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Research Article

DEPRESSION IN PATIENTS WITH CHRONIC KIDNEY DISEASE (CKD) UNDERGOING HAEMODIALYSIS

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A B S T R A C T

Background: Chronic kidney disease (CKD) is a major health problem in India and Worldwide. Haemodialysis is the most common method used to treat advanced and permanent kidney failure. Haemodialysis patient experiences a range of symptoms, with considerable variation in the frequency of symptoms and in the severity with which the symptoms affect the individual. Depression is well established as a prevalent mental health problem for people with ESRD and is associated with morbidity and mortality.
Aims: To determine the socio-demographic characteristics, prevalence of depression and severity of depression in CKD patients undergoing haemodialysis.
Methodology: The study was conducted in the Department of Psychiatry and Department of Nephrology of NIMS&R Medical College and Hospital, Jaipur, Rajasthan. The sample of the study was constituted of 100 patients suffering from CKD who underwent a dialysis procedure in the dialysis unit of Nephrology department of NIMS Hospital. The diagnosis of depression was made according to ICD 10. Severity was assessed using HAM – D.
Results: 82% of the patients were found to have Depression undergoing Hemodialysis
Conclusion: This study concludes that patients undergoing hemodialysis can have depression. Early identification of depression and management can improve the life quality of patients.

INTRODUCTION

Chronic kidney disease (CKD) is a Major health problem in India and worldwide, with adverse outcomes of kidney failure, cardiovascular disease (CVD), and premature death. CKD is defined as kidney damage or glomerular filtration rate (GFR) <60ml/min/1.73m2 for 3 months or more, irrespective of cause. Stage 5 CKD is often called End Stage Renal Disease (ESRD) and is synonymous with the now outdated terms chronic kidney failure (CKF) or chronic renal failure (CRF).[1] End-Stage Renal Disease (ESRD) can be characterized by an individual requiring either a kidney transplant or some form of dialysis to live. Dialysis is a treatment for kidney failure that removes waste and extra fluid from the blood, using a filter. Two types of dialysis are haemodialysis and peritoneal dialysis. Haemodialysis is the most common method used to treat advanced and permanent kidney failure. Haemodialysis patient experiences a range of symptoms, with considerable variation in the frequency of symptoms and in the severity with which the symptoms affect the individual. Depression is well established as a prevalent mental health problem for people with ESRD and is associated with morbidity and mortality.[2] However, depression in this population remains difficult to assess and is undertreated.

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Despite the high prevalence and damaging consequences, depression is still a misdiagnosed disorder because of the superposed symptoms related to uraemia (anorexia, fatigue, sleep disorders) and the absence of a systematic psychiatric evaluation.[3] In light of above literature it can be inferred that depression is widespread in CKD patients undergoing haemodialysis but studies regarding this are very few in developing countries like India and specially in Jaipur region, such type of study had not been adequately done previously on haemodialysis patients.

Aims and Objectives

1. To determine the socio-demographic characteristics of CKD patients undergoing haemodialysis
2. To determine the prevalence of depression in CKD patients undergoing haemodialysis
3. To determine the severity of depression in CKD patients undergoing haemodialysis patients.

MATERIAL AND METHODS

To fulfil the above aims and objectives, the study was conducted in the Department of Psychiatry and Department of Nephrology of NIMS&R Medical College and Hospital, Jaipur, Rajasthan. This is a cross-sectional type of study. The sample of the study was constituted of 100 patients suffering from CKD who underwent haemodialysis procedure in the

dialysis unit of Nephrology department of NIMS Hospital. After obtaining consent to participate in the study, patients were included in the study on the basis of inclusion and exclusion criteria. Data was collected using a semi-structured proforma made especially for the study. Socioeconomic status was evaluated using B.G Prasad Scale.[4] The diagnosis of Depression was made according to ICD 10.[5] Severity was assessed using HAM – D. [6] Mini Mental Status Examination was done to rule out organicity.[7]

Inclusion Criteria

1. Patients have CKD and are undergoing haemodialysis in Nephrology department of NIMS Hospital.
2. The patient who gave informed consent for the study.

Exclusion Criteria

1. Patients previously diagnosed with psychiatric illness prior to the onset of CKD.
2. Patients having mental retardation.
3. Patient who did not give consent to the study.
4. Patients having serious and unstable comorbid medical illness other than CKD.
5. Patients getting score of less than 24 on Mini-Mental State Examination.

