



CAREGIVERS' BURDEN AND ASSOCIATED FACTORS AMONG
PATIENT WITH SCHIZOPHRENIA AND DIABETES MELLITUS IN JIMMA
UNIVERSITY MEDICAL CENTER, JIMMA, SOUTH WEST ETHIOPIA

By Menen Amare

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JIMMA, ETHIOPIA

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BY Menen Amare (BSc)

ADVISORS:

Dr. Elias Tesfaye (MD, Assistance Professor)

Mr. Yemenu Yitayih (BSc, MSc in ICCMH)

Mr. Yonas Tesfaye (BSc, MSc in ICCMH)

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Abstract

Background: - Caregiver burden is the physical, psychological or emotional, social, and financial problems caused due to caring for a chronically ill or impaired family member. A better understanding of the burden felt by caregivers and their subjective view as to the problem will be one input to develop practical, appropriate, and acceptable interventions for caregivers, and to improve the training of professionals working with schizophrenia and diabetes mellitus (DM).

Objective: To compare the magnitude of caregiver burden and associated factors among caregivers of patients with schizophrenia and diabetic mellitus attending Jimma University medical center, south west Ethiopia, 2019.

Methods: -Institutional based comparative cross-sectional study design was employed. Data was collected using the family burden interview schedule from April 15 to June 7, 2019 from a total of 292 consecutively selected participants. Bivariate analysis using Pearson's correlation, ANOVA and independent *t* – test was used and multiple Linear regression analysis was carried out. Statistical significance was considered at *p*-values less than 0.05.

Results: - Caregiver burden among caregivers of patients with schizophrenia was 20.09 ± 9.751 and among DM caregivers was 12.08 ± 5.824 . Quality of life of the caregiver [$\beta = -0.106$, $p < 0.01$ among schizophrenia and $\beta = -0.071$, $p < 0.01$ for DM], coping strength [$\beta = -0.193$, $p < 0.05$ among schizophrenia, $\beta = -0.185$, $p < 0.05$ among DM caregivers], stigma towards the caregiver [$\beta = 0.292$, $p < 0.05$ among schizophrenia and $\beta = 0.240$, $p < 0.01$ among DM caregiver] and low level of medication adherence [$\beta = 3.971$, $p < 0.05$ among schizophrenia and $\beta = 5.290$, $p < 0.01$ among DM] were predictors of caregiver burden in both groups. Number of family members who accompany the key caregiver [$\beta = -0.908$, $p < 0.05$] was a predictor for caregiver burden among caregivers of patients with schizophrenia. Strong social support [$\beta = -3.017$, $p < 0.001$] and patient having moderate and severe level of limitation of activity of daily living [$\beta = 3.602$, $P < 0.05$ and $\beta = 4.201$, $p < 0.05$] were associated with caregiver burden among DM caregivers.

Conclusion and recommendation: - Caregivers of patients with schizophrenia face higher burdened than caregivers of patients with DM. Screening for burden and its effect on mental and physical health is a better way to manage the consequences.

Key words: Caregiver burden, schizophrenia, DM, JUMC

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Abbreviation /Acronyms

ADL	Activity of Daily Living
ANOVA	Analysis of Variance
CBI	Caregiver burden inventory
CI	Confidence interval
DB	Demand burden
DM	Diabetes Mellitus
FBIS	Family Burden Interview Schedule
ICCMH	Integrated Clinical and Community Mental Health
JU	Jimma University
JUMC	Jimma university medical center
OB	Objective burden
OPD	Out Patient Department
QoL	Quality of Life
SB	Subjective burden
SD	Standard Deviation
WHO	World Health Organization
ZBI	Zarit Burden Interview

1. Introduction

1.1 Background of the study

Chronic illness are illnesses which have a long term effect, usually lasting more than 1 year and do not have a cure(1). Diabetes mellitus (DM) is one of the chronic endocrine disease associated with abnormally high levels of glucose in the blood (2). Schizophrenia is a severe mental illness, characterized by profound disruptions in thought affecting language, perception, and the sense of self (3). Both conditions can reduce level of functioning in major areas of life (4).

Caregiver is a relative, friend or neighbour who provides practical, day-to-day support for a person who is unable to complete all of the tasks of daily living (5). Caregivers have a major impact on the quality of life of people with long-term conditions (6). Caregiving task affects the financial, leisure time, family routines, social interactions, emotional, physical and mental health domains of the caregiver (7–9).

Caregiver burden is the physical, emotional, social, and economic problems that can be experienced by family members caring for a chronically ill or impaired family member(10). Caregiver burden is dichotomized in to subjective burden (SB) and objective burden (OB). Subjective burden referred to feelings aroused in caregivers as they fulfilled their caregiving functions. Objective burden referred to the events and activities associated with negative caregiving experiences (10,11).

Caregivers provide care for the chronically ill in assisting with activity of daily living (ADL), giving medication and taking to the health care facility during appointments, assisting in moving around with support or a wheelchair(12), supervisions for the chronically ill who might harm themselves, others or even get lost and support emotionally in times of pain and stress(13). The families of mentally ill are required not only to provide physical and emotional support, but also to face the consequences of stigma and discrimination present in all parts of the world(14).

Caregiving relationship is a balance between cost and benefit. Higher cost with little benefit gives frustrations and burden (15) leading to physical, mental, and economic costs(16). Caregiver stress is caused by an increased stress hormone level for an extended period of time (17). The negative health effects may be due to poor health behaviours (less physical activity, sleep, and rest) of the caregivers (18).

1.2 Statement of the problem

The onset and progression of chronic illness is stressful for both patient and caregiver (19). In the developed countries caregiving is mainly provided by professionals, while in developing countries the family is expected to provide most of the required care(20). The participation of the government in providing institutional long term care has been reduced, persuading informal caregivers for this work has become a key strategy in maintaining healthcare system sustainability worldwide(21).

Current medical policy encourages short-term hospital stay and promotes community care for patients with chronic conditions (22). The currently available policies of support for caregivers in Canada are provide caregivers with some free time, help them to deal emotionally with caregiving, and provide them skills to both improve the care situation and to deal with it better(20). In Australian policy, caregivers are viewed as ‘resources’ and are ‘invisible’(23).

Both caregivers of DM and schizophrenia feel stressed in caring for the relatives with illness(24,25). The 2012 World Health Organization (WHO) World Mental Health (WMH) surveys report showed, the prevalence of burden among family caregivers of people with long term conditions in 19 different countries is 39.0-39.6%(13). A report from 22 different countries showed half of the family caregivers of patients with severe mental illness face burden on diverse life domains. Six percent of them face burden in emotional, social, financial, physical and relational burden and 11% experience burden in four of the five life domains(8). In Africa, the magnitude of burden among caregivers of schizophrenia range from 40.98% in Nigeria to 84% in Eritrea(26–31). In Saudi Arabia, 34% of caregivers DM face severe burden while 48% face mild to severe burden (32). The magnitude of caregiver burden among bipolar patents is higher than diabetic, hypertensive and asthmatic also sick controls in the community in Ethiopia(33).

Caregiving can lead to serious physical and mental health problems in 18.9-40.3%(13,29,34–37). Providing care increases the mortality risk of care givers by 63% (38). Quality of life (QoL) for caregivers who take care of mentally ill is significantly lower than that of caregivers who take care of physically ill(39). Poor social support and stigma are also other consequence of caregiving (36,40). Economic burden of caregiving is also very much high. The cost of mental illness on caregivers range from 0.01 to 160 United States dollars in sub Saharan African countries(40) and

range from 70 to 3,500 Birr per week in Jimma town (41). Women are more affected than men and adults older than 18 years of age face more burden (42).

In the developed world, the activities done to reduce caregiver burden are conducting family meetings and support groups, psycho education, and referral for concrete resources (e.g. financial, medications, short term rest, etc.) teaching basic relaxation techniques, massage, or a referral to psychotherapy were tried with relatively good outcome (43).

Caregivers have a major impact on the quality of life of people with chronic illnesses (6). The well-being of patients and their close family members is closely intertwined, that supporting the caregiver's health will positively affect the health of the patient, and vice versa (44).

As to our knowledge, there are no documented policies and implementations regarding caregiver burden in Ethiopia. Additionally, there is no sufficient date to force the policy makers and other responsible body to develop a policy and implementation directions.

1.3 Significance of the study

Caregivers bear the weight of caring for those patients who need closer attention, lifelong follow up, yet are given little or no attention in the health care system. This research will assess the burden of care on caregivers, thereby providing evidence to push the health care system to give the caregivers some attention as they might be at risk of developing physical and mental distress. As to the knowledge of the investigator and search, there are no researches done on the study setting with comparative design. Thus, the finding of this research will be used as a baseline data for next researchers, policy makers and academic purpose.

A better understanding of the burden felt by caregivers and their subjective view as to the problem will be one input to develop practical, appropriate, and acceptable interventions for caregivers, and to improve the training of professionals working with schizophrenia and DM. In conducting this research, the results might be helpful in alarming the healthcare professionals, governmental and non-governmental organizations and other sectors which are involved in patient care about the effect of schizophrenia and DM on the families. After this research is completed, health care professionals will be given the information to be aware of the need for screening for any signs of stress among caregivers of patients with chronic conditions.

2. Literature review

2.1 Over view of caregiver burden

The term 'Caregiver burden' is multi-dimensional concept and for this reason there is no singular definition of the concept (45). In the late 1970s the Social Development Council (SDC) in New Zealand defines families with special caregiving responsibilities as "those whose households include people requiring more than usual assistance and attention from others. They include families giving care for the aged; the physically disabled; the chronically ill; the intellectually handicapped; the mentally ill; and the emotionally disturbed (5).

The concept of family burden was first introduced into the literature by Grad and Sainsbury in 1966. They defined burden as any cost (negative consequences) to the family of which the patient is a member (10). Later on, George and Gwyther in 1986 defined 'caregiver burden' as encompassing the physical, psychological, emotional, social and financial stresses that individuals experience due to providing care (32,6).

Caregiver's stress and burden are related not only to the care recipient's symptoms and disease progression, but also to secondary stressors such as financial problems, work-related stressors, and the caregiver's personal health problems, as well as the broader context in which caregiving takes place (46).

2.2 Caregiver burden among caregivers of patients with schizophrenia

A comparative cross sectional study done in Italy in 2005 among 750 care givers of schizophrenia patient showed that, the mean level of OB was 2.0 ± 0.8 and the SB was 2.5 ± 0.6 (47).

Another comparative cross sectional study conducted in Italy to assess Caregiver's Burden and Quality of Life among 294 caregivers of physical and mental illness in 2014 showed that the mean score of the CBI was 27.8 ± 15.99 for mental illness caregivers (39).

A cross sectional study conducted in Denmark in 2001 among 158 caregivers of mental illness revealed that, the mean care giver burden as measured by the Caregiver Strain Index (CSI) was 7.81 ± 3.02 (48).

A cross sectional study done in Chile among family members of schizophrenia to assess objective and subjective burden with a sample size of 65 in the year 2016 found that the overall mean

caregiver burden score was 62.4 ± 19.3 as measured by the subjective and objective family burden interview (SOFBI-II)(49).

In a community based descriptive cross sectional study conducted in Diyarbakir, Turkey among chronic illness patient using the Zarit caregiving burden scale (ZCGBS) with a sample size of 320 primary caregivers the caregiver burden of primary caregivers was 41.37 ± 14.21 (50).

In a cross sectional research conducted in rural part of China among 327 caregivers of schizophrenia in 2017, the mean score of FBIS was 23.62 ± 9.76 (51).

A cross sectional study conducted in Brazil among 109 family caregivers of patients with schizophrenia in the year 2017 found that the mean value of caregiver burden was 27.66 ± 14.53 (52).

A comparative cross sectional study done in India to compare caregiver burden in psychiatric and chronic medical illness in 2012 with 50 caregivers showed that, the OB among psychiatric caregivers was 21.8 ± 3.974 , SB was 15.40 ± 3.356 and the DB was 12.86 ± 3.375 (53).

A cross sectional research done in India among caregivers of patient with schizophrenia in a sample consisting 100 patients and their caregivers using Involvement Evaluation Questionnaire (IEQ) the mean score of burden was 45.73 ± 20.43 (54).

A comparative cross sectional study done in 2017 on family burden and quality of life between caregivers of schizophrenia and dementia patients conducted in India, Cuttack using a sample size of 64 found that burden of care among schizophrenia patient caregivers was 5.04 ± 2.84 on financial burden, 3.25 ± 2.37 on disruption of family routine activities, 1.57 ± 1.45 on disruption of family leisure, and 1.76 ± 1.55 on disruption of family interaction respectively. On the SB domain, nearly three quarters (73.4%) of those caring for schizophrenia patients had a perception of the caregiving as little(55).

A research done in India among caregivers of schizophrenia and depression patient caregivers revealed that the mean scores of FBIS among schizophrenia caregivers was 29.96. The subjective score was 88(56).

A research done in Taiwan to explore the burden of the primary family caregivers of schizophrenia patients in 2008 with a sample size of 126 found that the caregiver burden scores was 25.9 ± 10.7 (57).

A cross sectional research done in Malaysia among 201 caregivers of individuals with severe mental illness in 2016 showed the average score for the CBI was 30.7 (SD ± 20.3)(58).

A cross sectional study done in Nigeria in the year 2011 among 338 caregivers of people with mental illness found that the mean score of ZBCS was 42.85 ± 19.31 (26). Another study done in Nigeria among 181 family caregivers of patients with schizophrenia in 2013 revealed that the mean score of the ZBI was 40.98 ± 16.7 (59).

A cross sectional research done in Eritrea among 146 families of persons living with schizophrenia in 2016 found that the total mean objective score was 29.47 ± 6.67 (31).

2.3 Caregiver burden among caregivers of patients with DM

A comparative cross sectional study done in Italy in 2005 to assess Family burden in schizophrenia vs. physical disorders with 134 caregivers of patients with DM found that the mean level of OB among DM patient caregivers was 1.8 ± 0.7 and the SB was 1.9 ± 0.7 (47).

Another comparative cross sectional study conducted in Italy to assess Caregiver's Burden and Quality of Life among 294 caregivers of physical and mental illness in 2014 showed that the mean score of the CBI was 26.44 ± 17.94 for physical disease caregivers (39).

A comparative cross sectional study conducted in Denmark in 2011 to assess the level of subjective burden among informal caregivers of mental illness and somatic illnesses with a sample size of 428 for somatic illness found that the mean burden of care as measured by the Caregiver Strain Index (CSI) for mental illness was 7.28 ± 3.54 (48).

As per a descriptive longitudinal research conducted in Portugal to assess Burden changes in caregivers of patients with type 2 diabetes in 2014/15 with a total participant of 84 showed that the mean level of burden was 42.09 ± 11.70 , 39.15 ± 12.29 and 36.2 ± 11.92 in the three times of assessment(60).

A study conducted in France, Germany and the UK which found that caregiver burden among patient with DM and Alzheimer's diseases was 30.8 ± 15.37 [95%CI= (28.603,32.99)] (61).

A comparative cross sectional study done in India to compare caregiver burden in psychiatric and chronic medical illness in 2012 with 50 caregivers showed that, the OB among chronic medical illness caregivers was 15.92 ± 3.522 , SB was 10.04 ± 3.181 and the DB was 7.10 ± 2.350 (53).

Another study done in India among caregivers of patients with type 1 DM and age less than 19 showed that the mean value of involvement evaluation questionnaire was 46.5 ± 13.5 (62).

A study conducted in Malaysia in 2015 among caregivers of patients with chronic illness showed that the mean value of CBI 13.0 ± 6.89 (63).

2.4 Factors affecting caregiver burden

Sociodemographic factors of the patient and the caregiver

In a comparative cross sectional study conducted in Denmark in 2001 to assess the level of subjective burden among informal caregivers of mental illness and somatic illnesses with a sample size of 158 for mental illness and 428 for somatic illness, being employed, living together with the care recipient, longer duration of caregiving, and being a parent or a child were significantly associated with higher level of burden. Higher level of health related quality of life was associated with lower level of burden (48).

A comparative study done in Italy among 709 caregivers of patients with schizophrenia and 646 caregivers of physical disorder in 2005 found that subjective burden was higher in parents and off springs, among relatives of younger patients and among relatives who were older and who had been living with the patient longer. The number of daily hours with the patient correlated with family burden in schizophrenia and brain diseases (47).

In a research conducted at inpatient psychiatric services of four different Swedish centres with a total sample of 375 found that relatives living with the patient scored higher on the burden score ($Z = -3.42$). longer duration of caregiving (20-39 year) was associated with experiencing of mental health problems and even longer duration of caregiving (> 40 years) was associated with fewer dimensions of burden (chi-square = 6.15)(64).

A cross sectional study conducted in Brazil among 109 family caregivers of patients with schizophrenia in the year 2017 found that the factors associated with caregiver burden are age, days of contact per week and not receiving help with caregiving(52).

According to a research done in Klang valley, Malaysia among using a sample size of 201 caregivers of patients with severe mental illness in 2017 found that gender explained 2.7% of the variance in the caregiver burden score. resilience explained an additional 11.1% variance(58).

A research done in India among caregivers of patient with schizophrenia in a sample consisting 100 patients and their caregivers found that those caregivers who spent more time with the patient, single (unmarried) caregivers, younger caregivers, lower income and non-nuclear family had significantly higher score on IEQ. Parents had significantly lower scores on all the domains than spouses(54).

In a comparative study of caregiver burden in psychiatric illness and chronic medical illness done in Andhra Pradesh, India in 2012, longer duration of caregiving was associated with increased caregiver burden(53).

In a community based descriptive cross sectional study conducted in Diyarbakir, Turkey among chronic illness patient with a sample size of 320 primary caregivers the family type was correlated with caregiver burden yielding living in a large family increases the burden of care(50).

As per a research conducted in Dalian, china among caregivers of patients on haemodialysis, there was a moderate correlation between caregiver age and care burden. Higher educational levels of caregivers were associated with lesser burden. Spouses, parents and adult children felt more stressful and burdened than other caregivers. Similarly, caregivers who still had job or spent less than 4 h per day in caregiving activities had less self-perceived burden than those who were without job or spent more than 12 h per day in caregiving. Less caregiver burden was found on patients with high annual income (more than 100 thousand yuan) compared to patients with low annual income. The burden in caregivers for patients who paid less than one thousand yuan a month in medical expense was lower than the burden in caregivers for patients who paid more(65).

The Chinese caregivers of schizophrenia patients listed that the factors that were significantly associated with increased family burden were: Patient having more admissions, caregiver being

female, patient being unmarried, patient having middle school education and caregiver being parents were associated with increased caregiver burden while higher care network function increasing patient age, caregiver having high school education, and higher family function were associated with a decreased family burden(51).

According to a cross sectional study done in Cape town, South Africa, in a year 2018, with 200 participants, increased caregiver burden was associated with older age, being female and having lower income. Caregiver burden tends to decrease among those who have formal education, work longer hour and have a family support (66).

In a research conducted in Nigeria with 181 family caregivers of schizophrenia in 2013, longer duration of the illness, being spouse or parent, being female, unemployment, lower educational status and increased age of the caregiver were associated with increased burden and increased family size and increased hours of contact decreased caregiver burden (59).

Quality of life: - Quality of caregivers was negatively correlated with the burden of care among caregivers of schizophrenia in a comparative cross sectional study conducted in India, Cuttack in the year 2017 using a sample size of 64(55).

A research done in India among caregivers of patient with schizophrenia in a sample consisting 100 patients and their caregivers found that there was a significant negative correlation with the WHOQOL Brief score and IEQ. Parents had significantly lower scores on all the domains than spouses(54).

Coping mechanism: - In a research done in Ankara, turkey in 2019 with 103 participants revealed that problem-focused coping and indirect coping were associated with caregiver burden (67).

Limitation of activity of daily living: - A research done in Japan in the year 2009 among 30 caregivers and patients with mental illness, the results of the study revealed that patients' satisfaction with daily life and ability to perform tasks had a strong impact on the sense of burden felt by the caregivers(68). Higher patient function was associated with a decreased family burden in a research done in China among family caregivers of schizophrenia (51). A research done in Nigeria among primary caregivers of people with mental illness stated that Caregivers burden is independently associated with patients' poor functioning(26).

