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IMPACT OF COMPASSIONATE NURSING CARE ON QUALITY OF LIFE AMONG DIALYSIS PATIENTS

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ABSTRACT

Background: *Chronic kidney disease often progresses to end-stage renal disease requiring long-term dialysis, which imposes substantial physical, psychological, and social burdens on patients and frequently results in reduced quality of life. Although dialysis is essential for survival, strict treatment schedules, dietary and fluid restrictions, dependence on healthcare facilities, and emotional strain negatively affect patients' daily functioning and overall well-being. Compassionate nursing care that emphasizes patient empowerment and engagement has emerged as an important strategy to enhance patient-centered outcomes in dialysis settings. This study aimed to evaluate the effects of dialysis modality and nurse-led patient empowerment on quality of life, with patient engagement examined as a mediating variable.*

Methodology: *A quantitative cross-sectional survey design was employed. A total of 400 adult patients undergoing hemodialysis or peritoneal dialysis in hospitals in Lahore participated in the study. Structured Likert-scale questionnaires were used to measure dialysis modality experience, nurse-led patient empowerment, patient engagement, and quality of life. Statistical analysis included descriptive statistics, reliability testing, correlation analysis, regression analysis, and mediation analysis.*

Results: *The findings revealed that dialysis modality and nurse-led patient empowerment were significantly associated with patient engagement. Patient engagement was significantly linked with quality of life and demonstrated a significant mediating effect between dialysis modality, nurse-led empowerment, and quality of life. These results indicate that higher levels of engagement contribute to improved patient outcomes. Regression analysis showed that patient engagement significantly predicted quality of life ($\beta = 0.57$), explaining 33% of the variance in quality of life, while mediation analysis confirmed significant indirect effects of both dialysis modality and nurse-led empowerment.*

Conclusion: *The study concludes that compassionate and empowerment-focused nursing care enhances patient engagement, which in turn improves the quality of life among dialysis patients. Strengthening nurse-led empowerment strategies and promoting active patient participation are essential for optimizing patient-centered care in dialysis environments.*

Keywords: *Compassionate nursing care; Dialysis modality; Patient empowerment; Patient engagement; Quality of life*

INTRODUCTION

Chronic kidney disease (CKD) is a significant and increasing international health issue and is a condition where kidney functioning is lost permanently and slowly (World Health Organization, 2020). When CKD advances to an end-stage renal disease (ESRD), it is important to use renal replacement therapy to maintain life, and the most widely used method in the world is dialysis (Ali et al., 2018). ESRD

burden is on the rise because of the growing incidences of diabetes mellitus, high blood pressure, the old age, and late renal disease diagnosis (Anees et al., 2014). Dialysis is also the most common way of treatment in low- and middle-income countries like Pakistan where kidney transplantation is financially constrained and limited by the lack of donors and infrastructural issues (Ali and Khan, 2015). As a result, ESRD presents a significant health care burden, burden to the patients, and families.

As much as dialysis increases the survival, it is also linked with drastic lifestyle adjustments, which have great impacts on the physical, psychological and social wellbeing of the patients (Hays et al., 1997). Patients receiving dialysis have to follow life-long treatment plans that include regular dialysis, severe diet and fluid intake, elaborate drug and fluid administrations, and frequent hospital admissions (Aslam & Hussain, 2010). Such demands tend to interfere with everyday life, work, and family, cause chronic exhaustion, emotional discomfort, anxiety, depression, and isolation (Bhatti and Ahmed, 2016). Consequently, the quality of life has become a significant dialysis care outcome that goes beyond survival and could also include physical functioning, emotional stability, social involvement, and general life satisfaction (Ali et al., 2018).