RESULTS

Table 1 Socio-demographic characteristics of CKD

	Domains	N= 100	Percentage (%)
Age Group	Less than 20 Years	5	5.0
	21 to 40 Years	43	43.0
	41 to 60 Years	41	41.0
	More than 60 Years	11	11.0
Marital Status	Married	86	86.0
	Unmarried	14	14.0
Gender	Male	67	67.0
	Female	33	33.0

43% of the patients were between ages 21-40 years followed by 41% between ages 41-60 years, 11% were older than 60 years and 5% were with age less than 20 years.It was observed that more than 2/3rd (86%) of CKD patients were married whereas the rest of the patients were unmarried (14%).Males comprised 67% of the study population whereas females comprised 33% of the study population.

Table 2 Details Regarding Education, Occupation and Income Status

	Domains	N= 100	Percentage (%)
Education	Illiterate	35	35.0
	Primary	10	10.0
	Secondary	8	8.0
	Sr. secondary	15	15.0
	Graduate	8	8.0
	Post Graduate	20	20.0
	Other	4	4.0
Occupation	Unemployed	18	18.0
	Self Employed	23	23.0
	Farmer	14	14.0
	Retired	6	6.0
	House Wife	29	29.0
	Other	10	10.0
Monthly Income	More than 6277	17	17.0
	3139-6276	14	14.0
	1883-3138	13	13.0
	942-1882	21	21.0
	Less than 942	35	35.0

It was found that 35% of CKD patients were illiterate, 10% educated up to primary level, 8% up to secondary level, 15% up to sr. secondary level, 8% graduate, and 20% post graduate. It means that in our study 65% patients were educated. It was observed that 18% of CKD patients were unemployed, 23% self-employed, 14% farmer, 6% retired, 29% housewives, and 10% were doing other work.It was found that 17% of CDK patients had income more than 6277 Rupees per capita, 14% between 3139-6276 Rupees per capita, and 13% between 1883-3138 Rupees per capita. It was evident that 56% had per capita income less than 1882 that belong to class 4 and 5.

Table 3 Details regarding domicile, duration of illness and precipitating factors

	Domains	N=100	Percentage (%)
Domicile	Urban	70	70.0
	Rural	30	30.0
Duration of haemodialysis	Less than 1 year	55	55.0
	1-3 years	34	34.0
	3-5 years	9	9.0
	More than 5 years	2	2.0
Co-morbid illness	No	52	52
	HTN	30	30
	DM	21	21
	Other	15	15

It was seen that 70% of CKD patients belonged to urban background and 30% to rural background.It was evident that 55% of CKD patients had haemodialysis for less than 1 year of duration, 34% with 1-3 years, 9% with 3to5 years, and 2% for more than 5 years. It was observed that 52% of CKD patients had not comorbid medical illness, 30% comorbid hypertension, 21% comorbid diabetes mellitus, and 15% other comorbid medical illness.

Table 4 Prevalence of Depressive disorder in the study sample

Disorder	Patients		Prevalence of disorder
	No.	%	
Depressive disorder	82	82%	82%

It was evident that 82% of the patients were had Depressive disorder.

Table 5 Relationship between Depressive Disorder and Gender of CKD patients

Sex		Depression		Total	p-value
		Absent	Present		
Male	N	12	55	67	0.974
	%	66.7%	67.1%	67.0%	
Female	N	6	27	33	
	%	33.3%	32.9%	33.0%	
Total	N	18	82	100	
	%	100.0%	100.0%	100.0%	

It was evident that 67.10% Depressive patients were Males and 32.90% Females, which was not statistically significant (p-value>0.050).

Table 6 Relationship between Depressive Disorder and Marital status of CKD patients

Marital Status		Depression		Total	p-value
		Absent	Present		
Married	N	12	74	86	0.009
	%	66.7%	90.2%	86.0%	
Unmarried	N	6	8	14	
	%	33.3%	9.8%	14.0%	
Total	N	18	82	100	

It was observed that 90.20% Depressive patients were married and 9.80% unmarried, which was statistically significant (p-value<0.050).

