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Sleep Quality, Depression and Quality of Life among patients with Chronic Kidney Disease (CKD) and End Stage Renal Disease (ESRD) a Comparative Study Conducted in Bagalkot

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Abstract **Original Research Article**

Background of the study: Chronic kidney disease (CKD) is defined as kidney damage or an estimated glomerular filtration rate (eGFR) less than 60 ml/min/1.73 m persisting for three months or more irrespective of the cause. CKD is usually asymptomatic till stages IV and V. End-stage renal disease is a terminal illness with a glomerular filtration rate of less than 15 ml/min. Chronic diseases have become a major cause of global morbidity and mortality even in developing countries. The burden of chronic kidney disease (CKD) in India cannot be assessed accurately. The approximate prevalence of CKD is 800 per million populations (pmp), and the incidence of end-stage renal disease (ESRD) is 150–200 pmp. ***Aim of the study:*** To assess the sleep quality, depression and quality of life among CKD and SRD patients attending nephrology units of selected hospitals of Bagalkot. ***Methodology:*** The descriptive cross sectional survey research design was adopted for the present study. The sample for the present study includes 60 CKD and 60 ESRD patients attending nephrology units of selected hospitals of Bagalkot using convenient sampling technique. Data was collected using structured questionnaire for socio-demographic and clinical characteristics, Pittsburgh Sleep Quality Index Scale, Center for Epidemiological Study Depression scale (CES-D), WHO BREF Quality of life Scale. Data was analyzed using descriptive and inferential statistics. ***Results:*** Findings show that there was a significant difference in sleep quality ($t=14.44$, $p<0.000$), depression ($t=14.33$, $p<0.000$) and quality of life ($t=13.82$, $p<0.000$) between Chronic Kidney Disease and End Stage Renal Disease patients. ***Conclusion:*** Study concluded that, poor sleep quality, depression and poor quality of life are more prominent among End Stage Renal Disease compared to Chronic Kidney Disease patients. Hence future researchers should vision to develop intervention for ESRD patients to help them to improve sleep quality, reduce depression and improve quality of life.

Keywords: Chronic Kidney Disease (CKD), End-Stage Renal Disease (ESRD), Sleep Quality, Depression, Quality of Life.

INTRODUCTION

God made the humankind in his own image and gave dominion over the world with well-defined structural and functional peculiarities. So human beings seem to be the perfect creation. But there are certain factors which may alter the proper functioning of this equilibrium. Kidneys are the bean shaped organs responsible for removal of waste products and regulation of fluid and electrolyte balance. If the kidneys is not far able to fulfill its intentions, our body will not be cope up with its impacts; like a machine needs repairment if it does not work properly.

During the past decades there was an increasing predominance of chronic disorders, with a large number of people living with chronic diseases that can adversely affect their quality of life. HRQOL is a multidimensional construct that consists of at least three broad domains – physical, psychological, and social functioning – that are affected by one's disease and/or treatment.

Chronic diseases, often referred to as non communicable diseases (NCDs), usually emerge in middle age after long exposure to an unhealthy lifestyle involving tobacco use, a lack of regular physical activity, and consumption of diets rich in highly saturated fats,

sugars, and salt, typified by "fast foods." This lifestyle results in higher levels of risk factors, such as hypertension, dyslipidemia, diabetes, and obesity that act independently and synergistically.

High blood glucose, also called blood sugar, can damage the blood vessels in your kidneys. When the blood vessels are damaged, they don't work as well. Many people with diabetes also develop high blood pressure, which can also damage your kidneys. High blood pressure can constrict and narrow the blood vessels, which eventually damages and weakens them throughout the body, including in the kidneys. The narrowing reduces blood flow.

Chronic kidney disease (CKD) is defined as kidney damage or an estimated glomerular filtration rate (eGFR) less than 60 ml/min/1.73 m persisting for three months or more irrespective of the cause. CKD is usually asymptomatic till stages IV and V. End-stage renal disease is a terminal illness with a glomerular filtration rate of less than 15 mL/min. The most common cause of ESRD in the US is diabetic nephropathy, followed by hypertension. Other etiologies can include glomerulonephritis, cystic kidney disease, recurrent kidney infection, chronic obstruction, etc.

