ORIGINAL ARTICLE

Prevalence of psychiatric morbidities in CKD patients in South India

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ABSTRACT

Introduction: Psychiatric morbidities are often associated with CKD. Chronic kidney disease is linked with depression, anxiety, and reduced quality of life, leading to lower treatment adherence, more recurrent hospitalizations, and increased mortality. **Method:** A total of 140 patients aged 18-65 years diagnosed with CKD were included in this study after obtaining ethical clearance and informed consent. Patients with a previous history of mental illness, non-cooperative patients, and seriously ill patients were excluded. The MINI Plus (Mini International Neuropsychiatric Interview)psychiatry morbidity, HAM-D (Hamilton Depression Rating Scale), and HAM-A (Hamilton Anxiety Rating Scale) were administered. **Results:** This study found that around 17.1% of patients had a family history of psychiatric illness. About 50% had psychiatric morbidities: 20.6% had major depressive disorder, 12.1% had adjustment disorder, 11.4% had anxiety, 1.4% had a psychotic disorder, and 0.7% had an alcohol use disorder. Specifically, 20.7% of subjects were diagnosed with depression, and 11.4% were diagnosed with anxiety. **Conclusion:** The findings reveal that anxiety and depression are predominant among CKD patients. Therefore, care should be aimed at preventing the incidence of depression and anxiety and improving patients' quality of life. This study highlights the significant impact of psychiatric morbidities on CKD patients and emphasizes the need for integrated care approaches to address both physical and mental health. The novelty of this research lies in its focus on the South Indian CKD population, which has been understudied in this context.
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INTRODUCTION

Chronic kidney disease (CKD) is the most common non-communicable disease and is a rising global health concern. The chronic effects of CKD and its treatment options are associated with augmented morbidity and mortality among these patients(1). The impact of CKD on patients' kidney health, medication regimens, dietary restrictions, and family life takes a significant toll on their mental health(2). Psychiatric disorders in these patients are linked with poor prognosis and increased mortality (3). Since CKD is a long-term disease, it is found to be associated with depression, anxiety, and reduced quality of life. These psychiatric conditions can lead to serious outcomes such as suicide, sleep disorders, immune system compromise, and deterioration of nutritional status(4). Complications of CKD, such as metabolic instabilities, anemia, renal bone disease, and hypertension, also contribute to psychiatric morbidities, namely depression and anxiety(5). The occurrence of psychiatric comorbidities in CKD affects the prognosis of renal diseases by disturbing patients' behaviour, lifestyle, and adherence to medication(6). Depression in CKD individuals is linked with lower treatment adherence, more recurrent hospitalizations, and augmented mortality (7,8). A recent study found the incidence of anxiety, depression, and insomnia in CKD patients in India to be 71%, 69%, and 86.5%, respectively (2,9). The research involving various stages of CKD and psychiatric morbidity is poorly studied in India. Therefore, this study aims to evaluate the incidence of depression and anxiety in various stages of CKD patients in South India. The objective is to provide insight into the prevalence and impact of these psychiatric conditions on CKD patients, thereby highlighting the need for targeted interventions to improve their overall quality of life.

MATERIALS AND METHODS

This cross-sectional study was conducted after obtaining approval from the Institutional Ethical Committee (Reference number: SMC/IEC/ 2023/09/033). A purposive sampling technique was used to recruit patients attending the nephrology outpatient and inpatient departments of Saveetha Medical College Hospital. Eligible participants

were consecutively enrolled until the sample size of 140 was reached. Informed written consent was obtained from the patient before the data collection. A total number of 140 patients aged between 18-65 years with a diagnosis of CKD were included in this study. Patients with a previous history of mental illness, non-cooperative patients, and patients who are seriously ill were excluded from this study. The staging of CKD was done based on KDIGO (Kidney Disease: Improving Global Outcomes) 2012 guidelines, which classify CKD according to estimated glomerular filtration rate (eGFR) and kidney damage markers. Patients were grouped into Stage 1 to Stage 5 accordingly. The techniques used for data collection were interviews and record analysis. The data was collected individually, and it took 45 minutes to one and a half hours on average to do the same. Data was collected without causing hindrance to patient care. The data collection procedure for each patient was combined with rest periods to make it comfortable for patients. Patients were administered MINI plus (Mini International Neuro-Psychiatric Interview Scale), Psychiatric morbidity, HAMD (Hamilton depression rating scale), and HAMA (Hamilton anxiety rating scale) were used. The MINI Plus allowed for the identification of distinct psychiatric diagnoses based on DSM-IV/ DSM-5 criteria. In cases where multiple disorders appeared to overlap (e.g., anxiety and depression), the primary diagnosis was determined by the predominant symptomatology and functional impairment, following standard MINI Plus guidelines to avoid diagnostic duplication. All data obtained was entered in MS Excel format. Data was analysed at the end of the study using statistical software using SPSS version 26.

