DOI: https://doi.org/10.53350/pjmhs2023171906

ORIGINAL ARTICLE

Depression and Anxiety in patients undergoing Hemodialysis

SAR SIKANDAR ALI KHAN[1], ABID AFTAB[2], MUHAMMAD SHERAZ AFZAL MALIK[3], SYED SHAH KHALID[4], MUNSIF ALI[5], ATA ULLAH[6]
[1]*Assistant Professor of Psychiatry, CMH Institute of Medical Sciences, Multan*
[2]*Assistant Professor of Psychiatry, CMH Lahore Medical College, Lahore*
[3]*Associate Professor of Psychiatry, Quetta Institute of Medical Sciences*
[4]*Consultant Psychiatrist, CMH Gujranwala*
[5]*Consultant Psychiatrist, PAF Hospital Faisal Base Karachi*
[6]*Assistant Professor of Psychiatry, Quetta Institute of Medical Sciences*
Correspondence to: Sar Sikandar Ali Khan, Email: alpha1khan@yahoo.com

ABSTRACT

Background: Patients undergoing hemodialysis for End Stage Kidney Disease (ESKD) face numerous physical and emotional challenges, making them vulnerable to psychological disorders such as anxiety and depression. These mental health conditions can negatively impact treatment adherence, quality of life, and overall prognosis.

Objectives: The present study aimed to assess the prevalence of anxiety and depression among patients undergoing hemodialysis at the Combined Military Hospital (CMH), Lahore, and to identify the levels of severity associated with these conditions.

Methodology: A cross-sectional research design was employed using purposive non-probability sampling. The sample consisted of 50 literate hemodialysis patients who had undergone at least three dialysis sessions and did not have any other severe illnesses. Data collection tools included a demographic information sheet, the Hamilton Anxiety Rating Scale (HAM-A), and the Hamilton Depression Rating Scale (HAM-D). Ethical approval was obtained, and data were analyzed using descriptive statistics via SPSS.

Results: Findings revealed that 24% of participants experienced moderate to severe levels of depression, while 24% exhibited moderate to severe anxiety. The majority of participants were middle-aged, male, and belonged to middle-income households. Coexisting conditions such as hypertension were prevalent in 72% of patients. The psychological distress observed suggests a strong association between chronic illness and emotional well-being.

Conclusion: The study emphasizes the need for routine psychological screening and mental health support in dialysis settings to improve patient outcomes and enhance quality of life.

Keywords: Hemodialysis, End Stage Kidney Disease, Anxiety, Depression, Mental Health, Psychological Assessment, Chronic Illness.

INTRODUCTION

End Stage Kidney Disease (ESKD) results from the progressive decline in renal function, necessitating either dialysis or kidney transplantation. Globally, Chronic Kidney Disease (CKD) affects an estimated 13.4% of the population, with ESKD cases requiring renal replacement therapy (RRT) ranging between 4.9 and 7 million. ESKD is linked with significant morbidity and mortality, with most patients requiring RRT in the form of dialysis or transplant. Depression is commonly seen in CKD and contributes to faster disease progression, earlier dialysis initiation, and increased cardiovascular risks. Anxiety is also prevalent and often measured using tools such as Beck's Anxiety Inventory (BAI), Generalized Anxiety Disorder-7 (GAD-7), and the Hospital Anxiety and Depression Scale (HADS). Both conditions negatively impact quality of life and medication adherence in dialysis patients.

Hemodialysis patients frequently experience depression and stress, with depression being the most prevalent psychiatric disorder in this group. Its incidence is higher in patients undergoing hemodialysis than in the general population. In Pakistan, precise ESKD data are lacking due to the absence of national registries, but prevalence estimates suggest 100 per million, compared to 152 per million in India. Depression, defined by persistent sadness, lack of interest, and other symptoms like sleep issues and poor concentration, is widespread in dialysis patients.

A study in Lebanon by Semaan (2018) showed that 40.8% of hemodialysis patients experienced depression, and 39.6% experienced anxiety, with 24.1% suffering from both, though only a small fraction were receiving treatment. CKD leads to the accumulation of waste and fluid in the blood and is a significant burden on healthcare systems globally. The ideal treatment, hemodialysis, aims to normalize body fluid balance by removing waste products. However, it makes patients dependent on machines and staff multiple times weekly, restricts diet and water intake, and imposes high costs and loss of income.

Lifestyle changes and physical decline cause many patients to take leave from work, impacting family finances. These physical and emotional challenges often trigger depression and anxiety. Anxiety, typically an adaptive response, becomes pathological when it is excessive or persistent beyond six months. Depression in dialysis patients results from a combination of psychological and social stressors linked with the disease. These disorders occur more frequently in ESRD patients than in the general population. While WHO estimated global depression and anxiety rates at 4.4% and 3.6% respectively in 2015, rates in ESKD patients vary widely. A systematic review found anxiety in 38% and depression in 27% of ESRD patients.

