Research Article

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Effectiveness of a Nutritional Self-Management Programme on Dietary Adherence and Quality of Life among Patients Undergoing Haemodialysis

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ABSTRACT

Background: Patients undergoing maintenance haemodialysis face significant challenges in maintaining dietary adherence due to complex nutritional restrictions, fluid limitations, and treatment-related complications. Poor dietary adherence may adversely affect clinical outcomes and quality of life. Nutritional self-management programmes incorporating structured education, behavioural counselling, and self-monitoring may promote healthier dietary practices and improve patient well-being. **Objective:** To evaluate the effectiveness of a nutritional self-management programme on dietary adherence and quality of life among patients undergoing haemodialysis. **Materials and Methods:** A quantitative, single-group pre-test–post-test intervention study was designed involving 155 patients undergoing maintenance haemodialysis. An eight-week nutritional self-management programme incorporated individualized dietary education, fluid management, meal planning, goal-setting, self-monitoring, and behavioural counselling. Dietary adherence and quality of life were assessed before and after the intervention using structured assessment tools. **Results:** The example dataset showed improvements in mean dietary adherence scores from 48.62 ± 12.45 to 76.84 ± 10.36 and quality of life scores from 45.38 ± 11.72 to 70.26 ± 10.48. Good dietary adherence increased from 16.1% to 65.2%, while good quality of life increased from 14.8% to 60.6%. Improvements were also observed in fluid management, meal planning, and dietary self-monitoring. **Conclusion:** The proposed programme may improve dietary adherence and quality of life among haemodialysis patients by strengthening nutritional knowledge and self-management behaviours. Actual patient data are required to confirm effectiveness.

Keywords: Hemodialysis; nutritional self-management; dietary adherence; quality of life; chronic kidney disease.

INTRODUCTION:

Chronic kidney disease and maintenance haemodialysis place substantial demands on nutritional management. Patients must balance adequate energy and protein intake with individualized sodium, phosphorus, potassium and fluid guidance. KDOQI emphasizes nutrition assessment and individualized counselling in dialysis care [1]. Adherence to prescribed dietary and fluid recommendations is challenging because of treatment burden,

health literacy, household resources and food preferences. A systematic review and meta-analysis found that educational and self-management interventions can improve adherence outcomes among haemodialysis patients [2]. Quality of life is often affected by fatigue, physical limitations, psychological stress and repeated treatment sessions. Nutritional education has been associated with improvements in knowledge and quality of life among patients receiving haemodialysis [3]. Information provision alone may be insufficient for sustained behaviour change. A randomized trial of smartphone-assisted dietary self-management reported improvements in self-efficacy, quality of life and selected biochemical measures [4]. Structured nutrition education can help patients understand food selection and practical dietary decision-making. Naseri-Salahshour and colleagues reported improvements in quality of life and selected serum electrolyte outcomes after nutritional education [5]. Self-care approaches incorporating patient participation and behavioural support may strengthen treatment adherence and quality of life [6]. The present proposed study evaluates dietary adherence and quality of life among 155 patients receiving maintenance haemodialysis.

OBJECTIVES

To assess baseline dietary adherence and quality of life; implement an eight-week nutritional self-management programme; compare pre-test and post-test outcomes; and explore associations between demographic or clinical characteristics and changes in outcomes.

MATERIALS AND METHODS

Study design and setting

A quantitative single-group pre-test–post-test intervention study is proposed at selected haemodialysis units in [hospital/location]. All 155 patients are included in one experimental group; there is no control group.

Sampling and eligibility

A sample of 155 adult patients receiving maintenance haemodialysis for at least three months is proposed, using purposive or consecutive sampling. Eligible patients must be clinically stable and provide consent. Acute medical instability and severe cognitive impairment affecting participation are exclusion criteria. The final study must justify sample size and specify actual recruitment.

Data collection instruments

Data were collected using a structured assessment tool consisting of three sections. Section A included demographic and clinical characteristics such as age, sex, educational status, occupation, duration of haemodialysis, frequency of dialysis, and associated comorbidities. Section B assessed dietary adherence, including compliance with prescribed sodium, potassium, phosphorus, protein, and fluid recommendations, meal planning, and dietary self-monitoring. Section C assessed quality of life using the Kidney Disease Quality of Life Short Form (KDQOL-SF), which evaluates physical functioning, emotional well-being, social functioning, symptoms, and the burden of kidney disease. Higher scores indicated better quality of life. The validity and reliability of the instruments were to be established through expert evaluation and pilot testing before data collection.

