JIMMA UNIVERSITY

INSTITUTE OF HEALTH

FACULTY OF HEALTH SCIENCES

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HEALTH- RELATED QUALITY OF LIFE (HRQOL) AMONG PATIENTS WITH END-STAGE KIDNEY DISEASES IN TEACHING HOSPITALS OF ETHIOPIA, 2022.

BY: BETELIHEM KIFLE (BScN)

ADVISORS: DR. FIKADU BALCHA (PHD, ASST. PROF.)

MR. TILAHUN LEGESE (BSc, MSc)

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Abstract

Background: *The varieties of complex end-stage kidney disease symptoms and management could affect the quality of life (QoL) of patients. The health-related quality of life of end-stage kidney disease patients in resource-limited settings in Africa is not well understood.*

***Objective**: This study aims to assess the health-related quality of life of patients with end-stage kidney disease in teaching hospitals in Ethiopia.*

***Methods and materials:** A multi-center institutional-based cross-sectional study design was conducted from June 15 to July 15, 2022. A complete census of all 161 eligible participants was undertaken from dialysis units in Ethiopian teaching hospitals. Data on the health-related quality of life was collected using the Kidney Disease Quality of Life short form through face-to-face interviews, and patients' clinical profile was reviewed from patients' card. The collected data were checked, coded, and entered into Epi-data V 4.6 and exported to Statistical Package for Social Science (SPSS) version 25 for analysis. Bivariable and multivariable logistic regression was done to identify associated factors; p-value < 0.05 at 95% of CI was considered statistically significant. Finally, the result was presented with tables, figures, and text.*

***Result:** The overall mean of health-related quality of life was 42.93 (± 12.34), less than half of the patients, 71(46%) of them, having a good health-related quality of life with 42.93 +12.34 mean and standard score respectively. The sub-score of ESKD-targeted, the biggest mean score of 71.33 ± 18.42 was the symptom or problem sub-scale with the lowest mean score (13.9 ± 19.6) on the burden of kidney disease (BKD). Being a male (p = 0.036, AOR = 3.5, CI: 1.085, 11.287). The odds of not occupationally having any health-related risk like chemical hazards (p = 0.047, AOR = 5.126; CI: 1.023, 25.685), prescribed medication with less than 3 medications (p = 0.011, AOR = 6.702; CI: 1.542, 29.139). a clinical profile of normal serum phosphorus (p = 0.001, AOR = 10.757; CI: 2.571, 45.012) were positively associated. Whereas, grade 5-8 class of educational level (p = 0.045, AOR = 0.165, CI: 0.028, 0. 0.963), physically disabled or inactive (p = 0.024, AOR = 0.079; CI: 0.009, 0.717) and depressed or anxieties probably present (p = 0.006, AOR = 0.167; CI: 0.047, 0.594) were negatively associated with a good health-related quality of life.*

***Conclusion and Recommendation:** A higher proportion of ESKD patients in Ethiopia who received hemodialysis had lower overall HRQOL. Therefore, the quality of life of hemodialysis patients should be given specific attention in addition to clinical treatment throughout their care.*

***Keywords:** Chronic kidney disease, End-stage kidney disease, health-related quality of life, dialysis.*

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BKD: Burden of Kidney Disease

CKD: Chronic Kidney Disease

CRP: C - reactive protein

EKD: Effects of Kidney Disease

ESKD: End-Stage Kidney Disease

HD: Hemodialysis

HRQOL: Health-Related Quality of Life

ICHD: In-Center Hemodialysis

KDQOL-36^{TM}: Kidney Disease Quality of Life short 36 original

MHD: Maintenance Hemodialysis

MCS: Mental Component Summary

PCR: polymerase chain reaction

PCS: Physical Component Summary

PF: Physical Functioning

QOL: Quality of life

RT: Kidney transplants

SBP: Systolic blood presser

SF-12: Short Form- 12

WHO: World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Background

Kidney failure is a chronic and progressive pathological condition that affects kidney function over time. End-stage kidney disease (ESKD) is a terminal illness defined as having a glomerular filtration rate of less than 15 mL/min/1.73 $m^{2,}$ characterized by accumulation of toxins, electrolytes, and fluid, resulting in uremia. The major risk factors include diabetes mellitus, kidney vascular disorders, immunologic disorders, infections, primary tubular disorders (nephrotoxins), congenital disorders, and drug toxicity [1-5].

Patients with end-stage kidney disease (ESKD) require hemodialysis (HD), continuous ambulatory peritoneal dialysis, and renal replacement therapy (RRT) [3]. Renal replacement therapy helps patients to live longer than they would have been without treatment. All of these focus on reducing symptoms only and still their quality of life (QOL) remains uncertain without considering the individual patient. As a result, recognition of predictable patient status and reported QOL may have clear consequences for the mechanisms of the disease [6, 7].

WHO describes QOL as ‘‘an individual's perception of their position in life, in the context of the culture and value systems in which they live and concerning their goals, expectations, standards and concerns.’’ which is affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships, and their relationships are important factors in their environment.” [8].

Health-related quality of life (HRQoL) is a subset of QOL that measures how the disease affects patients' lives. It is based on a patient's "subjective" sense of well-being and includes perceptions of their physical and mental health as well as their correlates, such as their functional status, social support, and socioeconomic status. These are frequently used as an important clinical measure for the extent to which medical treatments are beneficial for patients undergoing maintenance treatment [9-12].

Ethiopian Kidney Care has been actively educating the community about kidney health and various topics revolving around it [13]. However, kidney disease continues to impact QOL because of comorbidities and symptoms of immunosuppressant medication. Therefore, testing QOL of patients with ESKD not only helps to assess the quality of dialysis programs but also helps to guide healthcare professionals to develop better interventions and care plans for the future.

1.2. Statement of the problems

ESKD is a major public health problem worldwide that increase at alarming rate globally [14]. An increase in the prevalence of ESKD is not only a health problem, including mortality, but also increases the socioeconomic burden [15]. According to the report on the Global burden of diseases, the global estimated prevalence of ESKD is 13.4%. ESKD affects about 10–25% of the population from Asia, Australia, Europe, and the United States of America. Patients with ESKD needing kidney replacement therapy is estimated between 4.902 and 7.083 million [16, 17].

According to a systematic review of the African continent the overall prevalence of ESKD was 15.8% and somehow higher in Western Africa 19.8%, Sub-Saharan Africa 17.7%, Middle Africa 16%, and Southern Africa 10.4% compared to North Africa 6.1% [18].

A study conducted in different region of Ethiopia showed ESKD prevalence of 21.8% and 17.3%, Northwest Ethiopia [19, 20], 32.55% in the Oromia region [21], and 18.2% in southern Ethiopia [22]. Cardiovascular diseases, repeated infections, protein deficiency, and premature aging lead to a higher risk of morbidity and mortality among ESKD patients [23]. It has also been shown that risk of ESKD increases with age where the prevalence is 6.0% at age 18-44 and 38.1% among elders above 65 years. Besides, hypertension is common in 80–85% of ESKD patients [1, 7].

Furthermore, ESKD causes enormous social, psychological, and economic burdens to the affected individual and their families. Psychologically, patients with ESKD have incredibly high rates of depression, often experience unexpected anxiety from the moving "Sword of Damocles" of imminent death and experience difficulties in coping with their illness [24]. Therefore, ESKD and its progression remain a significant source of reduced quality of life and significant premature mortality, and usually, this is related to the impact and compromise brought by factors such as fatigue, diet, time limits, and fluid restrictions. The other aspects which negatively impact QOL in patients with ESKD include the failure to meet the social role and responsibilities due to physical problems such as activity intolerance, impotence, and changes in body image which can lead to disruption of personal relationships and social exclusion [25-27].

On the other hand, patients with kidney failure undergo dialysis for 4 hours per treatment in a hospital; and potentially experience a change in the level of physical activity, loss of job, and change in their social role. These will have a negative effect on their career plans, employment status, financial situation, self-esteem, and level of independence [6]. On other aspect, patients

must meet the change in their lifestyles to adapt to the rigor and frequencies of hemodialysis sessions, which can be up to three times a week and specific dietary regimens which can adversely affect the QOL of these patients [10]. This burden is further amplified by the impact of ESKD on health-related quality of life (HRQOL) [24].

It has been estimated that over 1.1 million people are currently on maintenance hemodialysis (MHD) globally and this figure is increasing by 7% every year [28]. These days, however, kidney replacement therapy (RRT) has significantly reduced morbidity, resulting in longer survival of patients with ESKD. A large number of deaths has been documented for poor access to RRT, and a large increase in patients with ESKD in the future, will produce a substantial financial burden for even the wealthiest countries [17].

In developing countries, such as Ethiopia, limited access to RRT, physical inaccessibility to health facilities, economic and cultural barriers concerning transplantation, high prevalence of communicable diseases, and lack of infrastructure pose challenges in the effective management of ESKD. To the best of our knowledge, limited studies have been conducted in Ethiopia on the health-related quality of life of patients with end-stage kidney disease on maintenance dialysis [29]. Therefore, this study aims to assess the health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia. It was conducted in Ethiopian multiple teaching hospitals across the country which covers a large-scale area. Unlike other researches, the current study included new variables which were not assessed by the previous studies done in Ethiopia like psychological (Anxiety, Depression) and Behavioral (Physical exercise, Substance use) factors.

1.3. Significance of the study

Measuring the HRQOL of end-stage kidney disease will help us to determine the burden and can provide valuable new insights into the relationships between HRQOL and risk factors in resource-limited countries. Moreover, the finding from this study would contribute to the body of knowledge and help patients with end-stage kidney disease, patient's family, healthcare professionals, and concerned governmental and non-governmental bodies help to allocate resources based on unmet needs, and guide the development of strategic plans to improve the health-related quality of life of patients. The findings from this study may also help as a baseline data for further studies, health care institutions, and policymakers.

CHAPTER TWO: LITERATURE REVIEW

The concept of quality of life in dialysis has evolved since the inception of kidney replacement therapy from simple survival to enjoying a certain level of wellbeing [27]. End-stage kidney disease is a progressive pathological condition, and it became a global public health problem due to the hasty increase in common risk factors [28]. Therefore, this literature review covers ESKD, health-related quality of life (HRQOL) and factors associated with HRQOL.

2.1. Health-related quality of life (HRQOL)

According to a study finding from the United States, the overall mean scores on the physical component summary (PCS), mental component summary (MCS), the burden of kidney disease (BKD), Symptoms and Problems of Kidney Disease (SPKD), and Effects of Kidney Disease (EKD) were 36.6, 49.0, 51.3, 78.1, and 73.0, respectively [27]. In any of the five subscales, there were no significant differences between men and women. PCS, MCS, and SPKD mean scores differed by 2.5 points across all four modalities studied [29]. Larger differences in BKD and EKD scores were observed: the strongest correlation was found for the Symptoms/problems subscale and a negative correlation between the BKD and MCS scores were associated with a median EKD of 75.5, lower scores were observed for the SPKD had the highest mean score (78.1) of the 5 subscales on the BKD [27-29]

According to Swedish research findings, physical composite summary (PCS) and mental composite summary (MCS) correlated with serum albumin and hemoglobin, respectively, and negatively with C - reactive protein (CRP). Furthermore, PCS was linked to comorbidities (CVD and diabetes), BMI, and sodium, whereas MCS was linked to serum calcium and male gender. [23].

According to the study finding from the University of California, SF-12 PCS, scores decreased monotonically with age group, regardless of race/ethnicity, indicating worsening HRQoL with age. Black patients tended to have the highest and Asian patients the lowest Burden of Kidney Disease, Symptoms and Problems of Kidney Disease, and Effects of Kidney Disease scale scores [30].

According to the study findings from, (Minnesota and Chicago, USA) stated the younger, of newer dialysis vintage, had higher body mass index (BMI) and lower Comorbidity Index scores. When patients were grouped by dialysis modality, those treated with in-center hemodialysis

(ICHD) were generally older, more frequently diabetic, and had higher comorbidity index scores compared to those treated with peritoneal dialysis [31, 32].

