

# The Anxiety and Depression Levels in the Subjects Undergoing Hemodialysis: A Crosssectional Study

S. Akshita Mishra<sup>1</sup>, K. Nithin<sup>2</sup>, Dr. N. Kavitha<sup>3</sup>, Dr. M. Suresh Kumar<sup>4</sup>, Dr. K. Madhavi<sup>5</sup>

<sup>1,2</sup>Internees, College of Physiotherapy, SVIMS, Tirupati

<sup>3</sup>Faculty, College of Physiotherapy, SVIMS, Tirupati

<sup>4</sup>Faculty, College of Physiotherapy, SVIMS, Tirupati

<sup>5</sup>Principal, College of Physiotherapy, SVIMS, Tirupati

**Abstract:** ***Background:** The kidney is a retroperitoneal organ. It consists of hilum, renal vessels, nephrons (1). The functions of kidneys are excretion of waste, maintenance of acid base balance, fluid and electrolyte balance, regulation of blood pressure, red blood cell production, vitamin D production. The dialysis is done during the End stage renal disease with patients having GFR (Glomerular Filtration Rate) below 15. The dialysis done through the fistula, graft or the catheter is hemodialysis. A hemodialysis machine has a special dialyzer or an artificial kidney to clean blood. The anxiety and depression were commonly seen in the patient undergoing hemodialysis. The HADS (Hospital Anxiety and Depression Scale) is commonly used to assess the anxiety and depression levels in subjects undergoing hemodialysis. **Aim:** The aim of the study is to find the anxiety and depression levels in the subjects undergoing haemodialysis. **Methodology:** the subjects were taken from the dialysis unit, Nephrology ward from SVIMS hospital. A consent was taken from the subjects who were willing to participate in the study. The scores were marked for anxiety and depression by asking the patients who were undergoing hemodialysis using the HADS (Hospital Anxiety and Depression Scale). **Results:** among the 50 samples, Among young adult group only 9 people have no anxiety, which is slightly higher than the expected count of 8. In middle aged group, 13 people have no anxiety, close to expected count and in older age group, there are smaller numbers of people with different anxiety level. The most common among people was slowing of daily activities and panic attacks at night. Among young adult group only 10 people have no depression, in middle aged 14 people have no depression and in old age 8 people have no depression. The chi square test shows that there is significant association between age and anxiety whereas there is no significant association between demographic data and depression or anxiety. **Conclusion:** The study revealed that only few individuals experienced anxiety and depression while undergoing hemodialysis. The most common problem encountered was slowing of activities post hemodialysis.*

**Keywords:** Hemodialysis, Anxiety, Depression, Glomerular filtration rate

## 1. Introduction

The kidneys are essential for life (1).

There are two kidneys present retroperitoneally in the posterior part of the abdominal cavity, one on the either side of the vertebral column. They extend from T12 to L3 levels. The right kidney is relatively lower than that of the left kidney as it is pushed by the liver. Kidneys are protected by the lower part of the ribcage.

### Functions of Kidneys

The kidneys remove unwanted substances and retains physiologically useful substances in the body, It eliminates the end products of metabolism, which are not used by the body such as urea, uric acid, creatinine, metabolites of hormones and drugs, Water and electrolyte balance.

### Excretory Functions:

Excretion of hormones  
Maintenance of composition of body fluids, Regulation of osmolality, Formation of urine.

### Nonexcretory Functions:

Regulation of acid base balance, Regulation of blood pressure, Secretion of renin and erythropoietin, Formation of vitamin D  
Secretion of prostaglandins.

### Types of Renal Failure:

Renal failure is the condition in which the kidneys stop the normal functioning.

#### 1) Acute Renal Failure:

In this condition, the kidneys stop functioning suddenly. The loss of function could be partial or complete. The renal functions may be restored subsequently.

#### 2) Chronic Renal Failure:

There is a progressive loss of renal function with damage to an increasing number of nephrons.

### Dialysis

It is also known as artificial kidney that involves the restoration of blood composition of blood.

There are two types of dialysis:

#### 1) Hemodialysis:

- During haemodialysis, diffusion of solutes between blood and dialysis solution results in removal of metabolic wastes.

