

State Anxiety among Maintenance Hemodialysis (MHD) Patients

Monika Sharma

Associate Professor of DMCH College of Nursing, Ludhiana

ABSTRACT

Background: State anxiety is defined as an unpleasant emotional arousal to a specific situation perceived to be dangerous or threatening. Maintenance hemodialysis (MHD) serves as the main therapy for the patients with end-stage renal disease (ESRD) and leads to high prevalence of state anxiety which also changes their treatment outcomes. Therefore this study was conducted with an objective to assess the state anxiety among Maintenance Hemodialysis (MHD) Patients.

Methods: A descriptive design was used to assess the state anxiety among 70 Maintenance Hemodialysis (MHD) Patients, selected by total enumerative sampling technique. From State-Trait Anxiety Inventory (Spielberger, 1983) - 20-item State Instrument was used to measure current anxiety symptoms among Maintenance Hemodialysis (MHD) patients. Data was collected with self-report (Interview Schedule) method.

Results: Findings of the present study revealed that out of 70 Maintenance Hemodialysis (MHD) Patients, 24(34.3%) of patients had extreme level of state anxiety, 15(21.4%) had severe level of state anxiety, 10(14.3%) had moderate level of state anxiety and 21(30%) had mild level of state anxiety. Mean and SD of overall state anxiety is on higher side i.e. 48.81 ± 18.66 .

Conclusion: Most of the Maintenance Hemodialysis (MHD) Patients had extreme level of state anxiety.

Key words: State Anxiety, Maintenance Hemodialysis (MHD) Patients.

INTRODUCTION

Chronic kidney disease (CKD) is a worldwide health problem associated with age-related renal function decline accelerated in hypertension, diabetes, obesity and primary renal disorders. [1] It is now recognized as a public health priority worldwide. [2] According to the 2010 Global Burden of Disease Study -the causes of death worldwide in 1990 and 2010 are ranked and CKD climbed the list from 27th to 18th position over two decades. [3]

The population of India exceeds one billion and is projected to become the major reservoir of chronic diseases like diabetes and hypertension. Since 25-40% of these subjects may develop CKD, the end stage renal disease (ESRD) burden will rise and the health care system would need to take

care of them. For a long time, it has been presumed that nearly 1,00,000 new patients with ESRD in India require renal replacement therapy every year based on data from tertiary referral centers. [4]

Chronic kidney disease is a multifaceted problem. Maintenance Hemodialysis (MHD) serves as the main therapy for patients with end-stage renal disease (ESRD). [5] Patients on dialysis are in a situation of abject dependence on a machine, a procedure and a group of qualified medical professionals for the rest of his/her life. [6]

Patients undergoing hemodialysis, besides the disease itself, accompanying modifications in the occupational, marital, familial, societal, and personal life provides a sufficient base to give rise to

psychological problems. The effect of illness, dietary constraints, time restrictions, financial burdens, feeling of handicap, psychological strain of awareness of impending death, and many such factors impend the normal life and normal ways of coping. When people come to hospital seeking care for their illness this truth is forgotten and ignored and they are cared only for their physical symptom. Over recent years, there has been increasing attention given to understanding the individuals' interaction of psychological factors with medical outcomes. [7]

Somatic and psychological symptoms relating to quality of life are commonly seen in patients on dialysis. These patients are burdened with hardships not only from the underlying disease, but also from the treatment that yields little hope of cure. Psychological studies on dialysis patients have become an important branch of psychology in the western countries. Many reports, used a large number of different psychometric instruments documented a high incidence of psychopathology in dialysis patients. The illness, as well as the treatment, creates significant psychological stresses for hemodialysis (HD) patients. [8]

Patients treated by maintenance Hemodialysis are subjected to many stresses. As a result, many of these patients have psychological problems. Anxiety is a common yet frequently overlooked psychiatric symptom in patients with ESRD treated with hemodialysis (HD). State anxiety is defined as an unpleasant emotional arousal in face of threatening demands or dangers. It is characterized by disruptive feelings of uncertainty, dread, and fearfulness. The source of the Maintenance Hemodialysis (MHD) patient's state anxiety are invasive procedures accompanying hemodialysis such as: inserting a needle into the arterio-venous fistula, implanted central venous catheters, alarm sounds going off in the dialysis machine and renal staff changing shift at the dialysis station (e.g. a lack of a permanent

nurse who punctures the fistula "properly"). [9] So, nowadays, one important goal is to understand the patients' anxiety level and to probably channel their stresses.

