

## Original article

# Study of Prevalence of Depression and Suicidal Tendencies in the Patients of End Stage Renal Disease Treated with Hemodialysis

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## ABSTRACT

**Objective:** To study the prevalence of depression and suicidal tendencies in the patients of ESRD treated with hemodialysis.

**Material & Methods:** 50 cases of ESRD who fulfilled the inclusion criteria and were reporting to hemodialysis were selected after informed consent. Detailed history was collected using semi-structured proforma. Mini International Neuropsychiatry Interview Plus (M.I.N.I. Plus) English Version 5.0.0 questionnaire was administered in that session to assess the depression and suicidality.

**Result:** Average duration of renal manifestation is 3.4 years and average duration of dialysis is 1.52 years. Depression has been detected in 88% (n=44) study population. Current suicidal risk has been found in 14% (n=7) of study population. 88% (n=44) study population have met the criteria for major depressive episode according to the DSM IV. 8% (n=4) showed low risk, 4% (n=2) have high risk and only 2% (n=1) showed moderate risk on suicide. Current suicidal risk is found in 15.9% of depressed population. Maximum depressed people have the history of renal disease of 2-5 years. Major depressive episode was found in 86.4% (n=38) population who had undergone dialysis for renal diseases for the period of 0-2 years.

**Conclusion:** No Significant correlation between duration of dialysis and depression and suicidal tendencies.

**Key words:** Depression, Suicide, End Stage Renal Disease (ESRD)

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## INTRODUCTION

The End – stage renal disease (ESRD) represents stage 5 of Chronic Kidney Disease (CKD). Accumulated toxins affect their daily living, well-being; nutritional status, water & electrolyte balance, eventuating in the uraemic syndrome. This state will culminate in death unless renal replacement therapy (dialysis or transplantation) is instituted<sup>(1)</sup>. ESRD causes severe debilitation in the patients. Over the past 40 years, dialysis and transplantation have prolonged the lives of thousands of patients with renal insufficiency, but psychological stresses and morbidity are associated with these procedures. Depression has been suggested to affect medical outcome in ESRD patients through modification of immunological and stress responses, impact as nutritional status and/or reduction of compliance with, or access to prescribed dialysis and medical regimens<sup>(2)</sup>. Patients of ESRD have more prevalence of psychiatric disorders like delirium, psychosis, depression, anxiety, increase of suicidal risk. Haemodialysis significantly and adversely affects the patients both physically and psychologically. The global influence on family roles, work competence, fear of death and dependency on treatment may negatively affect quality of life and exacerbate feelings associated with a loss of control in

life<sup>(3)</sup>. ESRD patients will face stress in coping with day to day activities in occupational, personal, interpersonal relations with family and others. Prohibitive cost of treatment for ESRD like periodical hemodialysis, medications and renal transplantation, etc. make the patients more vulnerable for depression<sup>(4)</sup>. There is growing literature on the bidirectional relationship between depression and various medical illnesses but depression in ESRD has been understudied<sup>(5)</sup>. Depression is recognized as the most common psychological problem among ESRD patients with reported incidence varying from 25% to 50% predominantly in western studies<sup>(6)</sup>. Depression could affect medical outcome through several mechanisms like altering the medical aspects of disease by influencing access to or utilization of health care, by modifying compliance with dialysis and medication prescription, by impacting nutritional status, by mediating changes in immune function, by influencing interpersonal dynamics or by suicide<sup>(7)</sup>. There is need for early detection and treatment of depression and other psychiatric illness in ESRD patients as there is significant difference in the outcome of ESRD patients who have associated psychiatric illness. Very few studies are conducted in India on this subject.

### **AIMS AND OBJECTIVES**

To study the prevalence of depression and suicidal tendencies in the patients of ESRD treated with hemodialysis.

### **MATERIALS AND METHODS**

The present study was conducted at Dr. Pinnamaneni Siddhartha Institute of Medical Sciences Hospital, a general hospital with capacity of 780 beds extending health care facilities to both urban and rural population of Krishna District of Andhra Pradesh State of India. 50 cases of ESRD reporting to hemodialysis centre of Dr. PSIMS Hospital, Gannavaram from June, 2011 to August, 2013 were taken for the study. The study protocol was approved by the Institutional Ethics Committee prior to the initiation of study. All the patients who fulfilled the inclusion criteria were taken up for the study. Consent from ESRD patients on hemodialysis were obtained and confidentiality was maintained during data collection.

### **INCLUSION CRITERIA**

1. All End-stage renal disease cases placed on hemodialysis.
2. Patients having full sensorium and unimpaired cognitive functions.