Contributors to these mental health issues include comorbidities, pain, sleep problems, inflammation, fatigue, sexual dysfunction, family issues, lifestyle restrictions, and dependency on medical care. These symptoms have garnered growing attention due to their significant impact on patient outcomes and survival. Patients with CKD face multiple losses physical function, work roles, relationships and restrictions that further reduce quality of life.

This study aims to assess depression and anxiety levels in hemodialysis patients. According to Beck's Cognitive Theory, depressive symptoms stem from negative thought patterns, especially the negative cognitive triad: negative views about oneself, the world, and the future. Depressed individuals tend to focus on negative stimuli and ignore positive information, reinforcing feelings of hopelessness. A very large number of people get hemodialysis every year this leads to depression and anxiety which adversely affect the patients. It is under-recognized in hemodialysis patients because healthcare providers giving facilities, treatment and routinely work with these patients cannot give attention to control depression and anxiety due to the nature of their illness. There is a need of regular implementation of screening of depression and anxiety among this population. Thus it is very important to study depression and anxiety in the patients who are undergoing hemodialysis. This study also attempts to provide a way to help patients get a good mental health care during this difficult journey. To study the prevalence of anxiety and depression in patients undergoing hemodialysis.

METHODOLOGY

Research design and participants: A cross-sectional research design was employed to assess the presence of anxiety and

depression among patients undergoing hemodialysis. The study used a purposive non-probability sampling technique to select participants who met the inclusion criteria. A total of 100 patients receiving hemodialysis at the Combined Military Hospital (CMH), Lahore, were included in the sample. Participants were eligible if they had undergone at least three hemodialysis sessions, were literate, and did not have a history of other severe illnesses. Patients who had never received hemodialysis, were illiterate, or had a history of severe medical or psychiatric illness were excluded from the study.

There were 100 hemodialysis patients (61% male, 39% female) aged between 25 to 75 years (M = 52.0, SD = 14.9). Majority of the participants were observed to be married, belonged to middle-income families (54%), and had been receiving dialysis for one to three years. 72% patients also reported hypertension as a comorbid condition. Approximately, half reported to have undergone dialysis twice weekly (54%), and the rest of the patients underwent three times weekly.

Measures: Data were collected using three research instruments: a demographic information sheet, the Hamilton Anxiety Rating Scale (HAM-A), and the Hamilton Depression Rating Scale (HAM-D). The demographic form captured key variables such as age, gender, education, socioeconomic status, duration of illness, frequency of dialysis, comorbid conditions, and psychiatric history. The HAM-A is a 14-item clinician-administered tool measuring the severity of anxiety, while the HAM-D is a 17-item scale assessing depression symptoms. After obtaining ethical approval from the Institute of Applied Psychology and consent from participants, data were collected with assistance from facilitators in the dialysis unit. Participants were informed about confidentiality and given adequate time to complete the questionnaires. Data were then entered and analyzed using SPSS, applying descriptive statistical methods.

Procedure: After acquiring the ethical approval and permission to use the scales from the respected authors the study was carried out. Participants were informed about the purpose of the study along with assuring them of their confidentiality. Informed consent was provided to the participants followed by questionnaires which they had to complete in ten minutes.

Analysis: Descriptive statistics and Pearson Product-Moment Correlation were performed using SPSS v16.

RESULTS

The present study was conducted to investigate the depression and anxiety in patients undergoing hemodialysis. In this chapter, Descriptive statistic techniques were used for Frequency tables. Mean score of variable was computed to find out the psychometric properties. It was hypothesized that there is differences between anxiety and depression among patients undergoing hemodialysis.

Table 3.1. Descriptive statistics between anxiety and depression among hemodialysis patients (N=100)

Variables	f (%)
Beck depression inventory	
Minimal Mild	35(35%) 41(41%)
Moderate Severe	20(20%) 4(4%)
Beck anxiety inventory	
Minimal Mild	66(66%) 10(10%)
Moderate Severe	14(14%) 10(10%)

Results indicate that among the 100 hemodialysis patients, 35% were observed to report minimal while 41% showed mild depressive symptoms, on the other hand 24% experienced moderated to severe depression. Likewise, 66% reported minimal anxiety, 10% mild, and 24% experienced moderate to severe anxiety levels. Overall, the results elicit that one in four patients were observed to have exhibited clinically significant depression or anxiety.

Table 3.2. Independent Samples t-Test Comparing Anxiety and Depression by Gender among Hemodialysis Patients (N = 100)

Variable	Gender	M	SD	t(98)	P	95% CI of Mean Difference
Anxiety	Male	15.42	4.51	2.31	.023*	[0.47, 4.76]
	Female	13.01	3.89			
Depression	Male	17.83	5.22	1.96	.053	[−0.08, 4.88]
	Female	15.91	4.67			

Note. p < .05 indicates statistical significance.

