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A Study on Clinical Evaluation of Multi Intervention Therapy for Enhancing Quality of Life in Maintenance Hemodialysis Patients

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Abstract

Patients with Chronic Kidney Disease (CKD) receiving maintenance hemodialysis often report a markedly impaired health-related quality of life, largely resulting from factors such as psychological distress, chronic inflammation, and poor nutritional status. Despite its importance as a clinical outcome, HRQOL assessment in dialysis patients has received limited attention. Strengthening comprehensive patient care and optimizing treatment strategies may help reduce complications and promote improved physical, mental, and social well-being. The present study assessed the effectiveness of a structured multi-component intervention in enhancing health-related quality of life among patients with chronic kidney disease undergoing hemodialysis. The study aimed to compare health-related quality of life scores before and after the intervention in both experimental and control groups, evaluate the overall impact of the intervention, and analyze the relationship between post-intervention quality of life outcomes and selected demographic characteristics. A quasi-experimental pre-test–post-test design was adopted, involving 240 purposively selected patients from Gunam Multi Speciality Hospital and Kauvery Hospital, Hosur, Krishnagiri. Participants were assigned to experimental (n=120) and control (n=120) groups. The independent variable was a multi-interventional package consisting of prescribed exercise sessions, Neel's Nephro Mix, video-guided imagery for relaxation, and Benson's relaxation technique. Health-related quality of life (HRQOL) was considered the dependent variable and was assessed using the Kidney Disease Quality of Life Scale–Short Form 36 (KDQOL-SF-36), Version 1.3. The experimental group received a structured intervention for a duration of eight weeks, whereas the control group continued with standard routine care. Data analysis was performed using both descriptive and inferential statistical methods, including paired and unpaired t-tests and chi-square tests. At baseline, participants in both groups demonstrated consistently low HRQOL scores. Following the intervention, a substantial improvement was observed in the experimental group, with 97.5% of participants attaining average to good HRQOL levels in the first post-test, and more than half progressing to good HRQOL in the second post-test. In contrast, 99% of individuals in the control group continued to exhibit poor HRQOL. The mean post-intervention HRQOL score of the experimental group (68.38 ± 6.03) was significantly higher than that of the control group (48.03 ± 3.32), reflecting an improvement of approximately 20%. Among the demographic variables examined, only occupation and educational status showed a significant association with HRQOL outcomes. These results demonstrate that the structured multi-interventional package was effective in improving HRQOL among patients undergoing hemodialysis. Incorporating such comprehensive interventions—addressing physical health, nutrition, and relaxation—into routine dialysis care may contribute to sustained improvements in overall well-being for individuals with chronic kidney disease.

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INTRODUCTION

Chronic Kidney Disease (CKD) is a major global public health challenge because kidney function is essential for maintaining homeostasis. While many organs can temporarily function at reduced levels, complete kidney failure is incompatible with life, making timely treatment indispensable [1].

Globally, kidney and urinary tract diseases account for nearly 850,000 deaths each year, making CKD the 12th leading cause of death and the 17th leading cause of disability. India, due to its large population and increasing burden of diabetes and hypertension, is emerging as a major hotspot for chronic renal failure. Nearly 25–40% of individuals with diabetes or hypertension may progress to CKD. Historically, India has been estimated to produce nearly 100,000 new ESRD cases annually, although the real number is likely much higher due to limited surveillance and delayed diagnosis [2].

CKD has profound psychological consequences. Patients often experience depression, anxiety, fear, and negative thoughts about their future, finances, and family responsibilities. Their daily lives become restricted due to strict dietary regimens, physical limitations, time-consuming treatments, and dependence on healthcare services. Many patients experience job loss, financial strain, and social isolation, which further aggravate emotional distress. Studies consistently show that psychological stress is one of the most significant burdens in CKD, with many patients adopting coping strategies such as avoidance, minimization, or active problem-solving [3].

CKD is classified into five stages, with stage V representing ESRD. Data from high-income countries reflect the severity of the burden: by 2005, more than 345,000 individuals in the United States were undergoing treatment for ESRD, including over 245,000 receiving dialysis, with nearly 80,000 new cases added each year [4].

In India, recent studies provide alarming figures. The crude incidence of ESRD is about 151 per million population, and age-adjusted incidence is 232 per million. Prevalence studies from cities like Delhi indicate that nearly 17% of adults may have some form of CKD, while large-scale screening suggests that diabetes (41%), hypertension (22%), and glomerulonephritis (16%) are the leading causes. A national multicenter study of more than 4,000 CKD patients also found diabetes to be the most common cause, accounting for nearly 30% of cases. Extrapolating available epidemiological data suggests that India may have nearly 7–8 million individuals with chronic renal failure [5, 6].

