

**MEDICATION ADHERENCE AND, ITS ASSOCIATED
FACTORS AMONG ADULT POST MYOCARDIAL
INFARCTION PATIENTS IN TIKUR ANBESA SPECIALIZED
AND LANDMARK GENERAL HOSPITALS, ADDIS ABEBA,
ETHIOPIA, 2021**

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**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY,
COLLEGE OF HEALTH SCIENCES SCHOOL OF NURSING
AND MIDWIFERY FOR PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR MASTERS OF SCIENCE DEGREE IN
CARDIOVASCULAR NURSING**

JUNE 2021

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
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APPROVAL SHEET

ADDIS ABABA UNIVERSITY, COLLEGE HEALTH SCIENCES, SCHOOL OF NURSING
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STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis.

This thesis is submitted in partial fulfillment of the requirement for a graduate degree from the Addis Ababa University at College of Health Sciences, School of Nursing and Midwifery department of Nursing and Midwifery. The thesis is deposited in the Addis Ababa University Digital Library and is made available to local, national, and international scientific community. I solemnly declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma, or certificate.

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ABBREVIATION AND ACRONYMS

AAU	Addis Ababa University
ACE	Angiotensin Converting Enzyme Inhibitors
AHA	America Heart Association
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
BSC	Bachelor of Science.
CAD	Coronary Artery disease
CKD	Chronic Kidney Disease
CHD	Coronary Heart Disease
CSA	Central Statistical Agency
ETB	Ethiopian Birr
HF	Heart Failure
HIV	Human Immune Virus
MARS	Medication Adherence Rating Scale
MI	Myocardial Infarction
PI	Personal Investigator
SPSS	Statistical Package for Social Sciences
TASH	Tikur Anbessa Specialized Hospital
TB	Tuberculosis
WHO	World Health Organization

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ABSTRACT

Poor medication adherence or non-adherence to the prescribed medications among Myocardial Infarction patients is a common problem. This leads to hospital admission due to increased MI exacerbations, reduced physical function, and even death. Previous research indicated that medication adherence is influenced by several issues, including side effects, costs of the medication, dosing frequency and routes of administration. However, research on medication adherence and its associated factors among adult post MI patients in Ethiopia is limited. The objective of this study was to assess Medication adherence and its associated factor among adult post myocardial infarction patients at Tikur Anbessa Specialized and Landmark General Hospitals in Addis Ababa, Ethiopia. An Institutional based cross-sectional study was conducted between February 2021 March 2021. Two hospitals with cardiac centers were selected by lottery method. And proportional Samples were allocated to each hospital. Sample size was calculated using single population proportional formula and the calculated sample size for this study was 422. Data was analyzed using SPSS version 25. Descriptive statistics was used to summarize socio- demographic, characteristics of study participants. Medication adherence was measured by adherence scale interviewer-administered questionnaire. Logistic regression was used to identify factors associated with outcome variables. The result was reported by odds ratio (OR) and Statistical significance was declared at p-value less than 0.05. A total of 401 study participants were recruited with a response rate of 95 %. Adherence rate for MI medication was 57.1%. Age (AOR=4.565; 95% CI (2.334-8.933)), income (AOR=1.693 95% CI (1.018-2.816)), sex (AOR=1.863 95% CI (1.045-3.322)), having no complex (AOR= 1.906 95 % CI (1.157-3.141)), and side effect of drug (AOR =3.858 95% CI (2.282-6.523)) were positively associated with medication adherence. cost of medication (92.3%) followed by availability of medications (83.8%) were the main reasons for medication non - adherence. Slightly more than half of the respondents are adherent to their medication but majority of the respondents worried about the availability of medications. So, it is recommended that the government should ensure the availability of medications.

Key words: Myocardial Infarction, Medication Adherence, Myocardial Infarction Medication

1. INTRODUCTION

1.1. Background

Myocardial infarction (MI), also known as a heart attack, is a damage to an area of the heart muscle caused by lack of blood flow. It occurs most often in form of coronary artery disease (CAD). It is caused by the rupture of one of the fatty plaques. When the plaque ruptures a blood clot can form which partially or completely block the artery (1).

Myocardial infarction may occur as an isolated phenomenon or secondary to some causes. A study showed about 50% of all acute MI occur in people younger than age 65 years (1). In patients who survive the acute stage of heart attack, the risk of another heart attack, sudden death, angina pectoris, and heart failure is substantial. Primary and secondary prevention is the most effective and economical long-term strategy to reduce the disease burden and recurrent MI. Despite the American Heart Association (AHA) guidelines recommendations for secondary prevention(2), aspirin, beta blocker, Angiotensin Converting Enzyme Inhibitors(ACE inhibitors), and lipid lowering medicine are still underused in post MI patients. Situation is not much different in the developed world either. Patient's knowledge of future cardiac risk has important impact on adherence to recommended treatment. Non-adherence of medication results in unplanned re-admission, worsening of the condition, recurrent MI, may also develop heart failure, death, and unexpected cost for the patient as well as the hospital.

After a patient suffers from a Myocardial infarction (MI), management may include medication, procedures, lifestyle modification, health education and other rehabilitation services. Among patients with MI, there is a strong relationship between degree of Heart Failure (HF) and mortality(3). Non-adherence to treatment is a very common problem across many diseases.

The WHO defines adherence as, "The extent to which a person's behavior - taking medication, following a diet and/or executing lifestyle changes corresponds with agreed recommendations from a health care provider. "In general, adherence among patients with chronic conditions is very low and it declines significantly after the first 6 months of therapy. Although many efficacious medical treatments exist, there is always a gap between current treatment success rates and those which are expected. This gap has been attributed partly to lack of patient adherence to recommended treatment. This lack of adherence has dramatic effects on health. It is well known that non adherence to medications can result in worsening

clinical outcomes including hospitalization, exacerbation of chronic medical conditions, increased healthcare costs, and death. (4)

It is understandable that any positive clinical outcomes require good medication adherence. Clinical outcomes of Myocardial infarction include complications that develop through time including atrial fibrillation, ventricular tachycardia, and fibrillation, tamponed and heart block. Researches repeatedly shows that non-adherence leads to significantly worse clinical outcomes than in patients who adhere to prescribed medication better (5). Hence, adherence to prescribed medication is critical to minimizing morbidity and mortality. The quality of medication adherence is a determinant factor for the success or failure of many therapies and treatments (4). Medication adherence usually can be attributed to the medical provider, the patient or other factors beyond the two major stakeholders (like drug unavailability).

1.2.Problem Statement

The widespread problem of patient non-adherence to different medication prescribed by physicians presents serious problem for the patient, the physician as well as the health care system. (6,7). Worldwide, Coronary artery disease is very common and the leading cause of death(8). A number of research indicates that a fifth of post Myocardial Infarction patients have a Heart Failure(9,10). This emphasizes the management aspect of MI as a sufficient post MI management directly contributes to the improvement of non-event survival of the patient(11).

In some developed countries, these potentially high-risk patients are normally managed in a primary care setting, often after initial in-hospital treatment (11). However, research indicates that many patients with coronary heart disease (CHD) are not managed adequately (12). Especially in some developing countries, patients do not have such privileges and are sent home directly after in-hospital treatment and rehabilitation usually depends on the patients' treatment adherence.

