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DEPRESSION IN PATIENTS WITH END STAGE RENAL DISEASE PATIENTS

1. DALAL SHAHIN MAHAIYUDDIN

PhD(Nursing) Scholar. P/P/Savani School of Nursing

P.P.Savani University, Surat- Gujarat

2. Dr. Sateesh Biradar

Research Guide

P.P.Savani University , Surat- Gujarat

ABSTRACT

INTRODUCTIONS :End stage Renal Disease is commonly associated with psychosocial problems, especially anxiety and depression, contributing to diminished quality of life outcomes in ESRD patients. Depression has not been given adequate priority in the management of ESRD and patients on hemodialysis despite its significant adverse impact.

METHOD: Basic demographic data was recorded, along with details about chronic morbidity, duration, and weekly hemodialysis cycles. To check for depression, the Beck Depression Inventory (BDI) score was used.

RESULTS:The study included 102 participants in total. Due to insufficient data, 12 candidates were eliminated. There were 102 samples in all. 43 were female, and the remaining 59. The participants' average age was 50.02. Every subject had either primary or secondary hypertension as a result of chronic renal disease. Of the patients, 3.3% experienced problems connected to their thyroid, and 32% had diabetes as a comorbidity. Chronic kidney disease (CKD V) lasted 3.54 years on average. The majority (71.23%) underwent hemodialysis twice a week.

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INTRODUCTION

Roughly 700 million individuals worldwide suffer from chronic End Stage Renal Disease (ESRD), a prevalent illness. It contributes significantly to global mortality. Compared to high-income countries, the burden of ESRD is greater in low- and middle-income nations.[1]For the patients, it results in a significant financial, physical, and psychological burden.Psychosocial issues like anxiety and sadness are more prevalent among ESRD patients and their caregivers than in the general population.[2]These issues have a negative impact on the patient's quality of life and increase the risk of hospitalization, mortality, disease progression to an advanced stage, and decline in renal function in individuals with chronic kidney disease.Patients with ESRD may have poor adherence to their dietary, hydration, and pharmaceutical regimens due to depression.[3]

End-stage renal disease (ESRD) has patients are increasing in India day by day . Diabetes , hypertension, and obesity affecting in renal function linked to ESRD. ESRD has been divided in to five stages depend on the estimated glomerular filtration rate (eGFR). Stage V chronic kidney disease is the most sever type of all in which kidneys can not maintain homeostasis. [4] The prevalence of ESRD is likely to be between 0.85 % and 1.9% in India . In India, about 2.5 lakh new patients with CKD V are added every year thus hemodialysis demand is increasing every year [5]. The main goal of hemodialysis is to removing waste products and transferring solutes from the dialysate, including bicarbonates, into the blood. In hemodialysis patients become completely dependent on machines and medical staff . In addition , taking various medications and strict diet regimen makes patients irritable, expensive medications and therapies and lost of jobs may cause lots of financial burden on patients . All these ultimately result in a deleterious effect on the mental health of the patients receiving hemodialysis[6].

ESRD changes patients routine completely including the restriction in food and fluids for daily intake and dependency on hemodialysis machine, medical staffs and family members. Depression is the most prevalent psychological issue seen among patients of ESRD , which may have an impact on treatment success. Around 34% to 90% of hemodialysis patients experience depression [7]. Most of all the physician are aware about psychological distress of patients undergoing hemodialysis but due to lack of time and resources these issues remains untreatable and unrecognisable.[8]The current study aimed to determine the prevalence of depression among patients undergoing hemodialysis and their relationship with clinical parameters.

MATERIALS & METHODS

This cross-sectional study was conducted in the dialysis clinic of a tertiary care hospital situated in the Surat part of the Gujarat after obtaining ethical approval from the Institutional Ethics Committee .Previousstudy estimated 56% of the participants would have mild to severe depression. With a required precision of 10% and a 95% confidence level, the minimum required sample size was 86 [9]. A consecutive sampling technique was found appropriate to achieve goal of the study.

On average, studied dialysis unit receives 30 patients per day and the details of each patient were maintained in a dialysis unit register. Patients who attended the dialysis clinic for maintenance haemodialysis between April and May 2023 were included in the study, written informed consent has been taken from every patients who are included in the research study. Patients who are already taking treatment for depression from psychiatrist or on antidepressant and not willing to participate were excluded from the study.

