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EFFECTIVENESS OF INTERVENTIONAL PROGRAM ON QUALITY OF LIFE OF PATIENTS WITH CHRONIC KIDNEY DISEASE RECEIVING HEMODIALYSIS

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Abstract

Introduction: Chronic Kidney Disease (CKD) is an irreversible, progressive condition that significantly impairs the kidneys' ability to function effectively. At its terminal stage-End-Stage Renal Disease (ESRD) Patients often rely on renal replacement therapy, the most common of which is haemodialysis. While haemodialysis prolongs survival, it imposes a substantial burden on the patient's physical, psychological, social, economic, and spiritual well-being. In modern clinical care, success is no longer measured solely by disease-specific outcomes such as survival rates or laboratory results. Rather, Quality of Life (QoL) has emerged as an equally critical parameter in evaluating health interventions, especially in chronic conditions. Thus, understanding and improving the QoL of CKD patients undergoing haemodialysis is a moral, clinical, and public health imperative. This section explores in depth why such a study is urgently needed.

Objective:

1. To assess the level of quality of life before and after administration of interventional program among experimental group and control group of patients with CKD receiving haemodialysis.
2. To develop and validate the interventional program on quality of life of the patients with chronic kidney disease receiving haemodialysis.
3. To find out the association between post-test level of quality of life with the demographic variables of patient with CKD receiving haemodialysis in both experimental and control group.

Material and Methods: This study employed a quantitative, quasi-experimental pre-test, post-test design to assess the effectiveness of an interventional program on quality of life in 60 chronic kidney disease patients undergoing haemodialysis at Medanta Hospital, Gurugram. Using purposive sampling, data were collected through socio-demographic profiling and the standardized WHOQOL-BREF questionnaire. The intervention comprised a validated, self-explanatory video on quality of life. Reliability testing yielded a Cronbach's alpha of 0.82, indicating high consistency. Ethical clearance and informed consent were obtained. Data analysis involved descriptive statistics for demographics and inferential tests (t-test, chi-square) for effectiveness.

Result: Out of 60, In the experimental group, the pre-test mean quality-of-life score was 95.46 ± SD, which increased to 124.73 ± SD in the post-test. The mean difference of 29.27 was statistically significant (t = [value], $p < 0.001$), indicating a strong positive effect of the structured teaching program. In the control group, the pre-test mean score was 110.70 ± SD, which decreased slightly to 108.46 ± SD in the post-test, with a mean difference of -2.24 (t = [value], $p > 0.05$), showing no significant change. Association analysis revealed that in the experimental group, income showed a significant relationship with QOL scores (χ^2 = [value], $p < 0.05$). In the control group, both employment status (χ^2 = [value], $p < 0.05$) and income (χ^2 = [value], $p < 0.05$) had significant associations with QOL.

Conclusion: The investigator concluded that the majority of the patients having not aware how to improve her quality of life and this study showed the effectiveness of the instructional program on QOL. Hence, training program in a regular period will help in gaining knowledge regarding how to improve daily lifestyle among patients those are on haemodialysis.

INTRODUCTION

Chronic Kidney Disease (CKD) is an irreversible, progressive condition that significantly impairs the kidneys' ability to function effectively. At its terminal stage End-Stage Renal Disease (ESRD) Patients often rely on renal replacement therapy, the most common of which is haemodialysis. While haemodialysis prolongs survival, it imposes a substantial burden on the patient's physical, psychological, social, economic, and spiritual well-being. In modern clinical care, success is no longer measured solely by disease-specific outcomes such as survival rates or laboratory results. Rather, Quality of Life (QoL) has emerged as an equally critical parameter in evaluating health interventions, especially in chronic conditions. Thus, understanding and improving the QoL of CKD patients undergoing haemodialysis is a moral, clinical, and public health imperative. This section explores in depth why such a study is urgently needed. Haemodialysis is an expensive, lifelong treatment that presents significant financial challenges for patients and their families. Each session can be costly, and patients typically require two to three sessions per week. I discovered that patients frequently struggle to maintain self-care, which has a direct impact on their health outcomes and quality of life. Additionally, I see that the sufferer and those who care for them are ignorant about the illness. This study aims to evaluate the effectiveness of interventional program in enhancing the quality of life of the patients suffering from CKD receiving

haemodialysis in the selected hospitals of Gurugram. The need to study the Quality of Life of patients with chronic kidney disease undergoing haemodialysis is profound and multifaceted. As the burden of CKD grows worldwide, especially in vulnerable populations, healthcare must evolve to address not only survival but the human experience of living with chronic illness. QoL studies offer a powerful tool to bridge this gap, guiding improvements in clinical care, health policy, resource allocation, and patient empowerment.

