MEKELLE UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING

DEPARTMENT OF PSYCHIATRY

MEDICATION NON-ADHERENCE AND ASSOCIATED FACTORS AMONG SCHIZOPHRENIA OUTPATIENT ATTENDEES IN PUBLIC HOSPITALS OF MEKELLE,TIGRAY,ETHIOPIA, 2024.

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A THESIS SUBMITTED TO THE DEPARTMENT OF PSYCHIATRY, SCHOOL OF NURSING, COLLEGE OF HEALTH SCIENCES, MEKELLE UNIVERSITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE MASTER OF SCIENCE DEGREE IN INTEGRATED CLINICAL AND COMMUNITY MENTAL HEALTH

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Examiner's Approval Sheet

We, the undersigned, members of the Board of Examiners of the final open thesis defense by "Araya Haftu Hailemariam" have read and evaluated his thesis "Medication non-adherence and associated factors among schizophrenia outpatient attendees in public hospitals of Mekelle,Tigray,Ethiopia, 2024**"**and evaluated the candidate. This is therefore to certify that the thesis has been accepted in partial fulfillment of the requirements for the Masters Degree in Integrated Clinical and Community Mental Health.

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I hereby certify that all the corrections and recommendations suggested by the Board of Examiners are incorporated into the final thesis entitled "Medication non-adherence and associated factors among schizophrenia outpatient attendees in public hospitals of Mekelle,Tigray,Ethiopia, 2024" by

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Abbreviation and Acronyms

ACSH Ayder Comprehensive Specialized Hospital

AOR Adjusted Odds Ratio

COR Crude Odds Ratio

CI Confidence Interval

DAI Drug Attitude Inventory

DSM Diagnostic and Statistical Manual of Mental Disorders

EPS Extra Pyramidal Side effects

ETB Ethiopian Birr

EPI data Epidemiological data

FGA First Generation Antipsychotics

GASS Glassgow Antipsychotic Side effects Scale

MGH Mekelle General Hospital

MMAS Morisky Medication Adherence Scale

MARS Medication Adherence Rating Scale

MUCHS Mekelle University College of Health Science

OSSS Oslo Social Support Scale

OPD Outpatient Department

SGA Second Generation Antipsychotics

SPSS Statistical Packages for Social Science

QGH Quiha General Hospital

WHO World Health Organization

Abstract

Background: Given that adherence to antipsychotic medications is the cornerstone in the treatment and prevention of relapses of schizophrenia, non-adherence is a major problem among patients. Non-adherence to antipsychotic medication has a negative impact on the course of illness, resulting in increased risk of relapse, suicide, psychiatric emergencies, and increased costs to healthcare systems. Despite this fact, there is a paucity of information on medication non-adherence among schizophrenia patients in Ethiopia, particularly in Tigray.

Objective: This study aimed to assess the prevalence and associated factors of medication non-adherence among schizophrenia outpatients in public hospitals in Mekelle, Tigray, Ethiopia, 2024.

Methods: A hospital-based cross-sectional study was conducted from August 7 to September 13, 2024, at selected public hospitals in Mekelle. Study participants were enrolled using systematic random sampling. Data were collected by face-to-face interview, and medication non-adherence was measured using the Morisky Medication Adherence Scale. Data entry and analysis were done using Epi-data 4.7.0 and SPSS version 27, respectively. A binary logistic regression model was fitted to identify factors associated with medication non-adherence. The strength of association was interpreted using the adjusted odds ratio (AOR) and 95% confidence interval(CI) at the p-value < 0.05 level of significance.

Results: A total of 418 respondents participated with a response rate of 98.08%. The prevalence of medication non-adherence was 39.5% [95% CI: 34.8, 44.2%]. Negative attitude towards medication [AOR=5.25; 95% CI: 2.97, 9.29], poor insight into their illness [AOR=4.89; 95% CI: 2.65, 9.01], severe medication side effects [AOR=4.29; 95% CI: 1.06, 17.31], current substance use [AOR=3.39; 95% CI: 1.45, 7.89], poor social support [AOR=3.46; 95% CI: 1.68, 7.10], and duration of illness more than ten years [AOR=3.25; 95% CI: 1.19, 8.83] were significant predictors of the odds of medication non-adherence.

Conclusions: This study revealed a high prevalence of medication non-adherence among schizophrenia outpatients in the study facilities which is associated with several predictors. Continuously assessing and managing treatment side effects and substance use, and strengthening psychosocial education are of paramount importance to enhance patients' adherence and improve their quality of life in the context, and perhaps beyond.

Key words: Non-adherence, antipsychotics, schizophrenia, Tigray, Ethiopia.

1. Introduction

1.1. Back ground

Schizophrenia is one of the serious mental health problems, characterized by a clinical syndrome of variable but profoundly disruptive psychopathology that involves cognition, emotion, perception, and other aspects of behavior. The classic course of schizophrenia is one of exacerbations and remissions, and usually relapse. It is a leading causes of long-term disability, with lifetime prevalence of approximately 1% (1). A serious condition, schizophrenia impairs all facets of the patient's life, including job, self-care, and the ability to form connections with others (1,2).

Antipsychotic medications (also referred to as narcoleptics) are the mainstay of treatment for schizophrenia, which help to reduce psychotic symptoms and improve psychosocial functioning. Antipsychotic medications are categorized into two major groups, they are the first generation (typical) and the second generation (atypical), which works by acting primarily on dopamine and serotonin pathways in our brain(3).

The success of medication treatment is determined by a patient’s adherence to the medication regimen . In this sense, antipsychotic medication adherence refers to patients’ ability to take their prescribed medications as recommended by their health care providers (4) and that has been demonstrated to alleviate symptoms and lower the likelihood of relapse. As a result, they come in tablet or injectable form, and a patient's non-adherence behaviors may have an impact on the medication (5).

The World Health Organization (WHO) defined non-adherence as “a case in which a person’s behavior in taking medication does not correspond with agreed-upon recommendations from a health care provider." Medication non-adherence, either willful or inadvertent, can include: failing to initially fill or refill a prescription; discontinuing a medication before the course of therapy is complete; taking more or less of a medication than prescribed; and taking a dose at the wrong time(6).

The phenomena of non-adherence is complex and exhibits a wide range of patterns. The patient may refuse to attend scheduled appointments, take prescribed medications in different amounts, stop taking them altogether, take shorter or longer doses, or be admitted to the hospital(7).

Non-adherence to medical therapy is a known predictor of relapse and re-hospitalization; therefore, identifying contributing factors to non-adherence is one of the many challenges in treating schizophrenia(5). An estimated 75–90% of people with schizophrenia become nonadherent to medications within two years of hospital discharge (8)**.** Advancements in the treatment of schizophrenia are limited by non-adherence, which steals power from even the most beneficial medications (9).

1.2. Statement of the problem

The WHO estimates that 24 million people worldwide suffer from schizophrenia(10). Medication nonadherence has been recognized by the Centers for Disease Control and Prevention as a global issue, particularly with long-term therapy(11).

A major obstacle to the successful treatment of schizophrenia is non-adherence to antipsychotic medication, which is also a prevalent cause of psychotic relapse, rehospitalization, and exacerbations in psychopathology. Clinicians, the healthcare system, and other stakeholders are becoming increasingly concerned about medication non-adherence. It undermines the attempts of medical professionals to enhance population health. It increases the burden of care on their families, wastes medical resources, and diminishes public trust in healthcare systems(12,13).

Non-adherence to antipsychotic medications has been associated with various adverse outcomes, including mortality, violence, substance abuse, and psychiatric emergence among patients with schizophrenia (14–16). Increased cognitive decline, unfavorable social outcomes including job loss and arrest, victimization, a low quality of life, decreased treatment efficacy, a higher chance of co-occurring medical disorders, and an elevated risk of suicide are some additional effects of non-adherence(17,18).

A systematic review and meta-analysis have indicated that medication non-adherence among schizophrenia patients ranges between 56% and 60% (17,19). Another similar study revealed that individuals with schizophrenia who do not adhere to treatment were 70% more likely to be admitted to hospitals than those who comply to treatment(5).

In addition, lack of treatment adherence has significant treatment costs and is associated with a marked increase in health service usage. It is estimated that about 40% of the cost associated with schizophrenia treatment in United States of America is due to non-adherence(20). Furthermore, a study conducted in Spain, identified that the risk of relapse and admission is 5.46 times higher in non-adherent participants than in patients with good treatment adherence (21).

According to study conducted in western China, there is a 13.3% chance of violence toward others among individuals with schizophrenia who do not take their medicine as prescribed (22).

Research from India revealed that non-adherence or only partial adherence accounts for almost two thirds of hospital re-admissions. Medication non-adherence accounts for 40% of relapses that occur a year after the initial hospital admission(23). Moreover, another study conducted in India found that non-adherent schizophrenia patients have a 3.75-fold increased risk of suicide compared to adherent individuals(24).

Findings from central Ethiopia revealed a 75–90% relapse rate among medication-non-adherent schizophrenia patients (25) .

Non-adherence to antipsychotic medications among patients with schizophrenia was linked to several factors, including gender, young age, low educational status, living in rural areas, financial restraints, substance abuse, and a lack of social support (17,26,27). Moreover, medication side effects, lack of insight, and negative attitude towards medication (27–30), were strong determinants of medication non-adherence.

After the war, Tigray's health system completely collapsed (31), which had a significant impact on medication adherence. A study conducted in Tigray showed that the war caused a dramatic disruption in the care of patients with chronic diseases, including psychiatric disorders. This disruption likely resulted in increased morbidity and mortality associated with these conditions (32).

Despite the numerous burdens and consequences, little is known about medication non-adherence and its associated factors among schizophrenia patients in Ethiopia. To the researcher's knowledge, there is a limited study that helps to address the problem, particularly in Tigray. Therefore, this study was intended to assess the prevalence and factors associated with medication non-adherence among schizophrenia outpatients in public Hospitals of Mekelle.

1.3. Significance of the study

Research on medication adherence has increased significantly over the past decade through different studies. Despite these increased research efforts by many disciplines, research has not resulted in the much-needed progress to tackle medication non-adherence effectively.

Most studies on medication adherence in schizophrenia originate from high-income nations. In Ethiopia, factors influencing adherence may differ due to varying socioeconomic conditions, healthcare systems, and cultural perspectives. Hence, further investigation is necessary to thoroughly understand the reasons for non-adherence in different Ethiopian subpopulations, while considering regional and cultural differences.

Consequently, identifying the factors linked to medication non-adherence in individuals with schizophrenia will enable the implementation of targeted strategies to boost adherence rates. This could result in lower relapse rates, fewer hospitalizations, enhanced quality of life for patients and their families, and decreased costs associated with managing schizophrenia.

By understanding the specific factors contributing to non-adherence, healthcare professionals can develop: educational programs for patients to address their concerns and improve their understanding of medications; initiatives to increase medication accessibility and affordability; and support systems to facilitate patient adherence.

In addition, the outcomes of this study will provide crucial scientific evidence and foundational data for researchers and professionals in the field of psychiatry. The results will further serve as empirical evidence to support mental health policies and practices, assisting local decision-makers and stakeholders in making informed choices that would improve the overall health and quality of life for individuals with schizophrenia in Tigray,Ethiopia.

2. Literature review

2.1 Overview of medication non-adherence among people with schizophrenia

Many studies have attempted to estimate the prevalence of non-adherence using different methods in a variety of schizophrenia patient samples. These patients exhibit higher non-adherence rates compared to those with other psychiatric disorders or chronic medical conditions(33).

It was reported that 37.6% of people with schizophrenia in rural China did not take their medication as prescibed (34). Using the Medication Adherence Rating Scale (MARS) in Turkey, revealed that 80.0% of schizophrenia patients exhibited poor treatment compliance(35). Similarly, several reports in India showed that the prevalence of medication non-adherence among schizophrenia patients ranges from 34.1% to 45.0%(23,36,37).

In Sulaimani, Iraq, schizophrenia patients selected through convenience sampling demonstrated a higher adherence, with 73.0% reporting that they took their medication as prescribed(38). However, a study in Nepal, utilizing the Morisky Medication Adherence Scale (MMAS), found an alarming 89.4% magnitude of non-compliance among schizophrenia patients attending a tertiary-level hospital(39). In Saudi Arabia, another related study reported that 55.5% of patients were non-adherent(40).

Between 39.9% and 56.9% of outpatient schizophrenia patients in Nigeria were found to be non-adherent to their medications(41,42). Moreover in Ghana, a striking 98.1% of schizophrenia patients were identified as poor drug adherents(29). Conversely, a study in a rural tertiary facility in Uganda found that only 16.3% of patients with schizophrenia, who had been using typical antipsychotics for at least six months, were non-adherent to their medication(43).

Some studies in Ethiopia have shown that the prevalence of medication non-adherence among schizophrenia patients ranges from 31.65% to 44.57% (16,44–46).

2.2 Factors associated with medication non-adherence

Nonadherence is a problem with many determinants. Studies have identified the factors affecting adherence, which were grouped into socioeconomic-related factors, condition-related factors, treatment-related factors, and patient-related factors.

