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Prevalence and Factors Associated with Depressive Symptoms among Patient with Chronic Kidney Disease (CKD) in Black Lion Specialized Hospital and Saint Paulo's Hospital Millennium Medical College, Addis Ababa, Ethiopia: Cross Sectional Study

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Abstract

Background: Depression is the second most debilitating and economically costly illness worldwide. It is the most common psychiatric illness in patients with chronic kidney. Untreated depression in this patient affects treatment and lead to poor prognosis of Chronic Kidney Disease. Cross sectional study was conducted to assess magnitude and factors associated depression among patients with chronic Kidney disease in Black Lion Specialized Hospital and St. Paulo's Hospital Millennium Medical College, Addis Ababa, Ethiopia.

Methods: Institution based cross-sectional study was conducted on May – June, 2015. A total of 479 patients who had follow up at renal unit in both institutions were recruited to assess depression and its associated correlates. Depression was assessed through face to face interviews by trained psychiatry nurses using the nine item patient health questionnaires (PHQ9). Correlates for depression were assessed using a structured questionnaire and Oslo social support scale.

Results: The magnitude of depression among patients with chronic renal disease was 29.4% (95% CI: 25.1, 33.8). When we adjusted for the effect of potential confounding variables, being female [AOR=2.79, 95% CI: 1.78, 4.37)], age ≥ 60 years [AOR=4.17, (95% CI: 2.03, 8.57)], being unmarried [AOR=1.79, (95% CI: 1.12, 2.85)], having no formal education [AOR=2.75, (95% CI: 1.54, 4.89)], Living alone [AOR=1.85, (95% CI: 1.16, 2.94)], co-morbid hypertension [AOR=2.49, (95% CI: 1.48, 4.20)], co-morbid diabetes mellitus (AOR=4.07, (95% CI: 2.45, 6.74)] and poor social support (AOR=1.81, (95% CI: 1.02, 3.19)] were more likely to have depression as compared to their counter parts.

Conclusion: Magnitude of depression among CKD patients was high. Being female, age ≥ 60 years, co-morbid chronic illness (hypertension, diabetics), living alone and poor social support were significantly associated with depression. Developing guidelines and training of health workers who are working in renal unit is beneficial to screen and treat depression among patients with chronic renal diseases.

Keywords: Prevalence; Depression; Chronic renal disease; Ethiopia

Background

Depression is a common mental disorder characterized by sadness, loose of interest, inactivity, decreased energy and it is diagnosed when a change from baseline occurs and lasting at least two weeks, during which the patient experiences-either depressed mood or loss of interest in usual activities or the inability to experience pleasure [1].

Depression is more treatment resistant when it coexists with other medical or psychiatric illness compared to patients without other underline disorder and which result in increasing mortality in chronic kidney disease patients [2]. Depression is well established as a prevalent 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 [3].

One study shows that a depressive symptom in patients with chronic kidney disease is from 0 to 10% [4-6]. 14.3% of those with chronic physical disorder have at least one mental disorder and the magnitude rate of depression in CKD patient is high [4]. CKD patients adversely affect patients' mental status of which depression is recognized as a substantial co morbidity [5]. Psychological factors like perception of loss have been regarded as a strong predictor of depression among CKD patients [6].

Socio demographic factors like gender and age have an association with depression [7,8]. Depression among CKD patients increased with increasing age and lower educational level [9,10].

In some studies depressive symptoms were more common among women and increased with unemployment and loss among patients with higher co morbidity of physical illness [11]. Moreover social support is also a factor for depression in which lack of social support might exacerbate patients' negative feelings and further contribute to depression [4].

Major depression episode (MDE) is associated with progression

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to maintenance dialysis, hospitalization, or death in CKD patients, independent of comorbidities and chronic kidney disease severity [12]. Depressive symptoms are correlated with poor health outcomes in adults with chronic kidney disease (CKD) and the prevalence, severity, and treatment of depressive symptoms and potential risk factors of populations with CKD have not been well studied [13]. This high rate of depression and the established complications of depression, there is little research on clinical interventions in this problem in patients with chronic kidney.

