



**St. PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE DEPARTMENT OF
PSYCHIATRY**

PREVALENCE AND ASSOCIATED FACTORS OF DEPRESSION AMONG CHRONIC
KIDNEY DISEASE PATIENTS AT ST. PAUL'S HOSPITAL MILLENNIUM MEDICAL
COLLEGE ADDIS ABABA, ETHIOPIA.

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Abstract

Background: Depression is the most common mental health problem for people with CKD and is associated with increased morbidity and mortality. Current estimates suggest that 20 to 30% magnitude of depression that meets diagnostic criteria in people with CKD. CKD can result in depression through direct effect and other psychological distress related with its prognosis and treatment. Untreated depression on these groups of patient negatively affects the prognosis and treatment response.

Objective: To assess prevalence and associated factors of depression among chronic kidney patients in nephrology outpatient clinic, SPHMMC, Addis Ababa, Ethiopia.

Method: Facility based cross sectional study design was used to determine prevalence and associated factors of depression among chronic kidney patients, from April –May, 2019. In the Study, CKD patients (n=146) visiting the nephrology OPD of SPHMMC, AA, Ethiopia, were Screened for depression using the PHQ 9 Amharic and Afaan Oromo versions. Data was collected by using interviewer administered structured questionnaire on demographic and CKD related factors. Simple and multiple logistic regression analyses were also performed. SPSS 25.0 version was used to perform statistical analysis.

Results: The majority, 79(54.1%), of the study participants were males. The mean age of the participants was 48.07 (S.D $\pm$ 16.7) years. Out of the total, 37(25.3%) met the criteria for depression. CKD patients on hemodialysis had significant association ($p=0.007$) with depression. Variables such as age between 25 and 44 years (AOR=2.09, 95% CI:0.63,6.89), patients who attended primary school (AOR=3.01, 95% CI:0.94,9.6), CKD stage IV and above (AOR=1.56, 95% CI:0.5,4.8) and poor social support (AOR=2.04, 95% CI:0.92,4.5) were more likely to have depression compared to their counter parts.

Conclusion and recommendation:

The prevalence of depression among CKD patients was high. Patients on hemodialysis was main predictor of depression. Primary school level of education, age between 25-44 years and poor social support had higher risk of depression among CKD patients. Developing guidelines, giving training for health care providers at SPHMMC nephrology OPD, early screening diagnoses and treatment will benefit patients with chronic kidney diseases.

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List of acronyms

CKD	-	Chronic Kidney Disease
CIDI	-	Composite International Diagnostic Interview
ESRD	-	End stage renal disease
ETB	-	Ethiopian birr
HD	-	Hemodialysis
HMIS	-	Health management information system
MDD	-	Major Depressive Disorder
ODIN	-	European Outcome of Depression International Network
OPD	-	Out patient department
PHQ9	-	Patient health questionnaire -9
SPHMMC	-	Saint Paul's Hospital Millennium Medical College
SPSS	-	Statistical Package for the Social Sciences
WHO	-	World Health Association

Chapter one

1. Introduction

1.1 Background and Statement of the problem

Chronic kidney disease is a progressive disease that causes permanent impairment of renal function and premature mortality. The associated prognosis may result in serious psychological distress to the affected individual (1).

People with various forms of chronic disease experience a high burden of somatic symptoms, impaired quality of life and role impairment that may predispose them to increased risk of depression.(2)

Depression is well established as a prevalent mental health problem for people with CKD and is associated with increased morbidity and mortality. Different studies found out that about 20 to 30% meets diagnostic criteria for depression in people with CKD (3).

Depression is the most psychiatric problem among individuals undergoing hemodialysis for renal failure, estimated prevalence of 23% to 42% in USA and Europe. Depressive symptoms are strongly associated with poor prognosis by reducing adherence to the treatment, increased rate and duration of hospitalization (4, 5).

One study found that end stage renal disease (ESRD) patients have four fold higher risks for depression than the general population (6)

In Ethiopia, there is paucity of data about the prevalence and associated factors of depression in CKD. Five years ago, institution based cross sectional study was done at Addis Ababa. The result showed that the magnitude of depression among patients with chronic renal disease was 29.4 %.(7)

The data from hospital records of SPHMMC showed there is a marked increment in the number of patients with chronic kidney disease especially since the establishment of renal transplant and hemodialysis services at the hospital(8)

Despite the rise in prevalence of chronic kidney disease in our setting, there is inadequate data about the prevalence and associated factors of depression in chronic kidney disease, and therefore further research is required.

1.2 significance of the study

The aim of the study is to assess the prevalence of depression on CKD and to identify associated risk factors for the development of depression. . The study will improve prognosis and quality of life of CKD patients with depression by addressing depressive symptoms. It can also be used as a baseline data for future large scale studies.