Medication non-adherence to long-term therapies in chronic diseases is a global concern as indicated in a world health organization (WHO) report (13). Developing countries contribute a major share of the global burden of cardiovascular disease. Myocardial infarction (MI) remains one of the leading causes of death in the developing as well as in developed world(14). While the risk factor, management, medication adherence and of MI have been extensively studied in the developed world, limited data is available on this subject from developing countries. However, some researches indicated that poor medication adherence was identified as a major problem in 12 sub-Saharan countries (15).

Non-adherence remains complex, ill-characterized, and unpredictable. No longer considered non-compliance, which historically reflected the paternalistic view of patients refusing to comply with 'doctor's orders', the term adherence now acknowledges the consensual collaboration that must exist between patient and provider (16)

Poor adherence or non-adherence to the prescribed medications among MI patients is a common problem. This leads to hospital admission due to increased MI exacerbations, reduced physical function, and even death (17)

Myocardial Infarction and cardiovascular diseases in general put a high burden on society. Especially in developing countries like Ethiopia, the burden associated with the mortality and morbidity from cardiovascular diseases has overtaken all other diseases including human immune virus (HIV)(18).

Despite proven efficiency, adherence rates remain poor ranging anywhere from 10% to 92% (19).

The problem gets exaggerated when the condition in discussion is myocardial Infarction whose complications include heart failure and ultimately the death of the patient. As an aftereffect, the economic impact of that death to the patient's family and country, while usually the victims are the head and bread earners of the family. Therefore, it is crucial to guarantee that adherence to treatment recommendations is taken seriously. For this reason, evaluation of medication adherence provides us with an insight into whether the status of patients in Addis Ababa, Ethiopia. This research is intended to assure this conceptual framework of Medication adherence in post-MI patients in Tikur Anbessa specialized hospital and Landmark general hospital. This study is planned to find out the level of medication adherence in post MI patients and its related factors as it contributes to long-term solutions to address poor medication adherence. Additionally, the burden of the cost of the disease to the patient and the society to a poor young nation like ours is extreme if adherence to medication is not followed. Among these, adequate number of research work could not be traced so far examining medication adherence of myocardial Infarction patients in Addis Ababa yet.

1.3. Significance of the Study

Medication non-adherence in patients lead to substantial worsening of diseases, death, and increased health care costs; this study will assess Medication adherence and its associated factors among adult post myocardial infarction patients. Secondly, assessment of increasing the effectiveness of the adherence interventions may have far greater impact on the health of the population than any improvement in specific medical interventions. Thirdly, the research entails to provide detailed theoretical and empirical knowledge to the researcher in the area under consideration. Lastly, the information may serve as a clinical reference for health care providers working at cardiology departments or units to provide comprehensive treatment, plan interventions and effective strategies for maximizing long-term benefit of their patients.

2. LITERATURE REVIEW

2.1.Introduction

Myocardial Infarction (MI) can be defined as the cell death of cardiac myocytes caused by ischemia, which is the result of a perfusion imbalance between supply and demand(20). The term MI should be used when there is evidence of myocardial necrosis in a clinical setting consistent with myocardial infarction(20).The main purpose of this research is to assess the medication adherence and its associate factors among adult post-MI patients in Addis Ababa, Ethiopia. For this purpose, this study will be intended to review and evaluate related literature to identify what is known in the field of the research and try to show and fill the gap.

2.2.Medication Adherence

Medication adherence is the extent to which a person's behavior is consistent with health care recommendations of prescribed drugs(10). Medication adherence is an integral part of disease management especially in chronic diseases and those that might need self-care (11).

A cohort observational study on 225 consecutive patients in Poland that defined sufficient medication adherence as $\geq 80\%$ discovered that the mean medication adherence in the sample was $64.1 \pm 24.5\%$ (21). Additionally, the same study found that sufficient medication adherence for all medication groups throughout the study period of 1 year was observed in only 29.4% of the sample. Another study to assessed medication adherence for more than in patients with social anxiety disorder and used the Anxiety Diagnostic Interview Schedule (ADIS)-Reviewed scale showed attrition rate of 15% over the course of a 12-week program(22). On the other hand another study also showed a very high attrition rate of 85% from treatment adherence(23). Yet another research on HIV patients being treated on anti-retroviral tried to evaluate adherence by dividing them into two groups of those who disclosed their status and treatment to family members and those who did not. The result was around 60% adherence and 17% adherence for the two groups, respectively(24).

A study on treatment adherence on Chronic Kidney Disease (CKD)and found the most significant factors affecting medication adherence are family income, regimen complexity, and occupation of the client(25).

Another study also showed reported that patients are more likely to be adherent at 6 weeks if their follow-up appointments are arranged before discharge and had a care provider describe benefits and potential side

effects of their medications. Moreover, lower rate of medication adherence may be associated with a greater risk of 3-month death/readmission (adjusted hazard ratio, 1.35; 95% confidence interval, 0.98-1.87)(26).

A study found out that compared with patients randomized to usual care, full coverage patients adherent to statin, β -blocker, or angiotensin-converting enzyme inhibitor/angiotensin receptor blocker were considerably less prone to experience the study's primary outcome (hazard ratio [HR] range 0.64-0.81(27). On the other hand, non-adherent patients drew no advantage (HR range 0.98-1.04, $P \leq .01$ for the difference in HRs between adherent and non-adherent patients). Patients who were partially adherent had no reduction in clinical outcomes for any of the drugs evaluated, although their achieved adherence was higher than that among controls. Attaining high levels of adherence to guideline recommended post-MI secondary prevention treatment is associated with improved event-free survival.

2.3.Associated Factors for Medication Adherence

The reasons for non-adherence are complex and span multiple domains (multifactorial). Hence, long-term solutions to address poor medication adherence needs to be researched and tailored to the specific situation.

According to the WHO, five major classes of factors for medication non-adherence are recognized; socio-economic (Age, sex, education level, occupation, marital status, religion, income, and residency), disease related(Presence of other co-morbidities ,type and duration of disease ,Substance abuse) and treatment related(Adverse effects ,Complexity of regimen ,Availability ,Cost of drug) (13). Additionally, several research (21,28,29) identify factors including demographic and social on top of those that are already identified in the WHO report.

The study in Poland (21) showed that demographic data like age affecting the level of medication adherence where older patients, defined as those above 65 years of age, were prone to medication non-adherence that younger ones (71% in younger and 61% in older).Another study done in Pakistan on 315 patients with a report of 45% adherence showed that high income, male gender, and partner persistently showed significantly higher medication adherence. Factors like younger age, drug addiction and advance education showed higher adherence only in early follow up periods(29).

Educational level also plays a role in the level of adherence, high level of education has been directly related to higher level of treatment adherence (30,31).

In a study on in Southwest Ethiopia, educational status was shown as a major factor for non-adherence .(32).Another study in Ethiopia, at Debre Tabor General Hospital found that 70% of the 275 patients under study were adherent to medication. It was also reported that regimen complexity directly influenced the adherence (adjusted OR = 0.276; 95% CI = 0.100 o 0.759)(33).

Another research found a direct relation between poor adherence and the amount of types of medication the patient used; the more complex a medication regimen is, the less likely a client adheres to it(31).The same study showed that the level of education amongst patients is linked to the adherence. Patients with lower level of education were less likely to have a good treatment adherence than the ones with a higher level of education(34).