However, it is evident that active case finding and management of depression can help in alleviating kidney disease patients suffering and improve quality of health service as well as reducing chronic complication. Therefore, this study was planned to determine the magnitude and factors associated with depression among patients with chronic kidney diseases at Black Lion Specialized Hospital, Addis Ababa, Ethiopia.

Methods

Study setting and population

The study was institution based cross sectional design, conducted from April to May, 2015 in Black Lion Specialized Hospital, Addis Ababa, Ethiopia. All adult patients (age ≥ 18) who had diagnoses of chronic kidney disease and those who were given their written consent to participate in the study were included in the sample. Critically ill patients were excluded from the study. Among 1002 chronic kidney diseases patients who had follow up at both hospitals, 479 patients were recruited for the study. Study participants were included using systematic random sampling technique.

Data collection

Data were collected by clinical nurses using pretested interviewer administered questionnaire. The data collection instrument had four different components. The first part includes socio-demographic characteristics (age, education, occupation, marital status and others). Social support characteristics were collected by Oslo 3-item social support scale. Oslo 3-item social support scale is 3-item questionnaire commonly used to assess social support. It has the sum score scale ranging from 3-14 with three broad categories: "poor support" 3-8, "moderate support" 9-11 and "strong support" 12-14 [14]. It was reliable in the study (Cronbach's α = 0.87). An outcome variable (presence of depression) was collected by Patient Health Questionnaire (PHQ-9). PHQ-9 is a 9-item questionnaire, commonly used to screen for symptoms of depression in primary health care and in outpatients and validated in Ethiopia with sensitivity=86% and specificity=67% [15].

Data processing and analyses

Data were analyzed using SPSS version 20. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Potential confounders (important) variables were entered into binary logistic regression model to identify the effect of each independent variable with the outcome variables. A p-value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine association.

Ethical consideration

Ethical clearance was obtained from the Research and Ethics Review Committee of the Institute of Public Health (University of Gondar) and Amanuel Mental Specialized Hospital. Official letter was submitted to Black Lion Specialized Hospital and Saint Paul's Hospital

Millennium Medical College. Written informed consent was obtained from each study participant and they were informed about their rights to interrupt the interview at any time. Confidentiality was maintained at all levels of the study. Chronic Kidney patients who were found to have moderate to severe depression were referred to psychiatry clinics for further investigations.

Results

Socio-economic and demographic characteristics

A total of 479 participants were recruited for the study which makes the response rate 100%. The mean ((± SD) age of the respondents was 43.26 (± 16.4) years. Among the respondents, 296 (61.8%) were female, 329 (68.7%) were single (unmarried), 257 (53.7%) were attended not attended any education (illiterate) and 308 (64.3%) were Orthodox religion followers (Table 1).

Clinical and psychosocial related factors of the respondents

One hundred forty seven (30.7%) patients had co-morbid hypertension, 179 (37.4%) had diabetes mellitus, 351 (73.3%) had less than 5 years duration of illness and 203 (42.4%) had poor social

Variables		Frequency	Percent (%)
Age	18-28 years	121	25.3
	29-38 years	115	24
	39-48 years	100	20.8
	49-59 years	88	18.4
	>60 years	55	11.5
Sex	Male	183	38.2
	Female	296	61.8
Marital status	Married	120	25.1
	Unmarried	329	68.7
	Divorced	14	2.9
	Widowed	16	3.3
Education status	No formal education	257	53.7
	Primary education	77	16.1
	Secondary education	82	17.1
	Higher education	63	13.2
Religion	Protestant	72	15
	Orthodox	308	64.3
	Muslim	82	17.1
	Catholic	17	3.6
Ethnicity	Amhara	174	36.3
	Oromo	138	28.8
	Tigire	75	15.7
	Gurage	58	12.1
	Others	34	7.1
Occupation status	Government employee	170	35.5
	Merchant	46	9.6
	Farmer	27	5.6
	Student	48	10
	Day Labor	31	6.5
	Housewives	53	11.1
	Others	104	21.7
Monthly income	< 2000 ETB	328	68.5
	2001-5000ETB	119	24.8
	>5000 ETB	32	6.7

Table 1: Distribution of CKD patients at Black Lion Specialized Hospital & Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, 2016.

support (Table 2).