### **EXCLUSION CRITERIA**

1. All the patients suffering from cognitive deficits.
2. All patients who are physically incapacitated to go through questionnaires/scales/semi structured interviews.
3. Patients not co-operative and not giving consent.

### **METHODOLOGY**

Socio-demographic data and detailed history were collected from all the selected patients on hemodialysis using semi-structured proforma. M.I.N.I. PLUS was administered in that session. The data collected were tabulated, analyzed and interpreted by SPSS-15.

Semi-structured proforma was developed in the department of Psychiatry consisting of

- A) Detailed history of depression,
- B) History of current suicide risk,
- C) Duration of renal manifestation,
- D) Duration of dialysis,

- E) Any complication of dialysis,
- F) Any family history of psychiatric problem.

Mini International Neuropsychiatry Interview Plus (M.I.N.I. Plus) English version 5.0.0 was used as a questionnaire to assess the depression and suicidality. The M.I.N.I. Plus module A and C were administered on the patients.

**STATISTICAL ANALYSIS**

Data were collected in excel spread sheet. Final analysis was done by using statistical package for the social sciences – version 15 (SPSS-15). Chi-sq test was used for comparison of symmetric data whereas ANOVA is used for asymmetric data analysis and P value  $\leq 0.05$  is considered to be statistically significant.

**OBSERVATIONS & RESULTS**

Total study population was 50 (25 male & 25 female) with duration of renal manifestation ranges from 0-10 years and duration for dialysis ranges from 0-6 years. Data was collected in Excel spreadsheet. Final analysis was done by SPSS Version 15. Chi-square test was used for comparison of symmetric data, whereas ANOVA was used for asymmetric data analysis & P Value  $\leq 0.05$  was considered to be statistically significant. Majority of the subjects were between the age group 55 to 64 years.

Figure – 1 : Duration of renal manifestation (year)