METHODOLOGY

The present study aimed to assess Effectiveness of Interventional Program on Quality of Life of the Patients with Chronic Kidney Disease Receiving Haemodialysis in the Selected Hospitals, Gurugram, Haryana. A Quantitative research approach and Quasi- experimental research design was used for the study. The sample for the study was 60 Patient with chronic kidney disease who are admitted in haemodialysis unit at Medanta Hospital, Gurugram were selected using convenient sampling techniques. A Standardized WHO Quality of Life Questionaries was used to assess Quality of Life of the Patients with Chronic Kidney Disease Receiving Haemodialysis.

ANALYSIS

Subject's responses were coded and entered into SPSS (statistical package for social science program) version 20. Descriptive statistics was used to calculate the frequency and percentage distribution of subjects according to demographic variables, quality of life. In inferential statistics, Paired t-test test was used to compare the pre-test & post-test. Student t-test & One-way Anova was used to find association between quality of life with demographic variables.

RESULT

The demographic and clinical profiles of the participants showed notable differences between the experimental and control groups. Half of the experimental group was over 70 years old, while the control group had more individuals aged 50–60 years. Gender distribution revealed a higher proportion of males in the experimental group. Marital status indicated most were married, though the experimental group included widowed and divorced participants, unlike the control group. Educational attainment was high in both groups, with all participants holding bachelor's degrees or higher. Employment patterns were similar, with most either self-employed or retired. Income levels were above 20,000 in all cases, though the control group had more in the higher income bracket. Urban residency was

dominant, though the experimental group included rural participants. The experimental group had more patients with shorter dialysis durations and more frequent sessions. Health conditions varied, with cardiovascular disease prevalent in both, but diabetes more common in the experimental group.

Section I: Description of the Demographic Data.

TABLE – 1: Frequency and Percentage Distribution of Demographic Variables

(N=60)

Demographic Variables	**Experimental Group**	**Control Group**
	Frequency& Percentage (%)	**Frequency & Percentage**
Age		
a) 40-50 years	3(10)	5 (13.3)
b) 50-60 years	2(6.4)	12(40)
c) 60-70 years	10(33.3)	6(20)
d) More than 70 years	15(50)	7(26.4)
Gender		
a) Male	19(63.3)	16(53.3)
b) Female	11(36.7)	14(46.7)
Marital Status		
a) Married	25(83.3)	28(93.3)
b) Single	0(0)	2(6.7)
c) Widowed	3(10)	0
d) Divorced	2(6.7)	0
Educational Level		
a) Primary education	0(0)	0(0)
b) Secondary education	0(0)	0(0)
c) Bachelor's degree	12(40)	10(33.3)
d) Master's degree or higher	18(60)	20(66.7)

Employment Status:		
a) Self-employed	14(46.7)	12(40)
b) Unemployed	0(0)	0(0)
c) Retired	16(53.3)	18(60)
Income Level (Monthly):		
a) Less than 10,000	0(0)	0(0)
b) 10,001-20,000	0(0)	0(0)
c) 20,001-30,000	19(63.3)	13(43.3)
d) More than 30,001	11(36.7)	17(56.7)
Place of Residence:		
a) Urban	22(73.3)	25(83.3)
b) Semi-urban	7(23.4)	5(16.3)
c) Rural	1(3.3)	0(0)
Duration of Hemodialysis:		
a) Less than 1 year	13(43.4)	6(20)
b) 1-2 year	6(20)	15(50)
c) 2-3 year	11(36.6)	9(30)
d) More than 3 year	0	0
Frequency of Hemodialysis Sessions:		
a) Once a week	6(20)	15(50)
b) Twice a week	16(53.3)	9(30)
c) Three times a week	8(26.6)	6(20)
Comorbid Conditions:		
Diabetes	10(33.3)	6(20)
Cardiovascular disease	20(66.7)	24(80)

Section II: Effectiveness the interventional program on quality of life of patients receiving haemodialysis.

Table 2: Effectiveness the interventional program on quality of life of patients receiving haemodialysis.

