital status?	1. single	
		2. married	
		3. Divorced	
		4. Widowed	
		1. Separated	
105	How much schooling have you had? (Years of formal schooling completed)	1. cannot read and write	
		2. read and write only	
		3. primary school(1-8)	
		4. secondary school(9-12)	
		5. College/University	
106	Which of the following best describes your current employment status?	1. Farmer	
		2. Civil servant	
		3. Private worker	
		4. Merchant	
		5. Other(specify)----	
107	Average family monthly income from all sources	_____ETB	
<b>Part II. Questionnaire concerning for types and clinical characteristics of diabetic patient</b>			
108	At what age you have been told by a doctor you had a diabetes?/ in year/	at _____years	

109	How long you have been with diabetic? (in year)	_____ years	
110	For how long time have you taken your diabetic medications? (in year)	_____ years	
111	Which types of diabetes did your doctor told that you have?	1. Type 1	
		2. Type 2	
112	Have you ever tested your blood glucose since the last month you visited the hospital?	1. Yes	
		2. No	
113	If <b>yes</b> question No.112, what is the result of your fasting blood glucose level in mg/dl?	_____ mg/dl	
114	How many medications do you use for your DM?	_____ (in number)	
115	Which of the categories best describes your treatment regime?	1. Single insulin	
		2. Combined insulin	
		3. Insulin plus oral	
		4. oral hypoglycemic	
		5. Other (specify) .....	
116	Have you been taken your recommended diabetic medication?	1. Yes	
		2. No	
117	If <b>no</b> question No.116, what is your reason?	1. No money to buy it.	
		2. Drug side effect	
		3. Feeling that I am cured	
		4. Other (specify).....	
118	Do you get adequate/relevant information about anti diabetic medication administration technique?	1. Yes	
		2. No	
119	If <b>yes</b> question No.118 from who get the information?	1. From physician	
		2. Nurses	
		3. Other (mention).....	
120	Have you been told co-morbid/ additional illness by your doctor?	1. Yes	
		2. No	
121	If <b>yes</b> question No.120, how many of them? (in number)	_____	

122	If <b>yes</b> question No. 121, which on best describe your co-morbid illness?	1. Cardiovascular disease	
		2. Respiratory disease	
		3. Renal disease	
		4. Neurological disease	
		5. Other specify.....	
123	Have you been told a diabetes complication illness by your doctor?	1. Yes	
		2. No	
124	If <b>yes</b> question No-123, which on best describe your complication illness secondary to diabetes condition?	1. Diabetic retinopathy	
		2. Diabetic nephropathy	
		3. Diabetic neuropathy	
		4. Sexual dysfunction	
		5. Other specify).....	
125	Do you take physical activities for your health?	1. Yes	
		2. No	
126	If <b>no</b> question No. 125, do have any physical health problems (disability)?	1. Yes	
		2. No	
127	Are you taking pills for co-morbid disease rather than diabetes pills?	1. Yes	
		2. No	
128	If <b>yes</b> question No.127 how many prescribed medication administrations per day?(in number)	_____	

### Part III. Questionnaire for Measure Social Support of diabetic patient

The following three questions ask about how you experience your social relationships. The inquiry is about your immediate personal experience. Please tell me the one option that represents your experience.

	Questions	Respondents possible answer			
		None	1 or 2	3-5	More than 5
129	How many people are so close to you that you can count on them if you have serious personal problems?	1	2	3	4

130	How much concern do people show in what you are doing?	No concern and interest (1)	Little concern and interest (2)	Uncertain	Some concern and interest(3)	A lot of concern and interest (4)
131	How easy is it to get practical help from neighbors if you should need it?	Very difficult	Difficult	Possible	Easy	Very easy
		1	2	3	4	5

#### Part IV: concerning fear of complications questionnaire on diabetic patients

This questionnaire is designed to help me understand how you feel about your diabetes and how it affects you, particularly in the **long-term**. Please answer the following questions as honestly as possible and most appropriate to yourself.