Magnitude of depression among patients with chronic kidney diseases

The magnitude of depression among chronic kidney disease patients was 29.4% with 95% CI (25.1, 33.8) (Figure 1).

Factors associated with depression and anxiety among patients with TB

Binary logistic regression analysis revealed that being female, age (≥ 60) years, being unmarried (single), living alone, having co-morbid hypertension, having co-morbid diabetes mellitus and had poor social support were statistically significant with depression (Table 3).

Discussion

This study revealed that the magnitude of depression was 29.4%. The finding was similar with other studies carried out in US [16] and Chicago [17]. On the other hand, the current study finding was higher than the study done in Nigeria 23.7% [18,19] and Tasmania 10% [20] and lower than the study was done in Brazil 34.1% [21] and USA 54%

[5]. The variation might be due to the difference in study design, data collection tool, sample size and difference in study participants.

Being female was significantly associated with depression. The finding is similar with the study conducted in USA [16]. Findings from different studies showed that depression is common in females. Biological factors might play role for the differences.

Hypertension co-morbid with chronic kidney diseases was significantly associated depression. This might be due to antihypertensive drugs believed to cause depression. Chronic kidney disease patients who had co-morbid DM were more likely to develop depression when compared to non-diabetics. This might be due to long duration of the illness, drugs they use and the disease (DM) by itself can cause depression.

Concerning living status, patients who live alone were more likely to develop depression. Being alone and lonely, and even just the fear of being alone, make many people insecure, and depressed. If somebody fear being alone they might become over needy of other people and feel as if they must be around people at all times.

With respect to age, patients with age (≥ 60) were more likely to develop depression. As any one grows older, they face significant life changes that might cause depression. Regarding educational status, having no formal education had statistically significant association with depression. This result was similar with study done in Pennsylvania [11].

Furthermore, the study showed that poor social support was significantly associated with depression. Lack of (poor) social support and somatic illness may lead to increased psychological distress. In addition, it might exacerbate patients' negative feelings and further contribute for the development of depression.

Conclusion

The magnitude of depression among patients with chronic kidney diseases was high (29.4%). Depression had statistically significant association with; co-morbid hypertension, co-morbid DM, being female, age ≥ 60 years, living alone, having no formal education and poor social support. It will be better if chronic care clinics (urology) develop guidelines to screen and treat depression chronic kidney diseases patients. Further research on risk factors of depression might be conducted to strengthen and broaden the current findings.

Variables		Frequency	Percent (%)
Living status	With family	382	79.7
	Alone	97	20.3
Family history mental illness	No	317	66.2
	Yes	162	33.8
Duration of illness	< 5 years	351	73.3
	≥ 5years	128	26.7
Co-morbid chronic illness	Hypertension	147	30.7
	Diabetes mellitus	179	37.4
	Cardiac Diseases	28	5.8
	Other chronic illness	31	6.5
	No co-morbid illness	94	19.6
Social support	Poor	203	42.4
	Moderate	202	42.2
	Good	74	15.4

Table 2: Description of clinical and psychosocial factors among patients with CKD at Black Lion Specialized Hospital and Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, 2016.

Limitation of the Study

Our study design did not allow establishing a temporal relationship between depression and significant associated factors like substance co-morbid chronic illness. Secondly, no detailed validation study was done Oslo 3-item social support scale. Substance use related factor was not assessed.

Competing interests

The authors declare that they have no competing interests.