Medication adherence: - In a study conducted in India among caregivers of mentally ill in the year 2017 with a sample size of 100 caregivers showed that the role strain component of the ZBI had a statistically significant positive association with the MMAS (57). A comparative study done in Ghana to assess psychological burden and caregiver-reported non-adherence to psychotropic medications among patients with schizophrenia in 2018 by 422 participants showed that caregiver burden was associated with patient non-adherence. Also, an increase in burden leads to an increase in the odds of non-adherence (69).

Social support: - A comparative study done in Italy among 709 caregivers of patients with schizophrenia and 646 caregivers of physical disorder in 2005 found that objective and subjective burden were significantly higher among relatives who reported lower support from their social network and professionals(47). In a community based descriptive cross sectional study conducted in Diyarbakir, Turkey among chronic illness patient using the Zarit caregiving burden scale (ZCGBS) with a sample size of 320 primary caregivers having a social support had significant association with caregiver burden, higher social support reducing caregiver burden(50). In another Chinese research, the correlation analysis showed that the ZBI scores were negatively correlated with social support and monthly income. The identified significant factors could explain nearly 56% of the variance in the caregiver burden(70). In a research done in Nigeria, poor social support was associated with increased burden(59).

Stigma: - as per a research conducted in Monterrey, Mexico among 60 family caregivers of Alzheimer disease patients in the year 2015, caregiver burden increase with increase in stigma (71). Another study done in Addis Ababa showed that there was a significant relationship between caregiver burden and stigma towards the caregiver (72). Additionally a study conducted in Jimma showed that stigma towards the caregiver is a positive predictor of caregiver burden (73).

2.5 Conceptual frame work

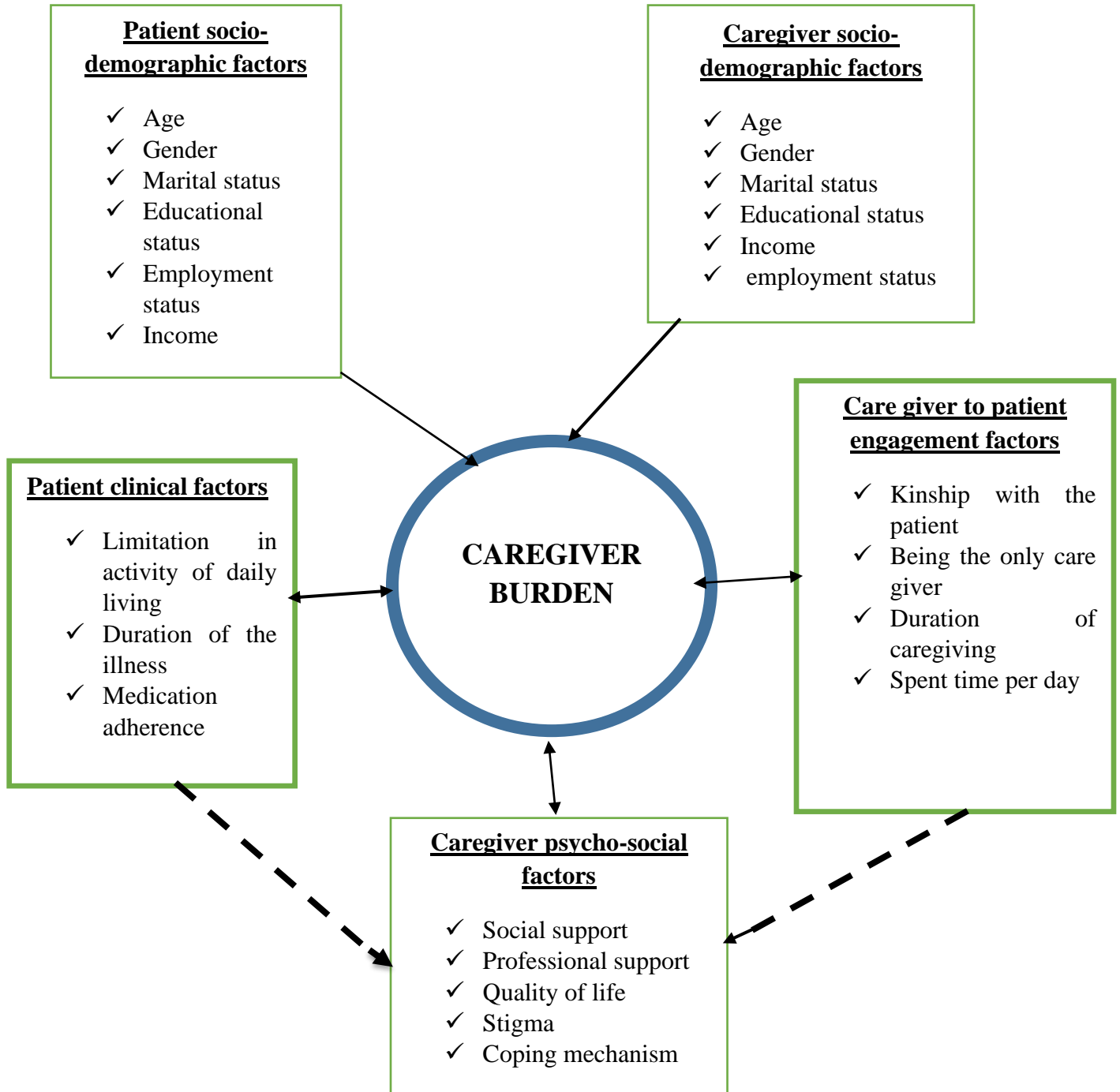


Figure 1 Conceptual frame work on family caregiver burden among schizophrenia patient caregivers, 2019(26,47,48,50-59,64-73)

3. Objective and hypothesis

3.1 General objective

- To compare magnitude of family caregiver burden and associated factors among caregivers of patients with schizophrenia and DM attending JUMC, south west Ethiopia, 2019.

3.2 Specific objectives

- To compare the magnitude of family caregiver burden among caregivers of patients with schizophrenia and DM attendants in JUMC, south west Ethiopia, 2019.
- To identify the factors associated with family caregiver burden among caregivers of patients with schizophrenia attending JUMC, south west Ethiopia, 2019.
- To identify the factors associated with family caregiver burden among caregivers of patients with DM attending JUMC, south west Ethiopia, 2019.

3.3 Hypothesis

After reviewing different articles, the formulated hypothesis is

H₀: The mean of caregiver burden is equal among caregivers of patients with schizophrenia and DM.

H₁: The mean of caregiver burden is different among caregivers of patients with schizophrenia and caregivers of patients with DM

4. Methods and materials

4.1 Study area and period

The study was conducted at Jimma University medical center (JUMC) chronic illness follow up clinic and psychiatry follow up clinic from April 15 to June 7, 2019. JUMC is located in Jimma town, 350 KM far away from Addis Ababa, capital city of Ethiopia in the Southwestern direction. It is one of the biggest health institutions in the country. The hospital provides service for over 15 million people and 160,000 outpatients with 1600 staff members, 32 intensive care units and 800 beds (74). The health and management information system data showed that, in the month December 2018, a total of 682 DM patients had visited the chronic clinic. The number of psychiatric patients with schizophrenia attending JUMC is around 455 per month. The hospital provides both inpatient and outpatient follow ups for both conditions.

4.2 Study design

Institutional based comparative cross-sectional study design was employed.

4.3 Population

4.3.1 Source population

All caregivers of patients with schizophrenia and DM who attend JUMC.

4.3.2 Study population

The sampled caregivers of patient with schizophrenia and DM attending in JUMC

4.4 Eligibility criteria

4.4.1 Inclusion criteria

Caregivers who live with the patient for more than a year

Caregivers of patients diagnosed with the illness for more than 1 year

4.4.2 Exclusion criteria

Caregivers who bring patients with acute stage of the illness

Caregivers who are less than 19 years of age

4.5 Study variables

4.5.1 Dependent variable

Caregiver burden

4.5.2 Independent variables

Patient socio-demographic factors

- ✓ Age
- ✓ Gender
- ✓ Marital status
- ✓ Educational status
- ✓ Employment status
- ✓ Income

Patient clinical factors

- ✓ Limitation in activity of daily living
- ✓ Medication adherence
- ✓ Duration of the illness

Caregiver socio-demographic factors

- ✓ Age
- ✓ Gender
- ✓ Marital status
- ✓ Educational status
- ✓ Income
- ✓ Employment status

Caregiver psycho-social factors

- ✓ Social support
- ✓ Professional support
- ✓ Quality of life
- ✓ Stigma
- ✓ Coping mechanism

Care giver to patient engagement factors

- ✓ Kinship with the patient
- ✓ Being the only care giver
- ✓ Duration of caregiving
- ✓ Spent time per day

4.6 Sample size determination and sampling technique

4.6.1 Sample size determination

Sample size was calculated using the G* power 3.1 statistical software with t-test to test difference between two independent means, with a ratio of the two groups being 1:1, with power of 90% taking a 95% confidence level and the effect size to be 0.4.

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 * (\sigma_1^2 + \sigma_2^2)}{d^2}$$

Where σ_1 = standard deviation of group one

σ_2 = standard deviation of group two

d = effect size

α = the level of significance

β = the probability of making type two mistake

Since there are no studies done in this area, M_1 as 0 and M_2 as 1 with a standard deviation as 0.5 for both groups was taken. The G* power result was **133** participants for each group. Adding 10 % non-response rate, the final sample size was **147** caregivers for each group, yielding a total sample size of **294**.

4.6.2 Sampling technique

Consecutive sampling method was used to select study participants who came with their fellow patients for both groups.

4.7 Operational definitions

Caregiver: a family member (has a blood relationship or is a spouse) who has been staying with the patient for more than a year and has been closely related with the patient's daily living activities, discussions, and gives care for a client with medical, physical or mental illness without any payment or pressure (75).

Key caregiver: a family member who is responsible for providing care to the index case most of the times on the day to day basis (76).

Caregiver burden: any negative or unwanted consequence to the family members caused by providing care for schizophrenia or DM member as measured by the scale of Family Burden Interview Schedule (FBIS) higher score of the objective burden indicating higher level burden of care (31).

Social support: any physical and psychological comfort provided by other people as measured by the Oslo social support scale- 3(OSS-3) score of 3-8 indicating poor support; 9-11 to show moderate support; and 12-14 strong support(77).

Stigma: - the degree to which caregivers dealt with negative attitudes from others because of their relatives' illness or a disability measured by the Modified Consumer Experiences of Stigma Questionnaire (MCESQ) higher value of the scale indicating stigma in the total score (78).

QoL: - the person's ability to enjoy normal life activities as measured by the Brunnsvikien Brief Quality of Life Scale (BBQ), higher value of the score indicating higher quality of life (79) .

Activity of daily living: - The ability to perform day to day activities as measured by katz index of daily living to say patient is independent when getting 6/6 points, partially dependent (3 – 5 points) and dependent (≤ 2 points)(80).

Medication adherence: - the extent to which a person's behaviour with regard to taking medication corresponds with agreed recommendations from a health care provider assessed by the Four-Item Morisky Green Levine Medication Adherence Scale with 0 indicating high level of adherence, 1 to 2 medium, 3 to 4 and low adherence (81).

Coping mechanism: - The cognitive, emotional, and behavioural methods of dealing with problems as measured by the coping scale higher scores of the tool indicate higher levels of coping (82).

4.8 Data collection tool and procedure

4.8.1 Data collection tool

Family burden interview schedule was used to assess the magnitude of caregiver burden which is developed by Shaila Pal and A. L. Kapur in 1981(7). This scale measures objective (24 items) and subjective (1 general standardized question) aspects of burden. Each item has three response categories including 0 (no burden), 1 (moderate burden) and 2 (severe burden). The total scores range from 0-48 for objective burden. Originally; reliability and validity was 0.90

and 0.7(7). The reliability ranges from 0.58-0.988 and validity ranges from 0.54 to 0.9 (83–85) in different countries. The tool was also used in Eritrean study with a Cronbach's alpha of 0.84 (31). In this study the Cronbach's alpha was 0.848.

The chart of the patients was reviewed to determine the diagnosis of the illness.

ADL of the patient was assessed by Katz index of independence in ADL. Katz index of ADL is a dichotomous (yes/no) scoring, 6 item index which assess the patients' independency in ADLs. A score of 6 indicates full function, 3-5 indicates moderate impairment, and 2 or less indicates severe functional impairment (86). Reliability was 0.974 (80). In the current study the Cronbach's alpha was 0.865.

Medication adherence was assessed by using Four-Item Morisky Green Levine Medication Adherence Scale which is a 4-item dichotomous scoring, questioner yielding 3 levels of medication adherence by giving 0 to the answer "no" and 1 to the answer "yes". This scale has shown moderate to high level of reliability and validity with the Sensitivity was 31.9%, Specificity 72.8% (87). The Cronbach's alpha was 0.801 in the current study.

The Oslo's 3 item social support scale, a 3-item question which assess social support was used to assess the social support. It is scored in a range from 3- 14, with 3 categories interpretation of the values; poor, moderate and strong. The reliability and validity score done in Nigeria yielding Cronbach's alpha coefficient of 0.50 and concurrent validity is low but significant (77). The internal consistency was 0.73 in this study.

The Modified Consumer Experiences of Stigma Questionnaire (MCESQ) which is a 9-item question rated from 1-5, one representing never and 5 representing very often was adopted to assess stigma towards the caregiver. The total score is from 9-45. Increased score of the scale indicates increased stigma. The average coefficient for internal consistency for the CESQ was 0.78 (78). In the current study the Cronbach's alpha was 0.744.

The coping mechanism was assessed by using the coping scale, a 13-item questioner with 4 possible answers given a score of 1 to 4, 4 being "Mostly true about me" and 1 being "Not true about me". The total score is minimum of 13 and maximum of 52. Higher score indicates higher level of coping. It has internal consistencies (coefficient alphas) of 0.91 and validity was established with strong correlations with other measures (82). The Cronbach's alpha was 0.863 in this study.

Caregiver's QoL was assessed by using The Brunnsviken Brief Quality of Life Scale (BBQ), a 12 questions scale which is scored with a 5 step Likert scale, scored from 0-4 zero being "I don't agree at all" and 4 being "I strongly agree". It has 6 items for satisfaction followed by 6 items for importance questions. It is computed by multiplying each satisfaction item with the corresponding importance item, and then adding the whole sum. The minimum score is 0 and the maximum is 96. Highest score indicates highest value. The reliability was 0.76 and had shown to be validated in congruent with other tools(79). The current Cronbach's alpha was 0.799.

4.8.2 Data collection procedure

Data was collected using a structured and pre tested tool by face to face interviewing the respondents. Data was collected by 4 junior psychiatry professionals and supervised by 1 supervisor with MSc in ICCMH. Data was collected from outpatient clinics for both groups. Key caregivers were selected in time of facing more than one caregiver for one patient.

4.8.3 Data quality control

The data collection tool was translated from English to Amaharic and Afan Oromo languages by 2 language experts of JU language department and then back to English by another language expert from JU English language department to ensure consistency. Training was given for data collectors and supervisor for 2 days duration. Pre-test was conducted in Shenenge hospital follow up clinic on 5% of the sample size among epilepsy patient caregivers before the main data collection to check the internal consistency of the data collection tool. The result of the pre-test was not included on the main data analysis. All the necessary modification on the translated version of the questioner were made and data collectors were guided on the questioner. Regular supervision by the supervisor who has MSc in ICCMH and the principal investigator was made to ensure that all necessary data are properly collected. Instruction sheet on how to ask certain questions and how to record answers was given for each data collector and supervisor. Codes were given on the chart of the patient to prevent re interviewing. Each day during data collection, filled questionnaires were checked for completeness and consistency by supervisors and principal investigator.

4.9 Data processing and analysis

The collected data was sorted (given number and code) separately for both comparative groups. Data was entered in to Epi data version 4.4.1 and exported to SPSS version 25. Assumption of linear regression were checked prior to analysis. Descriptive statistics was used to present descriptive data. Pearson's' correlation (r) was used to describe the association with continuous variables at $r > 0.3$. ANOVA and independent t-test were carried out to compare the mean difference between categorical variables and to compare the caregiver burden among schizophrenia and DM caregivers. Finally, multiple linear regression model was fitted to explain the variable. P – value less than 0.05 was used to declare statistical association.

4.10 Ethical consideration

Ethical clearance was obtained from Institutional Review Board (IRB) of JU; Institute of Health. Permission letter was then obtained from the Clinical director of JUMC and chronic illness follow up clinic and psychiatric clinic department heads. Then written informed consent was obtained from each caregiver. Care givers who were found to show some signs of mental illness were linked to JU psychiatric clinic. Caregivers who show some psychological distress were linked to clinical psychologists. Study participants were assured that no part of the information they gave will be used for any other purpose other than this research. Personal identifiers were not asked. Participants were also told that they have the right to withdraw from participation at any time if they feel uncomfortable.

5. Results

One hundred and forty-six participants from each group were involved giving a total response rate of 99.6%. Two questionnaires were removed because of incomplete information and inconsistency.

5.1 Socio demographic characteristics of the caregiver

The mean(\pm SD) age of caregivers of patients with schizophrenia was 41.08 ± 15.28 and the mean age of caregivers of DM patients was 36.08 ± 13.4 . Ninety-nine (67.8%) of the caregivers of patients with schizophrenia were males while 67 (45.9%) of the caregivers of patients with DM were male. Majority of the caregivers of patients with schizophrenia [97(66.4%)] and DM [107(71.2%)] were married. Caregivers of patients with schizophrenia were less educated than caregivers of patient with DM given 32(21.9%) of caregivers of patients with schizophrenia were unable to read and write while only 19 (13%) of the caregivers of patients with DM were unable to read and write. With regards to the occupation, 47 (32.2%) of the schizophrenia and 19 (13%) of the DM caregivers were farmers. The median (range) income of caregivers of patients with schizophrenia was 500(0-7500) and those of DM was 850(0-4547). On average caregivers of DM patients spent 7.6 ± 2.97 hours per day and the caregivers of schizophrenia patients spent 6.65 ± 3.35 hours per day [Table 1].

Table 1 Sociodemographic characteristics of caregivers of patients with schizophrenia and DM at JUMC, 2019

Variables	Categories	Schizophrenia		DM	
		Frequency (mean \pm SD)	Percent (%)	Frequency (mean \pm SD)	Percent (%)
Age		41.08 \pm 15.28		36.08 \pm 13.40	
Sex	Male	99	67.8	67	45.9
	Female	47	32.2	79	54.1
Marital status	Married	97	66.4	104	71.2
	Single	34	23.3	38	26.0
	Widowed	14	9.6	38	26.0
	Divorced	1	0.7	4	2.7
Religion	Muslim	109	74.7	61	41.8
	Orthodox Cristian	27	18.5	47	32.2
	Protestant	10	6.8	32	21.9
	Others ^R	0	0	6	4.1
Ethnicity	Oromo	110	75.3	85	58.2
	Amhara	10	6.8	44	30.1

	Tigre	4	2.7	4	2.7
	Gurage	5	3.4	7	4.8
	Dawero	2	1.4	2	1.4
	Other ^E	1	0.7	4	2.7
Education al status	Unable to read and write	32	21.9	19	13.0
	Primary education	57	39.0	45	30.8
	Secondary education	35	24.0	34	23.3
	College and above	22	15.1	48	32.9
Occupatio n	Farmer	47	32.2	19	13.0
	House wife	15	10.3	33	22.6
	Government employee	23	15.8	37	25.3
	Merchant	22	15.1	16	11.0
	Daily labourer	12	8.2	6	4.1
	Self -employee	12	8.2	5	3.7
	Student	7	4.8	25	17.1
	Jobless	4	2.7	2	1.4
	Other ^O	4	2.7	3	2.1
Monthly Income in birr		500(0-7500)		850(0-4547)	
Duration of caregiving in years		5.0774±4.38		5.37±4.21	
Spent time/day in hours		6.65±3.354		7.60±2.97	
Kinship with the patient	Sister/brother	47	32.2	40	27.4
	Father	34	23.3	11	7.5
	Mother	19	13.0	11	7.5
	Aunt/uncle	15	10.3	12	8.2
	Child	13	8.9	49	33.6
	Spouse	8	5.5	21	14.4
	Cousin	6	4.1	1	0.7
	Other ^K	4	2.7	1	0.7
Key; R- other religion catholic, Jehovah witness; E other ethnicity Silte, Hadiya; O- other occupation NGO, house made; K- other kinship nephews					

The number of family members who take care of patients with schizophrenia, other than the key caregiver, ranged from 0-6 while the number of family members who take care of patients with DM ranged from 0-7.