The pathophysiology of CKD involves disturbances in fluid regulation, electrolyte balance, acid–base homeostasis, and toxin elimination. As kidney function declines, metabolic wastes such as urea, creatinine, phenols, and other toxins accumulate, disturbing nearly every organ system. Complications include anemia, hypertension, bone mineral disorders, hyperkalemia, immune dysfunction, and cardiovascular problems [7].

Hemodialysis remains the most widely used therapy for ESRD worldwide. In the United States, 66% of ESRD patients receive hemodialysis; in Europe, the proportion ranges from 46–98%. Despite technological advances, survival remains limited. Only about one-third of dialysis patients survive five years, compared to nearly 70% of kidney transplant recipients. In India, the availability of dialysis services has grown substantially, with more than 700 dialysis centers and over 2,500 dialysis stations operating nationwide. Yet only about 10% of patients who need dialysis actually receive it, primarily due to cost constraints. Dialysis costs vary widely across the country, and peritoneal dialysis remains even more expensive.

Hemodialysis removes excess fluid and toxins using a dialyzer, through mechanisms such as diffusion, osmosis, and ultrafiltration. However, dialysis itself poses risks. Acute complications include hypotension, fever, chills, and itching, while chronic complications relate to inflammation, vascular access problems, and malnutrition. To cope with long treatment hours, patients often engage in activities such as watching television, reading, listening to music, or interacting with others. Complementary

therapies such as music therapy, aromatherapy, guided imagery, and massage have been shown to reduce discomfort and anxiety during dialysis sessions [8].

Quality of life (QOL) in CKD and dialysis patients is influenced by numerous factors. Studies consistently show that QOL declines as CKD progresses. Physical functioning decreases due to anemia, muscle wasting, inflammation, and reduced exercise tolerance. Psychological QOL is affected by depression, anxiety, dependence, financial strain, and uncertainty about prognosis.

Research from multiple countries provides insights into predictors of better QOL. In a Malaysian study of 90 dialysis patients, better physical QOL was associated with higher blood flow rates and lower protein intake, while better mental QOL was linked to the absence of diabetes. A Brazilian study involving 140 patients found that younger age, shorter dialysis duration, employment, and controlled blood pressure predicted higher QOL scores. Overall, QOL is strongly influenced by socioeconomic status, comorbidities, nutritional status, mental health, and the quality of dialysis care.

Exercise and physical activity have positive effects on dialysis patients. Physical inactivity is common among CKD patients due to fatigue, muscle weakness, and uremic toxins such as ADMA, which reduce nitric oxide activity and impair muscle perfusion. Intradialytic and home-based exercise programs have been shown to improve aerobic capacity, muscle strength, blood pressure control, mood, and overall QOL. Studies also suggest that regular physical activity may reduce morbidity and mortality in ESRD patients. Strength training improves gait speed, lower-limb function, and independence in daily activities [9].

Despite advances in dialysis technology, many CKD patients continue to experience reduced quality of life due to physical limitations, emotional distress, dietary restrictions, and time-consuming treatments. Late presentation remains a major issue in India, where many patients begin dialysis without an arteriovenous fistula and with advanced complications such as severe anemia and protein-energy wasting. Furthermore, hepatitis B vaccination rates among advanced CKD patients remain low.

Overall, CKD is a chronic, progressive, and life-altering condition requiring continuous medical care, lifestyle adjustments, psychosocial support, and effective long-term management strategies. Ensuring early diagnosis, improving access to dialysis and transplantation, promoting exercise programs, addressing psychological needs, and strengthening socioeconomic support systems are essential for improving survival and quality of life among CKD patients [10].

Aim of the Study

A study on clinical evaluation of multi-intervention therapy for enhancing quality of life in maintenance hemodialysis patients.

Objectives of the Study

- To evaluate the quality of life of patients with chronic kidney disease receiving hemodialysis before and after the implementation of a multi-interventional package in both the experimental and control groups.
- To examine the effectiveness of the multi-interventional package in improving the quality of life among patients with chronic kidney disease undergoing hemodialysis in the experimental group compared with the control group.
- To determine the association between post-intervention quality of life scores and selected demographic variables among patients with chronic kidney disease receiving hemodialysis in both groups.

MATERIALS AND METHOD

- Research methodology provides the overall framework that guides how a study is carried out. It acts as a blueprint that directs the processes of data collection, measurement, and analysis. Through

the methodology, the researcher outlines the specific research design used and explains how participants or samples were selected.

