

# A Cross-Sectional Study to Assess the Distribution of Psychiatric Morbidity and Coping among Patients Undergoing Hemodialysis in a Tertiary Care Hospital

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**Abstract:** *Chronic kidney disease (CKD) is a prevalent global health issue, affecting approximately 9-14% of the population. As CKD progresses, many patients require hemodialysis, a life-sustaining but invasive treatment that significantly impacts physical, psychological, and social well-being. Research has consistently shown high rates of psychiatric morbidity, including depression, anxiety, and cognitive impairment, among hemodialysis patients. These mental health challenges arise from the complex interaction of physiological, psychological, and socioeconomic factors, including the physical demands of treatment, lifestyle changes, and financial burden. Depression is particularly prevalent in this population and is associated with poor treatment adherence, increased hospitalization, and higher mortality rates. Anxiety disorders are similarly common, driven by the unpredictability of CKD progression, treatment stress, and physical discomfort during dialysis. Cognitive impairment, affecting attention, memory, and executive function, is also frequently observed and is linked to uremic toxins, cerebrovascular disease, and comorbid conditions. Untreated psychiatric disorders in hemodialysis patients contribute to worse clinical outcomes, higher healthcare utilization, and increased costs. Recognizing this, clinical guidelines emphasize the importance of regular screening and treatment of mental health issues in this population. Adaptive coping strategies, such as problem-solving and social support, have been linked to better mental health outcomes, while maladaptive strategies like avoidance are associated with greater psychological distress. Despite the known significance of psychiatric morbidity and coping strategies, there is limited comprehensive data, particularly in developing countries. This cross-sectional study aims to address this gap by identifying the prevalence and patterns of psychiatric conditions and coping mechanisms among hemodialysis patients. The findings may inform the development of targeted interventions, improve treatment adherence, and enhance the quality of life for this vulnerable population. Additionally, understanding the interplay between psychiatric conditions and coping strategies may provide insights into preventive and therapeutic approaches for CKD patients.*

**Keywords:** Chronic Kidney Disease, Kidney Disease: Improving Global Outcomes, Beck Depression Inventory-Dialysis, Hamilton Depression Rating Scale, Socioeconomic Status

## 1. Introduction

Chronic kidney disease (CKD) is a significant public health concern, with a global prevalence estimated to be around 9-14%<sup>1</sup>. As the disease progresses, patients often require renal replacement therapy, such as hemodialysis, to sustain life. Hemodialysis is a demanding and intrusive treatment modality that can profoundly impact a patient's physical, psychological, and social well-being<sup>2</sup>. Numerous studies have highlighted the high prevalence of psychiatric morbidities, including depression, anxiety, and cognitive impairment, among patients undergoing hemodialysis<sup>3-5</sup>.

The burden of psychiatric morbidity in hemodialysis patients is multifactorial, stemming from the complex interplay of physiological, psychological, and socioeconomic factors. The physical demands of the treatment regimen, dietary restrictions, and associated comorbidities can contribute to the development of psychological distress<sup>6</sup>. Additionally, the loss of independence, disruption of daily routines, and the financial implications of the disease and its management can exacerbate the emotional strain experienced by these patients.

Depression, one of the most prevalent psychiatric disorders observed in hemodialysis patients, has been consistently

linked to poorer treatment adherence, increased rates of hospitalization, and higher mortality rates<sup>7</sup>. The physiological changes associated with chronic kidney disease, such as inflammation, hormonal imbalances, and the accumulation of uremic toxins, may contribute to the development and manifestation of depressive symptoms<sup>8</sup>. Furthermore, the profound psychological burden of coping with a chronic, life-threatening illness and the associated lifestyle changes can exacerbate feelings of hopelessness, despair, and a diminished sense of well-being.

Anxiety disorders, including generalized anxiety disorder and panic disorder, are also commonly reported among patients undergoing hemodialysis treatment<sup>9</sup>. The unpredictable nature of disease progression, the fear of potential complications, and the stress associated with the demanding treatment regimen can trigger or exacerbate anxiety symptoms in these individuals<sup>10</sup>. Moreover, the physical discomfort frequently experienced during hemodialysis sessions, such as muscle cramps, nausea, and fatigue, may further contribute to increased levels of anxiety.

