

## Study of Depression and Quality of Life in Patients on Hemodialysis: A Cross Sectional Study

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**Abstract:** End-stage renal disease (ESRD) is difficult to treat, It is a disease with profound effects on the life of the patient, with serious physiological, psychological and socioeconomic effects on individuals, families and communities. The aim of this study prevalence of depression and quality of life in patients on hemodialysis. A cross sectional study was conducted in the hemodialysis unit and a total of 30 patients were interviewed and the Becks Depression Inventory questionnaire as well the WHOQOL BREF scale were administered. Of the 30 participants 76% were male and 24 % were females, of which 53% were not working, 24% were housewives, 17% were semiskilled and 6% were retired. 56% of patients were diagnosed with moderate depression and 16% with severe depression using BDI with total prevalence of depression to be 90% , guilt was the most common finding among the participants. The Association between occupational status and prevalence of depression was found to be very significant  $p < 0.001$ , similarly there was very significant association between working status and quality of life ,  $p = 0.0048$  as well as education and quality of life  $p = 0.0369$ . The quality of life was seen to be affected the most in psychological domain. We conclude that depression is highly prevalent in patients on hemodialysis. It is also highly affected by the occupational and educational status of the patient and the quality of life is mainly affected in psychological domain.

**Keywords:** Nephrotic syndrome (NS); Swelling; Infections; Clinical types of NS; Glomerulonephritis; and Hepatitis.

### INTRODUCTION

End-stage renal disease (ESRD) is difficult to treat. It is a disease with profound effects on the life of the patient, with serious physiological, psychological and socioeconomic effects on individuals, families and communities [Son, Y.J. *et al.*, 2009] Hemodialysis is a life support treatment for patients with ESRD. This treatment has allowed patient from all over the world to survive on dialysis with Chronic Disease [Son, Y.J. *et al.*, 2009]

Going to dialysis multiple times a week can cause changes in various spheres of their lives: Personal, social, and professional spheres (need to modify lifestyle practices, reliance on HD process and medical staff, loss of employment and social standing, diminished financial situation, dietary regimen, sexual dysfunction, issues with access to dialysis, concern surrounding mortality). [Čengiĉ, B. *et al.*, 2010]

Depression is often unrecognised and under-treated in patients with chronic medical conditions often leading to negative results. it is particularly unlikely to be detected in patients with end-stage renal disease (ESRD) because the symptoms of depression overlap those of uremia [Son, Y.J. *et al.*, 2009]. Although daily HD might be more efficient at controlling uremia, the everyday impacts of dialysis and increased stress from the treatment can make the depression more severe [Čengiĉ, B. *et al.*, 2010].

Apart from depression the quality of life of patient on hemodialysis is also compromised due to the Long-term dialysis therapy which results in a loss of freedom, dependence on caregivers, disruption of marital, family, and social life, and reduced or loss of financial income which causes the physical, psychological, socioeconomic, and environmental aspects of life are negatively affected<sup>[4]</sup>.

### AIM

To study prevalence of depression in patients on hemodialysis.

### OBJECTIVES

To study association between occupational status and incidence of depression.

### METHODOLOGY

**Study Design:** Cross-sectional Study.

**Study Setting:** Department of Psychiatry a tertiary care hospital.

**Study Population:** Consecutive patients diagnosed with end stage renal disease and on hemodialysis.

**Study Duration:** 3 months.

**Sample Size:** 30.

**Statistical Analysis:**

Categorical variables were expressed in frequency and percentages. Categorical variables were compared by performing chi2-square.

For small numbers, Fisher exact was used.  $p < 0.05$  was considered as statistical significance. Statistical software STATA version 14.0 was used for data analysis.

### Sampling Technique

#### Inclusion Criteria

- patient diagnosed with end stage renal disease and admitted in, the dialysis unit and receiving dialysis
- Those who were willing to participate in the study.

#### Exclusion Criteria

- Patients of end stage renal disease who were unable to participate because of severity.