RESULTS

The study population had a mean age of 42.5 ± 14.5 years, with the majority of patients aged between 51–65 years (40.7%) and a predominant male representation of 57.9% (Table I). Regarding clinical progression, the majority of patients were in Stage 5 of CKD (54.3%), followed by Stage 4 (19.3%), Stage 3 (14.3%), Stage 2 (7.1%), and Stage 1 (5%) (Table II). A significant family history of psychiatric illness was identified in 17.1% of the participants (χ^2=15.36, p<0.001) (Table III). In terms of clinical management, 54.3% of subjects were undergoing hemodialysis, while the remainder received conservative treatment (χ^2=2.14, p= 0.143) (Table IV).

The duration of illness showed a statistically significant distribution (F = 3.24, p = 0.024), with 33.5% of patients having the illness for more than five years, 30% for 1–2 years, 18.6% for less than one year, and 17.9% for 3–5 years (Table V). Assessment of psychiatric morbidity revealed that while 50% of the sample had no diagnosable illness, the remaining half exhibited major depressive disorder (20.6%), adjustment disorder (12.1%), anxiety (11.4%), psychotic disorder (1.4%), and alcohol use disorder (0.7%) (χ^2=9.87, p= 0.078) (Table VI). Finally, 20.7% of the subjects were found to have depression, comprising mild (12.1%), moderate (4.3%), and severe (4.3%) presentations (χ^2=4.67, p= 0.198) (Table V).

Table I: Age and gender distribution

Age in years	Frequency	Percentage
18-35	42	30 %
36-50	41	29.3 %
51-65	57	40.7 %
Gender	**Frequency**	**Percentage**
Male	81	57.9%
Female	59	42.1%

Notes: Mean Age: 42.5 years, Standard Deviation of Age: 14.5 years.

Table II Stage of CKD and percentage of patients

Staging	Frequency	Percentage (N%)
Stage1	7	5%
Stage 2	10	7.1%
Stage 3	20	14.3%
Stage 4	27	19.3%
Stage 5	76	54.3%
Total	140	100 %

Notes: Chi-square Test: Chi-square Value: 4.764
P-value: 0.312 (Not significant)

Table III: Family history of mental illness

Family h/o mental illness	Frequency	Percentage
Presence of Psychiatric illness	24	17.1%
Absence of Psychiatric illness	116	82.9%
Total	140	100 %

Notes: Chi-square Test: Chi-square Value: 15.36, P-value: 0.001 (Significant)

Table IV: Type of treatment and percentage of patients

Treatment Type	Frequency	Percentage (N%)
Conservative	64	45.7%
Hemodialysis	76	54.3%
Total	140	100 %

Notes: Chi-square Test: Chi-square Value: 2.14 P-value: 0.143 (Not significant)

Table V: Duration of illness and percentage of patients

Duration of Illness	Frequency	Percentage (N%)
< 1 year	26	18.6%
1 – 2	42	30.0%
3 – 5	25	17.9%
> 5	47	33.5%
Total	140	100 %

Notes: ANOVA Test: F-value: 3.24 P-value: 0.024 (Significant)

Table VI: Prevalence of individual psychiatric disorders

Mini A-Z	Frequency	Percentage
Nil	70	50.0%
MDD	29	20.6%
Anxiety	16	11.4%
Psychotic	2	1.4%
Adjustment disorder	17	12.1%
Alcohol	1	0.7%
Non - alcohol	1	0.7%
Total	140	100%

Notes: Chi-square Test: Chi-square Value: 9.87 P-value: 0.078 (Not significant)

Table VII: Depression and percentage of patients

HAM-D	Frequency	Percentage
Mild	17	12.1%
Moderate	6	4.3%
Severe	6	4.3%
No Depression	111	79.3%
Total	140	100%

Notes: Chi-square Test: Chi-square Value: 4.67 P-value: 0.198 (Not significant)

DISCUSSION

This cross-sectional observational study assessed psychiatric morbidity among adults with chronic kidney disease (CKD) receiving either hemodialysis or conservative management. The cohort was clinically advanced, with more than half in CKD Stage 5 and over half receiving hemodialysis, reflecting a population enriched for severe symptom burden and intensive treatment demands. This distinction is important because population-based data indicate that advanced CKD (particularly Stage 5) represents a small fraction of CKD in the community, whereas earlier stages—especially Stage 3—are far more prevalent; thus, the present findings are best interpreted as describing psychiatric morbidity in a tertiary-care/advanced-CKD case mix rather than the broader CKD population (10).

Approximately half of the sample had at least one diagnosable psychiatric disorder. This magnitude aligns with a broad international literature recognizing that CKD is accompanied by substantial symptom and health-related quality-of-life (HRQoL) impairment, with the greatest HRQoL deficits reported among individuals receiving dialysis. The Kidney Disease: Improving Global Outcomes (KDIGO) CKD guideline emphasizes symptom management and supportive care approaches to help people "live well" with CKD, recognizing that symptom burden can interfere with social relationships, psychological well-being, and financial stability (11).