As per the study findings from different sites, (Iran, Seoul South Korea, and Ethiopia, the mean number of chronic diseases for Hemodialysis patients were significantly higher and the most common co-morbidities were HTN (90%) followed by DM (51%) in India, 33.7% had diabetes mellitus, with the mean baseline estimated glomerular filtration rate (EGFR) was 54.3 ± 31.3 ml/min/1.73 m2, and the median urinary protein excretion was 0.5 mg/g Cr (0.1; 1.5) [33-35].

2.1. Factors Associated with Health-related quality of life (HRQoL)

Based on the study finding from Saudi Arabia, HRQoL was not significantly related to the level of education, duration of dialysis, or cause of renal failure [36]. Patients on hemodialysis (HD) for more than 5 years performed significantly worse than patients dialyzed for a shorter period. The duration of hemodialysis was discovered to be a significant negative predictor of health-related quality of life. Income was a significant positive predictor of general health perception [37]. Moreover, proper nutrition leads to good quality of life [38-40].

A study from the Islamic Republic of Iran stated that married patients reported better health status than those who were not married, patients that lived in villages had higher QOL than did patients living in cities, and Patients that reported diabetes mellitus as the cause of their kidney disease had worse health status compared to others [37]. According to the findings from the Oman study, the HRQoL mean scores with the symptom, effect of kidney disease, the burden of kidney disease, cognitive function, sexual function, sleep, social support, encouragement, overall health, and satisfaction subdomains were significantly higher [41, 42]. The age, gender, income, comorbidity [43-45], medications [46-48], frequency of dialysis, hemoglobin, Serum Creatinine, body mass index, and HRQoL among the study group was statistically significant [42, 49].

A study from Palestine indicated that age, BMI, education level, residency and total co-morbid disease, gender, occupation, and total number of chronic medication was statistically significant with HRQoL[50, 51], So higher age is associated with lower HRQoL [52], and based on a study from Iran, a highly significant association was observed between their overall QoL and the presence of chronic diseases [37]. Studies revealed that from Singapore, clinical, and psychological factors associated with depression in patients with CKD/ESKD [53, 54]. Income and duration on hemodialysis were independent predictors of HRQoL. Duration on hemodialysis

was found to be a significant negative predictor of HRQoL but variables such as age, ethnicity, and employment were not associated with HRQoL [10].

According to study results from Addis Ababa, the odds of lower HRQoL were two times more likely among unemployed patients than employed and two times higher among those patients who had hemodialysis 2 times per week as compared to those who had 3 times per week. the odds of having a lower burden kidney disease score among elderly patients (> 50 years) was two times higher as compared to the younger patients on hemodialysis, Moreover, the odds of having a lower BKD score among those who had hemodialysis 2 times/week was two times as compared to those patients who had hemodialysis 3 times/week [29].

According to the study from different areas, (Brazil, Japan, France, Germany, India, and Ethiopia), the age distributions of the CKD patients were in the range from 19 to 85 years with the highest proportion of the age group 51 and 65 years. 79.04% and 55.5% of male patients were from India and Iran, and about 85% were married, 79.6% were above high school from India and Korea, and the majority of study participants were from rural based on the study finding from India, Korea, Iran, Nepal, and Ethiopia respectively. Psychoeducational interventions which provide information about the nature of the illness, exercise, and relevant coping skills have also been used and found to enhance the physical and psychosocial well-being of patients with CKD [34, 42].

According to the study from Spain, No significant correlation coefficients were found between HRQoL assessment instruments and total serum proteins, PCR, and several hospital admissions and employed patients had significantly higher HRQOL, income was discovered to have a significant effect on HRQoL scores [52].

A study from Northwest Ethiopia revealed older age, elevated SBP, type 2 diabetes mellitus, and longer duration of diabetes were independently associated with CKD and HRQoL [19]. Therefore, Hemodialysis leads to some physical, economic, social, and emotional complications for them; their quality of life diminishes and is stressful as well.

2.3. Conceptual framework

After researching several works of literature on aspects of HRQOL, the following conceptual framework was developed from various literatures. Socio-demographic information [29, 55, 56], clinical and Treatment-related factors [34, 36, 37, 50], Behavioral condition [34, 42], Psychosocial condition [53, 54, 57], and Kidney Disease Quality of Life short (KDQOL™-36) [58]. The strong line connecting the dependent variable to the independent variables illustrates the linkage between those variables, and it's the variable we're interested in.

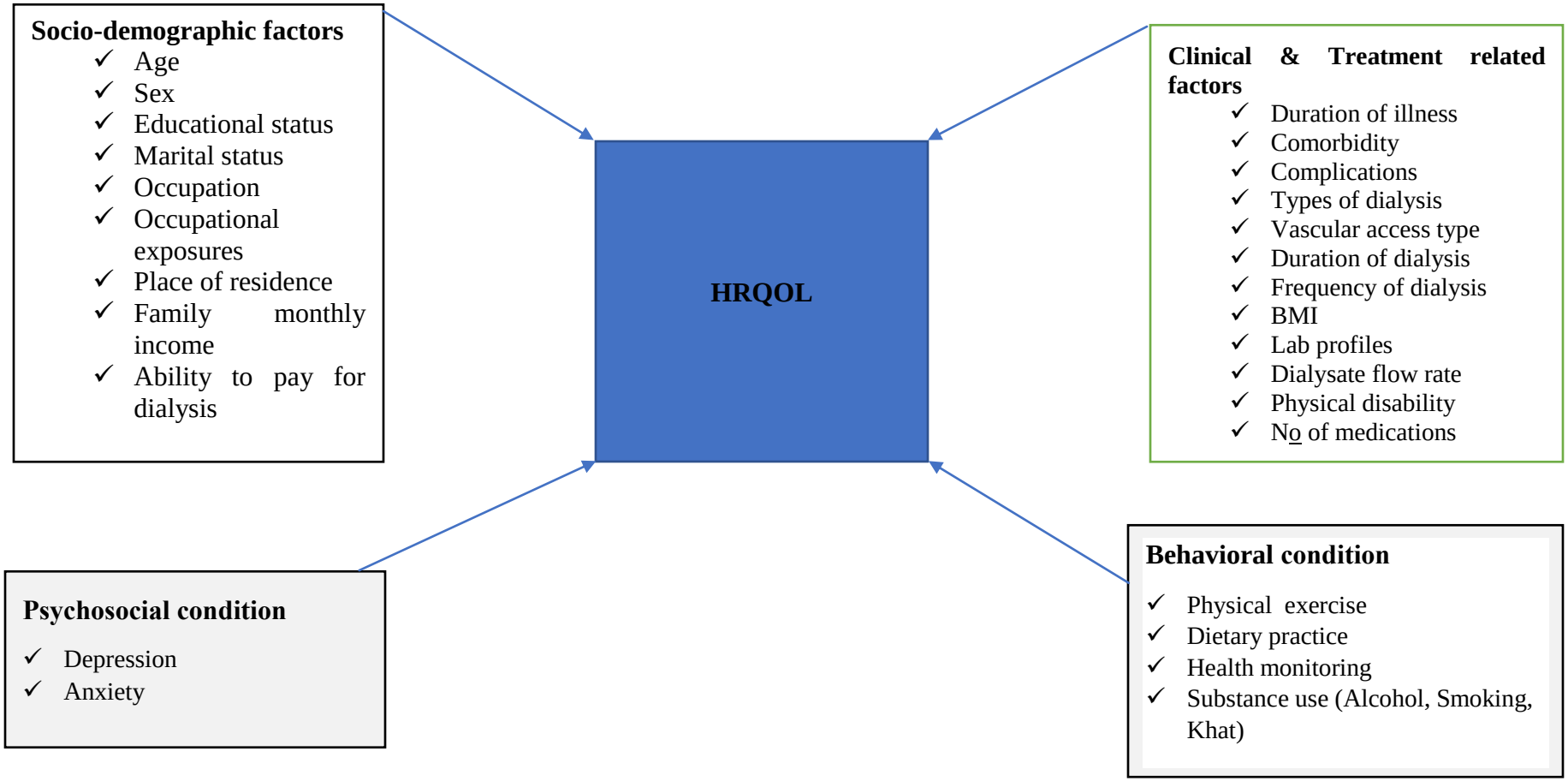

Figure 1: Conceptual framework of HRQoL of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

CHAPTER THREE: OBJECTIVES

3.1. General objective

To assess the health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

3.2. Specific objectives

1. To determine the level of Health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022.
2. To identify the factors associated with Health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022.

CHAPTER FOUR: METHODS AND MATERIALS

4.1. Study setting and period

The study was conducted from June 15 to July 15, 2022. At three teaching university hospitals in Ethiopia. The hospitals are selected based on the availability of dialysis units. These are JUMC, St. Paul's, and Gondar University hospital.

Jimma University Medical Center

Jimma University Medical Center (JUMC), is located in Jimma, Oromia Regional State. Jimma city is the capital of the Jimma zone found at 352 Km from Addis Ababa, the capital city of Ethiopia, in the Southwestern part of the country. JUMC is one of the oldest public hospitals in the country and is the only teaching and referral hospital in the south-western part of the country. The hospital provides services for approximately 15000 inpatients, 160000 outpatient attendants, 11000 emergency cases, and 4500 deliveries in a year. The medical center has a bed capacity of 800 beds. The dialysis unit was established in 2016 with three patients, the unit has served eleven nurses who are trained in dialysis and one nephrologist. Currently, the unit has two dialysis machines with 22 active patients.

St. Paul's Hospital Millennium Medical College

St. Paul's Hospital is the second largest hospital in Ethiopia located in Addis Ababa populations. It currently has 392 beds, with an annual average of 200,000 patients and a catchment population of more than 5 million. There is over 1300 clinical and non-clinical staff in over 13 departments, most recently launching its new hemodialysis unit. The unit has utilized 18 dialysis machines and 40 additional machines were come operating soon. The kidney transplant center was opened as a national transplant center by the Ministry of health with the cooperation of the University of Michigan in September 2015. Annually, averages of 26 patients receive kidney transplantation services from live donors, and 137 patients benefited from the transplantation service until September 2020 Currently the unit has 31 dialysis nurses, 5 senior nephrologists, 5 fellow nephrologists (resident), and fourteen dialysis machines with 97 active patients.

Gondar University Teaching hospital

The University hospital is located in the Amara regional state, which is about 741 kilometers northwest of Addis Ababa, the capital city of Ethiopia. The hospital serves approximately 5-7

million people throughout most of the Amara region. It currently has 518 beds and services between 350-400 patients each day and between 100-120 emergency patients. The dialyzer unit can treat up to twenty patients per week. Currently, the unit has seven dialysis machines with 42 active patients. The dialysis unit was established in 2014 with six patients, the unit has fourteen trained nurses, one nephrologist, and two general doctors in the dialysis unit.

4.2. Study design:

A multi-center institutional-based cross-sectional study design was employed.

4.3. Population

4.3.1. Source population and Study population

All patients diagnosed with ESKD on maintenance dialysis at teaching hospitals in Ethiopia were included in the study.

4.4. Eligibility criteria

4.4.1. Inclusion criteria

The inclusion criteria for the participants were patients over 18 years old, and those who attend the regular follow-up and are on hemodialysis for at least 3 months. Those who are less than 3 months are followed under the acute and the problem might be reversible after dialysis.

4.4.2. Exclusion criteria

Patients with major psychiatric problems and critical illness were excluded from the study.

4.5. Sample size and sampling technique

A complete census of all (161) eligible participants was included from dialysis units in the teaching hospital of Ethiopia.