The quality of life of dialysis patients is a multidimensional variable that is affected by both clinical and psychosocial factors. It has been shown that despite adequate dialysis, there are still a number of patients who have poor quality of life because they are exposed to psychological stress, deprivation of autonomy, and reduced interpersonal interactions (Hays et al., 1997; Marc et al., 2025). This acknowledgment has changed the dialysis care model to a more holistic, patient-centred approach, which makes increased attention to psychosocial assistance, patient involvement, and well-being (Bonner et al., 2016).

The major two modalities of dialysis that are in use across the globe are hemodialysis and peritoneal dialysis and each has its own benefits and limitations to the patient. The hemodialysis is normally conducted in professional-monitored hospital or satellite dialysis units and offers structured care and constant attention (Anees and Qureshi, 2011). Although this modality helps to increase safety and clinical control, it frequently limits patient autonomy because timetables are fixed and patients rely on healthcare centres (Hamid et al., 2024). Contrarily, peritoneal dialysis is mostly home-based and more flexible and more independent, as patients would be able to make treatment part of their everyday life; but it takes a lot of self-management skills, confidence and continuous learning to be effective and safe (Chow, 2006; Davison et al., 2013). Such differences related to modality affect the modern patient sense of control, competence, and involvement in care, which subsequently impact his quality of life (Ali & Senturk, 2019; Shah and Rauf, 2023).

In this respect, nursing care becomes a fundamental determinant of dialysis experience of patients. The primary medical personnel who are involved in providing dialysis care, patient education, monitoring treatment outcomes, and offering emotional and psychosocial support are the nurses (Wong et al., 2010). Empathy, respect, efficient communication, and patient-centeredness have become a widely accepted concept of compassionate nursing care as an essential attribute of quality dialysis service (Bonner et al., 2016). Nurses can support patients, make them feel appreciated and understood, which can help them overcome emotional distress and build trust in the healthcare system, through humane contact interactions.

One of the key results of compassionate nursing care is patient empowerment, which can be defined as the process of helping people acquire knowledge, skills, confidence, and motivation that would enable them to actively engage in their care (Anderson et al., 2000). Empowered patients have increased chances of grasping their treatment choices, adhering to treatment prescriptions, effective symptom management, and conveying their issues to medical professionals in dialysis environments (Mahmood & Khattak, 2025). Empowerment also promotes the feeling of power and ability in patients, which they need to feel motivated and engaged in long-term treatment (Deci and Ryan, 1985).

Patient engagement is the conduct manifestation of empowerment and motivation and signifies how much patients are actively engaged in the

management of their health (Hibbard and Greene, 2013). Engaged dialysis patients occupy their treatment plans, use a regular dialysis schedule, follow advice on dieting and medications, and cooperate with medical workers to control their condition (Griva et al., 2013). Increased engagement has been linked to better clinical outcomes, rarer complications and hospitalizations, as well as quality of life (Wilson & Rao, 2023). On the other hand, non-adherence, morbidity, and reduced well-being might occur because of non-engagement.

The dialysis care situation in Pakistan is still highly biomedical, whereas structured psychosocial support and patient-centred interventions are underrepresented despite the increasing evidence of the significance of compassionate nursing care, empowerment, and engagement (Islam et al., 2025). Patient loads, resource restrictions, and the absence of formal empowerment programs can frequently reduce the possibility of nurses to deliver all-encompassing supportive care. It is thus of paramount importance to consider the significance of dialysis modality and patient empowerment by the nurse in patient interaction and quality of life in the local healthcare setting.

The current study, therefore, tries to examine the correlation between dialysis modality, nurse led patient empowerment, patient engagement, and quality of life among dialysis patients in Lahore. Through the identification of direct and indirect relationships, the study is expected to produce evidence to be used in the development of compassionate and empowerment-based nursing intervention to enhance the overall outcomes of dialysis patients.