#### 2) Peritoneal Dialysis:

- During peritoneal dialysis, the plastic catheter is implanted in peritoneal cavity and the dialysate with glucose concentration is infused creating the osmolar gradient that permits ultrafiltration of fluid.

Volume 13 Issue 11, November 2024

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

[www.ijsr.net](http://www.ijsr.net)

**Aim of the study**

- The aim of the study is to find the anxiety and depression levels in the subjects undergoing haemodialysis.

**Objectives**

- To evaluate the anxiety levels in subjects undergoing hemodialysis using Hospital Anxiety and Depression scale.
- To evaluate the depression levels in subjects undergoing hemodialysis using Hospital Anxiety and Depression Scale.

**2. Methodology**

**Study Setup:** Dialysis unit in SVIMS hospital, Tirupati.

**Study Design:** Observational study

**Study Duration:** 3 months

**Sample Size:** 50

**Inclusion Criteria:** subjects undergoing hemodialysis of age ranging from 15 to 65.

**Outcome Measures:**

The following tools were used in the study:

- A personal questionnaire
- The hospital anxiety and depression scale (HADS)
- Consent form

Each patient filled the personal questionnaire at the beginning of dialysis and HADS scale during the dialysis.

**A personal questionnaire:**

It consists of demographic data (name, age, gender, IP number, address) and related to disease (BMI, height, weight, comorbidities, since years).

**Hospital Anxiety and Depression Scale:**

To assess the anxiety and depression level in the patients undergoing dialysis. The HADS is considered as a reliable and accurate scale for assessing anxiety and depression symptoms. The scale consists of 14 questions in which 7 questions for anxiety and 7 questions concern for depression levels. The lower score indicates lesser symptoms and higher score indicates severe symptoms. The HADS was developed by Zigmond and Snaith in 1983 to identify anxiety disorders and depression among patients in clinics. The sensitivity and specificity of HADS in different studies were chosen according to the cutoff value determined by a receiver characteristic curve giving a maximal diagnostic contribution. Optimal balance between specificity and sensitivity for HADS as a screening instrument was achieved most frequently at a cutoff score of 8+ for both HADS - A and HADS - D giving sensitivity and specificity for both

subscales of approximately 0.80. the anxiety items correlations ranged from +0.76 to +0.41 and significance of all these was  $p < 0.01$ .

**3. Results**

**Frequencies Statistics**

		Age	Gender	BMI	Depression	Anxiety
N	Valid	50	50	50	50	50
	Missing	0	0	0	0	0
Mean		45.92	1.40	2.30	4.36	4.56
Median		45.00	1.00	2.00	3.50	3.00
Std. Deviation		12.909	.495	.974	3.022	5.047
Range		52	1	3	18	21
Minimum		18	1	1	0	0
Maximum		70	2	4	18	21

**Gender**

Male - 1

Female - 2

**Depression**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	1	2.0	2.0	2.0
1	3	6.0	6.0	8.0
2	7	14.0	14.0	22.0
3	14	28.0	28.0	50.0
4	8	16.0	16.0	66.0
5	5	10.0	10.0	76.0
6	3	6.0	6.0	82.0
7	3	6.0	6.0	88.0
8	2	4.0	4.0	92.0
9	1	2.0	2.0	94.0
10	2	4.0	4.0	98.0
18	1	2.0	2.0	100.0
Total	50	100.0	100.0	

**Anxiety**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	7	14.0	14.0	14.0
1	8	16.0	16.0	30.0
2	9	18.0	18.0	48.0
3	7	14.0	14.0	62.0
4	1	2.0	2.0	64.0
5	3	6.0	6.0	70.0
6	1	2.0	2.0	72.0
7	4	8.0	8.0	80.0
8	1	2.0	2.0	82.0
9	3	6.0	6.0	88.0
10	1	2.0	2.0	90.0
12	1	2.0	2.0	92.0
13	1	2.0	2.0	94.0
16	1	2.0	2.0	96.0
21	2	4.0	4.0	100.0
Total	50	100.0	100.0	