2.2.1 Patient related factors

Medication non-adherence among patients with schizophrenia was significantly associated with being female which was reported from different studies in Latin American countries, India, and Saudi Arabia(40,47,48). However,in Nepal, being male was associated with medication non-adherence(39). Schizophrenia participants living in rural areas of India and Nigeria were more likely to experience medication non-adherence compared to their counterparts(42,48).

Under the age of 40 who are married, literate, and unemployed was associated with medication non adherence among schizophrenia patients in Nepal (39). In contrast, researchs from Nigeria and Ethiopia showed that single individuals with low educational status were more likely to be non-adherent to antipsychotic treatment compared to their counterparts(42,46).

A study involving schizophrenia outpatients in South America and Asia found that patients with poor insight into their illness were more likely to be non-adherent to their medication compared to those with good insight(36,38,47). Likewise,schizophrenia patients in Butajira and Harar, Ethiopia who lacked insight into their illness exhibited higher likelyhoods of medication non-adherence compared to those with good insight(13,46).

Perceptions about the disease being incurable, lack of nearby treatment access, forgetting an appointment with a medical professional, discontinuation of medication on the advice of a faith healer, no follow-up being arranged, and refusal to continue treatment and negative attitude towards medication were associated with non-adherence, which was revealed in Pakistan and India(36,49). A similarly in Tanzania, patients with poor adherence revealed a significat association between negative attitudes toward medication (50).

Additionally, schizophrenia patients at Amanuel Mental Specialized Hospital in Addis Ababa, Ethiopia, who had negative attitudes toward treatment demonstrated higher non-adherence to antipsychotic medications compared to those with good attitudes(25).

2.2.2 Condition/disease related factors

Various studies in South America found that medication non-adherence was particularly high among individuals who were younger at the onset of their illness(47). Researchs from Nepal and Nigeria indicated that medication non-compliance was linked to a duration of illness lasting 15 years, a treatment duration of 10 years, and experiencing multiple hospitalizations (39,42). Conversely, a study in eastern Ethiopia reported that having an illness duration of less than or equal to 5 years was associated with medication non-adherence(46).

Patients with schizophrenia who had comorbid illnesses, such as diabetes, hypertension, cardiovascular disease, and depression, were more likely to not adhere to their treatment according to different studies done in Ethiopia (25,44,46).

Patients with a family history of mental illness were more likely to be non-adherent to antipsychotic medication, which was reported in India and Iraq (38,48). Additionally, a study in eastern Ethiopia found that having a family history of mental illness increases the likelihood of medication non-adherence by 1.3 times (46).

2.2.3 Medication related factors

Several Asian countries reported that the side effects of medications were a significant factor contributing to non-adherence (39,40,51,52). Schizophrenia patients in Uganda that experienced atypical medication side effects were associated with nonadherence(43). Participants with side effect were more likely not take their antipsychotic medication as prescribed and being treated with first-generation antipsychotic medication were also associated with non adherence (25,46).

The most common reasons for non-adherence to antipsychotic medications were distressing side effects,which was mentioned by schizophrenia participants in Butajira, Ethiopia. However, an increase in appetite was associated with better adherence to the medication(13). Additionally, patients who were prescribed more than three medications showed a statistically significant relationship with medication non-adherence,which was reported in Nepal, India and Ethiopia (25,36,39,46).

2.2.4 Socio-economic-life style related factors

Participants with schizophrenia in India and Pakistan who had poor social support were more likely to be non-adherent to their medication compared to those with strong social support (36,49). Additionally, similar respondents in Nigeria and Ethiopia with poor social support were more likely to be non-adherent to their medication (13,42,53).

Various studies reported in Latin America, Asia, and Uganda showed that low monthly income was linked to non-adherence among participants with schizophrenia(36,39,40,43,47).

Substance use

Individuals with schizophrenia in Morocco revealed that abusing tobacco, alcohol, and cannabis had 3.25, 0.50, and 0.42 times higher likelyhoods of medication nonadherence compared to with those who did not use, respectively(54). Similar Studies in Ethiopia indicated that patients who uses cigarette, khat, cannabis, and alcohol after treatment initiation were more likely to be non-adherent compared to those without any history of these substances(25,46).

Schizophrenia patients at Amanuel Mental Specialized Hospital who did not adhere to their medication were more likely to use substances as a form of self-medication. Non-adherence to medication can worsen symptoms, resulting in increased distress and discomfort. In turn, individuals may turn to substance use for temporary relief from these symptoms, creating a vicious cycle of non-adherence and substance use (16).

2.3 Conceptual frame work

Medication non-adherence is a complex behavior influenced by various factors, including patient-related, socio-economic lifestyle-related, condition-related, and medication-related factors(**figure 1**).

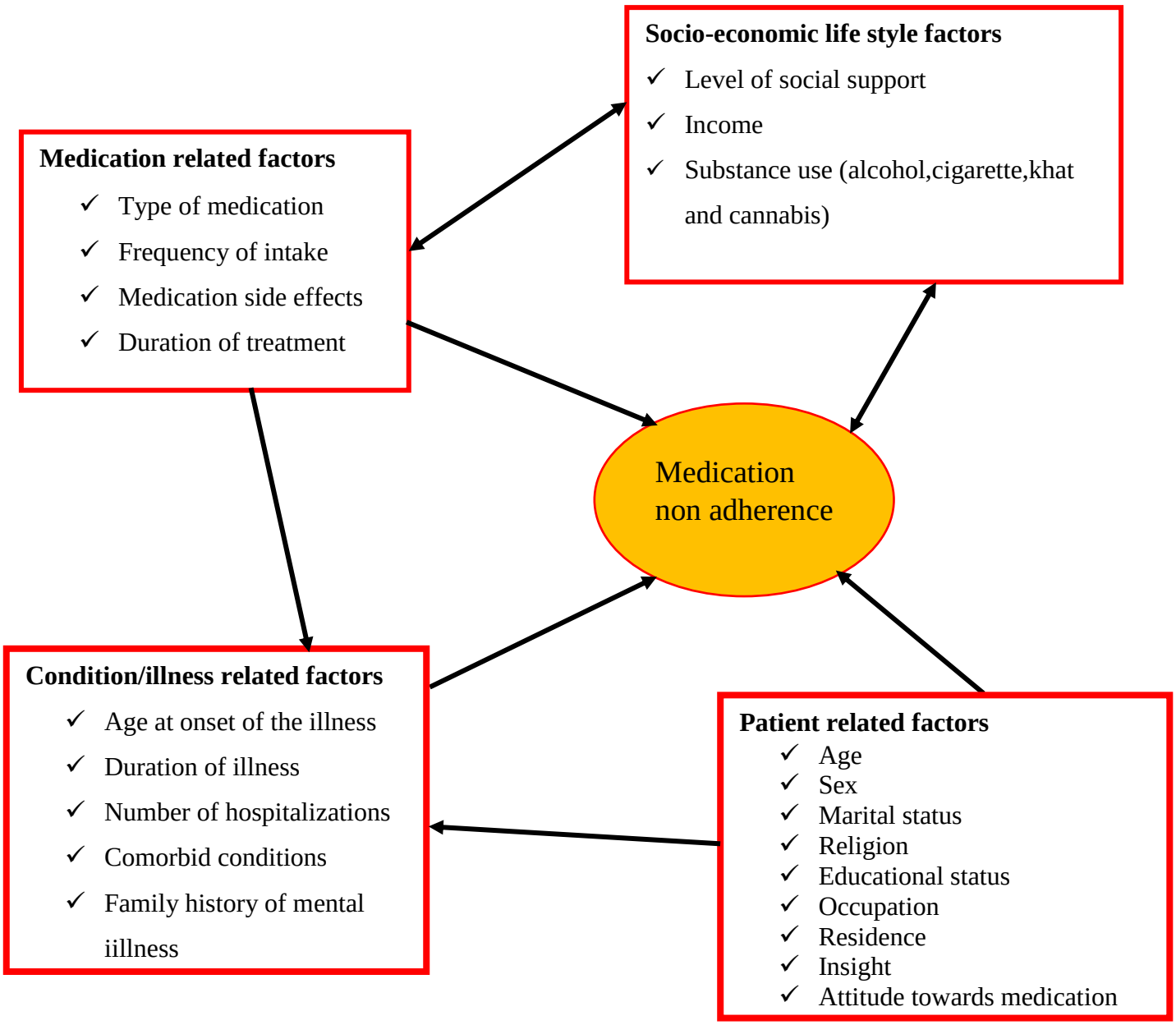

Figure 1: Conceptual framework of factors associated with medication non-adherence among schizophrenia patients, which was developed from reviewing different literatures(16,38–40,42,43,46,47,49,55).

3. Objectives

3.1 General Objective

- ✓ To assess the prevalence and associated factors of medication non-adherence among schizophrenia outpatients in public hospitals in Mekelle,Tigray,Ethiopia, 2024.

3.2 Specific Objectives

- ✓ To determine the prevalence of medication non-adherence among schizophrenia out patients in public hospitals of Mekelle,Tigray,Ethiopia,2024.
- ✓ To identify factors associated with medication non-adherence among schizophrenia out patients in public hospitals of Mekelle,Tigray,Ethiopia, 2024.

4. Methods and Materials

4.1 Study area

The study was conducted in the public hospitals of Mekelle. Mekelle is the capital city of the Tigrai Regional State and is located in the northern part of Ethiopia, at a distance of 783 km from the capital city, Addis Ababa. Administratively, Mekelle is considered a special zone, which is divided into seven sub-cities, namely: Hawelty, Hadnet, Ayder, Semean, Kedamay Weyane, Adihaki, and Quiha. According to the United Nations Urbanization Prospects Review, Mekelle's 2024 population is estimated at 611,574, with an area of around 259.9 square kilometers and an elevation of 2084 meters above sea level(56).

Mekelle city is considered to have relatively good access to public and private health facilities, with around 90% coverage. Mekelle City has 12 public health centers, two primary hospitals (Hewo and Lekatit 11), two general hospitals (Mekelle General Hospital and Quiha General Hospital), and one comprehensive specialized referral hospital (Ayder Comprehensive Specialized Hospital (ACSH)) providing promotive, preventive, curative, and rehabilitative services.

Currently, there are only three public hospitals in Mekelle City that provide psychiatric services. The three study hospitals (ACSH, Mekelle, and Quiha general hospitals) are found in the Ayder, Semen, and Quiha administrative districts, respectively. ACSH has been rendering referral and non-referral services to people in its catchment areas of the Tigray, Afar, and south-eastern parts of the Amhara region. The hospital provides different services, including both inpatient and outpatient psychiatry services with psychiatrists and clinical and psychiatry nurses, whereas Mekelle General Hospital (MGH) and Quiha General Hospital (QGH) provide different services but only outpatient psychiatry services by psychiatric nurses(57,58).

4.2 Study period

The data was collected from August 7 to September 13,2024.

4.3 Study design

A hospital based cross-sectional study was carried out.

4.4 Populations

4.4.1 Source Population

All patients who were clinically diagnosed with schizophrenia on follow up in public hospitals of Mekelle.

4.4.2 Study Population

All patients with schizophrenia aged 18 years and older who were on follow-up at the psychiatric service providing public hospitals in Mekelle during the data collection period.

4.5 Eligibility Criteria

4.5.1 Inclusion Criteria

Patients aged 18 years and older diagnosed with schizophrenia, who had at least one month follow-up on prescribed antipsychotic medications, were included.

4.5.2 Exclusion Criteria

Patients who were, acutely disturbed or critically ill, and at their first visit to the hospitals, were excluded from the study.

4.6 Sample size determination

The sample size was calculated using a single population proportion formula, taking the highest prevalence from the previous studies done in Ethiopia. The minimum sample size required for this study was determined, considering the following assumptions:

$$\mathbf{n} = [(z\alpha/2)^2\ \mathbf{p}\ (\mathbf{1}-\mathbf{p})]/\ \mathbf{d}^2$$

Where, n= minimum sample size required for the study

z= standard normal distribution with a confidence interval of 95% and α=0.05(z=1.96)

p= the prevalence of medication non-adherence among people with schizophrenia was 44.57% from a previous published study in eastern Ethiopia(46).

d= desired precision or tolerable margin of error =5%=0.05

n= $[(z\alpha/2)^2 \, p \, (1-p)]/ \, d^2 = \underline{(1.96)^2 \times 0.4457(1-0.4457)}/ \, (0.05)^2 = 380$; Since the source population (N) was 4237, which is less than 10,000, a correction formula was applied.

$$n_f = \frac{n_0}{1+\frac{n_0}{N}} = \frac{380}{1+\frac{380}{4237}} = 349$$

By adding a 10% non-response rate, the final calculated sample size became 384. However, I decided to use 418 (380 + 10%) as the final sample size because this number provides a better representation.

4.7 Sampling Technique and procedure

Three public hospitals in Mekelle City provide psychiatric services; all of them were included in the study: ACSH, Mekelle, and Quiha General Hospitals. The total number of schizophrenia patients attending ACSH (3180), MGH (692), and QGH (365) in these three hospitals was 4237; of these, 705 had monthly follow-ups regularly. The sample size was allocated proportionally to each study hospital based on monthly follow-up of patients. Then, a systematic random sampling technique was employed to select the participants.

