Original Article

Assessment of Psychiatric Morbidity among Patients with Chronic Kidney Disease on Dialysis Attending Tertiary Care Hospital: A Cross-Sectional Single Centre Study

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Abstract

Background: Chronic Kidney Disease (CKD) poses a growing public health concern, affecting up to 10% of adults worldwide.

Aim & Objective: This study aims to assess psychiatric morbidities and associated risk factors among chronic kidney disease patients undergoing hemodialysis.

Methodology: An observational cross-sectional study was conducted among 100 cases, both male and female patients diagnosed with Chronic kidney disease attending Dialysis Center of the General Medicine Department in a tertiary care hospital within the age group of 18 to 60 years. A systemic randomized technique was employed for patient selection, involving every second CKD patient. After obtaining permission from the Institutional Ethical Committee and Informed written consent from participants, a pretested questionnaire was administered. Data was entered in MS Excel and analyzed using SPSS software.

Results: In this study 24% of participants found with mild depression, 25% had moderate, 17% had severe depression and 13% had very severe depression. Additionally, 14% with mild anxiety, 23% had mild to moderate anxiety, and 20% had moderate to severe anxiety.

Conclusion: The overall prevalence of depression and anxiety among CKD patients undergoing dialysis was found to be 79% and 57% respectively.

Key words: Chronic kidney Disease, Dialysis, Psychiatric morbidity, Tertiary care hospital.

Introduction

Chronic kidney disease (CKD) presents a growing challenge in public health, significantly contributing to morbidity and mortality from non-communicable diseases.[1] Addressing CKD is crucial for achieving the UN's Sustainable Development Goal, aiming to reduce premature mortality from non-communicable diseases by a third by 2030.[2]

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The global burden of CKD is on the rise and is anticipated to become the fifth most common cause of years of life lost globally by 2040.[3,4] Due to the irreversible nature and unfavorable prognostic outcomes, psychiatric disorders, particularly depression, are prevalent among patients with renal disease.[5-7] A study revealed that End Stage Renal Disease (ESRD) patients face nearly a fourfold higher risk of depression than the general population.[8] Notably, depression not only extends hospitalization by 30%[9] but also more than doubles the likelihood of mortality in ESRD patients compared to those without depression.[8] Recognizing depression, coupled with appropriate therapeutic management, can enhance patient's mental well-being, improve their quality of life, and potentially positively impact long-term survival.[10]

Despite numerous studies on kidney diseases, few have specifically addressed psychiatric symptoms in CKD patients, such as depression and anxiety. Therefore, this study primarily focuses on psychiatric morbidities among CKD patients, such as depression and anxiety, hence this study primarily focuses on psychiatric morbidities among CKD patients, aiming to expedite diagnosis, reduce the disease burden, and alleviate treatment costs. Therefore, delays in diagnosis can be avoided and this will help in reducing the disease burden as well as treatment cost.

Aim and Objectives:

a. To assess the psychiatric morbidities among chronic kidney disease patients on hemodialysis.

b. To determine associated risk factors among chronic kidney disease patients on hemodialysis.

Material and Methods

Study type & study design: An observational cross-sectional study

Study setting: Patients diagnosed with Chronic kidney disease attending a Dialysis center in a tertiary care hospital.

Study population: All male and female patients diagnosed with Chronic kidney disease undergoing hemodialysis.

Inclusion Criteria:

a. Both male and female patients are diagnosed with chronic kidney disease based on laboratory results and clinical findings for at least one year.

b. Age group 18 years to 60 years

c. Patients who were willing to participate in the study.

Exclusion criteria:

a. Patients who were currently on treatment for psychiatric disorders.

b. Neurological conditions

Sample size: A study done by Sohail Tanvir et al[11] found that the prevalence of depression among chronic kidney disease patients on hemodialysis to be about 57.3%. According to this prevalence rate, considering the allowable error of 10% at a 95% confidence interval thus the sample size was calculated by using

$N= Z^2\alpha PQ/L^2$.

Where, Zα= Standard normal table value

P = Prevalence, Q 100-P, and L = allowable error (10%). Sample size (N) = $Z^2\alpha PQ/L^2$

= $[(1.96)^2 \times 57.3 \times 42.7) / (10 \times 10)] = 97$

Hence, N = 100 patients.

Sampling technique: A systemic randomized technique was followed. The study was carried out for 2 months, using the average patient flow (i.e.200). The sampling interval was (K= Population size/ Sample size)

2. So every 2nd patient with CKD attending a dialysis center was selected for the study.

Study period: 2 months

Ethical consideration: After obtaining permission from the Institutional Ethical Committee, the study was commenced. Informed consent was taken from all the study participants before administering the questionnaire.