Anxiety plays important part for the condition of Maintenance Hemodialysis (MHD) patients. Psychological and physiological parameters of these patients are related with each other. So for better clinical outcomes in these patients health sector has to pay attention on their anxiety level and should find strategies to overcome it.

MATERIALS AND METHODS

A descriptive study was undertaken on 70 Maintenance Hemodialysis (MHD) Patients selected by total enumerative sampling technique from hemodialysis unit of Deep Kidney Care Centre, Model Town, Ludhiana, Punjab. The subjects were selected based on inclusion and exclusion criteria. *Inclusion Criteria:* Maintenance Hemodialysis (MHD) Patients who were: more than 18 years of age; coming once, twice or thrice a week for Hemodialysis; willing to participate and were able to understand commonly spoken languages. *Exclusion Criteria:* Maintenance Hemodialysis (MHD) Patients who were critically ill (Airway, Breathing and Circulation were affected) and were not regular for Hemodialysis treatment. The data was obtained through self-report method with the help of 20-item State Instrument of State-Trait Anxiety Inventory (Spielberger, 1983). The tool was divided in two parts.

Part A: Patient's Profile including Section I: Socio-demographic Profile: It included age, gender, marital status, religion, habitat, educational status and occupation and Section II: Clinical Profile: It included dialysis vintage, HIV status, HbsAg status, HCV status, Hepatitis Vaccination, frequency of dialysis per week, no of missed dialysis, hours of dialysis, post dialysis complications, access type, access related complications, comorbidities present, intradialytic weight gain, serum

values of Sodium, Potassium, Hemoglobin, Creatinine and Urea, pre, intra and post dialysis Blood Pressure and Heart Rate.

Part B: State-Trait Anxiety Inventory developed by Spielberger (1983) to assess the State and Trait Anxiety. The inventory includes two scales: The State Anxiety scale and the Trait Anxiety scale each having 20 items. In this study only-The State Anxiety scale having 20 items of State-Trait Anxiety Inventory was used to assess State anxiety symptoms among patients with end-stage renal disease (ESRD) undergoing Maintenance Hemodialysis.

Analysis of the data was done in accordance with the objectives of the study. Calculations were carried out with the help of Microsoft Excel and SPSS. The various statistical measures used for analysis were frequency distribution, measures of central tendency (mean), measures of dispersion (standard deviation) Chi-square test to find out statistical significance. This Study was ethically approved by Institutional Research and Ethical committee of Deep Kidney Care Centre, Model Town, Ludhiana, Punjab.

RESULTS

Table 1 depicts that 30(42.9%) of Maintenance Hemodialysis Patients were in the age group of 55-72 years with the mean age of 54.9 ± 14.67 . More than half i.e. 47(67%) of patient were males. Most of the patients i.e. 63(90%) were married. More than half 38(54.3%) were from Sikh families. Maximum i.e. 49(70%) of patients were residing in urban areas. 24 (34.3%) were educated up to elementary level. More than half i.e. 44 (62.9%) patients were non-working.

Table 2 depicts that more than half of Maintenance Hemodialysis Patients i.e. 42(60%) were having dialysis vintage <12 months. All the patients 70(100%) were non-reactive for HIV infection. 3(43%) of patients were reactive for HbsAg infection. 20(28.3%) of patient were reactive for HCV infection. All 70(100%) of patient were vaccinated for hepatitis. 44(62.8%) of

patients were coming twice a week for dialysis.62 (88.6%) of patients had never missed their dialysis sessions.63 (90%) of patients had each dialysis session of 2-4 hours. More than half i.e. 36 (51.4%) of patients had various post dialysis complications. Majority of patients i.e. 65(92.9%) had no access related complications but 5(7.1%) of patients had various access related complications and majority of patients i.e. 56(80%) had comorbidities present along with CKD.

