

# A cross-sectional study on assessing depression among hemodialysis patients

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## ABSTRACT

Depression is the most common disorder of psychiatric illness experienced by hemodialysis patients. Failure to measure depression may diminish their well-being. The main objective of this study is to assess depression in hemodialysis patients. The primary goal is to find out the prevalence of depression among chronic kidney disease (CKD) patients. The secondary goal is to find the association between age, sex, and the severity of depression among patients with CKD. This cross-sectional study was performed at the Nephrology Department of King Fahad Hospital, Tabuk, from December 2021 to April 2022. Depression was assessed using a validated Arabic version of the Zung Self-Rating Depression Scale, which is a self-administered questionnaire to assess depression. The mean age of subjects was 42.13 years (standard deviation = 15.65), most of them were in the age group of 18–29 and 40–49 years ( $n = 59$ , 24.58%), and the majority were male ( $n = 128$ , 53.33%). The depression prevalence among hemodialysis patients was 74.58%. Majority of the patients were with mild depression ( $n = 175$ , 72.92%). No significant difference was found for depression among different age groups or genders with ongoing hemodialysis, in our study. Even though the prevalence of depression was high, mostly they were in the mild category. Depression should be assessed frequently, and psychological counseling should be given to improve the well-being of patients.

**Key words:** Depression, end-stage renal disease, hemodialysis

## INTRODUCTION

Depression is the most common disorder of psychiatric illness experienced by hemodialysis patients.<sup>[1]</sup> It is an established mental health issue in end-stage renal disease (ESRD) patients leading to more disease states and death.<sup>[2]</sup> Various factors are involved in triggering depression in hemodialysis

patients. These include their comorbidities, chronic pain, and disturbances in sleep.<sup>[3]</sup> Depression even depends upon the treatment and the health-care professionals. Patients' psychological needs should be addressed to improve their well-being.<sup>[4]</sup> Failure to measure depression may diminish the well-being of the patients.<sup>[5]</sup>

Even though depression is a major disorder next to hypertension, it is left untreated in hemodialysis patients.<sup>[6]</sup> Dialysis patients have more depression, ranging from 23% to 39%.<sup>[7]</sup> Depression is a significant illness that heavily affects psychosocial functioning and dramatically reduces the well-being of a person. Depression is widespread in chronic kidney disease (CKD) patients. Mild depression is

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found commonly in CKD patients, and the culture of the patient is strongly linked to depression.<sup>[8]</sup>

Patients with CKD have been suffering from psychological disease since the beginning of their illness. Many patients learn how to manage this over time, but severe depression affects at least one of every four people with CKD at any stage. Furthermore, a large percentage of patients show subclinical depression symptoms, leading to decrease in patient's quality of life.<sup>[9]</sup>

A recent study has shown that there is a link between symptoms of depression and mortality and morbidity in dialysis patients.<sup>[10]</sup> ESRD patients have a significant rate of depression, which has been well documented.<sup>[11]</sup>

Depression is a multifaceted etiology involving social, psychological, and biological causes in both healthy and chronically ill populations. The prevalence of depression being higher among chronic disease population is due to considerable and long-term changes in their psychology, environment, and pathology. Depression in dialysis patients is characterized by hopelessness and despair.<sup>[12]</sup> The routine of dialysis treatment, as well as variable degrees of health, may have an impact on feelings of despondency, which can lead to depressive episodes. Patients with ESRD suffer from both mental and physical losses. Treatment dependence, compounded by a slew of losses, can lead to delusions of grandeur.<sup>[11]</sup>

The main objective of this study is to assess depression in patients undergoing hemodialysis. The primary goal is to find out the prevalence of depression among CKD patients. The secondary goal is to find the association between age, sex, and the severity of depression among CKD patients.

## MATERIALS AND METHODS

### Study design and population

This cross-sectional study was performed at the Nephrology Department of King Fahad Hospital, Tabuk, from December 2021 to April 2022.

### Inclusion criteria

Hemodialysis patients visiting the Nephrology Department of age  $\geq 18$  years of both sexes were included in the study.

### Exclusion criteria

CKD patients treated by modalities other than hemodialysis and those who were diagnosed with psychiatric illness were excluded from the study.

### Ethical concern

Ethical approval was obtained from the Tabuk Institutional Review Board (UT-077/022/116). The consent to participate was obtained from all the participants.