- In essence, research methodology is a structured and logical approach used to address the research problem and ensure that the study is conducted in a scientifically sound and organized manner.
- In the present study, the methodology was designed to evaluate the effectiveness of a multi-interventional package on the quality of life of individuals with chronic kidney disease undergoing hemodialysis.
- This chapter explains the key methodological components of the study, including the research approach, research design, variables involved, study setting, target population, sample characteristics, sampling method, inclusion and exclusion criteria, development and description of research tools, details of the intervention, procedures used to determine reliability and validity, ethical considerations, pilot study findings, data collection methods, and the plan for data analysis.

ORGANIZATION AND PRESENTATION OF DATA

The data collected are organized and presented under following sections.

Research methodology serves as the foundational framework that directs the entire research process. It provides a structured blueprint that outlines how data will be collected, measured, analyzed, and interpreted. Through a clearly defined methodology, the researcher explains the overall approach of the study, the specific design adopted, and the procedures used for selecting the study participants. A well-constructed methodology ensures that the research problem is addressed systematically and that the academic inquiry is carried out in a logical, organized, and scientifically credible manner.

The present study was undertaken to determine the effectiveness of a multi-interventional package on the quality of life of patients diagnosed with chronic kidney disease and undergoing hemodialysis. Since chronic kidney disease significantly affects physical, psychological, and social well-being, it becomes essential to evaluate whether a structured intervention can bring measurable improvements in patients' overall life quality. The methodology used in this study was therefore carefully planned to ensure reliable and valid findings (Table 1).

This chapter presents a comprehensive description of the methodological aspects followed throughout the study. It elaborates on the research approach and design that guided the investigation, the variables considered, and the rationale for choosing the study setting. Details regarding the target population, sample size, sampling strategy, and the inclusion and exclusion criteria used to select participants are also discussed.

The chapter further explains the development of research instruments, the description of the multi-interventional package, and the procedures adopted to establish the reliability and validity of the tools.

Ethical considerations observed during the study, the pilot study conducted to refine the tools and procedures, and the step-by-step data collection process are also highlighted. Finally, the chapter outlines the planned techniques for data analysis, ensuring that the results are interpreted accurately and meaningfully.

Amidst the ESRD component of quality of life scores in the experimental and control group, in the experimental group during pretest 57.5 % (69) of the samples had average level of QOL scores. During the 1st post test 55 % (66) had average and 45 % (54) had good level of QOL scores. In the 2nd post test 98 % (118) had good level and 2% (2) had average level of QOL scores.

Where as in control group during pretest 61% (73) of the samples had average and 39% (47) had poor level of QOL scores. During the 1st post test 56% (67) had average and 44 % (53) had good level of QOL scores. In the 2nd post test 53% (64) had average and 47 % (56) had poor QOL scores (Table 2).

Table 1. Frequency and percentage distribution of samples according to their demographic variables (N = 240).

S.N.	Demographic variables	Experimental group		Control group		Association for homogeneity test	
		Frequency (N1 =120)	*Percentage (%)*	*Frequency (N1 =120)*	*Percentage (%)*	*χ2 value*	*p- value*
1.	Age in Years						
	a. 18-25years	2	2	4	3	1.604 (df=4)	0.808
	b. 26-35 years	19	16	21	17		
	c. 36-45 years	23	19	26	22		
	d. 46-55 years	45	37	44	37		
	e. >55 years	31	26	25	21		
2.	Gender						
	a. Male	68	57	71	59	0.154 (df=1)	0.695
	b. Female	52	43	49	41		
3.	Marital status						
	a. Unmarried	2	2	3	2	2.035 (df=4)	0.680
	b. Married	98	82	103	87		
	c. Widow	11	8	10	8		
	d. Widower	7	6	3	2		
	e. Divorced	2	2	1	1		
4.	Educational status						
	a. No formal education	9	8	13	11	1.35 (df=4)	0.853
	b. Primary education	30	25	29	24		
	c. High school education	47	39	43	36		
	d.Higher secondary education	22	18	20	17		
	e. Graduate and above	12	10	15	12		
5.	Food pattern						
	a. Vegetarian	9	8	12	10	0.469 (df=1)	0.493
	b. Non-Vegetarian	111	92	108	90		
6.	Religion						
	a. Hindu	99	82	97	80	0.412 (df=2)	0.814
	b. Muslim	9	8	8	7		
	c. Christians	12	10	15	13		
	d. Others	0	0	0	0		
7.	Type of family						
	a. Nuclear	88	73	94	78	0.986 (df=2)	0.611
	b. Joint	30	25	25	21		
	c. Extended	2	2	1	1		
8.	Occupation						
	a. Unemployed	33	27	35	29	2.12 (df=4)	0.714
	b. Government Employed	16	13	20	17		
	c. Private	38	32	41	34		
	d. Business	15	13	10	8		
	e. Coolie	18	15	14	12		
9.	Monthly Income in Rupees						
	a. <=5,000	18	15	14	12	0.813 (df=3)	0.846
	b. 5,001-10,000	59	49	64	53		
	c. 10,000-15,000	33	28	13	26		

