



**ORIGINAL RESEARCH PAPER**

**General Medicine**

**PREVALENCE OF DEPRESSION AND ANXIETY IN END STAGE KIDNEY DISEASE PATIENTS ON MAINTENANCE HEMODIALYSIS**

**KEY WORDS:** PHQ-9 questionnaire, Scoring GAD-7 Anxiety Severity, chronic kidney disease

**Dr Neha Athale** Resident, Dept. Of Nephrology, Dr. DY Patil Medical College, Navi Mumbai

**Dr Avinash Chaudhari** Prof & HOD Nephrology, Dr. DY Patil Medical College Navi Mumbai.

**Dr Amar Kulkarni** Assoc. Prof Nephrology, Dr. DY Patil Medical College, Navi Mumbai.

**Dr Shruti Shinde** Resident Nephrology, Dr. DY Patil Medical College, Navi Mumbai

**Dr Pooja Kumari** Resident Nephrology, Dr. DY Patil Medical College, Navi Mumbai

**ABSTRACT**

**Introduction:** Patients with Chronic Kidney Disease (CKD) are thought to be highly susceptible to emotional problems because of the chronic stress related to disease burden, dietary restrictions, functional limitations, associated comorbidities, adverse effects of medication, changes in self-perception and fear of death. **Aims and Objective :** To evaluate the prevalence of depression and anxiety with their effect on quality of life in end stage kidney disease patients on maintenance hemodialysis. **Material and Methods :** This is a cross sectional observational study conducted between January and March 2024 at Department of Nephrology, D.Y. Patil University, School of Medicine, Nerul, Navi Mumbai. 30 adults of either sex with chronic kidney disease on maintenance dialysis were included in the study. Patients not willing to participate were excluded. PHQ-9 questionnaire is used to screen for depression and Scoring GAD-7 for anxiety severity in patients with end-stage renal disease. **Results :** Minimal depression in PHQ-9 scoring was found in 16 (53.33%) cases and mean was 5.07+3.85 and minimal Anxiety level (GAD-7 Scoring) was found in 21 (70.00%) cases and mean was 3.83+3.68. **Conclusion :** CKD patients undergoing hemodialysis need early psychiatric evaluation and any interventions if indicated. This will improve their overall quality of life.

**INTRODUCTION**

The National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) created guidelines providing a clear definition and classification system for chronic kidney disease (CKD). These guidelines define CKD as the presence of kidney damage or glomerular filtration rate (GFR) of <60 mL/min/1.73m<sup>2</sup> for 3 months or more, irrespective of cause<sup>1</sup>. Upto 10% of adults worldwide have CKD which is invariably irreversible. The global burden of CKD is rising, and it is projected to become the 5th most common cause of years of life lost globally by 2040<sup>2</sup>. In India overall prevalence of CKD in the SEEK (Screening and Early Evaluation of Kidney Disease) India cohort study was 17.2% and prevalence of CKD stage 1,2,3,4,5 was 7%, 4.3%, 4.3%, % and 0.8% respectively<sup>3</sup>.

If CKD remains uncontrolled and the affected person survives the ravages of systemic complications of the disease, it progresses to ESRD, where life cannot be sustained without dialysis therapy or kidney transplantation<sup>4</sup>. In India, given its population >1 billion, the rising incidence of CKD is likely to pose major problems for both healthcare and the economy in future years.

Patients with CKD are thought to be highly susceptible to emotional problems because of the chronic stress related to disease burden, dietary restrictions, functional limitations, associated chronic illness, adverse effects of medication, changes in self-perception and fear of death. Hemodialysis patients have lower quality of life, more functional impairments, greater occurrence of psychopathological states including suicide, lower adherence to drug treatment and an increased likelihood of long term body-pain<sup>5</sup>.

Depression is the most common psychiatric problem in CKD patients. Co-morbid depression impacts negatively on quality of life in CKD<sup>6</sup>. Depression and anxiety are considered as one of the most common psychiatric disorders that occur in patients living with CKD<sup>7</sup> and might lead to functional impairment, suicidal ideation, sleep disorders, immune system compromise and worsening of nutritional status<sup>8</sup>, all of

which are responsible for the increased morbidity and mortality in this population. In these patients, depression is up to three times more prevalent than in the general population.<sup>9</sup>. The precise prevalence of anxiety disorders in haemodialysis patients is unclear, but estimates have ranged from approximately 12% to 52% in various studies.<sup>10</sup>

**Nine-Question Patient Health Questionnaire (PHQ-9)<sup>11</sup> :** PHQ-9 has been validated tool for screening and diagnosis of depression. PHQ-9 have been used to screen for depression in patients with end-stage renal disease (ESRD)

**Scoring GAD-7<sup>12</sup> Anxiety Severity :** A 13-item questionnaire was developed that asked patients how often, during the last 2 weeks, they were bothered by each symptom. Response options were "not at all," "several days," "more than half the days," and "nearly every day," scored as 0, 1, 2, and 3, respectively. GAD-7 total score for the seven items ranges from 0 to 21 [0-4 : minimally, 5-9 : mild anxiety, 10-14 moderate anxiety, 15-21 : severe anxiety]

**Aims and Objectives**

1. To evaluate the prevalence of depression and anxiety with their effect on quality of life in chronic kidney disease patients on maintenance hemodialysis

**MATERIAL AND METHODS**

This is a cross sectional observational study conducted between January and March 2024 at Department of Nephrology, D.Y. Patil University, School of Medicine, a tertiary care hospital in Navi Mumbai. 30 adults of either sex with chronic kidney disease on maintenance dialysis were included in the study. Patients not willing to participate were excluded. The structured questionnaire for factors associated with anxiety and depression were used in this study. Hemoglobin levels along with the age of the patient and duration of patient on hemodialysis were also seen.