Cognitive impairment, often manifesting as difficulties with attention, memory, and executive functioning, represents another frequent complication observed in the hemodialysis patient population. The underlying mechanisms contributing

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to cognitive deficits in these patients are multifactorial, including the direct effects of uremic toxins, cerebrovascular disease, and the presence of associated comorbidities. Importantly, the psychological distress associated with the disease and its treatment can compound these cognitive deficits, ultimately impacting patients' ability to adhere to complex treatment regimens and make informed decisions regarding their care.

Untreated psychiatric morbidities in hemodialysis patients can have far-reaching consequences, adversely affecting treatment adherence, quality of life, and overall survival. Furthermore, these conditions may contribute to increased healthcare utilization and costs, underscoring the importance of early identification and appropriate management. Recognizing the impact of psychiatric morbidities on patient outcomes, professional societies and clinical practice guidelines have emphasized the need for regular screening and treatment of mental health disorders in this vulnerable population.

Coping strategies employed by patients can play a pivotal role in mitigating the psychological distress associated with hemodialysis. Adaptive coping mechanisms, such as problem-solving, seeking social support, and positive reappraisal, have been linked to better mental health outcomes and improved quality of life. Conversely, maladaptive coping strategies, like avoidance and self-blame, have been associated with increased psychological distress and poorer treatment adherence.

Despite the recognized significance of psychiatric morbidity and coping strategies in hemodialysis patients, there remains a paucity of comprehensive data in many healthcare settings, particularly in developing countries. By identifying the prevalence and patterns of these conditions, this study seeks to inform the development of targeted interventions and support services tailored to the unique needs of this patient population. Identifying patients at higher risk for mental health disorders can facilitate targeted screening and early intervention measures, potentially improving treatment adherence, quality of life, and overall outcomes. Moreover, understanding the coping mechanisms employed can inform the development of tailored psychosocial support programs and counselling interventions.

Beyond clinical applications, the findings of this study may contribute to the broader knowledge base surrounding the psychological and emotional aspects of chronic kidney disease and hemodialysis. By examining the interplay between psychiatric morbidities, coping strategies, and various patient factors, this research may shed light on potential risk factors and protective mechanisms, informing future preventive and therapeutic strategies.

In summary, this cross-sectional study aims to measure the prevalence, patterns, and associations of psychiatric morbidities and coping strategies among hemodialysis patients, this study endeavours to inform clinical practice, psychosocial interventions, and healthcare policies.

## 2. Aims and Objectives

### Aim

The overarching aim of the study is to assess the distribution of psychiatric morbidity and coping among patients undergoing Hemodialysis.

### Objectives

- 1) To assess the prevalence of psychiatric comorbidity (depression and anxiety) among hemodialysis patients
- 2) To quantify the severity of psychiatric morbidity (depression and anxiety) among hemodialysis patients
- 3) To assess the coping styles of the patient's undergoing hemodialysis
- 4) To study the relationship between the socio-demographic variables and this psychiatric morbidity.

## 3. Review

Chronic Kidney Disease (CKD) is a global health issue that often progresses silently, with few early symptoms, making timely detection difficult. Initial signs include changes in urination, fatigue, appetite loss, sleep issues, and fluid retention. High blood pressure is both a cause and effect of CKD [4].

Accurate diagnosis relies on tests like the estimated glomerular filtration rate (eGFR) and urinary albumin-to-creatinine ratio (UACR), which assess kidney function and damage. Imaging studies help detect structural abnormalities. Socioeconomic factors, like healthcare access and nutrition, also influence CKD progression, with social isolation worsening outcomes. Early diagnosis and intervention are key to effective management.

Genetics are becoming a critical focus in CKD research. Mutations, such as the MYH9 gene mutation, have been linked to CKD progression, allowing for targeted therapies and early interventions. Genetic testing can identify individuals at risk, complementing traditional risk factors like diabetes, hypertension, and obesity, which also contribute to CKD development. Other contributors include autoimmune diseases, urinary tract obstructions, and gut dysbiosis.

CKD also impacts mental health, with anxiety and depression common due to treatment burdens, disease uncertainty, and lifestyle changes. Social support plays a vital role in mitigating psychological distress. Comprehensive care, addressing both physical and mental health, is essential for improving CKD patient outcomes.

### Psychological and Social Determinants in CKD

Addressing the psychological impact of chronic kidney disease (CKD) is vital for comprehensive care. Cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR) have been effective in improving mental health, reducing anxiety and depression in CKD patients. Social support, particularly through support groups, also enhances well-being by reducing isolation.