### Methods of Measurement

After the permission from the Institutional Ethics Committee, minimum of 30 patients diagnosed with end stage renal disease admitted in , dialysis unit, on hemodialysis satisfying the inclusion and exclusion criteria were included in the study. Written informed consent were obtained from the patient or the relatives of the patient. Each individual was interviewed along with the semi structured proforma and were administered scales namely Becks depression inventory and World Health Organization Quality of Life BREF scale (WHOQOL BREF)

### Data Collection Tools

Following tools were used in the study.

**A.** Semi-structured Performa including demographic profile, clinical, medical and psychiatric history profile

**B.** Diagnostic Criteria: Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM 5) criteria for Major depressive disorder will be used

**C.** Rating Scales: 2

### Becks Depression Inventory

A 21-item, multiple-choice assessment is called the Beck Depression Inventory (BDI). According to the severity of the symptoms experienced during the previous week—ranging from the lack of a symptom to an extreme level—respondents are asked to assess each item using one of four response options. The BDI has 21 symptoms and

attitudes that represent the severity of the depression; items are rated from 0 to 3 for intensity and then summarised linearly to provide a score that runs from 0 to 63. Scores of 0 to 9 indicate little or very little depression, 10 to 18 suggest mild to moderate depression, 19 to 29 indicate moderate to severe depression, and 30 to 63 indicate severe depression [www.sciencedirect.com].

### WHOQOL BREF (Annexure –3)

The WHOQOL-BREF is a self-administered questionnaire comprising 26 questions on the individual's perceptions of their health and well-being over the previous two weeks. Responses to questions are on a 1-5 Likert scale where 1 represents "disagree" or "not at all" and 5 represents "completely agree" or "extremely". It consists of 4 domains: physical, psychological, social and environmental [www.physio-pedia.com]

## METHODS OF DATA COLLECTION

- After the permission from the Institutional Ethics Committee, minimum of 30 patients diagnosed with end stage renal disease admitted in, dialysis unit, satisfying the inclusion and exclusion criteria were included in the study.
- Written informed consent were obtained from the care giver or patient.
- Each individual was interviewed along with the semi structured performa.
- Diagnosis of insomnia, depression and anxiety was made clinically and “Diagnostic and Statistical Manual of Mental Disorders 5th edition” (DSM-5) criteria was applied.
- Each participant was individually interviewed along the semi structured proforma, becks depression inventory, WHOQOL BREF

## DATA MANAGEMENT

- Study was be kept confidential.
- Recorded data was acquired, organised and entered in excel sheet.
- Data was reviewed for accuracy.
- Data was kept secured.
- Data will be stored, and backup will be maintained.

**RESULTS**

**Table 1: Demographic table**

Demographic variable		No. of participants	Percentage (%)
Age in years	21-30	9	30.00
	31-40	7	23.33
	41-50	5	16.67
	51-60	8	26.67
	61-70	1	3.33
			Mean age - 40.4 years.
Gender	Male	23	76.67
	Female	7	23.33
Residence	Rural	10	33.33
	urban	20	67.77
Occupation	Not working	16	53.33
	Housewife	7	23.33
	Semiskilled	5	16.67
	Retired	2	6.67
Marital status	Married	21	70.00
	unmarried	9	30.00

From the above table, the mean age was 40.4 years, 30% of the participants belonged to age group of 21-30 year. Out of all participants 76.67% were males and 23.33% were females.

Majority of the participants that is 67.77% resided in urban area and 33.33% resided in rural area. Around 53.33% of participants were not working and 70% were married.