The number of patients attending the ACSH, MGH, and QGH were approximately 530, 115, and 60, respectively, per month. The sampling interval (k) was calculated by dividing the total expected monthly follow-ups (705) by the total sample size (418) at each data collection site, resulting in K≈2. Therefore, the first participant was selected from the first two individuals attending psychiatry OPD by the lottery method, which was continued every second eligible participant until the required sample size was reached (**figure2**).

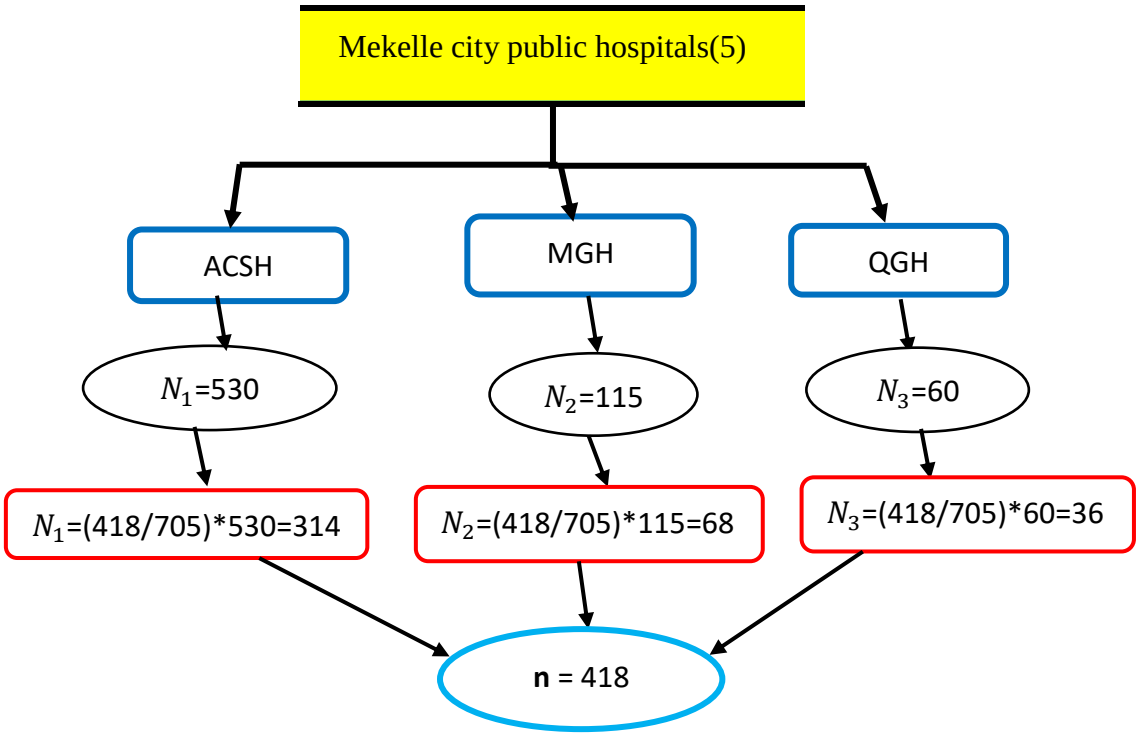

Figure 2: A schematic presentation of the sampling procedure.

4.7 Data collection Tools and Procedures

The data was collected by trained 3 BSc psychiatry professionals using interviewer administered questionnaire. The socioeconomic-related factors, condition-related factors, medication-related factors, and patient-related factors were assessed using structured questionnaires adapted from different literatures(6,36,42,46,47).

Medication non-adherence was assessed using the modified self-reporting eight item Morisky Medication Adherence Scale (MMAS-8) questionnaire. This scale assessed the medication-taking behavior, asking about forgetting to take medication, carelessness about taking medication, and stoppage of medication when feeling better and when feeling worse with a scoring scheme of "Yes" = 1 and "No" = 0 for the first seven items except item 5, which was reversely scored, and a 5-point Likert response for the last item, and the total score ranges from zero to eight(59).

MMAS was used to assess the level of compliance and is widely used in different parts of the world for a variety of medical and psychiatric conditions. The reliability and validity of an 8-

item MMAS were evaluated first in hypertensive patients by five experts in the USA. It has a sensitivity and specificity of 93% and 53%, respectively(26,59).

The sensitivity indicates that the scale is good at identifying patients who have low medication adherence. Whereas the specificity indicates moderate performance of the scale in identifying patients who do not have problems with medication adherence.The original MMAS-8 study had achieved internal consistency and reliability (α = 0.83)(59). Later on, the content validity of the 8-item MMAS in psychiatric patients was evaluated by two experts in Spain, and the Cronbach's alpha coefficient was 0.75 (60) .

Level of insight was measured using an 8-item self-report Birchwood Insight Scale for Psychosis (BIS). Each item was a statement to which the participants could answer, "agree," "unsure" or "disagree" (scored on a three-point Likert-type scale ranging from 0 to 2), representing three subscales: awareness of the illness (2 items), symptom relabeling (i.e., attribution of one's symptoms as part of one's disorder (2 items) and treatment need (4 items). Each subscale had a total score ranging from 0 to 4. The total score for the BIS ranges from 0 to 12 and was obtained by summing the total scores of the three subscales. It has been shown to have good reliability. and validity for people who experience psychotic symptoms(61).

Patient attitude towards medication was assessed using the Drug Attitude Inventory (DAI) scale, which contains 10 true or false items. DAI-10, which is a self-report instrument used to assess the nature of a patient's experience with taking psychotropic medication, their feelings, attitudes, and beliefs about medication. The DAI-10 was derived by means of stepwise discriminate analysis from the DAI-30, designed by Awad in 1993, and it was found to be valid with a good test-retest reliability of 0.79. In this study, DAI scores range from zero to ten, provided that T=1 and F=0 for six items and are reversely scored for the remaining four items(62).

Level of social support : was assessed using the three-item Oslo Social Support Scale (OSSS-3). The scale asked about the ease of getting help from neighbors, the number of people the subjects could count on when there were serious problems, and the level of concern people showed about what the subject has done.According to the OSSS-3 social support scale, the scores ranges from 3 to 14(63).

Medication side effects: were measured using the Glasgow Antipsychotic Side Effect Scale (GASS) modified version which was first designed by Waddell and Taylor in 2007**.** This instrument was used to determine the prevalence, type, and severity of antipsychotic side effects. The GASS is a 22-item self-report scale that has been shown to have good reliability and validity for patients on antipsychotic drugs. The side effects rating statements of respondents were as follows: never, once, a few times, every day, and distressing.

The side effects scale incorporated : 1-2 sedation/dizziness; 3-4 cardiovascular side effects; 5-10 EPS; 11-13 anticholinergic sideeffects; 14 gastrointestinal;15,16 genitourinary side effect; 17-21 prolactinaemic side effects; and 22 weight gain.
On this scale, the extent of side effects is rated from none (zero points) to everyday (3 points) for questions 1–20, and yes (3 points) or no (zero points) for questions 21–22(64).

4.8 Study Variables:

4.8.1 Dependent Variable:

Medication non-adherence(yes/no)

4.8.2 Independent Variables:

Patient related variables such as age, sex, marital status,residence, religion, educational background, occupation , insight and attitude towards medications.

Condition related variables include age at onset of the illness, presence of comorbid conditions, family history of mental illness, duration of illness and number of inpatient admissions

Medication related variables include medication side effects, duration of treatment,frequency and type of medications prescribed.

Socio-economic life style related variables include level of social support, average monthly income and substance use(alcohol, Khat, cigarettes, and others).

4.9 Operational Definitions

Medication non-adherence was defined as participants scoring 3 or more on the eight-item MMAS, while those with a score of 2 or less were classified as medication adherents in this study (16,59).

Insight was measured using an 8-item self-report Birchwood Insight Scale for Psychosis. The participants who scored less than 9 in total were categorized as having poor insight, while scores of 9 and above indicated good insight (61).

Schizophrenia: is a clinical diagnosis reached by the clinician based on DSM-5 criteria. The presence of two or more of the following symptoms for one month: delusion, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, a negative symptom with impaired interpersonal, academic,or occupational functioning, and continuous signs of the disturbance persisting for at least six months is required (2).

Ever use of substance: using a specific psychoactive substance for non-medical purposes at least once in a lifetime (65).

Current substance use: refers to the use of at least one specific psychoactive substance (such as alcohol, khat, cigarettes,etc.) for non-medical purposes at least once in the past three months (65).

Positive attitudes towards medication: A cut-off point greater than or equal to six using DAI screening out of ten items, whereas the cut-off point of less than six was used to define negative attitudes towards medication (62).

Social support: was measured using Oslo-3 Social Support scale, with score of "3-8," "9-11," and "12-14" indicate poor, moderate, and strong social support, respectively (63).

Comorbid illness: when participants had at least one or more clinically known chronic disease inaddtion to schizophrenia, such as diabetes, hypertension, heart disease, HIV, epilepsy, cancer, etc., or other mental disorders.

Medication side effects: were assessed using the 22-item GASS modified version .

GASS scores of 0–21 indicate absent or mild side effects, 22–42 indicate moderate side effects, and scores above 43 indicate severe side effects (64).

4.10 Data quality control

A one-day formal and standardized training was given to the data collectors and the supervisor about the purpose of the study, the data collection tool, techniques, and ethical issues during the collection of data. The questionnaire was translated into the local language, Tigrigna, by language experts and back translated into English by another person to check for consistency.

A pretest was conducted two weeks before the actual data collection on 5% of the sample size at Wukro General Hospital, which is located at a distance of 45 km from Mekelle City, to ascertain the clarity, feasibility, and applicability of the instruments, and feedback was incorporated into the final tool to improve its quality. The result was not included in the results of this study. Supervisors and the principal investigator was checked daily for the completeness and consistency of the collected data. Codes were given for the completed questionnaire. Informations related to age atonset of the illness,type of medications were checked from the patient's medical file and recorded appropriately in the tool. Data cleaning was done before analysis, and incomplete data was excluded from the analysis.

4.11 Data Analysis procedure

The data was examined for accuracy and consistency, coded, and entered into Epi-data 4.7.0 before being exported to SPSS version 27 for additional analysis. Data entry was made by the principal investigator. Descriptive statistics such as frequency distribution, measures of central tendency, measures of variability, and percentages were carried out to describe the independent factors of the respondents and presented with narration, tabulation, and graphical presentation.

Bivariable binary logistic regression was used to identify candidate variables for multivariable binary logistic regression in determining factors associated with medication non-adherence. All variables that were significant at p value < 0.25 in the binary logistic regression analysis were entered into multivariable logistic regression model for further analysis to control for all possible confounders.

The level of significance was set at a P-value of < 0.05 with 95% Confidence interval(CI), and the adjusted odds ratio was used to quantify the strength of association for each independent variable with the dependent variable. Before building the final model, the multi-co-linearity effect was assessed, and the mean VIF<10 was included in the final analysis. Furthermore, the

Hosmer and Lemshow goodness of fit test was used to test model fitness. Finally, the results were compiled and presented using tables, graphs, and texts.

4.12 Ethical Considerations

Ethical clearance to conduct the study was obtained from the Institutional Ethical Review Board of Mekelle University, College of Health Science (MU-IRB 2276/2024). A copy of the ethical letter was submitted to the study hospital administrations (ACSH, MGH, and QGH). A letter of cooperation was written to the respective psychiatric departments of the hospitals that was obtained from the School of Nursing at Mekelle University.

Participants were informed about the purpose of the study, risks, benefits of the study and the right to withdraw fom the study at any time. Informed, voluntary, written, and signed consent was obtained from each participant before the beginning of the interview. Confidentiality was maintained at each step of data collection and processing.

4.13 Dissemination of findings

The study results were presented to Mekelle University College of Health Sciences, School of Nursing,Department of Psychiatry, and the result will be disseminated to all responsible bodies in the study area. Finally, an effort will be made to disseminate the results of the study in national and international conferences,workshops and to publish the paper in peer reviewed scientific journals of related fields.

5. Results

5.1 Patient related factors

5.1.2 Socio-demographic characteristics of participants

A total of 418 participants were involved in this study, and the response rate was 98.08%(410). The respondents median age was 37 with 16 inter quartile range, and its range was between 18 and 70 years. The majority of the respondents (55.4%,32%) were males in the age category of 35 and 44 years respectively. About 38.8% of participants were married and more than one-fifth (22.2%) were farmers in occupation.

One hundred fifty-one (36.8%) of the participants had no formal education. Nearly all (96.8%) and more than two-thirds (70.2%) of the participants were Tigrian and Orthodox in religion respectively. More than half(53.7%) of the respondents were urban dwellers as shown below (**table 1**).

Table 1:Socio-demographic characteristics of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variables	Category	Frequency N(%)
Sex	Male	227 (55.4)
	Female	183 (44.6)
Age in years	18-24	31 (7.6)
	25-34	125 (30.5)
	35-44	131 (32.0)
	≥45	123 (30.0)
Marital status	Unmarried	151 (36.8)
	Married	159 (38.8)
	Divorced	76 (18.5)
	Widowed	24 (5.9)
Residence/living area	Rural	190 (46.3)
	Urban	220 (53.7)
Religion	Orthodox	288 (70.2)
	Muslim	97 (23.2)
	Catholic	14 (3.4)
	Protestant	11 (2.7)
Educational status	No formal education	151(36.8)
	Primary (1-8 grade)	116 (28.3)
	Secondary (9-12 grade)	91 (22.2)

	Diploma and above	52 (12.7)
Ethnicity	Tigray	397 (96.8)
	Others*	13 (3.2)
Occupation	Employed	38 (9.3)
	Unemployed	74 (18.0)
	Merchant	46 (11.2)
	Farmer	91 (22.2)
	House wife	85 (20.7)
	Daily laborer	41 (10.0)
	Others**	35 (8.5)

*Amhara,Afar ** retired and prisoners.

