

# Assessment of Depressive Disorder in Patients with Chronic Kidney Disease at a Tertiary Care Hospital

Vinod Mitla<sup>1</sup>, Salma Kouser<sup>1</sup>, Akhil Menia<sup>2</sup>, Shivesh<sup>3</sup>, Syed Arshad Mustafa<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Medicine, Government Medical College, Kathua, Jammu and Kashmir, India, <sup>2</sup>Registrar, Department of Psychiatry, Government Medical College and Hospital, Jammu, Jammu and Kashmir, India, <sup>3</sup>Junior Resident, Department of Medicine, Government Medical College, Kathua, Jammu and Kashmir, India, <sup>4</sup>Associate Professor, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India

## Abstract

**Background:** Depressive disorders have a frequent association with chronic diseases. Chronic kidney disease (CKD) takes a toll on quality of life due to frequent hospital visits, interventions, and disease-related morbidity. Depression in CKD has been largely underreported. This study aims to extrapolate association of depression in patients of CKD.

**Aim:** The aim of this study was to assess the prevalence of depression in CKD patients.

**Materials and Methods:** This was a prospective, cross-sectional, and analytical study carried out in patients with CKD.

**Results:** Significant association (s) was seen between depression and rural background, duration of illness, primary diagnosis of diabetes mellitus, and advanced stages of CKD. Female gender had comparatively a higher association, but that was not statistically significant.

**Conclusion:** This study reflected a high incidence of depression symptoms among dialysis patients (more than two thirds the participants) with some patients having major depressive symptoms that necessitate urgent treatment on priority basis. There were significant associations between depression and rural background, duration of illness, primary diagnosis of diabetes mellitus, and advanced stage of CKD. Assessment of depression status should become a routine practice in patients with CKD and undergoing dialysis. Those diagnosed with depression should receive intervention in the form of psychopharmacological and psychosocial (whatever required) as early as possible.

**Key words:** Disease, Kidney, Patients

## INTRODUCTION

The increasing incidence and prevalence of chronic kidney disease (CKD) represents a global public health problem. Depression is a very common,<sup>[1-3]</sup> mostly under-recognized and often undertreated<sup>[1,4-6]</sup> problem in patients with end-stage renal disease (ESRD) on long-term dialysis therapy. The prevalence of depression ranges from 2% to 11% in the general population.<sup>[7]</sup> However, in patients with CKD, the data for prevalence are contradictory, ranging from 0 to 100% among different studies.<sup>[8,9]</sup> Recent studies have

shown prevalence rates of depression of 20–30% in dialysis patients.<sup>[1,2,10]</sup> The burden of CKD has escalated during the past few years to become an urgent matter of public health priority, resulting in a 106% increase in the prevalent ESRD population.<sup>[11,12]</sup>

CKD can be associated with a depressive symptom that may necessitate the need for intervention and support from a psychologist/psychiatrist especially during dialysis.<sup>[13]</sup> It was estimated that around 12–52% of patients on hemodialysis experience anxiety, depression, and a decrease in quality of life during dialysis, and some cases may lead to an increase in mortality.<sup>[14]</sup> This can be attributed to the fact dialysis restricts physical activity, certain foods, ability to work, interaction with family, and the ability to work.<sup>[15-17]</sup>

This study was a cross-sectional study in patients with CKD (stage 4 or stage 5) with the primary diagnosis of

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**Corresponding Author:** Dr. Syed Arshad Mustafa, Department of Radiation Oncology, Government Medical College, Srinagar, Jammu and Kashmir, India.

hypertension/diabetes mellitus. The objective of the present study was to evaluate depressive symptoms in patients with stages four/five CKD on dialysis to identify a possible association between depression and CKD. Other factors such as duration of illness, sociodemographic, and association of the primary diagnosis with depression were also evaluated.

### Aims and Objectives

The aims of this study were to analyze the “Prevalence of Major Depressive Disorder in patients with CKD attending Dialysis unit in a Tertiary Care Hospital.”

## MATERIALS AND METHODS

It was a prospective, non-randomized, and cross-sectional study conducted on a total of 50 patients including both genders, with underlying CKD attending dialysis unit of GMC Kathua. Depression was assessed using “Hamilton Rating Scale.”