**Findings of Becks Depression Inventory**

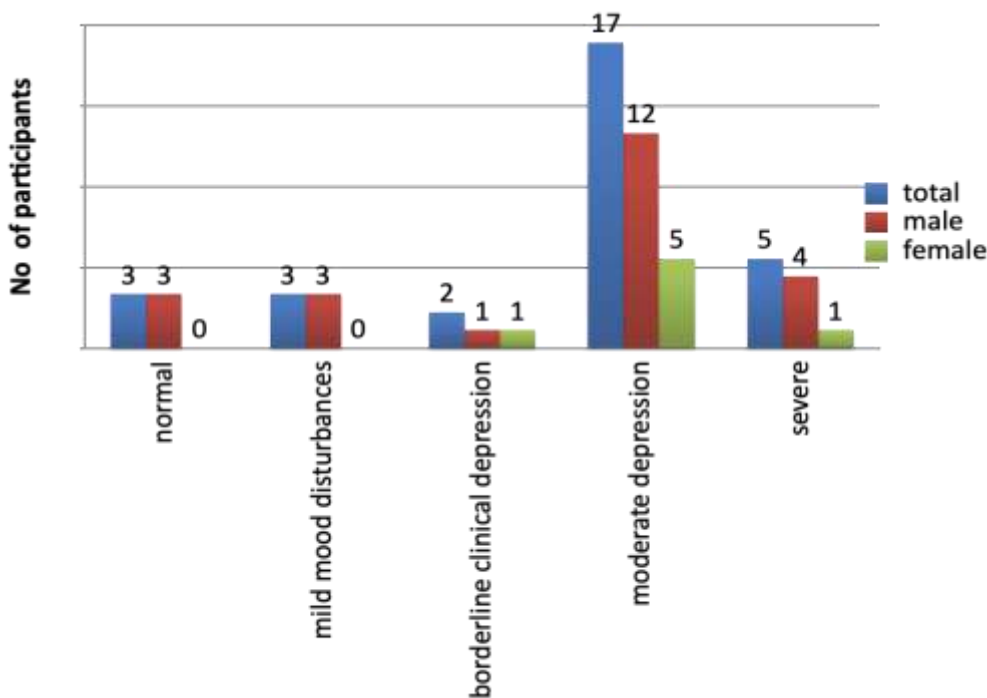


Figure no 1. BDI Categories of depression

The above figure denotes around 56.66% participants suffered from moderate depression

followed by 16% of them having severe depression, according to BDI category.

**Findings of Becks Depression Inventory**

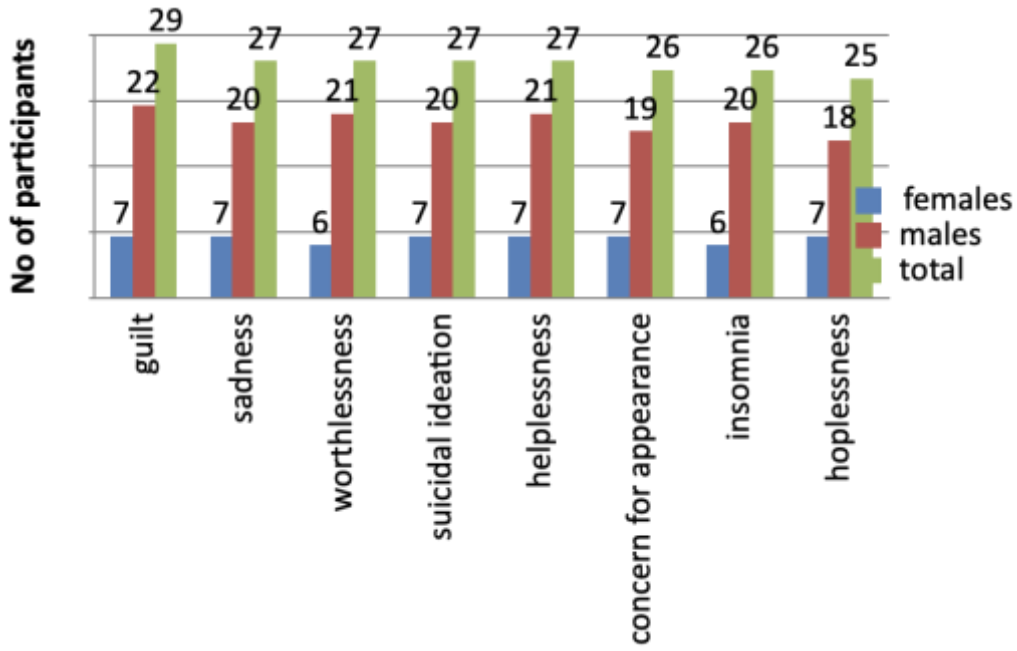


Figure no 2 BDI items

Figure no 2, shows that majority of participants ie around 96% had guilt, followed by sadness, worthlessness, suicidal ideation, helplessness, concern for appearance, insomnia and hopelessness.