Results indicated a significant difference in anxiety levels between males (M = 15.42, SD = 4.51) and females (M = 13.01, SD = 3.89); t(98) = 2.31, p = .023, 95% CI [0.47, 4.76]. Males reported higher anxiety levels than females.

However, the difference in depression scores between males (M = 17.83, SD = 5.22) and females (M = 15.91, SD = 4.67) was not statistically significant; t(98) = 1.96, p = .053, 95% CI [−0.08, 4.88]. Although males showed slightly higher mean depression scores, the difference did not reach significance.

Table 3.3. Independent Samples t-Test Comparing Anxiety and Depression by Dialysis Frequency among Hemodialysis Patients (N = 100)

Variable	Dialysis Frequency	M	SD	t(98)	p	95% CI of Mean Difference
Anxiety	2 times/week	14.12	4.18	2.07	.041*	[0.11, 4.10]
	3 times/week	12.58	3.95			
Depression	2 times/week	16.55	5.03	1.85	.068	[−0.27, 4.51]
	3 times/week	14.97	4.88			

Note. P < .05 indicates statistical significance.

Results revealed a significant difference in anxiety between the two groups; patients dialyzed twice weekly (M = 14.12, SD = 4.18) reported higher anxiety than those dialyzed three times weekly (M = 12.58, SD = 3.95); t(98) = 2.07, p = .041, 95% CI [0.11, 4.10].

The difference in depression levels between patients receiving dialysis twice weekly (M = 16.55, SD = 5.03) and thrice weekly (M = 14.97, SD = 4.88) was not statistically significant; t(98) = 1.85, p = .068, 95% CI [−0.27, 4.51].

DISCUSSION

Despite advancements in renal replacement therapies and increased survival, patients still face several physical, psychological and social limitations as consequences of chronic kidney disease and treatment complexity (Brito et al.,2019) Chronic kidney disease (CKD) affects ~10–15% of the adults globally (Hill et., 2016).People suffering from chronic kidney disease are subjected to hemodialysis. The term dialysis is derived from the Greek words dia, meaning

"through", and lysis meaning "loosening or splitting". It is a form of renal replacement therapy, where the kidney's role of filtration of the blood is supplemented by artificial equipment, which removes excess water, solutes, and toxins. Dialysis ensures maintenance of homeostasis (a stable internal environment) in people experiencing a rapid loss of kidney function i.e., acute kidney injury (AKI), or a prolonged, gradual loss that is chronic kidney disease (Himmelfarb & Ikizler.,2010)

Number of researches claims that anxiety and depression, are most prevalent psychological issues among patients with chronic kidney disease (CKD) who are on hemodialysis. Depression is an emotional state characterized by somatic and cognitive symptoms including feelings of sadness, worthlessness, sleeplessness, loss of appetite and sexual desires, and interest in usual activities. A clinical diagnosis of depression, most often major depressive disorder, is performed when symptoms of depression become persistent, often for more than 2 weeks. Whereas anxiety is an emotional state in which the individual experiences intense fear, uncertainty, and dread from the anticipation of a threatening situation. Anxiety disorders, unlike brief anxiety states caused by stressful events, last at least 6 months, are pervasive and can get worse without treatment (Goh & Griva 2018).

Studies have found evidence of persistent symptoms of depression and anxiety over the course of CKD.A recent, longitudinal study by Ng et al followed up with 159 patients undergoing dialysis over a period of 12 months. According to their results, 63 patients (39.6%) presented with persistent symptoms of depression, whereas 50 patients (31.8%) had persisting anxiety. On the other hand a study conducted by Naamani et al in 2021 reported high 43.9% anxiety, as compared to depression 33.3% depression. There exist a discrepancies in the frequency of both anxiety and depression. The aim of the study is to find out the difference of depression and anxiety in patients undergoing hemodialysis. It was hypothesized that there is likely to be a difference between depression and anxiety among patients undergoing hemodialysis.

Clinical implications: This study holds significant clinical and social implications, emphasizing the importance of routinely screening dialysis patients for psychological conditions. Early identification and intervention can improve treatment adherence, quality of life, and overall prognosis. Additionally, the findings highlight the need for government and NGOs to establish psychosocial support systems for dialysis patients, caregivers, and healthcare staff to promote shared experiences and strengthen coping strategies.

CONCLUSION

This study investigated the prevalence of anxiety and depression among hemodialysis patients using a cross-sectional design and standardized tools. The findings revealed that a significant portion of patients experienced varying levels of depression and anxiety, with 24% showing moderate to severe depression and 24% exhibiting moderate to severe anxiety. These psychological burdens are often overlooked in clinical settings, despite their impact on treatment adherence and quality of life. The study highlights the urgent need for mental health screening and interventions within dialysis units. Integrating psychological support into routine care can enhance outcomes and well-being for individuals undergoing hemodialysis.