Authors' Contributions

BA conceived the study and was involved in the study design, reviewed the article, analysis & report writing. GM and GA were involved in the study
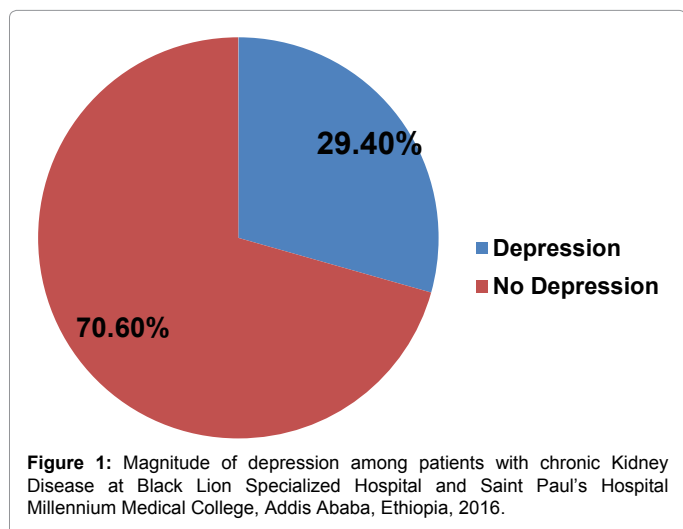
Figure 1: Magnitude of depression among patients with chronic Kidney Disease at Black Lion Specialized Hospital and Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, 2016.

Variables (n=479)		Depression		COR, 95 %(CI)	AOR,95% (CI)
		Yes	No		
Age	18-28	27	95	1	1
	29-38	33	82	0.19,(0.09,0.38)	5.8,(2.65,10.50)*
	39-48	25	75	0.27,(0.14,0.53)	3.73,(1.90,7.31)*
	49-59	23	64	0.22,(0.11,0.45)	4.50,(2.23,9.10)*
	> 60	33	22	0.24,(0.12,0.49)	4.17,(2.03,8.57)***
Sex	Male	32	151	1	1
	Female	110	186	0.36,(0.23,0.56)	2.79,(1.78,4.37)***
Marital Status	Single	80	249	0.56,(0.35,0.89)	1.76,(1.12,2.85)**
	Divorced	5	11	0.79,(0.26,2.45)	1.26,(0.41,3.89)
	Widowed	10	4	4.36,(1.28,14.83)	0.23(0.16,0.78)
	Married	47	73	1	1
Educational Statues	No formal education	58	199	0.36,(0.21,0.65)	2.75,(1.54,4.89)***
	Primary education	19	58	0.41,(0.20,0.84)	2.44,(1.19,5.01)*
	Secondary education	37	45	1.03,(0.53,1.99)	0.97(0.50,1.88)
	Higher education	28	35	1	1
Living status	With family	103	280	1	1
	Alone	38	58	0.54,(0.34,0.86)	1.85,(1.16,2.94)*
Social support	Poor	51	152	0.55,(0.31,0.97)	1.81,(1.03,3.20)***
	Moderate	63	139	0.75,(0.43,1.30)	1.34,(0.77,2.34)
	Good	28	46	1	1
Co morbid factors	Hypertension	30	84	0.40,(0.24,0.68)	2.49,(1.48,4.20)***
	Diabetics mellitus	30	137	0.25,(0.15,0.41)	4.07,(2.45,6.74)*
	Cardiac diseases	4	19	0.24,(0.08,0.73)	4.23,(1.38,13.01)*
	Other chronic illness	4	16	0.28,(0.09,0.88)	3.56,(1.14,11.14)***
	No chronic illness	73	82	1	1

NB: ***: p-value < 0.001; **: p-value < 0.01; *: p-value < 0.05; other chronic illness: Asthma and other respiratory diseases.

Table 3: Factors associated with depression among patients with chronic kidney diseases at Black Lion Specialized Hospital and Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, 2016.

design, analysis & report writing. BD was involved in the analysis and drafted the manuscript. All authors read and approved the final manuscript.

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