4.6. Study variables

4.6.1. Dependent variable

- ✓ Health-related quality of life (HRQoL)

4.6.2. Independent variables

Socio-demographic factors

- ✓ Age
- ✓ Sex
- ✓ Educational status
- ✓ Marital status
- ✓ Occupation
- ✓ Ethnicity
- ✓ Religion
- ✓ place of residence
- ✓ Family monthly income
- ✓ Ability to pay for dialysis

Clinical & Treatment-related factors

- ✓ Duration of illness
- ✓ Presence of comorbidity
- ✓ Presence of complications
- ✓ Types of dialysis
- ✓ Vascular access type
- ✓ Duration of dialysis
- ✓ Frequency of dialysis
- ✓ Physical disability
- ✓ No medications per prescription
- ✓ BMI
- ✓ Lab profiles
- ✓ Dialysate flow rate

Behavioral factors

- ✓ Physical exercise
- ✓ Dietary practice
- ✓ Substance use
  - o Alcohol
  - o Smoking
  - o Khat

Psychosocial factors

- ✓ Depression
- ✓ Anxiety

4.7. Data collection tools and procedures

4.7.1 Data Collection Instrument

The data collection tools are categorized by parts. Part I. Socio-demographic information, Part II. Treatment and clinical related factors, Part III. Behavioral condition, part IV Psychosocial, and finally, part V Health-related quality of life was measured using Kidney Disease Quality of Life short (KDQOL™-36) [58], and it was collected using a structured questionnaire.

The KDQOL™-36 contains 5 subscales: the Physical Component Summary (PCS), Mental Component Summary (MCS), Burden of Kidney Disease (BKD), Symptoms and Problems of Kidney Disease (SPKD), and Effects of Kidney Disease (EKD). The first 2 subscales are a generic measure of HRQOL (1–12 items comprising the PCS and MCS), whereas the last 3 subscales (13-36 items), Burdens of Kidney Disease 4 items (items 13–16), 12 items representing Symptoms and Problems of Kidney Disease (items 17–28), and an Effects of Kidney Disease 8 items (items 29–36) assess issues specific to patients with ESKD or earlier stages of chronic kidney disease [31].

The estimated internal consistency for the KDQOL-SF^{TM} kidney disease-targeted scales exceeded 0.80. Reliability estimates for the eight scales of the 36-item health survey were also quite acceptable and ranged from 0.78 to 0.92 (52) [58]. It was used in Ethiopia [59].

Each of the KDQOL-36 kidney-targeted scales is scored by transforming all items linearly to a 0–100 possible range and averaging the items in the scale. On the KDQOL-36, higher scores indicate better HRQOL [58, 59].

“My kidney disease interferes too much with my life”), Symptoms and Problems of Kidney Disease (12 items, *e.g.*, “Washed out or drained?”), and Effects of Kidney Disease (eight items, *e.g.*, “Your ability to work around the house”). The Burden of Kidney Disease items are prompted with the context, “How true or false is each of the following statements?” and have five response options that range from “definitely true” to “definitely false.” The Symptoms and Problems with Kidney Disease items are given the context, “During the past 4 weeks, to what extent were you bothered by each of the following?” and have five response options ranging from “not at all bothered” to “extremely bothered.” The Effects of Kidney Disease scale’s items ask patients, “How much does kidney disease bother you in each of the following areas?” and have five response options ranging from “not at all bothered” to “extremely bothered.” Each of the KDQOL-36 kidney-targeted scales is scored by transforming all items linearly to a 0–100

possible range and averaging the items in the scale. On the KDQOL-36, higher scores indicate better HRQOL [30, 60].

SCORING RULES FOR THE SF- 36 ITEM HEALTH SURVEY

Pre-coded numeric values for responses on some of the KDQOL-SF^{TM} items are in the direction such that a higher number reflects a more favorable health state.

The scoring procedure for the KDQOL-SF^{TM} first transforms the raw pre-coded numeric values of items to a 0-100 possible range, with higher transformed scores always reflecting better quality of life. Response to each item is put on a 0 to 100 range so that the lowest and highest possible scores are set at 0 and 100, respectively. For example, for item number 4, if the response is 1, the recoded value is 0, where as if the response is 2, the recoded value is 100. For the positively stated items (Example item number 1, 8, 12……) the recoding into 0 to 100 is reversed. Then the recoded items were computed in a new variable (components of HRQoL) as "General health", "Physical functioning", "Role limitations due to physical health (RP)", "Role limitations due to emotional problems (RE)" and "Energy/fatigue (VT)". Then, HRQoL is operationalized as good and poor based on the mean value [58] [Table 1 and Table 2].

In the second and final step in the scoring process, items in the same scale are averaged together to create the scale scores. Table 2 lists the items averaged together to create each scale.

Table 1: Step 1: Recording items of HRQoL of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Item numbers	Changed original response category	To the recorded value of
4,5,6,7	1 →	0
	2 →	100
2,3	1 →	0
	2 →	50
	3 →	100
13, 14, 15, 16	1 →	0
	2 →	25
	3 →	50
	4 →	75
	5 →	100
1, 8, 12, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	1 →	100
	2 →	75
	3 →	50
	4 →	25

	5 →	0
9,10, 11	1 →	100
	2 →	80
	3 →	60
	4 →	40
	5 →	20
	6 →	0

Table 2: Step 2: Averaging Items to Form Scales of HRQOL of patients with end-stage kidney disease in teaching Hospitals of Ethiopia, 2022

Scale	Number of items	After Recoding Per Table 1, Scale Items
HRQOL		
General health	4	1,8,11,12
Physical functioning	2	2, 3
Role limitations due to physical health (RP)	2	4, 5
Role limitations due to emotional problems (RE)	2	6, 7
Energy/fatigue (VT)	2	9, 10
ESKD-targeted areas		
Symptom/problem list	12	17- 28
Effects of kidney disease	8	29- 36
The burden of kidney disease	4	13- 16

4.7.2 Data Collection procedures

Face-to-face interviews with a structured questionnaire were used to gather the data. The interviewers checked for the inclusion criteria and described the aim of the interview to the research participants during their follow-up meetings. People who matched the inclusion criteria were informed more about the study and encouraged to take part. The data collectors attended to each research participant as soon as they were examined for daily baseline data. The data was collected by six professional nurses (3 data collectors, and 3 supervisors) one data collector and supervisor for each hospital who could speak English, Amharic, and Afan Oromo. The data was collected every day from Monday to Saturday; on those days' patients come for follow-up & dialysis. The patient chart was reviewed for clinical-related data.

4.8. Operational definitions and definitions of terms

Health-Related Quality of Life (HRQOL): Considered as part of the individual's quality of life that is primarily determined by two dimension measures which are represented by scales that aggregate physical health summary measures which are from five domains two components are categorized into (physical Functioning(PF), and General health (GH)) and scales that aggregate mental health summary measures contains three components which are social functioning (SF), Role emotional (RE), and mental health (ME) rating score 0-100**.**

The Kidney Disease Quality of Life (KDQOL) survey is a kidney disease-specific measure of HRQOL.

The Short Form (SF-12 measures physical (PCS) and mental (MCS) functioning (1-12), with items about general health, activity limits, ability to accomplish desired tasks, depression and anxiety, energy level, and social activities.

The burden of Kidney Disease subscale (13-16), with items about how much kidney disease interferes with daily life, takes up time, causes frustration, or makes the respondent feel like a burden [58].

Symptoms and Problems subscale (17-28b), with items about how bothered a respondent feels by sore muscles, chest pain, cramps, itchy or dry skin, shortness of breath, faintness/dizziness, lack of appetite, feeling washed out or drained, numbness in the hands or feet, nausea, or problems with dialysis access [58].

Effects of Kidney Disease on Daily Life subscale (29-36), with items about how bothered the respondent feels by fluid limits, diet restrictions, ability to work around the house or travel, feeling dependent on doctors and other medical staff, stress or worries, sex life, and personal appearance [58].

Dialysis is both life-saving and life-altering. It changes patients' patterns of eating, sleeping, medication use, and daily tasks at home, in the community, or in the workplace.

The outcome variable was **dichotomized** based on the mean score value. The responses to Kidney related quality-of-life questions were summed and the total score was computed; and categorized based on the mean score, those who scored higher mean value indicated the good health-related quality of life and lower scores indicated the lower health-related quality of life.

Poor Health-related quality of life: The cut point below the mean value was poor health-related quality of life [58, 59].

Good Health-related quality of life: The value of the mean above the mean was categorized as good health-related quality of life [58, 59].

Anxiety: The feelings of mounting restlessness from the hours already spent tethered to the dialysis machine, in combination with the anticipation of these physiologic symptoms, can create a vicious cycle of anticipatory anxiety and increased physiologic arousal leading to a panic attack (55)[61]. Total score: 0-7 = Normal, 8-10 = Borderline abnormal (borderline case), 11-21 = Abnormal (case)

Depression: Patients receiving dialysis, experience a wide range of somatic symptoms and had significantly less involvement in social, occupational, and recreational activities which leads to depression [41].

Total score: 0-7 = Normal, 8-10 = Borderline abnormal (borderline case), 11-21 = Abnormal (case)

Work-related exposure to chemicals: Previous chemical exposure or working with chemicals like insecticides, pesticides, or working in chemical industries. If so yes unless no.

4.9. Data Analysis

The data was edited, entered into Epi Data version 4.6 (manager and client) then, exported to SPSS version 25.0 for checked completeness and missing values and further analysis. Percentage, Frequency, and mean were calculated. The outcome variable was checked for normality distribution and assumption. Bivariate analysis using the binary regression technique was done to see the independent association between the independent variables and the dependent variable. All independent variables which will have a significant association in bivariate analysis with p- a value less than 0.25 at 95% CI was a candidate for the multiple regression model. A multiple regression method was done to evaluate the independent effect of each variable on dependent variables. A P-value of less than 0.05 was considered statistical significance. The Hosmer and Lemeshow test indicated that 0.096 was insignificant and the Omnibus test was significant at p-value <0.001 which indicates the variables fit the model. Finally, the results were summarized and presented by tables and graphs.

4.10. Ethical considerations

Before the data collection, Ethical clearance, and approval to conduct this research was obtained from the Ethical review board of institute of health science, Jimma University, Permission letter was obtained from school of nursing for the cooperation of the respective hospital administrations to gain support to implement the study. Before administering the questionnaires, the aims and objectives of the study were clearly explained to the study participants, and written informed consent was obtained. Confidentiality and anonymity were ensured throughout the execution of the study as participants will not requiring disclosing personal information on the questionnaire number was used instead of name. Participants were informed that their participation was voluntary based and that they can withdraw from the study at any time if they wish to do so.

4.11. Data quality management

The quality of data was assured by one day of training given to data collectors and supervisors on the objectives of the study, data collection tools, and research ethics. The data collection tool was translated into Afan Oromo and Amharic and translated back to English to check the consistency, Proper categorization, and coding of the questionnaire and recheck completeness of the questionnaire immediately after data collection was done.

4.12. Dissemination plan

The study finding will be disseminated through the scientific presentation, and submission of hard & soft copies to relevant authorities (Jimma Medical Center, School of nursing, Institute of health, St. Paulo's millennium medical college hospital, and Gonder University Hospital). Furthermore, it will be made ready for publication in local or international reputable journals.

CHAPTER FIVE: RESULTS

The result section includes socio-demographic characteristics, clinical and treatment-related factors, behavioral-related factors, psychological-related factors, health-related quality of life-KDQOL-36^{TM,} and factors associated with Health-related quality of life. We approached 155 patients on dialysis which gives a response rate of 96.3 to the interviewer-administered questionnaire during the data collection period.

Sociodemographic Characteristics

The socio-demographic data revealed that 94(60.6%) of the study participants were from Addis Ababa, and the mean age of study participants was 38.55±11.25 years. However, 44(28.4%) of them were between 30-39 years of age. Around 2/3rd (63.2%) of the participants were males, 67(43.2%) were Amara by their ethnicity, 91(58.7%) were followers of Orthodox Christianity, 80(51.6%) were married, 141(91%) were urban residents, 75(48.4%)completed college/university study, 72(46.5%) were farmers, 11(7.1%) of them had work-related risks like chemical exposure, and 56(36.1%) of the study participant paid out of pocket for dialysis (Table 3).