Chapter two

2. Literature Review

2.1 Prevalence of Depression in chronic kidney disease

Chronic kidney disease is a wide spectrum of kidney disease which describes abnormal kidney function and /or structure. (9). It affects 10 -15 % of the adults globally (10).

Depression is the most common mental condition in the general population (11) , Characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (12)

People with various forms of chronic disease experience a high burden of somatic symptoms, impaired quality of life, and role impairment that may predispose them to increased risks of depression (2).Psychiatric disorders are common among chronic kidney patients (13).

One study found that ESRD patients have a nearly four-fold higher risk for depression than the general population (6).

Many people with CKD who require dialysis treatment (CKD stage 5) report severe psychological distress (14).Depression is a common, under recognized and undertreated problem in patients with end-stage renal disease (ESRD) on long-term dialysis therapy (15).

The prevalence of depression in CKD patients is estimated to be between 20% - 30% in many studies (16). There are reports from different studies that depression is higher among patients receiving HD, with estimated rates ranging from 23 to 42% in the USA and Europe, and 45.9% in Taiwan (4).

Patients with CKD on hemodialysis (HD) have to endure physical discomforts related to their illness and have to face various stresses, family problems, which increasing the risk of depression(17).

In Ethiopia, there is scarcity of data about prevalence of depression in in CKD, one report from hospital based study showed that 29.4% of patients with CKD had depression which is comparable with other studies(7).

2.2 Associated factors of depression in chronic kidney

Estimated prevalence of depression varied by stage of CKD and the tools used for diagnosis. Prevalence of interview-based depression in CKD stage 5D was (22.8%),but estimates were somewhat less for CKD stages 1–5 (21.4%) and for kidney transplant recipients (25.7%). Using self- or clinician-administered rating scales, the prevalence of depressive symptoms for CKD stage 5D was higher (39.3%) relative to CKD Stages 1–5 (26.5%) and transplant recipients (26.6%)(18).

Studies from Taiwan, Multiple logistic regression analysis indicated that religious beliefs, sleep disturbances, exercise habits, and disease stage were significantly related to depression in CKD patients. Patients with sleep disturbance and who did not engage in exercise had significantly higher risk of depression. Patients with no religious belief and CKD stage IV and above were 2.5 fold and twice higher risk of depression respectively (1).

Findings from Indian study, according to multiple regression, the occurrence of depression was significantly higher with age below 60 years old, male gender , no treatment funding , education level less than grade 12, monthly income NR 20,000, CKD stage V, patients on hemodialysis, comorbidities three and above, overweight and CKD duration greater than 2 years(19).

It is independently associated with markedly increased risk of both morbidity and mortality, Patients on long term hemodialysis therapy with a clinical diagnosis of depression are twice as likely to die or require hospitalization within a year compared with those without depression (20).

In Ethiopian, reports showed Being female, age 60 and above, co-morbid chronic illness (hypertension, diabetics), living alone and poor social support were significantly associated with depression. (7), which is not comparable with other studies (18,19)

Chapter Three

3. Objectives

3.1 General objectives

- ❖ To assess prevalence and associated factors of depression among chronic kidney patients in nephrology clinic SPHMMC.

3.2 Specific Objectives

- ❖ To assess prevalence of depression among CKD patients.
- ❖ To identify factors associated with depression in CKD patients.

Chapter Four

4. Methodology

4.1 Study Area and period

The study was conducted to assess prevalence and associated factors of depression among CKD patients at St. Paul's Hospital Millennium Medical College nephrology OPD, Addis Ababa Ethiopia, April –May 2019GC. Saint Paul's hospital is the second largest referral public hospital in Addis Ababa, Ethiopia. The hospital was established in 1968 and opened medical school in 2007G.C..

Its core service includes the provision of medical care, teaching research and providing public health service in the community. The nephrology clinic at the hospital is, one of the subspecialty clinic which gives both an inpatient and outpatient services. The unit also gives teaching activities for medical students, internal medicine residents and nephrology fellows.

The clinic gives both inpatient and outpatient services. On average 230 chronic kidney patients are seen monthly, in the nephrology OPD of SPHMMC.

4.2 Study Design

A facility based Cross sectional study design was used to assess prevalence and associated factors of depression using an interviewer administered questionnaire among chronic kidney disease patients SPHMMC nephrology OPD.

4.3 Population

4.3.1 Source population

All chronic kidney disease patients who had follow up at nephrology OPD, SPHMMC, A.A, Ethiopia.