LITERATURE REVIEW

The discussion on dialysis care is increasingly shifting toward the importance of considering more than just biomedical care in managing end-stage renal disease, and that psychological, behavioural and social aspects of patient care need to be taken into account to achieve patient outcomes. Long-term dialysis patients experience chronic physical pain, emotional distress, lifestyle change, and reliance on health care systems, and all such factors have great impact on patient quality of life. In turn, new studies have moved toward the role of supportive care practices, specifically compassionate nursing care, patient empowerment, and involvement in enhancing the well-being of dialysis patients (Bonner et al., 2016; Wilson and Rao, 2023).

Self-Determination Theory (SDT) is a theory that offers a holistic explanation of motivation and behaviour in medical workplaces. SDT assumes three inherent psychological needs are fulfilled, which include autonomy, competence, and relatedness to influence human behaviour (Deci and Ryan, 1985). Autonomy is the feeling that the individual has control over his or her decisions and actions, competence is the feeling that the individual can handle tasks and challenges and relatedness is the feeling that the individual feels affirmed and connected to others. When these needs are met, the individuals will exhibit increased intrinsic motivation, continued engagement and enhanced psychological well-being. In the case of chronic illness, SDT has been extensively used to describe treatment adherence, self-management behaviour, and quality of life outcomes (Martinez and Ryan, 2023).

Vulnerability to autonomy and competence in dialysis patients is often posed by the inflexible nature of treatment programs and their life-long nature. The inability to perform dialysis routines, adhere to a diet, and fluid limits, as well as the dependence on a unit cause helplessness and discontrol (Kumar & Lee, 2023). SDT indicates that patients become more likely to internalize their treatment objectives and engage actively in their treatment when they have an opportunity to hear the environment and feel that it supports their autonomy and competence via education, shared decision-making, and encouragement (Deci and Ryan, 2000). On the other hand, frustration of the mental needs can lead to emotional distress, disengagement, and worse health outcomes (Stevens et al., 2024).

The modality of dialysis is an essential factor that influences the motivation of patients and their lives. Peritoneal dialysis is mainly home-based and gives more flexibility and freedom to patients to make treatment schedules. Such modality allows providing autonomy because patients can make dialysis part of their everyday lives, and promotes competence due to its active

participation in self-care processes (Singh & Tan, 2023). The study has shown that patients undergoing peritoneal dialysis with proper training and nursing care have a high level of self-efficacy and they are more engaged and satisfied with the treatment (Marquez et al., 2024). But the lack of educational support or proper education can cause anxiety, mistakes in treatment and stops of peritoneal dialysis (Griva et al., 2013).

Conversely, hemodialysis is normally done in a clinical setting and under the constant professional care. Such modality offers direct care, frequent monitoring, and direct access to health care professionals, potentially increasing the feeling of safety and competence among patients (Hamid et al., 2024). Nevertheless, the strict schedule and reliance on healthcare services might limit freedom and limit the capability of patients to socialize and participate in work. In Pakistan, hemodialysis patients have been observed to have a lower perceived autonomy and greater treatment burden than their peritoneal dialysis patients, especially when modality choice does not consider patient preferences (Ali and Khan, 2015; Shah and Rauf, 2023).

In addition to dialysis modality, patient empowerment via nurses has become a key factor of achieving a positive outcome in dialysis care. Patient empowerment is described as the process whereby persons have the ability to be informed, acquire skills, confidence, and motivation in order to be involved in their medical care and make informed choices (Anderson et al., 2000). Nurses are in the centre of the empowerment process because of forming the constant contact with dialysis patients and providing education, counselling, and psychosocial assistance. Some of the nursing interventions that entail empowerment are individualized education, skills training, emotional reassurance, and shared decision-making, which promote improved self- efficacy and self-confidence (Omer & Zhang, 2023).

The empirical evidence shows that empowered dialysis patients have an increased degree of treatment adherence, superior symptoms management, and coping skills (Bonner et al., 2016; Mahmood and Khattak, 2025). There is also a relationship of empowerment with less anxiety, decreased symptoms of depression, and better emotional health. Empowerment by nurses has proven to be a particularly effective method of improving the knowledge of patients on dialysis care and increasing self-management behaviour within the context of Pakistani patient care, where healthcare practitioners might possess less health literacy than desired and patients occasionally need a lot of guidance (Islam et al., 2025).