Table 3: Sociodemographic characters of health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Category		**Frequency**	**Percent**
Place of dialysis	Addis Ababa	94	60.6
	Gondar	41	26.5
	Jimma	20	12.9
Age	18-29 years	36	23.2
	30-39 years	44	28.4
	40-49 years	35	22.6
	50-59 years	29	18.7
	> = 60 years	11	7.1
Sex	Male	98	63.2
	Female	57	36.8
Ethnicity	Amhara	67	43.2
	Oromo	42	27.1
	Tigre	18	11.6
	Gurage	11	7.1
	Other ***	17	10.5

Religion	Orthodox	91	58.7
	Muslim	41	26.5
	Protestant	17	11.0
	Waqefata	4	2.6
	Catholic	2	1.3
Marital status	Married	80	51.6
	Single	57	36.8
	Divorced	9	5.8
	Widowed	9	5.8
Place of residence	Urban	141	91.0
	Rural	14	9.0
Educational level	Unable to read and write	14	9.0
	Read & write only	15	9.7
	1-4 Grade	19	12.3
	5-8 Grade	23	14.8
	9-12 Grade	35	22.6
	College/University	49	31.6
Occupation	Merchant	38	24.5
	Government employed	35	22.6
	Self-employed	26	16.8
	Housewife	22	14.2
	Student	17	11.0
	Farmer	17	11.0
Family monthly income (ETB)*	601-1650	8	5.2
	1651-3200	50	32.3
	3201-5250	41	26.5
	5251-7800	15	9.7
	7801-10900	33	21.3
	>=10901	8	5.2
Work having any health-related risks, like exposure to chemicals	Yes	11	7.1
	No	144	92.9
Ability to pay for dialysis	Yes	30	19.4
	No	125	80.6
Source of finance for your treatment	Out of pocket	56	36.1
	Funded by government	29	18.7
	Insurance	4	2.6
	Another source of funds**	66	42.6

* Income is categorized based on the Ethiopian salary taxation and finance system.
** Support from family, relatives, and friends

***Kafa, Dawuro, Yem, Silte

Treatment and Clinical -related factors

Concerning the treatment-related factors, the mean duration of illness was 4.98±2.836. However, 90(58.1%) of them lived with problems for 1-5 years, and the mean duration since the start of hemodialysis was 4.37±2.45 years around 2/3rd (64.5%) of them were on dialysis for less than five years. 104(67.1%) of them have had chronic comorbidity, 91(58.7%) got three times dialysis per week, 137(88.4%) with the access of arteriovenous fistula as the vascular access type, and the mean number of prescribed medications was 2.88±1(Table 4).

Table 4: Treatment and disease-related characteristics of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Variables		**Frequency**	**Percent**
Duration of illness	1-5 years	90	58.1
	6-10 years	60	38.7
	>10 years	5	3.2
Duration since the start of hemodialysis	<5 years	100	64.5
	5-10 years	53	34.2
	>=10 years	2	1.3
Presence of comorbidity	Yes	104	67.1
	No	51	32.9
Types of comorbidity	Hypertension	80	51.5
	Diabetes Mellitus	17	11
	Anemia	4	2.6
	Coronary artery disease	2	1.3
	HIV/AIDS	1	0.6
Presence of complications related to dialysis	Yes	64	41.3
	No	91	58.7
Physical disability	Yes	12	7.7
	No	143	92.3
Types of Disability	Mobility problem	8	5.2
	Blindness	2	1.3
	Fracture	1	0.6
	Osteoarthritis	1	0.6
Frequency of dialysis per week	2 times	64	41.3
	3 times	91	58.7
Vascular access type	Arteriovenous fistula	137	88.4

	Permanent catheter	10	6.5
	Arteriovenous graft	4	2.6
	Temporary catheter	4	2.6
Dialysis flow rate (categorized)	<300ml/min	2	1.3
	300-500 ml/min	153	98.7
Number of prescribed medications	< 3 prescribed medication	108	69.7
	>= 3 prescribed medication	47	30.3

Regarding the clinical related factors, the mean score of Estimated glomerular filtration rate (mL/min/1.73 m2) was 7.4517±1.83826 with all of the study participants' eGFR less than (15 mL/min/1.73 m2), 92(59.4%) moderate Hgb level, 86(55.5%) of normal serum albumin, 99(63.9%) of low level of serum calcium, 64(41.3%) of low serum phosphorus mmol/L, and 153(98.7%) of the flow rate with 300-500 ml/min of dialysis flow rate, 152(98.1%) of fasting blood glucose level was less than 126mg/dl, and 94(60.6%) of the body mass index of the study participant was in the normal range (Table 5).

Table 5: Clinical characteristics of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Variables		**Frequency**	**Percent**	**Mean±SD**
Hemoglobin level	>11mg/dl	24	15.5	9.72±1.97
	10-10.9mg/dl	11	7.1	
	8-9.9mg/dl	92	59.4	
	<8mg/dl	28	18.1	
Serum albumin	Decreased serum albumin	69	44.5	3.45±0.53
	Normal serum albumin	86	55.5	
Serum calcium	Low serum calcium level	99	63.9	2.23±0.99
	Normal serum calcium	37	23.9	
	Higher serum calcium	19	12.3	
Serum phosphorus mmol/l	Normal serum phosphorus	42	27.1	2.16±6.24
	Low serum phosphorus	64	41.3	
	Higher serum phosphorus	49	31.6	
FBS	<126 mg/dl	152	98.1	92.73±11.22

	>=126 mg/dl	3	1.9	
BMI	Underweight	45	29.0	20.22±3.34
	Normal	94	60.6	
	Overweight	13	8.4	
	Obesity	3	1.9	

Behavioral factors

Concerning the behavioral factors, 91(58.7%) were never performed any physical exercise during the last seven days, 82(52.9%) of them followed the dietary recommendation for dialysis, 92(59.4%) of them were monitoring their health state regularly, only 8(5.2%) of them were drinking alcohol, 9(5.8%) were chewing khat, and no one is smoking a cigarette (Table 6).

Table 6: Behavioral factors of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Variables		**Frequency**	**Percent**
Number of days of physical exercise done during the past 7 days	None	91	58.7
	1-3 times	43	27.7
	> 3 times	21	13.5
Any recreational (leisure) activities like walking,	Yes	5	3.2
	No	150	96.8
Follow recommended dietary practices	Yes	82	52.9
	No	73	47.1
Monitor health state regularly	Yes	92	59.4
	No	63	40.6
Drink alcohol	Yes	8	5.2
	No	147	94.8
Chew khat	Yes	9	5.8
	No	146	94.2

Psychological conditions

Concerning the psychosocial factors, 107(69%) and 73(47.1%) of them had abnormal anxiety and depression cases respectively followed by 57(36.8%) and 27(17.4%) of depression and anxiety borderline abnormal or borderline cases according to findings from this study (Figure 2).

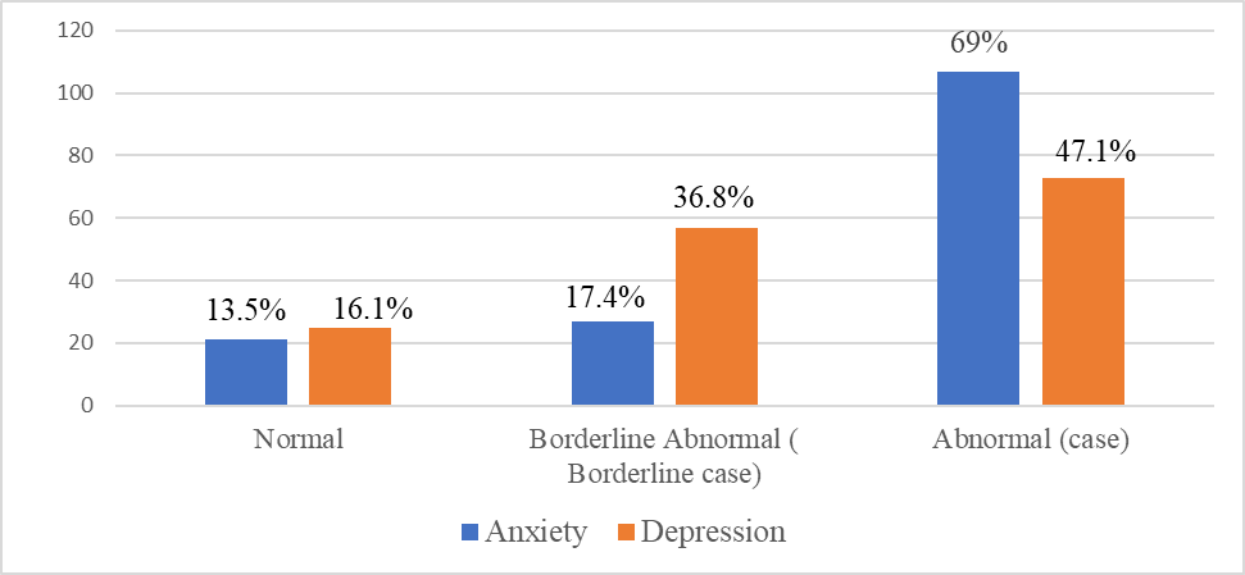

Figure 2: Psychological conditions of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022. %: percentage

Health-Related Quality of Life – KDQOL-36™

Concerning the health-related quality of life of the study participants, from the sub-scales of health-related quality of life of patients with hemodialysis, the biggest mean score of 71.33 ± 18.42 was the symptom or problem sub-scale with the lowest mean score (13.9 ± 19.6) was on the burden of kidney disease (BKD) (Table 7).

Table 7: Health-related quality of life (by component) of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Variable	Mean	Standard deviation
General Health	54.90	17.20
Physical functioning	30.65	33.78
Role limitations due to physical health	24.03	28.89
Role limitations due to emotional problems	23.87	42.76
Energy fatigue	37.03	23.27
Symptom /problem	71.33	18.41
Effects of kidney disease	51.79	22.83
The burden of kidney disease	13.91	19.56

The overall mean HRQOL was 42.93 (± 12.34), with nearly half of the patients 71(46%) of them having a good health-related quality of life with 42.9300 +12.33504 mean and standard score respectively (Fig3).

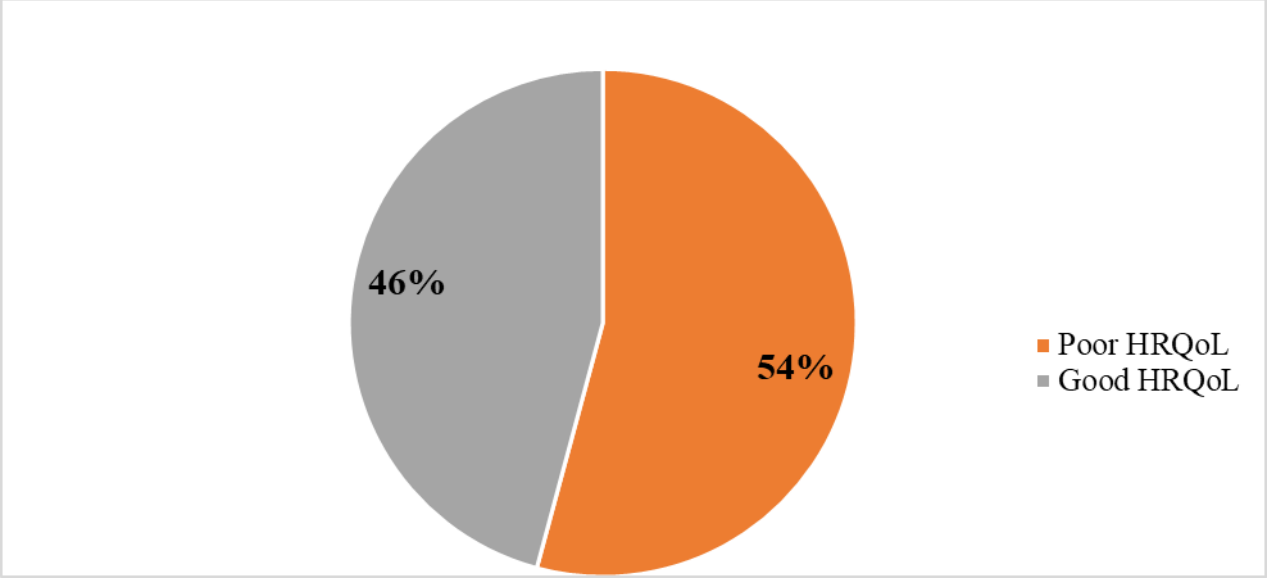

Figure 3: Health-related quality of life of patients with end-stage kidney disease in a teaching hospital in Ethiopia, 2022

Factors associated with Health-related quality of life

The bivariate binary logistic analysis was conducted and the following variables were made candidates for the multivariate regression such as age, Sex, Place of residence, Educational level, Occupation, monthly income, occupational/work exposure to chemicals, Source of finance for treatment, Presence of comorbidity, Physical disability, medication number prescribed, Serum phosphorus mmol/l and, psychosocial factors at p-value less than 0.25.