Table 1: Distribution of Maintenance Hemodialysis Patients (MHP) as per their Socio-Demographic profile N=70

Socio Demographic Profile	f	%
Age(in years)		
18-36	16	22.8
37-54	22	31.4
55-72	30	42.9
>72	02	2.9
Gender		
Male	47	67
Female	23	33
Marital Status		
Married	63	90
Unmarried/Single	07	10
Divorced/Separated	0	0
Widow/Widower	0	0
Religion		
Hindu	27	38.5
Sikh	38	54.3
Christian	02	2.9
Muslim	02	2.9
Any other	01	1.4
Habitat		
Rural	21	30
Urban	49	70
Educational Status		
Illiterate	07	10
Elementary	24	34.3
Secondary	20	28.6
Senior secondary	09	12.8
Graduate and above	10	14.3
Occupation		
Working	26	37.1
Non-working	44	62.9

Mean age= 54.9 ± 14.67

Figure 1 shows the distribution of Maintenance Hemodialysis (MHD) Patients as per post dialysis complications. Total 36 patients out of 70 had post dialysis complications. Out of which, majority 13(36.1%) of patients had nausea and Vomiting as post dialysis complications, 10 (27.8%) of patients had weakness and tiredness, 5(13.9%) of patients had cramps, 4(11.1%) of patients had Hypertension, 4(11.1%) of patients had Headache,3(8.3%) of patients had Ghabrahat,2(5.6%) of

patients had Chest pain, 1(2.8%) of patients had constipation and 1(2.8%) of patients had seizures as post dialysis complications.

Table2: Distribution of Maintenance Hemodialysis Patients (MHP) as per their selected Clinical Profile. N=70

Clinical Profile	f	%
Dialysis Vintage (in months)		
<12	42	60
13-24	17	24.3
25-36	05	7.1
37-48	03	4.3
>48	03	4.3
HIV status		
Reactive	0	0
Non-reactive	70	100
HbsAg status		
Reactive	03	4.3
Non-reactive	67	95.7
HCV status		
Reactive	20	28.6
Non-reactive	50	71.4
Hepatitis Vaccination		
Yes	70	100
No	0	0
Frequency of dialysis per week		
Once	20	28.6
Twice	44	62.8
Thrice	06	8.6
No of missed dialysis		
Never	62	88.6
Once	06	8.6
Twice	01	1.4
Thrice	01	1.4
Hours of dialysis(in hours)		
0-2	0	0
2-4	63	90
4-6	07	10
Post dialysis complications		
Yes	36	51.4
No	34	48.6
Access related complications		
Yes	05	7.1
No	65	92.9
Comorbidities present		
Yes	56	80
No	14	20

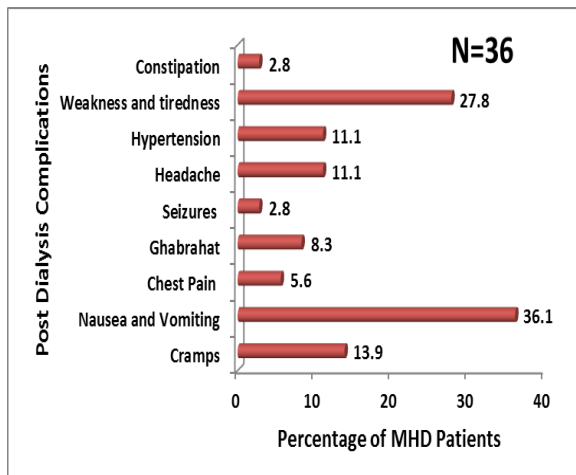


Fig 1: Distribution of Maintenance Hemodialysis (MHD) Patients as per post dialysis complications

Figure 2 shows the distribution of Maintenance Hemodialysis (MHD) Patients as per access related complications. Only 5 patients out of 70 had access related complications Majority of them i.e. 3(60 %) had ecchymosis on the access site, 1(20 %) had nodules on the access site, 1(20 %) had swelling at the access site and 1(20 %) had numbness in hand on the same side that of access site.

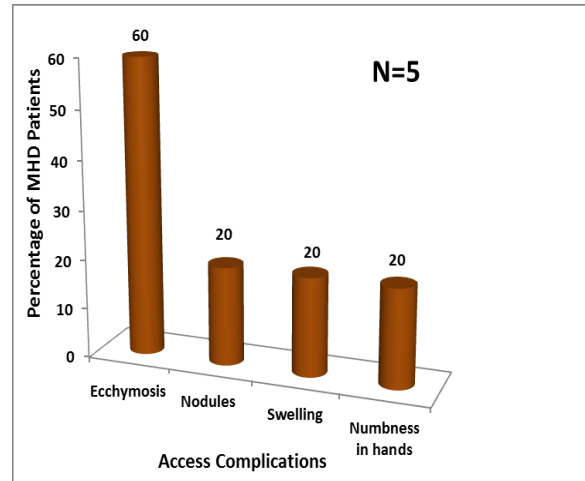


Fig 2: Distribution of Maintenance Hemodialysis (MHD) Patients as per Access related complications