	d. 15001&above	10	8	31	9		
10.	Ill habits						
	a. Smoking	23	19	26	22	0.744 (df=3)	0.863
	b. Alcoholism	14	12	15	13		
	c. Tobacco chewing	5	4	3	2		
	d. No ill habits	78	65	76	63		
11.	Duration of kidney disease						
	<1 year	18	15	13	11	1.65 (df=3)	0.649
	1-2 years	29	25	25	21		
	3-4 years	33	27	38	31		
	Above 4years	40	33	44	37		
12.	Duration of Haemodialysis						
	<=1 year	36	30	32	27	1.56 (df=2)	0.459
	2-3 years	68	57	65	54		
	>3 years	16	13	23	19		
13.	Number of Haemodialysis						
	12 cycles	106	88	110	92	0.74 (df=1)	0.389
	>12 cycles	14	12	10	8		
14.	Co –Morbidity						
	Diabetes	50	42	51	42	0.306 (df=3)	0.959
	Hypertension	41	34	39	33		
	Others	21	18	20	17		
	None	8	6	10	8		
15.	Leisure time activities						
	Watching TV	75	63	81	68	1.47 (df=3)	0.690
	Books	28	23	22	18		
	Chatting	12	10	10	8		
	Others	5	4	7	6		
16.	Support system						
	Family and Friends	112	93	115	96	0.732 (df=1)	0.392
	NGOs	8	7	5	4		

Table 2. Frequency and percentage wise distribution of the level of ESRD components of QOL scores in experimental group and control group.

Level of ESRD	**Experimental group**						**Control group**					
	Pre test		*1st Post test*		*2nd post test*		*Pre test*		*1st post test*		*2nd Post test*	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*F*	*%*	*f*	*%*
Poor	51	42	-	-	-	-	47	39	53	44	56	47
Average	69	58	66	55	2	2	73	61	67	56	64	53
Good	-	-	54	45	118	98	-	-	-	-	-	-

The above Table depicts the Physical component scores of quality of life scores in the experimental and control group. In the experimental group during pretest all (120) the samples had poor level of QOL scores. During the 1st post test 67 % (81) had average and 33% (39) had poor level of QOL scores. In the 2nd post test 92% (110) had average level and 1% (1) had poor level of QOL scores, where as in control group during all the tests all the samples (120) had poor level of QOL scores (Table 3).

Data suggested that the level of mental components of quality of life scores in the experimental and control group. In the experimental group during pretest all (120) the samples had poor level of QOL scores. During the 1st post test 79% (95) had average, 20% (24) had good level of QOL scores and 1% (1) had

poor level of QOL scores. In the 2nd post test 91% (109) had good and 9% (11) had average level of QOL scores. Where as in control group during pretest all (120) the samples had poor level, during the 1st and 2ndpost test 98% (67) had poor level 2% (2) had average level of QOL scores. (Table 4).

Table 3. Frequency and percentage wise distribution of the level of Physical components of QOL scores.

Level of PCS	**Experimental group**						**Control group**					
	Pre test		*1st Post test*		*2nd post test*		*Pre test*		*1st post test*		*2nd Post test*	
	f	%	f	%	f	%	F	%	f	%	F	%
Poor	120	100	39	33	1	1	120	100	120	100	120	100
Average	-	-	81	67	110	92	-	-	-	-	-	-
Good	-	-			9	7	-	-	-	-	-	-

Table 4. Frequency and percentage wise distribution of the level of Mental components of QOL scores.

Level of MCS	**Experimental group**						**Control group**					
	Pre test		*1st Post test*		*2nd post test*		*Pre test*		*1st post test*		*2nd Post test*	
	f	*%*	*f*	*%*	*f*	*%*	*F*	*%*	*F*	*%*	*f*	*%*
Poor	120	100	1	1	0	0	120	100	118	98	118	98
Average	-	-	95	79	11	9	-	-	2	2	2	2
Good	-	-	24	20	109	91	-	-	0		0	0

Data presented about the overall level of quality of life scores in the experimental and control group. In the experimental group during pretest all (120) the samples had poor level of QOL scores. During the 1st post test 98% (117) had average and 2% (3) had good level of QOL scores. In the 2nd post test 5% (64) had good level and 47 % (56) had average level of QOL scores. Where as in control group during pretest all (120) the samples had poor level, and during the 1stand 2ndpost tests 99% (119) had poor and 1% (1) had average level of QOL scores (Table 5).