S.N	Questions	Respondents possible answer				code
		Very	Moderately	A little	Not at all	
132	I feel afraid of long-term complications of diabetes	1	2	3	4	
133	I am scared that diabetes could affect my feet	1	2	3	4	
134	I am afraid I will need a kidney transplant one day	1	2	3	4	
		All the time	Frequently	Occasionall y	Never	
135	I worry about losing my eyesight because of diabetes	1	2	3	4	
136	I worry that having Diabetes increases my chances of heart and blood vessel disease	1	2	3	4	

137	I am afraid of developing long-term complications as a result of frequent high blood sugars	1	2	3	4	
138	I am afraid that I will develop kidney problems one day	1	2	3	4	
139	I worry that I might be at a higher risk for having a stroke	1	2	3	4	
		Not at all	Occasionally	Frequently	All the time	
140	Do you ever worry about your future health?	1	2	3	4	
141	Do you worry about future problems when your blood sugars are erratic?	1	2	3	4	

### Part V. Questionnaire for depression screening of diabetic patient (PHQ-9)

**Instructions:** this interview consists of nine items. Please listen carefully what I am going to read each items of statement for you, and then tell me the **one number** in each item that best describes the way you have been feeling during the **past two weeks including today**.

Over the last 2 weeks, how Often have you been bothered by any of the following problems?					
S.No	Questions	Respondents possible answer			
142	Little interest or pleasure in doing things	Not at all	Several days	More than half the days	Nearly every day
143	Feeling down, depressed, or hopeless	0	1	2	3
144	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
145	Feeling tired or having little energy	0	1	2	3
146	Poor appetite or overeating	0	1	2	3
147	Feeling bad about yourself- or that you are a failure or have let yourself or your family down	0	1	2	3

148	Trouble concentrating on things, such as reading the newspaper or watching Television	0	1	2	3
149	Moving or speaking so slowly that other people could have noticed? Or the opposite- being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
150	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
151. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?					
Not difficult at all		Somewhat Difficult	Very difficult	Extremely difficult	

This is all what I want to ask you. Thank you for spending your time and valuable information you gave me. Do you have any question that I can address for you?

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# AMHARIC VERSION QUESTIONNAIRE

## 1.3. የአማርኛ መጠይቅ

የመረጃና የስምምነት ቅፅ

የመረጃ ስብሰባው ስም \_\_\_\_\_

የአባት ስም \_\_\_\_\_

የተጥያቄው መለያ ቁጥር \_\_\_\_\_

በፈልገ ሕይወት ራፈራል ሆስፒታል ለአዋቂ ተመላላሽ የስኳር ህመምን ታካሚዎች የድባቴ ስርጭት እና ተዛማጅነት ያላቸውን ችግሮችን ለማጥናት የተዘጋጀ ቃለ መጠይቃዊ ጥያቄ።

### ሀ. የጥናቱ መረጃ፡-

ጤና ይስጥልኝ፤ እንደምን አደሩ፣ እንደምን ዋሉ፣ እንደምን አመቹ [እንደአስፈላጊነቱ በመረጃ ስብሰባው ]።

ስሜ-----ይባላል። የመጣሁት በአዲስ አበባ ዩኒቨርሲቲ ህክምናና ጤና ሳይንስ ኮሌጅ የሁለተኛ ድግሪ ተማሪ በሆነው በተማሪ ተሻገው/ጊዮርጊስ እየተሰራ ባለው ጥናታዊ ፅሁፍ ዙሪያ በመረጃ ስብሰባነት ሲሆን በዛሬው ዕለት እዚህ የተገኘሁት ከስኳር ህመም ጋር ተያይዞ ድባቴን እና ተያያዥነት ያላቸውን ምክንያቶች በሚመለከት በሚደረገው ጥናት ዙሪያ መረጃ ለመሰብሰብ ነዉ። ይህ ጥያቄ የተዘጋጀው ለምርምር ስራ ሲሆን በአዲስ አበባ ዩኒቨርሲቲ በጥናትና ምርምር ኮሚቴ ተገምግሞ እንዳስፈላጊነቱ ግደፈት ካለበት እርማት ይደረግበታል።