Details about chronic morbidity and basic demographics were gathered using a semi-structured interview schedule. After that, a depression screening using the Beck Depression Inventory (BDI) version II was conducted. It is a self-reported rating assessment with 21 items that assesses depressive symptoms and typical attitudes [10].The questionnaire was translated in to Hindi and Gujarati as a local language, This was pre-tested and modified before use.

Statistical analysis

The mean±standard deviation was used to describe continuous variables. Frequency and percentage were used to express categorical variables. To compare continuous variables between the groups, an unpaired t-test was employed. Utilizing chi-square, the categorical variables between the groups were examined. The probability of depression with variable risk factors was estimated using multivariable logistic regression analysis. A P-value of less than 0.05 was deemed statistically noteworthy.

RESULTS

The study included 112 participants in total. Due to insufficient data, 12 candidates were eliminated. There were 102 samples in all. 43were female, and the remaining 59 . The

participants' average age was 50.02. Every subject had either primary or secondary hypertension as a result of chronic renal disease. Of the patients, 3.3% experienced problems connected to their thyroid, and 32% had diabetes as a comorbidity. Chronic kidney disease (CKD V) lasted 3.54 years on average. The majority (71.23%) underwent hemodialysis twice a week, and 10.8% of participants required ICU admissions during the study's duration. The BDI mean was 16.09. The BDI scale was tested and approved for reliability and validity for testing depression.

It was observed that 58% screened positive for borderline clinical depression or more, and only 32% were detected as normal.

Table 1

Characteristics of the study population

ESRD End Stage Kidney Disease ; BDI: Beck Depression Inventory

Parameter	N=102 Frequency (percentage)
Mean age in years (SD)	50.02±10.98
Gender	
Male	59 (57.84%)
Female	43 (42.16%)
Hypertension	94(102)
Diabetes mellitus	49 (38)
Thyroid disorder	5 (4.3)
Myocardial infarction	2 (2.1)
Mean duration of CKD in years (SD)	3. (2.9)
Number of Hemodialyses twice per week	71.23 (68.5)
ICU admission	10 (14.1)
Hospital admission	69 (75)
Mean BDI score (SD)	17.07 (12.7)

Among 102 study sample 52 patients was diagnosed of having Border line clinical depression and only 24 was found to be normal.

Discussion

One of the most debilitating diseases in the world, End Stage Renal Disease (ESRD) has a global prevalence of 8–16% in 2013 and 20–23% in 2021[11]. Mental health issues frequently coexist with the majority of chronic illnesses, including ESRD. The substantial occurrence of depression in kidney disease patients is shown by numerous studies. It is estimated that 23.7% of ESRD patients suffer from depression. Additionally, ESRD patients on dialysis had a 34.5% higher risk of depression than people who do not get dialysis [12]. By applying the Beck Depression Inventory on 102 patients in a dialysis clinic, we were able to determine that almost 41 % of the patients had positive screening results for depression. The Beck Depression Inventory is a useful tool for diagnosing depression, per a research by Chilcot et al. [13].

In this study 59 (57.84 %) of the ESRD patients with depression in were found to be male, and 43 (42.16%) to be female. However, these differences were not found to be statistically significant. According to a study by Murray A.[14], depression was substantially correlated with female gender and advanced age among ESRD patients receiving dialysis [15]. Men experienced higher levels of anxiety and depression than women, according to a different study conducted among ESRD patients in Pakistan [16]. However, a different study did not find any variations in the depressive symptoms of hemodialysis patients based on gender 16. In light of cultural obstacles, it is possible to speculate about the gender differences in our study and why males would have higher levels of anxiety and depression during financial stress. They might also become more dependent on other family members instead of carrying out their social duties. The majority of the depressed individuals in this study are in their mid-50s. This is consistent with earlier studies' findings that elderly patients had higher levels of depression and worse physical well-being [17–19]. This may be explained by reports of older patients becoming depressed, losing interest in social activities, and isolating themselves further from society.

Although they are not statistically significant, the majority of depression patients in this study have been connected with hypertension for around five years and diabetes for a mean of three years. This is in contrast to another study [20] that found a substantial correlation between

depression in ESRD patients and their medical comorbidities. A related study similarly discovered a link between comorbidities and depression in ESRD and hypothesized that depression may exacerbate comorbid diseases [21]. Diabetes is known to increase the risk of depression in patients with ESRD. For those with ESRD and related diabetes, depression is associated with worse treatment compliance, increased health care utilization, and inferior social and professional performance [22–24].