Social determinants like income, education, and healthcare access significantly influence CKD outcomes. Low

socioeconomic status (SES) increases CKD risk due to limited access to healthy food, preventive care, and medications. Education levels affect self-management, leading to faster disease progression, while food insecurity complicates maintaining a kidney-friendly diet. Environmental factors, like toxin exposure, further contribute to CKD risk, especially in disadvantaged communities. These disparities underscore the need for social justice in CKD prevention and management.

A biopsychosocial approach that considers biological, psychological, and social factors is essential for holistic CKD care. Low SES can lead to poor physical health and heightened depression, while strong social support improves both mental and physical well-being.

#### **Dialysis: A Lifesaving Intervention for ESRD**

End-stage renal disease (ESRD) requires dialysis to compensate for the kidneys' lost filtering abilities. Two main types exist: hemodialysis (HD) and peritoneal dialysis (PD). HD uses a machine to filter blood, while PD involves a cleansing solution in the abdomen. Both options are vital, and the choice depends on factors like lifestyle and health conditions, with similar survival rates.

#### **Psychological Comorbidities in Dialysis Patients**

Dialysis patients are at high risk for psychological disorders like depression and anxiety due to the physical and emotional toll of treatment. Studies indicate that 40-56% of dialysis patients experience depression or anxiety, which negatively impacts treatment adherence and quality of life. Depression leads to feelings of hopelessness, while anxiety causes excessive worry, often exacerbated by frequent hospital visits and treatment uncertainties. Sleep disturbances and disorders such as OCD and eating disorders are also common, further compounding the emotional burden.

The psychological challenges of dialysis are closely tied to its physical effects, like chronic pain and fatigue. Social isolation, stigma, and treatment schedules also contribute to mental health issues. Addressing both physical and psychological needs is essential for improving patient well-being.

#### **Impact of Psychological Comorbidity on Quality of Life**

Psychological distress significantly lowers quality of life for dialysis patients, with depression linked to reduced adherence to treatment plans and social withdrawal. This isolation worsens mental health, creating a cycle of declining physical and emotional well-being. Daily functioning becomes difficult, and the loss of independence further diminishes quality of life.

#### **Treatment Adherence and Psychological Comorbidity**

Depression and anxiety in dialysis patients often lead to poor adherence to dialysis schedules, medications, and dietary restrictions. These psychological conditions are linked to higher mortality and hospitalization rates. Addressing them requires both pharmacological treatments, like antidepressants, and psychosocial interventions, such as

CBT and support groups, which improve mental health and treatment outcomes.

#### **Coping in Hemodialysis Patients**

Active coping strategies, combined with strong social support, are crucial for managing the challenges of dialysis. Research shows that patients using these strategies tend to have better physical and mental health outcomes.

### **4. Materials and Methods**

#### **Study Setting**

The study was conducted in the Psychiatry department of Sree Balaji Medical College and Hospital.

The study was conducted from September 2022 to March 2024

#### **Inclusion Criteria:**

- Patient diagnosed with ESRD and on hemodialysis at least once prior to assessment.
- Age range of 18 - 60 years
- Both males and females
- Ability to understand and give consent

#### **Exclusion Criteria**

- Patients with cognitive impairment /intellectual disability / uncooperative
- Patient with past history of psychiatric illness.

#### **Study Population:**

Patients attending the Hemodialysis unit in Nephrology department of Sree Balajimedical college and hospital will be recruited for the study.

#### **Sampling Methodology:**

Purposive sampling

#### **Study Design:**

Cross-sectional study

#### **Study Duration:**

From September 2022 to March 2024

Minimum required sample size is 114

Patients visiting for regular hemodialysis at the facility will be approached for the study. Those who fulfil the inclusion and exclusion criteria will be included in the study after obtaining Written informed consent.

Socio-demographic and clinical details will be collected. Following tools like the General Health Questionnaire (GHQ-12), Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), coping styles will be assessed using BRIEF COPE. Once the data is collected appropriate statistical analysis will be done.

### **5. Data Collection Instruments**

#### **GHQ-12**

The General Health Questionnaire (GHQ-12), a shortened 12-item version of the questionnaire, GHQ-12 is a 4-point Likert scale tool, often used to assess general mental health

and identify potential mental health issues. The questions cover aspects like depression, anxiety and self-confidence. The higher the score, the poorer the mental health<sup>83</sup>.