**Scoring and Interpretation**

The data related to patient health was recorded on pre-designed Nine-Question Patient Health Questionnaire (PHQ-

9)<sup>11</sup>. PHQ-9 have been used to screen for depression in patients with end-stage renal disease (ESRD)

A 9-item questionnaire was developed that asked patients how often, during the last 2 weeks, they were bothered by any of the following problems : (1) little interest or pleasure in doing things, (2) Feeling down, depressed or hopeless, (3) trouble feeling or staying asleep, or sleeping too much, (4) Feeling tired or having little energy (5) Poor appetite or overeating (6) Feeling bad about yourself - or that you are a failure or have let yourself or your family down (7) Trouble concentrating on things, such as reading the newspaper or watching television, (8) Moving or speaking slowly that other people could have noticed Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual (9) Thoughts that you would be better off dead, or of hurting yourself. Response options were “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3, respectively.

**Scoring GAD-7<sup>12</sup> Anxiety Severity :**

A 13-item questionnaire was developed that asked patients how often, during the last 2 weeks, they were bothered by each symptom. (1) Feeling nervous, anxious or on edge, (2) Not being able to stop or control worrying (3) Worrying too much about different things (4) Trouble relaxing (5) Being so restless that it is hard to sit still (6) Becoming easily annoyed or irritable (7) Feeling afraid, as if something awful might happen. Response options were “not at all,” “several days,” “more than half the days,” and “nearly every day,” scored as 0, 1, 2, and 3, respectively. GAD-7 total score for the seven items ranges from 0 to 21 [0-4 : minimally, 5-9 : mild anxiety, 10-14 moderate anxiety, 15-21 : severe anxiety]

The data were statistically analyzed.

**OBSERVATIONS**

Regarding depression level, more than half of the participants were found to have minimal depression level as per PHQ - 9 scoring method for depression and 70% as per GAD - 7 scoring method for anxiety showed in Tables 1 and 2 respectively.

As per PHQ-9 scoring in our study minimal depression was found in 16 (53.33%) cases in our present study. There was no case of moderate severe depression and severe depression in our study. The mean was 5.07±3.85 in present study.

As per GAD-7 scoring in our study minimal anxiety was found in 21 (70.00%) cases. There were 5 (16.67%) cases who had mild anxiety and 4 (13.33%) cases of moderate anxiety was observed in our study. The mean was 3.83±3.65 in present study. Positive correlation was found while comparing both the methods (r=0.600223 and P=0.0005). T value was 1.275 and P value was P = 0.2073 in our study which is not significant.

The mean age of our patients were 48.63 years, mean Hemoglobin levels were 8.9 g/dl and mean duration of our patients on Hemodialysis was 4.59 years.

**Table 1 : Depression Level (PHQ - 9 Scoring)**

Score	Depression Level	Number	Percent
0-4	Minimal	16	53.33
5-9	Mild	9	30.00
10-14	Moderate	5	16.67
15-19	Moderate Severe	0	0.00
> 20	Severe	0	0.00
Total		30	100
Mean + SD		5.07 + 3.85	

**Table 2 : Anxiety Level (GAD-7 Scoring)**

GAD - 7 Scoring (n =30)			
Score	Anxiety Level	Number	Percent
0-4	Minimal	21	70.00

5-9	Mild	5	16.67
10-14	Moderate	4	13.33
15-21	Severe	0	0
Total		30	100
Mean + SD		3.83 + 3.68	

**Table 3 : Age Distribution**

Age Group (YEARS)	Number	Percent
>30	2	6.67
31-40	8	26.67
41-50	5	16.67
51-60	8	26.67
60-70	7	23.33
Total	30	100.00
Mean + SD		48.63 + 12.76

**Table 4: Hemoglobin**

Hemoglobin (g/dL)	Number	Percent
< 8	9	30.00
8-10	16	53.33
> 10	5	16.67
Total	30	100.00
Mean + SD		8.90 + 1.34

**DISCUSSION**

In the study of Swathi M et al. (2023)<sup>13</sup> the prevalence and severity of depressive and anxiety disorders in CKD patients which is similar to our study. In our study PHQ-9 scoring mean was 5.07 ± 3.85 and in Anxiety level (GAD-7 Scoring) was 3.83 ± 3.68. (Table 1 and Table 2)

Studies by Scott et al. (2007)<sup>14</sup> and Kohlmann et al. (2016)<sup>15</sup> explored the association between depression and anxiety, noting that these two conditions often co-occur. They further suggested that chronic diseases may cause anxiety and depression, while anxiety and depression may also contribute to the development of chronic diseases. Depression and Anxiety are common in chronic kidney disease patients, which is similar to our present study observations and findings.

Also in the study of Sameeha A (2022)<sup>16</sup> found that more than half of the participants have depression and anxiety with a percentage of 58.3% and 50.5%, respectively which is also similar to our study.

**CONCLUSION**

We concluded that depression and anxiety disorders are prevalent in CKD patients undergoing hemodialysis. Our findings are similar to literature on this subject. These patients need early psychiatric consultation and any interventions if indicated. This will improve their overall quality of life. Future studies are needed to evaluate other psychiatric comorbidities in CKD patients and effect of these on disease progression.

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