**Findings of WHOQOL**

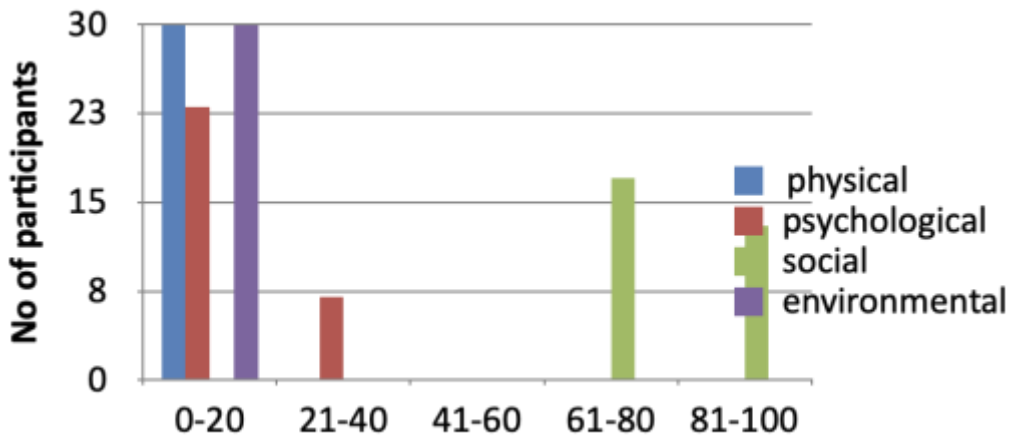
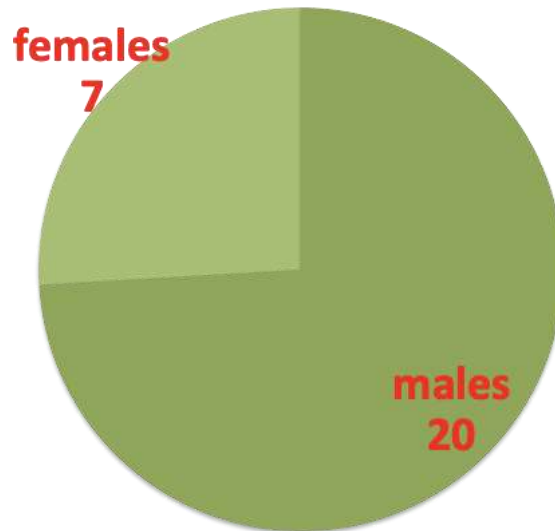


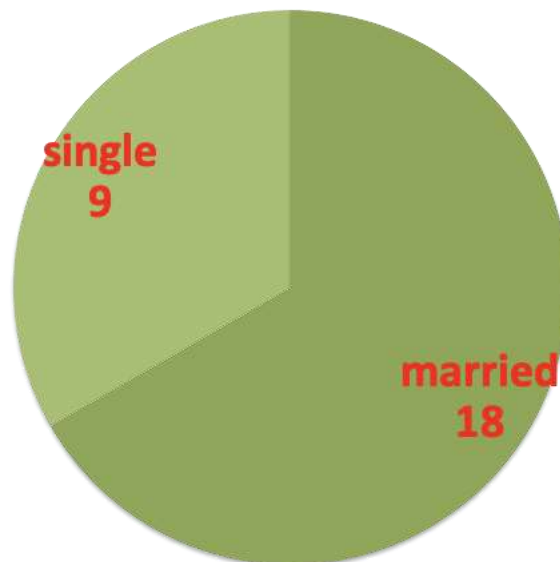
Figure no 3 , WHOQOL scores

From figure no 3, WHOQOL BREF finding , physical, psychological and environmental domain had lowest scores as compared to social domain.