➢ **Statement of the problem:**

¨Sleep Quality, Depression and Quality of Life among patients with Chronic Kidney Disease (CKD) and End Stage Renal Disease (ESRD) a comparative study conducted in Bagalkot"

➢ **Objectives of the study:**

- To assess sleep quality, depression and quality of life among patients with CKD and ESRD.
- To compare sleep quality, depression and quality of life between patients with CKD and ESRD.
- To associate sleep quality, depression and quality of life of patients with CKD with their selected socio-demographic and clinical variables.
- To associate sleep quality, depression and quality of life of patients with ESRD with their selected socio-demographic and clinical variables.

➢ **Hypothesis:**

- H_1: There will be a significant difference in sleep quality between patients with CKD and ESRD.
- H_2: There will be a significant difference in depression between patients with CKD and ESRD.
- H_3: There will be a significant difference in quality of life between patients with CKD and ESRD.
- H_4: There will be a significant association between sleep quality, depression and quality of life and selected socio-demographic and clinical variables of patients with CKD.
- H_5: There will be a significant association between sleep quality, depression, quality of life and selected socio-demographic and clinical variables of patients with ESRD.

METHODOLOGY

Research approach: Quantitative non- experimental approach was used for the present study.

Research design: The research design adopted for the study is "Non-experimental descriptive research design"

Variable of the study:

Study variable I: Sleep quality of patients with CKD and ESRD.
Study variable II: Depression in patients with CKD and ESRD.
Study variable III: Quality of life in patients with CKD and ESRD.

Socio-demographic and clinical variables: It includes information about age, sex, religion, education status, occupation, family monthly income, marital status, area of residence, type of family, duration of time with CKD, duration of time with ESRD, frequency of dialysis, presence of any other chronic illnesses.

Setting of the study: The present study was conducted at nephrology units of selected hospitals of Bagalkot; HSK Hospital and Research Center, Bagalkot, District Government Hospital, Bagalkot, Patil Medicare Hospital, Bagalkot.

A. **Population:**

- Target Population: Patients with CKD and ESRD attending Nephrology units at various hospitals of Bagalkot.
- Accessible Population: Accessible population for the present study consist of Patients CKD and ESRD attending Nephrology units aged more than 18 years at selected hospitals of Bagalkot.

Sample size: Sample size for the present study was 60 patients with CKD and 60 patients with ESRD attending nephrology units. The final sample size was determined with the help of power analysis using data from pilot study.

Criteria for selection of sample

- The sampling frame structured by the researcher includes the following criteria

B. **Inclusion Criteria:** The study includes;

- Patients with CKD and ESRD aged above 18 years.
- Who are attending nephrology units of selected hospitals of Bagalkot.
- Who are able to read and understand Kannada English.
- Who are willing to participate in the study.
- Patients who have been diagnosed with CKD for more than 6 months (CKD stage 2-5 pre dialysis patients on regular follow up at Nephrology units).
- Patients with ESRD who are on maintenance hemodialysis.

C. **Exclusion Criteria:** The study excludes;

- Who are extremely sick and unable to provide the data.
- Who are on psychiatric treatment.
- Who have challenging communication.
- Patients with kidney transplantation.

Sampling Technique: Convenient sampling technique will be used to select sample for the present study.

D. **Description of the Tools:**

The socio-demographic and Clinical Characteristics of Patient with CKD and ESRD

Age, Gender, Religion, Educational status, Occupation, Marital status, Family monthly income, Type of family, area of residence, duration of time with CKD disease, duration of time with ESRD, Frequency of dialysis and presence of any other chronic illness.

Pittsburgh Sleep Quality Index (PSQI):

- It contains 24 questions in 7 domains;
- In every domain of the scale scoring is performed within a range of 0-3.
- The sum of the scores of these 7 domains constitutes the total score range between 0-21.
- A higher score indicates sleep quality is impaired.

WHO Quality of life BREF scale, to assess the Quality of life of patients with CKD and ESRD attending Nephrology units

Levels of Quality of life were measured using WHO Quality of life BREF scale, a 26-item scale and it is 5-point scale.