4.3.2 Study population

All CKD patients who had follow up at nephrology OPD (SPHMMC) during the study Period and fulfilling the inclusion criteria

Inclusion criteria

Age 18 years old and above

CKD patients on follow up during the study period

Patients who have a diagnosis of CKD by treating physician

Those who gave written consent

Exclusion criteria

History of mood disorder prior to the diagnosis of CKD

Medically unstable patients

4.4 Sample size determination

The sample size was calculated by using prevalence of depression among CKD patients from previous study which found to be 29.4%.

$$N = \frac{(Z_5)^2 \times P(1-P)}{d^2}$$

$$d^2$$

$$N = \frac{(1.96)^2 \times 0.29(1-0.29)}{(0.05)^2}$$

$$(0.05)^2$$

$$N = 316.39 \sim 316$$

N= Sample size

P= Prevalence of depression among chronic kidney patients

Z₅= Z-score at five level of significance

d= margin of sampling error

Since total population is < 10,000 correction formal was used.

$$\therefore nf = \frac{N .ni}{N + ni}$$

$$nf= (230)(316)/230+316$$

$$= 72680/546 = 133.11$$

$$nf \sim 133$$

Where N = Average number of patients with CKD attending SPHMMC Nephrology OPD in 1-month duration. = 230 calculated from the log book (8) of nephrology OPD: SPHMMC, 2019.

With the assumption of 10 % non-response rate, the number of patients involved in the study was determined to be 146.

4.5 Sampling technique

Non-Probability sampling (convenience sampling) was applied.

4.6 Study variables

Independent variables

- ✓ Age
- ✓ Sex
- ✓ Marital status
- ✓ Level of education
- ✓ Monthly income
- ✓ Employment status
- ✓ Location of residency
- ✓ Social support
- ✓ Comorbid medical illness
- ✓ Mode of CKD treatment
- ✓ Stages of CKD

Dependent variables:

- ✓ Depression

4.7 Data collection

Data was collected by two trained nurses. The training was given to the data collector by the principal investigator for three days. The data collection was held from April -May, 2019. Consent was sought from the participants after the purpose of the study well explained to them.

4.8 Data Collection and Measurement

4.8.1 The Questionnaire

Structured questionnaire was prepared in English language, with both closed and open ended questions. The questionnaire was translated to Amharic and Afaan Oromo language for the respondents; the tool used for screening depression in CKD patients was the PHQ-9, Amharic and Afaan Oromo versions.

A PHQ-9 threshold score of 10 was found to give optimal discriminatory power with respect to diagnosis of MDD via the clinical interview (sensitivity=86% and specificity=67%) (21).

Therefore those who scored 10 or greater was considered to have depression among CKD patients.

4.8.2 Data Collection Method

The questionnaire was filled by trained nurses for the data collection; the questionnaire was pretested to check clarity of the questions, their sensitivity and completeness.

4.8.3 Data Processing and Analysis

The data was entered using Epi info and analyzed by using SPSS software. The data was cleaned and rechecked for its consistency. The descriptive analysis was done by simple frequencies and proportions, the results presented by tables, pie charts and graphs. Simple and multiple logistic regression analysis were performed to evaluate the strength of association between depression in CKD, sociodemographic and CKD characteristics.

4.8.4 Data Quality Assurance

Training was given to the data collectors before actual data collection period. The questionnaire was organized as simple as possible so that it could easily be understood by both data collectors and respondents and continuous follow up was performed during the data collection period. Data completeness and consistency was also checked by the supervisor.

4.9 Ethical consideration

Ethical clearance and a letter of support were obtained from SPHMMC, research ethical review committee before the data collection. After final clearance and approval, the letter was submitted to SPHMMC Psychiatry department Office. The objectives of the study were explained to the respondents and written consent was obtained from the participants.

To ensure confidentiality of information, participants' name was not used during data collection and it was clearly explained to participants of the study. Appropriate treatment and follow up was arranged for the study participants who were found depressed.

4.10 Data Dissemination

The result of this study will be presented as one of the partial fulfillments of residency program at department of psychiatry, the report will be sent to the college research directorate office.

4.11 Operational Definitions

- **CKD**- Chronic kidney disease diagnosed by treating physician which includes patients on conservative management, on hemodialysis and at different stages of CKD
- **Treating physician** – Medical doctors which includes internal medicine residents, internists, nephrology fellows and nephrologist.
- **Depression** - The patient must fulfill the defining criteria for depression according to PHQ-9 i.e. a score of 10 or greater.
- **Depression in CKD** -New onset of depression after the diagnosis of CKD.
- **Good social support**- she/he has special person from whom she/he gets emotional and instrumental support when in need.
- **Poor social support**- she/he has no special person from whom she/he gets emotional and instrumental support when in need.

4.12 Declaration of conflict of interest

The researcher declares that there is no conflict of interest.

Chapter -five

5. Result

A total of 146 chronic kidney patients participated in this study to assess the prevalence and associated factors of depression among CKD patients.

5.1 Basic characteristics of CKD patients

5.1.1 Demography

Among the total of 146 participants 79(54.1%) were males and 67(45.9%) were females. Among the total patients 100(68.5%) were married, 46(31.5%) were unmarried (single, divorced, widowed).