Method of data collection& study tools: After taking training from the psychiatrist of the psychiatric department regarding questionnaires. The study participants were explained the purpose of the study and efforts were made for their maximum

cooperation in the study. After taking informed and written consent questionnaire was administered. It is a Standardized tool. It contains 3 parts. Part –A includes socio-demographic details of the study subjects like age, gender, religion, marital status, education, income, socio-economic status, etc, part-B contains Hamilton Depression Rating Scale (HAM-D) & Part C includes Hamilton Anxiety Rating Scale (HAM-A). The questionnaire was translated into the local language and validated.

Hamilton Depression Rating Scale (HAM-D) [12] was a 17-item rating scale designed to measure the severity and symptomatology of depression. The scores were interpreted as 0–7 = normal, 8–13 = mild depression, 14–18 = moderate depression, 19–22 = severe depression, and 23–>23 = very severe depression.

Hamilton Anxiety Rating Scale (HAM-A)[13] was a 14-item rating scale designed to measure the severity, symptoms, and pattern of anxiety. Each item was scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where 14–17 indicates mild severity, 18–24 mild to moderate severity, and 25– 30 moderate to severe.

Statistical analysis: Data was entered in a Microsoft Excel worksheet and analysis was done by using SPSS software. Categorical variables were represented as proportions or percentages and quantitative variables were represented as means and standard deviation. A chi-square test was done to find out the significance of association. P value < 0.05 is considered statistical significance at a 95% confidence interval. The odds ratio was calculated for associated risk factors.

Observations and Results

A total of 100 participants were studied.

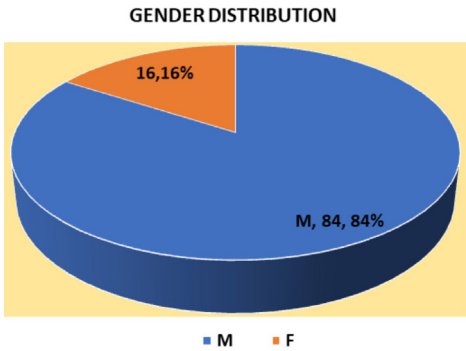

Figure 1: Distribution of the study population based on gender

From figure 1, in the present study majority were male 84(84%) and remaining 16 (16%) were female.

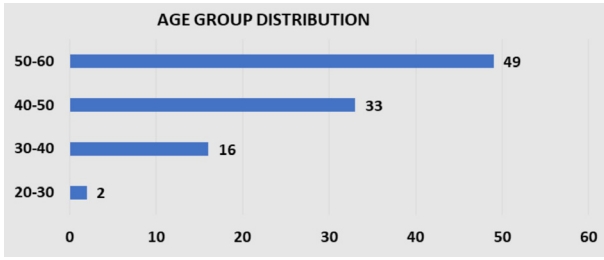

Figure 2: Distribution of study population by age group

From figure 2, majority of the study participants were in the age group 50 to 60 years i.e. 49% followed by 40 to 50 years 33% and 16% were in the age group 30 to 40 years and 2% were in the age group 20 to 30 years.

Table 1: Distribution of study population based on demographic details

Variables	Subcategory	Frequency	Percentage
Religion	HINDU	87	87
	CHRISTIAN	1	1
	MUSLIM	12	12
Marital status	Married	97	97
	Unmarried	2	2
	Divorced	1	1
Type of family	NUCLEAR	68	68
	JOINT	2	2
	THREE GENERATION	30	30
Education	GRADUATE	11	11
	HIGH SCHOOL	6	6
	SECONDARY	13	13
	PRIMARY	11	11
	ILLITERATE	59	59
Place of residence	RURAL	75	75
	URBAN	25	25

From the table 1, majority of the study participants were Hindu 87 (87%) by religion followed by 12 (12%) were Christian and 1 (1%) were Muslim, most of the study participants were married i.e., 97 (97%) and remaining 2 (2%), majority were belonged to nuclear family i.e. 68% followed by three generation family 30% and joint family 2%. More than half of the study population were illiterate i.e.59% followed by 13% of the study population were studied up to secondary school, 11% up to primary school and 6% were studied up to high school.