5.1.3 Participants attitude towards medication

Regarding the patient's attitude towards medication, 82.0% of the respondents believed that the good things about medication outweighed the bad, and they did not take medication when only feeling ill. About one hundred twenty eight(31.2%) reported that medication makes them feel tired,while 30.5% responded medications made them strange. Overall, 29.3% of the respondents had a negative attitude towards medication, as shown below (**table 2**).

Table 2: Attitude towards medication among schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variables	Category	Frequency N(%)
Good things about medication outweigh the bad	True	336 (82.0)
	False	74 (18.0)
Feel strange, ‘doped up’, on medication	True	125 (30.5)
	False	285 (69.5)
Take medications free choice	True	308 (75.1)
	False	102(24.9)
Medications makes feel more relaxed	True	303 (73.9)
	False	107 (26.1)
Medication makes feel tired and sluggish	True	128 (31.2)
	False	282 (68.8)
Take medication only when feel ill	True	74 (18.0)
	False	336 (82.0)
Feel more normal on medication	True	307(74.9)
	False	103(25.1)
Unnatural to be controlled by medication	True	147(28.5)
	False	293(71.5)
Thoughts are clearer on medication	True	297(72.4)
	False	113(27.6)
Medication prevent from having a breakdown	True	293(71.5)
	False	117(28.5)
Attitude towards medication	Negative	120(29.3)
	Positive	290(70.7)

5.1.4. Level of insight of participants

In terms of the participants' insight levels, a significant majority (78.0%) agreed that some of their symptoms were made by their mind. Furthermore, nearly three-quarters (74.1%) of the participants expressed a desire to consult a psychiatric professional and agreed that follow-up appointments were essential.. However, around one-quarter (23.9%) of the participants demonstrated poor insight regarding their illness, as indicated below (**table 3**).

Table 3:Level of insight of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variables	Category	Frequency N(%)
Some of the symptoms are made by your mind	Disagree	24(5.9)
	Uncertain	66(16.1)
	Agree	320(78.0)
You are mentally well.	Agree	42(10.2)
	Uncertain	89(21.7)
	Disagree	279(68.0)
You do not need medication	Agree	34(8.3)
	Uncertain	77(18.8)
	Disagree	299(72.9)
Your stay in hospital is necessary	Disagree	25(9.8)
	Uncertain	77(16.1)
	Agree	299(74.1)
You do not need to be seen by a doctor or psychiatrist.	Agree	40(9.8)
	Uncertain	66(16.1)
	Disagree	304(74.1)
The doctor is right in prescribing medication for you.	Disagree	60(14.6)
	Uncertain	84(20.5)
	Agree	266(64.9)
None of the unusual things you experience are due to an illness.	Agree	47(11.5)
	Uncertain	90(22.0)
	Disagree	273(66.6)
If somebody said you have a mental illness then they would be right.	Disagree	44(10.7)
	Uncertain	71(17.3)
	Agree	295(72.0)
Level of insight	Poor	98(23.9)
	Good	312(76.1)

5.2 Condition related factors

In terms of illness related characteristics, nearly one quarter (24.9%) of the participants were between 31 and 40 years of age at the onset of the illness, with median, inter quartile range ,minimum, and maximum ages of 30, 14, 4, and 67 years of age at onset, respectively. About 163 (39.55%) and more than half (56.1%) of the participants had less than five years of duration of illness and treatment, respectively. About 269 (65.5%) of the respondents had no history of hospitalization, and 14.1% of the patients had a family history of mental illness, as shown below**(table 4).**

Table 4:Clinical related characteristics of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024(n=410).

Variables	Category	Frequency N(%)
Age at onset in years	< 21	80 (19.5)
	21-30	152 (37.1)
	31-40	102 (24.9)
	>40	76 (18.5)
Duration of illness in years	< 5	163 (39.8)
	5-10	150 (36.6)
	>10	97 (23.7)
Duration of treatment in years	< 5	230 (56.1)
	5-10	122(29.8)
	>10	58 (14.1)
Number of previous admission/hospitalizations	No admission	269 (65.5)
	One admission	90 (22.0)
	Two admission	27 (6.6)
	Three and above	24 (5.9)

5.2.1 Comorbid medical disease among the respondents

Seventy (17.1%) of patients had other co-morbid illnesses, from which hypertension (22.6%), gastro intestinal(GI) disorders (16.7%), and diabetes mellitus (15.5%) were predominant. About 4.8% and 7.1% the participants had also renal disorders and epilepsy respectively (**table 5**).

Table 5: Comorbid medical disease of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variable	Category	Frequency
		N(%)
Comorbid illness	Hypertension	19(22.6)
	Diabetes mellitus	13(15.5)
	Cardiac disorders	11(13.1)
	HIV/AIDS	7(8.3)
	GI disorders	14(16.7)
	Epilepsy	6(7.1)
	Respiratory disorders	10(11.9)
	Renal disorders	4(4.8)

5.3 Medication related factors

5.3.1 Medication profile of participants

Regarding medication-related characteristics of participants, nearly half of the patients (49.3%) were taking first-generation antipsychotics, of which haloperidol (36.4%) was dominant. More than one quarter (30.9%) of the participants were taking risperidone next to haloperidol.Only one participant was taking three medications at a time. Tewelve patients were taking fluphenazine deconate injection monthly. Over half (60.5%) respondents were taking their medication once daily, as shown below(**table 6**).

Table 6:Medication profile of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variables	Category	Frequency
		N(%)
Type of medication	First generation	202(49.3)
	Second generation	128(31.2)
	FGA+ SGA	31(7.6)
	FGA+FGA	24(5.9)
	SGA+ SGA	1(0.2)
	FGA+FGA+SGA	1(0.2)
	Antipsychotics plus adjuvant medications*	23(5.6)
List of medications	Chlorpromazine	87(19.3)
	Haloperidol	164(36.4)
	Fluphenazine deconate	33(7.3)
	Thioridazine	3(0.7)
	Risperidone	139(30.9)
	Olanzapine	24(5.3)
Frequency of medication intake	Once daily	249(60.5)
	Twice daily	122(29.8)
	Three times and above	28(6.8)
	Once per month	12(2.9)

*Adjuvant medications -fluoxetine, amitriptyline, trihexyphenidyl and diazepam

5.3.2 Medication side effects experienced by participants

This study revealed that over three quarters (79.3%) of the participants had felt sleepy during the day. Additionally, extrapyramidal side effects were noted, including hand tremors in 57.6% of participants, muscle tension in 54.9%, and slower movements in 49.8%. Other common side effects reported included dry mouth in 49.5% of participants and difficulties in achieving an erection among 55.6% of male participants.

Of the 197 female participants, 15.6% had noticed changes in their period (menstrual changes) in their last three months. Moreover, more than one third (34.4%) of the participants had noticed weight change. Regarding the severity, about twenty-one(5.10%) had severe medication side effects and 65.10% had experienced mild side effects(**figure 3**).

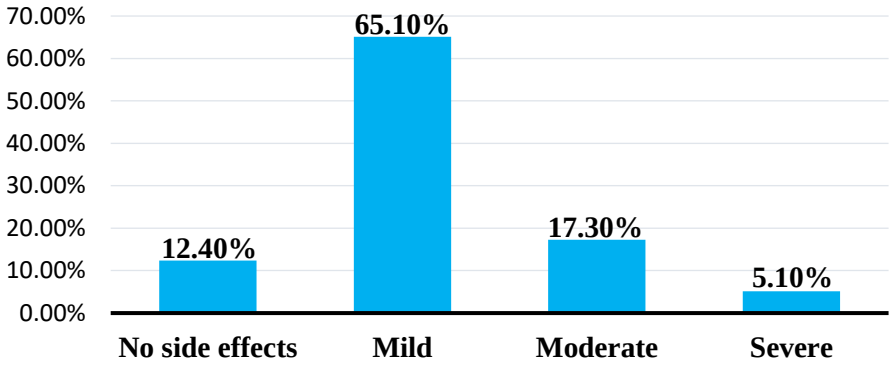

Figure 3:Severity of medication side effects among schizophrenia out patients in public hospitals of Mekelle,Tigray,Ethiopia,2024(n=410).

5.4 Medication adherence status of participants

More than half (65.6%) of study participants forgot to take their medication sometimes. About 11.2% and 52.7% of the patients stopped taking their medication due to symptom worsening and symptom improvement, respectively. Nearly one quarter (24.1%) of the study participants feel hassled about sticking to their treatment plan. About 2.9% respondents had difficulity remembering to take drugs always , as shown below(**table 7**).

Table 7:Medication adherence status of schizophrenia out patients in public hospital of Mekelle, Tigray, Ethiopia,2024 (n=410).

Variables	Category	Frequency N(%)
Forget medication sometimes	Yes	269 (65.6)
	No	141 (34.4)
Missing medication other than forgetting	Yes	37 (9.0)
	No	373 (91.0)
Stopping medication due to worsened symptom	Yes	46 (11.2)
	No	364 (88.8)
Stopping medication due to improved symptom	Yes	216 (52.7)
	No	194 (47.3)
Forgetting medication due to travel or when you leave home	Yes	57 (13.9)
	No	353 (86.1)
Feeling hassled about sticking to your treatment plan	Yes	99 (24.1)
	No	311 (75.9)
Do you take your medication yesterday	Yes	392 (95.6)
	No	18 (4.4)
Frequency of having difficulty remembering to take drugs	Never/rarely	259 (63.2)
	Once in awhile	27 (6.6)
	Sometimes	96 (23.4)
	Usually	16 (3.9)
	Always	12 (2.9)

5.5 Socio-economic life style related factors

5.5.1 Socio-economic characteristics

This study revealed that one hundred eighty-one participants (44.15%) had poor social support, while only eighty-six respondents (20.98%) experienced strong social support.

About 63.71% of respondents had a monthly income below 1200 Ethiopian birr and 15.41% of respondents had more than 2000 Ethiopian birr monthly income as shown below (**table 8**).

Table 8 : Socio- economic characteristics of schizophrenia outpatients in public hospitals of Mekelle, Tigray,Ethiopia,2024(n=410).

Variables	Category	Frequency
		N(%)
Level of social support	Poor	181(44.15)
	Moderate	143(34.87)
	Strong	86(20.98)
Average monthly income	<1200 ETB	261(63.71)
	1200-2000 ETB	86 (21.02)
	>2000 ETB	63 (15.41)

5.5. Substance use related characteristics

This study found that substance use in an entire life was 90 (22.02%), of which 69 (16.80%) and 49 (12.0%) of the respondents had habits of smoking cigarettes and chewing khat, respectively. Additionally, seventy-four (18.0%) of the respondents had a habit of current substance use, from which 64 (15.60%) smoking cigarettes were predominant (**figure 4**).

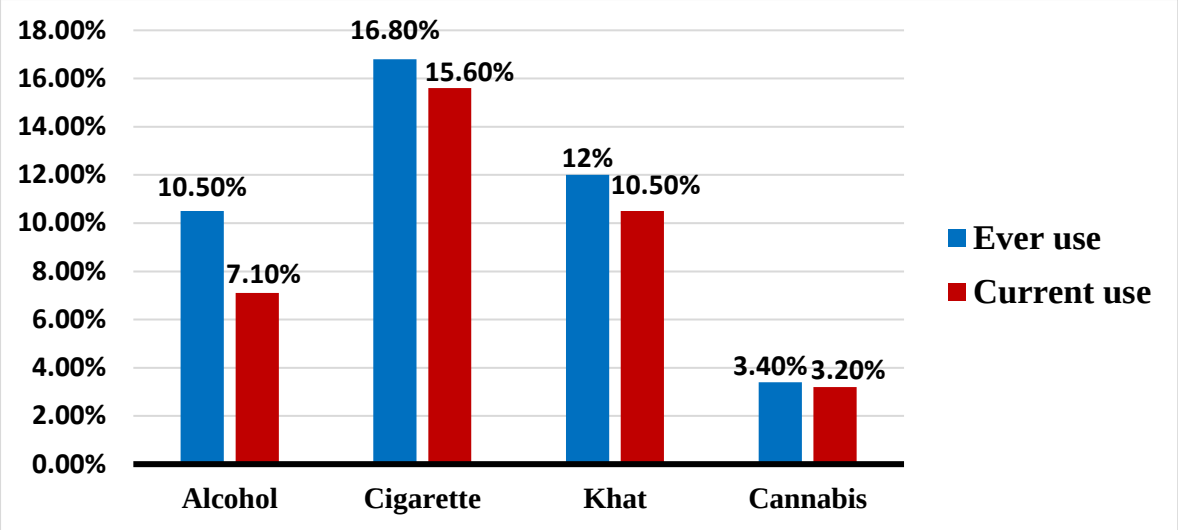

Figure 4:Showing the distribution of substance-related factors of schizophrenia outpatients in public hospitals of Mekelle,Tigray , Ethiopia, 2024 (n=410).