Depressive illness comprised a substantial component of psychiatric morbidity in this cohort. Major depressive disorder was identified in 20.6% of participants (with a similar proportion meeting depression severity thresholds). These estimates are close to interview-defined depression prevalence reported in large syntheses. For example, Palmer and colleagues found that interview-defined depression affects approximately one-quarter of adults with CKD overall and reported an interview-based prevalence of 22.8% among dialysis-treated CKD (stage 5D), while symptom-scale estimates in dialysis populations can be considerably higher (≈39%), highlighting how screening tools may overestimate "depression" when somatic symptoms overlap with uremia (12) In a more recent global meta-analysis, the pooled prevalence of depression in CKD was 26.5%, with higher prevalence in chronic hemodialysis than in pre-dialysis CKD (29.9% vs 18.5%). Mixed-modality cohorts (dialysis and non-dialysis) may therefore reasonably yield depression proportions in the range observed here, depending on disease stage distribution, local access-to-care patterns, and diagnostic methods (13).

Anxiety disorders were diagnosed in 11.4% of participants. This proportion is lower than pooled estimates from a systematic review and meta-analysis that reported anxiety disorders in ~19% of CKD

patients and elevated anxiety symptoms in ~43%. The discrepancy is plausibly explained by differences in ascertainment (clinical diagnostic interviews versus symptom questionnaires), sampling (late-stage/dialysis-enriched versus broader CKD), and the well-described overlap between CKD symptomatology (sleep disturbance, fatigue, dyspnea, pruritus) and anxiety presentations (14).

Adjustment disorder represented 12.1% of the cohort and is clinically credible in advanced CKD, where repeated stressors accumulate over time: progressive functional limitation, changes in family/work roles, uncertainty regarding prognosis, strict dietary/fluid restrictions, and the "time cost" of thrice-weekly in-center hemodialysis in many settings (15).

Administrative-code studies in end-stage kidney disease can report lower rates of adjustment-related diagnoses than interview-based or clinically evaluated cohorts, consistent with under-recognition in routine coding and differences in diagnostic thresholds; therefore, the relatively higher adjustment-disorder proportion in the present study may reflect structured psychiatric assessment rather than a true epidemiologic divergence (16).

The clinical significance of psychiatric comorbidity in CKD is underscored by outcome literature linking depression and anxiety with morbidity and mortality. In long-term dialysis populations, depressive symptoms have been associated with a substantially increased mortality risk (meta-analytic adjusted HR ~1.5), and depressive symptoms have also been linked to higher hospitalization risk and worse quality of life (17). Anxiety symptoms, similarly, have been reported as independently associated with increased risk for mortality and hospitalization in maintenance dialysis cohorts (18). These associations likely reflect both direct and indirect pathways: psychological distress may worsen inflammatory or neuroendocrine stress responses, but also affects behaviors central to CKD self-management.

A practical implication is the need for routine, integrated mental health surveillance in advanced CKD and dialysis care. KDIGO's optimal care model for CKD explicitly includes psychosocial support, and its team-based integrated care approach references psychological and social care as core components of patient-centered multidisciplinary management (19). Screening approaches should account for symptom overlap. Evidence syntheses emphasize that somatic symptoms of advanced kidney disease (e.g., fatigue, poor appetite, sleep disturbance) can inflate depression-screen positivity, while clinical interviews remain the diagnostic gold standard (10). When screening is used, validated tools (e.g., PHQ-9, BDI) can be applied with attention to appropriate cutoffs and follow-up diagnostic evaluation (10).

Finally, the literature supports the feasibility and effectiveness of psychosocial interventions in CKD. A 2024 systematic review and meta-analysis of psychosocial interventions in adults with CKD found that psychotherapy-based approaches were associated with a statistically significant reduction in depression scores (overall weighted mean difference −2.32) and improvements in CKD-specific quality-of-life measures (e.g., KDQOL-SF) (20). Randomized trials in dialysis settings further support cognitive-behavioral therapy (CBT), including chairside CBT during dialysis, which has demonstrated improvements in depression measures, quality of life, and dialysis-related behavioral outcomes (e.g., interdialytic weight gain) (21). Consistent with these findings, a Cochrane review describes psychosocial interventions (including CBT, counseling, education, relaxation, and social support) as potentially well-suited to dialysis populations given concerns about drug interactions and adverse effects with pharmacologic therapy in advanced CKD (22). Taken together, the present results support embedding structured mental health screening and accessible psychosocial interventions within routine CKD and dialysis services.

CONCLUSION

Depression and anxiety are highly prevalent psychiatric disorders among CKD patients undergoing both conservative as well as dialysis treatment. Our study also showed that end-stage renal failure is more strongly associated with psychiatric morbidity. So, treatment should be aimed at preventing the incidence of depression and anxiety and improving patients' quality of life.

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