Table 5. Frequency and percentage wise distribution of the level of overall of QOL scores.

Level of Quality of life	**Experimental group**						**Control group**					
	Pre test		*1st Post test*		*2nd post test*		*Pre test*		*1st post test*		*2nd Post test*	
	f	*%*	*f*	*%*	*f*	*%*	*F*	*%*	*F*	*%*	*f*	*%*
Poor	120	100	-	-	-	-	120	100	119	99	119	99
Average	-	-	117	98	56	47	-	-	1	1	1	1
Good	-	-	3	2	64	53	-	-	-	-	-	-

Compatible paired 't' test value of quality of life scores manifested distinct clinical significance ($p<0.05$) with ESRD (7.52), physical components (8.96) and mental components (6.98). The overall compatible paired 't' test of quality of life scores evidenced distinct level of significance ($p<0.05$) with experimental group (23.46) (Table 6).

Table 6. Paired "t" test value of pre and post test scores of experimental group.

S N.	**Areas**	**'T' value**	**Table value**	**Level of significance**
1.	ESRD	7.52	1. 980	P<0.05 significant
2.	Physical components	8.96	1. 980	P<0.05 significant
3.	Mental components	6.98	1. 980	P<0.05 significant
	Total	23.46	1. 980	P<0.05 significant

Df= 119 Table value = 1.980 P<0.05 significant

Comparison between mean, standard deviation and mean percentage pretest quality of life scores with experimental group, displayed the lowest mean score with 13.42 ± 5.06 and mean percentage was 45 in physical. Correspondingly in 2nd post test intervention mean score with 23.28 ± 2.61 and mean

percentage was 78%. It was revealing the difference of 23%. In experimental group overall reported the pre test mean score was 34.62 ± 3.41 and mean percentage was 34% consequently and post test mean score was 68.38 ±6.03 and mean percentage was 68% showing the difference of 34%. Culmination drawn contingent with significant difference between pretest and posttest quality of life mean scores on multi interventional package was effective among patients with CKD receiving hemodialysis among the experimental group (Table 7).

Table 7. Mean, SD, and Mean percentage of experimental group pre and post test scores on quality of life.

S.N.	Areas	Max. scores	Pre test score			Post test score I			Post test score II		
			Mean	*SD*	*Mean (%)*	*Mean*	*SD*	*Mean (%)*	*Mean*	*SD*	*Mean (%)*
1.	ESRD	30	14.97	6.51	50	18.93	7.13	63	22.35	5.43	75
2.	Physical components	30	13.42	5.06	45	19.24	3.45	64	23.28	2.61	78
3.	Mental components	40	31.44	5.47	79	23.61	3.49	59	21.53	2.15	54
	Total	100	34.62	3.41	34	53.26	4.28	53	68.38	6.03	68

Compatible paired 't' test value of quality of life scores manifested distinct clinical significance ($p<0.05$) with ESRD (4.13), physical (6.16) and mental (4.02). The overall compatible paired't' test of quality of life scores evidenced distinct level of significance ($p<0.05$) with control group (9.54) (Table 8).

Table 8. Paired 't' test value of pre and post test scores of control group.

S. N.	Areas	'T' value	Table value	Level of significance
1.	ESRD	4.13	1. 980	P<0.05 significant
2.	Physical components	6.16	1. 980	P<0.05 significant
3.	Mental components	4.02	1. 980	P<0.05 significant
	Total	9.54	1. 980	P<0.05 significant

Df= 119 Table value = 1.980 P<0.05 significant

Comparison between mean, standard deviation and mean percentage of pretest quality of life scores with control group, displayed the lowest mean score with 14.86 ± 4.63 and mean percentage was 50 in physical component. Correspondingly in 2nd post test intervention mean score with 19.93 ± 4.38 and mean percentage was 66%. It was revealing the difference of 16%. In control group overall reported the pre test mean score was 32.16 ± 3.23 and mean percentage was 32% consequently and post test mean score was 48.03 ± 3.32 and mean percentage was 48% showing the difference of 16%. Culmination drawn contingent with significant difference between pretest and posttest quality of life mean scores without intervention was not effective among patients with CKD receiving hemodialysis (Table 9).

Table 9. Mean, SD, and Mean percentage of control group pre and post test scores on quality of life.