በዚህ ጥናት በመሳተፍዎ የሚያገኙት ቀጥተኛ የሆነ ጥቅም የለሌ ቢሆንም ከዚህ ጥናት የሚገኘው ዉጤት በቀጥታ ማህበረሰቡን የሚጠቅም ሲሆን ለእርስዎ ደግሞ እርካታን እንደሚሰጥዎት ተስፋ አደርጋለሁ። ለዚህ ቃለ መጠይቅ የተመረጡት በዕጣ ወይም በዕድል ነዉ።ከጥናቱ የሚገኘው መረጃ ከላይ ከተጠቀሰው ዓላማ ዉጭ ለሌላ ተግባር የማይወልድ ሲሆን መረጃዉ በሙሉ በሚስጥር የሚጠበቅ መሆኑን ቃል እየገባሁ ለወደፊቱም ለሚፈልጉት የጤና አገልግሎት በስሆም ሆነ በመተሰብዎ ላይ ምንም ዓይነት ተጽእኖ እንደሌለው ልገልፅልዎት እንደምደቀው።ይህንንም ለማድረግ ከእኔ ጋር ወደ ግማሽ ሰዓት እንቆያለን። ይህ ጊዜዎትን የሚይዝ ቢሆንም መላውን የስኳር ህመምንን ሊጠቅም የሚችል የአገልግሎት ጥራት ማሻሻያ ለማድረግ የሚያግዝ በመሆኑ እንዲተባበሩኝ እጠይቅዎታለሁ።ለዚህ ጥናት መሳካት እርስዎ የሚሰጡት መረጃ ጉልህ አስተዋፅኦ አለው ። የተወሰኑ ደቂቃዎች ባንጋግርዎ ፈቃደኛ ነዎት?

ፈቃደኛ ነኝ  ፈቃደኛ አይደለሁም  አመሰግናለሁ!

**ለ. የፈቃደኝነት ማረጋገጫ ቅጽ**

የምርምር ጥናቱ ክፍል የሆኑ መረጃዎችና ሂደቶች ተብራርተውልኛል። እኔም በተብራራልኝ መንገድ ተረድቻለሁ። ምርምሩ ምንም አደጋ የማያስከትል መሆኑን እና ለማድረገው ተሳትፎ ክፍያ አለመኖሩንም አውቄአለው። ስለዚህ በዚህ የምርምር ጥናቱ ላይ ለመሳተፍ ፈቃደኛ መሆኔን በፊርማዬ አረጋግጣለሁ።

ፊርማ -----

ቀን -----

ከአዋቂ ተመላላሽ የስኳር ህመምን ታካሚዎች መካከል የድባቴ እና ተዛማጅ ችግሮችን ለማጥናት የተዘጋጀ ቃለ መጠይቅ።

ክፍል አንድ: ማህበራዊና ስነምግባራዊ መረጃዎችን በተመለከተ የተዘጋጀ ቃለ መጠይቅ			
ተ.ቁ	ጥያቄ	አማራጭ መልሶች	መ.ቁ.
101	እድሜዎት ስንት ነው?	_____ ዓመት	
102	ጾታ	1. ወንድ 2. ሴት	
103	መኖሪያ ቦታ	1. ከተማ 2. ገጠር	
104	የጋብቻ ሁኔታዎስ ?	1. ያላገባ/ች	
		2. ያገባ/ች	
		3. የፈታ/ች	
		4. የሞተበት/ባት	
		5. ተለያይተው የሚኖሩ	
105	መደናኛ የትምህርት ደረጃዎ ስንት ነው ?	1. ማንበብም ሆነ መጻፍ አልችልም	
		2. ማንበብና መጻፍ እችላለሁ	
		3. አንደኛ ደረጃ ያጠናቅቀ (1-8)	
		4. ሁለተኛ ደረጃ ያጠናቅቀ (9-12)	
		5. ኮሌጅ/ዩኒቨርሲቲ ያጠናቅቀ	
106	ከሚከተሉት የስራዎች መደቦች የትኛው እስከምን ይገልጣል?	1. ገበሬ/የቤት እመቤት/	
		2. የመንግስት ተቀጣሪ	
		3. የግል ተቀጣሪ	
		4. ነጋዴ	
		5. ሌላ (ይጥቀሱ)-----	
107	አማካይ የወር ገቢዎ ስንት ነው /በኢትዮጵያ ብር/?	_____ ብር	
ክፍል ሁለት. የስኳር ህመም ዓይነት እና የህመሙ የህክምና ጠባይ ላይ የተመሠረተ መገምገሚያ ቃለ መጠይቅ			
108	በስንት ዓመትዎ ነው በኪም የስኳር ህመምተኛ መሆንዎ የተነገረጋገጠው?	በ _____ ዓመቱ ነው	
109	በኪም የስኳር ህመምተኛ መሆንዎ ከተነገረጋገጠ ስንት ዓመትዎ ነው?	_____ ዓመት	
110	የስክር መድኃኒትን መጠቀም ከጀመሩ ስንት ዓመት ሁነዎታል? (በቁጥር)	_____ ዓመት	
111	በዶክተር የተነግረዎ የስኳር ህመም የትኛው ዓይነት ነው?	1. ዓይነት አንድ	
		2. ዓይነት ሁለት	
112	ባሳለፍነው ወር በነበርዎት የህክምና ቀጠሮ ምግብ ከሙብላቶ 8 ሰዓት በፊት የደምዎን ስኳር መጠን ተለክተው ነበር?	1. አዎ	
		2. የለም	
113	ለተራ ቁጥር 112 አዎ ከሆነ መልስዎ ስንት ነበር( በቁጥር)	_____ ሚ.ግ/ዲ.ሊ.	
114	ለስክር ህክምና ስንት መድኃኒቶች ይጠቀማሉ? (በቁጥር)	_____	
115	ምን ዓይነት የስኳር መድኃኒት ይጠቀማሉ?	1. ነጣላ ኢንሱሊን	
		2. የተጣመረ ኢንሱሊን	
		3. ኢንሱሊንና በአፍ የሚዋጥ ክኒን	
		4. በአፍ የሚዋጥ ክኒን	