5.2 Caregiver burden

The mean (\pm SD) of OB among schizophrenia and DM caregivers was 20.09 ± 9.75 and 12.08 ± 5.82 respectively. This value was statistically significant at a 95% CI= 6.157,9.857, t- value of 8.51 and a p-value of < 0.001 . The six domains of the FBIS showed higher caregiver burden among caregivers of patients with schizophrenia than caregivers of patients with DM, except in the ‘family leisure’ domain [Table 2].

Table 2 Caregiver burden among caregivers of patients with schizophrenia and DM at JUMC, 2019

	Mean \pm SD		t-value	p-value
	Schizophrenia	DM		
Financial burden	5.98 \pm 2.92	3.04 \pm 2.66	8.99	0.00
Family routine	4.98 \pm 2.73	4.45 \pm 1.86	1.95	0.05
Family leisure	3.24 \pm 2.08	3.01 \pm 1.73	1.01	0.31
Family interaction	3.70 \pm 2.77	0.77 \pm 1.09	11.84	0.00
Effect on physical health	1.07 \pm 0.97	0.45 \pm 0.64	6.49	0.00
Effect on mental health	1.08 \pm 1.03	0.34 \pm 0.63	7.39	0.00
Total objective burden	20.09 \pm9.751	12.08 \pm5.824	8.518	0.00

t-test for Equality of Means							
					95% Confidence Interval of the Difference		
	t	df	Sig.(2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Total OB	8.518	290	.000	8.007	.940	6.16	9.85

From the total caregivers of patients with schizophrenia, 67 (45.9%) of them expressed the SB as severe while only 44 (30.1%) of the caregivers of DM expressed it as severe.

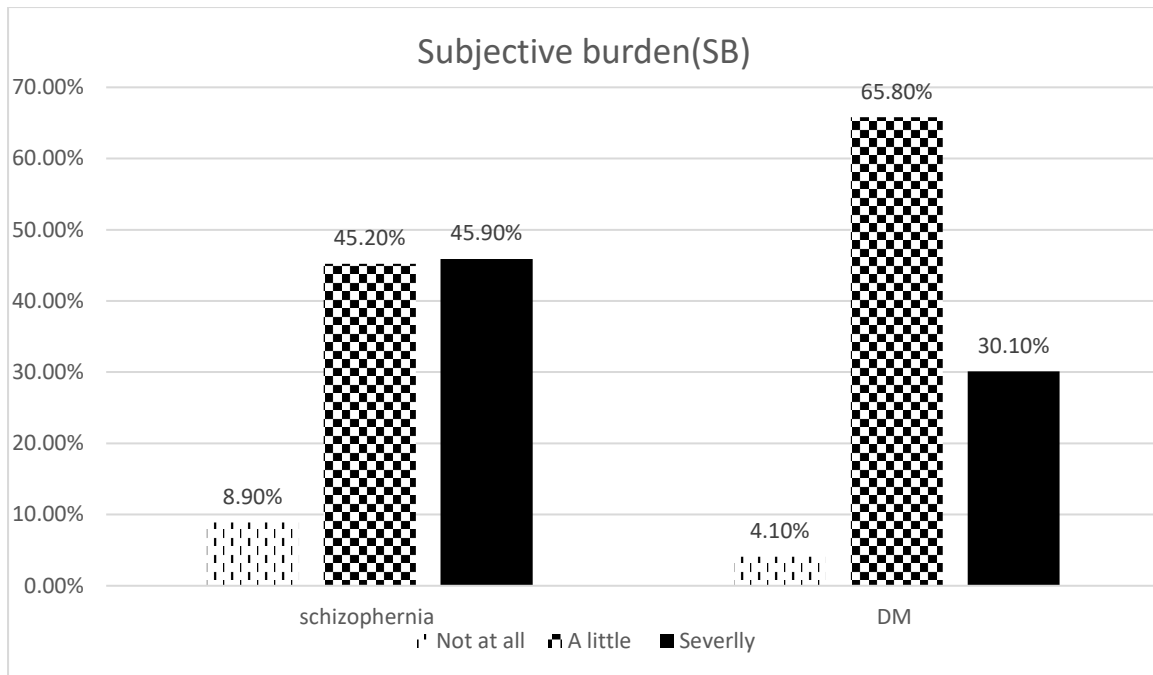


Figure 2 subjective burden of caregivers of patients with schizophrenia and DM in JUMC ,2019

By computing the chi square test for independency, it was shown that there was statistically significant difference of the SB of the two groups at 95% CI between the two groups ($X^2=12.90$, $df=2$, $p=0.002$).

Table 3 Pearson chi - square test of SB between caregivers of patients with schizophrenia and DM at JUMC, 2019

Chi-Square Tests for SB			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.900	2	.002
Likelihood Ratio	13.029	2	.001
Linear-by-Linear Association	2.526	1	.112
N of Valid Cases	292		

5.3 Caregiver burden difference

5.3.1 Patient related factors

Socio demographic characteristics of the patient

In caregivers of patients with schizophrenia, patient educational status and type of occupation showed statistically significant difference in caregiver burden mean value ($P < 0.05$). The mean value of caregiver burden was higher in those patients who have attended primary education (22.67 ± 8.646) than others. Regarding occupation of patients, caregivers who gave care for merchants were more burdened than other type of patient occupations (24.82 ± 7.653 , $p = 0.018$). Unlike caregivers of schizophrenia, caregivers of DM patients who completed the education at college level and above showed higher mean score (12.55 ± 4.880 , $p = 0.044$) of the caregiver burden than other patients who have less educational status [Table 4].

Table 4 Mean caregiver burden difference between sociodemographic variables of patients of schizophrenia and DM at JUMC, 2019

Variables	Frequency		Mean ± SD		t /F- value		p value		
	Schizo	DM	Schizo	DM	Schizo	DM	Schizo	DM	
Sex	Male	105 (71.9)	102 (69.9)	20.08±9.74	12.38±5.90	-0.025	0.948	0.98	0.345
	Female	41 (28.1)	44 (30.1)	20.12±9.95	11.39±5.63				
Marital status	Single	82 (56.2)	25 (17.1)	20.70±9.99	12.48±5.18	1.734	1.397	0.163	0.246
	Married	46 (31.5)	107 (73.3)	18.24±9.73	12.12±6.06				
	Divorced	12 (8.2)	4 (2.7)	24.58±9.17	15.75±3.77				
	Widowed	6 (4.1)	10 (6.8)	17.00±1.89	9.20±4.59				
Educational status	Unable to read and write	31 (21.2)	40 (27.4)	14.97±8.24	12.38±5.84	4.787	2.769	0.003*	0.044*
	Primary education	66 (45.2)	35 (24.0)	22.67±8.64	13.37±6.55				
	Secondary education	35 (24.0)	29 (19.9)	19.54±10.30	9.45±5.62				
	College and above	14 (9.6)	42 (28.8)	20.64±12.45	12.55±4.88				
Occupation	Farmer	35 (24.0)	39 (26.7)	17.14±8.79	12.79±6.7	2.512	0.752	0.018*	0.629
	House wife	14 (9.6)	26 (17.8)	16.29±9.11	9.96±3.97				
	Merchant	11 (7.5)	11 (7.5)	24.82±7.65	12.55±6.84				
	Government employee	9 (6.2)	39 (26.7)	18.56±12.65	12.08±6.23				
	Student	22 (15.1)	13 (18.9)	17.23±8.563	12.00±5.68				
	Daily labourer	13 (8.9)	9 (6.2)	22.69±10.55	12.67±4.84				
	Jobless	37 (25.3)	3 (2.1)	23.62±9.81	14.67±5.13				
	Other	5 (3.4)	6 (4.1)	23.40±8.96	13.83±3.65				

Key: Schizo- Schizophrenia, * p < 0.05

Clinical factors

Among caregivers of patients with schizophrenia, being admitted more than twice (27.92 ± 10.388 , $P < 0.001$), having severe ADL limitations (29.86 ± 7.177 , $p < 0.001$) and having low medication adherence (24.61 ± 8.803 , $p < 0.001$) exhibit increased mean value of caregiver burden than the rest of their respective categories. Among caregivers of patients with DM, caregivers of patients who had partial impairment in ADL (19.25 ± 4.166 , $p < 0.001$) and low medication adherence (17.67 ± 5.354 , $p = 0.024$) face more burden than their respective categories [Table 5].

Table 5 Caregiver burden difference within clinical factors of patients with schizophrenia and DM at JUMC, 2019

Variables		Frequency (%)		Mean (\pm SD)		t /F- value		p value	
		Schizophrenia	DM	Schizophrenia	DM	Schizophrenia	DM	Schizophrenia	DM
Admission	None	84 (57.5)	10 (6.8)	17.90 \pm 8.901	12.70 \pm 5.478	8.100	1.683	0.000*	0.173
	Once	32 (21.9)	51 (34.9)	19.19 \pm 8.608	11.55 \pm 5.315				
	Twice	5 (3.4)	55 (37.7)	23.40 \pm 8.820	11.36 \pm 6.490				
	More than twice	25 (17.1)	30 (20.5)	27.92 \pm 10.388	14.10 \pm 5.228				
ADL	Fully functional	115 (78.8)	130 (89.0)	18.41 \pm 9.649	11.23 \pm 5.434	11.068	15.169	0.000*	0.000*
	Moderate impairment	17 (11.6)	8 (5.5)	23.41 \pm 6.404	19.25 \pm 4.166				
	Sever impairment	14 (9.6)	8 (5.5)	29.86 \pm 7.177	18.75 \pm 4.268				
Medication adherence	High	63 (43.2)	83 (56.8)	15.44 \pm 9.124	11.33 \pm 5.390	15.713	3.824	0.000*	0.024*
	Medium	39 (26.7)	57 (39)	22.49 \pm 8.599	12.60 \pm 6.187				
	Low	44 (30.1)	6 (4.1)	24.61 \pm 8.803	17.67 \pm 5.354				

Key * p< 0.05

5.3.2 Caregiver related factors

Socio demographic factors

Female caregivers of patients with schizophrenia (22.79±10.798) were more burdened than male (18.81±8.989) (p= 0.031). Caregivers being divorced (38.00±0, p< 0.000) and attending till secondary education (21.43±8.114, p= 0.021) had shown to have increased in the mean value of caregiver burden than their categories among caregivers of patients with schizophrenia.

Fathers felt more burden than other kinds of kinships among caregivers of patients with DM (25.58±11.730, P= 0.070).

Table 6 Caregiver burden difference between socio demographic characteristics of the caregivers of patients with schizophrenia and DM at JUMC, 2019

Variables		Mean ± SD		t /F- value		p value	
		Schizophrenia	DM	Schizo	DM	Schizo	DM
Sex	Male	18.81±8.989	11.67±6.185	-2.191	-0.783	0.031*	0.435
	Female	22.79±10.798	12.43±5.516				
Marital status	Single	16.06±8.924	11.18±5.995	7.713	0.633	0.000*	0.532
	Married	20.06±9.329	12.42±5.760				
	Divorced	38.00±0	0				
	Widowed	28.79±8.192	11.75±6.551				
Educational status	Unable to read and write	21.13±9.708	12.16±5.852	3.339	0.411	0.021*	0.745
	Primary education	20.96±11.028	12.40±5.349				
	Secondary education	21.43±8.114	11.12±6.034				
	College and above	14.18±6.580	12.44±6.188				
Occupation	Farmer	17.38±9.509	13.42±5.728	1.546	1.160	0.147	0.328
	House wife	23.07±10.320	11.03±6.212				
	Merchant	21.45±8.830	14.75±4.155				
	Government employee	21.83±9.134	12.41±6.542				
	Student	14.43±5.350	10.32±4.715				
	Daily labourer	24.00±11.560	9.83±5.037				
	Jobless	24.75±13.745	13.00±9.899				
	Self-employee	20.25±9.275	13.60±6.107				

	Other	16.25±11.087	13.00±6.083				
Kinship	Father	19.94±9.322	15.91±5.822	1.511	1.922	0.168	0.070*
	Mother	25.58±11.730	13.00±7.589				
	Sister/brother	20.55±10.163	11.43±5.033				
	Aunt/uncle	17.73±8.614	10.25±4.938				
	Spouse	18.13±12.755	11.14±6.207				
	Child	17.69±4.803	12.78±5.665				
	Cousins	18.17±6.555	4.00±0				
	Other	13.25±3.686	2.00±0				

***significant at p < 0.05, schizo schizophrenia**

Caregivers psychosocial factors

Caregivers of patients with schizophrenia who have poor social support (25.15±9.457, p< 0.001) had shown to have increased in the mean value of caregiver burden than their categories. Among DM patient caregivers, caregivers who have moderate social support (14.22±5.187, p< 0.001) experience more burden than their counterparts.

Table 7 Caregiver burden difference in psycho- social factors of the caregivers of patients with schizophrenia and DM at JUMC, 2019

Variables		Frequency (%)		Mean (\pm SD)		t /F- value		p value	
		Schizophrenia	DM	Schizophrenia	DM	Schizophrenia	DM	Schizophrenia	DM
Social support	Poor	52 (35.6)	16 (14.19)	25.15 \pm 9.457	14.19 \pm 6.047	18.220	16.507	0.000*	0.000*
	Moderate	52 (35.6)	69 (47.3)	19.79 \pm 8.113	14.22 \pm 5.187				
	Strong	42 (28.8)	61 (41.8)	14.19 \pm 8.654	9.11 \pm 5.193				
Provided with information regarding the illness	Yes	85 (58.2)	135 (92.5)	19.78 \pm 9.405	11.96 \pm 5.890	-0.456	-0.866	0.649	0.388
	No	61 (41.8)	11 (7.5)	20.52 \pm 10.277	13.55 \pm 4.947				
Any one from the health care providers asked coping	Yes	41 (28.1)	6 (4.1)	21.88 \pm 10.045	14.83 \pm 7.960	1.390	1.183	0.167	0.239
	No	105 (71.9)	140 (95.9)	19.39 \pm 9.592	11.96 \pm 5.724				

5.3.3 Bivariate Correlation between the continues variables

Pearson's correlation for schizophrenia caregivers showed that duration of the illness, caregivers' age, duration of caregiving and stigma towards the caregivers were age were associated with caregiver burden. Number of family members who accompany the key caregivers at home, QOL of the caregivers and coping strength were negatively associated.

Regarding caregivers of DM, The Pearson's correlation statistical analysis indicated that the average patient's monthly income and stigma towards the caregiver were positively correlated while number of family members that accompany the caregiver at home, QOL of the caregiver and coping strength were negatively correlated [Table 9].

Table 8 Bivariate Pearson's correlation for the continues variables explaining caregiver burden among caregivers of patients with schizophrenia and DM at JUMC, 2019

Variables	Schizophrenia			DM		
	Mean± SD	R	Sig. (2-tailed)	Mean ± SD	R	Sig. (2-tailed)
OB	20.09± 9.751	1		12.08± 5.824	1	
Pt age	33.17± 13.328	.035	.676	44.83± 14.202	.048	.569
Pt income	494.93± 740.249	.057	.495	1822.62±2202.78	.172*	.038
Duration of the illness	6.5103± 5.32219	.199*	.016	6.9863± 5.38731	-.009	.914
Caregiver age	41.08± 15.289	.208*	.012	36.08± 13.407	.121	.147
Caregiver income	1178.21±1190.82			1604.55± 2063.707	.139	.094
Duration of caregiving	5.0774± 4.38753	.312**	.000	5.3747±4.21508	-.074	.378
Spent time/d/hr	6.6507± 3.35404	.162	.051	7.6027±2.97224	.104	.212
No of family members	2.38± 1.420	-.266**	.001	3.08±1.321	-.180*	.030
QOL	56.90± 23.021	-.606**	.000	71.33±20.490	-.572**	.000
Coping strength	35.90± 8.893	-.607**	.000	40.62±4.259	-.302**	.000
Stigma	21.32± 6.248	.454**	.000	15.45±5.750	.497**	.000

Pt- patient, *significant at p< 0.05, ** significant at p< 0.01

5.4 Predictors of caregiver burden

A multiple linear regression model was fitted for each group after adjusting for confounding variables.

5.4.1 Independent predictors of caregiver burden among schizophrenia caregivers

The model that was fitted for schizophrenia indicate that medium and low level of medication adherence of the patient ($\beta= 5.03$, $p= 0.003$ and $\beta= 3.971$, $p=0.016$ respectively) and the stigma towards the caregiver ($\beta= 0.292$ $p= 0.012$) were significantly associated positively with caregiver burden. Number of family members which accompany the caregiver at home ($\beta= -0.908$, $p= 0.047$), QOL of the caregiver ($\beta= -0.106$, $p= 0.005$) and coping strength of the caregiver ($\beta= -0.193$, $p= 0.045$) had significant negative association with caregiver burden [Table 9].

Table 9 Multiple linear regression model for factors associated with caregiver burden among caregivers of patients with schizophrenia and DM at JUMC, 2019

Variables	Categories	Coefficients					95.0% CI for B	
		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Lower Bound	Upper Bound
		B	Std. Error	Beta				
	(Constant)	23.877	5.357		4.458	.000	13.264	34.491
Patients educational status	Unable to read and write	-1.392	1.756	-.059	-.793	.430	-4.871	2.087
	Secondary education	-.419	1.620	-.018	-.259	.796	-3.628	2.791
	College and above	1.887	3.517	.057	.537	.593	-5.080	8.855
Patient occupation	House wife	-1.814	2.366	-.055	-.767	.445	-6.501	2.873
	Merchant	-1.740	2.627	-.047	-.663	.509	-6.945	3.464
	Government employee	-6.342	4.309	-.157	-1.472	.144	-14.880	2.195
	Student	-2.135	2.130	-.079	-1.002	.318	-6.355	2.085
	Daily labourer	-.055	2.657	-.002	-.021	.984	-5.319	5.209
	Jobless	.817	2.001	.037	.408	.684	-3.148	4.782
	Other occupation	-1.910	3.618	-.036	-.528	.599	-9.077	5.258
Frequency of admission of the patient	Once admitted	-1.062	1.549	-.045	-.686	.494	-4.132	2.008
	Admitted twice	-5.930	3.720	-.111	-1.594	.114	-13.301	1.441
	Admitted more than twice	-.118	2.077	-.005	-.057	.955	-4.234	3.998
ADL of the patient	Moderate ADL limitation	-1.109	2.107	-.037	-.526	.600	-5.284	3.066
	Sever ADL limitation	3.322	2.291	.101	1.450	.150	-1.217	7.860
Medication adherence of the patient	Medium level	5.030	1.673	.229	3.006	.003*	1.714	8.345
	Low level	3.971	1.625	.188	2.443	.016*	.751	7.192
Caregiver's marital status	Caregiver sex	.524	1.625	.025	.322	.748	-2.697	3.744
	Divorced	2.123	7.250	.018	.293	.770	-12.243	16.488
	Widowed	1.884	2.770	.057	.680	.498	-3.606	7.373

	Single	-1.659	1.779	-.072	-.933	.353	-5.184	1.865
Caregiver's educational status	Unable to read and write	-1.109	1.679	-.047	-.661	.510	-4.435	2.217
	Secondary education	3.193	2.016	.140	1.584	.116	-.801	7.188
	College and above	-3.263	2.211	-.120	-1.476	.143	-7.643	1.118
Social support	Moderate	-.826	1.515	-.041	-.545	.587	-3.828	2.176
	Strong	-.348	1.968	-.016	-.177	.860	-4.249	3.552
QOL of the caregiver		-.106	.037	-.249	-2.868	.005*	-.179	-.033
Coping strength		-.193	.095	-.176	-2.026	.045*	-.381	-.004
Stigma towards the caregiver		.292	.114	.187	2.558	.012*	.066	.517
NO of family members		-.908	.452	-.132	-2.011	.047*	-1.803	-.013
Caregiver age		.079	.049	.124	1.596	.113	-.019	.177
Duration of the illness		.096	.199	.052	.483	.630	-.298	.489
Duration of caregiving		.084	.250	.038	.337	.737	-.411	.579

***significant at $p < 0.05$**

The final model was able to explain 66.6 % of the factors associated with caregiver burden among schizophrenia caregivers.