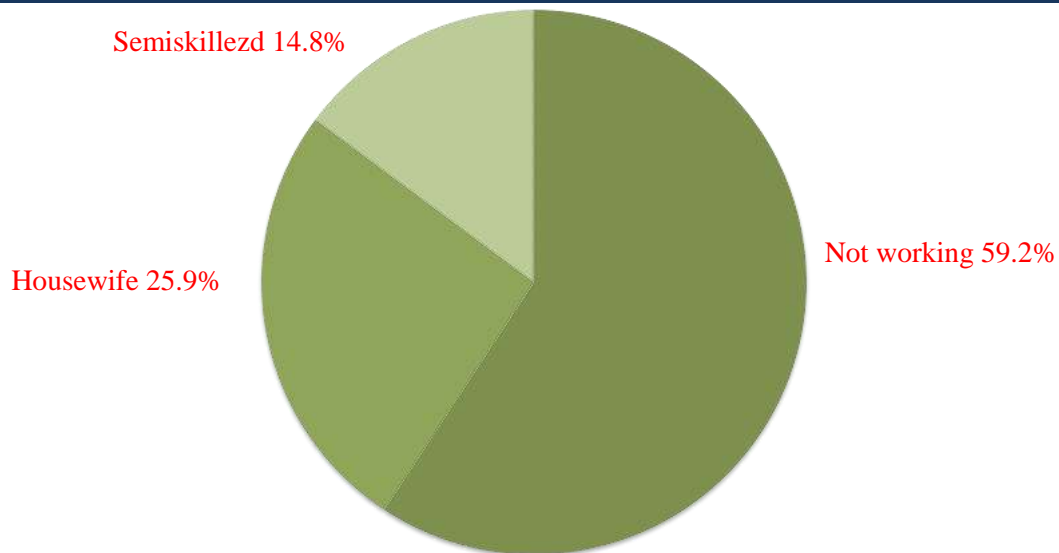
**Figure 4:** Association of Depression and gender

From figure no 4, 74% males and 28.9 % females had depressive features. There was no significant association between gender and depression,  $p=0.557$ .



**Figure 5:** Association of Marital status and depression

From the above figure, 33% single, 66% were married and had depressive features. No divorced or widow case found. There was no significant association between marital status and depression,  $p=0.069$ .



**Figure 6:** Working status and depression

From figure no 6, 59.2% of participants were not working due to illness 25.9% participants were housewives had depressive features and 14.8%

participants who were semiskilled had depressive features. There was significant association between working status and depression, p=0.004.

**Table 2:** Association of quality of life and Age in years

Age in years	Physical	Psychological	Social	Environmental
21 – 30	9.88 ± 3.68	19.67 ± 5.56	81.89 ± 10.99	14.22 ± 4.23
31 – 40	11.0 ± 3.41	17.28 ± 2.92	75 ± 3.46	14.71 ± 2.92
41 – 50	10.2 ± 3.83	16.6 ± 3.28	82.6 ± 13.53	12.8 ± 4.60
>50	12.89 ± 3.25	22.33 6.78	82.55 ± 10.27	15.67 ± 3.16
p-value	0.3157,NS	0.1698,NS	0.4278,NS	0.5800,NS

**Table 3:** Association of quality of life and Gender

Gender	Physical	Psychological	Social	Environmental
Male	11.13 ± 3.68	19.26 ± 5.26	81.78 ± 11.11	14.21 ± 3.78
Female	11.0 ± 3.41	19.85 ± 6.41	76.71 ± 2.92	15.57 ± 3.20
p-value	0.9342,NS	0.8047,NS	0.2475,NS	0.4003,NS

**Table 4:** Association of quality of life and education status

Education status	Physical	Psychological	Social	Environmental
Primary	9.81 ± 3.65	19.0 ± 5.36	78.36 ± 7.56	14.09 ± 2.42
Secondary	11.13 ± 3.20	19.8 ± 5.00	79.13 ± 9.56	14.06 ± 4.31
Graduate	14.5 ± 3	19.0 ± 8.48	92.25 ± 11.84	17.5 ± 3
p-value	0.0751,NS	0.9272,NS	0.0369,S	0.2242,NS