The multivariate logistic analysis revealed that sex, educational status, Occupation/work exposure to chemicals, physical disability, number of medications prescribed, serum phosphorus, and psychosocial factors are found to have a statistically significant association with health-related quality of life of patients with end-stage of kidney diseases on dialysis.

The odds of having a good HRQoL was 3.5 times more likely to occur among male patient when compared to female study participants (p = 0.036, AOR = 3.5, CI: 1.085, 11.287). The odds of having good HRQoL was 83.5% times less likely to occur among grade 5-8 class of educational level when compared to those who attended college or university level (p = 0.045, AOR = 0.165,

CI: 0.028, 0.963). At the same time, the odds of having good HRQoL were 5 times more likely to occur among those who have no occupationally health-related risk like chemical hazards when compared to those who have occupational health-related risk (p = 0.047, AOR = 5.126; CI: 1.023, 25.685); The odds of having poor HRQoLwas 92.1% times lesslikely to occur among patient physically disabled or inactive when compared to those who have no physically disabled disability (p = 0.024, AOR = 0.079; CI: 0.009, 0.717). The odds of having a good HRQoL was 6.7 times more likely to occur among those haiving prescribed medication with less than 3 medications compared to those who were prescribed medication more than 3 medications (p = 0.011, AOR = 6.702; CI: 1.542, 29.139). The odds of having a good HRQoL was 11 times more likely to occur among patients who have a clinical profile of normal serum phosphorus compared with low serum phosphorus (p = 0.001, AOR = 10.757; CI: 2.571, 45.012). Finally, the odds of having a good HRQoL was 83.3% more likely to occur among patients with with a normal state of anxiety and depression compared to those being depressed or anxious borderline cases (p = 0.006, AOR = 0.167; CI: 0.047, 0.594) (Table 4).

Table 8: Factors Associated with health-related quality of life of patients with end-stage kidney disease in teaching Hospitals in Ethiopia, 2022

Variables		Good HRQoL No (%)	Poor HRQoL No (%)	COR (95% C.I.)	AOR (95% C.I.)	p-value
Sex	Male	52(53.1)	46(46.9)	2.261(1.147, 4.457)	**3.499(1.085, 11.287)**	**0.036***
	Female	19(33.3)	38(66.7)	1	1	1
Educational level	Illiterate	4(28.6)	10(71.4)	0.491(0.135, 1.782)	0.576(0.062, 5.396)	0.629
	Read & write only	10(66.7)	5(33.3)	2.455(0.730, 8.249)	4.890(0.68, 34.918)	0.114
	1-4 grade	10(52.6)	9(47.4)	1.364(0.471, 3.944)	0.647(0.150, 2.793)	0.560
	5-8 grade	9(39.1)	14(60.9)	0.789(0.288, 2.164)	**0.165(0.028, 0.963)**	**0.045***
	9-12 grade	16(45.7)	19(54.3)	1.033(0.432, 2.470)	0.442(0.102, 1.911)	0 .274
	College/University	22(44.9)	27(55.1)	1	1	1
Occupation/work exposure to chemicals	No	55(42)	76(58)	2.764(1.105, 6.913)	**5.126(1.023, 25.685)**	**0.047***
	Yes	16(66.7)	8(33.3)	1	1	
Physical disability	Yes	3(25)	9(75)	0.368(0.096, 1.414)	**0.079(0.009, 0.717)**	**0.024***
	No	68(47.6)	75(52.4)	1	1	1
No Medication per prescribed	< 3 prescribed medication	58(53.7)	50(46.3)	3.034(1.444, 6.376)	**6.702(1.542, 29.139)**	**0.011***
	>= 3prescribed medication	13(27.7)	34(72.3)	1	1	1
Serum phosphorus mmol/l	Normal serum phosphorus	22(52.4)	20(47.6)	1.736(0.816, 3.693)	**10.757(2.571, 45.012)**	**0.001***
	Low serum phosphorus	24(37.5)	24(37.5)	1.833(0.833, 4.036)	2.966(0.866, 10.155)	0.083
	Higher serum phosphorus	25(51)	24(49)	1	1	1
Hospital Anxiety and Depression	Borderline abnormal	25(59.5)	17(40.5)	5.413(2.177, 13.460)	0.731(0.161, 3.326)	0.685
	Borderline cases	25(30.1)	58(69.9)	3.412(1.573, 7.400)	**0.167(0.047, 0.594)**	**0.006***
	Normal range	21(70)	9(30.0)	1	1	1

*= significant at p-value <0.05, AOR: Adjusted odds ratio, COR: Crude odds ratio, 1: reference, Hosmer Lemeshow test: 0.096,

CHAPTER SIX: DISCUSSION

The finding of our study showed that less than half (46%) of the study participants had a good health-related quality of life. Variables such as Gender, Educational level, Occupation/work exposure to chemicals, physical disability, number of prescribed medications, having a clinical profile of serum phosphorus, and being depressed or anxious were probably present statistically significant and were associated with health-related quality of life [40-50].

The proportion of the study participants who have good health-related quality (i.e., 46%) in the current study is almost consistent with the study finding from the multicenter study [10] but inconsistent with the findings of the study from Addis Ababa [29]. The inconsistency might be because the current study was conducted across the country's university teaching hospitals and the previous study was only in Addis Ababa setting and involves private dialysis clinics.

According to the present study finding, males had a greater health-related quality of life than women, being male was positively associated with health-related quality of life among end-stage renal diseases. The finding was consistence with the study finding from Spain [52], Palestine [50], Iran [35], and Taiwan [55]. The possible reason might be that males were less likely to become anxious or depressed compared to females, and women undergo deeper psychological disorders as a result of ESRD, they have a lower level of overall HRQoL. However, the finding of the current incongruent with the finding of the studies from the dialysis center of Shar Hospital in Sulaimani city [62], Saudi Arabia [51, 62] revealed that male patients had significantly reduced HRQoL. The main reason for inconsistency might be explained by unlike the men women's multiple domestic tasks and responsibilities that women cannot circumvent such as housekeeping and breeding children could put them at higher risk of poor HRQoL. Furthermore, women have never retired.

Based on our research findings from the clinical profile of the study participants only serum phosphorus was positively associated with HRQoL. However other study shows that HRQoL seems to have a strong positive correlation with hemoglobin concentration/hematocrit. Serum creatinine and phosphorus level have a negative correlation, and no significant correlation coefficients were found between HRQoL and total serum proteins [52], It is well known that

phosphate control is problematic in dialysis patients, and dietary sources should be carefully monitored [38-40]. Hemodialysis patients' clinical profiles fluctuate and are not consistent, which greatly lowers their quality of life. Blood phosphorus levels in chronic dialysis patients are persistently elevated, which increases their risk for vascular disease, cardiovascular disease, and mortality. Patients on dialysis have their blood phosphorous levels evaluated each month. Maintaining phosphorus balance in hemodialysis patients is difficult because many unhealthful foods have extra phosphorus, despite phosphorus-lowering practices (dietary restrictions, dialysis, and the use of phosphate binders).

According to the present study lower level of educational status was negatively associated with health-related quality of life which was supported by the finding study from Spain [52], It is also indicated that universal education was positively associated with HRQoL according to a study finding from Palestine [50], The current study finding is inconsistence with the finding of the study from Iraq [62] and Iran [35]. On the other hand, another study found that a lower educational level predicted better health-related quality of life [49], and other studies showed no significant association between education and HRQoL components [62]. Additionally, education has varying effects on different QOL categories, including the ability to sustain oneself, which had a beneficial effect on medical care. This conclusion may be explained by the fact that educated patients may be more critical of and demanding of the services they receive because they are more aware of issues relating to patient rights and service quality.

The present study revealed that patients with no Occupational/work exposure to chemicals were positively associated with good health-related quality of life, which is supported by the finding from Addis Ababa. A global health problem is affecting patients with ESRD as a result of workplace exposure to harmful substances. Following such exposures, many of these individuals pass away from severe illnesses, malignancies, and poisonings, as well as fatal injuries caused by fires or explosions. We must also consider the additional burden that non-fatal injury, crippling chronic diseases, and other health complications many of which, sadly, go unnoticed pose for patients and their families.

Physical disability or physical inactivity was negatively associated with HRQoL patients with ESKD which is consistent with the findings of the studies that showed physical disability was

associated with ESRD and had a significant effect on the patients' overall HRQoL [62]. Physical inactivity or disability was also associated with decreased HRQoL (69–71)[43-45]. This can be explained by patients on hemodialysis (HD) have lesser functional capacities than healthy individuals, and this is linked to less physical activity in daily life, which may increase their mortality and require long-term care.

Based on the current study finding several prescribed medications were associated with a poor health-related quality of life. The finding was inconsistence with the finding from Palestine [50], and several studies [46-48]. Several medications were prescribed for patients with ESRD and hemodialysis their main indication being for the management of renal complications, CV disease, diabetes, and management of symptoms that dialysis patients receive those medication benefits and harm the patients at the same time. Some of the medication is excreted through the kidney which further damages the renal system and reduced the health-related quality of the patient.

Being depressed or anxious in borderline cases was negatively associated with a good health-related quality of life. The finding was supported by the findings of different studies that showed patients presented with more symptoms of depression and anxiety indicated lower levels of QOL [53], Similarly, another study showed that depressive symptoms and type personality are independent predictors of poor HRQoL [57]. On the other side, patients on hemodialysis are more likely to experience anxiety and depression since the dialysis procedure itself creates panic and anxiety, which further reduces health-related quality of life.

Strengths and Limitations of the study

The current research was conducted at three teaching hospitals in Ethiopia. Therefore, the results of this study could be applied to every dialysis facility in Ethiopia and beyond. Furthermore, this study's self-report survey data might have been influenced by recall bias, and potential social desirability bias.

CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATION

7.1. Conclusions:

Less than half (46%) of the patients had a good health-related quality of life. Symptom or problem sub-scale showed the highest mean score of the components of HRQoL.

Sex, occupationally/not exposed to chemical hazards, less prescribed medication, and normal serum phosphorus were positively associated with a good level of HRQoL, whereas educational level, physical disability or inactivity, and being depressed or anxieties probably present were negatively associated with HRQoL of patients with hemodialysis.

7.2. Recommendation

To Hospitals

- All hospital dialysis units should give due attention to patients with physical disabilities, patients taking medications more than three and psychological problems (anxiety, depression) to improve patients' quality of life in addition to clinical care.

To Patients

- Patients on dialysis service should avoid or minimize occupational chemicals exposure to have good health quality. Additionally, patients should improve dietary phosphorus intake for better health quality.