Table. 1 Demographic characteristics of the study subjects

Variable Name		Number (%)
Gender	Male	79(54.1%)
	Female	67(45.9%)
Marital status	Single	30(20.5%)
	Married	100(68.5%)
	Divorced	7(4.8%)
	Widowed	9(6.8%)
Current religion	Orthodox	90(61.6%)
	Muslim	34(23.3%)
	Protestant	21(14.4%)
	Other	1(.7%)
Residency status	Urban	118(80.8%)
	Rural	28(19.2%)
Educational status	Illiterate	22(15.1%)
	Read and write	10(6.8%)
	Primary school	45(30.8%)
	Secondary school	38(26.0%)
	College	31(21.2%)
Employment status	Employed	48(32.9%)
	Un-employed	98(67.1%)
Average monthly income (Ethiopian Birr)	≤ 1000	63(43.2%)
	1001-2000	35(24.0%)
	2001-3000	21(14.4%)
	>3000	27(18.5%)

Out of all the study participants 45(30.8%) attended primary school, 38(26.0%) attended secondary school, 31(21.2%) had college education. Among the total patients 63(43.2%) had ≤ 1000 ETB average monthly income, 35(24.0%) of them fall under the category 1001- 2000ETB and 27(18.5%) had average monthly income of greater than 3000ETB. The majority 118(80.8%) of the participants were urban residents. Among the total participants 98(67.1%) were unemployed (Table 1).

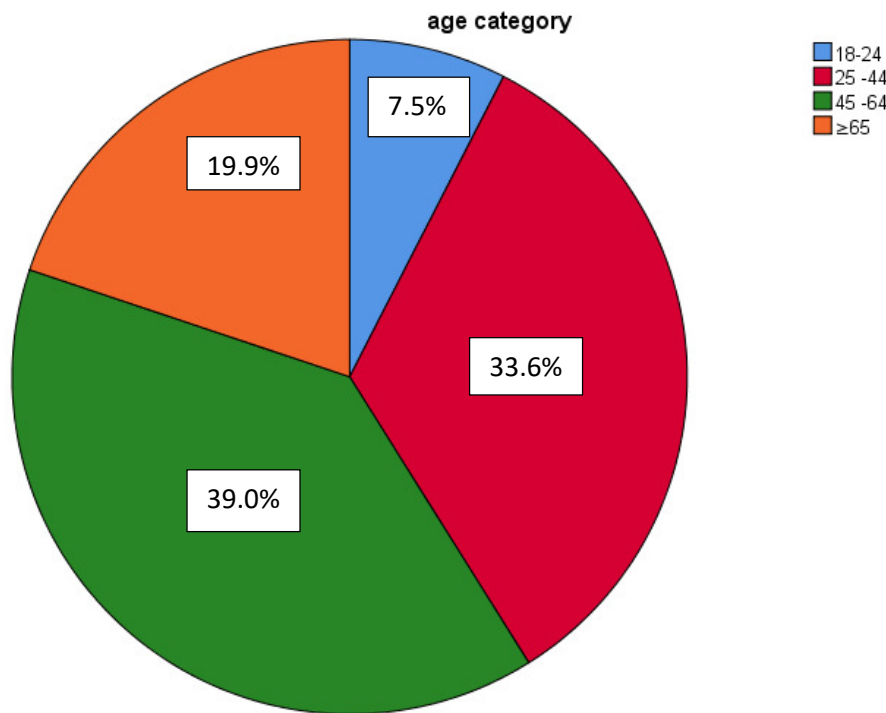


Figure 1 age distribution of study subjects

The mean age of the participants was 48.07(S.D $\pm$ 16.7) years. All patients were divided into four different age groups ranging from 18-86 years. Highest proportion of the study subject belonged to the group 45-64 years age 57(39.0%) and out of them 34(59.6%) were males and 23(40.4%) were females. The second highest proportion of the participants was in the age group of 25-44 years which was 49(33.6%).

5.1.2 CKD characteristics

Out of the total 146 patients 118(80.8%) had CKD stage I-III and 28(19.2%) had stage IV and above. Among the total 146 patients 113(77.4%) had less than three medical comorbidities, 33(22.6%) had three and above medical comorbidities. With respect to mode of CKD treatment, majority 129(88.4%) of the participants were on medications, 17(11.6%) of the patients were on hemodialysis. Among the total 146 patients 99(67.8%) had good social support whereas 47(32.2%) of the patients had poor social support (Table 2).

