A cross-sectional study on assessing depression among hemodialysis patients

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. It is an established mental health issue in end-stage renal disease (ESRD) patients leading to more disease states and death. Various factors are involved in triggering depression in hemodialysis patients. These include their comorbidities, chronic pain, and disturbances in sleep. Depression even depends upon the treatment and the health-care professionals. Patients’ psychological needs should be addressed to improve their well-being. Failure to measure depression may diminish the well-being of the patients.

Even though depression is a major disorder next to hypertension, it is left untreated in hemodialysis patients. Dialysis patients have more depression, ranging from 23% to 39%. 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

Address for correspondence:
Dr. Kousalya Prabahar,
Department of Pharmacy Practice, Faculty of Pharmacy,
University of Tabuk, Tabuk, Saudi Arabia.
E-mail: kgopal@ut.edu.sa

Access this article online

Quick Response Code:
Website: www.japtr.org
DOI: 10.4103/japtr.japtr_322_22

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprint contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Albuhayri AH, Alshaman AR, Alanazi MN, Aljuaid RM, Albalawi RI, Albalawi SS, et al. A cross-sectional study on assessing depression among hemodialysis patients. J Adv Pharm Technol Res 2022;13:266-70.
found commonly in CKD patients, and the culture of the patient is strongly linked to depression.[8]

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.[9]

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

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.[12] 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.[11]

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 ≥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.[13] 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 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](image-url)
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.\[11\] Depression affects the patient’s well-being, affecting their role in family and work.\[24,25\] 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%.\[16,17\] To be more specific among hemodialysis patients, the level of depression was 38.2%.\[4\] The depression prevalence was found to be between 40% and 55% in another study,\[18\] which almost is half to the results of our study. Others have reported high depression prevalence in CKD.\[2,19-21\] 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 to a great extent.\[22\] ESRD patients have more depression than other diseases.\[23\] Depression among ESRD patients was found to be much more higher than other disease conditions.\[24\]

In 2017, a Saudi Arabian study reported that majority of the patients with kidney diseases showed different levels of depression.\[25\] 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 | 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 |

**Figure 2:** Category of depression in CKD patients. CKD: chronic kidney disease
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. Other studies showed inconsistent results with our study, in which females were more depressed than males. No association between depression and CKD stages was found in other studies. A study reported an association between depressive symptoms at kidney transplant evaluation and access to the kidney transplant waitlist. Kidney Int Rep 2022;7:1306-17.

2. Gadia P, Awasthi A, Jain S, Koolwal GD. Depression and anxiety in patients of chronic kidney disease undergoing haemodialysis: A study from western Rajasthan. J Family Med Prim Care 2020;9:4282-6.

3. Kargar Jahromi M, Javadpour S, Taheri L, Poorgholami E. Effect of nurse-led telephone follow ups (Tele-nursing) on depression, anxiety and stress in hemodialysis patients. Glob J Health Sci 2015;8:168-73.

4. Vasilopoulos C, Bourtse E, Giape S, Koutelkos I, Theofilou P, Polikandrioti M. The impact of anxiety and depression on the quality of life of hemodialysis patients. Glob J Health Sci 2015;8:45-55.

5. Firoz MN, Shaifpour V, Jafari H, Hosseini SH, Charati JY. Sleep quality and depression and their association with other factors in hemodialysis patients. Glob J Health Sci 2016;8:53485.

6. Kimmel PL, Peterson RA. Depression in patients with end-stage renal disease treated with dialysis: Has the time to treat arrived? Clin J Am Soc Nephrol 2006;1:349-52.

7. King-Wing Ma T, Kam-Tao Li P. Depression in dialysis patients. Nephrology (Carlton) 2016;21:639-46.

8. Roy B, Akter MK, Anowar MN, Rehana J. Depression among chronic kidney disease patients at a tertiary level hospital in Bangladesh. J Psychiatry Psychiatr Disord 2021;5:31-40.

9. Zalai D, Szefert L, Novak M. Psychological distress and depression in patients with chronic kidney disease. Semin Dial 2012;25:428-38.

10. Al-Ali F, Elshirbeny M, Hamad A, Kaddourah A, Ghonimi T, Ibrahim R, et al. Prevalence of depression and sleep disorders in patients on dialysis: A cross-sectional study in Qatar. Int J Nephrol 2021;2021:553416.