5.4.2 Independent predictors of caregiver burden among DM patient caregivers

The second model which was fitted for the caregiver burden among DM patient caregivers showed that the variables which were significantly negatively associated were; QoL of the caregiver ($\beta = -0.071$, $p = 0.005$), the caregiver's coping mechanisms ($\beta = -0.185$, $p = 0.040$) and strong social support ($\beta = -3.017$, $p < 0.001$). The variable which had significant positive association were; moderate and severe ADL limitation of the patient ($\beta = 3.602$, $p = 0.035$ and $\beta = 4.201$, $p = 0.012$ respectively), low medication adherence of patients ($\beta = 5.290$, $p = 0.007$) and stigma towards the caregiver ($\beta = 0.240$, $p = 0.003$) [Table 10].

Table 10 Multiple linear regression model fitted for factors associated with caregiver burden among caregivers of patients with DM at JUMC, 2019

Variables	Categories	Coefficients						95.0% CI for B	
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Lower Bound	Upper Bound	
		B	Std. Error	Beta					
	1 (Constant)	22.513	4.128		5.454	.000	14.348	30.678	
Patient educational status	Primary education	-.185	.983	-.014	-.188	.851	-2.128	1.759	
	Secondary education	-.676	1.045	-.046	-.647	.519	-2.742	1.391	
	College and above	.736	.961	.057	.767	.445	-1.164	2.637	
Social support	Strong social support	-3.017	.791	-.256	-3.815	.000*	-4.582	-1.453	
	Poor social support	-1.623	1.275	-.085	-1.273	.205	-4.144	.899	
Medication adherence	Low medication adherence	5.290	1.925	.181	2.748	.007*	1.482	9.098	
	High medication adherence	-.206	.740	-.017	-.278	.782	-1.670	1.258	
ADL limitation	Moderate ADL limitation	3.602	1.692	.141	2.129	.035*	.256	6.948	
	Sever ADL limitation	4.201	1.646	.165	2.552	.012*	.944	7.458	
QOL of the caregiver		-.071	.025	-.249	-2.876	.005*	-.119	-.022	
Coping strength		-.185	.089	-.135	-2.076	.040*	-.361	-.009	
Stigma towards caregiver		.240	.080	.237	2.993	.003*	.081	.398	
No of family members		-.249	.283	-.057	-.879	.381	-.810	.311	

*Significate at p< 0.05 level

The final model fitted for caregivers of patients with DM was able to explain 54.2 % of the factors associated with caregiver burden.

6. Discussion

The purpose of this study was to compare the magnitude of caregiver burden among schizophrenia and DM caregivers and to assess the factors associated with caregiver burden. The finding of the study showed that the mean caregiver burden among schizophrenia patient caregivers is greater than (20.09 ± 9.751) the mean caregiver burden among caregivers of DM patients (12.08 ± 5.824). This value was statistically significant at 95% CI= 6.157,9.857, t- value of 8.51 and a p-value of < 0.001 . This can be explained by the incapacitating nature of schizophrenia. Negative symptoms of schizophrenia and the stigma towards the mental illness plays a main role in increasing the burden(78). The caregivers in our setting not getting information about the illness and how to handle symptoms might also play a significant role in increasing the burden of care. The financial burden domain weights greater than all the others. The medical expenditure and the limitation on ADL of the patients which causes further loss of income might explain the financial burden.

The factors associated with caregiver burden among schizophrenia and DM in this study were QoL of the caregiver, coping strength of the caregiver, stigma towards the caregiver and medication adherence of the patient. As QoL increase by one unit, caregiver burden decreases by 0.106 and 0.071 units among caregivers of schizophrenia and DM respectively. As coping strengths increases by one-unit caregiver burden decreases by 0.193 and 0.185 among schizophrenia and DM caregivers respectively. As a stigma towards the caregiver increases by one-unit, the caregiver burden increases by 0.292 and 0.240 units among caregivers of patients of schizophrenia and DM respectively. As low level of medication adherence increases by one unit, the caregiver burden increases by 3.971 and 5.290 units among caregivers of patients with schizophrenia and DM respectively. The lower the medication adherence is the higher the caregiver burden. Number of family members which help in caregiving was associated with caregiver burden among caregivers of schizophrenia. As the Number of family members increase by one, the caregiver burden decreases by 0.908. Moderate and sever limitation in ADL was associated with caregiver burden among DM patient caregivers. As severity of limitation of ADL increases by one unit, the caregiver burden increases by 4.201. The more the patient had limitation on ADL, the higher the burden is. The stronger the social support is, the lower the caregiver burden is by 3.017 units.

The result in this study is in line with studies conducted with a similar study design done in Italy among schizophrenia and DM caregivers (39,47) in India to among caregivers of psychiatric patients and chronic medical illness patients (53).

The result of this study showed that caregiver burden is greater in caregivers of schizophrenia($\beta=23.981$) than in DM patient caregivers($\beta=16.010$) at a 95% CI= 6.157,9.857, t- value of 8.51 and a p-value of < 0. 001. The mean value of caregiver burden in this study is higher than studies with similar study design conducted in Italy [(2.0 \pm 0.8 for schizophrenia and 1.8 \pm 0.7 for DM) 95% CI = -5.69, 6.09, F (5, 1348) =4.9, p<0.0001](47), another study done in Italy to assess the caregiver burden among caregivers of mentally ill and physically ill [(27.8 \pm 15.99 and 26.44 \pm 17.94 for mental illness and physical illness; 95% CI= (25.973,29.627), f= 11.45, p< 0.001] (39) and in India to compare caregiver burden among psychiatric patient caregivers and chronic medical illness patient caregivers [21.8 \pm 3.974 and 15.92 \pm 3.522 respectively, 95% CI = (4.41,7.35), t= 7.83, P<0.0001] (53). This might be due to the tools are different(47,53). Another possible reason could be due to the Italian and the Indian study(39,53) was conducted among mental illness and chronic medical illness other than being specific. The other reason could be the socioeconomic difference between Italy(39,47) and Jimma. The sample size difference could also be another reason (39,47,53).

In this study, the total OB among caregivers of patients with schizophrenia was 20.09 \pm 9.751 [95 % CI= (18.49, 21.68)]. This result is lower than a study conducted in China using the same inventory which showed the mean score was 23.62 \pm 9.76[95% CI = (22.563,24.677)] (51), Eritrea [29.47 \pm 6.67, 95% CI = (28.39,30.55)] (31) and Jimma among people with mental illness [23 \pm 10.716; 95% CI= (21.96,24.04)](73). The difference can be explained by the patients in this study are younger than the Chinese study, has shorter duration of illness and the Chinese have health insurance(51). Another possible reason may be the in the Chinese study the social support was low and the frequency of previous admission was higher than this study (51). The other reason could be the difference in the participants sex distribution, marital status difference and the economic difference in Eritrea(31) and the addition of other mental illness in Jimma study (73). The result of this study was also lower than a study done in Chile[95%CI= (57.71,67.09)] (49), in south western Nigeria using ZCBS [42.85 \pm 19.31, 95%CI = (40.8,44.908)](26), another study in Lagos Nigeria [40.98 \pm 16.7, 95%CI= (38.55,43.41)] (59). This discrepancy may be due to the use of different tools, the sample size variance and the duration of the illness.

The caregiver burden among caregivers of patients with DM in this study was 12.08 ± 5.824 [95% CI= (11.13,13.03)]. This result was lower than a research done in Portugal which found that mean value of caregiver burden [42.09 ± 11.7 , 95%CI= (39.904,44.276)](60). This difference might be due to the reason that in the Portugal study, the participants had amputation of the limb which increases the dependency onto the caregiver and need of supervision. Also, the sample size in the Portugal study is 84(60). This result is also lower than a study conducted in France, Germany and the UK which found that caregiver burden among patient with DM and Alzheimer's diseases was 30.8 ± 15.37 [95%CI= (28.603,32.99)] (61). This could be explained by the difference in the comorbidity. In the previous study the patients had AD in addition to DM which increases the need for help and orientation than patents without AD, the behavioural disturbance is also troublesome for caregivers in AD. Again, the populations in this study rages from 19-71 while the age range in the previous study was ≥ 55 . The mean caregiver burden is also lower than a study done in India among caregivers of patients with type 1 DM and age less than 19 [$46.5 \pm 13.595\%$ CI= (42.37,50.63)](62). The difference might be due to the difference in the age of the patents, the smaller sample size and the use of different tool.

In this study, caregiver burden decrease as QoL decreases in both groups with $\beta = -0.106$, $p = 0.005$ 95% CI (-0.179, -0.033) in schizophrenia and $\beta = -0.069$, $p = 0.005$; 95% CI (-0.118, -0.021) in DM patient caregivers. QoL is the self-satisfaction with life areas. Caregivers of patients might perceive their life as less satisfactory related with having less time for them self, rearranging their personal schedules and perceiving themselves as responsible for their relatives. This result is in line with a studies done in Italy (39), Dutch(48), Iran (88),India (55,59) and in Sudan(89).

Higher coping strength was also associated with decreased caregiver burden for both groups of caregivers in this study. [$\beta = -0.193$, $p = 0.045$; 95% CI (-0.381, -0.004) for schizophrenia caregivers and $\beta = -0.180$, $p = 0.045$; 95% CI (-0.356, -0.004) for DM caregivers]. It a known fact that the ability to cope with stress plays an important role on how a person perceives the problem. This result is in line with a study done in Ankara Turkey (67), India (62) in Nigeria (90,91)and Butajira (92).

In this study, stigma towards the caregivers increases the caregiver burden in both groups [$\beta = 0.292$, $p = 0.012$; 95% CI (0.066,0.517) for schizophrenia caregivers and $\beta = 0.246$, $p = 0.003$; 95% CI (0.085,0.407) for DM caregivers]. The Ethiopian belief regarding the causation and

transmission of mental illness (possession by evil spirit due to the family's cult of the evil spirit and the like) (93) might be the reason for the increase stigma, decreased social support and social participation and there by increased burden on the family. This finding is similar with a study done in India(55), Addis Ababa(72) and Jimma (73).

Medication adherence was also one of the predictor factors in this study. Low and medium level of medication adherence was found to decrease caregiver burden among schizophrenia patient caregivers [$\beta=3.971$, $p= 0.016$; 95% CI (0.751,7.192) for low, $\beta= 5.030$, $p=0.003$; 95% CI (1.714, 8.345)for medium level] while low medication adherence was found to decrease caregiver burden among DM patients caregivers [$\beta= 5.282$, $p= 0.008$; 95% CI (1.415, 9.149). Medications control the symptoms of the illness in chronic illness. the more the patient is adherent to medication, the less relapse of the illness, the less hospitalization and less dependency onto others and less financial issues. This means that the less the caregiver is needed to take care and to spend less time, less money and less stress. This result is in line with studies conducted in India (57) and Ghana(69).

The other predictor of caregiver burden among schizophrenia patient caregivers was the number of family members who help in caregiving at home with $\beta= -0.908$ $p= 0.047$; 95% CI (-1.803, -0.013). As the number of family members increase, the caregiver burden decreases because the time needed, the work load and the financial problems are shared. The findings are in line with Brazil(52), India(55) and Nigeria(59).

One of the predictors of caregiver burden among DM patient caregivers was the caregiver having strong social support decreasing the caregiver burden by -3.017 units [$p< 0.001$;95% CI (-4.582, -1.453)]. Having a social support is one of the methods used to cope with stress and a belief that others understand the burden felt reduces the burden. This result agrees with a study done among American India(94), Diyarbakir Turkey(50) and Italy (47).

The last factor which was associated with increased caregiver burden among caregivers of DM patients was patient having moderate and sever level of ADL [$\beta= 3.602$, $P=0.035$;95% CI (0.256, 6.948) and $\beta= 4.201$, $p= 0.012$; 95% CI (0.944,7.458)]. As the patient becomes more independent on others for activity of living, more needs of the patient and there is increased work load and burden. But being able to function without an assistance reduces the burden as patients are able to take their medication, go to hospital appointments in time and provide financial support as well. This result is in line with studies done in California (95), Korea(96) and France, Germany and UK(61).

Limitation of the study

This research does not intend to explain the temporal relationship between the outcome variable and the associated factors. The clinical information of the patient was collected from the secondary person which might not be fully reliable. The tools used in this study are not validated in Ethiopia.

7. Conclusion and recommendation

7.1 Conclusion

The present study showed that caregivers of patients with schizophrenia face more burden than caregivers of patients with DM.

In both groups, caregiver burden increases with increase in stigma towards the caregivers while caregiver burden decreases with QoL of the caregivers, coping strength of the caregivers and high medication adherence.

For caregivers of patients with schizophrenia, caregiver burden decreases with increase in number of family members which help in caregiving.

Caregiver burden among caregivers of patients with DM increases with, severity of dependency in ADL of the patient. Stronger social support decreases caregiver burden among caregivers of DM patients.

7.2 Recommendation

So as to contribute in solving the prevailing problem on caregivers' burden, the following are some recommendations for the stakeholders

Jimma University Medical Centre

For psychiatry department, it will be very good if there is implementation plan to reduce the caregiver burden by strengthening the stress coping skill like group therapy, self-help groups and psychoeducation for caregivers. Reducing the stigma towards caregivers through health information dissemination, health education and anti-stigma campaign will have a good impact on reducing the caregiver burden.

For physiotherapy department of JUMC, a better outcome of the caregiver's health is dependent on the functioning of the patient. So, it will be good if there are ways to improve the ADL of patients through provision of mechanical assistance and training of the patients with ADL limitation to reduce their dependency.

Health professionals

For clinicians who work at the chronic clinics and psychiatry follow up clinic, it is better if screening for burden among caregivers is done as the mean value of the effect of caregiving on physical health and mental health is not ignorable. Also, it will help to improve the treatment outcome of the patient.

For clinicians, the burden of caregiving will be less if they could work on medication adherence of patients as medication adherence is one of the predictors.

For Ministry of health and health bureau

It will be good if financial burden is reduced by like looking for funders to fund for medications especially new generation neuroleptics and insulin and facilitating partial sheltered works for those who have disabilities.

Supporting the construction of rehabilitation centres for people living with schizophrenia might be help full in reducing the caregiver burden.

For other researchers

Since the model in this research explains only 66.6% of caregiver burden associated with caregiving for patients with schizophrenia and 54.2% of the caregiver burden associated with caregiving for patients with DM, it will be better if other factors are explored and longitudinal and qualitative researches are conducted.

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Annex I English version questioner

Information Sheet

Hello sir/madam, my name is _____. I am here on behalf of Menen Amare. I came from Jimma University, institute of health science, department of psychiatry. I am conducting a research by the title magnitude of family care giver burden and associated factors among care givers of patient with psychiatric and chronic illness in Jimma university medical center.

The aim of this study is to assess the magnitude of family care giver burden and associated factors among care givers of patient with schizophrenia. After this study is conducted, I hope that family caregivers will be given some attention.

Filling this questionnaire will only take maximum of 30 minutes. The information you give will not be given for a 3rd person and you are not asked to give your name and address to keep your secrets. There are no risks and incentives related with participating in this research. You have the right for partial and total nonparticipation though out the questionnaire.

Voluntary to participate YES NO

You can contact us by the following address if you have any problems after wards.

Menen Amare; +251-916 394936, mismeni.beya@gmail.com

THANK YOU!

Consent Form

In signing this document, I am giving my consent to participate in the study entitled “Magnitude of family care giver burden and associated factors among care givers of patient with schizophrenia in Jimma university medical center”

I have been informed about the purpose of this research and I understand that I am selected to participate in this study randomly. I have right to refuse or interrupt the interview at any time and my name will not be mentioned on the questioners I also understand that there are no risks or incentives for participating on the study. My participation in this study is voluntarily.

Signature of the participant-----Date-----

THANK YOU!

PART-I socio-demographic characteristics of the patient

S. No.	Socio-demographic characters of the patient	
101	Age	_____
102	Sex	1- Male 2- Female
103	Marital status	1- Single 3- Married 2- Divorced 4- Widowed
104	Religion	1. Ortodox christian 2. Muslim 3. Protestant 4. Catholic 5. Other _____
105	Ethnicity	1.Oromo 2. Amhara 3.Tigre 4. Gurage 5.Yem 6. Dawero 7.Other_____
106	Educational status	1- Not able to read and write 2- Primary education/1-8 th grade/ 3- Secondary education/9-12 th grade/ 4- College and above
107	ocupation	1- Farmer 2- Housewife 3- Merchant 4- Government employee 5- Student 6- Daily laborer 7- Others
108	Duration of illness	_____
109	Number of previous addmition	1. None 2. Once 3. Twice 4. More than twice

PART-II socio-demographic characteristics of the caregiver

S. No.	Socio-demographic characters of the caregiver	
201	Age	_____
202	Sex	1- Male 2- Female
203	Marital status	1- Single 2. Married 3. In relationship 4-Divorced 5- Widowed
204	Religion	1- Muslim 2. Orthodox Christian 3. Protestant 4. Catholic 5. Others _____
205	Ethnicity	1. Amhara 2. Oromo 3. Tigre 4. Gurage 5. Others _____

206	Educational status	1- Not able to read and write 3. Secondary education /9-12th grade/ 2- Primary education /1-8 th grade/ 4. College and above
207	Occupation	1. Farmer 2. Housewife 3. Merchant 4. Government employee 5. Student 6. Daily laborer 7. Others
208	Average monthly income	1. _____
209	Kinship with the patient	1- Father 3- Mother 2- Sister/brother 4- Aunt/uncle 5- Other
210	Total duration of care giving?	_____
211	Time spent in caregiving per day	_____
222	Number of other family members caregiving for the patient	_____

PART III Family Burden Interview Schedule (FBIS)

We are trying to assess the various difficulties felt by the family of a psychiatric patient, and will ask you a few questions about these. Please do not hesitate to express your true feelings.