Logistic regression analysis in the current study demonstrated a strong correlation between the frequency of weekly hemodialysis and the onset of depression. Depression and anxiety in hemodialysis patients can develop during dialysis in a variety of ways, per a previous study [25]. There was no discernible correlation between the length of hemodialysis and depression, according to another study [26]. In a different study, there was no discernible difference in the depression score level between patients who had hemodialysis sessions lasting less than 3.5 hours or more than 3.5 hours, despite the fact that hemodialysis sessions are typically longer than 3.5 hours in patients with depression [27]. A qualitative study suggests that long-term dialysis may have negative psychological effects on individuals with ESRD [28].

LIMITATIONS

The external validity of our study is limited because it was conducted in a single center and used a small sample size. It may be possible to plan extensive multicentric investigations to confirm our findings in different ethnic groups

CONCLUSION

Dialysis patients with chronic renal disease frequently experience depression, which is linked to a lower quality of life. Because they are afraid of being stigmatized, patients typically deny having depression. Suicidal thoughts and treatment withdrawal, including hemodialysis, are possible outcomes of depression. Age, gender, co-morbidities, length of chronic kidney disease, and hospital stays did not correlate with depression in our study. Depression and the frequency of hemodialysis per week were substantially correlated. To identify depressed people with chronic kidney disease (CKD) and improve the healthcare system for them, many strategies should be considered. Among these are initiating a depression identification and

treatment program with the assistance of volunteer social support groups and psychiatric professionals.

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REFERENCES

1. GBD Chronic Kidney Disease Collaboration. Global, regional, and national burden of chronic kidney disease, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2020;395(10225):709–733. CrossRefPubMedGoogle Scholar
2. Adejumo OA, Okaka EI, Akinbodewa AA, et al. Self-perceived Burden on Caregivers, Anxiety and Depression among Chronic Kidney Disease Patients in Southern Nigeria. *West Afr J Med*. 2021;38(4):335–341. Google Scholar
3. Gebrie MH, Ford J. Depressive symptoms and dietary non-adherence among end stage renal disease patients undergoing hemodialysis therapy: systematic review. *BMC Nephrol*. 2019;20(1):429. Google Scholar
4. Managing cardiovascular risk in people with chronic kidney disease: a review of the evidence from randomized controlled trials. Jun M, Lv J, Perkovic V, Jardine MJ. *Ther Adv Chronic Dis*. 2011;2:265–278. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
5. Preparing for increased dialysis requirements. <https://health.economictimes.indiatimes.com/news/industry/preparing-for-increased-dialysis-requirements/91924390> 2022;5:91924390. [[Google Scholar](#)]
6. Cognitive and emotional effects of renal transplantation. Pawar AA, Rathod J, Chaudhury S, Saxena SK, Saldanha D, Ryali VS, Srivastava K. *Indian J Psychiatry*. 2006;48:21–26. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

7. Depressive symptoms and dietary adherence in patients with end-stage renal disease. Khalil AA, Frazier SK, Lennie TA, Sawaya BP. *J Ren Care*. 2011;37:30–39. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
8. Beck AT, Steer RA, Ball R, & Ranieri WF. Comparison of Beck Depression Inventories-IA and-II in psychiatric outpatients. *Journal of Personality Assessment*.1996; 67: 588–597. doi: 10.1207/s15327752jpa6703_13 [[PubMed](#)] [[Google Scholar](#)]
9. Prevalence of depression and its associated factors among patients of chronic kidney disease in a public tertiary care hospital in India: a cross-sectional study. Ahlawat R, Tiwari P, D’Cruz S. <https://www.sjkdt.org/text.asp?2018/29/5/1165/243972> *Saudi J Kidney Dis Transplant*. 2018;29:1165–1173. [[PubMed](#)] [[Google Scholar](#)]
10. McElroy E, Casey P, Adamson G, Filippopoulos P, & Shevlin M. A comprehensive analysis of the factor structure of the Beck Depression Inventory-II in a sample of outpatients with adjustment disorder and depressive episode. *Irish Journal of Psychological Medicine*.2017: 1–9. [[PubMed](#)] [[Google Scholar](#)]
11. Arbuckle J. L. (2012). Amos (Version 21.0). Chicago: IBM SPSS. [[Google Scholar](#)]
12. Gomes-Oliveira MH, Gorenstein C, Neto FL, Andrade LH, & Wang YP. Validation of the Brazilian Portuguese version of the Beck Depression Inventory-II in a community sample. *Revista Brasileira de Psiquiatria*.2012; 34: 389–394. [[PubMed](#)] [[Google Scholar](#)]
13. Kojima M, Furukawa TA, Takahashi H, Kawai M, Nagaya T, & Tokudome S. Cross-cultural validation of the Beck Depression Inventory-II in Japan. *Psychiatry Research*.2002; 110(3): 291–299. [[PubMed](#)] [[Google Scholar](#)]
14. Murray A, Johnson W. The limitations of model fit in comparing the bifactor versus higher-order models of human cognitive ability structure. *Intelligence*.2013; 41: 407–422. [[Google Scholar](#)]