## Data collection

The demographic details such as age, sex, education level, and marital status were collected from the patients. Further, the comorbidities, duration of hemodialysis, and the hemodialysis sessions per week were collected. Depression was assessed using a validated Arabic version of the Zung Self-Rating Depression Scale.<sup>[13]</sup> It is a self-administered questionnaire to assess depression with 20 questions. Each question was scored on a scale of 1–4. Questions 1, 3, 4, 7, 8, 9, 10, 13, 15, and 19 have a score of 1 for rarely and 4 for always. Questions 2, 5, 6, 11, 12, 14, 16, 17, 18, and 20 have a score of 4 for rarely and 1 for always. The score ranges from 20 to 80. A score of 25–49 or below is normal, 50–59 is mild depression, 60–69 is moderate depression, and 70 and higher is severe depression.

## Statistical analysis

SPSS version Armonk, NY, USA: IBM Corp. Database version 21 was used. Pearson's correlation was performed to find out the correlation between age and depression. Fisher's exact test was performed to assess the association between gender and depression.  $P < 0.05$  was considered statistically significant.

## RESULTS

Depression was assessed in 240 hemodialysis patients. All patients who undergo dialysis were of Stage 5 kidney disease, or ESRD, in our study. The mean age of subjects was 42.13 years (standard deviation = 15.65), most of them were in the age group of 18–29 and 40–49 years ( $n = 59$ ; 24.58%), and the majority were male ( $n = 128$ ; 53.33%) [Table 1].

The comorbidities of the patients are depicted in Figure 1. Diabetes and hypertension were the common comorbidities seen in majority of the patients (40%), followed by hypertension alone (11.67%).

Depression was differentiated into normal, mild, moderate, and severe according to the Zung Self-rating Depression Scale. In our study, the prevalence of depression in

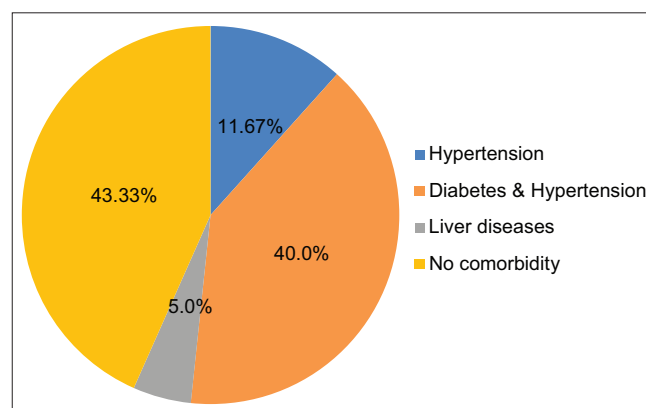


Figure 1: Comorbidities of patients

hemodialysis patients was 74.58%. Majority of the patients were with mild depression ( $n = 175$ , 72.92%) [Figure 2].

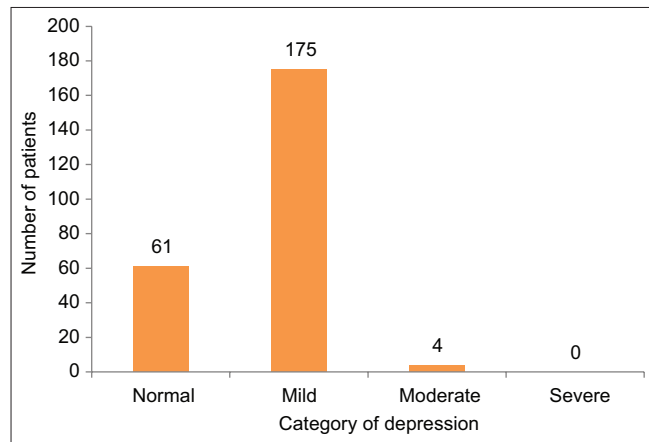
The category of depression based on the age group and gender is shown in Table 2. Mild depression was more in patients with age group of 18–29 years ( $n = 50$ , 20.83%). Moderate depression was observed in patients of age group 30–39 years only. Males had more of mild depression ( $n = 96$ , 40%) compared to females ( $n = 79$ , 32.92%). Moderate depression was observed in females only.

Pearson’s correlation was performed to find the association between age and depression. There was no correlation between age and depression ( $r = -0.084$ ). Fisher’s exact test was performed to assess the association between gender and depression. There was no association between gender and depression ( $P = 0.1038$ ).