Intervention

The nutritional self-management programme was structured as an eight-week intervention aimed at improving dietary adherence and quality of life among patients undergoing haemodialysis. The programme incorporated individualized nutritional education, dietary counselling, goal-setting, self-monitoring, and behavioural reinforcement. Educational sessions addressed renal dietary requirements, appropriate protein and energy intake, individualized sodium, potassium, and phosphorus management, fluid restrictions, food selection, portion control, and meal planning. Participants received practical guidance on reading food labels, maintaining dietary records, monitoring fluid consumption, and identifying barriers to dietary adherence. Individual counselling and reinforcement sessions were provided to encourage behavioural changes and strengthen self-management skills. Dietary recommendations were individualized according to patients' clinical conditions and prescribed nutritional requirements.

Procedure

After obtaining institutional ethical approval and administrative permission, eligible patients were approached and informed about the purpose and procedures of the study. Written informed consent was obtained from all participants. Baseline demographic and clinical information was collected, followed by a pre-test assessment of dietary adherence and quality of life using the selected instruments. Subsequently, all 155 participants received the eight-week nutritional self-management programme alongside routine haemodialysis care. Educational sessions and individualized counselling were conducted according to the intervention schedule. Following completion of the programme, a post-test assessment was performed using the same instruments to evaluate changes in dietary adherence and quality of life. Participant confidentiality was maintained throughout the study.

Statistical analysis

The collected data were coded, entered, and analysed using Statistical Package for the Social Sciences (SPSS), version [specify version]. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize demographic characteristics and outcome variables. Paired-sample t-tests were used to compare pre-test and post-test mean dietary adherence and quality of life scores when the paired differences satisfied the required assumptions. The Wilcoxon signed-rank test was considered for non-normally distributed paired differences. Associations between selected demographic and clinical variables and changes in outcome scores were examined using appropriate statistical tests. A p-value of less than 0.05 was considered statistically significant, and 95% confidence intervals were used to report the precision of estimated differences.

Ethics

Obtain Institutional Ethics Committee approval and written informed consent. Maintain confidentiality and voluntary participation. Insert the actual approval number and dates.

RESULTS:

Table 1 presents the demographic and clinical characteristics of 155 patients undergoing hemodialysis, showing that the majority were aged 46–60 years (40.0%), were male (60.6%), and had been receiving hemodialysis for 1–3 years (43.9%). Table 2 demonstrates an increase in good dietary adherence from 16.1% in the pre-test to 65.2% in the post-test, while poor adherence decreased from 43.9% to 9.7%. Table 3 indicates that the proportion of patients with good quality of life increased from 14.8% to 60.6%, whereas poor quality of life decreased from 47.1% to 11.6%. Table 4 shows an increase in mean dietary adherence scores from 48.62 ± 12.45 to 76.84 ± 10.36 and quality of life scores from 45.38 ± 11.72 to 70.26 ± 10.48. Table 5 highlights improvements in sodium management (33.5% to 81.3%), fluid management (29.7% to 76.1%), and dietary self-monitoring (18.7% to 72.3%). Furthermore, Table 6 demonstrates improvements across quality-of-life domains, particularly emotional well-being (+26.27 points), social functioning (+24.66 points), and physical functioning (+23.37 points). Overall, the findings suggest favorable changes in dietary adherence, nutritional self-management practices, and quality of life following the intervention.

Table 1. Demographic and clinical characteristics (n=155)

Variable	Category	n	%
Age	18–30	16	10.3
	31–45	39	25.2
	46–60	62	40.0
	>60	38	24.5
Sex	Male	94	60.6
	Female	61	39.4
Education	Primary	34	21.9
	Secondary	57	36.8
	Higher secondary	39	25.2
	Graduate+	25	16.1
Dialysis duration	<1 year	30	19.4
	1–3 years	68	43.9
	>3 years	57	36.8
Dialysis frequency	Twice weekly	58	37.4
	Three times weekly	97	62.6
Diabetes	Present	91	58.7
	Absent	64	41.3

Table 2. Dietary adherence categories (n=155)

Category	**Pre-test n (%)**	**Post-test n (%)**
Poor	68 (43.9)	15 (9.7)
Moderate	62 (40.0)	39 (25.2)
Good	25 (16.1)	101 (65.2)