A. Financial burden overall		No Burden(0)	Moderate Burden(1)	Severe burden(2)
1	Loss of patient's income: (Has he lost his job? Stopped doing the work which he was doing before? To what extent does it affect the family income?)			
2	Loss of income of any other member of the family due to patient's illness: (Has anybody stopped working in order to stay at home, lost pay, lost a job? To what extent are the family finances affected?)			
3	Expenditure incurred due to patient's illness and treatment: (Has he spent or lost money irrationally due to his illness? How much has this affected the family finances? How much has been spent on treatment, medicines, transport, and accommodation away from home and so on? How much has been spent on other treatments such as temples and native healers? How has this affected family finances?)			
4	Expenditure incurred due to extra arrangements: (For instance, any other relative coming to stay with the patient; appointing a nurse or servant; boarding out children. How have these affected the family finances?)			
5	Loans taken or savings spent: (How large a loan? How do they plan to pay it back? How much does it affect the family? Did they spend			

	from savings? Were these used up? How much is the family affected?)			
6	Any other planned activity put off because of the financial pressure of the patient's illness: (For instance, postponing a marriage, a journey or a religious rite. How far is the family affected?)			
B. Disruption of routine/family activities overall				
1	Patient not going to work, school, college, etc: How inconvenient is this for the family?			
2	Patient not helping in the household work: How much does this affect the family?			
3	Disruption of activities of other members of the family: (Has someone to spend time looking after the patient, thus abandoning another routine activity? How inconvenient is this?)			
4	Patient's behavior disrupting activities: (Patient insisting on someone being with him, not allowing that person to go out, etc? Patient becoming violent, breaking things, not sleeping and not allowing others to sleep? How much does it affect the family?)			
5	Neglect of the rest of the family due to patient's illness: (Is any other member missing school, meals, etc? How serious is this?)			
C. Disruption of family leisure overall				
1	Stopping of normal recreational activities: (Completely, partially, and not at all? How do the family members react?)			
2	Patient's illness using up another person's holiday and leisure time: (How is this person affected by it?)			
3	Patient's lack of attention to other members of the family, such as children, and its effect on them.			
4	Has any other leisure activity had to be abandoned owing to the patient's illness or incapacity e.g. a pleasure trip or family gathering? How do the family members feel about it?			
D. Disruption of family interaction overall				
1	Any ill effect on the general atmosphere in the house: (Has it become dull, quiet? Are there a lot of misunderstandings, etc? How do the family members view this?)			
2	Do other members get into arguments over this (for instance over how the patient should be treated, who should do the work, who is to blame, etc)? How are they affected?			
3	Have relatives and neighbors stopped visiting the family or reduced the frequency of their visits because of the patient's behavior or the stigma attached to his illness? How does the family feel about this?			
4	Has the family become secluded? Does it avoid mixing with others because of shame or fear of being misunderstood? How do the members feel about this?			

5	Has the patient's illness had any other effect on relationships within the family or between the family and neighbors or relatives e.g. separation of spouses, quarrels between two families, property feuds, police intervention, embarrassment for family members, etc? How does the family feel about it?			
E. Effect on physical health of others overall				
1	Have any other members of the family suffered physical ill health, injuries, etc due to the patient's behavior? How has this affected them?			
2	Has there been any other adverse effect on health (e.g. someone losing weight or an existing illness being exacerbated)? How severe is it?			
F. Effect on mental health of others overall				
1	Has any other family member sought help for psychological illness brought on by the patient's behavior (for instance by the patient's suicide bid, or his disobedience, or worry about his future)? How severe is this?			
2	Has any other member of the family lost sleep, become depressed or Weepy, expressed suicidal wishes, become excessively irritable, etc? How severely?			
S B	How much would you say you have suffered owing to the patient's illness?	Not at all	A little	Severely

PART IV Katz Index of Independence in Activities of Daily Living

The following questions will assess the indecency that your relative have to complete day to day activities.

S. N O	ACTIVITIES POINTS (1 OR 0)	INDEPENDENCE: (1 POINT) NO supervision, direction or personal assistance	DEPENDENCE: (0 POINTS) WITH supervision, direction, personal assistance or total care
40 1	BATHING POINTS:_____	(1 POINT) Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area or disabled extremity.	(0 POINTS) Needs help with bathing more than one part of the body, getting in or out of the tub or shower. Requires total bathing.
40 2	DRESSING POINTS:_____	(1 POINT) Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	(0 POINTS) Needs help with dressing self or needs to be completely dressed.
40 3	TOILETING POINTS:_____	(1 POINT) Goes to toilet, gets on and off, arranges clothes, cleans genital area without help.	(0 POINTS) Needs help transferring to the toilet, cleaning self or uses bedpan or commode.
40 4	TRANSFERRING POINTS:_____	(1 POINT) Moves in and out of bed or chair unassisted. Mechanical transferring aides are acceptable.	(0 POINTS) Needs help in moving from bed to chair or requires a complete transfer.
40 5	CONTINENCE POINTS:_____	(1 POINT) Exercises complete self-control over urination and defecation.	(0 POINTS) Is partially or totally incontinent of bowel or bladder.

40 6	FEEDING POINTS:_____	(1 POINT) Gets food from plate into mouth without help. Preparation of food may be done by another person.	(0 POINTS) Needs partial or total help with feeding or requires parenteral feeding.
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Part V Oslo Social Support Scale

The next three questions will assess the level of support you have from the society.

S.No	Item	1	2	3	4	5
501	How many people are so close to you that you can count on them if you have serious problem? (select only one)	None	One or two	3-5	Above 5	—
502	How much concern do people show in what you are doing? (select only one)	None	Little	Uncertain	Some	A lot
503	How easy can you get help from neighbors if you should need it? (select only one)	Very difficult	Difficult	Possible	Easy	Very easy

Professional support

S.no	Questions	Yes	No
601	Have you ever been provided with information regarding the patient's illness (the nature of the illness, the course, the prognosis, how to manage the symptoms...)?		
602	Has anyone from the health care facility have asked you how you are holding up?		

Part VI Morisky medication adherence scale

The next questions are about the behaviour of your relative's regarding taking medication.

S. No	Questions	Yes	No
701	Do you ever forget to take your medication?		
702	Do you ever have problems remembering to take your medication?		
703	When you feel better, do you sometimes stop taking your medication?		
704	Sometimes if you feel worse when you take your medication, do you stop taking it?		

PART VII Brunsviken Brief Quality of life scale (BBQ)

The following 12 questions are about how you experience your quality of life. It covers six areas, how satisfied you are with these, and how important they are to you. Circle the number that best reflects your experience.

NO	Questions	Do not agree at all				Compl etely agree
801	I am satisfied with my leisure time: I have the opportunity to do what I want in order to relax and enjoy myself.	0	1	2	3	4
802	My leisure time is important for my quality of life.	0	1	2	3	4
803	I am satisfied with how I view my life: I know what means a lot to me, what I believe in, and what I want to do with my life.	0	1	2	3	4

804	How I view my life is important for my quality of life.	0	1	2	3	4
805	I am satisfied with opportunities to be creative: to get to use my imagination in my everyday life, in a hobby, on the job, or in my studies.	0	1	2	3	4
806	Being able to be creative is important for my quality of life	0	1	2	3	4
807	Being able to be creative is important for my quality of life	0	1	2	3	4
808	Learning is important for my quality of life	0	1	2	3	4
809	I am satisfied with friends and friendship: I have friends that I associate with and who support me (as many friends as I want and need)	0	1	2	3	4
810	Friends and friendship are important for my quality of life	0	1	2	3	4
811	I am satisfied with myself as a person: I like and respect myself	0	1	2	3	4
812	My satisfaction with myself as a person is important for my quality of life	0	1	2	3	4

Part IX coping scale The next 13 items are how you handle problems.

S. No	Questions	Mostly true about me (4)	Somewhat true about me (3)	A little true about me (2)	Not true about me (1)
901	When dealing with a problem, I spend time trying to understand what happened				
902	When dealing with a problem, I try to see the positive side of the situation				
903	When dealing with a problem, I try to step back from the problem and think about it from a different point of view				
904	When dealing with a problem, I consider several alternatives for handling the problem.				
905	When dealing with a problem, I try to see the humor in it				
906	When dealing with a problem, I think about what it might say about bigger lifestyle changes I need to make				
907	When dealing with a problem, I often wait it out and see if it doesn't take care of itself				
908	When dealing with a problem, I often try to remember that the problem is not as serious as it seems				
909	When dealing with a problem, I often use exercise, hobbies, or meditation to help me get through a tough time.				
910	When dealing with a problem, I make jokes about it or try to make light of it				
911	When dealing with a problem, I make compromises				

912	When dealing with a problem, I take steps to take better care of myself and my family for the future				
913	When dealing with a problem, I work on making things better for the future by changing my habits, such as diet, exercise, budgeting, or staying in closer touch with people I care about.				

PART VII The Modified Consumer Experiences of Stigma Questionnaire (MCESQ)

Instructions: Please read through the following statements and rate each statement from 1 to 5 based on the given description below.

- | | | |
|-----------|--------------|---------------|
| 1. Never | 3. Sometimes | 5. Very often |
| 2. Seldom | 4. Often | |

Questions	1	2	3	4	5
111 I have worried that others will view me unfavourably because my family member receives a lifelong treatment.					
112 I have been in situations where I heard others say unfavourable or offensive things about persons and their disorders					
113 I have seen or read things in the mass media (e.g., television, movies, books) about persons receiving lifelong treatment and their disorders which I find hurtful or offensive					
114 I have avoided telling others outside of my immediate family that my family member has received a lifelong treatment					
115 I have been treated as less competent by others when they learned my family member had received a lifelong treatment					
116 I have been shunned or avoided by others when they learned my family member received a lifelong treatment					
117 I have been lowered my expectations for accomplishments in life because my family member receives a lifelong treatment					
118 I have been treated fairly by others when they knew my family receive a lifelong treatment					
119 My friends are understanding and supportive after learning that my family member receive a lifelong treatment					

Name of the data collector.....SignatureDate

Name of supervisorSignature.....Date.....

Name of principal investigator.....Signature.....Date.....

Annex II Amharic version questioner

የመረጃ ቅፅ

ጤና ይስጥልኝ! ስሜ _____ ነው። እዚህ የምገኘው መነን አማረን ወክዬ ነው። የመጣሁት ከጅም ዩኒቨርሲቲ፣ የጤና ሳይነስ ኢኒስቲትዩት፣ ስነ አዕምሮ ት/ት ክፍል ነው። በአሁኑ ሰዓት የስኳር ህመም እና ስኩዞፍሬኒያ በታካሚው ቤተሰቦች ላይ የሚያደርሰው ተፅዕኖ እና ተዛማች ምክንያቶች በሚል ርዕስ የመመረቁያ ፅሁፊ በመስራት ላይ እገኛለሁ። የዚህ ጥናት አላማ በጅም ዩኒቨርሲቲ፣ የጤና ኢኒስቲትዩት የስኳር እና ስኩዞፍሬኒያ ህመም በታካሚው ቤተሰቦች ላይ የሚያደርሰው ተፅዕኖ እና ተዛማች ምክንያቶች መገምገም ነው። ይህ ጥናት ከተከናወነ የህመሙን አስታሚዎች ትኩረት ያገኛሉ የሚለ ተስፋ አለን።

ይህን መጠይቅ አሟልቶ ለመጨረስ የሚወስደው 30 ደቂቃ ብቻ ነው። እርስዎ የሚሰጡን ማንኛውም መረጃ ለሌላ ሰነድ ወገን ተላልፎ የማይሰጥ ሲሆን ስምና አድራሻ እንዲሰጡም አይጠየቁም። በዚህ ጥናት ላይ በመሳተፍ የሚያጋጥሞት ምንም አይነት ችግር እና ጥቅም የለም። በቃለ መጠይቁ በከፊልም ሆነ በሙሉ ያለመሳተፍ መብት እንዳለዎት እናረጋግጥሎታለን። ለሚገጥም ችግር ከዚህ በታች ባሉት አድራሻ ማሳወቅ ይችላሉ።

መነን አማረ; +251-916 394936, mismeni.beya@gmail.com
አመሰግናለሁ!!

የስምምነት ውል

በዚህ የስኳር ህመም እና ስኩዞፍሬኒያ በታካሚው ቤተሰቦች ላይ የሚያደርሰው ተፅዕኖ እና ተዛማች ምክንያቶች በሚል ርዕስ በሚሰራው ጥናታዊ ፅሁፍ ላይ ስሳተፍ የዚህን ጥናት አስፈላጊነት የተረዳው ሲሆን በዚህ ጥናት ላይ ለመሳተፍ በዘፈቀደ የተመረጡ መሆኑንና ተሳትፎ በፈቃደኝነት ላይ የተመሰረተ በመሆኑ በማንኛውም ጊዜ መጠይቁን መሙላት የማቆም(የማቋረጥ) መብት እንዳለኝ አውቃለሁ። ስሜም በመጠይቁ ላይ አይጠቀስም። በዚህም መሰረት በዚህ ጥናታዊ ፅሁፍ ላይ በሙሉ ፍቃደኝነት መሳተፌን በፈረማዬ አረጋግጣለሁ።

ፊርማ..... ቀን.....

መጠይቅ

ክፍል 1 የታማሚው የስነ ሕዝብ፣ የማሕበራዊ እና ኢኮኖሚያዊ መጠይቅ

101	እድሜ	_____
102	ጾታ	1. ወንድ 2- ሴት
103	የጋብቻ ሁኔታ	1.ያላገባ 2- ያገባ 3. የተፋታ 4- የትዳር አጋር በሞት የተለየው
104	ሐይማኖት	1. ኦርቶዶክስ ክርስቲያን 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ _____
105	ብሔር	1.ኦሮሞ 2. አማራ 3.ትግሬ 4. ጉራጌ 5.የም 6. ዳውሮ 7.ሌላ _____
106	የትምህርት ደረጃ	1. ማንበብና መጻፍ የማይችል 2. የመጀመሪያ ደረጃ/1-8 th ክፍል/ 3. ሁለተኛ ደረጃ/9-12 th ክፍል/ 4. ኮሌጅና ከዚያ በላይ
107	ስራ	1- ገበሬ 2- የቤት እመቤት 3- ነጋዴ 4- የመንግስት ሰራተኛ 5- ተማሪ 6- የቀን ሰራተኛ 7- ሌላ _____
108	አማካኝ የወር ገቢ	_____
108	የሕመሙ ቆይታ	_____
109	ከዚህ በፊት ተኝቶ የመታከም ቁጥር	1. የለም 2. አንድ ጊዜ ብቻ 3. ሁለት ጊዜ 4. ከሁለት ጊዜ በላይ

ክፍል 2 የአስታማሚው የስነ ሕዝብ፣ የማሕበራዊ እና ኢኮኖሚያዊ መጠይቅ

201	ዕድሜ	_____
202	ጾታ	ወንድ 2- ሴት
203	የጋብቻ ሁኔታ	1. ያላገባ 2. ያገባ 3. በጾታዊ ግንኙነት ውስጥ 4- የተፋታ 5- የትዳር አጋር በሞት የተለየው
204	ሐይማኖት	1. ኦርቶዶክስ ክርስቲያን 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ _____
205	ብሔር	1.ኦሮሞ 2. አማራ 3.ትግሬ 4. ጉራጌ 5.የም 6. ዳውሮ 7.ሌላ _____
206	የትምህርት ደረጃ	1. ማንበብና መጻፍ የማይችል 2. የመጀመሪያ ደረጃ/1-8 th ክፍል/ 3. ሁለተኛ ደረጃ/9-12 th ክፍል/ 4. ኮሌጅና ከዚያ በላይ

207	ስራ	1- ገበሬ 3- ነጋዴ 5- ተማሪ 7- ሌላ _____	2- የቤት እመቤት 4- የመንግስት ሰራተኛ 6- የቀን ሰራተኛ
208	አማካኝ የወር ገቢ	_____	
209	ከታማሚው ጋ ያሉት ዝምድና	1. አባት 2- እናት 3. እህት/ወንድም 4- አክስት/አጎት 5- ሌላ _____	
210	ታማሚውን ማስታመም ከጀመሩ ምን ያህል ጊዜ ሆነው?	_____	
211	በቀን ምን ያህል ሰዓት ታማሚውን በማስታመም ያሳለፉት?	_____	
222	ለታማሚው እንክብካቤ የሚያደርጉ ሌሎች የቤተሰብ አባላት ቁጥር	_____	

ክፍል-3 ህመሙ በታካሚው ቤተሰብ ላይ ስለሚያስደረግ ጫና/ተፅዕኖ የሚዳስስ ቅጽ (Family Burden

Interview Schedule (FBIS)

ተ.ቁ	መለኪያ	ምንም ጫና አይፈጥርም	መካከለኛ ጫና ፈጥሯል	ከፍተኛ ጫና ፈጥሯል
U	ኢኮኖሚያዊ ጫና			
301	ታካሚው የገቢ ምንጭን አጥቷል? (ለምሳሌ በህመሙ ምክንያት ስራውን አጥቷል? ስራ መሥራትስ አቁሞዋል?... ይህ በቤተሰቡ ገቢ ምንጭ ላይ ምን ያህል ተፅዕኖ/ጫና ፈጠረ?)	0	1	2
302	በታካሚው ህመም ምክንያት ሌላ የቤተሰብ አባል የገቢ ምንጭን (ለምሳሌ ከታካሚው ጋር ቤት ለመሆን ስራ ማቆም/ማቋረጥ፣ ክፍያ ማጣት፣ ስራ ማጣት....በዚህ ምክንያት የቤተሰቡ ገቢ/ኢኮኖሚ ምን ያክል ጫና ተፈጠረበት?)	0	1	2
303	ለታካሚው ህመምና ከህክምና ጋር ተያይዞ የወጣ ወጪ (ለምሳሌ ታማሚው/ዋ በህመሙ ምክንያት ገንዘብ ያባክናል? ለህክምና፣ ለመድሀኒት፣ ለትራንስፖርት እንደሆነም ከቤት ውጭ ለሚደረጉ ታካሚውን የሚመለከቱ ወጪዎች እና ለባህሪ/ሀይማኖታዊ ህክምና ምን ያክል አወጡ? በዚህ ምክንያት የቤተሰቡ ገቢ/ኢኮኖሚ ምን ያክል ጫና ተፈጠረበት?)	0	1	2
304	በታካሚው ምክንያት ለተጨማሪ ወጪዎች መጋለጥ፣ (ለምሳሌ ሌላ ቤተሰብ/ዘመድ ለማስታመም/ለመርዳት መጥቶ መቆየት፣ ነርስ/ሞግዚት መቅጠር፣....እነዚህ በቤተሰቡ ፍይናንስ/ገቢ ላይ ምን ያክል ተፅዕኖ ፈጠሩ?)	0	1	2
305	ከታካሚው ህመም ጋር በተያያዘ ምን ያህል ብድር ወስደዋል? ብድሩ እንዴት እንደሚከፍሉስ ያቀዱት ነገር አለ? በታካሚው ምክንያት ገንዘብ መቆጠብ አቁመዋል? እነዚህ ችግሮች ምን ያክል ቤተሰቡ ላይ ተፅዕኖ ፈጠሩ?	0	1	2
306	በታካሚው ህመም ምክንያት በተፈጠረ የገንዘብ እጥረት የታቀዱ ነገሮች በሰዓቱ ሳይከናወኑ የቀሩ አሉ? ለምሳሌ የጋብቻ ጊዜ መዘግየት፣ መንፈሳዊ /ሀይማኖታዊ ፕሮግራሞች መስተዳገል/መሰረዝ? በነዚህ ምክንያት ቤተሰቡ ላይ ምን ያክል ጫና ተፈጠረ?	0	1	2
A	በቤተሰብ ጊዜና አጠቃላይ የዕለት እንቅስቃሴ/ስራ ላይ የሚፈጠር ጫና			
307	ታካሚው ከስራ፣ ከት/ቤት፣ ከኮሌጅ ወዘተ መቅረት! ይህ ቤተሰቡ ላይ ምን ያክል ችግር ፈጠረ?	0	1	2
308	ታካሚው በቤት ውስጥ ሥራ አያግዝም? ይህ በቤተሰቡ ላይ ምን ያክል ተፅዕኖ ፈጠረ?	0	1	2
309	በታካሚው ምክንያት የሌሎች ቤተሰብ አባላት የእላት እንቅስቃሴ መስተዳገል፣ (ለምሳሌ ታካሚውን ለመጠበቅ ሌሎች መደበኛ ስራዎችን መተው? ቤተሰቡ በዚህ ምክንያት ያክል ተቸገረ?)	0	1	2