To researchers

- Future researchers should conduct longitudinal or experimental studies to measure the cause and effect of quality of life. And also, researchers should explore more about the factors of quality of life through a qualitative study.

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Annex I: Information sheet

Study of Quality of Life for Patients on Dialysis

What is the purpose of the study?

The purpose is to assess the quality of life of patients with end-stage of kidney disease.

What will I be asked to do?

For this study, we want you to complete a survey today about your health, how you feel, and your background.

Confidentiality

We do not ask for your name. Your answers will be combined with those of other participants in reporting the findings of the study. Any information that would permit your identification of you will be regarded as strictly confidential. In addition, all information collected will be used only for the study and will not be disclosed or released for any other purpose without your prior consent.

Benefit

The information you provide will tell us how you feel about your care and further understand the effects of medical care on the health of patients. This information will help to evaluate the care delivered.

Do I have to take part?

You do not have to fill out the survey and you can refuse to answer any question. Your decision to participate will not affect your opportunity to receive care.

CONTACT INFORMATION

If you have questions at any time about this study, please contact the principal investigator Bethlehem Kifle at (+251) 917-4775645

ANNEX II: CONSENT FORM

I have read and understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I voluntarily agree to take part in this study.

Participant's signature_____ Date _____

Investigator's signature _____ Date _____

Annex III: Questionnaire

Part 1: Socio-demographic characteristics of participants

S.N	**Questions**	**Response**
1.	Age of participant	_____
2.	Sex of participant	1. Male 2. Female
3.	Ethnicity of participant	a) Oromo b) Amhara c) Tigre d) Kafa e) Dawro f) Gurage g) Others specif_____
4.	Religion of participant	a) Muslim b) Orthodox c) Protestant d) Catholic e) Others specify
5.	Marital status of the participant	a) Married b) Single c) Divorced d) Widowed
6.	Place of residence	a. Urban b. Rural c. Semi-Urban
7.	The educational level of the participant	a) Illiterate b) Read and write c) Grade 1-4 d) Grades 5-8 e) Grade 9-12

		f) College g) University and above
8.	Occupation of the participant?	a) Government employee b) Merchant c) Self-employed d) Student e) Housewife —— f) Other specify
9.	What is an average family monthly income	_____
10.	Occupational exposures	Yes, No
11.	Ability to pay for dialysis	Yes, No

Part II.Treatment-related factors

	Variables	Responses
1.	Duration of illness (years)	----------
2.	Types of dialysis	
3.	Duration since the start of hemodialysis,	----------
4.	Presence of comorbidity	Yes
		No
5.	If yes specify ----------	
6.	Presence of complications	Yes
		No
7.	Frequency of dialysis	----------
8.	Physical disability	Yes
		No
9.	Yes, specify physical disability present	----------
10.	No medications per prescription	----------
11.	Vascular access type	Arteriovenous fistula
		Arteriovenous graft
		Permanent catheter
		Temporary catheter

Part III. Clinically related factors

	Variables	Responses

1.	Estimated glomerular filtration rate (mL/min/1.73 m2)	
2.	Hemoglobin (g/dL)	
3.	Serum albumin (g/dL)	
4.	Fasting blood glucose (mg/dL)	
5.	Serum Calcium level	
6.	Serum Phosphorus level	
7.	Dialysate flow rate	
8.	Body mass index (BMI)	

Part IV. Behavioral factors

s.n	Variables	Category
3	Did you do any recreational (leisure) activities like walking,	1. Yes 2.No
4	Did you follow dietary recommendation practices	1. Yes 2.No
5	Did you monitor your health state regularly?	1. Yes 2.No
6	Do you smoke a cigarette?	1. Yes 2.No
7	Do you drink alcoholic drinks?	1. Yes 2.No
8	Do you chew khat?	1. Yes 2.No

Part V. Psychosocial factors

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week. Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal, 8-10 = Borderline abnormal (borderline case), 11-21 = Abnormal (case)

Part VI. Kidney Disease and Quality of Life (KDQOL™-36) related

Your Health: This survey includes a wide variety of questions about your health and your life. We are interested in how you feel about each of these issues

In general, would you say your health is 1? Excellent, 2. V. good, 3. Good, 4. Fair, 5. Poor							
1.	In general, would you say your health is	**1**	**2**	**3**	**4**	**5**	
The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much? 1. Yes, limited a lot, 2. Yes, limited a little, 3. No, not limited at all							
2.	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	**1**	**2**	**3**			
3.	Climbing several flights of stairs						
During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your **physical health?** **1.** Yes 2. No							
4.	Accomplished less than you would like	**1**	**2**				
5.	Were limited in the kind of work or other activities						
During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any **emotional problems (such as feeling depressed or anxious)?** **1.** Yes 2. No							
6.	Accomplished less than you would like	**1**	**2**				
7.	Didn't do work or other activities as carefully as usual						
During the past 4 weeks, **how much did pain** interfere with your normal work (including both work outside the home and housework)? **1.** Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely							
8.	During the past 4 weeks, **how much did pain** interfere with your normal work (including both work outside the home and housework)?	**1**	**2**	**3**	**4**	**5**	
These questions are about how you feel and how things have been with you during the past 4 weeks. How much of the time during the past 4 weeks…? 1. All of the time, 2. Most of the time, 3. A good bit of the time, 4. Some of the time, 5. A little of the time, 6. None of the time							
9.	Have you felt calm and peaceful?	**1**	**2**	**3**	**4**	**5**	**6**
10.	Did you have a lot of energy?						

11.	Have you felt downhearted and blue?						
12.	During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?						
Your Kidney Disease (How true or false is each of the following statements for you?) 1. Definitely true, 2. Mostly true, 3. Don't know, 4. Mostly false, 5. Definitely false							
13.	My kidney disease interferes too much with my life	1	2	3	4	5	
14.	Too much of my time is spent dealing with my kidney disease						
15.	feel frustrated dealing with my kidney disease						
16.	I feel like a burden on my family						
During the past 4 weeks, to what extent were you bothered by each of the following? 1.Not at all bothered, 2. somewhat bothered, 3. moderately bothered, 4. Very much Bothered, 5. Extremely bothered							
17.	Soreness in your muscles?	1	2	3	4	5	
18.	Chest pain?						
19.	Cramps?						
20.	Itchy skin?						
21.	Dry skin?						
22.	Shortness of breath?						
23.	Faintness or dizziness?						
24.	Lack of appetite?						
25.	Washed out or drained?						
26.	Numbness in hands or feet?						
27.	Nausea or upset stomach?						
28.	(Hemodialysis patient only) Problems with your access site?						
29.	(Peritoneal dialysis patient only) Problems with your catheter site?						
Effects of Kidney Disease on Your Daily Life (How much does kidney disease bother you in each of the following areas?) 1. Not at all bothered, 2. somewhat bothered, 3. moderately bothered, 4. Very much Bothered, 5. Extremely bothered							
30.	Fluid and Dietary restriction?	1	2	3	4	5	
31.	Your ability to work around the house?						

32.	Your ability to travel?					
33.	Being dependent on doctors and other medical staff?					
34.	Stress or worries caused by kidney disease?					
35.	Your sex life?					
36.	Your personal appearance?					

አንቀፅ I የመረጃ ወረቀት

በዳያሊሲስ ላይ ለታካሚዎች የህይወት ጥራት ጥናት

የጥናቱ ዓላማ

ዓላማው መጨረሻ ደረጃ የኩላሊት ህመም ያለባቸውን ህሙማን የኑሮ ደረጃ መገምገም ነው።

ምን እንድሠራ ነዉ እምጠቀየዉ?

ለዚህ ጥናት ጤናዎን, ስሜትዎን እና አስተዳደግዎን በተመለከተ ዛሬ አንድ የጥናት መጠይቅ እንዲሞሉ እንፈልጋለን.

ምሥጢራዊነት

ስምህን አንጠይቅም። የጥናቱን ግኝቶች ሪፖርት በማድረግ ረገድ ከሌሎች ተሳታፊዎች መልስ ማግኘት ትችላለህ ። ማንነትህን ለማወቅ የሚያስችል ማንኛውም መረጃ ምሥጢራዊ እንደሆነ ተደርጎ ይቆጠራል ። በተጨማሪም የተሰበሰበው መረጃ ሁሉ ለጥናቱ ዓላማ ብቻ የሚውል ሲሆን ያለቅድመ ፈቃድህ ለማንኛውም ሌላ ዓላማ አይገለጽም ወይም አይለቀቅም።

የጥናቱ ጥቅም

የምትሰጠው መረጃ ስለ እንክብካቤህ ምን እንደሚሰማህና የሕክምና ክትትል በሽተኞች በጤና ላይ ስለሚያስከትለው ውጤት ተጨማሪ ግንዛቤ እንደሚሰጥህ ይነግረናል። ይህ መረጃ የተላለፈበትን እንክብካቤ ለመገምገም ይረዳል.

እኔ መሳተፍ ባልፈልግስ

ጥናቱን መሙላት አያስፈልገህም፤ እንዲሁም ለማንኛውም ጥያቄ መልስ ለመስጠት ፈቃደኛ አትሆንም። በዚህ ተሳትፎ ለመካፈል ያደርከው ውሳኔ እንክብካቤ ለማግኘት ያለህን አጋጣሚ አይነካውም ።

የአጥኝው መረጃ

ይህንን ጥናት በተመለከተ በማንኛውም ጊዜ ጥያቄዎች ካሉዎት, እባክዎን ዋናዋን አጥኝ ቤተልሔም ክፍሌን አነጋግሯቸው በዚ ስልክ (+251) 917-4775645

የስምምነት ቅፅ

የተሰጡትን መረጃዎች አንብቤና ተረድቻለሁ እንዲሁም ጥያቄዎችን የመጠየቅ አጋጣሚ አግኝቼያለሁ ። ተሳትፎዬ በፈቃደኝነት እንደሆነና ምክንያት ሳይሰጠኝና ያለ ምንም ክፍያ በማንኛውም ጊዜ እራሴን ከጥያቄ ማግለል እንደምችል ተረድቻለሁ ። በዚህ ጥናት ለመካፈል በፈቃደኝነት እስማማለሁ ።

የተሳታፊ ፊርማ _____ ቀን _____

መርማሪው ፊርማ _____ቀን _____

ክፍል 1 ፦ የተሳታፊዎች ማህበራዊ-ነክ ጉዳ

ተ.ቁ	**ጥያቄዎች**	**ምላሽ**
12.	የተሳታፊ ዕድሜ	_____
13.	ተሳታፊ ዎታ	1. ወንድ 2. ሴት
14.	የተሳታፊ ጎሳ	ሀ) ኦሮሞ ለ) Amhara ሐ) Tigre መ) ካፋ e) ዳውሮ f) ጉራጌ g) ሌሎች _____
15.	ተሳታፊ ሃይማኖት	ሀ) ሙስሊም ለ) ኦርቶዶክሳዊ ሐ) ፕሮቴስታንት መ) ካቶሊክ e) ሌሎችም ይገልፀሉ
16.	የተሳታፊ ጋብቻ ሁኔታ	ሀ) ባለትዳር ለ) ላገባ ሐ) የተፋታ መ) የሞተበት
17.	የመኖሪያ ቦታ	ሀ.የከተማ ለ. የገጠር መ.መሀከለ
18.	የተሳታፊ የትምህርት ደረጃ	ሀ) ምንም የልተማረ ለ) አንብቦ የሚጻፍ ሐ) ክፍል 1-4 መ) ክፍል 5-8

		e) ክፍል 9-12 f) ኮሌጅ g) ዩኒቨርሲቲ እና ከዛበላይ
19.	የተሳታፊዉ ሥራ?	ሀ) የመንግሥት ሠራተኛ ለ) ነጋዴ ሐ) የራስን ሥራ መሥራት መ) ተማሪ e) የቤት እመቤት f) ሌሎችም ----------
20.	በአማካይ የቤተሰብ ወርሃዊ ገቢ ምንድን ነው?	_____
21.	ለስራ መጋለጥ	1.አዎ 2.አይደለም
22.	ለዳያሊሲስ ገንዘብ የመክፈል ይችላሉ	1.አዎ 2.አይደለም