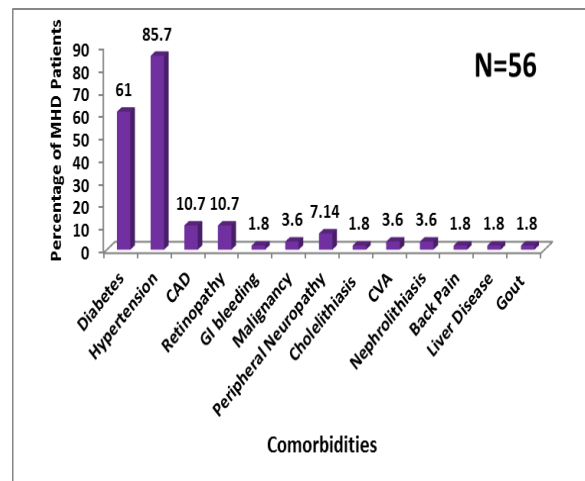


Fig 3: Distribution of Maintenance Hemodialysis (MHD) Patients as per Comorbidities present

Figure 3 shows the distribution of Maintenance Hemodialysis (MHD) Patients as per Comorbidities present. Total 56 patients out of 70 had Comorbidities present. Out of 56 patients majority of them i.e. 48(85.7%) had hypertension,34(61%) had diabetes, 6(10.7%) had CAD, 6(10.7%) had Retinopathy, 4(7.14%) had peripheral

neuropathy, 2(3.6%) had CVA, 2(3.6%) had malignancy, 2(3.6%) had Nephrolithiasis, 1(1.8%) had GI bleeding, 1(1.8%) had Cholelithiasis, 1 (1.8%) had Backpain, 1(1.8%) had liver disease and 1(1.8%) had Gout.

Figure 4 shows the distribution of Maintenance Hemodialysis (MHD) Patients as per access type. Majority of patients i.e. 47(67.1%) had AV Fistula, 12(17.1%) of patients had Catheter, 11(15.8%) of patients had femoral catheter and none of the patient had Graft as an access for hemodialysis.

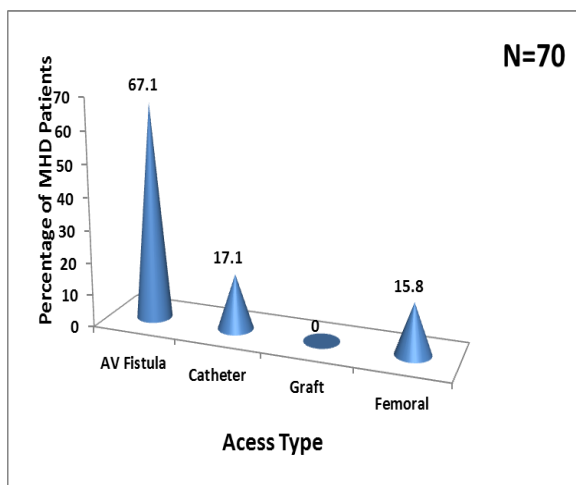


Fig 4: Distribution of Maintenance Hemodialysis (MHD) Patients as per Access type

Table 3 depicts that more than half of Maintenance Hemodialysis Patients i.e. 44 (62.9%) had desirable Intra-dialytic Weight Gain. More than half i.e. 40 (57.1 %) had desirable serum sodium level. More than half i.e. 42 (60 %) had desirable serum potassium level. All i.e. 70 (100%) of maintenance hemodialysis patients had undesirable hemoglobin and creatinine in serum. Majority i.e. 65(92.9%) of maintenance hemodialysis patients had undesirable serum urea level and only 5(7.1%) had desirable serum urea level.