A study in Poland showed that level of education, and marital status and place of residence were independent predictors of drug adherence (35)

A study done in Israel where presence of MI complication particularly chronic ischemic heart disease (AOR 0.69; 95% CI, 0.57–0.83) is associated with reduced medication adherence (36)

As discussed above, there are several literatures dedicated to assessing medication adherence. However, there is no research that discusses the medication adherence and its associated factors of adult post-MI patients in Ethiopia to the best of our knowledge. Hence, the researcher finds it important to study this specific topic on Myocardial Infarction (MI) in Addis Ababa, Ethiopia.

2.4. Conceptual Framework

The reasons for medication non-adherence are complex and span multiple domains (multifactorial). Hence, long-term solutions to address poor medication adherence needs to be researched and tailored to the specific situation. According to the WHO, factors for medication non-adherence are recognized; socio-economic (Age, sex, education level, occupation, marital status, religion, income, and residency), disease related (Presence of other co-morbidities, type and duration of disease, Substance abuse) and treatment related (Adverse effects, Complexity of regimen, Availability, Cost of drug) (13).

Based on these Independent and Dependent Variables were identified that can affect Medication Adherence.

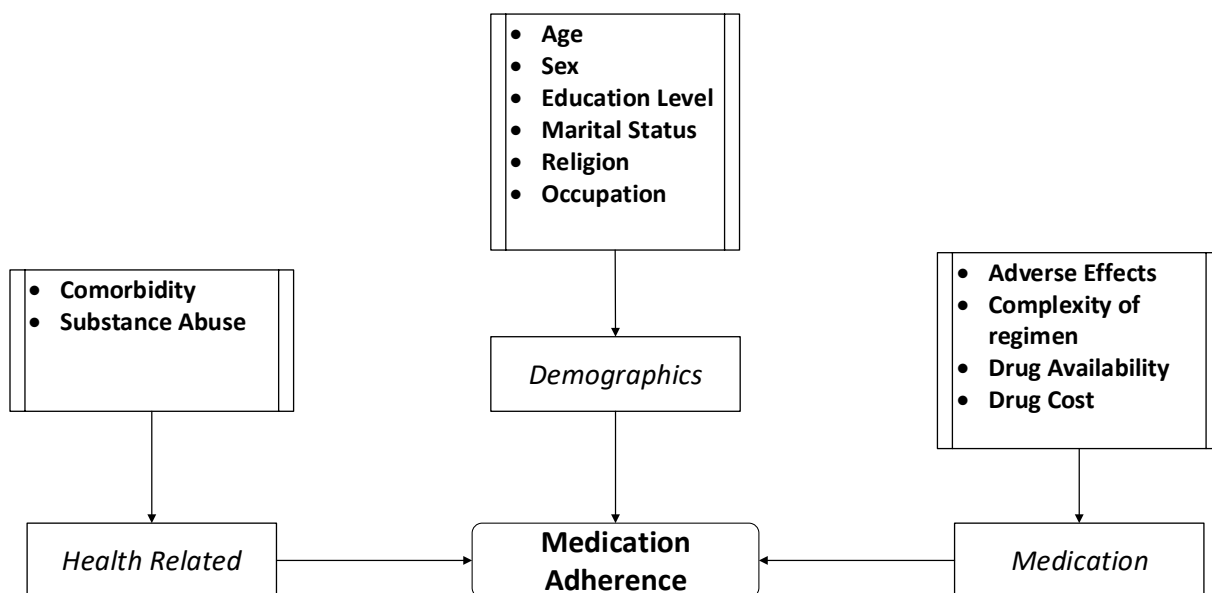


Figure 1. Conceptual Framework of Medication Adherence (13)

3. OBJECTIVES OF THE RESEARCH

3.1. General objective

The general objective of this study is to assess medication adherence and its associated factors among adult post myocardial infarction patient in Tikur Anbessa Specialized and Landmark General Hospitals, Addis Ababa, Ethiopia.

3.2. Specific objectives

The specific objectives of this study were.

- To assess the level of Medication adherence of post Myocardial infarction patients.
- To determine associated factors for medication adherence in post MI patients

4. METHODS AND MATERIAL

4.1. Study Area and Period

The study was conducted in Addis Ababa which is the capital city of Ethiopia. It covers a total area of 54,000 hectares and is divided into 11 sub-cities. Based on 2007 census, the projected population of the city were 3,103,673; of whom 1,478,890(47.6%) were men and 1,624,783 (52.4%) women (CSA, 2008). There are six hospitals (two governmental and four private hospitals) with cardiac centers. These are Tikur Anbessa Specialized Hospital, St, peter Specialized Hospital, Landmark general hospital, Addis cardiac Hospital, International cardiac and cardiovascular hospital and Gesund cardiac hospital. Among these hospitals, Tikur Anbessa Specialized Hospital and Landmark General Hospital are selected by lottery method. Landmark Hospital is one of the private general hospital in the capital city it was established by the year 2000 Ec. It is the oldest private cardiac hospitals with 50 beds and 4 ward namely cardiac ICU, Medica ward Surgical ward and Outpatient Department. Tikur Anbessa Specialized Hospital is the oldest public referral hospital in the capital city. The hospital's cardiac center was established in the year 1964. Based on our observation Tikur Anbessa specialized hospital and Landmark Hospitals are recognized in providing follow up visits for many MI patients in the capital city representing the public and private hospitals, respectively. The study was conducted from Nov. 2020 to February 2021.

4.2. Study Design

An Institutional based cross-sectional study was conducted from February 2021 March 2021 in Addis Ababa Ethiopia.

4.3. Population

4.3.1. Source population

The source population are all patients who were adult post myocardial infarction patients.

4.3.2. Study Population

The study population was all post Myocardial Infarction patients who had follow-up at the selected hospitals and are selected by lottery method, and those fulfilling inclusion criteria.

4.4. Eligibility criteria

4.4.1. Inclusion criteria

All post MI patients, age above 18 years and, who understood Amharic language.

4.4.2. Exclusion criteria

Those who were unable to communicate due to illness, patients with mental instability and severe disabling co-morbidities or frailty.

4.5. Sample size Determination

The single population proportion formula was used. Accordingly, the required sample size (n) was estimated with a confidence level of 95% and 5% margin of error as follows:

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

Were,

n=minimum sample size

P=the assumption will be 50 % (since there is no study done in similar setting)

D=the margin of sampling error tolerated (5%)

$Z_{\alpha/2}$ is the standard normal variable at 1- α % confidence level (95%=1.96)

$$(1.96)^2 * 0.5 * 0.5 / (0.05)^2 = \mathbf{384}$$

The total sample size with 10% non-response rate will be 422.

Then, proportionally assigned respondents were selected from the two hospitals.