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#### HAM-A

The Hamilton Anxiety Rating Scale (HAM-A) is a widely used tool to measure the severity of a patient's anxiety. It consists of 14 items, these items measure both psychological distress, resulting from anxiety and physical complaints (Somatic symptoms) related to anxiety. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0 to 56. The higher the score, the more severe the anxiety. The Severity of the anxiety is categorized from the computed scores and the grading is done as follows: Mild Severity (<17); Mild to Moderate severity (18-24) and Moderate to Severe (25-30)<sup>101</sup>.

The Hamilton Anxiety Rating Scale (HAM-A), a companion tool to the HAM-D, is used to assess anxiety severity. The HAM-A offers advantages. It is a clinician-administered interview format that evaluates a broad range of anxiety symptoms. Each symptom receives a severity rating, resulting in a total score reflecting overall anxiety. This standardized approach facilitates comparisons between patients and over time.

#### HAM-D

The Hamilton Depression Rating Scale (HAM-D), also known as the Hamilton Rating Scale for Depression (HRSD), is a multiple-choice questionnaire used to screen, diagnose depression, and as a guide to evaluate prognosis.

It is a five-point Likert Scale tool. Each item is scored on a scale of 0 (not present) to 4 (very severe), with a total score range of 0 to 52. The higher the score, the more severe the depression. The levels of depression, are based on the scores and are as follows: 10-13 Mild; 14-17 mild to moderate and >17 moderate to severe<sup>102</sup>.

The HAM-D offers several advantages. Firstly, it is a clinician-administered, semi-structured interview that evaluates a broad spectrum of depressive symptoms<sup>73</sup>. Each symptom is assigned a severity rating, culminating in a quantitative score that reflects the overall level of depression. This standardized approach facilitates comparisons between patients and across different time points.

#### Brief Cope

The Brief COPE is a shortened version, containing 14 items of the COPE Inventory, designed to assess a variety of coping responses. Each item is rated on a 4-point Likert scale, ranging from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot).

The three categories- domain model is used to interpret the

BRIEF COPE and they are as follows:

- 1) Problem-focused (active coping, planning, use of instrumental support),
- 2) Emotion-focused (use of emotional support, positive reframing, acceptance, religion, humor), and
- 3) Dysfunctional coping (venting, denial, substance use, behavioral disengagement, self-distraction, self-blame). Dysfunctional coping correlated with depressive symptoms, whereas mixed findings were reported on the relationship between problem-focused and emotion-focused coping strategies and psychological outcomes.

Understanding a patient's propensity for emotional support, as assessed by the Brief COPE, can inform the development of support groups or individual therapy sessions focused on emotional expression and stress management techniques<sup>91</sup>. Similarly, patients who exhibit high levels of avoidance coping might benefit from interventions that encourage problem-solving skills and emotional processing, potentially reducing the long-term negative consequences of avoidance.

The **Brief Psychiatric Rating Scale (BPRS)** is a valuable tool for identifying co-occurring psychiatric conditions, such as depression and anxiety, which are prevalent in dialysis patients. Studies by Cohen and Ye emphasize the need for effective screening, with the BPRS allowing for early detection and timely interventions like therapy or medication, improving patients' well-being. The BPRS also tracks psychiatric symptom severity over time, helping tailor treatments to the specific needs of dialysis patients.

Research by Alshelleh et al. showed the BPRS is effective in assessing anxiety and depression in dialysis patients, though other symptoms showed little variation. While promising, the BPRS requires time and clinician involvement, making it challenging in busy dialysis units. Its subjectivity can also lead to variability in scoring between professionals.

Despite these limitations, the BPRS offers comprehensive insights into mental health, making it useful for tracking psychiatric conditions and treatment effectiveness. Studies suggest it could be adapted for use specifically in dialysis populations, potentially improving its relevance and reliability in this context.

#### Statistical Analysis:

Descriptive analysis will be carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. Data will also be represented using appropriate diagrams like bar diagram, pie diagram and box plots. The association between categorical explanatory variables and quantitative outcome will be assessed by comparing the mean values. The mean differences along with their 95% CI will be presented. Independent sample t-test/ ANOVA will be used to assess statistical significance. The association between explanatory variables and categorical outcomes will be assessed by cross tabulation and comparison of percentages. Chi square test/ Fisher's will be used to test statistical significance.