5.6. Prevalence of medication non-adherence among schizophrenia out patients in public hospitals of Mekelle.

In this study, the estimated prevalence of medication non-adherence was 39.5%, with a CI of 34.8% to 44.2%. The prevalence was higher among those who were between the age groups of 35 and 44 (45.8%), males (41.4%), divorced (46.1%), had no formal education (45%), lived in a rural area (41.1%), and were unemployed (52.7%).

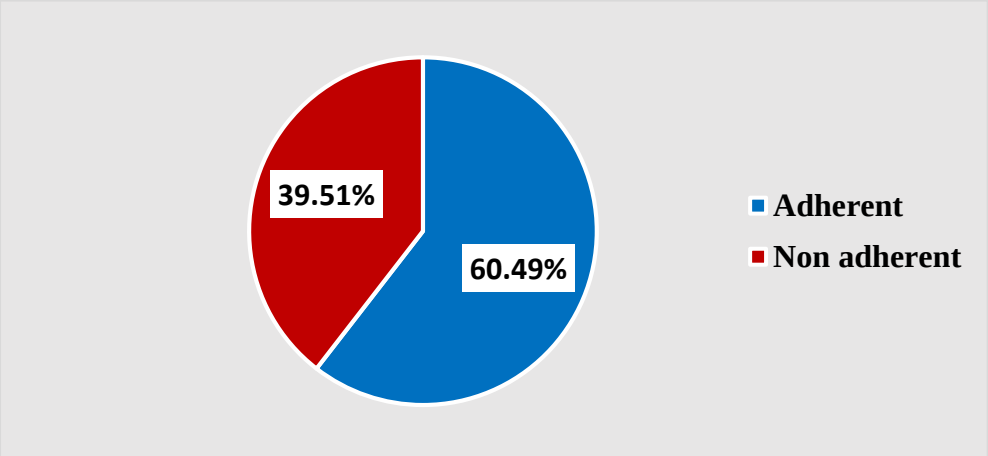

Figure 5: Prevalence medication non-adherence among schizophrenia outpatients in public hospitals of Mekelle, Tigray, Ethiopia, 2024(n=410).

5.7. Factors Associated with medication non-adherence

To determine the association of independent variables with medication nonadherence, bivariable and multivariable binary logistic regression analyses were carried out.

On the bivariable analysis of medication non-adherence in relation to each explanatory variable: age at onset of the illness, occupation, comorbid illness, number of hospitalizations, social support, insight, attitude towards medication, medication side effects, duration of illness and treatment, substance use in entire life, and current substance use were found to be significant at a P value less than 0.25. These factors were entered into multivariable binary logistic regression for further analysis in order to control confounding effects.

In the multivariable analysis, the duration of illness, medication side effect, social support, insight, and attitude towards medication and substance use in the last three months showed an overall significant association with medication non-adherence at a P-value less than 0.05.

In this study, individuals who had a negative attitude towards antipsychotic medication were 5.25 times [AOR=5.25; 95% CI (2.97, 9.29)] more likely to have medication non-adherence than those who had a positive attitude towards treatment.

Participants with reports of poor insight into their illness were 4.89 times [AOR=4.89; 95% CI (2.65,9.01)] more likely than those who had good insight to experience medication non-adherence. Moreover, participants who had severe medication side effects were 4.29 times [AOR = 4.29; 95% CI (1.06, 17.31)] more likely to experience medication non-adherence compared to those who had no medication side effects.

Likewise, study participants who had poor social support had 3.46 times [AOR=3.46; 95% CI (1.68, 7.10)] higher likelihood of medication non-adherence than those who had strong social support.

Respondents who were current psychoactive substance users were 3.39 times more likely to be non-adherents than those who were not substance users [AOR=3.39, 95% CI (1.45, 7.89)]. Regarding the duration of illness, the odds of becoming medication non-adherents among those with schizophrenia with a duration of illness greater than 10 years were 3.25 times [AOR = 3.25; 95% CI (1.19, 8.83)] higher compared to those who had a duration of illness less than five years, as shown below(**table 9**).

Table 9: Bivariate and multivariable analysis results of the factors associated with medication non-adherence among schizophrenia out patients in public hospitals of Mekelle, Tigray, Ethiopia, 2024(n=410).

Variables	Category	Medication non-adherence		COR [95% CI]	AOR [95%CI]	P-value
		Yes	No			
Age at onset of the illness in years	<21	38	42	2.53[1.29,4.96]	1.81[0.73,4.51]	0.19
	21-30	61	91	1.87[1.02,3.43]	1.91[0.88,4.13]	0.10
	31-40	43	59	2.04[1.07,3.88]	2.01[0.90,4.52]	0.08
	>40	20	56	1	1	
Occupation	Employed	12	26	1	1	
	Jobless	39	35	2.41[1.06,5.49]	2.59[0.90,7.48]	0.07
	Merchant	16	30	1.15[0.46,2.88]	1.85[0.58,5.87]	0.29
	Farmer	35	56	1.35[0.60,3.02]	1.46[0.51,4.12]	0.47
	House hold wife	26	59	0.95[0.41,2.17]	0.99[0.34,2.87]	0.99
	Daily laborer	20	21	2.06[0.82,5.16]	1.93[0.60,6.26]	0.26
	Others	14	21	1.44[0.55,3.77]	1.42[0.39,5.14]	0.58
Duration of illness	< 5 years	51	112	1	1	
	5-10 years	54	96	1.23[0.77,1.97]	1.09[0.49,2.42]	0.81
	>10 years	57	40	3.12[1.85,5.27]	**3.25[1.19,8.83]**	0.02
Duration of treatment	<5 years	70	160	1	1	
	5-10 years	62	60	2.36[1.50,3.71]	1.73[0.77,3.86]	0.17
	>10 years	30	28	2.44[1.36,4.40]	0.84[0.29,2.46]	0.76
Number of previous admissions	No admission	94	175	1	1	
	One admission	41	49	1.55[0.95,2.52]	1.00[0.52,1.91]	0.98
	two admissions	14	13	2.00[0.90,4.44]	1.07[0.38,3.04]	0.88
	Three and above	13	11	2.20[0.94,5.10]	1.37[0.45,4.15]	0.57
Presence of comorbid illness	No	129	211	1	1	
	Yes	33	37	1.45[0.86,2.44]	1.72[0.85,3.47]	0.12
Type of medication	FGA	72	130	0.80[0.51,1.26]	0.93[0.50,1.74]	0.83
	SGA	53	77	1	1	
	FGA+ SGA	15	16	1.36[0.62,2.99]	1.55[0.56,4.23]	0.39
	FGA+FGA	13	11	1.71[0.71,4.12]	0.93[0.29,2.98]	0.91
	Antipsychotic plus adjuvant medication	9	14	0.93[0.37,2.31]	1.16[0.38,3.53]	0.78
Medication side effects	No side effects	11	40	1	1	
	Mild	104	163	2.32[1.13,4.72]	2.07[0.83,5.16]	0.11

	Moderate	35	36	3.53[1.56,7.97]	2.40[0.83,6.94]	0.10
	Severe	12	9	4.84[1.62,14.44]	**4.29[1.06,17.31]**	0.04
Social support	Strong	20	66	1	1	
	Moderate	38	105	1.19[0.64,2.22]	1.16[0.54,2.48]	0.69
	Poor	104	77	4.45[2.49,7.96]	**3.46[1.68,7.10]**	0.001
Ever use of substance	Yes	44	46	1.63[1.02,2.62]	0.81[0.37,1.74]	0.59
	No	118	202	1	1	
Current substance use	Yes	42	32	2.36[1.41,3.93]	**3.39[1.45,7.89]**	0.005
	No	120	216	1	1	
Attitude towards medication	Negative	84	36	6.34[3.96,10.13]	**5.25[2.97,9.29]**	0.0001
	Positive	78	212	1	1	
Level of Insight	Poor	64	34	4.11[2.54,6.64]	**4.89[2.65,9.01]**	0.0001
	Good	98	214	1	1	

1=referece category Statistically significant at P-value <0.05

Model goodness of fit (Hosmer and lemeshow) = 0.954, no multicollinearity (Tolerance > 0.1 and VIF < 2.2)

6. Discussion

Individuals with schizophrenia may experience long-term impairment as an effect of medication non-adherence. Consequently, this study looked at the prevalence of medication non adherence and its associated factors among schizophrenia out patients. As a result the prevalence of medication non adherence in these participants was 39.5%.This finding is aligns with the studies that reported a prevalence of medication non-adherence from 37.6% to 41.0% (16,34,37,42,45). However, it is higher than studies that reported 16.3% to 34.1%(23,38,43,44).

The possible reason for this might be differences in clinical settings and methodological variations. These include diverse inclusion and exclusion criteria, such as requiring patients to have taken typical antipsychotics for at least six months (43).Variations in study populations and sampling methods (convenience sampling)(38), discrepancies in medication adherence measurement and sample size, too small sample size was used (23) and 4-item MMAS to assess the medication non-adherence was employed(44).

In contrast, this finding is lower than studies that reported a prevalence fom 44.54% to 98.12% (29,35,39–41,46,48). This discrepancy may be explained by a difference in assessment tool and sample size, because small sample size was used in Turkey, Nepal,India and Nigeria. Like wise study done in Ghana, included both inpatients and outpatients with schizophrenia and used the 4 item MMAS(29) and possible sociocultural difference might be contribute for the difference.

The high rate of medication non-adherence in eastern Ethiopia might be caused by higher prevalence of substance use among the participants (46); besides, differences in sample size and adherence assessment tools might be the reason for the discrepancy.

On the predictors, negative attitude towards medication, poor insight, severe medication side effects, current substance use, poor social support, and long duration of illness were significantly associated with medication non-adherence.

In this study, patients who had a negative attitude towards antipsychotic medication were 5.25 times more likely to have medication non-adherence than those who had positive attitude ,which is consistent with reports of many studies including in Ethiopia (25,49,50). The reason might be due to having distrust of medication and believing in traditional medicine(33,43).

According to the finding of this study, participants with poor insight into their illness were 4.89 times more likely to experience medication non-adherence than those who had good insight. This result is in line with previous studies from elsewhere in South America (Bolivia, Chile, and Peru), Iraq, and eastern Ethiopia (38,46,47). One possible explanation is that they avoided taking medication because they refused to admit that they were mentally ill and persistently non-adherence to their medication(27).

This study also indicated that, those who developed severe side effects were 4.29 times more likely to be non-adherent than those who did not developed. this is in line with findingso of reported from many developing coutries including Ethiopia (40,43,46,55). The possible explanation might be that developing side effects that hamper day-to-day activities, mobility, work capacity, and energy (66)might have an impact on reducing medication adherence.

Patients who received poor levels of social support had 3.46 times higher likelihood of medication non-adherence than those who had strong social support. This finding is consistent with the studies from India, Nigeria,and Ethiopia(13,42,48). The possible explanation for this might be having social or family support encourage patients to take their medication on time, reducing fear associated with medication side effects, and it is also due to the fact that family members supervised the medicine intake at home and brought the patients for regular follow-ups.

This study also showed that participants who use psychoactive substances after initiation of treatment, were 3.39 times more likely to be non-adherent than those who did not use, which is consistent with studies done elsewhere in Morocco and Ethiopia(16,46,54). This might be because individuals who use psychoactive substances may have higher cognitive abnormalities, more likely to experience medication side effects than those who abstain from using substances. Besides, a higher likelihood of social rejection and eventual homelessness or a lack of family support, both of which can lead to medication non-adherence(25).

Moreover, the study results showed a significant relationship between duration of illness and medication non-adherence. The odds of experiencing medication non-adherence among schizophrenia out patients with the duration of illness greater than 10 years were 3.25 times higher compared to those who had duration of illness less than five years. This is in line with studies conducted in northern-central Nigeria,and Nepal(39,42). Unlike previous study done in eastern Ethiopia that reported a significant association between shorter duration of illness

(≤5years) and medication non adherence,this study found that longer duration of illness was significantly associated with non adherence. These findings might suggest that the relationship between illness duration and medication non adherence may be more complex than a simple linear association.

A plausible reason for this finding in our environment could be that after starting treatment, these individuals may have interrupted their follow-up after achieving remission, and they may have had a poor outcome over time in which patients and their caregivers get worn out and seek a somewhat permanent cure, with the most likely option being resorting to traditional or spiritual healers(67).

7. Limitation of the study

Although it offers useful baseline data, there are also some limitations encountered:

The cross-sectional nature of the study design might not show causal and temporal relationships between medication non-adherence and its predictors.

Furthermore, the assessment of variables like khat chewing and other substances is by nature a sensitive issue, and social desirability bias might be unavoidable.

Participants might encountered recall bias in some variables, especially for duration of the illness and age at onset of the illness.

8. Conclusions

The current study found that 39.5% medication non-adherence among schizophrenia outpatients. Medication non adherence was notably higher among males, divorced individuals, those without formal education, residents of rural areas, and jobless individuals.