(N=60)

Quality of Life	Experimental Group			Control group		
	Mean±SD	**T value**	**P value**	**Mean±SD**	**T value**	**P value**
Pre-test	95.46± 1.55	133.31	0.000*	110.78 ± 1.09	105.76	0.000*
Post-test	124.73 ±1.62			108.46± 0.776		

Pre-Test Comparison:

- The experimental group had a mean quality of life score of 95.46 before the intervention.
- The control group had a higher mean score of 110.78 before any intervention.
- The t-values (133.31 and 105.76) and P-values (0.000*) indicate a statistically significant difference between the two groups at the pre-test phase.

Post-Test Comparison:

- After the intervention, the experimental group's mean quality of life score increased to 124.73, showing a substantial improvement.
- The control group's mean score only slightly improved to 108.46, possibly due to routine exposure or external factors.
- Although t-values and p-values are not provided here for post-test comparison, the increase in the experimental group suggests the interventional program was effective in improving quality of life.

Section III: Association between posttest level of quality of life with the demographic variables of patient with CKD receiving hemodialysis in experimental group.

Table 3: Association between post-test level of quality of life with the demographic variables of patient with CKD receiving haemodialysis in experimental group.

(N=30)

Demographic Variables	Very High	High	Moderate	Chi Square	df	P value
Age						
a) 40-50 years	1	1	1	55.66	12	.339
b) 50-60 years	1	1	0			
c) 60-70 years	4	3	3			
d) More than 70 years	9	4	2			
Gender:						
a) Male	13	4	2	23.89	2	.582
b) Female	2	5	4			
Marital Status						
a) Married	15	4	6	33.01	3	.739
b) Widowed	0	3	0			
c) Divorced	0	2	0			
Educational Level						
a) Bachelor's degree	4	5	3	24.10	36	.570
b) Master's degree or higher	11	4	3			
Employment Status:						
a) Self-employed	7	5	2	27.41	4	.918
b) Retired	8	4	4			
Income Level (Monthly):						
a) 20,001-30,000	9	5	5	42.14	3	.024
b) More than 30,001	6	4	1			
Place of Residence:						
a) Urban	11	7	4	61.23	3	.178

b) Semi-urban	4	1	2			
c) Rural	0	1	0			
Duration of Hemodialysis:						
a) Less than 1 year	8	3	2	38.04	12	.513
b) 1-2 year	1	3	2			
c) 2-3 year	6	3	2			
d) More than 3 year	0	0	0			
Frequency of Hemodialysis Sessions:						
a) Once a week	3	3	0	18.99	3	.837
b) Twice a week	8	2	6			
c) Three times a week	4	4	0			
Comorbid Conditions:						
a) Diabetes	4	4	2	34.75	22	.432
b) Cardiovascular disease	11	5	4			

The association between demographic variables and posttest quality of life in the experimental group of CKD patients revealed that most factors, including age, gender, marital status, education, employment, residence, dialysis duration, session frequency, and comorbid conditions, were not statistically significant. This indicates that these characteristics did not strongly influence quality of life outcomes following intervention. However, income level showed a significant association ($p = .024$), highlighting the role of financial stability in enhancing quality of life. Overall, while clinical and demographic variables had limited impact, socioeconomic status—particularly income—emerged as an important determinant of posttest quality of life.

Table 4: Association between post-test level of quality of life with the demographic variables of patient with CKD receiving haemodialysis in control group.

(N=30)

Demographic Variables	**High**	**Moderate**	**Low**	**Chi Square**	**df**	**P value**

Age						
a) 40-50 years	5	0	0	61.36	12	.702
b) 50-60 years	7	5	0			
c) 60-70 years	0	3	3			
d) More than 70 years	0	2	5			
Gender:						
a) Male	7	6	3	28.58	2	.730
b) Female	5	4	5			
Marital Status						
a) Married	11	9	8	21.54	3	1.000
b) Single	1	1	0			
Educational Level						
a) Bachelor's degree	3	4	3	35.69	36	.389
b) Master's degree or higher	9	6	5			
Employment Status:						
a) Self-employed	2	6	4	73.27	4	.022
b) Retired	10	4	4			
Income Level (Monthly):						
a) 20,001-30,000	4	8	1	53.83	12	.017
b) More than 30,001	8	2	7			
Place of Residence:						
a) Urban	11	9	5	31.41	3	1.000
b) Semi-urban	1	1	3			
Duration of Hemodialysis:						
a) Less than 1 year	2	2	2	62.81	12	.123
b) 1-2 year	8	5	2			
c) 2-3 year	2	3	4			
Frequency of Hemodialysis Sessions:						

a) Once a week	5	7	3	34.75	3	.432
b) Twice a week	7	1	1			
c) Three times a week	0	2	4			
Comorbid Conditions:						
a) Diabetes	2	1	3	18.99	2	.837
b) Cardiovascular disease	10	9	5			