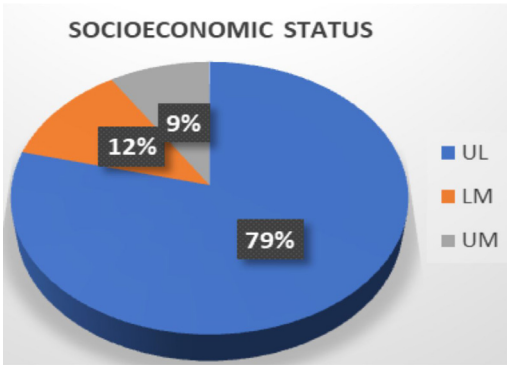

Figure 3: Distribution of study participants based on socioeconomic class

From figure 3, themajority of the study population were belonged to upper lower socioeconomic class (79%) followed by lower middle socioeconomic class (12%) and 9% of the study participants were belonged to upper middle socioeconomic class.

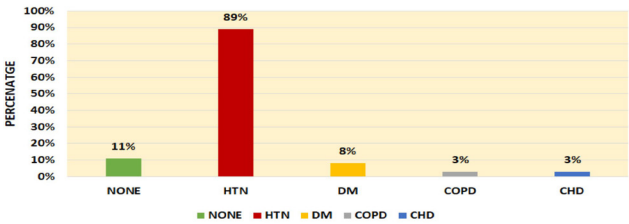

Figure 4: Distribution of study population based on associated conditions

From figure 4, the common associated condition was Hypertension (89%) and diabetes among 8% of the study population and 3% of the study population had COPD and 3% of the study participants had Coronary heart disease. In this study 75% of the study population were from rural area and remaining 25% were from urban area.

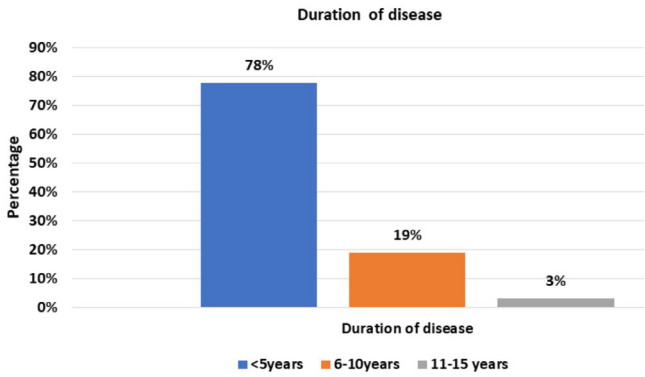

Figure 5: Distribution of study participants based on duration of disease

From the figure 5, in the present study majority of the study participants had disease duration less than 5 years were 78% followed by 6-10 years (19%) and 11-15 years were (3%).

Table 3: Distribution of study participants based on depression

Depression	Male n (%)	Female n (%)	Total n (%)
Normal	19 (22.6%)	2 (12.5%)	21 (21%)
Mild (0-7)	19 (22.6%)	5 (31.3%)	24 (24%)
Moderate (8-13)	21 (25%)	4 (25%)	25 (25%)
Severe (14-22)	15 (17.9%)	2 (12.5%)	17 (17%)
Very severe (>23)	10 (11.9%)	3 (18.8%)	13 (13%)
Total	84 (100%)	16 (100%)	100 (100%)
	P value = 0.77		

In this study 24% of the study population had mild depression followed by 25% had moderate depression and 17% of the study participants had severe depression and 13 % of the study population had very severe depression.

Table 4: Distribution of study participants based on anxiety

Anxiety	Male n (%)	Female n (%)	Total n (%)
Normal	40 (47.6%)	3 (18.7%)	43 (43%)
Mild (14-17)	8 (9.5%)	6 (37.5%)	14 (14%)
Mild to Moderate (18-24)	20 (23.8%)	3 (18.8%)	23 (23%)
Moderate to Severe (25-30)	16 (19%)	4 (25%)	20 (20%)
Total	84 (100%)	16 (100%)	100 (100%)
	P value = 0.07		

From table 4, in this study14% of the study population had mild anxiety followed by 23% had mild to moderate anxiety and 20% of the study participants had moderate to severe anxiety (20%).

Table 5: Associated Factors Vs Depression

Variables	Subcategory	Depression		Odds ratio	P value
		YES	NO		
Gender	Male	65 (77.4%)	19 (22.6%)	2.04	0.36
	Female	14 (87.5%)	2 (15.5%)		
Age group	<40yrs	10 (55.6%)	8 (44.4%)	0.23	0.005
	>40yrs	69 (84.1%)	13 (15.9%)		
Place of residence	Rural	61 (81.3%)	14 (18.7%)	1.69	0.32
	Urban	17 (72%)	7 (28%)		
Marital status	Married	77 (79.4%)	20 (20.6%)	1.92	0.59
	Unmarried	2 (66.7%)	1 (33.3%)		
Socioeconomic class	Upper middle & lower middle	9 (81.8%)	2 (18.2%)	1.22	0.80
	Lower class	70 (78.7%)	19 (21.3%)		
Duration of disease	<5yrs	60 (83.3%)	12 (16.7%)	2.36	0.08
	>5yrs	19 (67.95)	9 (32.1%)		

From table 5, Depression was more common among females, those aged> 40 years age group, married people, from rural areas people, and cases belonging to the upper middle class and with a duration of disease < 5 years but the difference observed between the groups was not statistically significant. (p>0.05).