**AGE (Binned)\* Anxiety (Binned)**

Crosstab

			Anxiety (Binned)				Total
			No Anxiety	Minor Anxiety	Moderate Anxiety	Severe Anxiety	
Age (Binned)	Young Adult	Count	9	1	0	0	1.0
		Expected Count	8.0	1.0	.4	.6	10.0
	Middle Age Adult	Count	13	3	0	2	18
		Expected Count	14.4	1.8	.7	1.1	18.0
	Older Adult	Count	10	1	2	1	14
		Expected Count	11.2	1.4	.6	.8	14.0
	Elder	Count	8	0	0	0	8
		Expected Count	6.4	.8	.3	.5	8.0
Total		Count	40	5	2	3	50
		Expected Count	40.0	5.0	2.0	3.0	50.0

Chi Square Tests

	Value	Df	Asymp. Sig. (2- Sided)
Pearson Chi Square Tests	9.541 <sup>a</sup>	9	.389
Likelihood Ratio	11.062	9	.271
Linear by Linear Association	.001	1	.972
N of Valid Cases	50		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .32

No anxiety:

- In the young adult group, 9 people have no anxiety, which is slightly higher than the expected count of 8.
- In the middle age adult group, 13 people have no anxiety, close to the expected count of 14.4

- In the older adult and elder groups, there are smaller numbers of people with different anxiety levels.

Compare the all other groups as above reference.

Chi - Square Test Results:

Pearson Chi - Square Value: 9.54.

Degrees of Freedom (df): 9

Sig (2 - sided) /p value: 0.389

This is the p - value, which tells us the significance of the test. A p - value greater than 0.05 suggests no statistically significant relationship between age and anxiety levels.

AGE (Binned)\* Depression (Binned)

Crosstab

			Anxiety (Binned)				Total
			No Anxiety	Minor Anxiety	Moderate Anxiety	Severe Anxiety	
Age (Binned)	Young Adult	Count	10	0	0	0	1.0
		Expected Count	8.8	1.0	1.0	.2	10.0
	Middle Age Adult	Count	14	3	3	1	18
		Expected Count	15.8	1.8	1.8	.4	18.0
	Older Adult	Count	12	2	2	0	14
		Expected Count	12.3	1.4	1.4	.3	14.0
	Elder	Count	8	0	0	0	8
		Expected Count	7.0	.8	.8	.2	8.0
Total		Count	44	5	5	1	50
		Expected Count	44.0	5.0	5.0	1.0	50.0

Chi Square Tests

	Value	Df	Asymp. Sig. (2- Sided)
Pearson Chi Square Tests	5.152 <sup>a</sup>	6	.525
Likelihood Ratio	7.048	6	.316
Linear by Linear Association	.116	1	.734
N of Valid Cases	50		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .16

Chi - Square Test Results:

Pearson Chi - Square Value: 5.152

Degrees of Freedom (df): 6

Sig (2 - sided) /p value: 0.525

This is the p - value, which tells us the significance of the test. A p - value greater than 0.05 suggests no statistically significant relationship between age and anxiety levels.

Demographic data analysis:

	Mean±SD	MAX	MIN
Age	45.92 ± 12.909	70	18
BMI	23.688 ± 6.18	43.4	14.3
Depression	4.36 ± 3.022	18	0
Anxiety	4.56 ± 3.0	21	0

Frequency tables

Gender	Frequency	Percentage of Frequency
Male	30	60%
Female	20	40%

Age (years)

15 - 25	5	10%
25 -	5	10%
35 - 45	16	32%
35 - 55	11	22%
55 - 65	10	20%
> 65	3	6%

**BMI (kg/m<sup>2</sup>):**

Under weight (<18.5)	11	22%
Normal (18.5 - 24.9)	23	46%
Over weight (25.0 - 29.9)	9	18%
Obese (>30)	7	14%

**Chi Square Test****Depression vs Anxiety**

Chi square value - 33.273

P - value - 0.00009

This suggests there significant association between depression and anxiety

**Demographics vs depression & Anxiety -****Age - anxiety**

Chi square value - 9.541

p - value - 0.389

**Age - Depression**

Chi square value - 5.152

p - value - 0.525

**BMI - Anxiety**

Chi square value - 5.739

p - value - 0.66

**BMI - Depression**

Chi square value - 10.400

p - value - 0.109

Above data suggests that there is no significant association b/w demographics data and depression or anxiety.