The study identified key factors contributing to increased non-adherence, including a negative attitude toward medication, poor insight into their illness, experiencing severe side effects from medication, lack of adequate social support, current substance use, and a long duration of the disease.

9. Recommendations

Based on the study findings the following recommendations are forwarded.

To health care professionals- it is better to

- ✓ Strengthen psychcoeducation about schizophrenia and medication adherence
- ✓ Collaborate with patients to create manageable routines that align with their preferences and lifestyles and involve caregivers in treatment planning.
- ✓ Proactively manage medication side effects/consider switching to medications with fewer side effects.
- ✓ Screen patients for substance abuse and provide brief motivational interventions to those in need of addiction rehabilitation services.

To the federal ministry of health and Tigray regional health bureau

- ✓ It is better to establish substance dependence rehabilitation centers and
- ✓ Organize campaigns to raise awareness about schizophrenia, aiming to increase social support and promote understanding of medication adherence.
- ✓ It is better to cooperate with community organizations to establish support groups for patients.
- ✓ The health planner better takes into account the aforementioned clinical,psycho-scocial factors during the design and execution of management for people with schizophrenia.

Researchers

- ✓ Further, longitudinal studies should be conducted at different settings, and interventional guidelines should be developed using the findings of this study as baseline data.

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11. Annexes

Annex-I: Participant's information sheet

Title of the research: Medication non-adherence and associated factors among schizophrenia outpatient attendees in public hospitals of Mekelle,Tigray,Ethiopia, 2024.

Principal Investigator: Araya Haftu (BSc.)

Primary advisor: Hagos Tsegabirhan (MSc, Asst.prof.)

Co-advisor: Tesfalem Araya (MSc, Asst.prof.)

Department: Department of Psychiatry, School of Nursing, College of Health Sciences, Mekelle University.

Introduction: Good morning/afternoon! My name is _____. I am here today to collect data on the above-mentioned topic. The study will be conducted by Araya Haftu, who is studying a postgraduate program in the field of Integrated Clinical and Community Mental Health from Mekelle University, College of Health Science, School of Nursing, Department of Psychiatry.

Purpose: The objective of this study is to assess medication non-adherence and associated factors of among schizophrenia outpatient attendees in public hospitals of Mekelle. **Procedure and Participation:** I request you to take part in this study and to respond genuinely. Your cooperation and willingness are greatly helpful in identifying risk factors of medication nonadherence among schizophrenia outpatients in public hospitals in Mekelle. The study will be conducted through interviews, and you are being asked for a little of your time, about 30 minutes, to help us in this study.

Confidentiality: All information given by you will be kept strictly confidential. **Benefit:** I will benefit from your cooperation in this study through your response, but you might not directly benefit. **Risk:** You may feel discomfort with some questions, and you may spend your time responding to the questionnaire. Otherwise, there is no possible additional risk associated with participating in this study.

Inducement, incentive, and compensation: There is no payment for your genuine response, but it is helpful to assess the prevalence and associated factors of medication nonadherence. **Results Dissemination:** The finding of the study will be submitted to Mekelle University College of Health Sciences, School of Nursing, and Department of Psychiatric Nursing and responsible bodies in the study area. An effort will be made to present in seminars and workshops. **Freedom to withdraw:** Your participation is voluntary, and you are not obligated to answer any question you do not want to answer. If you feel discomfort with the question, it is your right to drop it any time you want.

Person to contact: If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator. If you want more information and check about this research, you can contact the following people.

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Are you willing to participate in this study ?

1. Yes_____ Continue to the next page.
2. No_____ Skip to the next participant.

Annex-II:Consent form

Title of the project: **"**Medication non-adherence and associated factors among schizophrenia outpatient attendees in public hospitals of Mekelle,Tigray,Ethiopia, 2024".

I have been well aware that this research is undertaking for a partial fulfillment of an MSc degree, which is fully supported and coordinated by the Department of Psychiatry, School of Nursing, College of Health Sciences, and the designated principal investigator is Araya Haftu. I have been fully informed in the language I understand about the research project objectives, which are to assess medication non adherence and associated factors among schizophrenia outpatients in public hospitals of Mekelle.

I have been informed that all the information I shall provide to the interviewer will be kept confidential. I understood that the research has no any risk and no composition. I also knew that I have the right to withhold information, skip questions to answer or to withdraw from the study any time I have acquainted nobody will impose me to explain the reason of withdrawal. It is also enlighten there would have no effect at all in my health benefit or other administrative effect that I get from the refuge. I have assured that the right to ask information that is not clear about the research before and or during the research work and to contact

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I have read this form, or it has been read to me in the language I comprehend and understood the condition stated above, therefore, I am willing and confirm my participation by signing the consent. Do you agree to participate in the study?

Yes _____ No _____

Name of data collector _____

Signature _____ Date _____

Annex-III: English version Questionnaire

Instruction: The questionnaire has **eight parts.** It will take about 30 minutes to complete the interview. Please try to respond to all the questions. Thank you very much for your patience.

Part-I: Socio- demographic related questions

No	Questions	Alternative response
101	Sex	1.Male 2.Female
102	How old are you?	_____ years
103	Place of residence?	1.Rural 2.Urban
104	What is your marital status?	1. Single 3. Divorced 2. Married 4. Widowed
105	What is your religion?	1.Orthodox 2.Muslim 3. Catholic 4.Protestant 5. Others---------
106	Ethnicity?	1. Tigray 2. Afar 3.Amhara 4. Other----------
107	What is the level of your education?	1.unable to write and read 4. 9-10 grade 2.1-4 grade 5. College and above 3.5-8 grade
108	What is your occupation?	1. Merchant 2. House hold wife 3. Farmer 4. Employeed 5. Daily laborer 6. unemployed 7. other_____
109	How much is your average monthly income?	----------ETB birr

Part-II: Assessing illness & medication related characteristics

	Questions	Alternative answers
201	How old were you whe the diseases started?	----------years,----------months
202	How long have you had the disease?	----------years,----------months
203	Have you ever hospitalized or admitted because of this illness	A. yes B. No inpatient admission If Yes----------times
204	For how long did you take the treatment or medication?	----------years,---------months

205	What type of medication do you take? (check in the medical chart if necessary) You can encircle more than one	1.Chlorpromazine 2. Haloperidol 3.Fluphenazine deconate 4.Risperidone 5.Olanzapine 6. Other antipsychotics ---------- 7. antipsychotic+ other medications
206	How many times do you take your medication ?	A. Once daily B. Twice daily C. Three times and above D. Once per month
207	Do you have clinically known comorbid illness?	A.yes B. No If yes, specify_____
208	Do you have family history of mental illness?	A.Yes B.No

Part III. Glasgow antipsychotic Side-Effect Scale (GASS) Modified Version

This questionnaire is about how you have been recently. It is being used to determine if you are suffering from side effects from your antipsychotic medication. Please place a tick in the column which best indicates the degree to which you have experienced the following side effects.

S.N	Over the past week	Never	Once	A few times	Every day
301	You felt sleepy during the day.				
302	You felt drugged or like a zombie/extreme drowsiness				
303	You felt dizzy when I stood up and/or have fainted.				
304	You have felt my heart beating irregularly or unusually fast.				
305	Your muscles have been tense or jerky.				
306	Your hands or arms have been shaky				
307	Your legs have felt restless and /or I couldn't sit still.				
308	Saliva has been coming out of my mouth.				
309	Your movements or walking have been slower than usual.				

310	you have had, or people have noticed uncontrollable movements of my face or body.				
311	Your vision has been blurry				
312	Your mouth has been dry				
313	You have had difficulty passing urine				
314	You have felt like I am going to be sick or have vomited				
315	You have wet the bed				
316	You have been very thirsty and/or passing urine frequently				
317	The areas around your nipples have been sore and swollen				
318	You have noticed fluid coming from my nipples				
319	You have had problems enjoying sex				
320	you have had problems getting an erection(male only)				
Tick yes or no for the **last three months**			Yes		No
321	You have noticed a change in my periods (women only)				
322	You have been gaining weight				

Part-IV: Morisky medication adherence scale (MMAS-8)

I will ask you few questions about your medication that you were using after the illness**.** Read each question carefully and tick (√) against the option that best suits your response

Questions to assess medication adherence		Alternative response	
		Yes	No
401	Do you sometimes forget to take your prescribed medication?		
402	People some times miss taking their medications for reasons other than forgetting. Over the past 2 weeks, were there any days when you did not take your medication?		
403	Have you ever stopped taking your medication with out teling your doctor because you feel worse when took it?		

404	When you travel or leave home do you sometimes forget to bring along your medication?		
405	Did you take all your medication yesterday?		
406	When you feel like the symptoms are under control(improved), do you sometimes stop taking your medication?		
407	Taking medication every day is a real incovenience for some people. Do you feel hassled about sticking to your treatment plan?		
408	How often do you have difficulty remembering to take all prescribed medications?	**1.** Never/Rarely **4.** Usually **2.** Once in a while **5**.all the time **3.** Sometimes	

Part-V: Questionnaires to assess social support **(OSSS-3)**.The following 3 questions ask about how you experience your social relationships. The inquiry is about your immediate personal experience.

S .no	Social Support Questionnaire	Response
501	How many people are so close to you that you can Count on them if you have great personal problems?	1. None 3. Three-five 2. One or two 4. More than five
502	How much interest and concern do people show in what you do?	1. None 3. Uncertain 2.Little 4 . some 5. a lot
503	How easy is it to get practical help from neighbors if you should need it ?	1. Very difficult 3. Possible 2. Difficult 4. Easy 5.Very easy

Part-VI: Questionnaire to assess patient's attitude towards medication by Drug Attitude Inventory (DAI-10).

Questions		Alternative answers	
		True	False
601	For you, the good things about medication outweigh the bad		
602	You feel strange, 'doped up', on medication		
603	You take medications of on your own free choice		
604	Medications make you feel more relaxed		
605	Medication makes you feel tired and sluggish		
606	You take medication only when you feel ill		
607	you feel more normal on medication		
608	It is unnatural for your mind and body to be controlled by medication		
609	your thoughts are clearer on medication		
610	Taking medication will prevent you from having a breakdown		

Part -VII: Substance use related questions

701	Have you ever used any kind of substance in your life(non-medical use only)?	A.Yes B.No
702	If the answer is yes for Question number 601, what kind of substance do you take?	1.Alcohol 2.Cigaratte 3.khat 4.Cannabis/hashish/ganja 5. Other specify it----------
703	Have you used any substance in the last 3 months(non-medical use only)?	A.Yes B.No
704	If the answer is yes for Question number 603,what kind of substance do you take?	1.Alcohol 2.Cigaratte 3.khat 4. Cannabis/hashish/ganja 5. Other specify it----------

Part-VIII: Birchwood's insight for psychosis scale

Read each statement carefully and tick (√) against the option that best suits your response**.**

Questions		Alternative answer		
		Agree	Unsure	Disagree
801	Some of yur symptoms are made by your mind			
802	You are mentally well.			
803	You do not need medication.			
804	Your stay in hospital is necessary			
805	You do not need to be seen by a doctor or psychiatrist.			
806	The doctor is right in prescribing medication for you.			
807	None of the unusual things you experience are due to an illness.			
808	If somebody said that you have a nervous or a mental illness then they would be right.			

Thank you very much!!

12. ልጋብ

ልጋብ-1: ናይ ተሳተፍቲ ዝርዝር ሓበሬታ

ናይ ፕሮጀክት ስም፡ኣብ መንግስታዊ ሆስፒታላት መቐለ ፣ ትግራይ ዝርከቡ ተመላለስቲ ተሓከምቲ ስኪዞፍሬንያ ዝህሉ መጠን መድሓኒት ብኣግባቡ ዘይምጥቃምን/ዘይምዉሲድን ተዛመድቲ ምኽንያታትን ፡ 2024 ።

ዋና ተመራማሪ፡ ኣርኣያ ሃፍቱ **ቀዳማይ ኣማኻሪ፡** ሓጎስ ፀጋብርሃን (ሓ/ፕሮፌሰር) **ካልኣይ ኣማኻሪ፡** ተስፋኣለም ኣርኣያ(ሓ/ፕሮፌሰር)። **ክፍሊ ትምህርቲ:** ስነ-ኣእምሮ ፤ ቤትትምህርቲ ነርሲንግ ፤ ኮሌጅ ጥዕና ሳይንስ ፤ዩኒቨርሲቲ መቐለ

መእተዊ፡ ደሓን ዶ ሓዲርኩም/ደሓን ዶ ውዒልኩም ስመይ_____ ኣብ ርእሱ ንምግላፅ ከም ዝተሞክረ ኣብዙይ ዝተረኽብኩሉ ናይዚ መፅናዕቲ ዝርዝር መረዳእታ ንምእካብ እየ።። እዚ መፅናዕቲ ዘካይድዎ ኣብ ዩኒቨርሲቲ መቐለ፤ኮሌጅ ጥዕና ሳይንስ፤ቤትትምህርቲ ነርሲንግ፣ ክፍሊትምህርቲ ስነ-ኣእምሮ ብዝተዋደደ ሕክምናዉ ን ማህበረሰባዉን ጥዕና ኣእምሮ ኣታሓላልዋ ናይ 2ይ ዲግሪ (ማስተር ዲግሪ) ተመራቒ ተምሃራይ ዝኾኑ ኣቶ ኣርኣያ ሃፍቱ ዝተብሃሉ እዮም።።