Table 4 depicts the mean and standard deviation of values of clinical profile (intra-dialytic weight gain and serum values of Sodium, Potassium, Hemoglobin, Creatinine and Urea) of Maintenance Hemodialysis (MHD) Patients

Table 3: Distribution of Maintenance Hemodialysis Patients (MHP) as per their selected Clinical Profile (Intra-dialytic Weight Gain and Serum Values of Sodium, Potassium, Hemoglobin, Creatinine and Urea) N=70

Clinical Profile	f	%
Intra-dialytic Weight Gain		
Desirable	44	62.9
Undesirable	26	37.1
Serum Sodium		
Desirable	40	57.1
Undesirable	30	42.9
Serum Potassium		
Desirable	42	60
Undesirable	28	40
Hemoglobin		
Desirable	0	0
Undesirable	70	100
Serum Creatinine		
Desirable	0	0
Undesirable	70	100
Serum Urea		
Desirable	05	7.1
Undesirable	65	92.9

Table 4: Mean and Standard Deviation of values of Clinical Profile (Intra-dialytic Weight Gain and Serum Values of Sodium, Potassium, Hemoglobin, Creatinine and Urea) N=70

Clinical Profile	Normal Value	Mean±SD
Intra-dialytic Weight Gain	<5.7% of dry weight	2.38±1.737
Serum Sodium	135-145 mEq/L	135.51±5.498
Serum Potassium	3.5-5.0 mEq/L	4.9±0.913
Serum Hemoglobin	13.5-17.5 g/dl (for men) 12.0-15.5 g/dl (for women)	8.02±1.523
Serum Creatinine	0.6-1.2 mg/dl (males) 0.5-1.1 mg/dl(females)	8.21±3.466
Serum Urea	7-20 mg/dl	126.07±53.02

Table 5 depicts the mean and standard deviation of pre, intra and post dialysis vital parameters like blood pressure and heart rate of Maintenance Hemodialysis (MHD) Patients

Table 5: Mean and Standard Deviation of pre, intra and post dialysis vital parameters like blood pressure and heart rate. N=70

Clinical Profile	Mean±SD
Pre dialysis-Systolic Blood Pressure	149.66±20.18
Intra dialysis-Systolic Blood Pressure	150.11±17.102
Post dialysis-Systolic Blood Pressure	147.03±17.699
Pre dialysis -Diastolic Blood Pressure	82.71±10.621
Intra dialysis -Diastolic Blood Pressure	82.43±8.918
Post dialysis -Diastolic Blood Pressure	82±9.72
Pre dialysis-Heart Rate	78.91±4.931
Intra dialysis- Heart Rate	78.69±4.766
Post dialysis- Heart Rate	78.26±5.687

Figure 5 depicts that majority i.e. 24(34.3%) of maintenance hemodialysis (MHD) patients had extreme level of state anxiety, 15(21.4%) had severe level of state anxiety, 10(14.3%) had moderate level of state anxiety and 21(30%) had mild level of state anxiety. Hence it can be concluded that

most of the Maintenance Hemodialysis (MHD) Patients had extreme level of state anxiety.

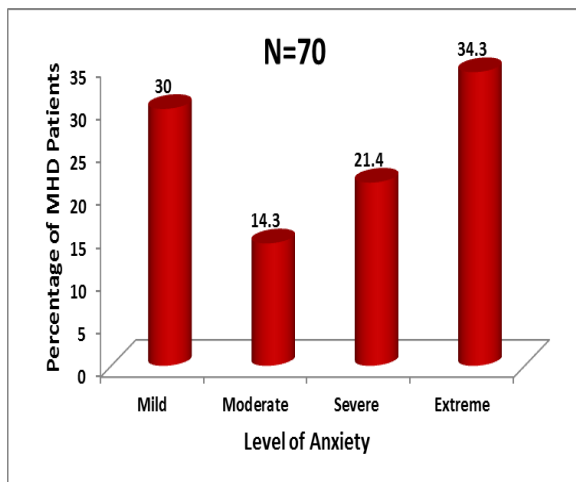


Fig 5: Distribution of Maintenance Hemodialysis (MHD) Patients as per their levels of state anxiety.

Table 6 depicts the frequencies, percentage, mean and SD of Level of State Anxiety among Maintenance Hemodialysis

(MHD) Patients. Mean and SD of mild state anxiety is 25.62 ± 3.26 . Mean and SD of Moderate state anxiety is 37.6 ± 1.07 . Mean and SD of Severe anxiety is 56.33 ± 5.23 . Mean and SD of Extreme state anxiety is 68.96 ± 3.08 and Mean and SD of overall state anxiety was 48.81 ± 18.66 .