Table -2 CKD characteristics of the study subjects (n=146)

Variable		Male	Female	Total
Stages of CKD	Stage I-III	63(53.4%)	55(46.4%)	118(80.8%)
	Stage IV and above	16(57.1%)	12(42.9%)	28(19.2%)
Number of comorbidities with CKD	Less than three	61(53.9%)	52(46.1%)	113(77.4%)
	Three and above	18(54.5)	15(45.5%)	33(22.6%)
Mode of CKD treatment	Medications	68(52.7%)	61(47.3%)	129(88.4%)
	Hemodialysis	11(67.7%)	6(35.3)	17(11.6%)
Social support	Good social support	50(50.5%)	49(49.5%)	99(67.8%)
	Poor social support	29(61.7%)	18(38.3%)	47(32.2)

5.2 prevalence of depression in chronic kidney patients and level of difficulty on daily activity

The overall prevalence of depression among 146 participants was 25.3 % (37 out of 146 CKD patients). The prevalence in males was 29.1 %(23 out of 79 males) whereas in females it was 20.9 %(14 out of 67).

Among the total 37 depressed patients, 21(56.8%) had somewhat difficult, 13(35.1%) found to have very difficult, 3(8.1%) had extreme difficulty on daily activities.

5.3 Factors associated with depression in CKD

5.3.1 Simple logistic regression Analysis

Simple logistic regression was performed to see the effect of demographic, socioeconomic and CKD characteristic variables on depression among CKD patients. During the analysis, the category for marital status was dichotomized to married and currently unmarried (single, divorced, widowed) because of a small number of the merged categories. The simple logistic regression analysis showed stages of CKD were significantly associated with depression in CKD. As compared to CKD stage I-III, stage IV and above had about 2.79 times higher risk (OR:2.79, $p=0.021$) of depression among CKD patients. With regard to mode of CKD treatment, those patients on hemodialysis had four times (OR: 4.05, $P=.008$) higher risk of depression compared to patients on medications. Other demographic and socio economic variables did not show statistical significance. But among the total study subjects those attended primary school and who had poor social support had 1.9 times higher risk of depression in CKD. With respect to age category the age group between 25 to 44 years had 1.6 times higher risk of developing depression (*Table 3*).

5.3.2 Multiple logistic regression analysis

The result obtained from multiple logistic regression analysis shows the effect of demographic, socio economic and CKD characteristics variables on depression in CKD. Multiple logistic regression analysis was performed on all statistically significant variables and those who had higher risk of depression on simple logistic regression model. Significant association was observed between mode of CKD treatment and depression in CKD. Those patients on hemodialysis had 4.3 times ($p=.007$) more risk of depression than compared with those patients on medications.

Regarding with education those who attended primary school had three times ($p=0.22$) higher risk of depression in CKD compared with who had college education. Among the study subjects age group between 25-44 years had two times more likely to have depression. Furthermore this study showed patients who had poor social support had two times higher risk of depression in CKD.

However no significant association ($p=0.44$) was found between stages of CKD and depression in CKD (*Table 3*).

Table .3 Determinants of depression among CKD patients at SPHMMC, AA, Ethiopia, 2019

Variables		Depression N (%)		COR(95% CI)	AOR(95% CI)	P-Value
		Yes	No			
Demographic Variables						
Age	18-24 years	3(27.3)	8(72.7)	1.2(0.257-5.612)	1.08(0.45-4.5)	0.923
	25-44 Years	11(22.4)	38(77.6)	1.55(0.5-4.4)	2.09(0.63-6.89)	0.225
	45-64 Years	14(24.5)	43(75.5)	1.38(0.5-3.7)	1.5(0.5-4.57-8.9)	0.45
	≥65 Years	9(31)	20(69)			
Gender	Male	23(29.1)	56(70.9)	.64(0.3-1.3)		
	Female	14(20.9)	53(79.1)			
Residency status	Urban	28(23.7)	90(76.3)			
	Rural	9(32.1)	19(67.9)	1.5(0.6-3.7)		
Marital status	Married	9(30)	21(70)			
	Currently unmarried	28(24.1)	88(75.9)	0.7(0.3-1.8)		
Socio-Economic Variables						
Educational level	Illiterate	5(22.7)	17(77.3)	1.6(0.46-5.6)	1.8(0.5-6.89)	0.344
	Read and write	4(40)	6(60)	0.7(0.16-3.11)	0.78(0.17-3.59)	0.75
	Primary school	9(20)	36(80)	1.9(0.66-5.4)	3.01(0.94-9.6)	0.63
	Secondary school	9(23.7)	29(76.3)	1.5(0.5-4.4)	2.6(0.81-8.69)	0.10
	College and above	10(47.6)	21(52.4)			
Employment status	Employed	11(22.9)	37(77.1)	1.2(0.54-2.7)		
	Un-employed	26(26.5)	72(73.4)			
Monthly Income (ETB)	≤ 1000	16(25.4)	47(74.6)	0.66(0.21-2.05)		
	1001-2000	10(28.6)	25(71.4)	0.56(0.17-1.9)		
	2001-3000	6(28.6)	15(71.4)	0.56(0.14-2.2)		
	>3000	5(18.5)	22(81.5)			
CKD characteristics						
CKD stages	Stage I-III	25(21.2)	93(78.8)			
	Stage IV and above	12(42.9)	16(57.1)	2.79(1.17-6.6)	1.56 (0.5-4.8)	0.44
Number of comorbidities	Less than three	27(23.9)	86(76.1)			
	Three and above	10(30.3)	23(69.7)	1.38(0.58-3.27)		
Mode of CKD treatment	Medications	28(21.7)	101(78.3)			
	Hemodialysis	9(52.9)	8(47.1)	4.05(1.4-11.48)	4.3(1.49-12.4)	0.007
Social support	Good social support	21(21.2)	78(78.8)			
	Poor social support	16(34)	31(66)	1.9(.88-4.1)	2.04(0.92-4.5)	0.79