Scoring of the items;
Rarely or none of the time (less than 1 day) = 0
Some or a little of the time (1-2 days) = 1
Occasionally or a moderate amount of time (3-4 days) = 2
Most of all of the time (5-7 days) = 3
Scoring for the items (3, 4, and 26) is reversed.

Center for Epidemiological Research Studies-Depression scale

Scale to assess the depression among the patient s with CKD and ESRD attending Nephrology units which consists of 20 items.

- **Scoring Patterns:** There are 4 positive items (items 4, 8, 12 and 16) in Center Epidemiological Research Studies- Depression Scale, scoring of these items as follows;
  - 3- Rarely or none of the time (less than 1 day)
  - 2- Some or a little of the time (1-2 days)
  - 1- Occasionally or a moderate amount of time (3-4 days)
  - 0- Most or all of the time (5-7 days)

Data collection procedures

Data collection is gathering information needed to address the research problem. Prior to actual data collection, the investigator obtained permission from Principal, Sajjalashree Institute of Nursing Sciences, Navanagar, SNMC & HSK Hospital Dialysis Unit Navanagar Bagalkot, and District surgeon District Hospital Bagalkot, and Dr Patil Medicare Hospital Bagalkot. The main study was conducted from 15/05/2024 to 25/06/2024 among 60 patients with CKD and 60 patients with ESRD attending nephrology units.

Plan of Data Analysis:

The data obtained was analyzed in terms of achieving the objectives of the study using descriptive and inferential statistics.

RESULTS

Part-I: Description of socio-demographic and clinical variables of patients with CKD and ESRD.

Table-1: Socio-demographic and clinical characteristics of patients with CKD and ESRD patients

SI. No.	Variables	CKD		ESRD	
1	**Age in years**	f	%	f	%
	18-29	12	20	10	16.67
	30-39	17	28.33	13	21.66
	40-49	13	21.67	12	20
	50 & above	18	30	25	41.67
2	**Gender**				
	Male	47	78.33	44	73.33
	Female	12	20	16	26.67

	Transgender	1	1.67	0	0
3	**Religion**				
	Hindu	47	78.33	44	73.33
	Muslim	10	16.67	13	21.67
	Christian	3	5	3	5
4	**Education status**				
	Primary education	14	23.33	16	26.67
	Secondary/higher secondary education.	24	40	23	38.33
	Graduate and above	22	36.67	21	35
5	**Occupation**				
	Unemployed	6	10	6	10
	Self employed	12	20	17	28.33
	Employed	18	30	18	30
	Agricultural	10	16.67	13	21.67
	Coolie	7	11.67	4	6.67
	Housewife	5	8.33	2	3.33
	Student	2	3.33	0	0
6	**Family monthly income**				
	Below 10,000/-	27	45	31	51.67
	10,001-20,000/-	10	16.67	15	25
	20,001-30,000/-	15	25	6	10
	30,001 and above	8	13.33	8	13.33
7	**Marital status**				
	Married	46	76.67	50	83.33
	Single	9	15	5	8.33
	Widow/divorced/separated	5	8.33	5	8.33
8	**Area of residence**				
	Rural	42	70	33	55
	Urban	18	30	27	45
9	**Type of family**				
	Nuclear	48	80	47	78.33
	Joint	9	15	11	18.33
	Extended	3	5	2	3.33
10	**Duration of time with CKD**				
	Less than 1 year			36	60
	1-3 years			12	20
	More than 3 years			12	20
11	**Duration of time with ESRD**				
	Less than 1 year			12	20
	1-3 years			43	71.67
	More than 3 years			5	8.33
12	**Frequency of dialysis**				
	Weekly once			6	10
	Monthly once			2	3.33
	Monthly twice			7	11.67
	Three or more than three times in a month			45	75
13	**Presence of any other chronic illness**				
	Yes	57	95	60	100
	No	3	5	0	0

Part-II: Assessment of Sleep Quality, Depression and Quality of life of patients with CKD and ESRD patients.

Sec-A: Assessment of levels of Sleep Quality in patients with CKD and ESRD

Categorization of the Chronic Kidney Disease and End Stage Renal Disease on the basis of the level of sleep quality was done follows: >5 scores indicated the disturbed sleep quality and ≤ 5 scores indicated the normal sleep.