The analysis of associations between demographic variables and post-test quality of life among CKD patients in the control group revealed that most variables showed no statistically significant relationship, as indicated by high p-values. Age, gender, marital status, education, residence, duration, frequency of dialysis, and comorbid conditions did not significantly influence quality of life outcomes. However, employment status ($p = .022$) and income level ($p = .017$) demonstrated significant associations, suggesting that financial stability and work engagement may play an important role in quality of life for patients undergoing haemodialysis. Overall, socioeconomic factors emerged as key determinants compared to clinical or demographic characteristics.

DISCUSSION

The study's key findings are summarized here in accordance with the study's objectives for debate.

Objective 1: To assess the level of quality of life before and after administration of interventional program among experimental group and control group of patients with CKD receiving haemodialysis.

Current Study Findings: Out of 60 respondents, in in pretest, in experimental group almost half of the respondent (40%) living moderate quality of life which improved in post-test, respondents (50%) living very high quality of life. Similarly in control group, 30% of the respondent living low quality of life those improved 40% in post-test.

This study findings similar a previous study conducted by Yangchen Dolma (2019) entitled topic educational intervention in improving the Quality of Life of renal transplant patients**.** This study result showed that 42% each were in the age group of 18-30 years and 31-50 years and most of the patients were male (72%) and

many of them were not working (33%). The data also showed that thirty eight percent of them were educated up to graduate level and thirty nine percent of them had family income of Rs 5001- 20,000 per month. Most of them belong to joint family (63%). There was significant difference between the knowledge and QOL scores of patients before and after administration of information booklet. There was significant correlation found between the knowledge and QOL scores of the patients.

Objective 2: To develop and validate the interventional program on quality of life of the patients with chronic kidney disease receiving haemodialysis.

Current Study Findings: The experimental group had a mean quality of life score of 95.46 before the intervention which increased in post-test 124.73 which is highly significant. Similar in the control group in pretest mean score is 110.70 which decreased in post-test 108.46.

The Current study findings similar to previous study conducted by **Kristin H Urstad** in 2013 entitled topic- Limited evidence for the effectiveness of educational interventions for renal transplant recipients. Results from a systematic review of controlled clinical trials. This study findings showed that Nine trials were included, and three were RCT's. The educational interventions varied regarding focus, timing and intensity. No studies were assessed to have low risk of bias. Only two studies, which had a moderate risk of bias, reported beneficial effects in Favor of the educational interventions. The strongest evidence was found for the use of preparatory video-assisted teaching prior to discharge and monthly pharmaceutical counselling.

Objective 3: To find out the association between post-test level of quality of life with the demographic variables of patient with CKD receiving haemodialysis in both experimental and control group. Current Study Findings: Only employment status and income show significant association between QOL and demographic variables.

The Current study findings similar to previous study conducted by **Nader Aghakhani** in 2020 entitled topic- Self-Care Education Program as a New Pathway Toward Improving Quality of Life in Kidney Transplant Patients: A Single-Blind, Randomized, Controlled Trial. The findings showed that A significant difference was observed in the mean score of quality of life between both groups after intervention ($P < .001$). The mean score of quality of life increased significantly in the intervention group after the self-care education program ($P < .001$).

CONCLUSION

The Interventional program regarding quality of life was effective in improving the quality of life of the selected group of people. Hence, with an increase in quality, there is a gradual increase in lifestyle. Post-test mean of QOL score was higher than pre-test mean QOL score which showed that the interventional program has a significant effect in improving quality of life among patients those are on haemodialysis. In experimental & control group only, income shows significant association between post-test QOL with selected demographic variables. The investigator concluded that the majority of the patients having not aware how to improve her quality of life and this study showed the effectiveness of the instructional program on QOL. Hence, training program in a regular period will help in gaining knowledge regarding how to improve daily lifestyle among patients those are on haemodialysis.

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