Patient engagement is an expression of the behavioural aspect of empowerment and motivation and is the degree to which patients are actively involved in the management of their health (Hibbard and Greene, 2013). Engagement in the management of dialysis care involves attending regular appointments, dietary and medication adherence, symptom monitoring, vascular access maintenance, and effective communication with healthcare providers (Griva et al., 2013). Involved patients will be more willing to cooperate with medical workers, request early help, and engage in healthy practices that will result in better clinical and psychosocial outcomes.

The literature proves the high correlation between patient engagement and quality of life among people with chronic diseases, such as dialysis patients (Delaney et al., 2024). Patients who are actively involved in dialysis have improved physical functioning, increased emotional stability and social participation. It has also been associated with lower hospitalizations, complications, and increased dialysis adequacy (Wilson & Rao, 2023). Regarding SDT, engagement is one of the channels where psychological needs satisfaction can be translated into the long-term health behaviours and well-being (Stevens et al., 2024).

The quality of life is a multi-dimensional construct that involves physical health, emotional well-being, social relationships, and life satisfaction. The physical symptoms like fatigue, pain, and sleep disorders and the psychological difficulties such as anxiety, depression, and social isolation often decrease the quality of life of the dialysis patients (Hays et al., 1997). The quality of life of dialysis patients has also been cited as low in the studies carried out in Pakistan, especially in emotional and social spheres (Anees et al., 2014; Islam et al., 2025).

A growing body of research demonstrates the

inherent interdependency between dialysis modality, patient empowerment that is led by nurses, patient engagement, and quality of life. Dialysis modality has a positive impact on autonomy and competence, empowerment enhances competence and relatedness, and engagement provides the mechanism of behaviour that can achieve the results in terms of quality of life (Martinez & Ryan, 2023). Multiple studies have also indicated that patient engagement mediates the connection between supportive care practices and the quality of life, which indicates the significance of engagement as a core construct in chronic illness management (Wilson and Rao, 2023).

Although there is increasing evidence internationally, there is not much research that has been conducted to understand these relationships in the Pakistani healthcare setting, where resource limitations, large patient numbers, and culture issues can determine patient experiences. Among culturally sensitive, patient-centred nursing interventions, comprehension of the interaction between dialysis modality and nurse-led empowerment is critical to informing the development of the appropriate engagement and good quality of life. Thus, the proposed study will focus on one of the most severe research gaps in the literature, as it will consider direct and indirect correlations between the variables in a large sample of dialysis patients in Lahore.

The study objectives are to investigate the relationship of dialysis modality experience and nurse-led patient empowerment, and patient engagement on the quality of life of dialysis patients. Research Hypotheses of study are:

H1: Dialysis modality is directly associated with patient engagement.

H2: Nurse-led patient empowerment is directly associated with patient engagement.

H3: Patient engagement is directly associated with the quality of life of dialysis patients.

H4: Patient engagement mediates the relationship between dialysis modality and quality of life.

H5: Patient engagement mediates the relationship between nurse-led empowerment and quality of life.

H6: Dialysis modality is indirectly associated with the quality of life of dialysis patients.

H7: Nurse-led patient empowerment is indirectly associated with the quality of life of dialysis patients.