15. Prevalence and factors of anxiety and depression in chronic kidney disease patients undergoing hemodialysis: a cross-sectional single-center study in Saudi Arabia. Mosleh H, Alenezi M, Al Johani S, Alsani A, Fairaq G, Bedaiwi R. *Cureus*. 2020;12:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
16. 15. Gender role in anxiety, depression and quality of life in chronic kidney disease patients. Anxiety, depression and QOL in chronic kidney diseases patients. Um-E-Kalsoom Um-E-Kalsoom. *Pak J Med Sci*. 2020;36:251–254. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
17. Shafi T, Wilson RF, Greer R, et al. Rockville (MD): Agency for Healthcare Research and Quality (US; 2020. End-stage Renal Disease in the Medicare Population: Frequency and Duration of Hemodialysis and Quality of Life Assessment. [[PubMed](#)] [[Google Scholar](#)]
18. Depression and anxiety in patients with chronic renal failure: the effect of sociodemographic characteristics. Theofilou P. *Int J Nephrol*. 2011;2011:514070. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
19. Possible factors contributing to similar peritoneal dialysis outcome in patients over 60 years of age and the younger ones. Grzegorzewska AE, Leander M. *Int UrolNephrol*. 2002;34:565–572. [[PubMed](#)] [[Google Scholar](#)]
20. Depression among end-stage renal disease patients undergoing hemodialysis: a cross-sectional study from Palestine. Al-Jabi SW, Sous A, Jorf F, et al. *Ren Replace Ther*. 2021;7:12. [[Google Scholar](#)]
21. Depression impairs level of functioning in chronic kidney disease inpatients: a case-control study. Virani A, Shah RP, Haneef G, et al. *Cureus*. 2021;13:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
22. Effect of depression on health care utilization in patients with end-stage renal disease treated with hemodialysis. Abbas Tavallaii S, Ebrahimnia M, Shamspour N, Assari S. *Eur J Intern Med*. 2009;20:411–414. [[PubMed](#)] [[Google Scholar](#)]

23. Psychosocial and cognitive factors associated with adherence to dietary and fluid restriction regimens by people on chronic haemodialysis. Sensky T, Leger C, Gilmour S. *PsychotherPsychosom.* 1996;65:36–42. [[PubMed](#)] [[Google Scholar](#)]
24. The functioning and well-being of depressed patients. Results from the Medical Outcomes Study. Wells KB, Stewart A, Hays RD, et al. <https://pubmed.ncbi.nlm.nih.gov/2754791/> *JAMA.* 1989;262:914–919. [[PubMed](#)] [[Google Scholar](#)]
25. Course of depression and anxiety diagnosis in patients treated with hemodialysis: a 16-month follow-up. Cukor D, Coplan J, Brown C, Peterson RA, Kimmel PL. *Clin J Am Soc Nephrol.* 2008;3:1752–1758. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
26. Hedayati SS, Jiang W, O'Connor CM, et al. The association between depression and chronic kidney disease and mortality among patients hospitalised with congestive heart failure. *Am J Kidney Dis.* 2004;44(2):207–15. [CrossRefPubMedWeb of ScienceGoogle Scholar](#)
27. Depression impairs level of functioning in chronic kidney disease inpatients: a case-control study. Virani A, Shah RP, Haneef G, et al. *Cureus.* 2021;13:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
28. Opinions of hemodialysis and peritoneum patients regarding depression and psychological problems which they experience: a qualitative study. UnsalAvdal E, Ayvaz İ, ÖzgursoyUran BN, Yildirim JG, Sofulu F, Pamuk G. *J Infect Public Health.* 2020;13:1988–1992. [[PubMed](#)] [[Google Scholar](#)]