Table 6: Associated Factors Vs Anxiety

Variables	Subcategory	Anxiety		Odds ratio	P value
		YES	NO		
Gender	Male	45 (53.6%)	39 (46.4%)	2.60	0.11
	Female	12 (75%)	4 (25%)		
Age group	<40yrs	8 (44.4%)	10 (55.6%)	0.53	0.23
	>40yrs	49 (59.8%)	33 (40.2%)		
Place of residence	Rural	44 (58.7%)	31 (41.3%)	1.31	0.56
	Urban	13 (52%)	12 (48%)		
Marital status	Married	56 (57.7%)	41 (42.3%)	2.73	0.40
	Unmarried & divorced	1 (33.3%)	2 (66.7%)		
Socioeconomic class	Upper middle & lower middle	7 (63.6%)	4 (36.4%)	1.36	0.63
	Lower class	50 (56.2%)	39 (43.8%)		
Duration of disease	<5yrs	41 (56.9%)	31 (43.1%)	0.99	0.98
	>5yrs	16 (57.1)	12 (42.9%)		

From Table 6, anxiety was more among females, age > 40 years age group, married people, from rural areas people, cases belonged to the upper middle class and with duration of disease > 5 years but the difference observed between the groups was not statistically significant. (p>0.05).

Discussion

The present study was conducted to assess psychiatric morbidities among patients with chronic kidney disease on hemodialysis attending tertiary care hospital. In the present study, the majority were male 84(84%) and the remaining 16 (16%) were

female. Similar study findings were observed in the following studies done by Taskapan H et al.,[14] et al., who found that the majority of the study population was male 63.7%. Bossola M et al[5] found that the majority were male 63.5%. Shafi ST, et al.[1] who reported that the majority of the study participants were male 61.5%, Turkistani I et al.[15] who stated that 58.2% were male. More than half of the study population were illiterate i.e.59%. The present study findings were inconsistent with the findings of the following studies done by Taskapan H et al.,[14] et al., who found that the majority were studied up to primary and secondary school i.e. 47.5%. Turkistani I et al.,[15] stated that 54.4% were studied up to secondary school.

In this study a total 79% of the study population had depression, 24% of the study population had mild depression followed by 25% had moderate depression and 17% of the study participants had severe depression and 13 % of the study population had very severe depression. Similar study findings were observed in a study done by Taskapan H et al.,[14] et al., who found that 35% of the study participants had depression. Bossola M et al.,[5] found that the majority had depression 52.5%. Shafi ST, et al.,[1] reported that the majority 72.2% had depression. And 34.6% had moderate to severe depression. Drayer RA et al.,[16] stated that 28% had moderate to severe depression. Turkistani I et al.,[13] stated that 23.3% were probable cases of depression. Sohail Tanvir et al.,[11] reported that 57.30% of ESRD patients had depression of which 39.2% had mild depression, 24.49% had moderate depression and 13.72% had severe depression.

In this study a total of 57% of the study population was found to have anxiety, of which 14% of the study population had mild anxiety followed by 23% had mild to moderate anxiety, and 20% of the study participants had moderate to severe anxiety (20%). Similar study findings were observed in a study done by Taskapan H et al.,[14] who found that 30% of the study population had anxiety. Bossola M et al.,[5] found that the majority had anxiety (mild-47.5% and moderate to severe- 48.7%) Shafi ST, et al.,[1] reported that the majority had 71.2% anxiety. 38.5% moderate to severe anxiety. Turkistani I et al.,[15] stated that 21.1% of participants were probable cases of anxiety. Sohail Tanvir et al.,[11] reported that the percentage of patients suffering from anxiety disorder is 42.69% out of which 47.36% had mild anxiety, and 28.94% had moderate anxiety.

Depression was more common among females, aged> 40 years age group, married people, from rural areas people, cases belonging to the upper middle class, and those with a duration of disease < 5 years. Similar study findings were observed in a study done by Taskapan H et al.,[14] et al., who found a relationship between psychiatric disorder and age, sex, duration of dialysis therapy, education, marital status, employment, and socioeconomic status. Anxiety was more prevalent among females, aged> 40 years age group, married people, from rural areas people, cases belonging to the upper middle class, and those with a duration of disease > 5 years. Similar study findings were observed in a study done by Taskapan H et al.,[14] et al., who found no relationship between psychiatric disorder and age, sex, duration of dialysis therapy, education, marital status, employment, and socioeconomic status.