Chapter six

6. Discussion

In this study, we used the PHQ-9, Amharic and Afaan Oromo versions to screen depression among chronic kidney patients. Multiple logistic regression analysis was used to eliminate potential confounders.

Generally we found the prevalence of depression among CKD patients is 25.3%. Factors contributed for risk of depression were mode of CKD treatment (hemodialysis), higher stage of CKD, poor social support and primary school level of education.

The prevalence of depression on this study is comparable with other studies done in Ethiopia (29.4%) (7) and in other studies it was found to be 20 to 30 % (16).

Among the 25.3% depressed patients, 21(56.8%) had somewhat difficult, 13(35.1%) found to have very difficult, 3(8.1%) had extreme difficulty on daily activities.

The mean age of patients with CKD in this study was 48.07(S.D $\pm$ 16.7) years. Findings from Ethiopian study has comparable results (mean age= 43.26, SD $\pm$ 16.4) (7). In other researches the mean age of the patients was reported to be 64.5 years (SD $\pm$ 12.13) (1). The difference may be due to the small number of sample size in our study.

Age between 25 and 44 years had two times higher risk of depression on multiple logistic regression analysis which is comparable with other studies (7, 19).

This study showed participants who had primary level of education were three times more likely to develop depression than who had college and above education. Findings from Indian study found out education level less than grade 12 had association with depression among CKD patients (19).

In this study we found that amongst the 146 patients selected for the study, 54.1% were male and 45.9% were females. With respect to gender there are contradictory results in different literatures. Some of the study found out being female is a risk for having depression than being male (7), but reports from another study, being male had higher risk of depression in CKD patients (19). Biological factors may play a role high prevalence in females (7). In our study significant association was not observed on gender. Other socioeconomic and demographic factors like residency status, marital status, employment status and average monthly income did not show significant association.

The other variable which showed a significant association with depression among CKD patients was mode of CKD treatment specifically patients on hemodialysis, 4.3 times ($p=.007$) higher risk of depression than compared with those patients on medications. This finding was consistent with most other researches (4, 5, 17, 19, and 20). The reason can be explained by patients on hemodialysis had physical discomfort from procedure, frequent hospitalization and other various stresses may increase the risk (17, 19)

In this study among the total 146 participants, 80.8% of them were having stage I-III CKD and 19.2% were stage IV and above. Among the 37 depressed patients 25(67.6%) had stage I-III CKD and 12(32.4%) had stage IV and above, which is a contradictory result from other studies. However, stage IV and above CKD had 2.79 times higher risk of depression compared with stages I-III CKD. Most the literatures reported that stage IV and above is more associated with depression in CKD (1, 6). This may be related with the small number of sample size and being cross sectional study design in a single hospital.

Out of the 146 selected study subjects, 77.4% of them had less than three medical comorbidities. Reports from other studies found out medical comorbidities three and above had significant association (OR=1.7, 95% CI: 1.1-2.9)) with depression (19). Having comorbid hypertension (AOR=2.49, (95% CI: 1.48, 4.20) and co-morbid diabetes mellitus (AOR=4.07, (95% CI: 2.45, 6.74) had higher risk of depression in CKD patients (7).

With respect to the presence of social support, no significant statistical association was found but patients who had poor social support were twice more likely to have depression, which is comparable with other studies(7).

Limitation of the study

This study has potential limitations. Being a cross sectional study, it is difficult to test the temporal relation and to establish causal relationship between exposure and outcome. This study was institutional based, limited to a single hospital and had small number of sample size which might be biased in CKD and demographic characteristics of the patients. The study does not control common specific comorbidities like hypertension, cardiovascular disorders, diabetes mellitus, neurocognitive impairment, substance use and concomitant medications taken, which can pose a higher burden of depression independently. Therefore, it affects the generalizability of the results to all chronic kidney patients. Despite its limitations the study has significant importance in showing the prevalence of depression in CKD, its impact on daily life and contributes to early detection and management.