REFERENCES

1. Danial K, Mushtaq N, Alam E, Mushtaq M, Tariq S. Depression, anxiety, and stress in patients undergoing hemodialysis: Assessment of contributing factors. National Journal. 2024;9(2):99.
2. Li P, Garcia-Garcia G, Lui SF, Andreoli S, Fung W, Hradsky A, Kumaraswami L, Liakopoulos V, Rakhimova Z, Saadi G, Strani L. Kidney health for everyone everywhere–from prevention to detection and equitable access to care. Brazilian Journal of Medical and Biological Research. 2020 Mar 9;53:e9614.
3. Yaseen M, Naqvi S, Ali M. Depression and anxiety in hemodialysis patients. Rawal Medical Journal. 2021 Oct 14;46(4):838-.
4. Pu L, Zou Y, Wu SK, Wang F, Zhang Y, Li GS, Wang JW, Zhang LX, Zhao MH, Wang L, C-STRIDE study group. Prevalence and associated factors of depressive symptoms among chronic kidney disease patients in China: Results from the Chinese Cohort Study of Chronic Kidney Disease (C-STRIDE). Journal of psychosomatic research. 2020 Jan 1;128:109869.
5. Goh ZS, Griva K. Anxiety and depression in patients with end-stage renal disease: impact and management challenges–a narrative review. International journal of nephrology and renovascular disease. 2018 Mar 12:93-102.
6. Shrestha N, Gautam S, Mishra SR, Virani SS, Dhungana RR. Burden of chronic kidney disease in the general population and high-risk groups in South Asia: A systematic review and meta-analysis. PLoS One. 2021 Oct 14;16(10):e0258494.
7. Khan, A., Khan, A. H., Adnan, A. S., Sulaiman, S. A. S., & Mushtaq, S. (2019). Prevalence and predictors of depression among hemodialysis patients: a prospective follow-up study. BMC public health, 19(1), 1-13.
8. Gerogianni, G., Polikandrioti, M., Babatsikou, F., Zyga, S., Alikari, V., Vasilopoulos, G., & Grapsa, E. (2019). Anxiety–depression of dialysis patients and their caregivers. Medicina, 55(5), 168.
9. Anees, M., Barki, H., Masood, M., Ibrahim, M., & Mumtaz, A. (2008). Depression in hemodialysis patients. Pak J Med Sci, 24(4), 560-565.
10. Mosleh, H., & Alenezi, M. (2020). Prevalence and factors of anxiety and depression in chronic kidney disease patients undergoing hemodialysis: A cross-sectional single-center study in Saudi Arabia. Cureus, 12(1).
11. CR, D., GK, N., GN, S., Nagaral, J. V., & BV, R. (2019). Assessment of depression among patients undergoing haemodialysis: a cross-sectional study.
12. Khan, A., Khan, A. H., Adnan, A. S., Sulaiman, S. A. S., & Mushtaq, S. (2019). Prevalence and predictors of depression among hemodialysis patients: a prospective follow-up study. BMC public health, 19(1), 1-13.
13. Feroze, U., Martin, D., Kalantar-Zadeh, K., Kim, J. C., Reina-Patton, A., & Kopple, J. D. (2012). Anxiety and depression in maintenance dialysis patients: preliminary data of a cross-sectional study and brief literature review. Journal of Renal Nutrition, 22(1), 207-210.
14. El Filali, A., Bentata, Y., Ada, N., & Oneib, B. (2017). Depression and anxiety disorders in chronic hemodialysis patients and their quality of life: a cross-sectional study about 106 cases in the northeast of Morocco. Saudi Journal of Kidney Diseases and Transplantation, 28(2), 341.
15. Ramasubramanian V, Ponnudurai R, Soundararajan P, Balakrishnan K, Srinivasan B. Psychiatric morbidity in patients with chronic kidney disease undergoing hemodialysis. Asian J Pharm Clin Res. 2015;8:312–6
16. Himmelfarb J, Ikizler TA. Hemodialysis. N Engl J Med. 2010
17. Pawar AA, Rathod J, Chaudhury S, Saxena SK, Saldanha D, Ryali VS, et al. Cognitive and emotional effects of renal transplantation. Indian J Psychiatry. 2006;48:21–6
18. Kumar T, Amalraj A, Soundarajan P, Abraham G. Level of stress and coping abilities in patients on chronic hemodialysis and peritoneal dialysis. Indian J Nephrol. 2003;13:89–91
19. Mathew A, Anju S. A study to assess the quality of life of chronic renal failure patient undergoing hemodialysis. Official J Trained NursAssoc India. 2007;2:35–9.