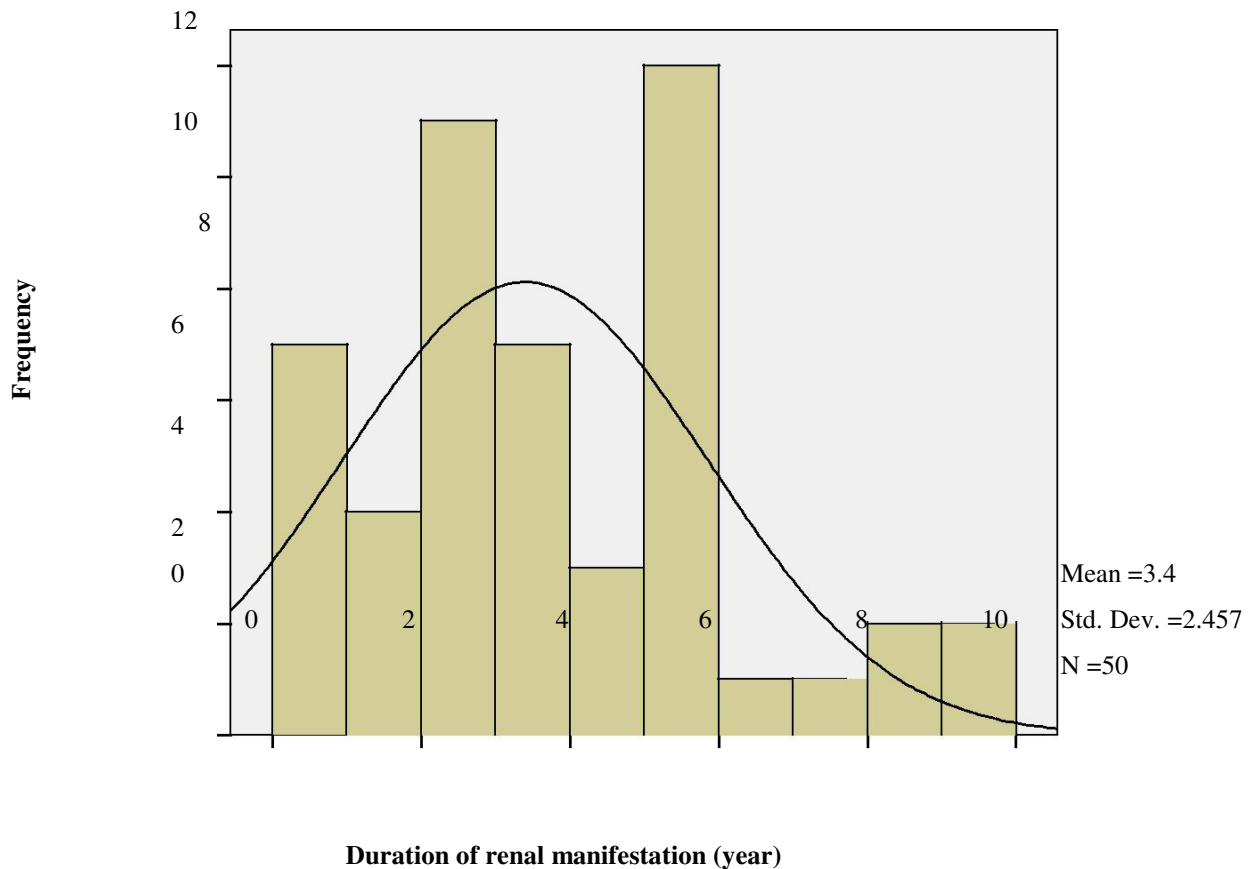


Figure-1 shows the distribution of duration of renal manifestation in year of the sample studied. Average duration of renal manifestation is 3.4 years. Maximum Number of subjects (n=12, 24%) are having renal manifestation of 5 years followed by subjects (n=11, 22%) having renal manifestation of 2 years. (P value = 0.419, statistically not significant).

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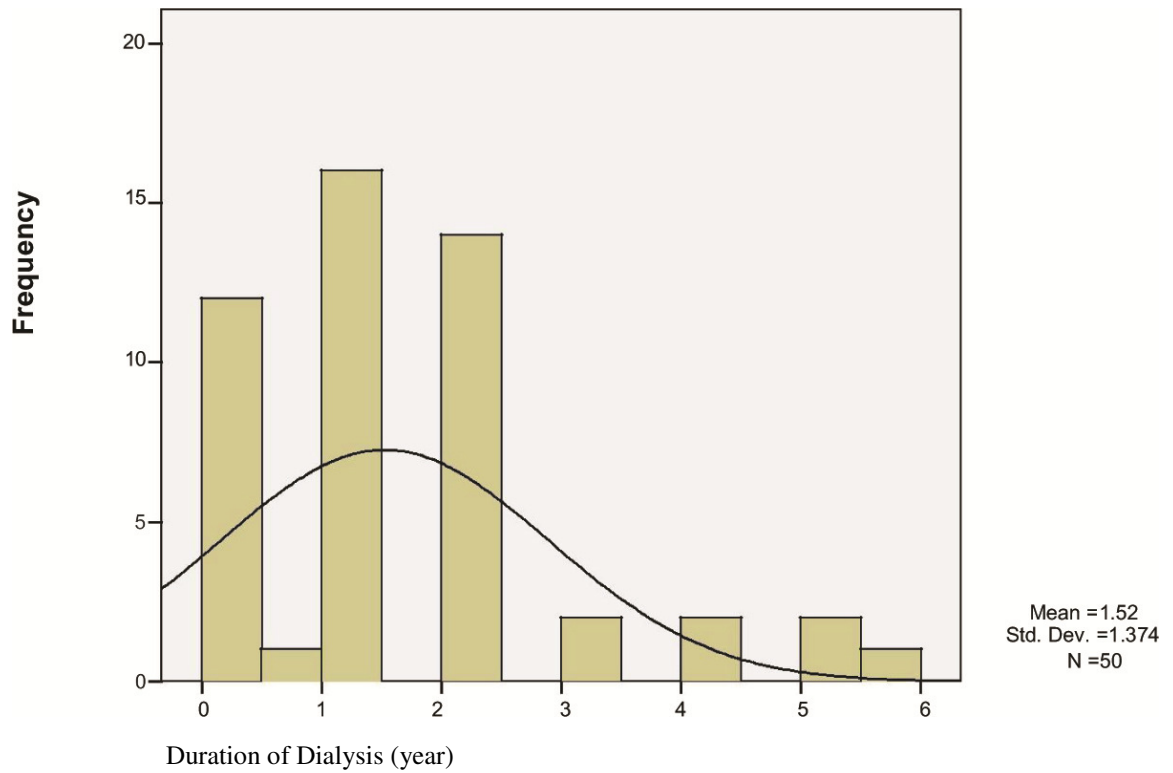
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Figure – 2: Duration of Dialysis (year)



Average Duration of Dialysis is 1.52 years. Maximum number of subjects (n=43, 86%) are having duration of dialysis of 0-2 years.