Table-2: Levels of Sleep Quality of patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

Level of Sleep quality	Range of score	CKD		ESRD	
		f	%	f	%
Normal sleep	≤5	12	20	2	3.33
Disturbed sleep	>5	48	80	58	96.67
Total		60	100	60	100

Assessment of the levels of sleep quality in patients with Kidney Disease reveal out findings that, majority of Chronic Kidney Disease patients 80% had disturbed sleep and 20% of them had normal sleep. Whereas majority of End Stage Renal Disease patients 96.67% had disturbed sleep and (3.33%) of them had normal sleep.

Sec-B: Mean and SD of Sleep Quality score of patients with Chronic kidney Disease and End Stage Renal Disease.

Table- 3: Mean and SD of Sleep Quality score of patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

	CKD		ESRD	
Variable	Mean	SD	Mean	SD
Sleep Quality	9.15	2.29	15.85	2.76

The mean and SD of sleep quality of patients with Chronic Kidney Disease is 9.15±2.29. Whereas mean and SD of sleep quality of patients with End Stage Renal Disease is 15.85±2.76.

Sec-C: Assessment of level of Depression in patients with Chronic Kidney Disease and End Stage Renal Disease.

Categorization of the Chronic Kidney Disease and End Stage Renal Disease on the basis of the level of depression was done as follows: ≤16 scores are indicated as Mild or No clinical significant depression and > 16 scores are indicated as Significant depression.

Table-4: Levels of Depression in patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

Level of Depression	Range of score	CKD		ESRD	
		F	%	F	%
Mild or No Clinically significant	≤ 16	10	16.67	2	3.33
Significant	>16	50	83.33	58	96.67
Total		60	100	60	100

Assessment of the levels of the depression in Chronic Kidney Disease patients reveals that, Majority 83.33% of CKD patients had Significant depression and 16.67% of them had Mild or No clinically significant depression. Whereas majority 96.67% of End Stage Renal Disease patients had Significant depression and 3.33% of them had Mild or No clinically significant depression.

Sec-D: Mean and SD of Depression score of patients with Chronic Kidney Disease and End Stage Renal Disease.

Table-5: Mean and SD of Depression score of patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

	CKD		ESRD	
Variable	Mean	SD	Mean	SD
Depression	25.78	5.04	38.87	4.97

The mean and SD of Depression scores of Chronic Kidney Disease patients is 25.78±5.04. Whereas mean and SD of depression scores of End Stage Renal Disease patients is 38.87±4.97.

Sec-E: Assessment of levels of Quality of life in patients with Chronic Kidney Disease and End Stage Renal Disease.

Table -6: Levels of Quality of life in patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

Levels of Quality of life	Range of score	CKD		ESRD	
		f	%	F	%
Poor quality of life	≤60	10	16.67	37	61.67
Good quality of life	>60	50	83.33	23	38.33
Total		60	100	60	100

Assessment of the levels of quality of life in patients with CKD and ESRD. Majority 83.33% of CKD patients had Good quality of life and 16.67% of them had Poor quality of life. Whereas majority 61.67% of ESRD patients had Poor quality life and 38.33% of them had Good quality of life.

Sec-F: Mean and SD of Quality of life scores of Chronic Kidney Disease and End Stage Renal Disease.

Table-7: Mean and SD of Quality of life scores of Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

Variable	CKD		ESRD	
	Mean	SD	Mean	SD
Quality of life	78	9.58	58.25	5.78

The mean and SD of Quality of life scores of Chronic Kidney Disease patients is 78±9.58. Whereas mean and SD of quality of life scores of End stage Renal Disease patients is 58.25±5.78.

Part-III: Comparison of Sleep Quality, Depression and Quality of life between patients with Chronic Kidney Disease and End Stage Renal Disease.