From Tikur Anbessa hospital 270 participants were selected and the rest 152 were selected from landmark cardiac hospital as follows

Number of patients selected from Tikur Anbessa = $\frac{\text{number of patients in the hospitals} * \text{total sample size}}{\text{Total number of patients in the two hospitals}}$

$$\frac{19200 * 422}{30000}$$

$$270$$

$$270$$

$$\text{Number of patients selected from landmark hospital} = \frac{\text{number of patients in the hospitals} * \text{total sample size}}{\text{Total number of patients in the two hospitals}}$$

$$\frac{10800 * 422}{30000} = 152$$

There are six hospitals with cardiac clinics in the city namely Tikur Anbessa Specialized Hospital, St. Peter Specialized Hospital, Landmark general hospital, Addis cardiac Hospital, International cardiac and cardiovascular hospital and Gesund cardiac hospital. Among the six hospitals two hospitals namely Tikur Anbessa Specialized Hospital and Landmark general hospital were selected by lottery method as study areas. Consecutive sampling was used to select the study participants. Patient registration book was used as sampling frame. The sampling interval K was calculated as total number of patients divided by the required sample size. Then by randomly selecting numbers from one to K, every Kth patient who met the inclusion criteria was included in the study.

4.6. Study variables

4.6.1. Dependent variables

- Medication Adherence.

4.6.2. Independent variables

- Demographic factors
 - Age, sex, education level, occupation, marital status, religion, income, and residency.
- Medication related factors
 - Adverse effects
 - Complexity of regimen
 - Availability
 - Cost
- Health related factors
 - Presence of other co-morbidities
 - Substance abuse

4.7.Operational Definition

Adherent to Myocardial infarction medications: A patient who scored ≥ 5 for the MARS were adherent to Myocardial infarction medications (37).

Non-adherent to Myocardial infarction: A patient who scored < 5 for the MARS were non-adherent to Myocardial infarction medications (37).

4.8.Data Collection Technique and Tools

Then, proportionally assigned respondents were selected from the two hospitals.

From Tikur Anbessa hospital 270 participants were selected and the rest 152 were selected from landmark cardiac hospital as follows

Number of patients selected from Tikur Anbessa = $\frac{\text{number of patients in the hospitals} * \text{total sample size}}{\text{Total number of patients in the two hospitals}}$

$$\frac{19200 * 422}{30000}$$

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Number of patients selected from landmark hospital = $\frac{\text{number of patients in the hospitals} * \text{total sample size}}{\text{Total number of patients in the two hospitals}}$

$$\frac{10800 * 422}{30000}$$

$$152$$

$$152$$

A structured and pretested interview questionnaire was first prepared in English and then translated to the local language Amharic by linguistic professionals. The questionnaire had four parts. Part I was aimed at collecting information on basic socio-demographic characteristics. Part II consisted of questions required information on the different patient health related characteristics. Part III was questions important to assess myocardial infarction medication adherence, which is the MARS. Part IV included questions used to assess the reasons for medication non-adherence. The MARS were adapted from previous studies conducted in other settings was assessed using Medication Adherence Rating Scale by Thomson K.et al in 2000 (37) and its associated factors among post myocardial infarction patients.

The MARS questioner contains 10 questions used to assess the level of medication adherence among the respondents. During this study, correct answers were given 1 and incorrect answers 0 and the total score was out of 10. Those patients who do forget, were careless and had stopped their medication when the felt

better or worse, who had no understanding about their medication, those who think staying on medication cannot prevent them from getting sick etc. were considered non adherent Those respondents who scored 5 and above were considered adherent and those below 5 were considered non adherent. (37)

Chart review: data collection format was prepared to extracted information including types of MI, duration of MI, presence of co-morbidities, MI complications, and prescribed medication.

Two supervisors and four data collectors, who had BSc degree in nursing, were recruited to assist in the data collection process. Three days before the actual data collection period a one-day training was given for the supervisors and data collectors on the objectives of the study, the questions and extent of explanations, the way to keep privacy and confidentiality and other ethical issues. The supervisors coordinated the overall data collection processes.

4.9.Data Quality Assurance

Training: The data collectors and supervisors was trained for one day on data collection procedures by developing manuals relevant to achieve the objectives of this study. They were trained how to approach the study subjects, how to record data, how to control missing data and how to communicate data collectors with supervisors.

Supervision: In addition to the delivered training the supervisors was discussed with the principal investigator the way how to supervise the data collectors to assure that the data collection activities was carry out according to the training guideline. Each supervisor monitored the data collectors assigned to him using supervisory check list on each day of the data collection and corrective measures was taken immediate accordingly.

Translating and Pre-testing the questionnaire: The questionnaire was adopted originally in English language and then translated into Amharic language and retranslated into English by language expertise. The questionnaire was administered to study participants in Amharic as they are Amharic speakers. Pre-test was employed before engaging to full implementation of data collection by took5% of the sample size at St. Peter Hospital. And the responses were discussed so that modifications were made for the final tool.

Quality assurance: Principal investigator and supervisors checked everything recorded by data collectors in each questionnaire daily with the objective of ensuring no data are missing and as a result data was precise and accurate. Data collectors themselves checked for internal consistency that is the extent to which

the responses to different questions correlate each other during interviewing each recruited client so that they were reconfirm the responses of the interviewees.

4.10. Data Analysis

After data collection, the data was coded and entered a computer using Epi-data 3.1 Statistical program and will be exported to SPSS Version 25 for further analysis. Then, mean, standard deviation and proportion was calculated. Odds Ratio was calculated to determine strength of association between independent and dependent variables and 95% confidence interval was utilized to guide interpretation of results. P-value of less than 0.05 was taken as a cutoff point to declare statistically significant association between independent and dependent variables. And finally, the result was presented by using texts, tables, and graphs.

4.11. Ethical Consideration

Ethical clearance was first obtained from Addis Ababa University (AAU), College of Health Sciences, Department of Nursing and Midwifery, Addis Ababa University research review board (IRB) and concerned others to obtain permission and cooperation during the data collection process. Informed oral consent was obtained from each study subject prior to the data collection process after the purpose of study has been explained and they become briefed about the confidentiality of their responses and the importance of providing the right information to help the study achieve its objective. All participants were asked for their willingness to participate in the study was told that it does not have any risk on them. Confidentiality of the information were assured, and privacy of the respondent were maintained.

4.12. Dissemination Plan

The study findings will be presented to Addis Ababa University College of Health Sciences School of Nursing and Midwifery and different stakeholders including the hospitals, Addis Ababa Health Bureau, Sub City Health Offices, and other agencies who are working in the health sector. Finally, efforts will be made to publish it in national and international journal for dissemination worldwide and be presented in different conferences.

5. RESULTS

5.1. Socio demographic characteristics of the study subjects

The study includes 401 participants with response rate of 95%. The mean age with standard deviation of the respondents was 55.32 ± 11.8 . Among them 155 (38.7%) were between the age of 45-54 years. Majority of the participants were males (74.3%) and most of the participants (43.1%) attended college and above. Nearly sixty five percent (63.8%) of the respondents are married and slightly more than half (50.6%) are orthodox Christian. The mean monthly income of the respondents was 6481birr, majority of the respondents live in urban cities (table1).

Table 1: Socio demographic characteristics of participants, 2021.