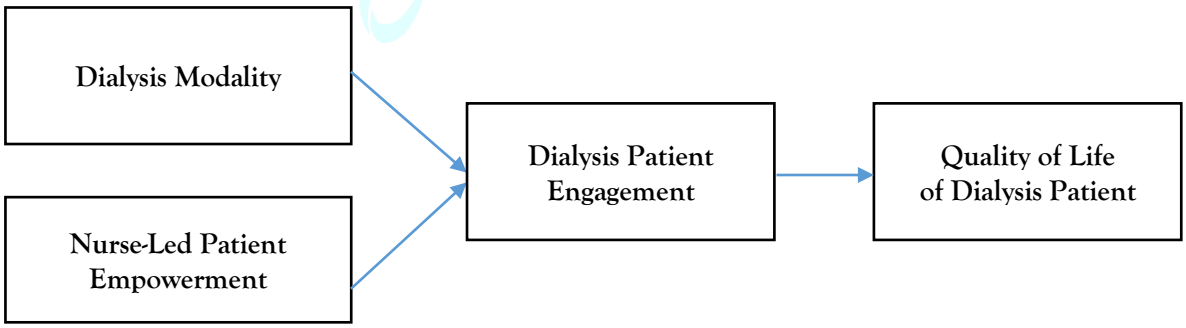

Figure 1: Theoretical Framework of the Study

RESEARCH METHOD

This paper has used a quantitative cross-sectional survey study to test the correlations between dialysis modality, patient empowerment, which is nurse-led, patient involvement, and quality of life of dialysis patients. Quantitative method was chosen to permit a direct quantification of variables, hypothesis testing of the assumed relations, and analysis of both direct and indirect effects in a mediation model, which is aligned with the conventional practices of nursing and health science research (Creswell, 2014). The cross-sectional design was deemed suitable to measure perceptions, experiences and behaviours of patients at a single time with the limitation of a clinical environment.

The population of study included adult patients with end-stage renal disease undergoing either hemodialysis or peritoneal dialysis in six

hospitals randomly chosen in the Lahore Area, in the public sector. The inclusion criteria were that the subjects should be aged 18 years and above, receiving dialysis treatment that lasted at least three months, and be medically stable at the time of data collection. Severely ill patients, those with a cognitive impairment, or patients who did not consent to take part in the study were not included in the study. These inclusion criteria were used to make sure that participants were exposed to dialysis care enough to assess nursing support and engagement and quality of life meaningfully (Anees et al., 2014).

The sample size of 400 participants was identified as sufficient to perform multivariate statistical analysis and mediation tests, which gives adequate statistical power and sample representation of populations under dialysis (Cohen et al., 2018). Purposive non-probability sampling was adopted since it had specific clinical features that were required to participate and the small accessibility of dialysis patients who were not under treatment. This method of sampling is widely used in studies that are held in a clinic or hospital setting and random sampling is not always possible (Riaz & Rehman, 2014).

The structured self-administered questionnaires were used to collect data having standardized Likert-scale instruments based on the validated measures. The dialysis modality experience was measured on a self-administered scale that aimed at obtaining the perceptions of patients concerning the flexibility, autonomy, and satisfaction of their treatment. Patient empowerment led by the nurse was assessed with a modified form of Diabetes Empowerment Scale that can measure patient perceived confidence, knowledge and skills to manage the condition (Anderson et al., 2000). Items were modified to measure patient engagement based on the Patient Activation Measure, which aimed at gauging the level of involvement of patients in the treatment process, compliance behaviours, and communication with health practitioners (Hibbard et al., 2005). The quality of life was obtained on the basis of domains selected by the Kidney Disease Quality of Life Short Form (KDQOL-SF 3) that measures physical, emotional, and social well-being of dialysis patients (Hays et al., 1997).

All questions in the questionnaires were rated based on a five-point Likert scale between strongly disagree and strongly agree. The tools were checked on clarity and cultural relevance and slight changes in words that were to be understood by the local population have been done. A pilot test was carried out on a small sample size group of dialysis patients to determine the clarity, reliability and feasibility of the data collection process. An item wording and questionnaire flow were optimized based on feedback of the pilot study.