Conclusion

The results concluded that more than half of the study population was found to have depression (79%) and anxiety (57%). This shows that there is a need for consultancy with the psychiatrist in every patient with CKD who is on hemodialysis. Any patient on treatment for chronic kidney disease must be screened for psychiatric symptoms and treated accordingly. Through periodic and intense health education and awareness programs, all the healthcare professionals have to be made aware of the relationship between Chronic kidney disease and psychiatric morbidities and can be offered psychiatric referrals.

Limitation:

- It was a hospital-based study and it should be done in the community also.

Conflicts of interest: Nil

Source of funding: ICMR-STS project 2022.

Ethics Approval: approved, Dated 22july2022, ECR/492/Inst/AP/2013/RR-20.

References

1. Shafi ST, Shafi T. A comparison of anxiety and depression between pre-dialysis chronic kidney disease patients and hemodialysis patients using the hospital anxiety and depression scale. Pak J Med Sci. 2017;33(4):876-880.
2. 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: 709–33.
3. Gadia P, Awasthi A, Jain S, Koolwal GD. Depression and anxiety in patients of chronic kidney disease undergoing haemodialysis: A study from western Rajasthan. J Family Med Prim Care.2020;9:4282-6.
4. Foreman KJ, Marquez N, Dolgert A, Fukutaki K, Fullman N, McGaughey M, et al. Forecasting life expectancy, years of life lost, and allcause and causespecific mortality for 250 causes of death: Reference and alternative scenarios for 2016-40 for 195 countries and territories. Lancet 2018;392:2052-90.
5. Bossola M, Ciciarelli C, Stasio D, Conte GL, Vulpio C, Luciani G, Tazza L: Correlates of symptoms of depression and anxiety in chronic hemodialysis patients. Gen Hosp Psychiatry 2010, 32:125–131.
6. Cukor D, Cohen SD, Peterson RA, Kimmel PL: Psychosocial aspects of chronic disease: ESRD as a paradigmatic illness. J Am SocNephrol 2007, 18:3042–3055.
7. Chilcot J, Wellsted D, Farrington K: Depression in end-stage renal disease: current advances and research. Semin Dial 2010, 23:74–82.
8. Hedayati SS, Bosworth HB, Briley LP, Sloane RJ, Pieper CF, Kimmel PL, Szczech LA: Death or hospitalization of patients on chronic hemodialysis is associated with a physician-based diagnosis of depression. Kidney Int 2008, 74:930–936.
9. Hedayati SS, Grambow SC, Szczech LA, Stechuchak KM, Allen AS, Bosworth HB: Physician-diagnosed depression as a correlate of hospitalizations in patients receiving long-term hemodialysis. Am J Kidney Dis 2005, 46:642–649.
10. Wojtaszek, E.; Matuszkiewicz-Rowińska, J. Depression in Patients with Chronic Kidney Disease-Practical Approach to the Treatment. Forum Nefrol. 2012, 6, 155–160.
11. SohailTanvir, Ghias-ud-Din Butt, RizwanTaj. Prevalence of Depression and Anxiety in Chronic Kidney Disease Patients on Haemodialysis. Ann. Pak. Inst. Med. Sci. 2013; 9(2):64-67.
12. Hamilton M. A rating scale for depression. J NeurolNeurosurg Psychiatry. 1960;23:56-62.
13. Hamilton M. The assessment of anxiety states by rating. Br J Med Psychol. 1959;32:50-5.
14. Taskapan H, Ates F, Kaya B, Emul M, Kaya M, Taskapan C, Sahin I. Psychiatric disorders and large interdialytic weight gain in patients on chronic haemodialysis. Nephrology (Carlton).2005;10(1):15-20.
15. Turkistani I, Nuqali A, Badawi M, Taibah O, Alserihy O, Morad M, Kalantan E. The prevalence of anxiety and depression among end-stage renal disease patients on hemodialysis in Saudi Arabia. Ren Fail. 2014;36(10):1510-5.
16. Drayer RA, Piraino B, Reynolds CF 3rd, Houck PR, Mazumdar S, Bernardini J, Shear MK, Rollman BL. Characteristics of depression in hemodialysis patients: symptoms, quality of life and mortality risk. Gen Hosp Psychiatry. 2006;28(4):306-12.