**Results**

Among the 50 samples, Among young adult group only 9 people have no anxiety, which is slightly higher than the expected count of 8. In middle aged group, 13 people have no anxiety, close to expected count and in older age group, there are smaller numbers of people with different anxiety level. The most common among people was slowing of daily activities and panic attacks at night. Among young adult group only 10 people have no depression, in middle aged 14 people have no depression and in old age 8 people have no depression. The chi square test shows that there is significant association between age and anxiety whereas there is no significant association between demographic data and depression or anxiety.

**4. Discussion**

The present study aimed to investigate about the Anxiety and Depression levels in subjects undergoing haemodialysis patients. The derivation of the current study is that very small group of people experience anxiety and depression while undergoing the haemodialysis. The most common problem encountered by the individuals was slowing down of the daily activities after the Haemodialysis.

As per the previous study by Kidney blood press res (2016) 41, the statistical analysis of depression and anxiety at the initial and final examination indicated a significant reduction in anxiety and depression.

According to study by Usama feroz, MD (2012), the anxiety and depression are common with patients in maintenance dialysis and patients exhibit anxiety during the initial stages of dialysis.

As per the study of Pakistan journal of medical sciences 33 (4), 876, 2017, patients with ESRD have the higher frequency of depression compared to pre dialysis CKD patients.

According to the study by Aurelie untas (2009), the Hospital and Anxiety scale (HADS) is well used instrument in the international literature. It is fast and easy to administer. The analysis showed two factors as good consistency and correlated to patient age and quality of life.

As per study by psychological medicine 27 (2), 363\_370, 1997, the homogeneity and test retest reliability was good. The total HADS scale showed a better balance between sensitivity and positive predictive value. The HADS is best used as screening questionnaire.

**5. Conclusion**

The study shows that the subjects undergoing hemodialysis are well motivated and mentally strong throughout the dialysis treatment. Only a small group of people experience anxiety and depression while undergoing the hemodialysis. The most common encountered by the patients was slowing of activities and panic attacks at night post hemodialysis. The most of the individuals lead a near normal life and social life, they are well cooperative with their families and spend the quality life. Most of the people feel fatigue and dizziness immediately after the hemodialysis but recover within 2 to 3 hours. The study revealed that only few individuals experienced anxiety and depression while undergoing hemodialysis.

**References**

- [1] Nephrology for medical students by mohammed a. sobh
- [2] Essentials of Nephrology 2<sup>nd</sup> edition by R. kasi visweswaram
- [3] Basic dialysis theory by John sweeny, feb 10 2009.
- [4] Dialysis therapy in the new England journal of medicine.
- [5] Chronic kidney disease by Andrew levey, josef coresh, 1990.
- [6] The hospital anxiety and depression scale by R. Philip Snaith, 2002
- [7] The HADS by R. P. Snaith health and quality of life outcomes, 2003 - springer.
- [8] The validity of HADS: An updated literature review by ingran Bjelland, 2000.
- [9] a comparison of anxiety and depression between predialysis ckd patients and hemodialysis patients using hospital anxiety and depression scale by salman T safi, tahir shafi, Pakistan journal of nederal sciences 33 (4), 876, 2017.
- [10] Psychological evaluation in hemodialysis patients by Ahamad bayat, reza kazemi by J pak med assoc 62 (3 suppl 2), s1 - 5, 2012.

- [11] Depression in dialysis patients by terry king - wing Ma, Philip kam - Tao Li in nephrology 21 (8), 639 - 646, 2016.
- [12] Assessing depression and anxiety in chronic dialysss patients by Nancy G Kutner, paul L fair, Michael H Kutner in journal of psychomatic research 29 (1), 23 - 31, 1985.
- [13] Impact of anxiety and depression on quality of life of hemodialysis patients by Fatima Al Nashri in journal of clinical nursing 31 (1 - 2), 220 - 230, 2022
- [14] Symptoms of anxiety and depression in patients undergoing chronic hemodialysis by W john livesley in journal of psychosomatic research 26 (6), 581 - 584, 1982.
- [15] Mental health, depression and anxiety in patients on maintenance dialysis by usma feroz in Iranian journal of kidney disease 4 (3), 173 - 180, 2010.