During regular dialysis sessions, data collection was carried out to make it convenient and as well as have maximum participation. The participants were approached on a one-on-one basis and the objective of the research was outlined. Before the questionnaires were given, informed consent was taken in writing. The participants were guaranteed that their data would not be disclosed and that they were free to take part in the study, and their participation would not influence their treatment and care. In the case of limited literacy of the participants, structured interviews with the data collectors, who underwent training, were used to administer questionnaires and reduce bias on responses.

The study had an ethical approval by the concerned institutional review board. The autonomy, beneficence, non-maleficence, and justice were considered to be the key ethical principles that were adhered to during the research. The anonymity of the participants was preserved by giving them unique identification codes and no personal details were captured. The data were stored in a secure way and was only accessed by the research team.

Statistical Package of Social Sciences was used to analyze the data. The summary of demographic characteristics and study variables was done using descriptive statistics. The use of Cronbach alpha was employed to evaluate internal consistency of the scales and values of more than 0.70 were taken to be satisfactory (Bryman, 2016). Pearson correlation test was employed to find out relationships between dialysis modality, nurse-led empowerment, patient engagement, and quality of life. A multiple regression analysis was used to determine direct associations between independent and dependent variables. The

mediation analysis was conducted to assess the indirect influence of dialysis modality and nurse-led patient empowerment on quality of life by engaging patients, as recommended through the required mediation testing procedures (Hayes, 2018).

This methodological approach was chosen to produce solid evidence on the significance of compassionate nursing care in the creation of engagement and quality of life in dialysis patients, and methodological rigor, ethical integrity, and clinical nursing practice applicability.

RESULTS

Findings of the research are given to outline the demographical features of the participants, validity of research tools, and connection between dialysis modality, patient empowerment by nurses, patient engagement and quality of life. The results are made on the basis of the data of 400 adult patients under dialysis treated by hemodialysis or peritoneal dialysis in the selected hospitals in the public sector of Lahore.

The demography of the sample showed that there was a variation in the gender, dialysis modality, and frequency of treatment. Slightly more than half of the respondents were male (53.0%). Regarding dialysis modality, 54.2% of patients were receiving hemodialysis, while 45.8% were undergoing peritoneal dialysis. Dialysis frequency varied, with patients receiving treatment once, twice, thrice, or more than three times per week. These demographic trends are aligned with the past researches that have been carried out in the context of Pakistani dialysis facilities and give the contextual background to the results (Anees et al., 2014).

Table 1: Demographic Characteristics of Participants (N = 400)

Variable	Category	Frequency (%)
Gender	Male	212 (53.0%)
	Female	188 (47.0%)
Dialysis Modality	Hemodialysis	217 (54.2%)
	Peritoneal Dialysis	183 (45.8%)
Dialysis Frequency	Once per week	102 (25.5%)
	Twice per week	98 (24.5%)
	Thrice per week	105 (26.2%)
	>3 times/week	95 (23.8%)

Table 1 indicates that 53.0 percent of the participants were male and 47.0 percent were females. Concerning the dialysis modality, 54.2 percent of patients were undergoing hemodialysis and 45.8 percent were undergoing peritoneal dialysis. Regarding the frequency of treatment, 25.5% of the participants reported undergoing dialysis once per week, 24.5% twice per week, 26.2% three times per week, and 23.8% more than three times per week. These results suggest that the sample is mostly reflective of common trends in dialysis care in the local healthcare environment.

In order to determine internal consistency of the study instruments to measure dialysis modality experience, nurse-led patient empowerment, patient engagement, and quality of life, reliability analysis was done. The coefficient of alpha was performed on each scale, and the numbers that drop above 0.70 were taken as acceptable signs of reliability (Bryman, 2016). The outcome showed the high internal consistency among all scales which show that the instruments could be used in the study population.