Table : 1. Relationship between Duration of Dialysis & Major Depressive Episode

			Major Depressive Episode		Total
			YES	NO	
DURATION OF DIALYSIS	0-2 YEARS	Count	38	5	43
		%within duration of dialysis	88.4%	11.6%	100.0%
		%within Major Depressive Episode	86.4%	83.3%	86.0%
		% of Total	76.0%	10.0%	86.0%
	3-5 YEARS	Count	5	1	6
		%within duration of dialysis	83.3 %	16.7 %	100.0 %
		%within Major Depressive Episode	11.4 %	16.7 %	12.0 %
		% of Total	10.0 %	2.0 %	12.0 %
	6 YEARS & ABOVE	Count	1	0	1
		%within duration of dialysis	100.0 %	0 %	100.0 %
		%within Major Depressive Episode	2.3 %	0 %	2.0 %
		% of Total	2.0 %	0%	2.0 %
Total		Count	44	6	50
		%within duration of dialysis	88.0 %	12.0 %	100.0%
		%within Major Depressive Episode	100.0 %	100.0 %	100.0 %
		% of Total	88.0 %	12.0 %	100.0 %

Figure – 3 : Relationship between Duration of Dialysis & Major Depressive Episode

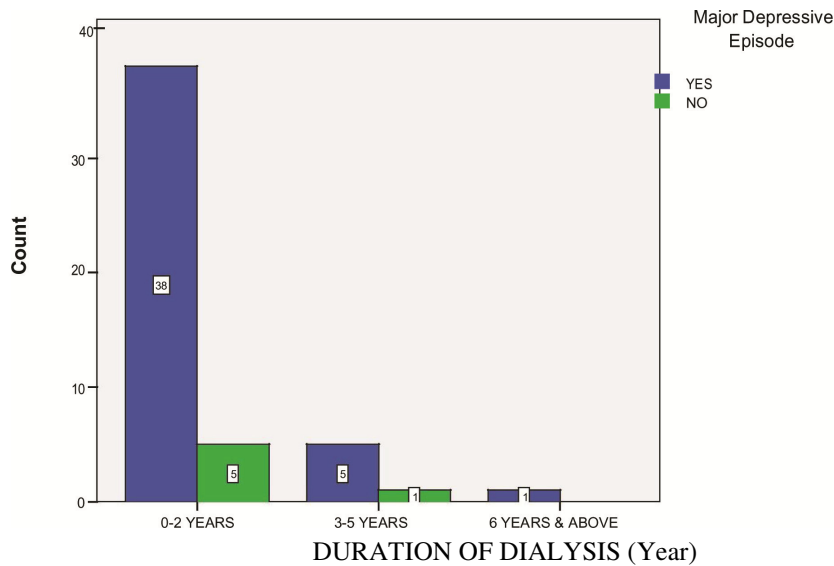


Table – 1 and Figure – 3 show that the Major Depressive Episode was found in 86.4% (n=38) population who had undergone dialysis for 0-2 years, 11.4% (n=5) for 3 – 5 years and 2.3% (n=1) for 6 years or above.

Table – 2: CURRENT SUICIDE RISK in Patients with Major Depressive Episode

			Major Depressive Episode		Total
			Yes	No	
Current suicide risk	Yes	Count	7	0	7
		% within current suicide risk	100.0%	0%	100.0%
		% within major depressive episode	15.9%	0%	14.0%
	% of total	14.0%	0%	14.0%	
	No	Count	37	6	43
		% within current suicide risk	86.0%	14.0%	100.0%

		% within major depressive episode	84.1%	100.0%	86.0%
		% of total	74.0%	12.0%	86.0%
Total		Count	44	6	50
		% within current suicide risk	88.0%	12.0%	100.0%
		% within major depressive episode	100.0%	100.0%	100.0%
		% of total	88.0%	12.0%	100.0%

P Value = 0.302 (not significant)