Table -8: Comparison of Sleep Quality, Depression and Quality of life between patients with Chronic Kidney Disease and End Stage Renal Disease. N=60+60=120

Variables	Group	Mean	SD	t value	P value
Sleep quality	Patients with CKD	9.15	2.29	14.44	0.000***
	Patients with ESRD	15.85	2.76		
Depression	Patients with CKD	25.78	5.04	14.33	0.000***
	Patients with ESRD	38.87	4.97		
Quality of life	Patients with CKD	78	9.58	13.82	0.000***
	Patients with ESRD	58.25	5.78		

***** P<0.001, **P<0.01, *P<0.05**

The findings related to significance of difference in Sleep quality, Depression and Quality of life between Chronic Kidney Disease and End Stage Renal Disease. It reveals that, there was a significant difference in Sleep quality ($t=14.44$, $p<0.05$), Depression ($t=14.33$, $p<0.05$) and Quality of life ($t=13.82$, $p<0.05$) between patients with CKD and ESRD.

Part- IV: Association of the Sleep quality, Depression and Quality of life of patients with Chronic Kidney Disease and End Stage Renal Disease with their selected socio-demographic and clinical variables.

Sec-A: Association of the Sleep quality scores of patients with CKD with their selected socio-demographical and clinical characteristics.

- H_4: There will be a significant association between sleep quality and selected socio-demographic and clinical variables of patients with CKD.
- Hypothesis was tested using chi-square test.

Table -9: Association between Sleep quality scores of Chronic Kidney Disease patients with their selected socio-demographic and clinical characteristics. n=60

Socio-demographic and clinical Characteristics	DF	Chi-square value	P value
Age	1	9.21	0.0024***
Duration of time with CKD	2	8.61	0.013*
Presence of any other chronic Illness	1	7.92	0.0049**

Findings shows that, there was a significant association between Sleep quality and age (x^2=9.21, p<0.001), duration of time with CKD (x^2=8.61, p<0.05), and presence of any other chronic illness (x^2=7.92, p<0.0049) and no significant association was found between sleep quality and other variables.

Sec-B: Association of the depression scores of patients with CKD with their selected socio-demographic and clinical characteristics.

Table -10: Association of the depression scores of Chronic Kidney Disease patients with their selected socio-demographic and clinical characteristics. n=60

Socio-demographical and clinical characteristics	DF	Chi-square value	P value
Age	3	18.78	0.0003***
Marital status	2	6	0.05*
Duration of time with CKD	2	12	0.0025**

Findings shows that, there was a significant association between depression and age (x^2=18.78, p<0.001), marital status (x^2=6, p<0.05) and duration of time with CKD (x^2=12, p<0.01) and no significant association was found between depression and other variables.

Sec–C: Association of the quality of life scores of Chronic Kidney Disease patients with their selected socio-demographic and clinical characteristics.

There was no significant association found between quality of life of CKD patients with their any of socio-demographic and clinical variables.

Sec-D: Association of the sleep quality scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics.

Table -11: Association of the sleep quality scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics. n=60

Socio-demographical and clinical characteristics	DF	Chi-square value	P value
Age	1	5.84	0.015**
Duration of time with ESRD	2	8.28	0.016**
Frequency of dialysis	3	39.31	0.0001***
Presence of any other chronic Illness	1	6.89	0.008**

Finding shows that, there was a significant association between sleep quality and age (x^2=5.84, p<0.05), duration of time with ESRD (x^2=8.28, p<0.05), frequency of dialysis (x^2=39.31, p<0.001) and presence of any other chronic illness (x^2=6.89, p<0.01) and no significant association was found between sleep quality and other variables of patients with ESRD.

Sec-E: Association of the depression scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics.

Table -12: Association of the depression scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics. n=60

Socio-demographical and clinical characteristics	DF	Chi-square value	P value
Age	1	5.84	0.016*
Gender	1	3.91	0.048*
Duration of time with ESRD	2	8.28	0.015*
Frequency of dialysis	3	39.31	0.0001***
Presence of any other chronic Illness	1	6.87	0.008**

Findings shows that, there was a significant association between depression and age (x^2=5.84, p<0.05), gender (x^2=3.91, p<0.05), duration of time with ESRD (x^2=8.28, p<0.05) frequency of dialysis (x^2=39.31, p<0.001) and presence of any other chronic illness (x^2=6.87, p<0.01) and no significant association was found between depression and other variables.

Sec-F: Association of the quality of life scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics.