S.N.	Areas	Max. scores	Pre test score			Post test score I			Post test score II		
			Mean	*SD*	*Mean (%)*	*Mean*	*SD*	*Mean (%)*	*Mean*	*SD*	*Mean (%)*
1.	ESRD	30	14.77	6.36	49	16.08	6.90	54	18.63	5.36	62
2.	Physical components	30	14.86	4.63	50	17.09	4.57	57	19.93	4.38	66
3.	Mental components	40	31.83	4.72	79	28.58	6.59	71	25.51	6.37	64
	Total	100	32.16	3.23	32	38.25	3.67	38	48.03	3.32	48

Unpaired't' test was calculated to analyze the effectiveness between post test scores of experimental group and control group on different aspects on areas of quality of life shows that the overall score was 7.56 when compared to table value (2.828) it was high (Table 10).

Table 10. Unpaired 't' test value of post test scores of experimental group and control group.

S.N.	Areas	Unpaired 't' value	Table value	Level of significance
1.	Physiological	3.91	2.828	P<0.05 significant
2.	Behavioural	6.89	2.828	P<0.05 significant
3.	Psychological	6.03	2.828	P<0.05 significant
	Total	7.56	2.828	P<0.05 significant

Df = 238 Table value = 2.828

Comparison between mean, standard deviation and mean percentage 2nd post test quality of life scores with experimental and control group, displayed the mean score in experimental group overall reported the post test mean score was 68.38 ±6.03 and mean percentage was 68% and control group post test mean score was 48.03 ± 3.32 and mean percentage was 48% showing the difference of 20%. Culmination drawn contingent with significant difference between control and experimental group quality of life mean scores on multi interventional package was effective among patients with CKD receiving hemodialysis (Table 11).

Table 11. Comparison of Mean, SD, and Mean percentage of experimental group and control group post test scores on quality of life.

S.N.	Areas	Max. scores	Post test scores II						Difference in Mean (%)
			Experimental group			*Control group*			
			Mean	*SD*	*Mean (%)*	*Mean*	*SD*	*Mean (%)*	
1.	ESRD	30	22.35	5.43	75	18.63	5.36	62	13
2.	Physical components	30	23.28	2.61	78	19.93	4.38	66	12
3.	Mental components	40	21.53	2.15	54	25.51	6.37	64	10
	Total	100	68.38	6.03	68	48.03	3.32	48	20

Experimental group determined no association between post test quality of life scores and age (2= 7.24), gender (2= 0.409), marital status (2= 4.37), educational status (2= 3.82), food pattern (2= 2.34), religion (2= 1.14), type of family (2= 2.34), monthly income (2= 3.46), ill habits (2= 5.55), duration of kidney disease (2= 2.18), duration of haemodialysis (2=1.83), number of haemodilaysis (2=1.97), co morbidity (2=5.26), leisure activities (2=1.53), and support system (2= 0.863), when compared to evidenced significance with (p<0.05) Association was analyzed between posttest quality of life scores and occupation (2= 12.56) when compared to evidenced significance with (p<0.05) (Table 12).

Table 12. Chi -square value of association between the post test scores of quality of life among patient with CKD receiving hemodialysis in experimental group with their demographic variables.

Demographic variables	Poor		Average		Good		χ2 (df)	P-value (N/NS)
	F	*%*	*F*	*%*	*F*	*%*		
1. Age in years								
a. 18-25years	-	-	0	0	2	1.67	7.24	0.124
b. 26-35 years	-	-	9	7.5	10	8.33	(df=4)	NS
c. 36-45 years	-	-	10	8.33	13	10.83		
d. 46-55 years	-	-	17	14.17	28	23.3		
e. >55 years	-	-	20	16.67	11	9.17		
2. Sex								
a. Male	-	-	30	25	38	31.67	0.409	0.522
b. Female	-	-	26	21.67	26	21.67	(df=1)	NS
c. Transgender	-	-	0	0	0	0		
3. Marital Status								