310	የታካሚው ባህሪ አስቸጋሪ መሆን (ለምሳሌ ታካሚው ሌላ ሰው ከእርሱ ጋር እንዲሆን አጥብቆ መፈለግ ወይም ትቶት እንዳይሄድ መከላከል ወዘተ፣ ታካሚው ለሌሎች አደገኛ መሆን ለምሳሌ፡ መሳደብ፣ መማታት፣ እቃ መስበር፣ ሌሎች እንዳይተኙ ማድረግ ወዘተ እነዚህ ችግሮች በቤተሰቡ ላይ ምን ያክል ችግር/ ጭና ፈጠሩ)	0	1	2
311	በታካሚው ህመም ምክንያት ለሌላ የቤተሰብ አባል ተኩረት አለመስጠት፤(ለምሳሌ፡ ሌላ የቤተሰብ አባል ከስራ ወይም ትምህርት ቤት መቅረት፣ ምግብ መብላትን መርሳት ወዘተ ይህ ችግር ክብደቱ ምን ያክል ነው?)	0	1	2
ሐ	አጠቃላይ የቤተሰብ ትርፍ ሰዓት ላይ የሚፈጠር ጭና			
312	ከዚህ በፊት ይደረግ የነበሩ መዝናኛት ሙሉ በሙሉ፣ በከፊልና ወይም በጭራሽ ማቆም የቤተሰብ አባላት ለዚህ ሁኔታ ምን ምላሽ ሰጡ?	0	1	2
313	ታካሚው የሌላ ሰው የበዓላት ጊዜና ትርፍ ሰዓት እየተጠቀመ / እየተሻማ ነው፤ በዚህ ምክንያት ያ ሰው ምን ያክል ይጎዳል?	0	1	2
314	ታካሚው ለቤተሰብ አባላት ለምሳሌ ለልጆች ትኩረት መስጠት አለመቻሉ ቤተሰቡን ምን ያክል ተፅዕኖ ፈጠረበት?	0	1	2
315	በታካሚው ህመም ምክንያት በትርፍ ጊዜ ታቅደው የነበሩ ፕሮግራሞች ለምሳሌ የመዝናኛ ጉዞ፣ ከቤተሰብ ጋር መሰባሰብ መስተጓጎል/መቅረት? በዚህ ጉዳይ የቤተሰብ አባላት ምን ይሰማቸዋል?	0	1	2
መ	አጠቃላይ የቤተሰብ መስተጋብር/ግንኙነት ላይ የሚፈጠር ጭና			
316	በቤት ውስጥ የተፈጠረ አላስፈላጊ መጥፎ ነገር አለ? ለምሳሌ ቤቱ አሰልፎ ሆነ ወይም ፀጥ አለ? ወይም ቤት ውስጥ አለመግባባቶች አሉ? የቤተሰብ አባላቱ ይህንን ተፅዕኖ እንዴት ያዩታል?	0	1	2
317	ሌሎች የቤተሰብ አባላት ጭቅጭቅ ውስጥ ገብተው ያዉቃሉ? (ለምሳሌ ታካሚው እንዴት መታከም እንዳለበት፣ ማን ማሳከም እንዳለበት፣ ለህመሙ ማን ነው ተጠያቂው? ወዘተ) እነዚህ ቤተሰብ ላይ ምን ያክል ተፅዕኖ ፈጠሩ?	0	1	2
318	ዘመዶች እና ጎረቤቶች በታካሚው ህመም ምክንያት ወይም ከህመሙ ጋር የተያያዘ ማግለል ቤተሰቡን መጠየቅ አቁመዋል ወይም ቀንሰዋል? በዚህ ላይ ቤተሰቡ ምን ይሰማዋል?	0	1	2
319	ቤተሰብ ከሌሎች ሰዎች ተገለጻል? በሀፍረት ወይም ሌሎች በትክክል አይረዱንም በሚል ፍራቻ ራሳቸውን ከሌሎች ጋር መሆን አቁመዋል? በዚህ ላይ የቤተሰብ አባላት ምን ይሰማቸዋል?	0	1	2
320	የታካሚው ህመም በቤተሰብ መካከል ወይም በቤተሰብና በጎረቤት/ወዳጅ ዘመድ መካከል የግንኙነት መሻከር እንደፈጠረ ምክንያት ሆኗል? ለምሳሌ ትዳር መላያየት፣ የቤተሰብ ጠብ፣ ንብረት መካፈል.... ቤተሰቡ ምን ይሰማዋል?	0	1	2
ሠ	በአካላዊ ጤና ላይ የሚፈጠር ጭና			
321	ከቤተሰብ አባላት ውስጥ በታካሚው ህመም የባህሪ ችግር ምክንያት አካላዊ የጤና መታወክ ያጋጠመው አለ? ለምሳሌ አደጋ መድረስ ወዘተ ይህ ለቤተሰብ ምን ያህል ችግር ሆኗል?	0	1	2
322	ለተጨማሪ የጤና መታወክ የተጋለጠ ቤተሰብ አባል አለ? ለምሳሌ ክብደት መቀነስ፣ በፊት የነበረ ህመም መባባስ ወዘተ የችግሩ መጠን ምን ያክል ነው?	0	1	2
ረ	በአዕምሮ ጤና ላይ የሚፈጠር ጭና			
323	ከቤተሰብ አባላት ውስጥ የስነ ልቦና ቀውስ አጋጥሞት እርዳታ ያስፈለገው ሰው አለ? ለምሳሌ ህመምተኛው ራሱን የማጥፋት እቅድ፣ አለመታዘዝ ወይም ስለ ህመምተኛው መፃኢ መጫነቅ? ይህን ችግር ክብደቱ ምን ያክል ነው?	0	1	2
324	የቤተሰብ አባል የሆነ ሰው ለእንቅልፍ ማጣት፣ ድብርት፣ ራስን የማጥፋት ፍላጎት፣ በተደጋጋሚ መነጨነጭ ወዘተ ችግር የተጋለጠ አለ? አዎ ከሆነ የችግሩ መጠን ምን ያክል ነው?	0	1	2
አጠቃላይ ከግል ስሜት ጋር/ subjective burden/ ያለው የታካሚው ጭና/ተፅዕኖ				
325	የታካሚው ህመም ምን ያህል ጭና/ተፅዕኖ/ችግር ፈጥሮብኛል ብለህ ታስባለህ?	ምን ም(0)	መጠነ ጅ(1)	ከፍተ ጅ(2)

ክፍል 4 የካትዝ የእለት ተእለት እንቅስቃሴ መለኪያ

የሚቀጥሉት ጥያቄዎች ታማሚው የእለት ተእለት እንቅስቃሴውን ለመተግበር ምን ያህል ድጋፍ እንደሚፈልግ ያጠይቃሉ።

ተ.ቁ	እንቅስቃሴ ነጥብ(1 ወይም 0)	ድጋፍ የሚያስፈልገው: (1 ነጥብ) ምንም ክትትል፣ ትዕዛዝ ወይም እገዛ የሚያስፈልገው	ድጋፍ የሚያስፈልገው: (0 ነጥብ) ክትትል፣ ትዕዛዝ ወይም እገዛ የሚያስፈልገው
401	ገለ መታጠብ ነጥብ: _____	(1 ነጥብ) ሙሉ በሙሉ ገለን መታጠብ መቻል ወይም አንዳንድ ቦታዎችን ለመታጠብ እርዳታ መፈለግ (እንደ ጀርባ፣ ብልት አካባቢ ወይም የተጎዳ እጅ/እግር)	(0 ነጥብ) ከአንድ በላይ የሆነ የሰውነት ክፍልን ለመታጠብ ፣ ወደመታጠቢያ ቦታ ለመግባት ወይም ለመውጣት ወይም ሙሉ ሰውነትን ለመታጠብ እርዳታ መፈለግ።
402	ልብስ መልበስ ነጥብ:- _____	(1 ነጥብ) ልብስን ከልብስ ማስቀመጫ አንስቶ ሙሉ በሙሉ መልበስ እና ቁልፍን አስተካክሎ መቆለፍ መቻል። ጫማ ለማድረግ እርዳታ መጠየቅ ይቻላል።	(0 ነጥብ) ልብስን ለመልበስ እርዳታ መፈለግ ወይም ሙሉ በሙሉ አልባሽ መፈለግ
403	መፀዳዳት ነጥብ: _____	(1 ነጥብ) ካለምንም እርዳታ ወደ መፀዳጃ ቤት መሄድ፣ መቀመጥና መነሳት፣ ልብስን ማስተካከል እና ብልት አካባቢን ማፅዳት መቻል ።	(0 ነጥብ) ወደ መፀዳጃ ቤት ለመሄድና የብልት አካባቢን ለማፅዳት እርዳታ መፈለግ፣ የመፀዳጃ ሳህን መጠቅም ።
404	መንቀሳቀስ ነጥብ: _____	(1 ነጥብ) ከአልጋ ወይም ከወንበር ለመውረድና ለመውጣት እርዳታ አለመፈለግ፣ የመንቀሳቀሻ መሳሪያ/ ድጋፍ ተቀባይነት አለው።	(0 ነጥብ) ከአልጋ ወይም ወንበር ለመሄድ እርዳታ መፈለግ ወይም አንቀሳቃሽ መፈለግ።
405	ሽንትና ሰገራን መቆጣጠር ነጥብ: _____	(1 ነጥብ) ሙሉ በሙሉ ሽንትንና ሰገራን መቆጣጠር መቻል	(0 ነጥብ) በግማሽ ወይም ሙሉ በሙሉ ሽንትንና ሰገራን መቆጣጠር አለመቻል
406	መመገብ ነጥብ: _____	(1 ነጥብ) ከምግብ ሰሃን ወደ አፍ ያለእርዳታ መገረስ መቻል። ምግብ ማብሰል በሌላ ሰው ሊካሄድ ይችላል።	(0 ነጥብ) በግማሽ ወይም ሙሉ በሙሉ መጋቢ መፈለግ ወይም ከአፍ ውጭ መመገብ(parenteral feeding)

ክፍል 5 የአስሎ የማህበራዊ ድጋፍ መጠይቅ

መመሪያ: ይህ የመጠይቅ ክፍል 3 ጥያቄዎች ያሉት ሲሆን ከ ማህበረሰቡና ከ ቤተሰብዎ የሚያገኙትን ድጋፍና ተዛማጅ ጉዳዮች ይዳስሳል: እባክዎን ከተሰጡት አማራጮች ውስጥ እርስዎን በሚገልጻት መልስ ላይ ያክብቡ።

ተ.ቁ	ጥያቄ	1	2	3	4	5
501	በጣም የሚቀረቦትና በከባድ የግል ችግር ጊዜ የሚደርሱሎት ስንት ሰዎች ይሆናሉ (አንድ አማራጭ ብቻ ይጠቀሙ)	የሉም	1 ወይም 2	3-5	ከ 5 በላይ	—
502	በሚያደርጓቸው ነገሮች ሰዎች ምን ያህል ትኩረትና ፍላጎት ያሳያሉ (አንድ አማራጭ ብቻ ይጠቀሙ)	ምንም	ትንሽ	አለውቅም	መጠነኛ	በጣም ብዙ
503	እርዳታ የግድ በሚያስፈልግዎ ጊዜ ከጎረቤቶች ያንን እርዳታ ማግኘት ምን ያህል ቀላል ነው (አንድ አማራጭ ብቻ ይጠቀሙ)።	በጣም አስቸጋሪ	አስቸጋሪ	የሚቻል	ቀላል	በጣም ቀላል

ክፍል 6 የባለሙያ እርዳታ መጠይቅ

ተ.ቁ	ጥያቄ	አዎ	አይሉም
601	ስለታማሚው ህመም መረጃ አግኝተው ያውቃሉ? (የሕመሙ ባህሪ፣ሂደት፣ትንበያ.....)		
602	ከጤና ባለሙያዎች ስለማስታመሙ ክብደት የጠየቁት አለ?		

ክፍል 7 የሞሪስኪ Morisky medication adherence scale

የሚቀጥሉት ጥያቄዎች ደግሞ የታካሚውን መድሃኒት አወሰደ ይዳስሳሉ።

S. No	ጥያቄዎች	አዎ	አይደለም
701	መድሃኒትዎን መውሰድ ረስተው ያውቃሉ?		
702	መድሃኒትዎን ለመውሰድ የመዘንጋት ችግር አጋጥሞት ያውቃል?		
703	ህመሙ ሲሻሎት መድሃኒትዎን መውሰድ ያቆማሉ?		
704	መድሃኒትዎን እየወሰዱ ህመሙ ሲብስብዎት መድሃኒትዎን መውሰድ ያቆማሉ?		
	Total		

ክፍል 8 የሚቀጥሉት 12 ጥያቄዎች እርሶ የኑሮዎን ጥራት/ ደረጃ እንዴት እንደሚገመገሙት ይጠይቃሉ። ጥያቄዎቹ 6

በታዎችን ይዳስሳሉ። በኑሮዎ ምን ያህል ድስተኞች እንደሆኑ እና ለእርስዎ ምን ያህል አስፈላጊ እንደሆኑ በተሻለ ሁኔታ

የሚያንጸባርቁትን ቁጥር ያክብቡ። **Brunnsviken Brief Quality of life scale (BBQ)**

NO	ጥያቄዎች	ሙሉ በሙሉ አልሰማማም				ሙሉ በሙሉ እስማማለሁ
801	በእረፍት ጊዜ ደስተኛ ነኝ። ራሴን ለማስደሰትና ለማዝናናት የፈለግኩትን የማድረግ እድል አለኝ።	0	1	2	3	4
802	የእረፍት ጊዜ ለሕይወቴ ጥራት አስፈላጊ ነው	0	1	2	3	4
803	ለህይወቴን ያለኝ አመለካከት ደስተኛ ነኝ። ህይወቴ ምን ማለት እንደሆነ የማምንበት ነገር ምን እንደሆነ እና በህይወቴ ምን ማድረግ እንዳለብኝ አውቃለሁ።	0	1	2	3	4
804	ለሕይወቴ ያለኝ አመለካከት ለኑሮዬ ጥራት በጣም አስፈላጊ ነው	0	1	2	3	4
805	የፈጠራ ችሎታ እንዲኖረኝ በሚያደርጉ የተለያዩ አጋጣሚዎች ደስተኛ ነኝ። በአይነ ህሊናዬ የሚመጡ ሃሳቦችን በዕለት ተዕለት ህይወቴ ለመጠቀም፣ በትርፍ ጊዜ፣ በሥራ ላይ፣ ወይም ጥናት ጊዜ ለመጠቀም	0	1	2	3	4
806	የፈጠራ ችሎታ ባለቤት መሆን ለኑሮዬ ጥራት አስፈላጊ ነው።	0	1	2	3	4
807	በመማሪያ ደስተኛ ነኝ። አዲስ ነገሮችን፣ አስደሳች ነገሮችን እና እኔን የሚስቡኝ ክህሎቶች ለመማር እድሉ እና ፍላጎቴ አለኝ።	0	1	2	3	4
808	መማር የህይወቴ ጥራት አስፈላጊ ነው።	0	1	2	3	4
809	በጓደኞቼ እና በጓደኝነት ደስተኛ ነኝ። የምቀርባቸውና የሚደግፉኝ ጓደኞች አሉኝ (የምፈልገውን ያህል ጓደኞች)	0	1	2	3	4
810	ጓደኞች እና ጓደኝነት ለኑሮዬ ጥራት አስፈላጊ ናቸው።	0	1	2	3	4
811	በራሴ ሰውነት ደስተኛ ነኝ። ራሴን እወዳለሁ፣ ራሴን አከብራለሁ።	0	1	2	3	4
812	በራሴ ሰውነት ደስተኛ መሆኔ ለኑሮዬ ጥራት አስፈላጊ ነው።	0	1	2	3	4

ክፍል 9 ችግር መፍቻ መንገዶች ከዚህ በመቀጠል ያሉት 13 መጠይቆች የእርሶን ችግር መፍቻ መንገዶች ያጠይቃሉ።

ተ.ቁ	ጥያቄዎች	በአብዛኛው ስለእኔ እውነታ ነው (4)	በመጠኑ ስለእኔ እውነት ነው (3)	በትንሹ ስለ እኔ እውነት ነው (2)	ፈጽሞ ስለእኔ እውነት አይደለም (1)
901	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ጊዜ ወስጄ የተከሰተውን ነገር ለመረዳት እሞክራለሁ።				
902	በአስቸጋሪ ሁኔታ ውስጥ ስሆን የሁኔታውን አዎንታዊ ጎን ለማየት እሞክራለሁ።				
903	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ችግሩን ለጊዜው ተወት ለማድረግና በሌላ አይነት እይታ ለመገንዘብ እሞክራለሁ።				
904	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ችግሩን ለማቃለል የሚረዱ የተያዩ አማራጮችን እፈልጋለሁ።				
905	በአስቸጋሪ ሁኔታ ውስጥ ስሆን በተፈጠረው ሁኔታ ላይ ቀልድ/ጨዋታ ለመፍጠር እሞክራለሁ።				
906	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ችግሩ ምናልባት ሊናገር የሚችላቸውን መለወጥ ስላለብኝን ትላልቅ የህይወት ለውጦች አስባለሁ።				
907	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ብዙ ጊዜ ችግሩ በራሱ መቀረፍ መቻል አለመቻሉን ጊዜ ሰጥቼ ለማየት እሞክራለሁ።				
908	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ብዙ ጊዜ ችግሩ ሲታሰብ በጣም ከባድ እንደሚመስለው በእውን ግን ያ ላይሆን እንደሚችል ለማስታወስ እሞክራለሁ።				
909	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ብዙው ጊዜ፣የትርፍ ጊዜ ማሳለፊያዎችን፣ እስፖርት ወይም በተመስጥሎ ማሳላሰልን በአስቸጋሪ ጊዜ ውስጥ ያለችግር ለማለፍ እጠቀምባቸዋለሁ።				
910	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ስለ ችግሩ በመቀለድ ወይም በመሳቅ አሳልፈዋለሁ።				
911	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ነገሮች ከምፈልገው ያነሰ ውጤት ቢኖራቸውም ለማቻቻል እሞክራለሁ።				
912	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ለወደፊቱ እራሴን እና ቤተሰቦቼን በተሻለ ለመንከባከብ እርምጃ እወስዳለሁ ።				
913	በአስቸጋሪ ሁኔታ ውስጥ ስሆን ለወደፊቱ ነገሮች መልካም እንዲሆኑ ልምዶችን ለመለወጥ እሰራለሁ ለምሳሌ የአመጋገብ ስርአቴን ማስተካከል፣የእግር ጉዞ ማድለግ፣ የወጪ ዕቅድ ማውጣት ወይም ከምጫነቅላቸው ሰዎች ጋር በቅርብ መገናኘት።				

ክፍል 10 በቤተሰብ ላይ የሚደርስ ማግለልን መለኪያ

እባክዎ የሚከተሉትን ዓረፍተ ነገሮች ያንብቡና ከታች ከተዘረሀሩት አማራጮች ይመልሱ።

- | | | |
|------------|----------|--------------|
| 1. በጭራሽ | 3. እንዳንዴ | 5. በጣም ብዙ ጊዜ |
| 2. አልፎ አልፎ | 4. ብዙ ጊዜ | |

ጥያቄዎች	1	2	3	4	5
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111	የቤተሰብ አባል፣ የእድሜ ልክ ህክምና በመውሰዱ ምክንያት ሌሎች እኔን ጥሩ ባልሆነ እይታ ያዩኛል ብዬ ተጨንቄያለሁ					
112	ሌሎች ሰዎች አጻጻፊ ወይም ጥሩ ያልሆኑ ነገሮችን ስለ ሰዎችና ህመማቸው ሲናገሩ የሰማሁበት ሁኔታ ውስጥ ነበርኩኝ					
113	የህይወት ዘመን ህክምናን ስለሚቀበሉ ሰዎችና ህመሞቻቸው በመገናኛ ብዙሃን (ለምሳሌ ፣ ቴሌቪዥን ፣ ፊልሞች ፣ መጽሐፍት) መጥፎ ወይም አፀያፊ ሆነው ያገኙታቸውን ነገሮች አይቻለሁ ወይም አንብቤያለሁ ።					
114	የቤተሰብ አባል የህይወት ዘመን ህክምናን እንደሚቀበሉ ከቅርብ ቤተሰብ ወጪ ለማንም አልተናገርኩም።					
115	የቤተሰብ አባል የዕድሜ ልክ ህክምና እንደሚቀበል ሲገነዘቡ በሌሎች ዘንድ ብቁ እንዳልሆንኩ ተቆጥረያለሁ።					
116	የቤተሰብ አባል የዕድሜ ልክ ህክምና እንደሚቀበል ሲገነዘቡ በሌሎች ተቃልያለሁ ወይም ትተውኛል።					
117	የቤተሰብ አባል የዕድሜ ልክ ህክምና ስለሚወስድ የህይወት ፍጻሜ ተስፋዬን ቀንሻለሁ					
118	የቤተሰብ አባል የዕድሜ ልክ ህክምና እንደሚወስድ ሲገነዘቡ በሌሎች ዘንድ ፍትሀዊ ተቀባይነት አግኝቻለሁ።					
119	ጓደኞቼ የቤተሰብ አባል የዕድሜ ልክ ህክምና እንደሚወስድ ሲገነዘቡ ተረጂና እና ድጋፍ ሰጭ ናቸው።					

የመረጃ ሰብሳቢው ስምፊርማ ቀን

የሱፐርቪዥዩር ስምፊርማ ቀን.....