11. Shiraizian S, Grant CD, Aina O, Mattana J, Khorasani F, Ricardo AC. Depression in chronic kidney disease and end-stage renal disease: Similarities and differences in diagnosis, epidemiology, and management. Kidney Int Rep 2017;2:94-107.

12. Kim JA, Lee YK, Huh WS, Kim YG, Kim DJ, Oh HY, et al. Analysis of depression in continuous ambulatory peritoneal dialysis patients. J Korean Med Sci 2002;17:790-4.

13. Zung WW. A self-rating depression scale. Arch Gen Psychiatry 1965;12:63-70.

14. Endris B, Fikreyesus M, Amare T. Prevalence of depression and associated factors among haemodialysis patients at government and private hospitals in Addis Ababa. Afr J Nephrol 2018;21:56-60.

15. Kusztal M, Trafidlo E, Madziarska K, Augustyniak-Bartosik H, Karczewski M, Weyde W, et al. Depressive symptoms but not chronic pain have an impact on the survival of patients undergoing maintenance hemodialysis. Arch Med Sci 2018;14:265-75.

16. Gerogianni G, Kouzoupis A, Grappa E. A holistic approach to factors affecting depression in haemodialysis patients. Int Urol Nephrol 2018;50:1467-76.

17. Gerogianni G, Lianos E, Kouzoupis A, Polikandrioti M, Grappa E. The role of socio-demographic factors in depression and anxiety of patients on hemodialysis: An observational cross-sectional study. Int Urol Nephrol 2018;50:143-54.

18. Mosleh H, Alenezi M, Al Johani S, Alsani A, Fairaq G, Bedawi R. Prevalence and factors of anxiety and depression in chronic kidney disease patients undergoing hemodialysis: A cross sectional single-center study in Saudi Arabia. Cureus 2020;12:e6668.

19. Aggarwal HK, Jain D, Dabas G, Yadav RK. Prevalence of depression, anxiety and insomnia in chronic kidney disease patients and their co-relation with the demographic variables. Pril (Makedon Akad Nauk Umet Odd Med Nauki) 2017;38:35-44.

20. Aghrawat KK, Chhetri PK, Singh PM, Manandhar DN, Poudel P, Chhetri A. Prevalence of depression in patients with chronic kidney disease and access to the kidney transplant waitlist. Kidney Int Rep 2022;7:1306-17.
disease stage 5 on hemodialysis at a tertiary care center. JNMA J Nepal Med Assoc 2019;57:172-5.

21. Dziubek W, Kowalska J, Kusztal M, Rogowski Ł, Golębiewski T, Nikifur M, et al. The level of anxiety and depression in dialysis patients undertaking regular physical exercise training – A preliminary study. Kidney Blood Press Res 2016;41:86-98.

22. Nipp RD, El-Jawahri A, Fishbein JN, Gallagher ER, Stagl JM, Park ER, et al. Factors associated with depression and anxiety symptoms in family caregivers of patients with incurable cancer. Ann Oncol 2016;27:1607-12.

23. Eveleens Maarse BC, Chesnaye NC, Schouten R, Michels WM, Bos WJ, Szymczak M, et al. Associations between depressive symptoms and disease progression in older patients with chronic kidney disease: Results of the EQUAL study. Clin Kidney J 2022;15:786-97.

24. Lopes AA, Bragg J, Young E, Goodkin D, Mapes D, Combe C, et al. Depression as a predictor of mortality and hospitalization among hemodialysis patients in the United States and Europe. Kidney Int 2002;62:199-207.

25. Hawamdeh S, Almari AM, Almutairi AS, Dator WL. Determinants and prevalence of depression in patients with chronic renal disease, and their caregivers. Int J Nephrol Renovasc Dis 2017;10:183-9.

26. AlDukhayel A. Prevalence of depressive symptoms among hemodialysis and peritoneal dialysis patients. Int J Health Sci (Qassim) 2015;9:9-16.

27. Khaira A, Mahajan S, Khatri P, Bhowmik D, Gupta S, Agarwal SK. Depression and marital dissatisfaction among Indian hemodialysis patients and their spouses: A cross-sectional Study. Ren Fail 2012;34:316-22.

28. Rai M, Rustagi T, Rustagi S, Kohli R. Depression, insomnia and sleep apnea in patients on maintenance hemodialysis. Indian J Nephrol 2011;21:223-9.