Variable	Frequency	Percentage
Sex		
Male	298	74.3
Female	103	25.7
Age		
25-34	16	4
35-44	65	16.2
45-54	155	38.7
55-64	80	20
≥ 65	85	21.2
Marital status		
Single	81	20.2
Married	256	63.8
Divorced	33	8.2
Widowed	31	7.7
Educational status		
Unable to read and write	63	15.7
Able to read and write	56	14
Primary	28	7
Secondary	81	20.2
Collage and above	173	43.1

(Continued)

Table 2: Socio demographic characteristics of participants, 2021. (Continued)

Religion		
Orthodox	203	50.6
Muslim	71	17.7
Protestant	87	21
Catholic	40	10
Income		
<5000 birr	171	42.6
≥5000 birr	230	57.4
Occupation		
Daily labor	6	1.5
Government employee	105	26.2
Private employee	139	34.7
Merchant	34	8.5
Housewives	57	14.2
Retired	56	14
Student	4	1
Residency		
Urban	271	67.6
Rural	130	32.4

5.2. Health related characteristics of the study participants.

Majority of the respondents (64.3%) had MI duration of 1-5 yrs. Similarly, more than three fourth (78.8%) of the respondents had STEMI. Heart failure was the most common MI complication reported by the respondents (91.4%). Majority of the respondents (72.3%) did not have drug habits. (Table 2)

Table 3: Health related characteristics of the study participants 2021.

Variable	Frequency	Percentage
Duration of MI		
1-5 yrs.	258	64.3
≥ 6yrs	143	35.7
Type of Myocardial Infarction		
STEMI	316	78.8
NSTEMI	61	15.2
Other	24	6
Number of medications that you are taking		
Four medications	249	62.1
Five medications	45	11.2
More than five medications	105	26.
Presence of MI complication		
Yes	209	52.1
No	192	47.9
Type of MI complication		
Heart failure	191	91.4
T. Arrythmia	10	4.6
More than one complication	8	4

(Continued)

Table 4: Health related characteristics of the study participants 2021. (Continued)

Presence of other co-morbidities		
Yes	252	62.8
No	149	37.2
Type of co-morbidities		
DM	48	19
HTN	78	31
Cancer	15	6
Kidney disease	11	4.3
More than 1 co-morbidity	100	39.7
Substance abuse		
Yes	111	27.7
No	290	72.3
Type of substance abuse		
Tobacco	21	18.9
Alcohol	33	29.7
Tobacco and alcohol	29	26.1
Chat	24	21.6
Alcohol, tobacco, and chat	4	3.6

5.3. Medication adherence

Rate of medication adherence of the study participants is 57.1% (fig 2). Majority of the respondents (60.8%) said they did not forget to take their medication. Similarly, slightly more than half of the respondents (53.1) said they are not careless at times about taking their medication.

A significant number of respondents (43.4%) said they feel weird, like a 'zombie' on medication. Similarly, slightly less than three fourth (70%) of the respondents said have no clear understanding about the medication they take. (Table3)

Table 5: Medication adherence rating questions of the study participants 2021

No	Questions	Yes		No	
		Frequency	Percentage	Frequency	Percentage
1.	Do you ever forget to take your medication?	157	39.2	244	60.8
2.	Are you careless at times about taking your medication?	188	46.9	213	53.1
3.	When you feel better, do you sometimes stop taking your medication?	190	47.4	211	52.6
4.	Sometimes if you feel worse when you take the medication, do you stop taking it?	200	49.9	201	50.1
5.	Do you take your medication only when you are sick?	185	46.1	216	53.9
6.	It is unnatural for my mind and body to be controlled by medication?	156	38.9	245	61.1
7.	Do you think you have no clear understanding about the medication you take?	281	70	120	30
8.	By staying on medication, I cannot prevent getting sick.	90	22.4	311	77.6
9.	I feel weird, like a 'zombie' on medication	174	43.4	227	56.6
10.	Medication makes me feel tired and sluggish	204	50.9	197	49.1

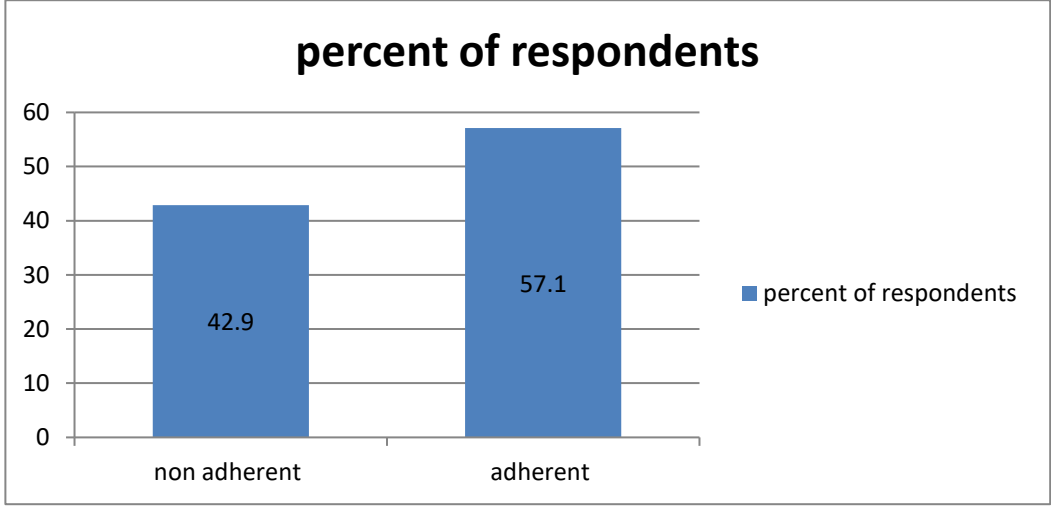


Figure 2: Medication adherence of the study participants

Up on evaluation of the reasons for medication non-adherence, it was. Identified that 370 (92.3%) patients mentioned medication cost as the mainreason for their nonadherence followed by drug availability, drug side effect and pill burden accounting 83.8%,68.8% and 60.1% respectively.

(Fig 3).

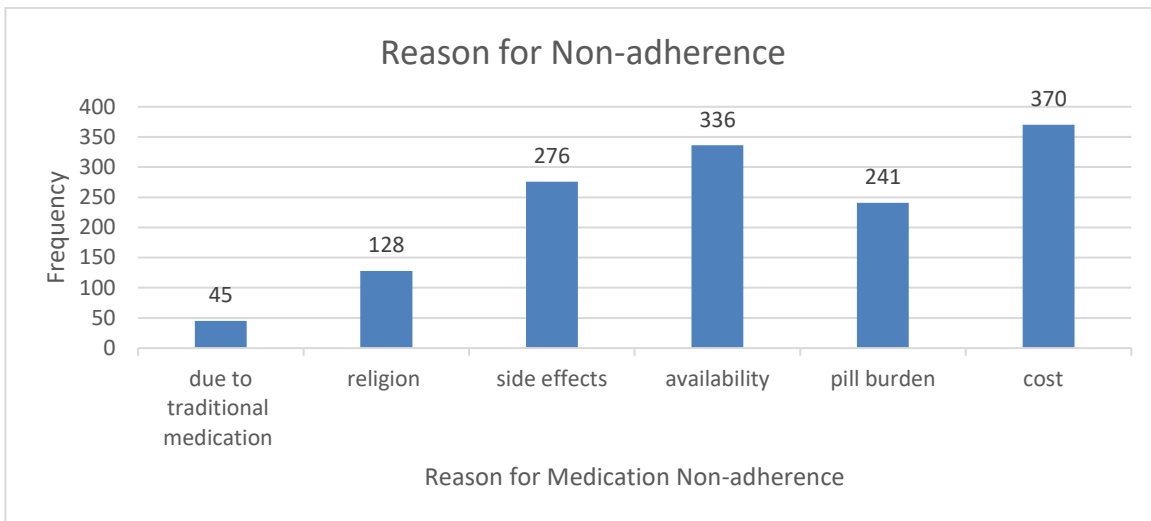


Figure 3: Reasons for medication non-adherence

5.4.Factors associated with medication adherence.