ዓላማ:መጠን ዝህሉ መድሓኒት ብኣግባቡ ዘይምውሳድን ተዛመድቲ ምኽንያታትን ንምንፃር እዩ።። **ኣካይዳን ተሳትፎን፡** ኣብዚ ፅንዓት ክሳተፉን ትኽክለኛ መልሲ ንክህቡንን ብትሕተና ይሓትት።።ናቶም/ተን ምትሕብባርን ፍቓድን መጠን መድሓኒት ብኣግባቡ ዘይምውሳድን ተዛመድቲ ምኽንያታትን ንምንፃር/ንምፍላጥ ጠቓሚ እዩ።። ነዚ ቃለ-መሕትት ዝወስደሎም/ለን ግዜ ከዓ 30 ደቒቓ እዩ።። **ሚስጥራዊነት፡** ንዝህብዎ መረዳእታ ሚስጥሩ ዝተሓለወ እዩ።።**ጥቅሚ፡** ብዝህቡኒ መረዳእታ ተጠቃሚ እየ ንሶም/ን ግን ብቀጥታ ዝጥቀምዎ/ኡ ነገር ዘይክህሉ ይክእል'ዩ።።**ጉድኣት (ሳዕቤን)፡** ኣብዚ ቃለ-መሕትት ብምስታፎም ብዝተወሰነ መጠን ምቾት ዘይክስምዖም/ዐንን ግዚኡም/ን ክወስደሎም/ን ይክእል እዩ።። ካብዚ ሓሊፉ ግን ዝበፅሖም/ሐን ምንም ዓይነት ሳዕቤን የለን።።

መበረታትዒ/ክፍሊት፡ ንዝህብዎ/ኡ መረዳእታ ምንም ዓይነት ክፍሊት የብሉን፡ኮይኑ ግና ምስታፎም/ን መጠን መድሓኒት ብኣግባቡ ዘይምውሳድን ኣቃላዕቲ ነገራትን ንምፍላይ ይጠቕመና።። **ውፅኢት መፅናዕቲ፡**ብሰሚናር መልክዕ ኣብ ዩኒቨርሲቲ መቐለ ኮሌጅጥዕና ሳይንስ ክፍሊ ትምህርቲ ስነ-ኣእምሮ ፤ ቤት ትምህርቲ ነርሲንግ ክቐርብ እዩ፡ ኣብቲመፅናዕቲ ቦታ ዘለዋ ሆስፒታላት አውን ክዋሃብ 'ዩ። **ሕቶ ናይ ዘይምምላስ መሰል፡** ደስ ዘይበሎም ሕቶ እንተጋጥሞም/ን ናይዘይምምላስ ወይ እቲ ሕቶ ናይ ምዝላል መሰሎም ሕልው እዩ።።**ክረኽብዎ ዝደለዩ ሰብ:** ሕቶ እንተሃልይዎም/ን ወይ ውፅኢት ናይዚ መፅናዕቲ ውፅኢት ንምፍላጥ እንተደለዮም/ን ኣብ ዝኾነ ሰዓት ብዝቐፅል ኣድራሻ ናይቲ ተመራማሪ ኣድራሻ ብምሓዝ ምርካብ ይኽእሉ እዮም።።ተወሳኺ ሓሳብ ተደልዮም እና ናይዚ ፕሮጀክት ዓላማ ክፈልጡ ተደልዮም ካብዚ ብታሕቲ ዘለው ሰባት ምዝርራብ ይኽእሉ/ላ እዮም/ን።

ዩኒቨርስቲ መቐለ፣ ኮሌጅ ጥዕና ሳይንስ ቦርድ ትካል ግምገማ ኦፊስ ፡ ስልኪ ቁፅሪ:+251 3444416682፣ **ዋና ተመራማሪ፡ ሽምን ኣድራሻን፡** ኣርኣያ ሃፍቱ- ስልኪቁፅሪ፡0928934498 ኢ-ሜል: arayahaftu27@gmail.com፣**ኣማኸርቲ ሽምን ኣድራሻን፡ ቀዳማይ ኣማኻሪ፡** ኣቶ ሓጎስ ጋብርሃን (ሓ/ፕሮፌሰር) ኢ-ሜል: hagostegabrhan196@gmail.com። **ካልኣይ ኣማኻሪ፡** ተስፋኣለም ኣርኣያ(ሓ/ፕሮፌሰር) ኢ-ሜል:tesfayearaya8@gmail,com

እሞ ንምስታፍ ፍቓደኛ ድዮም?

1. እወ_____ ናብ ዝቐፅል ገፅ ቀፅል/ሊ
2. ኣይፋልን_____ ናብ ዝቐፅል ተሳታፋይ ቀፅል/ሊ

ልጋብ-2: ቅጥዒ ናይ ስምምዕነት ፍቓድ

ናይ ፕሮጀክት ስም፡ ኣብ መንግስታዊ ሆስፒታላት መቐለ ፣ ትግራይ ዝርከቡ ተመላለስቲ ተሓከምቲ ስኪዞፍሬንያ ዝህሉ መጠን መድሓኒት ብኣግባቡ ዘይምጥቃምን ተዛመድቲ ምኽንያታትን ፣ 2024 ።።

እዚ መፅናዕቲ ዝግበር ን2ይ ዲግሪ (ማስተር) ትምህርቲ መመረቒ ብዩኒቨርሲቲ መቐለ፤ኮሌጅ ጥዕና ሳይንስ፤ ክፍሊ ቤትትምህርቲነርሲንግ፤ ስነ-ኣእምሮ ክፍሊ ዝምራሕን ዝሕገዝን ኮይኑ በዓል ዋና ናይቲ ትምህርቲ ተመራማሪ እቲ መፅናዕቲ ከዓ ኣቶ ኣርኣያ ሃፍቱ ከም ዝበሃሉ ፈሊጠ ኣለኹ።። ንዓይ ብዝርድኣኒ ቋንቋ ብዛዕባ እቲ መፅናዕትን ናይቲ ፅንዓት ዓላማ ከዓ ኣብ መንግስታዊ ሆስፒታላት መቐለ ዝርከቡ ተመላለስቲ ተሓከምቲ ስኪዞፍሬንያ ዝህሉ መጠን መድሓኒት ብኣግባቡ ዘይምውሳድን ተዛመድቲ ምኽንያታትን ምንፃር ከም ዝኾነ ታሓቢረን ተረዲአን።።

ኩሉ እቲ ሓበሬታ ነቲ ቃለ-መሕትት ዝግበረሉ ሚስጥሩ ዝትሓለወ ከም ዝኾነ ታሓቢረ።። ኣብቲ መፅናዕቲ ዘለዉ ገለ ሕቶታት ዝተወሰነ ምቾት ዘይክፍጥረለይ ከምዝክእልን ግዘይ እውን ክሻመየኒ ይክእል እዩ።።ይኩን እምበር ምንም ዓይነት ተወሳኪ ጉድኣትን ኮነ ምስ መዋቅራዊ ወይ ሕጊ ዝተተሓሓዘ ነገር ዘይብሉ ምኻኑ ተረዲአ።። ከምኡ እውን ነቲ ሓበሬታ ንዘይምምላስ መሰል ዘለኒ ምኻነይ፤ ሕቶ ኣብ ምምላስ ክዘሎ ወይ ካብቲ መፅናዕቲ ኣብ ዝኾነ ሰዓት ክገድፎ ዝኾነ ይኹን ኣካል ፅልዋ ክፈጥረለይ ከም ዘይኽእልን ንምንታይ ከም ዘቋረፅክዎ ምኽንያት ንኽኾርበሉ ከም ዘይሕተትን ፈሊጠ።። ብተወሳኺ እቲ መፅናቲ ኣብ ጥዕናይ ቀጥታዊ ለውጢ ዘይክህልዎ ከምዝክእልን ታሓቢረ።።

ዘይተረደኣኒ ሕቶ ምሕታት መሰል ከም ዘለንን ብዛዕባ እቲ ፅንዓት ቅድሚኡ ይኹን ኣብቲ ፅንዓት ግዜ ዝምልከቶ ሰብ ክረክብ ከም ዝኽእልን ኣረጋጊፀ።። እዚ ኣብ ላዕሊ ዝተገለፀ ቅጥዒ ኣንቢበዮ እለኩ ወይ ከዓ ንዓይ ከምዝርደኣኒ መልክዑ ተነቢብሎይ ኣሎ። ስለዚ ፍቓደኛ እየ፤ ኣድላዩ ተኾይኑ ከዓ ተሳትፎይ ብፈርማይ ክረጋግፀልካ ይኽእል እየ።።

ናይ ተሳታፊ መለለዪ ቁፅሪ_____ፊርማ _____

ሽም ናይቲ ሓበሬታ ሰብሳቢ (ኣካቢ) _____ፊርማ _____ዕለት_____

ሽም ናይ ተቐፃፃሪ_____ፊርማ _____ዕለት_____

ልጋብ-3: ትግርኛ ቃለ መሕተት

<u>መምርሒ</u>:እቲ ቃለ መሕተት ሽሞንተ ክፋላት ዝሓዘ እዩ። ብዝተካኣለ መጠን ብትኩረት ኩሉ ክትምልስዎ/ኦ ብትሕትና ይሓትት። የቀንየለይ!!

ክፋል 1: ማሕበራውን ስነ ህዝባውን ዝምልከቱ ሕቶታት

ተ.ቁ	ሕቶታት	መልስኩም
101	ፆታ?	1.ተባዕታይ 2. ኣንስተይ
102	ዕድመካ/ኪ ክንደይ እዩ?	----------ዓመት
103	ናይ መንበሪኹም/ኽን ቦታ አበይ እዩ ?	1.ገጠር 2. ከተማ
104	ናይ ሓዳር ኩንታት?	1.ዘይተመርዓወ/ት 3. ሓዳር ዝፈተሐ/ት 2.በዓል/ቲ ሓዳር 4. በዓል/ቲ ገዛ ብህይወት ዘየለ/ላ
105	ዝኽተልዎ ሃይማኖት ?	1.ኦርቶዶክስ 2.ሙስሊም 3.ፕሮተስታንት 4. ካቶሊክ 5.ካሊእ_____
106	ብሄር?	1. ትግራዋይ 2.ዓፋር 3. ኣምሓራይ 4.ካሊእ---------
107	ናይ ትምህርቲ ደረጃ?	1. ምንባብን ምፅሓፍን ዘይኽእል/ዘይትክእል 2. 1-4 ክፍሊ 4. 9-10 ክፍሊ 3. 5-8 ክፍሊ 5. ኮሌጅን ልዕሊኡን
108	ስርሐን/ሖም እንታይ እዩ?	1. ነጋዳይ 2. ኣብ ገዛ ትዉዕል/ተማሓድር 3.ሓረስታይ 4.ተቐፂሩ ዝ/ትሰርሕ 5.መዓልታዊ ሰራሕተኛ 6.ስራሕ ዘይብሉ/ላ 7. ካሊእ---------
109	ብማእከላይ ኣብ ወርሒ ክንደይ ኣታዊ ወይከዓ ደሞዝ ይረክቡ?	---------- ቅርሺ

ክፋል 2: ኩነታት ጥዕናን ዝወስድዎ/ኦ መድሓኒትን ምግምጋም/ምፍታሽ ዝምልከት ቃለ መሕተት

	ሕቶታት	መልስኩም/ን
201	እቲ ሕማም ክጅምሮም/ረን ከሎ ክንደይ ነይሩ ዕድም'ኹም/ኽን?	_____ዓመት
202	እቲ ሕማም ካብ ዝጅምሮም/ርን ክንደይ ገይሩ ?	_____ዓመት ወይ _____ወርሒ
203	በዚ ሕማም ምክንያት ኣብ ሆስፒታል ደቂሶም/ሰን ተሓኪሞም/ምን ይፈልጡ/ጣ ዶ?	A._____ጊዜ B. ደቂሰ ኣይፈልጥን
204	ናይዚ ሕማም መድሓኒት ንክንደይ ዝኣክል ጊዜ ወሲዶም/ን	_____ዓመት ወይ _____ወርሒ

205	ዝወስድዎ/አ ዓይነት መድሓኒት?(ኣድላዩ እንተኮይኑ ኣብ ማህደር ይርጋገፅ) **ካብ ሓደ ንላዕሊ ምምራፅ ይካኣል እዩ**	1.ክሎሮፕሮማዚን 2. ሃሎፐሪዶል 3. ፍሉፈናዚን ዲኮኔት 4. ሪስፐሪዶን 5. ኦላንዛፒን 6.ካልእ ኣንቲሳይኮቲክ(ይገለፅ)---------- 7. ኣንቲሳይኮቲክ+ ካልእ መድሓኒት----------
206	ኣብ መዓልቲ ክንደይ ጊዜ መድሓኒት ይወስዱ/ዳ	A. ሓደ ጊዜ B. ክልተ ጊዜ C. ሰለስተን ልዕሊኡን D. ኣብ ወርሒ ሓደ ጊዜ
207	ብዘይ እዚ ሕማም እዚ ብበዓልሞያ ዝተፈለጠ ሕማም ኣለዎም/ን ዶ?መልስኹም/ን እወ እንተኾይኑ ግለፁ/ፃ።	A.እወ(_____) B.የለን
208	ኣብ ቤተሰብኹም/ክን ዝተፈለጠ ናይ ኣእምሮ ሕማም ዘለዎ ኣሎዶ?	A.እወ B.የለን