Table 7 Relationship between Depressive Disorder and Income of CKD patients

Income/ capita/ month		Depression		Total	p-value
		Absent	Present		
More than 6277	N	6	11	17	0.117
	%	33.3%	13.4%	17.0%	
3139-6276	N	2	12	14	
	%	11.1%	14.6%	14.0%	
1883-3138	N	3	10	13	
	%	16.7%	12.2%	13.0%	
942-1882	N	1	20	21	
	%	5.6%	24.4%	21.0%	
Less than 942	N	6	29	35	
	%	33.3%	35.4%	35.0%	
Total	N	18	82	100	
	%	100.0%	100.0%	100.0%	

In our study, 60% depressive patients belonged to lower socioeconomic status which was statistically not significant (p-value>0.050).

Table 8 Relationship between Depressive Disorder and Duration of Haemodialysis

Duration of Hemodialysis		Depression		Total	p-value
		Absent	Present		
Less than 1 Year	N	11	44	55	0.179
	%	61.1%	53.7%	55.0%	
1-3 Years	N	3	31	34	
	%	16.7%	37.8%	34.0%	
3-5 Years	N	3	6	9	
	%	16.7%	7.3%	9.0%	
More than 5 Years	N	1	1	2	
	%	5.6%	1.2%	2.0%	
Total	N	18	82	100	
	%	100.0%	100.0%	100.0%	

It was found that patients who were undergoing haemodialysis for less than 1 year, 53.70% had depressive disorder, while patients who were on 1-3years, 3-5 years and more than 5 years duration of haemodialysis 37.80% 7.3% and 1.2% had depressive disorder, respectively which was statistically not significant (p-value>0.050).

Table 9 Distribution of severity of depressive disorder according to HAMD score

Severity of Depression (HAMD score)	Number of patients	Percentage (%)
Normal (0-7)	18	18%
Mild (8-13)	29	29%
Moderate (14-18)	27	27%
Severe (19-22)	13	13%
Very severe (23 or more)	13	13%
Total	100	100%

29% patients had mild mood disturbance, 27% had moderate depression, 13% had severe depression & 13% had very severe depression.

DISCUSSION

The sample of the study was constituted of 100 patients suffering from CKD who underwent haemodialysis procedure in the dialysis unit of Nephrology department of NIMS Hospital, Jaipur. In our study, the prevalence of depressive disorder in hemodialysis patients was found to be 82%. This finding was supported by the study of Hou Y *et al* (2014)[8] who found that 69.1 % patients had a depressive disorder (SDS score ≥ 50), Hamody AR *et al* (2013)[9] found that the prevalence of depression among HD patients was 80%.

Distribution of subjects according to gender which reveals that males were 67%, whereas females were 33%. This finding was supported by the study of Jadhav BS, *et al* (2014)[10] who found that Males (68%) were predominately affected over female patients. Patil C, *et al* (2015)[11] founded that of total 51 patients with CKD, 33 (64.70%) were males and 18 (35.29%) were female. It was observed that more than 2/3rd (86%) of CKD patients were Married whereas the rest of the patients were Unmarried (14%). This finding was supported by Jadhav BS, *et al* (2014)[10] who found that majority (78%) of the patients were married and Dumitrescu AL *et al* (2009)[12] found that 66% of patients were married in their study.

It was found that 35% of CKD patients were illiterate, 10% educated up to primary level, 8% up to secondary level, 15% up to sr. secondary level, 8% graduate, and 20% post graduate. It means that in our study 65% patients were educated; this is in line with a study done by Seck SM, *et al* (2014)[13] in which majority of participants were educated (65.6%).It was observed that 18% of CKD patients were unemployed, 23% self-employed, 14% farmer, 6% retired, 29% housewives, and 10% doing other work, respectively. Similar study was done by Jadhav BS, *et al* (2014)[10] who found that 30% were housewives. No association was found for other occupations.It was found that 17% of CDK patients had income more than 6277 Rs per capita, 14% between 3139-6276 Rs per capita, and 13% between 1883-3138 Rs per capita. It was evident that 56% had per capita income less than 1882 that belong to class 4 and 5. This finding was supported by the study of Garcia G, *et al* (2015)[14] who found that poverty-related factors continue to play an important role in the development of CKD in low-income countries. In Mexico, CKD prevalence among the poor is two to three-folds higher than the general population.