**Table 5:** Association of quality of life and working status

Occupation status	Physical	Psychological	Social	Environmental
Housewife	11.0 ± 3.41	19.87 ± 6.41	76.71 ± 2.92	15.57 ± 3.20
Retired	16.0 ± 4.24	31.0 ± 0	87.5 ± 17.67	19 ± 0
Semiskilled	13.0 ± 0	20.2 ± 5.01	88.8 ± 13.51	14.2 ± 2.68
Not working	9.93 ± 3.58	17.5 ± 3.46	78.87 ± 9.03	13.62 ± 3.96
p-value	0.0658,NS	0.0048,HS	0.1140,NS	0.2076,NS

**Table 6:** Association of quality of life and Marital status

Marital status	Physical	Psychological	Social	Environmental
Married	11.28 ± 3.66	19.85 ± 6.08	80.04 ± 9.79	14.38 ± 3.35
Never married	10.66 ± 3.5	18.33 ± 3.60	81.89 ± 10.99	14.89 ± 4.48
p-value	0.6708,NS	0.4919,NS	0.6523,NS	0.7338,NS

Table no 2,3 and 6 denote that there is no significant association between age, gender and marital status and quality of life respectively. On the other hand table no 4, 5 show significant association between quality of life in social domain and educational status,  $p= 0.0369$  and between quality of life in psychological domain and working status,  $p = 0.0048$  respectively

## DISCUSSION

In our study we found prevalence of depression to be 90% in patients on hemodialysis, whereas in study conducted by Kizilcik, Z. *et al.*, the prevalence of depression was 27.9% with mean age of 55.89 years [Kizilcik, Z, 2012], this disparity could be because the mean age of participants in our study was 40.4 years, which is lower, and also because of unemployment.

In this study association of gender, marital status and education were not associated with depression. Similarly in a study conducted by Saeed, Z. *et al.*, 2012, majority of the patients on dialysis were depressed, marriage was associated with increased depressive feature [Saeed, Z. *et al.*, 2012], similarly in a study by Amjad khan, *et al.*, 2019, 84.6% of married participants had higher percentage of depressive features which is in contrast with our study, whereas in our study only 66% of married participants had depressive features and no association was established between marital status and depressive features, suggesting supportive family environment and a happy married life. [Khan, A. *et al.*, 2019].

In this current study, there was association between working status and depression,  $p = 0.004$ , similarly in a study by Saeed, Z. *et al.*, 2012 there was a similar association found,  $p=0.01$  [Saeed, Z. *et al.*, 2012] this finding is supported by many studies.

In a study conducted by Utsav Joshi, Roshan Subedi patients with chronic kidney disease on dialysis had overall low QOL scores in all four domains. Low income status was independent negative predictors of QOL of patients [Joshi, U. *et al.*, 2017]. In our study lower QOL score was observed in physical, psychological and environmental domain while higher QOL score was observed in social domain due to other external features like good family support.

In our study participants who were employed had better QOL in psychological domain  $p=0.048$ , people who were unemployed had scored less in

this domain, similar results were found in study conducted by Joshi, U. *et al.*, [2017], Chiang, C.K. *et al.*, [2004] and Kutner, N.G. *et al.*, [2005].

In a study conducted Badema Čengič\* and Halima Resic Patients with higher level of education, employed pts were less depressed and had better QoL in relation to older, less educated, unemployed [Čengič, B. *et al.*, 2010] which is in concordance with our study. Similar results were also seen in a study carried out by Gerasimoula, K. *et al.*, 2015, where QOL was found higher with higher education,  $p = 0.001$  [Gerasimoula, K. *et al.*, 2015].

## CONCLUSION

Total prevalence of depression was found to be 90% in patients on hemodialysis.

56 % of patients were diagnosed with moderate depression and 16% with severe depression

The Association between occupational status and prevalence of depression was found to be very significant.

The quality of life was seen to be affected the most in psychological, physical and environmental domain.

Association of working status and quality of life was found to be significant.

Association of education and quality of life was found to be significant.

## LIMITATIONS

Smaller sample size.

The participants belonged to same care unit

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**Source of support:** Nil;

**Conflict of interest:** Nil.

**Cite this article as:**

Joshi, A. and Gawande, S. "Study of Depression and Quality of Life in Patients on Hemodialysis: A Cross Sectional Study." *Sarcouncil Journal of Medical Series* 2.5 (2023): pp 1-8.