		5. ሌላ ይገለጥ-----	
116	መድኃኒቶቹን እንዴት ያገኛሉ?	1. በነጻ 2. በግዥ	
117	ለስኳር ህመም የታዘዘልዎትን መድሀኒት በአግባቡ ይወስዳሉ ?	1. አዎ 2. አልዎስድም	
118	ለተራ ቁጥር 117 በአግባቡ አልወስድም ከሆነ መልስዎ ምክንያቱ ምንድን ነው?	1. የምገዛበት ገንዘብ ስለሌለኝ	
		2. የመድሀኒቱን የጎንዮሽ ችግር	
		3. ኢንፎክሽን ስለምፈራ	
		4. ተሽሎኛል ብዬ ስለማስብ	
		5. ሌላ ካለ ይጥቀሱ.....	
119	በቀጠሮ ሰዓት(ጊዜ) ስለ ስከር መድኃኒት የአጠቃቀምና የአወሳሰድ ሂደት (ክህሎት) በቁና አስፈላጊ መረጃ ያገኛሉ?	1. አዎ 2. የለም	
120	ለተራ ቁጥር 119 መልስዎ አዎ ከሆነ በይበልጥ ከማን ያገኛሉ?	1. ከሀኪሞች	
		2. ከነርሶች	
		3. ሌላ (ይጥቀስ)	
121	በሀኪም ከስኳር ሌላ ተጨማሪ በሽታ እንዳለብዎ ተነግሮዎታል?	1. አዎ	
		2. አልተነገረኝም	
122	ለተራ ቁጥር 121 አዎ ከሆነ መልስዎ ስንት ናቸው? (በቁጥር)	-----	
123	ለተራ ቁጥር121አዎ ከሆነ መልስዎ ከተዘረዘሩት ውስጥ የትኛቹ ናቸው? (ከአንድ በላይ መልስ ይቻላል)	1. የልብና ደም ስር ህመም	
		2. የሥርዓተ ትንፈሳ ህመም	
		3. የኩላሊት ህመም	
		4. የሥርዓተ ነርቭ ህመም	
		5. ሌላ ይገለጽ.....	
124	በስኳር በሽታው ምክንያት በሌላ ተጠያቂ በሽታ እንደተጠቁ በሀኪም ተነግሮዎታለ?	1. አዎ	
		2. አልተነገረኝም	
125	ለተራ ቁጥር124 አዎ ከሆነ መልስዎ ከሚከተሉት ውስጥ የትኛው ነው በስኳር በሽታው ምክንያት የተከሰተው?(ከአንድ በላይ መልስ ይቻላል)	1. የዐይን በሽታ	
		2. የኩላሊት በሽታ	
		3. የነርቭ በሽታ	
		4. የግብረ ሥጋ ግንኙነት ችግር	
		5. ሌላ ይገለጽ.....	
126	ጤንነትዎን ለማሻሻል የአካል እንቅስቃሴ ይሠራሉ?	1. አዎ እሠራለሁ	
		2. አልሠራም	
127	ለተራ ቁጥር 126 አልሠራም ከሆነ መልስዎ እንቅስቃሴ ለመስራት የጤና ጉድለት /አካል ስንኩልነት/አለብዎት?	1. አዎ	
		2. የለብኝም	
128	ለስኳር በሽታው ከሚሰጥዎት በተጨማሪ ሌላ በሽታ የሚወስዱት ክንን አለ?	1. አዎ	
		2. የለም	
129	ለተራ ቁጥር 128 አዎ ከሆነ መልስዎ በቀን ምን ያህል ክንን ይወስዳሉ?(በቁጥር)	-----	