To determine association of independent variables on medication adherence, bivariate logistic regression was done. The Crude analysis was done by including Socio demographic factors and health related factors and the outcome variable that is medication adherence.

Upon logistic regression,

5.4.1 Socio-demographic factors associated with medication adherence.

variables namely, sex crude odds ratio (COR) of 1.773 (confidence interval [CI] =1.128-2.784), income (COR=2.279, 95%CI=1.519-3.419), Age (COR 4.238, 95%CI (2.321-7.737),

5.4.2. Health related factors association with medication adherence.

Duration of MI (COR=1.533, 95%CI=1.015-2.315), presence of other co- morbidity (COR=1.549, 95%CI=1.022-2.348) and presence of MI complication (COR=1.529, 95% CI= 1.026-2.278)

5.4.2. Medication related factors association with medication adherence.

Similarly, the odds of Medication adherence among patients who do not had complex drug regimen is 1.9 times higher (AOR= 1.857 95 % CI (1.191-2.896)). had significance association.

Variable with P value < 0.1 in an unadjusted logistic regression were taken to multiple logistic regression analysis to see whether there is significant association or not by controlling confounding factors. During the multiple logistic regressions, age of the respondent, income, sex easily availability of drug, medication side effect and complex regimen had significant association.

Accordingly, the odds of medication adherence among patients who are 44 yrs. and younger is 4.6 times higher AOR=4.565; 95% CI (2.334-8.932)) as compared to those who are 45 years and older.

Similarly, the odds of Medication adherence among post MI patients who had income greater than or equal to 5000-birr is 1.7 times higher AOR=1.693 95% CI (1.018-2.816)) as compared

to those who had income of less than 5000 birr. Similarly, the odds of Medication adherence among female post MI patients is 1.9 times higher (AOR=1.863 95% CI (1.045-3.322)) as compared to male patients. Similarly, the odds of Medication adherence among patients who don't had complex drug regimen is 1.9 times higher (AOR= 1.906 95 % CI (1.157-3.141)). (Table 5).

Table 4: Factors associated with medication adherence among MI patients in Addis Ababa, Ethiopia

Independent Variables	Category	Frequency	Medication Adherence		COR(CI)	P Value	AOR	P Value
			Yes	No				
Age	<45years	81	66	45	4.238(2.321-7.737)	0.000**	4.565(2.334-8.932)	0.000**
	≥ 45 years	320	163	127	1		1	
Sex	Male	298	181	117	1	0.013**	1	0.035
	Female	103	48	55	1.773(1.128-2.784)		1.863(1.0451-3.322)	
Income	<5000 birr	171	78	93	1	0.000**	1	0.043**
	≥ 5000 birr	230	151	79	2.279(1.519-3.419)		1.6693(1.018-2.816)**	
Duration of MI	1-5 years	258	152	106	1.533(1.015-2.315)	0.042**	1.297(0.795-2.116)	0.297
	6yr and more	143	72	71	1		1	
Complications of MI	Yes	209	109	100	1	0.037**	1	0.186
	No	192	120	72	1.529(1.026-2.278)		1.373(0.858-2.195)	

(Continued)

Table 4: Factors associated with medication adherence among MI patients in Addis Ababa, Ethiopia. (Continued)

Presence of co-morbidities	Yes	252	134	118	1	0.039**	1	0.140
	No	149	95	54	1.549(1.022-2.348)		1.398(0.896-2.180)	
Drug Availability	Yes	336	170	166	1		1	0.000**
	No	65	59	6	9.602(4.036-22.842)	0.000**	10.915(4.386-27.165)	
Complexity of regimen	Yes	241	128	113	1		1	0.000**
	No	160	101	59	1.511(1.004-2.275)	0.048**	1.906(1.157-3.141)	
Adverse effect	Yes	276	151	125	1		1	0.000**
	No	125	78	47	3.356(2.090-5.388)	0.000**	3.858(2.282-6.523)	
Drug cost	Yes	370	220	150	1		1	0.236
	No	31	19	12	2.760(1.160-6.564)	0.022**	1.858(0.668-5.171)	

** significant at $P < 0.05$

6. DISCUSSION

This study showed the overall percentage of medication adherence among adult post myocardial infarction is 57.1%. This finding is higher than in a study done in Pakistan, where only 45% of the respondents were adherent to medication (38) and in Malaysia, where 29% of the respondents were adherent to their medication; and lower than a study in Poland, which showed an average adherence rate of 63% (35) and in India, where 87.1% adherence rate was reported. (39). Another study in Lazio, Italy showed only 63% of MI patients were adherent to their medication (40).

Cost of medications was the most common reason for medication non-adherence among the study participants. This finding is in line with a study in Pakistan where cost of medication was the most common reason for medication non-adherence. (38) Other reasons for non-adherence to medication easily includes availability of medication (83.8%) and side effect (68.8%) respectively this finding is different from a study in Germany where the frequent reasons for medication adherence were “side effects” (38%) “the problem disappeared” (6%), and “barriers” (13%) (41).

The study also revealed significant number of respondents describe having a pill burden or too many medications as a big issue. Similarly, more patients are worried about the easily availability of MI medications. this in part due to the expensive price of MI medications.

In this study presence of MI complications was not associated with medication adherence this in contrast with a study done in Israel where presence of MI complication particularly chronic ischemic heart disease (AOR 0.69; 95% CI, 0.57–0.83) is associated with reduced medication adherence (36).

Similarly, the current study also showed no significant association between place of residence and medication adherence. This is in contrary with a study in Poland where place of residence was an independent predictors of drug adherence (35).

Like the findings of this study, a study done in India showed that medication complexity was associated with medication adherence (39). Similarly, our study did not find association.

between socio demographic characteristics like level of education, and marital status with medication adherence of Post MI patients. These findings are in contrast with a study in Poland where level of education, and marital status were independent predictors of drug adherence (35).

Our study also found a significant association between income and medication adherence in which patients with high income are more adherent to their medication than those with lower income. This is because people with higher income can afford to buy the prescribed medications easily than those with lower income. This finding is supported by a study in Poland where higher level of income is positively associated with increased medication adherence with the same explanation given as above (35).

Similarly, this study also showed patients who are 44 yrs. or younger are more adherent to their medication than those who are 45 years or older. This finding is also supported by the study done in Poland where patients with younger age are more adherent to medication than those who are older (35).

7. STRENGTH AND LIMITATIONS OF THE STUDY

7.1.Strength of the Study

- The study had also tried to explore the medication adherence of post MI patients and its associated factor in-depth.
- This study is the first study that attempted to assess medication adherence and associated factors among adult post myocardial infarction patients.
- Found base line information from future health plan.