Conclusion and recommendation

The prevalence of depression is common among CKD patients on follow up at SPHMMC. Mode of CKD treatment (patients on hemodialysis) is important determinants of depression. Poor social support and primary school level of education are also associated with high prevalence of depression in CKD.

We recommend that adequate attention should be given to the evaluation and early detection of neuropsychiatric (particularly depression) sequels posed on CKD patients. Providing training for health care providers who are working in nephrology OPD will be beneficial to screen and diagnose depression among patients with chronic kidney disease. Further, large scale hospital and community based studies about the prevalence and associated factor and follow up study to see the impact of depression on the outcome of CKD patients are also recommended.

Chapter Seven

7. References

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Annexes

Annex one: Questionnaire

Consent Form

This is a mental health research and we are collecting data for a research purpose. This form explains why we do this study, the role of the study, the benefits and risks of involving patients in this study, compensations and confidentiality of the information obtained.

A. Purpose- The purpose of this study is to assess the prevalence of depression and associated factors among chronic kidney patients at SPHMMC in Ethiopia.

B. Procedures to be carried on- data collector will administer the questionnaires. There will not be any invasive procedures.

C. Risks associated with the study- Minimal

D. Time:- it needs minutes to feel this questionnaire

E. Benefits of the study- We hope that the study will contribute to the improvement of mental health service in our setup at least in our institutions.

F. Compensations to the patients- None

G. Confidentiality of your information- The information that is obtained during this study will be confidential. Once the data is entered into a computer, it will be coded and becomes unidentifiable/anonymous. Personal information that could lead to identification of the will never be disclosed both in oral or written form.

H. To keep participants privacy separate room for interview will be arranged.

Participant consent form

My name is _____. After having information about the purpose of this study I would like to ask your consent to participate in this study entitled “prevalence and associated factors of depression among chronic kidney patients in nephrology outpatient clinic at SPHMMC in Ethiopia.”

Participating in this study will only depend on your decision to do so and you have all the rights to withhold information, refuse or drop out of the study any time you want to do so without any need to explain to anyone. Withdrawing from the study will have no effect on you. All the information you give during the study will be kept confidential.

You have all the right to ask and get clarification at any time. In case you have doubts or questions, you can use the above address to access the principal investigator.

I finally would like to confirm your agreement orally if you agree to participate in this study.

Contact details are;

The principal investigator: - Dr. Gizachew Asnake, psychiatry resident

SPHMMC, Department of Psychiatry.

Email: gizaasn@gmail.com

<u>I Identification</u>		Participant code: _____	
<u>II Socio-demographic</u>			
	Question	Response	Skip to/remarks
1	Age	-----yrs	
2	Sex	1.Male 2.Female	
3	Marital status	1. Single 2. Married 3. Divorced 4. Widowed	
4	Current Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others(specify) _____	
5	Address	1.Urban 2. Rural	
6	Level of education	1. Illiterate 2. Read and write 3. Primary school 4. Secondary school 5. Collage and above	
7	Employment status	1. Employed 2. Unemployed	
8	Average monthly income (ETB)	1.≤1000 2.1001-2000 3.2001-3000 4.>3000	

III CKD characteristics

I. Stages of CKD	1. Stage I to III 2. Stage IV and above	
II.Comorbidities	1.less than three 2.three and above	
III.Mode of treatment for CKD	1.conservative management 2.on dialysis	
IV. social support	1.Good social support 2. Poor social support	

Assessment of level of depression

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

For interpretation of total, add columns _____ + _____ + _____ = Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all ... Somewhat difficult ... Very difficult ... Extremely difficult

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1.የኩላሊት ህመም ደረጃ	3. ደረጃ 1-3 4. ደረጃ 4	
2. ተጨማሪ የውስጥ ደዋሪ ህመም	1. ከሶስት በታች 2. ሶስትና በላይ	
3.የሀክምና አይነት	1.መድሃኒት 2.ዲያሊሲስ	
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Guyya____/____/____

I Koodii addaa: _____			
	Gaffii	Deebii	Yaada
1	Umurii	Bara-----	
2	Saalaa	1. Dhiiraa 2. Dhalaa	
3	Haala fudhaafi herrumaa	5. Kan hin fuune 6. kan fuudhe 7. kan hiike 8. kan jalaa du'e	
4	Teessoo	1. Magaalaa 2. Badiiyaa	
5	Sadarkaa barnoota	6. Kan hin baranne 7. Dubbisuu fi barresuu 8. sadarkaa tokkoffaa 9. Sadarkaa lamaffaa 10. kollejjii fi isaa ol 11. Kan biraa	
6	Haala hojii	3. Mindefamaa 4. kan hin qacaramne	
7	Galii giddugallessa ji'aan (qarshiidhaan)	1. ≤ 1000 2. 1001-2000 3. 2001-3000 4. > 3000	