የተመራማሪው ስምፊርማ..... ቀን.....

Annex III Afan Oromo version questioner

Guca Odeeffannoo

Akkam jirtu. Maqaan koo.....dha. Kanan asitti argameef Manan Amara bakka bu'uudhani. Kanan dhufe yunivarsiitii jimmaa Inistiituutii fayyaa muummee yaala sammuu irraayi. yeroo ammaa kanatti dhibee sukkaaraa fi Iskiizofireeniyaa maatii yaalamtoota irraa dhiibbaa fi sababoota fafakkaatoo mataduree jedhu irratti barreeffama eebbaa hojjachuu irrattin argama.

Kaayyoon qorannoo kanaa yunivarsiitii jimmaa Inistiituutii fayyaatti dhiibbaa fi sababoota fafakkaatoo dhibeen sukkaaraa fi Iskiizofireeniyaa maatii yaalamtoota irratti qabu madaaludha. qorannoon kun yoo gaggeeffame yaalchiftootni dhukkubsattootaa xiyyeeffannoo ni argatu kan jedhu abdii qabna.

Gaafilee kana guutanii xumuruuf kan fudhatu daqiiqaa 30 qofa. odeeffannoo isin nuuf kennitan kamiyyuu dabarsinee nama sadaffaaf kan hin kennine yoo ta'u maqaa fi teesso akka kennitan hin gaafatamtan. qorannoo kana irratti hirmaachuu keessaniin rakkoos ta'ee bu'aan argattan hin jiru. gaafi irratti walakkaadhanis ta'ee guutumatti hirmaachuu dhiisuu mirga akka qabdannisiniif mirkaneessina.

Rakkoo isin muudatuuf teessoo armaan gadiitin beeksisuu nidandeessu.

Manan Amara +251-916394936 mismeni.beya@gmail.com

Galatoomaa!!

Wulii Walii galtee

Qorannoo mata duree dhiibbaa fi sababoota fafakkaatoo dhibeen sukkaaraa fi Iskiizofireeniyaa maatii yaalamtoota irratti qabu jedhu irratti yoon hirmaadha kaayyoo qorannichaa kanan hubadhee yoo ta'uu qorannoo kanairratti hirmaachuuf caljedhee kanan filame yoo ta'u hirmaannan fedhii koo irratti kan hundaa'e ta'uu fi yeroo kamittuu gaaficha addan kutuufi guutuu dhiisuu mirga akkan qabu nan beeka. Maqaan koo gaaficha irratti hin ibsamu. haala kanaan qorannicha irratti fedhii kootin hirmaachuu koo mallattoo kootin nan mirkaneessa.

Mallattoo..... Guyyaa.....

WARAQAA GAAFFII OROMIFFAAN

KUTAA-I Gaaffilee Hawaas-diinagdee Dhukkubsataa/Yaalamaa

S. No.	Hawaas-diinagdee Dhukkubsataa/Yaalamaa	
101	Umurii	Waggaa_____
102	Saala	1- Dhiira 2- Durba
103	Sadarkaa ga'ila	1- Kan hin fuune/ hin heelumne 2- Kan fuudhe/hin heelumne 3- Kan wal-hiikee 4- Kan wal-hiikne garuu waliin hin jiraanne, fkn kan du'e
104	Amantii	1. Ortodooksii 2. Musliima 3. Protestaantii 4. Kaatoolikii 5. Kan biraa(ibsi)_____
105	Saba	1.Oromoo 2. Amaaraa 3.Tigree 4. Gurage/guraagee 5.Yem 6. Dawuroo 7. Kan biraa(ibsi)_____
106	Sadarkaa barnootaa	1- Barreessuuf dubisuu kan hin dandeenye 2- Sadarkaa barumsajalqabaa (1-8 ^{ffaa}) 3- Sadarkaa barumsa lammaffaa(9-12 ^{ffaa}) 4- Kolleejjii fi isaa ol
107	Gita hojii	1- Qonnaan bulaa 2- Hhaadha warraa 3- Hojjataa mootummaa 4- Daldalaa 5- Barataa/ttuu 6- Dafqaan bulaa 7- Kan biraa(ibsi)_____
108	Erga dhukkubsachuu eegaltanii guyyoota meeqa ta'a?	Guyyoota_____
109	Kanaan dura yeroo meeqaaf tajaajila ciisanii yaalamu argatanii beektu?	1. Ciisee yaaleme hin beeku 2. Yeroo tokkoo qofa 3. Yeroo lama 4. Yeroo sadii fi isaa ol

KUTAA-II Gaaffilee Hawaas-diinagdee Yaalchisaa

S. No.	Gaaffilee Hawaas-diinagdee Yaalchisaa	
201	Umurii	Waggaa_____
202	Saala	1- Dhiira 2- Durba
203	Sadarkaa Gaa'ila	1- Kan hin fuune/ hin heelumne 2- Kan fuudhe/hin heelumne 3- Kan wal-hiikee 4- Kan wal hin fuune garuu hariiroo keessa kan jiru 5- Kan wal-hiikne garuu waliin hin jiraanne, fkn kan du'e
204	Amantii	1. Ortodooksii 2. Musliima 3. Protestaantii 4. Kaatoolikii 5. Kan biraa(ibsi)_____
205	Saba	1.Oromoo 2. Amaaraa 3.Tigree 4. Gurage/guraagee 5.Yem 6. Dawuroo 7. Kan biraa(ibsi)_____
206	Sadarkaa barnootaa	1- Barreessuuf dubisuu kan hin dandeenye 2- Sadarkaa barumsa jalqabaa (1-8 ^{ffaa}) 3- Sadarkaa barumsa lammaffaa(9-12 ^{ffaa}) 4- Kolleejjii fi isaa ol

207	Gita hojii	1- Qonnaan bulaa 2- Haadha warraa 3- Hojjataa mootummaa 4- Daldalaa 5- Barataa/ttuu 6- Dafqaan bulaa 7- Kan biraa(ibsi)_____
208	Galii ji'aa gidduu galeessaan	Qarshii _____
209	Walitti dhufeenya/Hariiroo dhukubsataa/yaalamaa faana qabdan	1- Abbaa 2- Haadha 3- Obboleessa/obboleettii 4- Adaadaa/Eessuma/Wasiila 5- Kan biraa(ibsi)
210	Yeroo hangamiif dhukubsachiisaa/ yaalchisaa turtan?	Guyyaa_____
211	Guyyaa tokkotti sa'aa meeqaaf dhukubsachiistuu/yaalchistu?	Sa'aatii _____
222	Nama biraa meeqatu siin waliin yaalchisaa jira?	Namoota_____

KUTAA-III Gaaffilee Dadhabina/Dhiibbaa Maatii Dhukkubsataa

	A. Ba'aa qarshii waliigalaan	Dhiibbaa hin qabu	Dhiibbaa giddugal eessa	Dhiibbaa cimaa
301	Dhukkubsataan galii dhabuu: (hojii isaa/isii dhabeeraa/dhabdeettii?Dhiibbaan galii maatii irratti qabu maal fakkaata?)	0	1	2
302	Sababa dhukkuba dhukkubsataatiif maatii keessaa namni galii isaa dhabe jiraa? (namni hojjechuu dhaabe sabaa mana turuutiif, kaffaltii dhabuun, hojii dhabuun? Galiin maatii hammam hubamee?)	0	1	2
303	Baasii sababa dhukkuba dhukkubsataatii fi yaalsisuuf ba'e: sababa dhukkuba isaatiif baasiin ykn qarshiin osoo itti hin yaadiin ba'e? Hammam galii maatii hube? Qorichaaf, geejjibaaf,bultiif fi kkf? Baasii kan biraa kan yaalumsa karaa amantaatiinii fi aadaatiin godhamu irratti ba'e? Kun akkamiin galii qabeenya maatii miidhe/hube?)	0	1	2
304	Baasii wantoota dabalataatiif ba'e: (fknf, fira dhukkubsataa bira dhufeeff; nama kunuunsu qacaruufii: ijoollee irra adda baasuuf dallaa ijaaruu. Kun akkamiin galii maatii hubee?)	0	1	2
305	Liqii liqeeffatame ykn qarshii qusannoo irraa ba'e: (akkamiin deebisuuf karoorfattan? Hammam maatii huba? Qusannoo irraa wanti baafatan jiraa? Kan qusattan ni fixxanii? Miidhaa hammamiitu maatii irra ga'e?)	0	1	2
	Sababa baasii dhukkuba dhukkubsataatiif wanti karoorfattanii dhiistan: (fkn, gaa'ila achi dheeressuu, imala ykn ayyaana ayyaneffachuu dhiisuu? Maatiin hammam hubame?)	0	1	2
B. Dhiibbaa Waliigalaa hojii idilee maatii irra gahe				
307	Dhukkubsataan gara hojii, mana barumsaa kolleejjii fi kkf deemuu dhiiseera: kun hagam maatiitti ulfaata?	0	1	2
308	Dhukkubsataan mana keessatti maatii hojii hin gargaaru: kun ammam maatii miidha?	0	1	2
309	Miidhaa hojii maatii kan biraa irra ga'e: (namni biraa dhukkubsataaeguuf jecha yeroo isaa ni gubaa, hojii idilee isaa dhiisee? Hammam maatiitti ulfaata?	0	1	2
310	Amala ykn sochii dhukkubsataan qabu kan dalagaa hube: (dhukkubsatan aakka namni tokkochi bira turu fedhuu, namni sun akka bira deemuu eyyemuu diduu, kkf? Achiin dhukkubsataan jeeqamuu, wantoota cabsuu, hirriba dhabuufi namoota biraa rafuu dhorkuu? Kun hammam maatii hube?)	0	1	2

311	Sababa dhukkuba dhukkubsataaf maatiin biraa dagatamuu: (namni biraa kan barumsa dhiise, nyaataa fi kkfa/ kun hammam ulfaata?)	0	1	2
C. Waliigala boqonnan maatii jeeqamuu				
312	Boqochuuf ykn bashannanuuf yeroo dhabuu: guutummaati, walakkaan, hamma murtaa'e? Kana maatiin akkamiin ilaala?)	0	1	2
313	Dhukkubni dhukkubsataa guyyaa ayyaanaa fi sa'aatii boqonnaa nama biraa fudhachuu: (namni kun akkamiin kanaan miidhame?)	0	1	2
314	Dhukkubsataan maatii isaa kan biraaf xiyyeeffannoo dhabuu, akka daa'immaniif, fi miidhh inni jara irratti qabu.	0	1	2
315	Sababa dhukkuba/dadhabina dhukkubsataaf sa'aatiin boqonnaa ykn bashannanaa gubachuu/utuu itti hin fayyadamiin hafuu fknf fedhii daawwannaa ykn walitti dhufeenya maatii? Kana ilaalchisee maatitti maaltu dhaga'ama?)	0	1	2
D. Waliigala walitti dhufeenyi maatii jeeqamuu				
316	Waliigalatti miidhaa mana keessatti mudate: (cimaadhaa, yartuu dhaa? Waan baay'ee kan namaa hin galle, kkf? Miseensi maatii akkamitti ilaala?)	0	1	2
317	Miseensi maatii kan biraa kana irratti walfalmaa(fkf akka itti dhibamaan yaalamu, eenyu kan hojjetu, eenyu kan komatamu, kkf? Akkamiin miidhaman?	0	1	2
318	Sababa amala dhukkubsataaf ykn qooddii dhukkuba waliin walqabateenfirri ykn ollaan maatii dhukkubsataa dubbisuu dhiisuu ykn hir'isuu? Maatiin akkamiin yaade kana?	0	1	2
319	Maatiin qofaatti baafameera? Sababa hubannoo dhabuun ykn sodaachuutiin maatiin qofaatti baafameera? Miseensi maatii akkamitti ilaala?	0	1	2
320	Dhibeen dhukkubsataa miidhaa kan biraa walitti dhufeenya maatii gidduutti ykn maatii fi olla ykn fira gidduutti fkn walii hiikuu, maatii gidduutti waldhabuu, qabeenya irratti waldhabuu, poolisiin gidduu seenuu, maallaqni gidduu maatiiti baduu, kkf? (maatiin akkamiin ilaala?)	0	1	2
E. Waliigala Miidhaa qaamaa				
321	Sababa dhibee dhukkubsataatiif Maatii keessaa namni miidhaan qaamaa irra ga'e ni jiraa? Kun akkamitti jara miidhe?	0	1	2
322	Miidhaan qaamaa kan biraa mudateeraa(fkf, ulfaatinni hir'achuu, dhukkubni kanaan dura ture namatti ka'uu? Kun hagam cimaa dha?	0	1	2
F. Waliigala fayyaa sammuu nama kan biraa				
323	Miseensa maatii keessaa namni gaargarsa ogeessa xiinsammuu barbaade jiraa sababa rakkoo dhibee dhukkubsataaf isaan irra ga'een (fkn, dhukkubsataan of ajjeesuu yaaluu, gorsa fudhachuu diduu, waan gara fuulduraa sodaachuu) kun hagam ulfaata?	0	1	2
324	Miseensaa maatii keessa kan hir'aba dhabe, kan of jibbe, kan of ajjeesuu yaade, kan waan xiqqootti baay'ee haaru, kkf? Hammam ulfaata?	0	1	2
S.B	Dhukkubsataa gargaaruuf jecha hammamin rakkadhe ofiin jetta?	Gonku ma hin rakkanne (0)	Xiqoo(1)	Baay'ee e(2)

KUTAA-IV Madaallii Gochaawwaa Guyyaa Guyyaa Katz

Gaaffileen armaan gadii of-danda'ummaa yaalamaan hojiilee guyyaa guyyaa isaanii irratti godhan hubachuuf gargaaru

TAR. LAKK.	GOCHAAWWAN Qabxii(1 ykn 2)	GARGAARSA KAN HIN BARBAACHIFNE (qabxi 1) hordoffii homaa,ajaja ykn Gargaarsa kan hinbarbaachifne	GARGAARSA KAN BARBAACHISU (qabxi 0) hordoffii,ajaja ykn Gargaarsa kan barbaachisu
401	Qaama dhiqachuu Qabxii.....	(qabxi 1) guutumman guututti qaama dhiqachuu danda'uu ykn qaama tokko tokko dhiqachuuf kan akka dugdaa,naannawa qaama saalaa ykn harka/miila miidhamaa ta,uu qofaan gargaarsa barbaaduu	(qabxi 0) qaama tokkoo ol dhiqachuuf,mana qaama diqannaa seenuuf ykn bahuuf Ykn qaama hunda dhiqachuuf gargaarsa kan barbaaduu
402	Uffata uffachuu Qabxii.....	(qabxi 1) Uffaa bakka uffannii taa'uu kaasee guutumman guututti uffachuu fi qulfi sirresse qollofuu kan danda'uu..... “kophee godhachuuf gargaarsa gaafachuu nidanda'a”	(qabxi 0) uffata uffachuuf gargaarsa barbaaduu ykn guutumman guututti uffata uffachiisaa barbaaduu
403	Boolii boola'uu Qabxii.....	(qabxi 1) gargaarsa tokko malee gara mana fincaanii deemuu,taa'uu fi ka'uu,uffata sirreeffachuu danda'uufi naannawa qaama saala qulqulleessuu danda'uu	(qabxi 0) gara mana fincaanii deemuu fi naannawa qaama saala qulqulleessuf gargaarsa barbaaduu,sahaanii mana fincaanii fayyadamuu
404	Sosocha'uu Qabxii.....	(qabxi 1) Siree ykn teessoo irraa bu'uu fi koruuf gargaarsa kan hin barbaadne.....”meeshaa sochii ykn irkoo fudhatama qaba”	(qabxi 0) siree irraa gara teessoo deemuuf gargaarsa barbaaduu ykn sosochooftuu barbaaduu
405	Boolii too'achuu Qabxii.....	(qabxi 1) guutumman guututti boolii to,achuu danda'uu	(qabxi 0) walakkaan ykn guutumman guututti boolii to'achuu dadhabuu
406	Soorachuu Qabxii.....	(qabxi 1) gargaarsa malee nyaata sahaanii irraa gara afaanitti fudhachuu danda'uu.....”nyaata bilcheessun nama biraan raawwatamuu danda'a”	(qabxi 0) walakkaan ykn guutumman guututti nyaata nyaachiftuu barbaaduu

KUTAA - VKutaa gargaarsa hawaasummaa dhukkusachiisaa (Oslo Social Support Scale)

Gaaffileen armaan gadii sadarkaa gargaarsaa hawaasa irraa argattan qorachuuf gargaaru

Lakk	Gaaffilee	1	2	3	4	5
501	Namoota meeqatu yeroo rakkoon isiin qunnamu naqaqqaba jettanii yaadduu? (tokko qofa filadhaa)	Homtuu	1-2	3-5	5 oli	
502	Namoota hangamiitu wanta isin dalagdaniif dhimmama/ (tokko qofa filadhaa)	Humtuu	Baay'ee xinnoo	Hin beekamu	Muraasa	Hedduu
503	Carraan gargaarsa hawaasa naannoo irraa argachuu keessan maal fakkaata? (tokko qofa filadhaa)	Baay'ee rakkisaa	Rakkisaa	Giddugaleessa	Salphaa	Baay'ee salphaa

KUTAA – VIGargaarsa Ogummaan deeggarame

Lakk	Gaaffilee	Eeyyee	Miti
601	Armaan dura odeeffannoo waa'ee dhukkuba yaalamaatiin wal-qabate argattanii beektuu (akkaataa dhukkubaa, Hammam akka nama hubufi kkf)?		
602	Namni buufata eegumsa fayyaa irraa akkaataa ittiin rakkoo dandamattan isin gaafate jiraa?		

KUTAA-VIIGaaffilee Haala fudhannaa qoricha dhukkubsataa

Lakk.	Gaaffilee	Eeyyee(1)	Lakki(0)
701	Qoricha keessan fudhachuu dagattanii beektuu?		
702	Yeroo qorichi itti fudhatamutti rakkoo dagachuu ni qabduu?		
703	Yeroo miirri gaariin isinitti dhagahamu qoricha fudhachuu ni dhiistuu/ni dhaabduu?		
704	Yeroo tokko tokko yemmuu qoricha fudhattanitti miirri badaan yoo isinitti dhagahame qoricha fudhachuu ni dhaabduu?		

KUTAA-VIIIBrunsviken Brief Quality of life scale (BBQ)

Gaaffileen 12'n armaan gadii barmoota isin jireenya keessan keessatti raawwatan qorachuuf gargaaru. Kutaalee 6 qabu.