7.2.Limitations of the Study

- This study lacks information about surgical intervention (percutaneous transluminal coronary angioplasty or coronary artery bypass grafting) of the subjects which might possibly affect short-term medication adherence.
- The cross-sectional nature of the study did not allow a follow up, which would have provided a better design for identifying the problem of non-adherence. The interview used for assessing the adherence might underestimate patients' non- adherence status when compared to other conventional objective methods such as pill counts or biological assays. On the other hand, the quantitative nature of the data could not properly highlight the reasons for non-adherence from the patients' perspective, which would have been better revealed by conducting in-depth interviews or focus group discussions.
- Since self-report was used for the assessment of adherence, the present study was dependent on the assumption that patients who claimed to adhere to different treatment approaches to be adherent and getting optimal treatment for each approach.
- At the time of chart review, there was no full information (documentation).

8. CONCLUSION AND RECOMMENDATIONS

8.1.CONCLUSION

Overall, the findings from the present study indicated that the medication adherence of post Myocardial infarction patients in Tikur Anbessa Specialized Hospital and Landmark Hospital is suboptimal (57.1%). Socioeconomic status and age had an important role in deciding adherence rate.

Younger age, monthly incomes of greater than or equal to five thousand birr, and pill burden were significantly and positively associated with adherence. Most of the respondents have no clear understanding about the medication. The study also showed majority of the respondents are worried about the cost and easily availability of medications. Cost of medications followed by availability of medications and side effects were the most common reasons for medication non-adherence. On the other hand, the least reason mentioned for medication non-adherence is traditional medications.

8.2.RECOMMENDATIONS

For Ethiopian government

The government should increase the livelihood of MI patients with possible cash support or increasing the income.

For health professionals

Health professional should inform their clients about what the medications they are taking are and its side effect as well as risk and benefits.

Mechanisms have to be devised to minimize medication forgetfulness.

Health professionals should make every effort to assist patients who wish to do so to improve adherence to their treatments.

For researchers

Prospective studies with multiple methods of adherence assessment, involving pill count and biological assay may be required to detect patient who report adherence but who may in fact be non-adherent to MI medications.

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10.ANNEX

10.1. Information and Consent Form

Research Title: Medication adherence and its associated factors among adult post myocardial infarction patients in selected hospitals Addis Ababa, Ethiopia.

Dear Respondent:

Introduction: My name is, and I am one of the data collectors entitled for the study being conducted at Addis Ababa University, School of Nursing and Midwifery. I kindly request you to participate in a study after you have understood the following information sheet.

Purpose of the study: The study aimed to assess Medication adherence and associated factors among adult post Myocardial Infarction patients in selected hospitals, Addis Ababa, Ethiopia. The research proposal has been approved by the Ethical and Review Committee of the Addis Ababa University, School of Nursing and Midwifery.

Role and benefit of participant: Your involvement in the study includes participation in giving your honest response to the questions. The study has no immediate benefits to the respondents but will have benefits later in improving quality of health care in our Country Ethiopia.

Harm of the study: There are no foreseeable physical, psychological, or social risks or discomforts involved in participating in this study.

Confidentiality: Confidentiality will be ensured by not using your name or address on the questionnaire and final thesis report.

Rights of the participant: The participation in this study is voluntary; you can also withdraw at any time from the study if you feel uncomfortable. Refusal to participate will not affect your work. If you have any questions about the research or any related matters, please contact the researcher at

Phone number +251911427731

Address: miti_nu@yahoo.com

Your participation will be greatly appreciated.

Consent form

I understand the nature of the study, benefits, and my right to voluntary participation, confidentiality, and withdrawal from the study without any victimization. I have had the opportunity to ask questions and answered to my satisfaction.

I hereby freely consent to take part in this study.

Agreed _____

Do not agree _____

Date _____

Respectfully,

English version Questionnaire

Questionnaire to assess Medication adherence and associated factors.

Part I: Socio-demographic data

Participant ID no

Hospital

1. Tikur Anbessa Specialized hospital
2. Landmark general hospital

Item	Question	Response
101	Sex	1. Male 2. Female
102	Age	_____ years
103	Marital status	1. Married 2. Single 3. Divorce 4. Widow 5. Separated
104	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify)
105	Educational level	1. Can't be able to read and write. 2. Able to read and write. 3. Primary school

		<ul style="list-style-type: none"> 4. Secondary school 5. Collage and above
106	Income	_____ birr
107	Occupational status	<ul style="list-style-type: none"> 1. Farmer 2. Daily laborer 3. Government employee 4. Private employee 5. Currently unemployed 6. student
108	Residency	<ul style="list-style-type: none"> 1. Urban 2. Rural

Part II: Health related questions

201	Duration of MI	
202	Types of MI	<ol style="list-style-type: none"> 1. STEMI 2. NO STEMI 3. Other 	(See patients' chart)
203	Do you take medication for the disease?	<ol style="list-style-type: none"> 1. Yes 2. No 	
204	Type of medication that you are taking.	<ol style="list-style-type: none"> 1. Beta-blocker 2. ACE 3. Statin 4. Aspirin 5. Others specify 	(See patients' chart)
205	Presence of MI complications	<ol style="list-style-type: none"> 1. Yes 2. No 	
206	If yes which one	<ol style="list-style-type: none"> 1. Heart Failure 2. T. Arrythmia 3. Tamponed 4. Bready Arrythmia 5. Re-Infarction 6. Other 	(See patients' chart)
207	Any other co- morbidities	<ol style="list-style-type: none"> 3. Yes 	

		4. No	
208	If yes which?	<ol style="list-style-type: none"> 1. HTN 2. DM 3. Cancer 4. Kidney disease 5. Other 	(See patients' chart)
209	Substance abuse?	<ol style="list-style-type: none"> 1. Yes 2. No 	
210	If yes which? (Multiple answer possible)	<ol style="list-style-type: none"> 1. Tobacco smoking 2. Alcohol 3. Chat chewing 4. Both tobacco and alcohol 	

Part III: Medication Adherence Questionnaire (Medication Adherence Rating Scale)

No	Question	Response	
		Yes	No
301	Do you ever forget to take your medication?		
302	Are you careless at times about taking your medication?		
303	When you feel better, do you sometimes stop taking your medication?		
304	Sometimes if you feel worse when you take the medication, do you stop taking it?		
305	I take my medication only when I am sick		
306	It is unnatural for my mind and body to be controlled by medication		
307	Do you think you have no clear understanding about the medication you take?		
308	By staying on medication, I cannot prevent getting sick.		
309	I feel weird, like a 'zombie' on medication		
310	Medication makes me feel tired and sluggish		

Part IV: Reason for medication nonadherence

Which one of the following was the reason for your medication non-adherence	Yes	No
401. Cost of medication too expensive		
402. pill burden or too many medications		
403. Easily available		
404. The side effects of the medication		
405. Advice by spiritual leaders		
406. Traditional medication		

Thank you.