Figure -4: Current Suicide Risk in patients with Major Depressive Episode

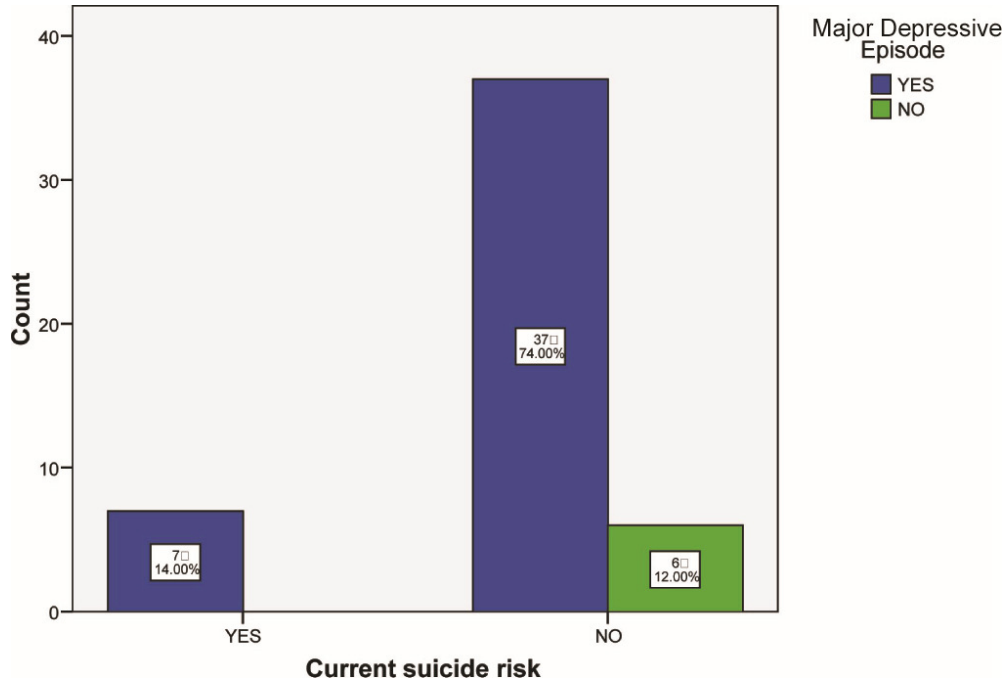


Table -2 and Figure – 4 show the current suicide risk. The current suicide risk is found in 15.9% population of subjects having Major Depressive Episode. 84.1% are free from this risk having Major Depressive Episode

## DISCUSSION

Average duration of renal manifestation is 3.4 years (figure 1). Average duration of dialysis is 1.52 years. Maximum depressed people have history of renal disease of 2-5 years. Major depressive episode was found in 86.4% (n=38) population who had undergone dialysis for renal disease for the period of 0-2 years. Our study was not consistent with study by Kutner NG, et al<sup>(8)</sup>. Their study shows that depression becomes less common in dialysis patients with increasing duration of dialysis. Craven JL et al<sup>(9)</sup> showed that the passage of time, dialysis patients adapt to the stressor related to their illness. This was consistent with the findings of Reichsman F and Levy NB<sup>(10)</sup>. They reported that the depression becomes less common in dialysis patients with increasing duration of dialysis. Our study is consistent with the study of Watnick S et al<sup>(11)</sup>. They showed that the depressive symptoms are very common at the start of dialysis therapy and specific characteristics are associated with a great burden of depressive symptoms. (table 1, figure 2 and 3)

Current suicide risk is found in 15.9% population whereas 84.1% are free from this risk. Kurella M et al<sup>(12)</sup> reported prevalence of suicide in 78% of females and 47% of males. Cohen LM et al<sup>(13)</sup> found in their study the prevalence of suicidal ideation in patients who stop the life support treatment of dialysis. Keskin G & Engin E<sup>(14)</sup> demonstrated in their study that suicidal ideation and depression were increasing with age in patients with chronic renal failure.

Shulman R et al<sup>(15)</sup> reported extremely high rate of suicide in ESRD patients. Recent data by Kimmel PL<sup>(7)</sup> suggest that suicide is less prevalent in contemporary populations, perhaps as a function of changes in therapy, patient selection biases or reporting mechanism. (table 2, figure 4) In our study average duration of renal manifestation is 3.4 years and average duration of dialysis is 1.52 years. Depression has been detected in 88% (n=44) study population. Current suicidal risk has been found in 14% (n=7) of study population. 88% (n=44) study population have met the criteria for major depressive episode according to the DSM IV. 8% (n=4) showed low risk, 4% (n=2) have high risk and only 2% (n=1) showed moderate risk on suicide. Current suicidal risk is found in 15.9% of depressed population. Maximum depressed people have the history of renal disease of 2-5 years. Major depressive episode was found in 86.4% (n=38) population who had undergone dialysis for renal diseases for the period of 0-2 years.

#### **CONCLUSION:**

In our present study, duration of renal manifestations on an average is about 3.4 years. Average duration of dialysis is 1.52 years. Depression has been detected in 88% (N = 44) of study population. Current suicidal risk has been found in 14% (N = 7) of study population. But, no significant correlation is found between duration of dialysis and depression and suicidal tendencies.

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