## DISCUSSION

Depression is the most commonly prevalent psychiatric illness in CKD patients.<sup>[11]</sup> Depression affects the patient’s well-being, affecting their role in family and work.<sup>[14,15]</sup> In our study, the depression prevalence among hemodialysis patients was 74.58%, regardless of its severity. The result of this study was not on par with other studies, which reported that the depression prevalence among patients undergoing dialysis is in the range of 19%–60%.<sup>[16,17]</sup> To be more specific among hemodialysis patients, the level of depression was 38.2%.<sup>[4]</sup> The depression prevalence was found to be between 40% and 55% in another study,<sup>[18]</sup> which almost is half to the results of our study. Others have reported high depression prevalence in CKD.<sup>[2,19-21]</sup> Different assessment tools used for assessing depression and the characteristics of population may have attributed to this variation.

The depression levels among hemodialysis patients are near to depression in patients with cancer. Even though CKD is not a fatal disease, it may affect the well-being of a patient



**Figure 2:** Category of depression in CKD patients. CKD: chronic kidney disease

to a great extent.<sup>[22]</sup> ESRD patients have more depression than other diseases.<sup>[23]</sup> Depression among ESRD patients was found to be much more higher than other disease conditions.<sup>[24]</sup>

In 2017, a Saudi Arabian study reported that majority of the patients with kidney diseases showed different levels of depression.<sup>[25]</sup> In our study, we only found patients with mild (72.92%) and moderate (1.66%) depression levels.

In this study, more depressed patients were among the younger age groups of 18–29 years (20.83%), and there

**Table 1: Sociodemographic characteristics of the patients**

Patient characteristics	n (%)
Age	
18-29	59 (24.58)
30-39	54 (22.5)
40-49	59 (24.58)
50-59	32 (13.33)
60-69	21 (8.75)
70	15 (6.25)
Sex	
Male	128 (53.33)
Female	112 (46.67)
Education	
None	48 (20)
Grade 1-6	60 (25)
Grade 7-9	20 (8.33)
Completed high school	60 (25)
College	52 (21.67)
Marital status	
Married	163 (67.92)
Unmarried	77 (32.08)
Hemodialysis duration (years)	
<5	98 (41)
5-10	86 (35)
>10	56 (24)

**Table 2: Category of depression based on age and gender**

Patient characteristics	Depression			
	Normal, n (%)	Mild, n (%)	Moderate, n (%)	Severe, n (%)
Age				
18-29	9 (3.75)	50 (20.83)	0	0
30-39	11 (4.58)	39 (16.25)	4 (1.67)	0
40-49	20 (8.33)	39 (16.25)	0	0
50-59	16 (6.67)	16 (6.67)	0	0
60-69	5 (2.08)	16 (6.67)	0	0
70	0	15 (6.25)	0	0
Sex				
Male	32 (13.33)	96 (40)	0	0
Female	29 (12.08)	79 (32.92)	4 (3.57)	0

was a difference in the severity of depression among males and females. Males were more depressed than females. Moderate depression was found only in females and not in males. This is in accordance with other studies.<sup>[26-28]</sup> Other studies showed inconsistent results with our study, in which females were more depressed than males.<sup>[29]</sup> No association between depression and CKD stages was found in other studies.<sup>[30,31]</sup> A study reported an association between psychological aspects and the progression of CKD.<sup>[32]</sup> Studies have supported that Stage 4 or 5 CKD patients were more depressed than those with other stages of disease.<sup>[33,34]</sup> In our study, all the patients were of CKD Stage 5 or ESRD.

No significant difference was found for depression among different age groups or genders with ongoing hemodialysis, in our study. Other studies also reported that there was no association between age and sex of patients with depression among patients with CKD.<sup>[35,36]</sup>

The economic costs play a great part causing depression in patients undergoing dialysis.<sup>[37]</sup> In Saudi Arabia, dialysis is provided free of cost in governmental hospitals. Hence, we could not perform a pharmacoeconomic analysis. The mild depression observed in almost all the patients may be due to their religious beliefs and the cost covered by the government.

### Strengths and limitations

This study has explored the prevalence of depression in Tabuk, which was never assessed before.

The major limitation of this study is a single-center study with convenience sampling. It may not generalize the results. The assessment of depression was solely based on self-report, and no clinical diagnosis was performed.

### CONCLUSION

Depression is a common problem for dialysis patients, affecting them on both psychological and physical levels. Even though the prevalence of depression was high, mostly they were in the mild category. Patients' religious beliefs may be attributed to this mild depression. Depression should be assessed frequently, and psychological counseling should be given to improve the patient's well-being.

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### Conflicts of interest

There are no conflicts of interest.

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