Cohort included both indoor as well as outdoor patients. Two departments were participants including Internal Medicine and Psychiatry departments.

### Inclusion Criteria

The following criteria were included in the study:

Any patient with impairment of

1. Kidney functions more than 3 months
2. Patients with ESRD before and after dialysis
3. Nephrotic syndrome
4. Systemic lupus erythematosus.
5. Renal tubular acidosis.
6. Obstructive uropathy with impairment of kidney function
7. Persistent microscopic hematuria.

### Exclusion Criteria

The following criteria were excluded from the study:

1. Anatomical brain lesion
2. Psychiatric disease before onset of renal disease
3. Family history of psychiatric disease.

The purpose of study was explained to all participants and written informed consent was taken from them.

## RESULTS

Total sample size of study is 50 (25 males and 25 females) patients with CKD. Out of 50 patients, 31 were residing from rural area (14 males and 17 females) and 19 were from urban area (11 males and eight females) with the primary diagnosis

of hypertension in 21 patients (13 males and eight females) and diabetes mellitus in 29 patients (12 males and 17 females). Twenty-nine patients (15 males and 14 females) were in stage 4 of CKD and 21 (ten males and 11 females) were in stage 5 of CKD with duration of illness 1 year in seven patients, 2 years in 13 patients, 3 years in 16 patients, and 4 years in 14 patients.

Out of 25 males (five were having mild, seven moderate, and three severe depression) 25 females (seven were having mild, seven moderate, and seven were having severe depression). Although more number of females were showing symptoms of depression, still result was not statistically significant with  $P = 0.11$ . Nineteen patients were living in urban area (five with mild, four with moderate, and two with severe depression) and 31 in rural area (seven with mild, ten with moderate, and eight with severe depression). Result was statistically significant with  $P = 0.05$  indicating that patients living in rural area were more prone to depression than patients living in urban area. Twenty-one patients with the primary diagnosis of hypertension (four with mild, six with moderate, and one with severe depression) and 29 patients with the primary diagnosis of diabetes mellitus (eight with mild, eight with moderate, and nine with severe depression). Result was statistically significant with  $P = 0.01$  indicating that patient with diabetes was more prone to depression than patients with hypertension. Twenty-nine patients with stage 4 of CKD (nine with mild, eight with moderate, and one with severe depression) and 21 patients with stage 5 of CKD (three with mild, six with moderate, and nine with severe depression). Result was statistically significant with  $P = 0.0005$  indicating that patients in stage 5 of CKD were more prone to depression. Twenty patients with DOI  $\leq 2$  years (six with mild, three with moderate, and none with severe depression) and 30 with DOI more than 2 years (six with mild, 11 with moderate, and 10 with severe depression). Result was statistically significant with  $P = 0.00006$  indicating that patients with more duration of illness were more prone to depression.

## DISCUSSION

Out of 50 patients, 36 showed symptoms of depression on HAM-D scale. Although more females showed symptoms of depression than males, the difference was not statistically significant. The prevalence of depression was higher among women, a finding reflecting a trend normally seen in general population.<sup>[7]</sup> Patients living in a joint family, who generally have greater social support (living in rural areas) than those living in a nuclear family, were found to be more depressed. However, we did not analyze in detail the social support as it was perceived by the patients. Some studies

**Table 1 : Clinicodemographic profile**

Variable	Male	Female	Total
Sex	25	25	50
Residence			
Rural	14	17	31
Urban	11	8	19
Diagnosis			
Hypertension	13	8	21
Diabetes	12	17	29
Stage			
4	15	14	29
5	10	11	21
DOI (years)			
1	5	2	7
2	6	7	13
3	7	9	16
4	7	7	14