Table 6 Frequencies, percentage, mean and SD of Level of State Anxiety among Maintenance Hemodialysis (MHD) Patients

Level of Anxiety	f	%	Mean±SD
Mild	21	30	25.62±3.26
Moderate	10	14.3	37.6±1.07
Severe	15	21.4	56.33±5.23
Extreme	24	34.3	68.96±3.08

Mean and SD of Overall Anxiety= 48.81 ± 18.66

Maximum Score-80
Minimum score-20

Table 7 depicts that there is no significant association of level of State Anxiety with socio-demographic variables like age, gender, marital status, religion, habitat, educational status and occupation.

Table 7: Association of State Anxiety of Maintenance Hemodialysis (MHD) Patients with their Socio-Demographic profile N=70

Socio-Demographic Profile	Level of State Anxiety				χ^2 Statistics
	Mild f(%)	Moderate f(%)	Severe f(%)	Extreme f(%)	
Age(in years)					
18-36	04	03	04	05	6.608 df=9 p=.678 ^{NS}
37-54	09	04	05	04	
55-72	07	03	06	14	
>72	01	00	00	01	
Gender					
Male	13	08	10	16	1.014 df=3 p=.798 ^{NS}
Female	08	02	05	08	
Marital Status					
Married	20	08	14	21	2.103 df=3 p=.551 ^{NS}
Unmarried/Single	01	02	01	03	
Divorced/Separated	00	00	00	00	
Widow/Widower	00	00	00	00	
Religion					
Hindu	07	05	05	10	8.510 df=12 p=.744 ^{NS}
Sikh	13	04	09	12	
Christian	00	01	00	01	
Muslim	00	00	01	01	
Any other	01	00	00	00	
Habitat					
Rural	08	02	07	04	5.147 df=3 p=.161 ^{NS}
Urban	13	08	08	20	
Educational Status					
Illiterate	01	02	01	03	19.588 df=12 p=.075 ^{NS}
Elementary	03	04	08	09	
Secondary	10	01	01	08	
Senior secondary	04	01	01	04	
Graduate and above	04	01	01	04	
Occupation					
Working	6	4	3	13	5.563 df=3 p=.135 ^{NS}
Non-working	15	6	12	11	

* Significant NS-Non Significant

Table 8 depicts that there is no significant association of level of State

Anxiety with clinical variables like dialysis vintage in months, HbsAg status, HCV

status, frequency of dialysis in a week, no of missed dialysis, hours of dialysis, any post dialysis complications, access type, access related complications and comorbidities present.

Table 8: Association of State Anxiety of Maintenance Hemodialysis (MHD) Patients with their selected Clinical Profile N=70

Clinical Profile	Level of State Anxiety				χ^2 Statistics
	Mild f(%)	Moderate f(%)	Severe f(%)	Extreme f(%)	
Dialysis Vintage (in months)					
<12	10	03	13	16	18.601 df=12 p=.099 ^{NS}
13-24	05	04	02	06	
25-36	03	01	00	01	
37-48	01	02	00	00	
>48	02	00	00	01	
HbsAg status					7.313 df=3 p=.063 ^{NS}
Reactive	03	00	00	00	
Non-reactive	18	10	15	24	
HCV status					3.803 df=3 p=.283 ^{NS}
Reactive	09	03	04	04	
Non-reactive	12	07	11	20	
Frequency of dialysis in a week					10.235 df=6 p=.115 ^{NS}
Once	04	06	03	07	
Twice	16	02	11	15	
Thrice	01	02	01	02	
No of missed dialysis					6.119 df=9 p=.728 ^{NS}
Never	19	08	14	21	
Once	02	02	01	01	
Twice	00	00	00	01	
Thrice	00	00	00	01	
Hours of dialysis (in hours)					7.302 df=3 p=.063 ^{NS}
2-4	16	09	14	24	
>4	05	01	01	00	
Any post dialysis complications					.458 df=3 p=.928 ^{NS}
Yes	10	06	08	12	
No	11	04	07	12	
Access type					9.552 df=6 p=.145 ^{NS}
AV Fistula	15	08	12	12	
Catheter	04	02	02	04	
Femoral	02	00	01	08	
Access related complications					5.385 df=3 p=.146 ^{NS}
Yes	01	00	00	04	
No	20	10	15	20	
Comorbidities present					8.512 df=3 p=.037 ^{NS}
Yes	18	05	11	22	
No	03	05	04	02	

* Significant NS-Non Significant

Table 9 depicts that there is no significant association of level of State Anxiety with clinical variables like Intra-dialytic Weight Gain, serum sodium, potassium and urea.