## 6. Discussion

Chronic kidney disease (CKD) is a significant global health issue, impacting millions and straining healthcare systems. Hemodialysis is a common treatment for end-stage renal disease (ESRD), effectively managing uremic symptoms but also introducing various psychosocial challenges that affect patients' well-being.

This study assessed psychiatric morbidity and coping strategies among hemodialysis patients in a tertiary care hospital. Results revealed a high prevalence of psychiatric issues, with 100% of participants experiencing anxiety and depression, and 74% reporting very severe depression. This psychological burden raises concerns about the overall quality of life and treatment adherence in these patients.

The findings emphasize the urgent need for integrated mental health support in nephrology settings, as anxiety and depression can worsen physical symptoms and hinder treatment compliance. Addressing these issues requires a multidisciplinary approach combining psychological and medical interventions to improve patient outcomes.

The study also evaluated coping strategies using the BRIEF-COPE questionnaire, showing moderate use of emotion-focused coping and lower engagement in problem-focused coping. While many patients employ active strategies to address stressors, the limited use of problem-focused coping indicates that they may not effectively alter distressing situations. This highlights opportunities to innovate in dialysis care, with potential interventions aimed at enhancing emotional regulation and fostering acceptance of illness-related challenges.

This issue can be addressed in mental health improvement sessions. Additionally, the presence of avoidant coping highlights the need to tackle maladaptive patterns that may hinder psychological adjustment and treatment adherence.

Understanding the relationship between sociodemographic factors and psychiatric morbidity in hemodialysis patients is crucial for identifying vulnerable subgroups and tailoring interventions. Our study analyzed various sociodemographic variables—such as gender, domicile, literacy level, marital status, employment status, income, duration of dialysis, family support, transplantation plans, medical and psychiatric illnesses, dialysis expenses, and caregiver status—regarding their impact on anxiety, depression, and coping strategies.

While no significant differences were found based on these sociodemographic factors, trends suggest that financial difficulties significantly predict depression, underscoring the influence of socioeconomic factors on mental health. The lack of strong associations between psychiatric morbidity and other variables indicates the complex interplay of individual, social, and environmental influences on psychological well-being.

These findings underscore the necessity for routine screening and early detection of psychiatric symptoms in hemodialysis patients. Identifying at-risk individuals can

enable timely interventions and improve outcomes. Healthcare professionals should incorporate mental health assessments into routine care and provide necessary support to address patients' psychological needs.

## 7. Conclusion

In conclusion, our study emphasize the importance of addressing psychiatric morbidity and promoting adaptive coping strategies among hemodialysis patients. By recognizing the psychological challenges faced by ESRD patients undergoing hemodialysis and implementing targeted interventions that foster resilience and well-being, healthcare providers can enhance treatment outcomes and improve patients' overall quality of life. Moving forward, continued research efforts and collaborative initiatives are needed to advance our understanding of the complex interplay between mental health, coping, and clinical outcomes in hemodialysis patients.

## 8. Strengths

In a single study we have tried to assess using multiple psychometric assessment tools which could draw clearer picture of psychological co-morbidity and to the best of our knowledge not much studies have been done on the same.

The results of this study have important implications for clinical practice. The high prevalence of psychiatric morbidity among patients undergoing hemodialysis highlights the need for routine screening and early detection of psychiatric symptoms in this population.

## 9. Limitations

- It is a hospital-based sample and not truly representative of the community. The study sample was relatively small and recruited from a single centre.
- There is no comparative group for the study sample.
- The cross-sectional design precludes causal inference, and the reliance on self-reported measures may introduce bias.

Additionally, the study sample was drawn from a single tertiary care hospital, potentially limiting the generalizability of the findings to other settings and populations.

Future research should employ longitudinal designs and incorporate objective measures of psychiatric morbidity to provide a more comprehensive understanding of the factors influencing mental health outcomes in hemodialysis patients.

## 10. Recommendations

Despite these limitations, our study contributes valuable insights into the distribution of psychiatric morbidity and coping strategies among hemodialysis patients. By identifying areas of vulnerability and resilience, healthcare providers can develop tailored interventions that address the unique psychosocial needs of this population and

improve their overall quality of life. Integrating mental health screening and support services into routine nephrology care can help mitigate the adverse effects of psychiatric morbidity and enhance the holistic management of hemodialysis patients.

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