ክፍል ሦስት፡ የሰነድ ሕመምተኛው ስለሚያገኙት ድጋፍ መለኪያ ቃለ መጠይቅ፡-

የሚከተሉትን ሦስት ጥያቄዎች የምጠይቀው ከሰዎች ጋር ያልዎትን ማህበራዊ ግንኙነት እና በቅርብ የሚቀራረቡትን ሰው ግልጭ የተግባብ ልምድ ነው።

ተ.ቁ	መጠይቅ	አማራጭ መልሶች				
		የሉም	1 ወይም 2	ከ3-5	ከ5 በላይ	
130	በጣም የሚቀርቡ እና በችግር ጊዜ የሚደርሱልህ ሰዎች ስንት ይሆናሉ?	1	2	3	4	
		1	2	3	4	5
	በሚያከናውናቸው ነገሮች ሰዎች የሚያሳዩት ትኩረትና ፍላጎት?	ምንም ትኩረትና ፍላጎት	በጣም ትንሽ ትኩረትና ፍላጎት	አላውቀውም	ትንሽ ትኩረትና ፍላጎት	ብዙ ትኩረትና ፍላጎት
		1	2	3	4	5
131	ከጉረቤቶቻቸው እርዳታ በሚፈልጉበት ሰዓት የማግኘት አጋጣሚ?	በጣም ከባድ	ከባድ	መጠነኛ	ቀላል	በጣም ቀላል
		1	2	3	4	5

ክፍል አራት፡- ከሰነድ ሕመም ጋር ተያይዘው የሚከሰቱ ችግሮችን በተመለከተ የሰነድ ሕመምተኞችን ስጋት ለመገምገም የተዘጋጀ ቃለ መጠይቅ፡፡

ይህ መጠይቅ የተዘጋጀው ስለ ሕመም ያለዎት ስሜት፣ ግንዛቤና ያሳደረብዎትን ተጽእኖ በተለይ ለብዙ ጊዜ በመቆየቱና እድሜ ልክ በመሆኑ ነው። አባክዎን የሚከተሉት ቃለ መጠይቆች በይበልጥ እርስዎን የሚሰማዎትን በታማኝነት ይመልሱ ።

ተ.ቁ	መጠይቅ	አማራጭ መልሶች				ህመም
		በጣም	በመጠኑ	በጥቂቱ	በጭራሽ	
132	የሰነድ በሽታ የሚያመጣው ዘላቂ ችግሩ ያስፈራኛል	1	2	3	4	
133	የሰነድ በሽታ በእግራ ላይ ችግር ያስከትብኛል ብዬ እጨነቃለሁ/እሰጋለሁ/	1	2	3	4	
134	ከዕለታት አንድ ቀን ለኩላሊት ንቅለ ተክለ እጋለጣለሁ ብዬ እሰጋለሁ	1	2	3	4	
		ሁል ጊዜ	በተደጋጋሚ	አልፎ አልፎ	በጭራሽ	
135	በሰነድ በሽታ ምክንያት የዓይኔን ብረሃን አጣለው በማለት እጨነቃለሁ	1	2	3	4	
136	የሰነድ በሽታኛ በመሆኔ ለልብና ለደም ስር በሽተኛ የመሆን እድሌን ይጨምረዋል/ያባብሰዋል/ በማለት እጨነቃለሁ ።	1	2	3	4	
137	በተደጋጋሚ የደም ስኳል መጠን ከፍ ስሚል ለዘላቂ ችግር ይዳርገኛል ብዬ እጨነቃለሁ	1	2	3	4	
138	ከዕለታት አንድ ቀን በኩላሊቴ ላይ ችግር ያመጣል እያልኩ አሰባለሁ (እጨነቃለሁ)	1	2	3	4	
139	ለጭንቅላት ደም መፍሰስ እጋለጣለው በማለት እጨነቃለሁ	1	2	3	4	