It was seen that 70% of CKD patients belonged to urban background and 30% to rural background. This finding was supported by Seck SM, *et al* (2014)[13] who included 1037 adults'≥ 18 years of age who resided in Saint-Louis and found that the majority of participants lived in urban areas (55.3%). It was observed that 52% of CKD patients had not comorbid medical illness, 30% comorbid hypertension, 21% comorbid diabetes mellitus, and 15% other comorbid medical illness, respectively. Similarly, Stanifer JW, *et al* (2015)[15] found that half of the cases of CKD (49.1%) were not associated with any of the measured risk factors of hypertension, diabetes, or HIV. Minshawy O, *et al* (2014)[16] studied that the aetiology of the ESRD was unknown in 33%, hypertension in 24%, chronic glomerulonephritis in 8%, obstructive uropathy in 3.5%, analgesic nephropathy in 5%, Bilhaziasis in 0.5%, chronic pyelonephritis in 2% and diabetic nephropathy in 18%. Seck SM, *et al* (2014)[13] found that Hypertension, diabetes, and obesity were present, respectively, in 39.1%, 12.7%, and 23.4% of participants. It was evident that 55% of CKD patients

had haemodialysis for less than 1 year of duration, 34% 1-3 years, 9% 3to5 years, and 2% for more than 5 years, respectively. This finding was supported by the study of Gemeay E, *et al* (2012)[17] who concerned years of dialysis and found that 48% of patients were either less than 3 years or from 3 to 6 years treated with dialysis. While only 4% on dialysis for more than 6 years.

It was evident that 67.10% Depressive patients were Males and 32.90% Females, which was not statistically significant (p-value>0.050). This finding was supported by the study of Ramasubramanian V, *et al* (2015)[18] who found that 69.2% were males (n=36), and 30.8% were females. GemeayE, *et al* (2012)[17] Concerned relationship between depression and gender and found that moderate depression is commonly reported in male patients 62.1%. On the contrary, HoussainiST, *et al* (2005)[19] found that Depression was more frequent in women but Sheayria F, *et al* (2015)[20] found that depression was not related to sex.

It was observed that 90.20% Depressive patients were Married and 9.80% Unmarried, which was statistically significant (p-value<0.050). This finding was supported by the study of Saeed Z, *et al* (2012)[21] who found that Marriage was correlated with increased depression grade.

In our study, 60% depressive patients belonged to lower socioeconomic status which was statistically not significant (p-value>0.050). Our study was in correlation with Andrade CP, *et al* (2010)[22] who found that among patients with CKD, depression was more prevalent among patients of low income (54.2%), patients of social class D or E (47.4%). Rai M, *et al* (2011)[23] who inferred that Depression was more in patients with low monthly income and Wang SY, *et al* (2015)[24] found that depressive patients had lower economic status.

It was found that patients who were undergoing haemodialysis for less than 1 year, 53.70% had depressive disorder, while patients who were on 1-3years, 3-5 years and more than 5 years duration of haemodialysis 37.80% 7.3% and 1.2% had depressive disorder, respectively which was statistically not significant (P-Value>0.050). This finding was supported by the study of Wang SY, *et al* (2015)[24] who found that Depressive patients had less than 3 years duration on haemodialysis.

Our study is in line with a study done by Osahm A, *et al* (2015)[25] who found that 30.2% patients had mild mood disturbance, 17.6% borderline clinical depression, 23.9% moderate depression or 14.5 severe depressions. Firoz MN, *et al* (2016)[26] who found that 120 (38.7%) of all patients) had mild depression, 17 (5.5%) had moderate depression and 2 (0.6%) had severe depression. Silva Junior GB, *et al* (2014)[27] found that among 148 patients interviewed, Depression was present as mild, moderate, and severe in 49.5%, 41.5%, and 9% patients, respectively.

When a patient starts going to haemodialysis, the patient has to adjust for pain of the procedure, adjust the routine schedule as per the appointments, and have to manage the financing, and handle the complications. There is a lot of adjustment required and a person's coping mechanism decides the onset of depression.

Limitations of the Study

1. This is a single hospital-based study; hence the data of these patients may not be generalized in the general population.
2. Small sample size used for the study might affect the ability to detect statistically significant results.
3. As the study used self-answered questionnaires to collect data, there may be exaggerations or minimization on the patient's part regarding problems
4. Patients refused to answer questions in some areas of the questionnaires (e.g.,: sexual function), which limited the study's ability to collect information on sensitive areas of dysfunction.

CONCLUSION

This study concludes that patients with chronic kidney disease undergoing hemodialysis have high rates of depression. Early recognition of depression and management can potentially be lifesaving for the patient.

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Conflicts of Interests

There are no conflicts of interest.

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