Name of the data collector -----signature----- date-----

Name of the supervisor -----signature----- date-----

በቃለ መጠይቅ ለመሳተፍ የፈቃደኝነት ቃል መቀበያ ቅጽ

ውድ የቃለ መጠይቅ ተሳታፊ፤

ስሜ _____ ይባላል። በጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል የልብ ህክምና ክሊኒክ በተመላላሽ ህክምና የልብ ህመምተኞች የልብ መድሃኒት አወሳሰድና ዝምድና የተሰኘ የድህረ ምረቃ የጥናት ስራ አባል ነኝ።

ይህ የጥናት ስራ አላማ በዚህ ክሊኒክ በተመላላሽ ህክምና የልብ ህመምተኞች የልብ መድሃኒት አወሳሰድ በመገምገም ህመምተኞች መድሃኒታቸውን ሁልጊዜ እንዲይወስዱ የሚያደረጉ ዋናዎና ምክንያቶችን ይለያል፤ ህመምተኞች መድሃኒታቸውን ሁልጊዜ እንዲይወስዱ የሚረዱ የመፍትሄ ሀሳቦችን ያመለክታል። በመሆኑም ህመምተኞች የህክምና ሁኔታቸውን እንዲያሻሻሉ ይረዳል ተብሎ ይጠበቃል። የጥናቱን ስራ ለማካሄድና የተቀመጡ አላማዎችን ለማሳካት ይቻል ዘንድ ህመምተኞችን ቃለመጠ የቅማድረግና የግል የህክምና ማህደራቸውን ማየት በማስፈለጉ እርስዎ እና ሌሎች እንደእርሶ ያሉ ህመምተኞችን ለማሳተፍ ችለናል።

እርስዎ የዚህ ጥናት አካል የሆኑትም በእድል ወይም በዕጣ ብቻ ነው። በጥናቱ መሳተፍ ካልፈለጉ ያለመሳተፍ ሙብት አለዎት።

ባለመሳተፍዎም በዚህ ክሊኒክ የሚያገኙትን ማንኛውንም የህክምና አገልግሎት አያሳጣዎትም።

ስምምነትዎን ገልጸው በጥናቱ መሳተፍ ከጀመሩም በኋላ መቀጠል ባይፈልጉ በማንኛውም ጊዜ ከጥናት አካል ነዎ የመውጣት ሙብትዎ የተጠበቀ ነው። በዚህ ጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ጥቅም ባይኖርም ከጥናቱ በሚገኙ ግኝቶች የልብ ህመም ህክምናው ጤንነትን በተወሰነ መልኩ ለማሻሻል እንደሚቻል በመገመት፤ የዚያን ጊዜ እርስዎም የጥቅሙ ተቋዳሽ ይሆናሉ ብለን እናምናለን።

አላማውን ተረድተውና ጊዜዎትን ሰውተው በዚህ ቃለመጠይቅ ለመሳተፍና እውነተኛ መረጃ ለመስጠት ፈቃደኛ በመሆንዎ በቅድሚያ እያመሰገንኩ ማንኛውም የሚሰጡት መረጃ ለምርምሩ አላማ ብቻ የሚውልና ሚስጥራዊነቱም የሚጠበቅ መሆኑን ላረጋግጥልዎት እወዳለሁ።

በድጋሚ አመሰግናለሁ!

የተሳታፊ ቁጥር.....

ሆስፒታል

1. ጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል
2. ላንድማር ክጠቅላላ ሆስፒታል

ክፍል 1: አጠቃላይ መግለጫዎች

ተ.ቁ	ጥያቄ	መልስ
101	ጾታ	1 ወንድ 2 ሴት
102	እድሜ	...
103	የጋብቻ ሁኔታ	1. ያላገባ/ች 2. ያገባ/ች 3. የፈታ/ች 4. በሞት የተለዩ
104	የትምህርት ደረጃ	1. ማንበብ እና መጻፍ የማይችል 2. ማንበብ እና መጻፍ የሚችል 3. የመጀመሪያ ደረጃ 4. የሁለተኛ ደረጃ 5. ኮሌጅና ከዚያ በላይ
105	ሀይማኖት	1. ኦርቶዶክስ 2. ሙስሊም

		<ol style="list-style-type: none"> 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላከሆነይገለጽ
106	ወርኅዊገቢ	
107	የሥራ-ሁኔታ	<ol style="list-style-type: none"> 1. አርሶአደር 2. የቀንሰራተኛ 3. የመንግስትሰራተኛ 4. የግልሰራተኛ 5. የንግድሰራ 6. የቤትእመቤት 7. ጡረተኛ 8. ተማሪ 9. ሌላካለይገለጽ
108	የመኖሪያቦታ	<ol style="list-style-type: none"> 1. ከተማ 2. ክፍለሀገር

ክፍል 2 ጤና ከጥያቄዎች

201	የልብ ህመም ተኛ ከሆኑ ምን ያህል ጊዜ ሆነዎት?	_____ (በቁጥር ይጻፍ)
202	የልብ ህመም አይነት	
203	የልብ ህመም መድኃኒት እየወሰዱ ነው;	አዎ አልወሰዱም
204	እየወሰዱ ያሉት መድኃኒት አይነት የትኛው ነው;	
205	ከልብ ህመም ጋር የተገናኙ የጎንዮሽ ጉዳዮች አሉ;	አዎ የለም
206	ካሉ የትኞቹ ናቸው	
207	ከልብ ህመም ውጪ ሌሎች ህመሞች አሉ	አዎ የለም
208	ካሉ የትኞቹ ናቸው	ስኳር የደም ግፊት ካንሰር የኩላሊት ህመም ሌላ ካላይ ገለጽ
209	አደንዛዥ እጽደብ ቀማሉ	አዎ አልቀምም
210	አዎ ከሆነ የትኞቹን	ሲጋራ የአልኮል መጠጥ ሲጋራና የአልኮል መጠጥ ጫት ሌላ ካላይ ገለጽ

ክፍል 3 የመድሃኒት አወሳሰድን በተመለከተ

ተቁ	ጥያቄ	መልስ	
		አዎ	አላውቅም
301	መድሃኒት ምን ለመጠቀም ረስተው ያውቃሉ?		
302	አንዳንድ ጊዜ የልብ መድሃኒት ምን ለመጠቀም ጠንቃቃ ሳይሆኑ ቀርተው ያውቃሉ?		
303	ደህና በሚሆኑ ወቅት አንዳንድ ጊዜ መድሃኒት ምን ለመጠቀም ያቆማሉ?		
304	መድሃኒት ምን እየወሰዱ ህመሙ በሚባባስ በዎት ወቅት መድሃኒት ምን ለመጠቀም ያቆማሉ?		
305	መድኃኒቶችን ህመም ሲሰማዎት በቻነው የሚወስዱት?		
306	መድሃኒት አእምሮንና ሰውነትን መቆጣጠር የለበትም?		
307	ስለ መድሃኒት ጥርት ያለ ግንዛቤ አለኝ ብለው ያስባሉ?		
308	መድሃኒቱን በትክክል በመውሰድ ህመምን መከላከል እችላለሁ?		
309	መድሃኒቱ ያልተለመደ ስሜት ይሰማኛል?		
310	መድሃኒቱ የድካም ስሜት እንዲሰማኝ ያደርጋል?		

ክፍል 4.

የልብመድሃኒትዎን ሁልጊዜ ላለመጠቀም እንደምክንያት የሚያነሱት ከሚከተሉት ውስጥ የትኛውን ነው?	አ ዎ	አይደለ ም
401. የመድሃኒት ዋጋው ድመሆን		
402. የተወሳሰበ እና አስቸጋሪ የመድሃኒት አጠቃቀም ሁኔታ		
403. የመድሃኒቶች በቀላሉ አለመገኘት		
404. የመድሃኒቱ የጎንዮሽ ጉዳት		
405. የሀይማኖት አባቶች ምክር		
406. ባህላዊ ህክምናን መጠቀም		

አመሰግናለሁ!