a. Unmarried	-	-	0	0	2	1.67		
b. Married	-	-	45	37.50	53	44.17	4.37	0.358
c. Widow	-	-	5	4.17	6	5	(df=48)	NS
d. Widower	-	-	4	3.33	3	2.50		
e. Divorced	-	-	2	1.67	0	0		
4. Educational status								
a. Illiterate	-	-	4	3.33	5	4.17	3.82	0.431
b. Primary	-	-	14	11.67	16	13.3	(df=4)	NS
c. High school	-	-	18	15	29	24.17		
d. Higher secondary	-	-	12	10	10	8.33		
e. Degree and Above	-	-	8	6.67	4	3.33		
5. Food pattern								
a. Vegetarian	-	-	2	1.67	7	5.83	2.34	0.126
b. Non-Vegetarian	-	-	54	45.0	57	47.50	(df=1)	NS
6. Religion								
a. Hindu	-	-	44	36.67	55	45.83	1.14	0.566
b. Christian	-	-	5	4.17	4	3.33	(df=2)	NS
c. Muslim	-	-	7	5.83	5	4.17		
d. Others	-	-	0	0	0	0		
7. Type of family								
a. Nuclear	-	-	40	33.3	48	40	2.34	0.311
b. Joint	-	-	14	11.67	16	13.3	(df=2)	NS
c. Extended	-	-	2	1.67	0	0		
8. Occupation								
a. Unemployed	-	-	16	13.3	17	14.17		
b. Government Employed	-	-	12	10	4	3.33	12.56	0.014*
c. Private	-	-	13	10.83	25	20.83	(df=4)	S
d. Business	-	-	10	8.33	5	4.17		
e. Coolie	-	-	5	4.17	13	10.83		
9. Monthly Income								
a. <=5000	-	-	5	4.17	13	10.83	3.46	0.326
b. 5002-20000	-	-	28	23.33	31	25.83	(df=3)	NS
c. 30003-35000	-	-	18	15	15	12.50		
d. 45004	-	-	5	4.17	5	4.17		
10. Ill habits								
a. Smoking	-	-	9	7.50	14	11.67	5.55	0.135
b. Alcoholism	-	-	3	2.50	11	9.17	(df=3)	NS
c. Tobacco chew	-	-	3	2.50	2	1.67		
d. No habits	-	-	41	34.17	37	30.83		
11. Duration of kidney								
disease:	-	-	6	5	12	10	2.18	0.535
a. <1 year	-	-	14	11.67	15	12.50	(df=3)	NS
b. 1-2 years	-	-	18	15.0	15	12.50		
c. 3-4 years	-	-	18	15.0	22	18.33		
d. Above 4years								
12. Duration of HD:								
a. <=1 year	-	-	17	14.17	19	15.83		
b. 2-3 years	-	-	34	28.33	34	28.33	1.83	0.399

c. >3 years	-	-	5	4.17	11	9.17	(df=2)	NS
13. Number of haemodialysis								
a. 12 cycles	-	-	47	39.17	59	49.17	1.97	0.160
b. >12 cycles	-	-	9	7.50	5	4.17	(df=1)	NS
14. Co –Morbidity								
a. Diabetes	-	-	28	23.3	22	18.33		
b. Hypertension	-	-	14	11.67	27	22.50	5.26	0.154
c. Others	-	-	9	7.50	12	10	(df=3)	NS
d. None	-	-	5	4.17	3	2.50		
15.Leisure activities								
TV			36	30	39	32.50	1.53	0.674
Books			13	10.83	15	12.50	(df=3)	NS
Chatting Others			61	50.83	64	53.33		
16. Support system								
Family and Friends NGOs			51, 5	42.50, 4.17	61, 3	50.83, 2.50	0.683 (df=1)	0.353 NS

NS-Not significant, S-significant.

Control group revealed no association between posttest quality of life scores and age (2= 4.75), gender (2= 1.46), marital status (2= 0.167), educational status (2= 3.16), food pattern (2= 0.11), religion (2= 0.239), type of family (2= 0.278), occupation (2=2.45), monthly income (2= 2.89), ill habits (2= 3.65), duration of kidney disease (2= 2.17), duration of haemodialysis (2=0.85), number of haemodilaysis (2=0.092), co morbidity (2=2.09), leisure activities (2=4.49), and support system (2= 0.043), when compared to evidenced significance with (p<0.05), (Table 13).

Table 13. Chi -square value of association between the post test scores of quality of life among patient with CKD receiving hemodialysis in control group with their demographic variables.

Demographic variables	**Poor**		**Average**		**Good**		**χ2 (df)**	**p-value (N/NS)**
	f	*%*	*f*	*%*	*F*	*%*		
1. *Age in years*								
a. 18-25years	4	3.33	0	0	-	-	4.75	0.313
b. 26-35 years	20	16.67	1	0.83	-	-	(df=4)	NS
c. 36-45 years	26	21.67	0	0	-	-		
d. 46-55 years	44	36.67	0	0	-	-		
e. >55 years	25	20.83	0	0	-	-		
2. *Sex*								
a. Male	71	59.17	0	0	-	-	1.46	0.227
b. Female	48	40	1	0.83	-	-	(df=1)	NS
c. Transgender					-	-		
3. *Marital Status:*								
a. Unmarried	3	2.50	0	0	-	-		
b. Married	102	85	1	0.83	-	-	0.167	0.997
c. Widow	10	8.3	0	0	-	-	(df=4)	NS
d. Widower	3	2.50	0	0	-	-		
e. Divorced	1	0.83	0	0	-	-		
4. *Educational status*								
a. Illiterate	13	10.83	0	0	-	-	3.16	0.531
b. Primary	28	23.33	1	0.83	-	-	(df=4)	NS
c. High school	43	35.83	0	0	-	-		