ክፍል ፪። ከሕክምና ጋር ተዛማጅነት ያላቸው ምክንያቶች

	መጠይቅ	ምላሾች
12.	የህመም ጊዜ (ዓመታት)	----------
13.	የዳያሊሲስ ዓይነቶች	
14.	ሂሞዲያሊሲስ ከጀመሪክ ምን የክል ጊዜ ሆነ	----------
15.	የተጉአዳኝ ህመም አለቦት	1.አዎ
		2.አይደለም
16.	አዎ ከሆነ ----------	
17.	የውሂብ ተግዳሮቶች መገኘት	1.አዎ
		2.አይደለም
18.	የዳያሊሲስ ድግግሞሽ	----------
19.	የአካል ጉዳት አጋሞት ያዉቃል	1.አዎ
		2.አይደለም
20.	አዎን ፣ ከሆነ የአካል ጉዳቱ አይነት	----------
21.	በሐኪም ትእዛዝ የሚወሰዱ መድኃኒቶች	----------
22.	Vascular መግቢያ አይነት	Arteriovenous fistula
		Arteriovenous graft
		Permanent catheter
		Temporary catheter

Part III. Clinically related factors

	Variables	Responses
1.	Estimated glomerular filtration rate (mL/min/1.73 m2)	
2.	Hemoglobin (g/dL)	
3.	Serum albumin (g/dL)	
4.	Serum uric acid (mg/dL)	
5.	Fasting blood glucose (mg/dL)	
6.	Serum Calcium level	
7.	Serum Phosphorus level	
8.	Dialysate flow rate	
9.	Body mass index (BMI)	

ክፍል ፬። የባሕርይ ምክንያቶች

ባለፉት 7 ቀናት ውስጥ ስንት ቀን የአካል ብቃት እንቅስቃሴ/ትጋት የተሞላበት ስራ በጠቅላላው በቀን ቢያንስ 30 ደቂቃ?	1. ምንም የለም 2. አንድ ቀን 3. ሁለት ቀናት 4. ሶስት ቀናት 5. ከሶስት ቀናት በላይ
ባለፉት 7 ቀናት ውስጥ አብዛኛውን ጊዜ በአንድ ቀን ቁጭ ብለህ ሽ/ወይም ቁጭ ብለህ/ሽ ምን ያህል ጊዜ ታሳልፋለህ/ሽ?	ሰዓታት : ደቂቃዎች └──┘──┘ : └──┘──┘
እንደ ሩጫ ወይም እግር ኳስ ለ10 ደቂቃ ያህል ከፍተኛ የመተንፈስ ወይም የልብ ምት እንዲጨምር የሚያደርጉ ጠንካራ የስፖርት፣ የአካል ብቃት እንቅስቃሴ ወይም የመዝናኛ እንቅስቃሴዎችን ታደርጋላችሁን?	1.አዎ 2.አይ
ሲጋራ ታጨሻሳለህ/ሽ	1.አዎ 2.አይ
የአልኮል መጠጥ ትጠጣለህ/ሽ?	1.አዎ 2.አይ
ጫት ትቅማለህ/ሽ?	1.አዎ 2.አይ

ክፍል ፭ የኩላሊት ህመም እና የህይወ ጥራት

ጤናዎ ፦ ይህ ጥናት ስለ ጤንነትዎና ስለ ሕይወትዎ የተለያዩ ጥያቄዎችን ይዟል ። ስለ እነዚህ ጉዳዮች ምን እንደሚሰማዎት ለማወቅ እንፈልጋለን.

በአጠቃላይ ስለ ጤንነትዎ ምን ይላሉ ? 1. እጅግ በጣም ጥሩ 2. በጣም ጥሩ, 3. ጥሩ, 4. መልካም, 5. ጥሩ አይደለም						
30.	በአጠቃላይ ጤንነትዎ እን**ደ**ት ነው ትላለህ/ትያለሽ?	**1**	**2**	**3**	**4**	**5**
ከዚህ በታች የቀረቡት ነጥቦች በቀን ውስጥ ልታደርጋችሁ የምትችላቸው እንቅስቃሴዎች ናቸው። አሁን ጤንነትህ በእነዚህ እንቅስቃሴዎች ላይ ገደብ አለው? ከሆነ ምን ያህል ነው? 1. አዎ, በጣም ውስን ነው, 2. አዎ, ትንሽ ውስን ነው, 3. በፍጹም የተገደበ አይደለም						
31.	እንደ ጠረጴዛ ማንቀሳቀስ፣ ቢት ማጽዳት ፣ እቃ ማጠብ የመሳሰሉ መጠነኛ እንቅስቃሴዎችንስ	**1**	**2**	**3**		
32.	በርከት ያሉ ደረጃዎችን መውጣት/ ርጂም መንገድ መጉዋዝ					

	ትቺላለህ/ሽ ?						
ባለፉት 4 ሳምንታት በአካላዊ ጤንነትህ ምክንያት በሥራህ ወይም በሌሎች የዕለት ተዕለት እንቅስቃሴዎችህ ላይ ከዚህ በታች ከተዘረዘሩት ችግሮች መካከል አንዱ አጋጥሞህ ይሆን? **1.** አዎ 2. አይ							
33.	የምትፈልገውን ማከናወን ትችላለህ/ሽ	**1**	**2**				
34.	በሥራ ወይም በሌሎች እንቅስቃሴዎች ውስንንነት አጋትሞት ያዉቃል						
ባለፉት 4 ሳምንታት ውስጥ በሥራህ ወይም በሌሎች የዕለት ተዕለት እንቅስቃሴዎችህ (ለምሳሌ የመንፈስ ጭንቀት ወይም ጭንቀት) ሳቢያ ከሚከተሉት ችግሮች መካከል አንዱ አጋጥሞህ ይሆን? **1.** አዎ 2. አይ							
35.	የምትፈልገውን ማከናወን ትችላለህ/ሽ	**1**	**2**				
36.	እንደተለመደው ስራም ሆነ ሌሎች እንቅስቃሴዎችን በጥንቃቄ ትሰራለህ/ሽ						
ባለፉት 4 ሳምንታት ህመም ከተለመደው ስራዎ (ከቤትም ሆነ ከቤት ስራ ውጭ ሁለቱንም ጨምሮ) ምን ያህል አስተጓጉሎታል? **1.** ኧረ በጭራሽ 2. በትንሽ 3. በመጠኑ 4. በትቂተ 5. እጅግ በጣም							
37.	ባለፉት 4 ሳምንታት ህመም ከተለመደው ስራዎ (ከቤትም ሆነ ከቤት ስራ ውጭ ሁለቱንም ጨምሮ) ምን ያህል አስተጓጉሎታል?	**1**	**2**	**3**	**4**	**5**	
እነዚህ ጥያቄዎች ባለፉት 4 ሳምንታት ውስጥ ምን ይሰማሃል? ባለፉት 4 ሳምንታት ስንት ሰዓት...? 1. ሁሌም, 2. . አብዛኛውን ጊዜ, 3. ብዙ ጊዜ, 4. አንዳንድ ጊዜ, 5. ጥቂት ጊዜ፣ 6. ምንም ጊዜ የለም							
38.	መረጋጋትና ሰላም ይሰማዎታል?	**1**	**2**	**3**	**4**	**5**	**6**
39.	ብዙ አቅም(ጉልበት) አልዎት?						
40.	ተስፋ የመቁርጥ ስሜት ተሰምቶት ይሆን?						
41.	ባለፉት 4 ሳምንታት ውስጥ, የእርስዎ አካላዊ ጤንነት ወይም ስሜታዊ ችግሮች በማህበራዊ እንቅስቃሴዎችዎ (ከጓደኞችዎ ጋር እንደ መጎብኘት, ዘመድ መጠየቅ, ወዘተ) ምን ያህል ጊዜ ውስጥ እንቅፋት ሆኗቦታል?						
የኩላሊት ህመምዎ ከዚህ በታች የተዘረዘሩት መግለጫዎች ለእርስዎ ምን ያህል እውነት ወይስ ውሸት ናቸው? 1. በእርግጥ እውነት ነው, 2. በአብዛኛው እውነት ነው, 3. እኔ አላውቅም, 4. አብዛኛውን ጊዜ ሐሰተኛ፣ 5. በእርግጥ ውሸት							
42.	የኩላሊት ህመሞ በህይወቶ ላይ ብዙ እንቅፋት ይፈጥራል	1	2	3	4	5	
43.	ብዙ ጊዜ ከኩላሊቶ ህመም ጋር በተያያዘ **ያ**ስባሉ						
44.	የኩላሊቲዎን በሽታ መቋቋም ይረብሸታል						

45.	በቤተሰብዎ ላይ ሸክም እንደሆኑ ይሰማዎታል					
ባለፉት 4 ሳምንታት ከዚህ በታች የቀረቡት ነጥቦች ምን ያህል አስጨንቀዋችኋል? 1. ጨርሶ አልረበሸም, 2. በመጠኑም ቢሆን **ያስ**ቸግራል፤ 3. በቲቂቱ ይቸግረ ነበር, 4. በጣም ይቸግራል, 5. እጅግ በጣም ይቸግራል						
46.	በጡንቻዎችህ/ሽ ውስጥ የህመም ስሜት ?	1	2	3	4	5
47.	የደረት ሕመም ?					
48.	የሆድ ቁርጠት ?					
49.	የቆዳ ማሳከክ ?					
50.	የቆዳ መድረቅ ?					
51.	የትንፋሽ ማጠር ?					
52.	ድካም ወይም ማቅለሽለሽ					
53.	የምግብ ፍላጎት ማጣት ?					
54.	ታጥቦ ወይስ ተሟጠጠ?					
55.	የእጅ ወይም የእግር መደንዘዝ?					
56.	የማቅለሽለሽ ስሜት ወይም ሆድ መታወክ?					
57.	በደም ስር የኩላሊት እትበት(ሄሞ ዲአሊሲስ) በሚደርግብት ቦታቦታ ላይ ችግር ያጋትማል ብለዉ ያስባሉ ?					
58.	በሆድ በኩል የሚሰት የኩላሊት እትበት (የፔሪቶናል ዳያሊሲስ)ሕመምተኛ በካቴተሩ ቦታ ላይ ችግረ ያጋትማል ብለዉ ያስባሉ ?					
የኩላሊት በሽታ በዕለት ተዕለት ሕይወትህ ላይ የሚያስከትለው ውጤት (የኩላሊት በሽታ በሚከተሉት መስኮች ምን ያህል ይረብሻታል?) 1. ጨርሶ አልተረበሸም, 2 በመጠኑም ቢሆን ይረብሸኝ ነበር, 3. በመጠኑ ይረብሸኝ ነበር, 4. በጣም ተቸገረ, 5. በጣም ተቸገረ ...						
30.	ፈሳሽና የምግብ ክልከላ?					
31.	በቤት ውስጥ የሥራ ችሎታዎ ምንድን ነው?					
32.	የመጓዝ ችሎታዎ እንድት ነው?					
33.	በሐኪሞችና በሌሎች የሕክምና ባለሙያዎች ላይ ጥገኛ መሆንዎ?					
34.	በኩላሊት በሽታ ምክንያት የሚመጣ ውጥረት ወይም ጭንቀት?					
35.	የወሲብ ሕይወትህ/ሽ?					
36.	የግል አለባበስህ/ሽ?					