ክፋል 3. ግላስጎው መለክዒ ደረጃ ንናዊ ሳዕቤን መድሃኒታት ስኪዚዮፍረንያ (GASS-22)

ተ/ቁ	ኣብ ዝሓለፈ ሰሙን ክደይጊዜ	በፍፁም	ሓደ ጊዜ ጥራሕ	ካብሓደጊዜ ንላዕሊ	ኩሉ ጊዜ
301	ብተደጋጋሚ ቀትሪ ድቃስ ድቃስ ተሰሚዕዎም/ን	0	1	2	3
302	ኣዝዩ ድካም ተሰሚዕዎም/ን	0	1	2	3
303	ካብ ኮፍ መበሊኦም/ን ክትስኡ/ኣ ከለው/ዋ፡ምድንዛዝ/ ዉኒኦም/ን ዝስሕቱ ዘልው መስሉ ተሰሚዕዎም/ን	0	1	2	3
304	ልቦም/ን ብዘይስሩዕ ወይ ብዘይተለምደ ፍጥነት ክትወቅዕ ተሰሚዕዎም/ን	0	1	2	3
305	ሓያል ውጥረት ጭዋዳታት ተሰሚዕዎም/ን	0	1	2	3
306	ኣእዳዎም/ን ምንቅጥቀጥ	0	1	2	3
307	ኣእጋሮም ዕረፍቲ ዘይብሉ ኮይኑ ይስመዖም/ን ወይ'ውን ኮፍ ክብሉ ኣይከኣሉን/ላን	0	1	2	3
308	ዝርባብ የፀግመሎም/ለን	0	1	2	3
309	ምንቅስቓሰቃስ ወይ ምጉዓዝ ካብቲ ልሙድ ዝዘንገዐ ኮይኑ ኣሎ	0	1	2	3
310	ኣብ ገዖም/ን ወይ ኣካላቶም ዘይቆፃፀርዎ ምንቅስቓስ ነይሩ ወይ ሰባት ኣስተብሂሎም እዮም።	0	1	2	3
311	ዓይኖም/ን ድብዝዝ ኢሉዎም/ን	0	1	2	3
312	ኣፎም/ን ድርቕ ይብሎም/ን	0	1	2	3
313	ሽንቲ ንምሻን ተፀጊሞም/ን	0	1	2	3
314	ዝሓምም/ን ወይ ዘምልስ ዘለዉ ኮይኑ ተሰሚዕዎም/ን	0	1	2	3
315	ብድቁሶም/ን ኣብ ዓራት ምሻን ኣጋጢሙዎም ነይሩ	0	1	2	3

316	ማይ ሽዑንሽዑን ይፀምኦም/ን፣ሽዑንሽዑን ሸንቲ ይመፆም/ን	0	1	2	3
317	ኣብ ጡቦም/ን ከባቢ ናይ ምሕባጥን ቓንዛን ይስመፆም/ን	0	1	2	3
318	ካብ ጡቦም/ን ፈሳሲ ከወፅእ ተዓዚቦም/ን ኣለዉ	0	1	2	3
319	ፆታዊ ርክብ ፀገም ኣጋጢሙዎም/ን	0	1	2	3
320	ናይ ብልዕቲ ጠጠው ዘይምባል ፀገም ኣጋጢሙዎም ይፈልጥ(ንደቂ ተባዕትዮ ጥራይ)	0	1	2	3
እወ ወይ ኣይፋል ዝብል ምልክት ግበር (ንዝሓለፉ ሰለስተ ኣዋርሕ)			እወ	ኣይፋሉን	
321	ኣብ ወርሓዊ ፅግያት ለውጢ ኣስተብሂለን ኣለዋ(ንድቂ ኣንስትዮ ጥራይ)		3	0	
322	ክብደት ይውስኩ/ካ ኣለዉ/ዋ		3	0	

ክፋል 4፡ብናይ ሓኪም ትእዛዝ መሰረት ናይ መድሓኒት ኣጠቓቕማ መለክዒ ሞሪስኪ በዓል ሸሞንተ መሓተቲ

ሕቶታት		መልሲ	
		እወ	ኣይፋል
401	መድሓኒቶም/ተን ምውሳድ ሓደሓደ ግዘ ረሲፆም/ን ይፈልጡ/ጣ ዶ?	Yes	No
402	ሰባት ሓደሓደ ግዜ መድሓኒቶም ካብ ምርሳዕ ወፃኢ ብ ካሊእ ምክንያት ምውሳድ የቋርፀ።ኣብ ዝሓለፈ 2 ሰሙን መድሓኒቶም/ተን ዘይወሰዱሉ/ዳሉ መዓልቲ ነይሩ ዶ?	Yes	No
403	መድሓኒት እናወሰዱ/ዳ እናሃለው/ዋ እንተሒምዎም/ን፡ካብ ሓኪም ትእዛዝ ወፃኢመድሓኒቶም/ን ምውሳድ ኣቋሪፆም/ፀን ይፈልጡ/ጣ ዶ?	Yes	No
404	ክገሹ/ሻ ወይከዓ ካብ ገዛ ክወፁ ከለዉ/ዋ ሓደሓደ ጊዜ መድሓኒቶም/ን ሒዞም/ን ምኻድ ረሲፆም/ን ይፈልጡ/ጣ ዶ?	Yes	No
405	ትማሊ መድሓኒቶም/ን ወሲዶም/ን ዶ?	Yes	No
406	ዝሐሾም/ሸን መሲሉ ኣንተተሰሚዕዎም/ን ሓደሓደ ግዘ መድሓኒት ምውሳድ ኣቋሪፆም/ን ይፈልጡ/ጣ ዶ?	Yes	No
407	ማዓልታዊ መድሓኒት ምዉሳድ ን ሓደሓደ ሰባት ዓብዩ ፀገም እዩ። ንሶም/ን ስሩዕ ክትትል ሕክምና ብምግባሮም/ን ፀገም ይፈጥረሎም/ን ድዩ?	Yes	No
408	ዝተኣዘዘሎም/ን መድሓኒት ዘኪርካ ንምውሳድ ክንደይ ዝኣክል ጊዜ ተፀጊሞም/ን ይፈልጡ?	1.በፍፁም/ሳሕቲ 4.መብዛሕትኡግዜ 2.ብጣዕሚ ሓለሓሊፉ 3.ሓደ ሓደ ጊዜ 5. ኩሉ ጊዜ		

ክፋል 5 ፡ ቃለ መሕትት ማሕበራዊ ደገፍ ንምግምጋም(OSSS-3)

እዞም ዝስዕቡ ሰለስተ ሕቶታት ምስ ማሕበራዊ ርክብኩም/ክን ዘጋጠመኩም/ክን ዝምለከቱ እዮም።

ተ ቁ	ሕቶታት	መልሲ
501	ከቢድ ናይ ውልቀ ሽግር ኣብዘጋጥሞም/ን ግዜ ብኡኦም/ኣን እትተኣማመንሎም ንዐኦም/ኣን ብጣዕሚ ቀረባ ዝኾኑ ክንደይ ሰባት ክትረክቡ/ባ ይክእሉ/ላ ?	1. ምንም 2.1 ወይ 2 3. 3-5 4. ካብ 5 ንላዕሊ
502	ኣብቲ እትሰርሕዎ/ኡ ነገር ሰባት ክንደየናይ ዝኣክል ተገዳስነትን ሓልዮትን ይገብሩ/የርእዩ ?	1. ምንም 2.ብጣዕሚ ዉሑድ 3. ኣይፍለጥን 4. ዝተውሰነ 5. ብጣዕሚ ብዙሕ
503	ኣብ ዝደለይዎ/ኡ ግዜ ካብ ጎረቤትኩም/ን ወይከዓ ካብ ዓርክኩም/ክን ሓገዝ ንምርካብ ክንደይ ዝኣክል ቀሊል እዩ ?	5. ብጣዕሚ ቀሊል 4. ቀሊልእዩ 3. ምርካብ ይካኣል እዩ 2. ኣፀጋሚ እዩ 1. ብጣዕሚ ኣፀጋሚ እዩ

ክፋል 6: ናይ ዝወስድዎ/ኡ መድሓኒት ዘለዎም/ን ተሞክሮ፡ስምዒትን ኣመለኻኽታን መዐቀኒ ሕቶታት(DAI-10)

ሕቶታት		መልሲ	
		እወ	ኣይፋሉን
601	ንኣኩም/ኣን እቲ ፅቡቕ ነገራት መድሓኒት ካብቲ ሕማቕ ይበዝሕ	T	F
602	መድሓኒት ክወስዱ/ዳ ከለዉ/ዋ ጋሻ ስምዒት ይስመዖም/ን	T	**F**
603	ብናይ ባዕሎም/ለን ድሌት ዝተኣዘዘሎም/ለን መድሓኒት ይወስዱ/ዳ	T	F
604	መድሓኒት ብምውሳዶም/ደን ዝበለፀ ዝተረጋጋኡ/ኣ ይገብሮም/ን	T	F
605	መድሓኒት ብምውሳዶም/ደን ብጣዕሚ ድኻም ንክስመዖም/ኣን ይገብር	T	**F**
606	መድሓኒቶም/ተን ሕማም ክስመዖም/ን ከሎ ጥራሕ ድዮም/ይን ዝወስዱ/ዳ	T	**F**
607	መድሓኒቶም/ተን ክወስዱ/ዳ ከለው/ዋ ዝበለፀ ጥዕና ይስመዖም/ዐን	T	F
608	ኣእምሮኡም/ኣንን ኣካላትኩም/ክንን ብመድሓኒት ክቆፃፀሩ/ራ ባህርያዊ ኣይኮነን	T	**F**
609	ሓሳቦም/በን መድሓኒት ክወስዱ/ዳ ከለው/ዋ ዝያዳ ንፁር ይከዉን	T	F
610	መድሓኒት ምውሳዶም/ን ናይ ሓሳብ ምብትታን ንክይህልዎም/ወን ይከላከል	T	F

ክፋል7: ብዛዕባ ኣልኮላዊ መስተ፡ ፍርያት ትምባኾን ካልኦት መዐወንቲ ንጥረ-ነገራትን ተሳትፎ መፍላዩ ሕቶታት

ተ.ቁ	ሕቶታት	መልሲ
701	ኣብ ህይወቶም/ተን ዝኮነ ይኩን ወልፊ ዘትሕዙ ወይ መዐወንቲ ንጥረ-ነገራት ተጠቂሞም/መን ይፈልጡ/ጣ ዶ (ካብ ሓኪም ትእዛዝ ወፀኢ)?	A. እወ B. የለን
702	መልሲ ንሕቶ ቁጽሪ 601 እወ እንተኾይኑ እንታይ ዓይነት ?	1.ኣልኮላዊ መስተ 2.ሽጋራ 3.ጫት 4. ካናቢስ/ሓሺሽ/ጋንጃ 5. ካልኦት ግለጽዎ----------
703	ኣብ ዝሓለፉ 3 ኣዋርሕ ዉሽጢ መዐወንኒ/ቲ ንጥረ ነገራት ተጠቂሞም/መን ይፈልጡ/ጣ ዶ ?	A. እወ B. የለን
704	ንሕቶ ቁጽሪ 603 መልሱ እወ እንተኾይኑ እንታይ ዓይነት ?	1.ኣልኮላዊመስተ 2.ሽጋራ 3.ጫት 4. ካናቢስ/ሓሺሽ/ጋንጃ 5. ካልኦት ግለጽዎ----------

ክፋል 8: ብዛዕባ እቲ ሕማም ምልክታቱን ሕክምንኡን ዘለዎም/ን ግንዛበ መለክዒ ሕቶታት

ሕቶታት		መልሲ		
		ይስማዕማዕ	ርግፀኛ ኣይኮንኩን	ኣይስማዕማዕን
801	ሓደሓዲኡም ናይ ሕማሞም/መን ምልክታት ካብ ውሽጢ ኣእምሮኡም/ን ዝመፁ እዮም			
802	ንሶም/ን ኣእምሮኡም/ን ጥዑይ/ዳሓን እዮ			
803	መድሓኒት ምውሳድ ኣየድልዮምን/የንን			
804	ናብ ሕክምና ምምፀኡም/አን ትኽክል እዩ			
805	ብሓኪም ወይከዓ ስነ ኣእምሮ ባዓል ሞያ ክምርመሩ/ራ ኣድላይ ኣይኮነን			
806	ዶክተር ንኣኡም/አን መድሓኒት ምእዛዙ ትኽክል እዩ			
807	ንኣኡም/አን ካብ ዘጋጠመሞም/ን ዘይልሙድ ነገራት ውሽጢ ዋላ ሓዲኡም በቲ ሕማም ምኽንያት ኣይኮነን			
808	ሓደሓደ ሰባት ናይ ኣእምሮ ሕማም ኣለዎም/ን ኣተኢለሞ/ን ትኽክል እዮም			

ብጣዕሚ የመስግን !!!