**Table 2: HAM D scoring**

Variable	>9	10-13	14-17	>17	Total	Chi square *P-value
Gender	>9	10-13	14-17	>17	Total	
Male						2.43
Female	10	5	7	3	25	*0.11
Total	4	7	7	7	25	
Residence	14	12	14	10	50	
Urban						3.58
Rural	8	5	4	2	19	*0.05
Total	6	7	10	8	31	
Diagnosis	14	12	14	10	50	
Hypertension						5.9
Diabetes	10	4	6	1	21	*0.01
Total	4	8	8	9	29	
Stage	14	12	14	10	50	
4						12.08
5	11	9	8	1	29	*0.0005
Total	3	3	6	9	21	
Duration of illness (years)						
≤2	14	12	14	10	50	16.07
≥2	11	6	3	0	20	*0.00006
Total	3	6	11	10	30	

have emphasized the importance of social support during the course of CKD, more specifically for patients with CKD on dialysis, and studies focusing on this influence during the initial stages of CKD are scarce.<sup>[18,19]</sup>

The present study indicates that the prevalence of depression was found more in patients living in rural areas, indicating poor information regarding CKD and treatment seeking behavior in them.

The present study found that patients with DM were more prone to depression and result was statistically significant with  $P = 0.01$ . Golden *et al.*<sup>[20]</sup> recently reported a strong association between baseline depressive symptoms and incident type 2 DM and also found that even treated patients with the primary diagnosis of DM had a greater chance of

developing more depressive symptoms. Explanations for this association could be long-term psychological stress associated with diabetes management or the presence of such diabetic complications as kidney or cardiovascular disease.<sup>[21-25]</sup> Whether the prevalence of depression is high in patients with CKD mostly due to the high percentage of patients with CKD with diabetes or whether patients with diabetes who are depressed develop progressive nephropathy due to non-compliance is not a question that can be answered easily in cross-sectional studies.

The present study indicates high prevalence of depression in patients with advanced stage of CKD with a statistically significant result. Diabetes is one of the important causes of ESRD<sup>[26]</sup> and was found to be associated with depression in dialysis patients.

The present study indicates significant relation between increased duration of illness with depression with  $P = 0.00006$ . This result is not similar to the result of the previous study conducted in Connecticut State in the USA.<sup>[27]</sup> The possible reasons for higher depression scores in patients with more duration of illness in the present study can be attributed to delay in treatment seeking behavior commonly seen in patients from rural areas, even after confirmation of having CKD. This can be attributed mostly to trust issues of persons in rural area with modern medicine and more trust on local faith healers and non-allopathic practitioners [Tables 1 and 2].

## CONCLUSION

This study reflected a high incidence of depression symptoms among dialysis patients (more than two-thirds the participants) with some patients having major depressive symptoms that necessitate urgent treatment on priority basis. There were significant associations between depression and rural background, duration of illness, primary diagnosis of diabetes mellitus, and advanced stage of CKD. Assessment of depression status should become a routine practice in patients with CKD and undergoing dialysis. Those diagnosed with depression should receive intervention in the form of psychopharmacological and psychosocial (whatever required) as early as possible.

## REFERENCES

- Hedayati SS, Bosworth HB, Kuchibhatla M, Kimmel PL, Szczech LA. The predictive value of self-report scales compared with physician diagnosis of depression in hemodialysis patients. *Kidney Int* 2006;69:1662-8.
- Watnick S, Wang PL, Demadura T, Ganzini L. Validation of 2 depression screening tools in dialysis patients. *Am J Kidney Dis* 2005;46:919-24.
- Craven JL, Rodin GM, Littlefield C. The BDI as a screening device for major depression in renal dialysis patients. *Int J Psychiatry Med* 1988;18:365-74.
- Watnick S, Kirwin P, Mahnensmith R, Concato J. The prevalence and