Table -13: Association of the quality of life scores of End Stage Renal Disease patients with their selected socio-demographic and clinical characteristics. n=60

Socio-demographical and clinical characteristics	DF	Chi-square value	P value
Education status	2	5.92	0.05*

Findings shows that, there was a significant association between quality of life and education status (x^2=5.92, p<0.05) and no significant association was found between quality of life and other variables.

DISCUSSION

In the present study the percentage wise distribution of sample according to their age and gender depicts that, majority of patients with Chronic Kidney Disease (30%) were belonging to 50 and above years of age, Whereas majority of patients with End Stage Renal Disease (41.67%) were belonging to 50 and above years of age. And majority of patients with Chronic Kidney Disease (78.33%) were belonging to male, Whereas majority of patients with End Stage Renal Disease (73.33%) were belonging to male.The results of the present study are consistent with the results of study conducted by Mujahid M, Nasir K, Qureshi R, Dhrolia M, Ahmad A. to compare the quality of sleep in patients with Chronic Kidney Disease and End-Stage Renal Disease found that majority of patients were 50 and above so years of age and male.

The percentage wise distribution of sample according to their occupation and family monthly income illustrate that, majority of patients with Chronic Kidney Disease (30%) were employed, Whereas majority of patients with End Stage Renal Disease (30%) were employed. And majority of patients with Chronic Kidney Disease (45%) were below 10000, Whereas majority of patients with End Stage Renal Disease (51.67%) of them were below 10000. The results of the present study are consistent with the results of study conducted by Kose S, Mohamed NA. To assess the sleep quality, depression and quality of life in kidney patients found that majority patients were from less family income i.e. below 10,000 and married.

The percentage wise distribution of sample according to their type of family and duration of time with CKD and ESRD illustrates that, majority of patients with Chronic Kidney Disease (80%) were in nuclear family, Whereas majority of patients with End Stage Renal Disease (78.33%) were in joint family. And majority of patients with Chronic Kidney Disease (60%) were more than 1 year of duration, Whereas majority of patients with ESRD (71.67%) were 1-3 years of duration. The results of the present study are consistent with the results of study conducted by Alshammari B, Alkubati SA, Pasay-An E, Alrasheeday A, Alshammari HB, Asiri SM, Alshammari SB, Sayed F, Madkhali N, Laput V, Alshammari F. To assess the sleep quality, depression and quality of life were found that type of family, duration of time with CKD and ESRD are not affecting the sleep quality, depression and quality of life.

The present study percentage wise distribution according to their mean and SD of sleep quality clearly depict that, End Stage Renal Disease patients (15.85±2.76) had high disturbed sleep, compared to Chronic Kidney Disease patients (9.15±2.29). The results of the present study are consistent with the results of study conducted by Mujahid M, Nasir K, Qureshi R, Dhrolia M, Ahmad A. to assess the sleep quality among Chronic Kidney Disease and End Stage Renal Disease patients found that (9.6 ± 12.4 vs. 11.4 ± 3.9 respectively), indicating poorer sleep quality in ESRD patients as compared to those with CKD (p<0.001).

The present study percentage wise distribution according to their levels of depression, majority of Chronic Kidney Disease patients (83.33%) had clinically significant depression, whereas majority of End Stage Renal Disease (96.67%) had clinically significant depression. The results of the present study are consistent with the results of study conducted by Shirazian S, Grant CD, Aina O, Mattana J, Khorassani F, Ricardo AC. To assess the depression among Chronic Kidney Disease and End Stage Renal Disease found that (80.09%) and (94.54%) had clinically significant depression.

The present study percentage wise distribution of sample according to their mean and SD of quality of life clearly depict that, Chronic Kidney Disease patients (78±9.58) had good quality of life, compared to End Stage Renal Disease patients (58.25±5.78). The results of the present study are consistent with the results of study conducted by Kefale B, Alebachew M, Tadesse Y, Engidawork E. To assess the depression among Chronic Kidney Disease and End Stage Renal Disease found that (75±9.04) and (55.24±5.05) had good quality of life.

CONCLUSION

Study concluded that, poor sleep quality, depression and poor quality of life are more prominent among End Stage Renal Disease compared to Chronic Kidney Disease patients. Hence future researchers should vision to develop intervention for ESRD patients to help them to improve sleep quality, reduce depression and improve quality of life.

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