Afan Oromo Version Questionnaire

Qorannon kun kan gaggeefaamu tajajila waladhansaa fayyaa Jimmaatii wa'ee dhibee kaalee irraa kan ka'ee haalaa qanani jiregnaa jiru adda baasuf kan gargarudhaa. Qabxii fi argaamnii Qoranno kanaa gargaarsaa kenamuufi saddarkaa dhibaa isaan irraa ga'uu adda basuf gargaaraa. Qoranno kana galmaan gahuuf, issin iraattii hirmaachun kessaan faayidaa guddaa qaba, kana darbees, qoranno kana irraatii hirmachuun gutumman gututii fedhaan waan ta'eef, yero fetaanitii qorano kana addan kutuu ni dandeesu. Oddeffanoon issiniraa funanaamu kun qorano kana qofaaf akkaa olu bektani, ichitidhaan akaa egaamu ta'ee fudhatamaa.

Oddefanoo dhiyyatee dubbissee xiyyeffaadheen jiraa, gaafiis gafaachuuf charaa argadhee gaafaadheeraa. Hirmaanan koo gutumman gututii fedhaan waan ta'eef, qoranno kana irraatii hirmachuuf waali galeen jiraa.

qoranno kana irraatii gaafi kaamiyyuu yoo qabataan Lak. Bil. (+251) 917-475645

Maalatoo Kesaan _____ guyyaa _____

Maalatoo Qorataa _____ guyyaa _____

A. **Gaafilee Hawasumaa**

s.no	**Gaaffilee**	
1.	Umuriin keessan meeqa?	----------
2.	Saala	Dhiira
		Dhalaa
3.	Iddoo jireenyaa	Magaala
		Baadiyyaa
4.	Sabni kessaan	Oromoo
		Amaara
		Kafaa
		Guraagee
		Dawuroo
		Tigiree
		Kan bira ibsaa----------
5.	Amantaan Keessan	Muslima
		Ortodoksii
		Pirotestantii
		Katolikii
		Kan bira ibsa ----------
6.	Haala Gaa'elaa	Kan fuudhe/heerume
		Kan hin fuune/heerumne
		Kan hike/hiikte
		Kan jalaa du'ee/duute
7.	Iddoo jirenyaa	Magaalaa
		Badiyaa
8.	Sadarkaa barumsaa	Hin baranne
		Barreessuufi dubbisuu qofa
		1-4
		5-8
		9-12
		Kolleejjii
		Yuniversiitii fi isaa ol
9.	Hojii	Qonnaan Bulaa
		Haadha warraa
		Daldalaa
		Hojjeta Mootummaa
		Barataa
		Hojii humnaa

		Hojii dhabaa
		Kan bira ibsa--------
10.	Galii ji'aa qarshiidhaan	----------
11.	Occupational exposures	eyye lakki
12.	Kafaaltanit dialysis fayyadaamtuu?	eyye lakki

II. Muxaannoo fi waalaansaa dhibee dhukkuba kaalee

	Gaffilee	Debii
23.	yeroo meqaaf dhibee kaanaa waalin jirataan?	----------
24.	Gosaa dialysis issin godhamuu	----------
25.	Yeroo meqaa ergaa dialysis jalqabdanii?	----------
26.	Dibeen dabalataa /biraan isin mudatee jira?	eyyee
		Lakkii
27.	Eyye yoo taa'ee ibsii	----------
28.	Rakkoo/wal-xaxaa/ dhibee kaalee waliin walqbatee jiraa?	eyyee
		Lakkii
29.	yeroo meqaa kale kessaan dhiqsistuu turban kessaattii?	----------
30.	Miidhamni qaama isin mudateeraa?	eyyee
		Lakkii
31.	Eyyee yoo taa'ee miidhamni qaama jiru ibsii	----------
32.	Bayinaa qoricha fudhachaa jirtan meqaa?	----------
33.	Vascular access type	Arteriovenous fistula
		Arteriovenous graft
		Permanent catheter
		Temporary catheter

Part III. Odeefanoo kardi irraa funaanamuu

	Variables	Responses
1.	Estimated glomerular filtration rate (mL/min/1.73 m2)	
2.	Hemoglobin (g/dL)	
3.	Serum albumin (g/dL)	
4.	Serum uric acid (mg/dL)	
5.	Fasting blood glucose (mg/dL)	
6.	Serum Calcium level	
7.	Serum Phosphorus level	
8.	Dialysate flow rate	

Part IV.

Torban Darban kana kessati, guyya meqaaf sochi qama ykn hojii ulfataa waalumaa galati yoo xiqqate daqiqa 30f hojetani bektu?	1. tasuma 2. guyya tokkof 3. guyya lamaf 4. guyya sadif 5. guyya said olii
Torban Darban kana kessati, guyya meqaaf sochi malee ykn hojii malee tessani bektu?	Sa'aatii : daqiqaa ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋
Yoo xiqqatee waalit ansudhaan daqiqaa 10'n hojii spoortii ykn jajabenyaa qama ykn gochaa bashanaana, waantota adeemsaa hargansuu dabalaan ykn dhahaabaa onnee dabalaan issin mudatee beqa?	1. eyye 2. lakki
Haala sirnaa sorataa kessani ni hordoftuu?	1. eyye 2.lakki
Did your monitory your health state regularly? Haala fayyumaa kessani dhabataadhaa ni hordoftuu?	1. eyye 2.lakki
Tanboo ni xuxxu?	1. eyye 2.lakki
Dhugaati alkoholi qabu ni dhugdu?	1. eyye 2.lakki
Chattii ni qamtuu?	1. eyye 2.lakki

Part VI. Qananni Jireenyaa dhukkubaa kale waalin walqabe (KDQOL™-36)

Waa'ee fayyumma: Qu'aannoon kun gaffille adda addaa waa'ee fayyummaa fi qannaani jiregnaa illaataa.

Waalumaa galatii fuyyumaan kessan 1? Baye bayee garidhaa/ Excellent, 2. Bayyee gariidhaa/V. good, 3. Gaaridhaa/Good, 4. Bayessa/Fair, 5. Gadi anaadhaa/ Poor							
59.	Waalumaa galatii fuyyumaan kessan	**1**	**2**	**3**	**4**	**5**	
Kanneen armaan gadi, wa'ee sochii issin guyyaa guyyati rawwaattan ilalataa. Fayyumaan kessan hojii guyya guyyattii hojetan irrati midhaa fide jira? Eyyee yoo ta'ee hangam? 1. eyye midhaa gudaa fidee, 2. eyye midhaa xiqqoo fidee, 3. Lakki tasumaa midhaa hin fidnee							
60.	Sochii gidu gallessaa fknf tesso olfudhuu, manaa xaragu ykn haxawuu fii kkf. Hangam issin dhorkee beka?	**1**	**2**	**3**			
61.	Darajaa bahu ykn tabaa ol demuu						
Torban afraan /4 darban kana kessatti, rakkolle kanen arman gadi jiregnaa ykn hojii kessan guyya guyyati jirattan irrati issin mudatee beka sochii qama waalin walqabatee? **1.** eyye 2. lakki							
62.	Xummeurren beka yeroo murassa kessati	**1**	**2**				
63.	Murtaa'iinaa hoji hejechuu dadhabbuu	**1**	**2**				
Torban afraan /4 darban kana kessatti, rakkolle kanen arman gadi jiregnaa ykn hojii kessan guyya guyyati jirattan irrati issin mudatee beka xil-sammu waalin walqabatee fknf (dhiphaachu)? **1.** eyye, 2. lakki							
64.	Xummeurren beka yeroo murassa kessati	**1**	**2**				
65.	Murtaa'iinaa hoji hejechuu dadhabbuu	**1**	**2**				
Torban afraan /4 darban kana kessatti, dhukkubni kessan hangam dhiibaa jirenyaa guyya guyya jirataan fknf mana kessaafi ykn manaa allaa irratti rakko fidee? **1. T**asumaa 2. Xiqqoo 3. Giddu gallessa 4. Irraa chaalati 5. Bayee bayee							
66.	Torban afraan /4 darban kana kessatti, dhukkubni kessan hangam dhiibaa jirenyaa guyya guyya jirataan fknf mana kessaafi ykn manaa allaa irratti rakko fidee?	**1**	**2**	**3**	**4**	**5**	
Gaffiilleen arman gadii wa'ee ilalchaa fi gochawaan torban afraan /4 darban kana kessatti, turan ilalataa. Trban afran darban kana kessati hangam…? 1. yeroo maraa/hunda, 2. Yeroo bayee, 3. Yeroo bayee xiqqoo, 4. Yeroo tokko tokko, 5. Yeroo xiqqoo, 6. tasummaayuu							
67.	Mirrii gariin issiniti dhagahamee ni beka?	**1**	**2**	**3**	**4**	**5**	**6**
68.	Human gahaa qabdu?						
69.	Mirrii gad-antumma issiniti dhagahaame beka?						

70.	Torban afran /4 darban kana kessatti, yeroo hangamif waa'ee rakkoo fayyumma qama fii xilsammu jirenyaa hawasumaa kessan kessati rakko hangam fide beqa?						

Jechootni arman gadi dhibbee dhukkuba kaalee waalin walqabate hangam dhugaa ykn soba jettani yadu?

2. Gutuma gututi dhugadhaa, 2. Bayeen isaa dhugadhaa, 3. hinbeeku, 4. Bayeen isaa soba, 5. Gutuma gututi soba

13	dhibbeen dhukkuba kaalee koo jiregnaa irrati midhaa fide jira	1	2	3	4	5
14	Yeroo dheraa Kanaan dabaarsu dhibbee dhukkuba kaalee koo walanurraati					
15	Dhibbee dhukkuba kaalee waalin jirachun naa nufisisee jira					
16	Sababaa kootirraa kan ka'ee maati koorrattii dhibbaa ta'een jira jedheen yaadaa					

Kaneen arman gadi kana kessa torban afran /4 darban kana kessatti, maaltu issin nufisise ?
1. tasuma hin nufine, 2. Hamaa ta;ee nufen ture, 3. Gidu-gallessaa nufen ture, 4. Bayee nufeen ture, 5. Bayee bayee nufeen ture

17	Madaa sarbaa irraa?	1	2	3	4	5
18	Dhukkubbi laphee?					
19	Chininaa garaa ykn qamaa?					
20	Qama hoksisuu?					
21	Goginsaa qamaa?					
22	Hargansuu dadhabbuu?					
23	Lafaa marsissaa?					
24	Feedhii nyaataa dhabu?					
25	Gad-tesumma ykn albaasuu?					
26	Millaa ykn harkaa adochuu?					
27	Olgurraa ykn laphee irraa demuu?					
28	(Hemodialysis patient only) Problems with your access site? Rakkoo toraa waalansii ittin kenamu dhabuu					
29	(Peritoneal dialysis patient only) Problems with your catheter site?					

Kanneen armaan gaaddi kessaa dhibaa dhukkubni kaalee jirenyaa guyya guyya irrattii qabu 1. Tassumaa naa hin jeqnee, 2. Xiqqoo naa jeqqee, 3. Giddu-gallessa naa jeqqee, 4. Bayyee naa jeqqee, 5. Bayyee bayye naa jeqqee

30	Nyaataafi dhugaattii sin dhorkee	1	2	3	4	5
31	Dandettii hojii nannoo maanati hojechu sin dhorkee?					
32	Addemsaa sin dhorkee?					
33	Doktorootaa ykn hojeettootaa faayyaa irratii hirkaataa taani ?					
34	Dhibbee dhukkuba kaalee irra kan ka'eedhiphinii ykn sodaan issin mudateraa?					
35	Haali wal-qunaamtii sala kessan maal fakkataa?					
36	Waalumma galaatii haali dhabii kessaan maal fakkataa?					

DECLARATION

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

Name: Betelihem Kifle Kidane

Signature_____

Name of the institution: Jimma University

Date of submission_____

This thesis has been submitted for examination with my approval as University advisor

Name of first advisor: Dr. Fikadu Balcha

Signature:_____

Name of second advisor: Mr. Tilahun legese

Signature:_____