d. Higher secondary	20	16.67	0	0	-	-		
e. Degree and Above	15	12.50	0	0	-	-		
5. *Food pattern*								
a. Vegetarian	12	10	0	0	-	-	0.11	0.738
b. Non-Vegetarian	107	89.17	1	0.83	-	-	(df=1)	NS
6. *Religion*								
a. Hindu	96	80	1	0.83	-	-	0.239	0.887
b. Christian	8	6.67	0	0	-	-	(df=2)	NS
c. Muslim	15	12.5	0	0	-	-		
d. Others	0	0	0	0	-	-		
7. *Type of family*								
a. Nuclear	93	77.50	1	0.83	-	-	0.278	0.870
b. Joint	25	20.83	0	0	-	-	(df=2)	NS
c. Extended	1	0.83	0	0	-	-		
8. *Occupation*								
a. Unemployed	34	28.3	1	0.83	-	-		
b. Govt.Employed	20	16.67	0	0	-	-	2.45	0.654
c. Private	41	34.17	0	0	-	-	(df=4)	NS
d. Business	10	8.33	0	0	-	-		
e. Coolie	14	11.67	0	0	-	-		
9. *Monthly Income*								
a. <=5000	14	11.67	0	0	-	-	2.89	0.408
b. 5002-20000	64	53.33	0	0	-	-	(df=3)	NS
c. 30003-35000	30	25.0	1	0.83	-	-		
d. 45004	11	9.17	0	0	-	-		
10. *Ill habits*								
a. Smoking	25	20.83	1	0.83	-	-	3.65	0.302
b. Alcoholism	15	12.50	0	0	-	-	(df=3)	NS
c. Tobacco chewing	3	2.50	0	0	-	-		
d. No ill habits	76	63.33	0	0	-	-		
11. *Duration of kidney disease*								
a. <1 year	13	10.83	0	0	-	-	2.17	0.537
b. 1-2 years	25	20.83	0	0	-	-	(df=3)	NS
c. 3-4 years	37	30.83	1	0.83	-	-		
d. Above 4years	44	36.67	0	0	-	-		
12. *Duration of HD*								
a. <=1 year	32	26.7	0	0	-	-		
b. 2-3 years	64	53.3	1	0.83	-	-	0.85	0.653
c. >3 years	23	19.2	0	0	-	-	(df=2)	NS
13. *Number of haemodialysis*								
a. 12 cycles	109	90.83	1	0.83	-	-	0.092	0.762
b. >12 cycles	10	8.33	0	0	-	-	(df=1)	NS
14. *Co –Morbidity*								
a. Diabetes	51	42.50	0	0	-	-		
b. Hypertension	38	31.67	1	0.83	-	-	2.09	0.553
c. Others	20	16.67	0	0	-	-	(df=3)	NS
d. None	10	8.33	0	0	-	-		
15. *Leisure activities*								
a. Watching TV	81	67.50	0	0	-	-	4.49	0.213

b. Reading Books	21	17.50	1	0.83	-	-	(df=3)	NS
c. Chatting	10	8.33	0	0	-	-		
d. Others	7	5.83	0	0	-	-		
16. *Support system*								
a. Family and Friends	114	95	1	0.83	-	-	0.043	0.834
b. NGOs	5	4.17	0	0	-	-	(df=1)	NS

CONCLUSION

The study aimed to determine the effectiveness of a multi-interventional package in improving the quality of life of patients with chronic kidney disease (CKD) undergoing hemodialysis in selected healthcare settings. A quasi-experimental research design was adopted, and participants were selected through purposive sampling. The sample comprised 240 patients with CKD receiving maintenance hemodialysis from two private hospitals. Quality of life was measured using the Kidney Disease Quality of Life Scale–Short Form 36 (KDQOL-SF-36), Version 1.3. The study findings indicated a significant improvement in the quality-of-life scores following the implementation of the multi-interventional package, demonstrating its positive impact on patients undergoing long-term haemodialysis. The conceptual framework guiding this study was based on Lydia Hall's Core, Care, Cure Model. This model emphasizes the holistic role of nursing in addressing patient needs across three domains: the *core* (the patient's inner self and motivation), the *care* (nurturing and supportive nursing actions), and the *cure* (medical and therapeutic interventions). The framework supported the integration of a structured multi-interventional package aimed at promoting health, enhancing coping strategies, and improving overall well-being. Lydia Hall's model provided a systematic guide for planning, implementing, and evaluating the intervention in a phased and comprehensive manner, ensuring that the physical, psychological, and interpersonal needs of the participants were considered throughout the study.

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