Table 9: Association of State Anxiety Maintenance Hemodialysis (MHD) Patients with Clinical Profile (Intra-dialytic Weight Gain and Serum Values of Sodium, Potassium and Urea) N=70

Clinical Profile	Level of State Anxiety				χ^2 Statistics
	Mild f(%)	Moderate f(%)	Severe f(%)	Extreme f(%)	
Intra-dialytic Weight Gain					3.733 df=3 p=.292 ^{NS}
Desirable	11	05	12	16	
Undesirable	10	05	03	08	
Serum Sodium					2.178 df=3 p=.536 ^{NS}
Desirable	12	04	08	16	
Undesirable	09	06	07	08	
Serum Potassium					2.044 df=3 p=.563 ^{NS}
Desirable	12	08	08	14	
Undesirable	09	02	07	10	
Serum Urea					1.992 df=3 p=.574 ^{NS}
Desirable	01	00	01	03	
Undesirable	20	10	14	21	

* Significant NS-Non Significant

DISCUSSION

The findings of the present study revealed that among 70 Maintenance Hemodialysis (MHD) Patients, majority i.e. 24 (34.3%) of patients had extreme level of state anxiety, 15(21.4%) had severe level of state anxiety, 10(14.3%) had moderate level of state anxiety and 21(30%) had mild level of state anxiety. Mean and SD of overall state anxiety is on higher side i.e. 48.81±18.66. Similar study was conducted by Kohli S., Batra P. and Aggarwal H.K.(2009) [7] to assess the state anxiety among end stage renal disease patient undergoing maintenance hemodialysis at P.G.I.M.E.R. Rohtak, India. The results revealed that Mean and SD of overall state anxiety was also on higher side i.e. 67.53±10.89. The present study showed that there was no significant association between level of anxiety and socio-demographic & clinical variables. Similar study was conducted by Najafi A., Keihani S., Bagheri N., Jolfaei A .G. and Meybodi A.M.(2016) [10] and revealed the association of level of anxiety with age (p=0.007) and parathyroid hormone (p=0.04).

CONCLUSION

In conclusion, it was found that out of 70 Maintenance Hemodialysis (MHD) Patients majority of patients had extreme level of state anxiety. Mean and SD of overall state anxiety was on higher side. There was no significant association of level of anxiety with various socio-demographic and clinical variables.

REFERENCES

1. Gansevoort RT, Correa-Rotter R, Hemmelgarn BR, Jafar TH, Heerspink HJ, Mann JF, et al. Chronic kidney disease and cardiovascular risk: epidemiology, mechanisms, and prevention. *Lancet*. 2013.
2. Jha V, Garcia-Garcia G, Iseki K et al. Chronic kidney disease: global dimension and perspectives. *Lancet* 2013; 382: 260–272
3. Lozano R , Naghavi M, Foreman K et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2013; 380: 2095–2128
4. Prababhar MR, Chandrasekaran V, Soundararajan P. Epidemic of Chronic Kidney Disease in India-What can be done? *Saudi Journal of Kidney Disease Transplantation*. 2008; 19:847-853.
5. Daugirdas J, Ing T. *Handbook of dialysis*. 4 ed. Boston: Little, Brown; 2007.
6. Reichsman F, Levy NB. Adaptation to hemodialysis: A four year study of 25 patients. *Arch Intern Med*. 1972;138: 859–65.
7. Kohli S, Batra P, Aggarwal HK. Anxiety, locus control and coping strategies among end stage renal disease patients undergoing maintenance hemodialysis. *Indian journal of nephrology* .2011;July 21(3):177-181
8. Paulette AR. The dialysis unit. *Dial Tsransplant* 1990;12:670-672.

9. Feroze U, Martin D, Kalantar-Zadeh K, Kim JC, Reina-Patton A, Kopple JD: Anxiety and depression in maintenance dialysis patients: preliminary data of a cross-sectional study and brief literature review. *J Ren Nutr* 2012;22:207-210.
10. Najafi A, Keihanib S, Bagheri N, Jolfaei A G, Meybodi A M. Association between anxiety and depression with dialysis adequacy in patients on maintenance hemodialysis. *Iranian Journal of Psychiatry and Behavioral Sciences*. 2016 June; 10(2):4962.

How to cite this article: Sharma M. State anxiety among maintenance hemodialysis (MHD) patients. *Int J Health Sci Res*. 2018; 8(7):200-208.