Gaaffiilee Fayyaa Dhukubsataa (GFD)-9 fi yaalii
[Patient Health Questionnaire (PHQ)-9 and treatment]

guyyaa baayyeef (2-6days) guyyoota walakkaadhaa oliif (7-11days) guyyoota hundaa hanga jechuun danda'amuutti (12-14days)				
Torban lamaan darban keessa, ammam rakkinoota armaan gaditti tarreeffamaniin dhiphatte?				*11 th item
1.	Torban lamaan darban keessa, Wantoota hojjechuuf fedhii yookiin kaka'umsa atti qabdu gadi aanaa ta'uun ammam si mudatee turtee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 1 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasumaa/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
2	Torban lamaan darban keessa, gadi aantummaa, gammachuu dhabuu, yookiin abdii dhabuun ammam si mudatee turtee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 2 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasumaa/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
3	Torban lamaan darban keessa, rakkoo hiribni si qabuu diiduu/giddu gidduudhaan daddamaquu yookiin hiribni sitti baayyachuun ammam si	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	

	mudatee turee?	guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 3 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasuma/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
4	Torban lamaan darbe keessa, miirri dadhabbi yookiin humna dhabuun ammam si mudatee turee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 4 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasuma/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
5	Torban lamaan darbe keessa, fedhii nyaataa dhabuu yookiin garmalee nyaachuun ammam si mudatee turee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 5 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasuma/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
6	Torban lamaan darban keessa, waa'ee keetiif miirri hin taane sitti dhaga'amuun- yookiin akka waan kufteetti yookiinimmoo ofiikee yookiin maatii kee akka wanta gadi aansiteetti yaaddee ammam dhiphachaa turtee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 6 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu	Tasuma/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen	1	

	gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	ture		
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
7	Torban lamaan darbe keessa, rakkoo wantootaa xiyyeeffachuu/duukaa bu'uu/ dadhabuu, kan akka haasaa/dubbii namootaa sirriitti qalbiidhaan dhaggeeffachuu ammam si mudatee turee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		Guyyoota walakkaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 7 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasumaa/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
8	Torban lamaan darban keessa, hanga namoonni biroon sirratti hubatanutti garmalee suuta jettee deemuun yookiin dubachuun yookiin immoo faallaa isaa- haala isa kanan duraa irraa adda ta'een boqonnaa malee garmalee asii fi achi deddemuun ammam si mudatee turee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		Guyyoota walakkaadhaa oliif	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 8 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasumaa/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een rakkadhee ture	3	
9	Torban lamaan darban keessa, du'uutu naaf wayya yookiin karadhuma ta'een ofii kee irraan miidhaa ga'uuf ammam yaaddee turtee?	Tasumaa/gonkuma	0	
		guyyaa baayyeef	1	
		guyyoota walakkaadhaa oliiff	2	
		guyyoota hundaa hanga jechuun danda'amuutti	3	
	Rakkoon gaafii lakkofsa 9 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa	Tasumaa/gonkuma hin rakkanne	0	
		hanga ta'e rakkadheen ture	1	
		baay'ee rakkadheen ture	2	
		baay'ee baay'een	3	

	kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	rakkadhee ture		
	Waliigala gaaffii GFH1-GFD9	☐ _____		GFD Waligalaa
10	Torban lamaan kanaan alatti, ji'oota 12'n darban kana keessatti, yeroo mudannoon torbee lamaa fi sana oli ta'e kan gammachuu dhabuu yookiin wantoota baayyeef fedhii dhabuu fi rakkoollee asiin olitti dubbanne baayyeen isaanii si mudatanii turanii?	Lakki Eeyyee	0 1	
	Rakkoon gaaffii lakkofsa 10 irratti eerame yoo ishee mudateera ta'e, gaaffii itti aanu gaafadhu. Rakkoo kana irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galtee jiraachuun ammam rakkisaa sitti ta'ee ture?	Tasuma/gonkuma hin rakkanne hanga ta'e rakkadheen ture baay'ee rakkadheen ture baay'ee baay'een rakkadhee ture	0 1 2 3	
*11	Rakkoolee asiin olitti tuqaman keessaa tokkollee ta'u eyyee deebiin jedhu yoo kenname isa itti aanu gaafadhu. Rakkoowwan kanneen irraa kan ka'e hojii kee hojjechuun, itti gaafatamummaa manaa kee bahuun yookiin namoota wajiin walii galteen jiraachuun ammam rakkisaa sitti ta'ee ture?	tasuma hin rakkanne hanga ta'e rakkadheen ture baay'ee rakkadheen ture baay'ee baay'een rakkadhee ture	0 1 2 3	