		በጭራሽ	አልፎ አልፎ	በተከታታ	ሁል ጊዜ	
140	ለወደፊት ጤንነት ይጨነቃሉ/የሚያጋዎ ነገር አለ?	1	2	3	4	
141	የደም ስኳር መጠን አለመስተካከል ለችግር እጋለጣለው ብለው ያስባሉ/ይጨነቃሉ/?	1	2	3	4	

**ክፍል አምስት፡-የድባቱ ስርጭትን በስኳር ህመምተኞች ላይ መኖሩን ለመለየት የተዘጋጀ ቃለ መጠይቅ (የማህበረ-ሰብ ጤና ቃለ መጠይቅ-9) :-**

ይህ ቃለ መጠይቅ ዘጠኝ ጥያቄዎችን የያዘ ነው። አባክዎን የማነበውን እያንዳንዱን በጥሞና ያድምጡ እና በላፉት ሁለት ሳምታት በይበልጥ እርስዎን የሚሰማዎትን ይመልሱ።

142	ነገሮችን ሲሰሩ ፍላጎትዎ ወይም የሚያገኙት ደስታ በጣም ትንሽ(እምብዛብ)ነበር?	በፍፁም	ከሰባት ቀናት ያነሰ	ከሰባት ቀናት በላይ	ከሞላ ጎደል በየቀኑ
143	የትኩዜ፣ የበታችነት፣ የጭንቀት፣ የመደበር ወይም ተስፋ የመቁረጥ ስሜት ነበረብዎት?	0	1	2	3
144	እንቅልፍ የመተኛት፣ ተኝቶ የመቆየት ችግር ወይም ከመጠን በላይ የመተኛት ችግር ነበረብዎት?	0	1	2	3
145	ድካም የመሰማት ወይም አቅም የማይሰጥ ሁኔታ ነበረብዎት?	0	1	2	3
146	የምግብ ፍላጎት አለመኖር ወይም በጣም ብዙ የመብላት ችግር ነበረብዎት?	0	1	2	3
147	ስለራስዎ መጥፎ ስሜት ተሰምቶት ወይም አልተሳካልኝም ብለው አስበው ፤ ወይም ቤተሰብን አሳፈርኩ ብለው አስበው ነበር?	0	1	2	3
148	ነገሮች ላይ ሀሳብዎትን መሰብሰብ ወይም ልብ የማለት ችግር ነበረብዎት፤ ለምሳሌ ጋዜጣ ሲያነቡ ወይም ቴሌቪዥን ሲመለከቱ?	0	1	2	3
149	ከተለመደው ውጭ እረፍት የማጣት፣ ወዲያ ወዲህ የማለት ወይም በተቃራኒው ሌሎች ሰዎች ሊገነዘቡት በሚችል ሁኔታ ቀስ ብሎ የመናገር ወይም የመንቀሳቀስ ችግር ነበረብዎት?	0	1	2	3
150	ብሞት ይሻላል ወይም እራሴን በሆነ መንገድ ብንዳ ይሻላል ብለው ያሰቡበት ጊዜ ነበር?	0	1	2	3
ጠቅላላ ድምር=_____					
ከላይ የጠቀስናቸው ችግሮች አጋጥሞዎት ከነበሩ፤ ችግሮቹ ስራዎትን እንዳይሰሩ የቤተ ሰብዎት ኃላፊነት እንዳይዎጡ፤ እራስዎን ለመጠበቅ ወይም ከልሎች ሰዎች ጋር ባለዎት ግንኙነት ለእርስዎ ምን ያህል አስቸጋሪ(አዳገች )ነበሩ?		ምንም ችግር አልፈጠሩም	በመጠኑ ችግር ፈጥረዋል	በጣም ተቸግያለው	እጅግ በጣም ተቸግያለው
		0	1	2	3

ስለ ትብብርዎ ፤ ውድ ጊዜዎን እና የምጠቅመኝን መረጃም በበቂ ሁኔታ ስለሰጡኝ በጣም አመሰግናለሁ። ያልዳሰስኩት ሌላ የሚጠይቁኝ ጥያቄ አለዎት? \_\_\_\_\_ ::

## DECLARATION

I, the undersigned, declared that this thesis is my original work and has not been presented for a degree in this or any other university and all source materials used for the thesis has been fully acknowledged.

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