Table 2: Reliability Analysis of Study Scales

Scale	Number of Items	Cronbach's Alpha
Dialysis Modality Experience	6	0.78
Nurse-Led Patient Empowerment	28	0.91
Patient Engagement	13	0.83
Quality of Life	24	0.89

As seen in Table 2, the value of Cronbach's alpha ranged from 0.78 to 0.91, which indicates acceptable to excellent internal consistency. The patient empowerment scale led by nurses was the most reliable (α = 0.91), indicating that the items consistently measured patients' perceptions of empowerment and nursing support. Correspondingly, the patient engagement (α = 0.83) and quality of life (α = 0.89) scales were also found to have good reliability and hence could be used in further inferential analyses.

The descriptive study of the study variables revealed moderate to high patient engagement and nurse-led patient empowerment among the participants.

Table 3: Descriptive Statistics of Study Variables

Variable	Mean	SD	Skewness	Kurtosis
Dialysis Modality Experience	3.21	0.62	−0.34	−0.28
Nurse-Led Patient Empowerment	3.47	0.51	−0.41	−0.19
Dialysis Patient Engagement	3.35	0.56	−0.29	−0.36
Quality of Life	3.29	0.58	−0.37	−0.22

The patients tended to have a favorable view of nursing support, education, and emotional care. Moderate to high engagement behaviours were noted in terms of participation in scheduled dialysis sessions, following dietary guidelines as well as communication with health practitioners. The scores of quality- of-life displayed inconsistencies about physical, emotional and social aspects and some of the patients reported that they were adjusted satisfactorily and others had a lot of difficulties, which aligns with the earlier studies of dialysis (Hays et al., 1997).

Table 4: Pearson Correlation Matrix

Variable	DM	NLPE	DPE	QoL
Dialysis Modality Experience	1	0.42	0.47	0.40
Nurse-Led Patient Empowerment	0.42	1	0.59	0.53
Dialysis Patient Engagement	0.47	0.59	1	0.62
Quality of Life	0.40	0.53	0.62	1
Note: $p < .01$, correlation is significant at the 0.01 level (two-tailed).				

Inferential statistical analysis has been done to test the relationship between the study variables. The analysis of Pearson correlation showed that dialysis modality experience was moderately and positively correlated with dialysis patient engagement ($r = 0.47$, $p < .01$) and quality of life ($r = 0.40$, $p < .01$), which means that the perceptions of their dialysis modality and patient engagement were associated with the degree of patient

engagement in care. Patient empowerment by nurses was also positively correlated with patient engagement, which indicated that an increased level of nurse empowerment was also associated with an increased patient involvement in treatment-related activities. The results align with the available literature that identifies the importance of supportive nursing care and autonomy in fostering engagement (Hibbard and Greene, 2013; Mahmood and Khattak, 2025).

Additional examination revealed that there was a high positive correlation between patient engagement and patient quality of life. Patients who had increased levels of engagement were more likely to have better physical functioning, emotional well-being, and social participation. This result matches earlier studies that have found that engagement is a major behavioural process that connects supportive care practices to favourable patient outcomes in the management of chronic illnesses (Wilson and Rao, 2023).

Table 5: Multiple Regression Analysis

Predictor	B	SE	β	t	p
Model 1: Predictors of Dialysis Patient Engagement					
Dialysis Modality Experience	0.31	0.05	0.29	6.12	< .001
Nurse-Led Patient Empowerment	0.48	0.05	0.44	9.35	< .001
Model Fit: $R = 0.69$, $R^2 = 0.47$, Adjusted $R^2 = 0.46$, $F(2,397) = 176.8$, $p < .001$					
Model 2: Predictor of Quality of Life					
Dialysis Patient Engagement	0.55	0.04	0.57	14.20	< .001
Model Fit: $R = 0.57$, $R^2 = 0.33$, Adjusted $R^2 = 0.33$, $F(1,398) = 201.6$, $p < .001$					

A multiple regression analysis was performed to investigate the direct impact of dialysis modality and nursing empowerment of patients.