- treatment of depression among patients starting dialysis. *Am J Kidney Dis* 2003;41:105-10.
5. Lopes AA, Albert JM, Young EW, Satayathum S, Pisoni RL, Andreucci VE, *et al.* Screening for depression in hemodialysis patients: Associations with diagnosis, treatment, and outcomes in the DOPPS. *Kidney Int* 2004;66:2047-53.
  6. Cohen SD, Norris L, Acquaviva K, Peterson RA, Kimmel PL. Screening, diagnosis, and treatment of depression in patients with end-stage renal disease. *Clin J Am Soc Nephrol* 2007;2:1332-42.
  7. Fleck MP, Lafer B, Sougey EG, Del Porto JA, Brasil MA, Juruena MF, *et al.* Guidelines of the Brazilian Medical Association for the treatment of depression (complete version). *Brazilian J Psychiatr* 2003;25:114-22.
  8. Smith MD, Barry AH, Robson AM. Diagnosis of depression in patients with end-stage renal disease: Comparative analysis. *Am J Med* 1985;79:160-6.
  9. Kimmel PL. Psychosocial factors in dialysis patients. *Kidney Int* 2001;59:1599-613.
  10. Lopes AA, Bragg J, Young E, Goodkin D, Mapes D, Combe C, *et al.* Depression as a predictor of mortality and hospitalization among hemodialysis patients in the United States and Europe. *Kidney Int* 2002;62:199-207.
  11. US Renal Data System. USRDS 2006 Annual Report. Bethesda, MD: The National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2006.
  12. National Institute of Diabetes and Digestive and Kidney Diseases. Healthy People 2010: Chronic Kidney Disease. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2000.
  13. Junior GB, Barbosa AM, Sliva GB, Saliva LN, Lima GR, Saliva TG, *et al.* Depressive symptoms in chronic kidney disease: A comparison between patients on dialysis versus conservative treatment. *Nefrolatinoam* 2017;14:153-9.
  14. Kennedy SH, Craven JL, Rodin GM. Major depression in renal dialysis patients: An open trial of antidepressant therapy. *J Clin Psychiatr* 1989;50:60-3.
  15. Lux V, Aggen SH, Kendler KS. The DSMIV definition of severity of major depression: Interrelationship and validity. *Psychol Med* 2010;40:1691-701.
  16. Farrokhi F, Abedi N, Beyene J, Kurdyak P, Jassal SV. Association between depression and mortality in patients receiving longterm dialysis: A systematic review and metaanalysis. *Am J Kidney Dis* 2014;63:623-35.
  17. Li YN, Shapiro B, Kim JC, Zhang M, Porszysz J, Bross R, *et al.* Association between quality of life and anxiety, depression, physical activity and physical performance in maintenance hemodialysis patients. *Chronic Dis Transl Med* 2016;2:110-9.
  18. Christensen AJ, Smith TW, Turner CW, Holman JM Jr, Gregory MC, Rich MA. Family support physical impairment and adherence in hemodialysis: An investigation of main and buffering effects. *J Behav Med* 1992;15:313-25.
  19. Christensen AJ, Wiebe JS, Smith TW, Turner CW. Predictors of survival among hemodialysis patients: Effect of perceived family support. *Health Psychol* 1994;13:521-5.
  20. Golden SH, Lazo M, Carnethon M, Bertoni AG, Schreiner PJ, Roux AV, *et al.* Examining a bidirectional association between depressive symptoms and diabetes. *JAMA* 2008;299:27519.
  21. Talbot F, Nouwen A. A review of the relationship between depression and diabetes in adults: Is there a link? *Diabetes Care* 2000;23:1556-62.
  22. Watkins LL, Schneiderman N, Blumenthal JA, Sheps DS, Catellier D, Taylor CB, *et al.* Cognitive and somatic symptoms of depression are associated with medical co-morbidity in patients after acute myocardial infarction. *Am Heart J* 2003;146:48-54.
  23. Robbins J, Hirsch C, Whitmer R, Cauley J, Harris T. The association of bone mineral density and depression in an older population. *J Am Geriatr Soc* 2001;49:732-6.
  24. Ferketich AK, Schwartzbaum JA, Frid DJ, Moeschberger ML. Depression as an antecedent to heart disease among women and men in the NHANES I study. *Arch Intern Med* 2000;160:1261-8.
  25. Jonas BS, Mussolino ME. Symptoms of depression as a prospective risk factor for stroke. *Psychosom Med* 2000;62:463-71.
  26. Foran E, Hannigan A, Glynn L. Prevalence of depression in patients with Type 2 diabetes mellitus in Irish primary care and the impact of depression on the control of diabetes. *Irish J Med Sci* 2015;184:319-22.
  27. Dziubek W, Kowalska J, Kusztal M, Rogowski L, Golebiowski T, Nikifur M, *et al.* The level of anxiety and depression in dialysis patients undertaking regular physical exercise training: A preliminary study. *Kidney Blood Press Res* 2016;41:86-98.

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