Hamma akka itti gammaddan fi hangam akka isin barbaachisan hubachuuf gargaaru. Lakk. Filannoo keessani itti maraa.

		goonkuma a walii hin galu				sirriitti walii nan gala
801	Yeroon boqonnaa ani qabutti gammadaadha. Bashananuu fi bohaaruuf carraa nan qaba.	0	1	2	3	4
802	Yeroon boqonnaa koo jireenya koo keessatti bakka guddaa qaba/barbaachisaa dha.	0	1	2	3	4
803	Jireenya kootti gammadaa dha. Anaaf maal jechuu akka ta'e, maal akkan hojjechuu qabu nan beeka.	0	1	2	3	4
804	Akkaataan jireenya koo itti ilaalu qulqullina jireenya koof barbaachisaa dha.	0	1	2	3	4
805	Carraa calaquu danda,uu kootti gammadaa dha: xiinxala koo fayyadamuu hojii guyyaa guyyaa, dubbisa keessatti yeroon fayyadamu.	0	1	2	3	4
806	Carraan kalaquu danda'uu koo qulqullina jireenya koof murteessaa dha	0	1	2	3	4
807	Barnoota kootiin gammadaadha. Waan haaraa barachuuf, calaqqisiisuuf fi dandeettii na hawwate barachuuf fedhiif carraan qaba.	0	1	2	3	4
808	Barachuun /barumsi/ jireenya koof barbaachiisaa dha	0	1	2	3	4
809	Hiriyummaa fi Hiriyoota kootti gammadaadha. Hiriyoota na gargaaranis nan qaba.	0	1	2	3	4
810	Hiriyummaa fi hiriyootni koo jireenya koof barbaachisaa dha.	0	1	2	3	4
811	Namumaa kootti nan gammada. Namummaa koo nan jaaladhas ofis nan kabaja.	0	1	2	3	4
812	Namummaa kootti gammaduun koo jireenya kootiif murteessaa dha	0	1	2	3	4

KUTAA-IXMadaallii ittiin furmaata rakkoolee

Gaaffileen armaa gaarii 13 akkaataa isin rakkoolee keessan ittiin furtan qorachuuf gargaaru

Lakk	Gaaffii	Yeroo baay'ee sirriidha	Hanga ta'ee sirriidha	Muraasa sirriidha	Goonkummaa sirrii miti anaaf
901	Yeroo rakkoo na mudatu, maal akka uumame yeroo fudheen yaada				
902	Yeroo rakkoo na mudatu, gama gaarummaa isaa ilaaluf nan yaala				
903	Yeroo rakkoo na mudatu, rakkoo sana keessaa bahee gama garaagaraan waa'ee isaan yaada				
904	Yeroo rakkoo na mudatu, rakkoo sana furuuf carraa garaagaraa nan fayyadama				
905	Yeroo rakkoon na mudatu, gaarumma rakkicha keessa jirun ilaala.				
906	Yeroo rakkoon na mudatu, jijjirraa haala jireenya akkamii akkan gochuu qabu na yaada				
907	Yeroo rakkoon na mudatu, itti dhiisee waan fidu ilaala				
908	Yeroo rakkoon na mudatu, rakkoo cimaa akka hin taane hubachuuf nan yaala				
909	Yeroo rakkoon na mudatu, sossochii qaamaa, gargaaraa ykn bashannan fi qoricha rakkoo san keessaa na baasan nan fayyadama				
910	Yeroo rakkoon na mudatu, waa'ee isaa nan qoosa ykn salphiseen ilaala				
911	Yeroo rakkoon na mudatu, walmadaalsisuun yaala				
912	Yeroo rakkoon na mudatu, waa;ee koo fi waa'ee maatii koof kununsa addaa na gochuuf na kakaasa				
913	Yeroo rakkoon na mudatu, fuuldura koo gaarii gochuuf amala, haala nyaataa, sossochii qaamaa, baajata koo fooyyessuun fi namoota natti dhiyaatan waliin turuuf barmaata koo nan jijjira.				

KUTAA- X–Madaallii fo'iinsa maatii dhukkubsataa/ Modified Consumer Experiences of Stigma Questionnaire (MCESQ)

Himoota armaan gadiitti heeraman dubbisuun ,*goonkumaa walii hin galuu (1)* hanga *sirriitti walii nan gala(4)* kan jedhuun sadarkeessaa.

- | | | |
|-----------------------------------|----------------|------------------|
| 1. Goonkumaa | 3. Darba darba | 5. Yeroo baay'ee |
| 2. Ta'uus danda'a / yeroo muraasa | 4. Irra caalaa | |

	Gaafilee	1	2	3	4	5
111	Maatiin kan koo umurii isaanii guutuu kununsii yaalaa waan godhamuu namootini ana ilaalan waan ani natti hin tolletti waan ilaalaniif nan yaada'a,					
112	Yaada namaa, Waan nama ciiga'uu fi namatti hin tolle keessan tureera.					
113	Waa'ee namoota umuurii guutuu wal'aansa yaalaa fudhachaa jiran fi haala irra jiran gama maas midiyaa (Televizhini, sur-sagalee, kitaabota) dhagaheen jira.					
114	Maatii natti dhiyaataniin alatti, maatiin kan koo wal'aansa umurii guutuu akka fudhachaa jiran eenyuttu hin himu.					
115	Namootni yeroo maatiin kan koo yaala wal'aansaa umurii guutuu akka fudhatan baran, akka ani dorgomaa hin taanetti ana lakkaa'ii jiru.					
116	Namootni na qoodan turan, yeroo maatiin kan koo wal'aansaa umurii guutuu akka fudhatan baran					
117	Maatiin kan koo wal'aansa umurii guutuu waan fudhataniif jireenya koo keessatti bakkan gahuu yaadu irra gaddi bu'eera (xiqqaadheera)					
118	Namootni maatii kaan koo wal'aansa yaalaa umurii guutuu akka fudhatan yeroo dhagahan badaa anatti hin maxxanan.					
119	Hirriyootni kan koo, yeroo maatiin kan koo wal'aansa yaalaa umurii guutuu akka fudhatan dhagahan na hubachuun ana deeggaru.					

Maqaa Ragaa Sassaabaa _____ Mallattoo _____ Guyyaa _____

Maqaa To'ataa _____ Mallattoo _____ Guyyaa _____

Maqaa Qorataa _____ Mallattoo _____ Guyyaa _____

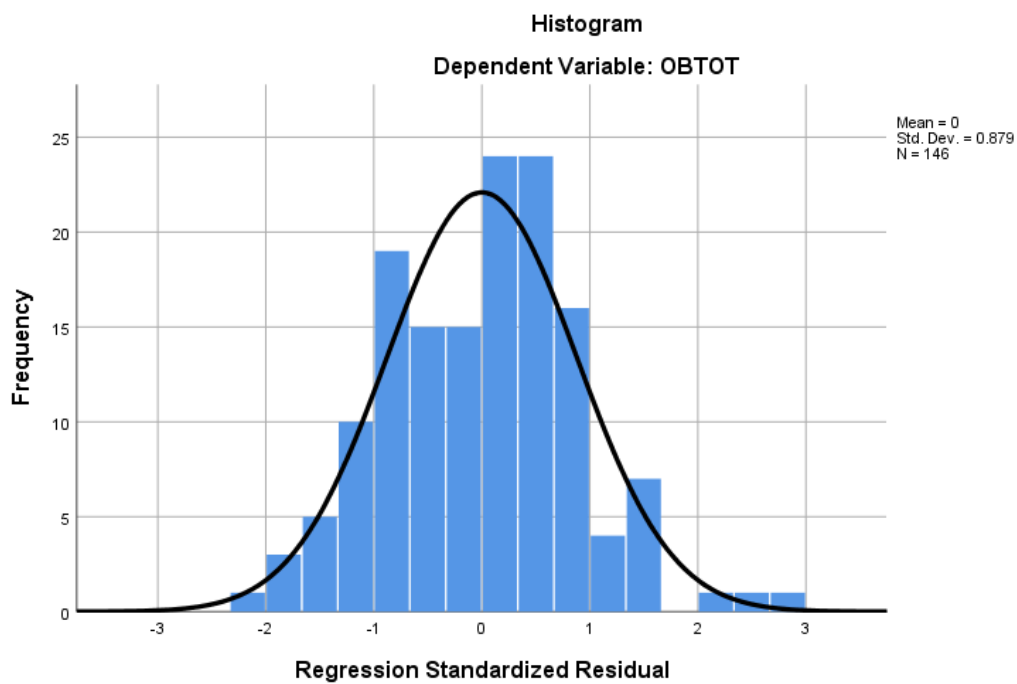
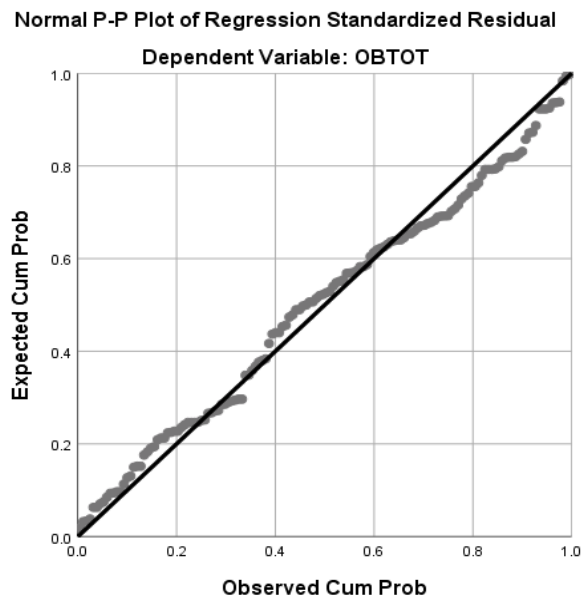
Annex IV Assumptions for linear regression

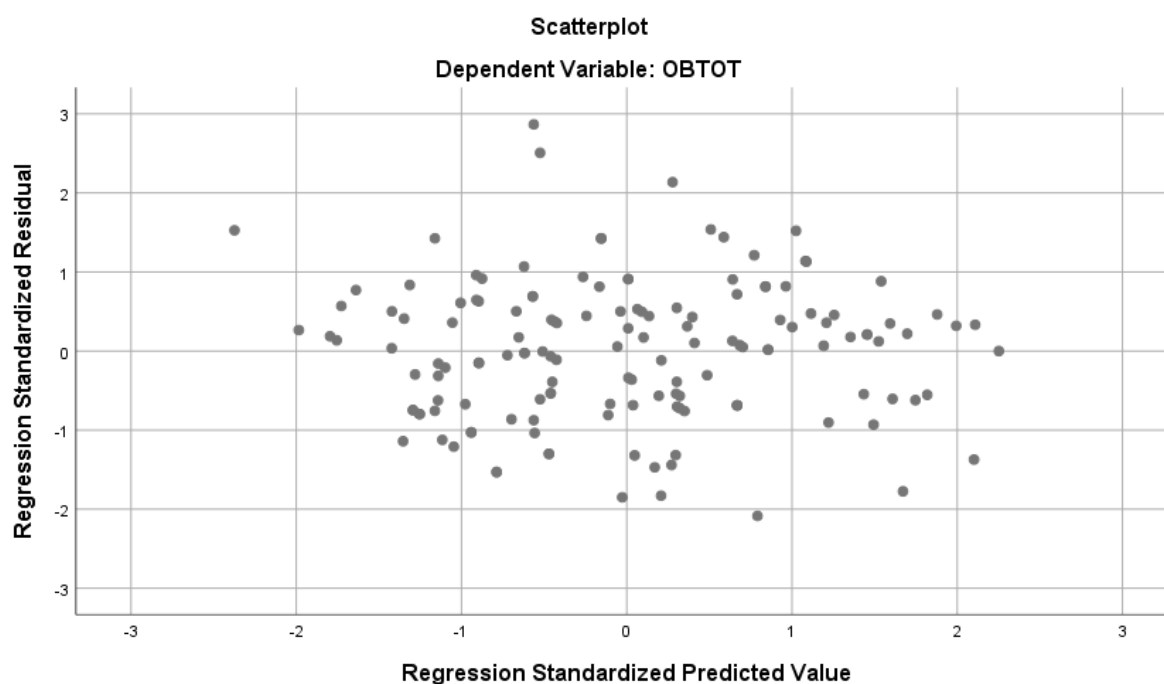
Data collected for caregivers of patients with Schizophrenia

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OBTOT	.071	146	.067	.966	146	.001

a. Lilliefors Significance Correction





Model		Collinearity Statistics	
		Tolerance	VIF
DM1	Pt unable to read and write	.547	1.828
	Pt secondary education	.590	1.696
	Pt college and above	.263	3.802
	Pt house wife	.598	1.673
	Pt merchant	.554	1.804
	Pt farmer	.386	2.588
	Pt government employee	.271	3.693
	Pt student	.516	1.939
	Pt daily labourer	.555	1.802
	Pt other occupation	.698	1.433
	Once admitted	.686	1.457
	Admitted twice	.616	1.623
	Admitted more than twice	.461	2.172
	Moderate ADL impairment	.617	1.619
	Sever ADL limitation	.620	1.613
	High MA	.435	2.298
	Medium level of MA	.491	2.036
	CAREGIVER SEX	.489	2.045
	CAREGIVER divorced	.789	1.268
	CAREGIVER widowed	.424	2.359
	CAREGIVER single	.499	2.005

CD unable to read and write	.585	1.710
CAREGIVER secondary education	.381	2.627
CAREGIVER college and above	.451	2.218
Moderate social support	.536	1.867
Strong social support	.355	2.816
CAREGIVER AGE	.496	2.017
DURACAREGIVER	.236	4.231
FAMEMB	.691	1.447
ILLDURE	.254	3.934
QOL	.395	2.534
COPE	.397	2.522
STIGMA	.560	1.785

a. Dependent Variable: OBTOT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.816 ^a	.666	.567	6.417	.666	6.754	33	112	.000	1.800

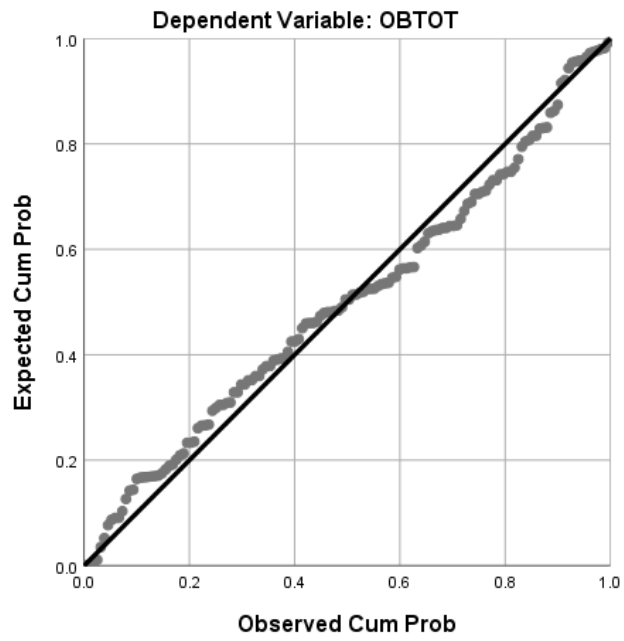
Data collected for caregivers of patients with DM

Tests of Normality

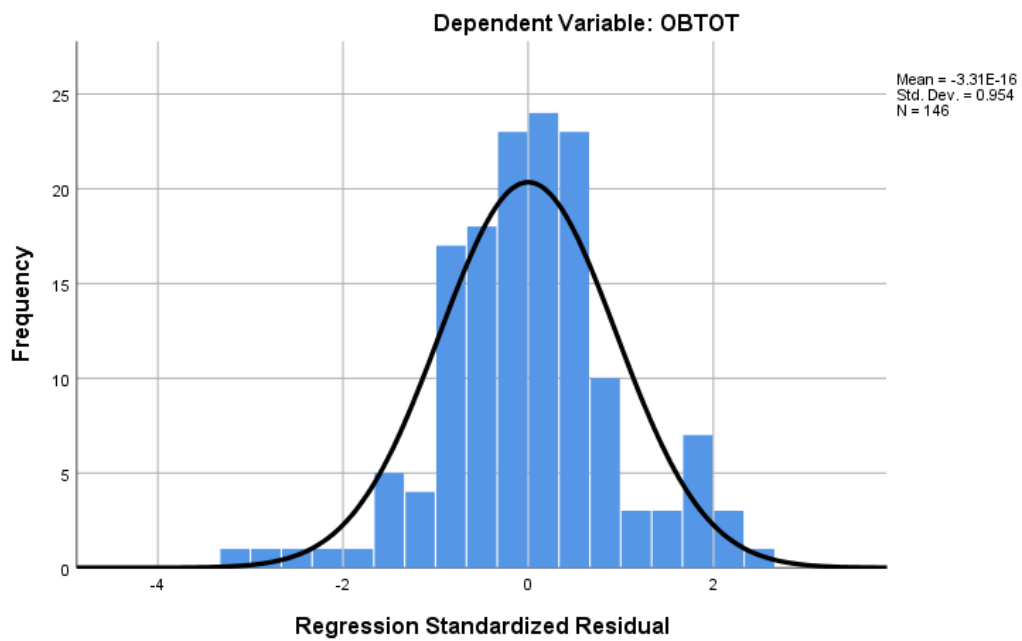
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OBTOT	.078	146	.029	.982	146	.054

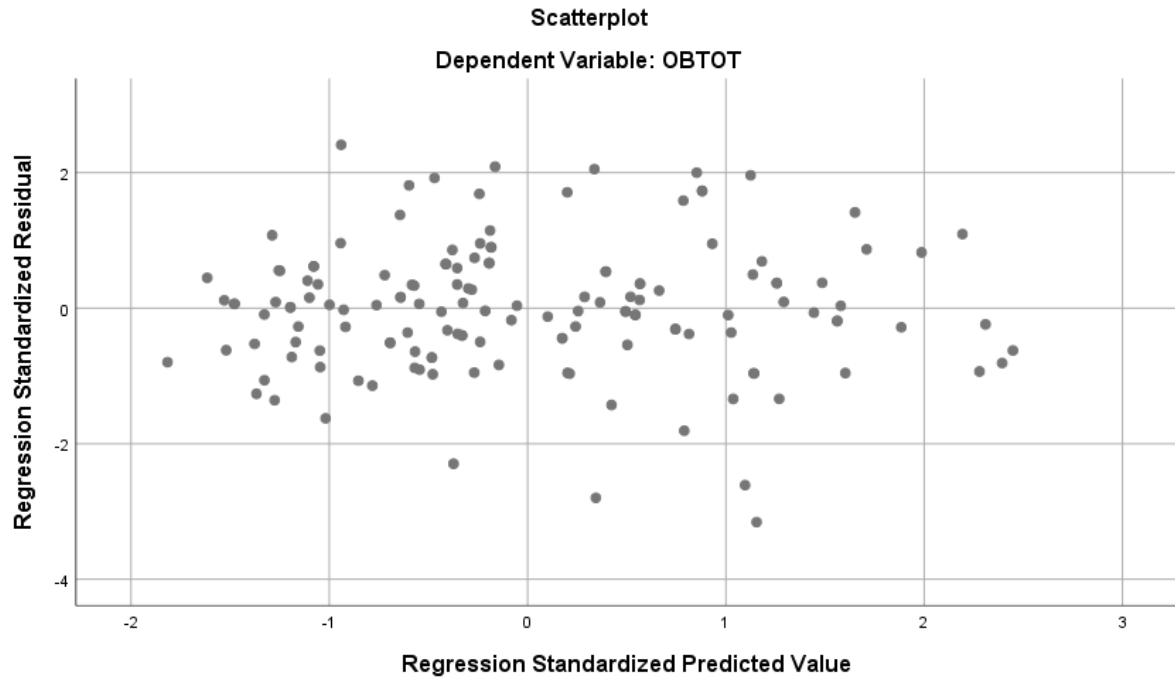
a. Lilliefors Significance Correction

Normal P-P Plot of Regression Standardized Residual



Histogram





Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Pt primary education	.664	1.506
	Pt secondary education	.672	1.487
	Pt college and above	.618	1.618
	Strong social support	.772	1.296
	Poor SS	.780	1.282
	Low MAS	.800	1.250
	High MA	.891	1.122
	Moderate ADL impairment	.788	1.269
	Sever ADL limitation	.832	1.202
	QOL	.464	2.157
	COPE	.816	1.226
	STIGMA	.554	1.804
	FAMEMB	.840	1.191

a. Dependent Variable: OBTOT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Sig. F Change	Durbin-Watson	
					R Square Change	F Change	df1			df2
1	.736	.542	.497	4.130	.542	12.031	13	132	.000	1.659