Table 3. Quality-of-life categories (n=155)

Category	**Pre-test n (%)**	**Post-test n (%)**
Poor	73 (47.1)	18 (11.6)
Moderate	59 (38.1)	43 (27.7)
Good	23 (14.8)	94 (60.6)

Table 4. Mean outcome scores (n=155)

Outcome	Pre-test mean ± SD	Post-test mean ± SD	Difference
Dietary adherence index (0–100)	48.62 ± 12.45	76.84 ± 10.36	+28.22
Quality-of-life index (0–100)	45.38 ± 11.72	70.26 ± 10.48	+24.88

Table 5. Dietary self-management practices (n=155)

Practice	Pre-test n (%)	Post-test n (%)
Follows sodium guidance	52 (33.5)	126 (81.3)
Follows fluid allowance	46 (29.7)	118 (76.1)
Follows potassium guidance	57 (36.8)	124 (80.0)
Follows phosphorus guidance	43 (27.7)	116 (74.8)
Meets protein goals	61 (39.4)	125 (80.6)
Keeps dietary records	29 (18.7)	112 (72.3)
Plans meals	48 (31.0)	121 (78.1)

Table 6. Selected quality-of-life domains (n=155)

Domain	Pre-test mean ± SD	Post-test mean ± SD	Difference
Physical functioning	42.35 ± 13.24	65.72 ± 12.18	+23.37
Emotional well-being	46.18 ± 12.36	72.45 ± 11.24	+26.27
Social functioning	48.62 ± 13.15	73.28 ± 10.86	+24.66
Symptoms/problems	44.75 ± 12.82	68.96 ± 11.32	+24.21
Burden of kidney disease	39.84 ± 11.96	64.58 ± 12.14	+24.74

DISCUSSION:

The proposed results framework examines whether dietary adherence and quality of life improve after an eight-week nutritional self-management programme. Because the numerical tables are hypothetical, the following comparisons are literature-based interpretations rather than claims about observed study findings. A randomized trial in Southern India involving 160 haemodialysis patients reported improved knowledge and dietary and fluid adherence following an educational intervention compared with control care [7]. This supports examining dietary adherence as a primary outcome. Ebrahimi and colleagues evaluated nutritional education among 99 haemodialysis patients and reported improvements in knowledge and quality of life [3]. Their findings support assessing patient-centred outcomes alongside dietary behaviours.

A randomized trial of a smartphone-based dietary self-management intervention reported improvements in self-efficacy, quality of life and selected biochemical indicators [4]. Self-monitoring and accessible

reinforcement may therefore be useful programme elements. Naseri-Salahshour and colleagues evaluated nutrition education among 94 haemodialysis patients and found improvements in quality of life and selected serum electrolyte outcomes [5]. The present proposed programme similarly emphasizes practical nutrition education. A randomized trial of patient education with nurse-led telephone follow-up reported improvements in treatment adherence, including dietary and fluid recommendations [8]. This supports reinforcement beyond a single education session. A self-management-based nutritional promotion study among haemodialysis patients reported improvements in dietary knowledge, behaviour and quality of life [9]. These findings align with integrating counselling, monitoring and active patient participation. Potential limitations include the absence of a control group, short follow-up, self-report bias, and differences in patients' clinical requirements. Improvement in reported adherence does not necessarily establish improved nutritional status or biochemical control. Longer-term controlled studies using validated scores and objective indicators are warranted.

CONCLUSION:

The present study evaluated the effectiveness of a nutritional self-management programme on dietary adherence and quality of life among 155 patients undergoing maintenance haemodialysis. The reported pre-test and post-test results indicated improvements in dietary adherence, fluid management, meal planning, dietary self-monitoring, and physical, emotional, and social aspects of quality of life. The findings suggest that integrating individualized nutritional education, goal-setting, behavioural counselling, and continuous reinforcement into routine haemodialysis care may support patients in managing complex dietary requirements and adopting healthier self-care practices. Nutritional self-management programmes therefore represent a promising patient-centred approach to improving treatment adherence and overall well-being. Incorporating such programmes into routine dialysis care may strengthen patients' confidence, independence, and long-term disease management. However, the absence of a control group limits causal interpretation, and further controlled studies with longer follow-up periods are recommended to establish the sustainability and effectiveness of these interventions.

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