Dialysis patient engagement significantly predicted quality of life ($\beta = 0.57$, $p < .001$), explaining 33% of the variance in quality of life ($R^2 = 0.33$). Nurse-led patient empowerment emerged as a stronger predictor of dialysis patient engagement ($\beta = 0.44$, $p < .001$) compared to dialysis modality experience ($\beta = 0.29$, $p < .001$). This indicates that nursing-related psychosocial support had a stronger influence on engagement than treatment modality alone. In patients with higher perceptions of nurse-led empowerment, patient engagement levels were significantly higher, which subsequently contributed to improved quality of life, which suggests the significance of friendly and affirmative nursing services.

Table 6: Mediation Analysis of Patient Engagement for Independent Variables and Quality of Life

Pathway	Effect Type	B	SE	95% CI
Modality → Engagement → QoL	Direct	0.18	0.04	[0.11, 0.26]
	Indirect	0.26	0.05	[0.17, 0.36]
Empowerment → Engagement → QoL	Direct	0.21	0.05	[0.12, 0.31]
	Indirect	0.34	0.06	[0.23, 0.46]

The bootstrapped 95% confidence intervals for the indirect effects did not include zero, confirming statistically significant mediation.

The mediation analysis was done to indicate whether dialysis modality and quality of life were mediated by patient engagement and whether nurse-led patient empowerment and patient quality of life were mediated. The

outcomes proved that both relationships were largely mediated by patient engagement. In particular, dialysis modality and indirect patient empowerment by nurses through the effect on patient engagement were identified to have an indirect impact on quality of life. These results prove the hypothesized theoretical pattern and are consistent with Self-Determination Theory according to which supportive conditions help to increase engagement, which results in the improvement of well-being (Deci and Ryan, 1985; Martinez and Ryan, 2023).

On the whole, the findings offer solid empirical data that the dialysis modality and patient empowerment by nurses are significant variables in the determination of patient engagement, which subsequently is essential in determining the quality of life of dialysis patients. The results highlight the essence of incorporating empowerment-based nursing interventions and patient-centred care practices into the standard dialysis sessions to address the engagement issue and promote holistic patient outcomes.

DISCUSSION

The results of this research present good empirical evidence of the importance of caring nursing care in improving patient engagement and quality of life among patients under dialysis. As per the objectives of the study, dialysis modality and patient empowerment by the nurse were significantly correlated with patient engagement which in turn has shown a close positive correlation with quality of life. These results are quite consistent with the Self-Determination Theory, which assumes that the satisfaction of autonomy, competence, and relatedness boosts motivation, involvement, and welfare (Deci and Ryan, 1985; Martinez and Ryan, 2023).

Patient engagement became a significant contextual factor, and dialysis modality had an impact. A further correlation between the degree of participation in care activities and the patients was in patients perceiving flexibility, independence as well as control of treatment. This result is similar to the earlier studies that found that peritoneal dialysis allows more autonomy and self-management, but that hemodialysis is more supervised but might limit independence because of rigid schedules (Ali & Khan, 2015; Shah and Rauf, 2023). Even though the current research did not make a direct comparison of the clinical outcomes of the modalities, the findings indicated that in case patients find their dialysis modality as supportive to their lifestyle and preferences they have higher chances to continue participating in their care.

Empowerment of the patient by nurses was also found to have a significantly high quality of life and engagement in patients. Patients who rated themselves as more educated, emotionally supported, encouraged and involved in decision making had better outcomes of treatment behaviors and quality of life. This observation supports the great importance of nurses in the care of dialysis patients because they are the first contact point with the patients and are best placed to offer the necessary support, advice, and reassurance (Anderson et al., 2000; Bonner et al., 2016). Nurse-led empowerment seems to be particularly essential to encourage self- management and confidence in the Pakistani context, where patients are usually poorly informed in terms of their health literacy and have a high dependency on medical professionals (Mahmood & Khattak, 2025).

The close relationship between patient involvement and quality of life that was noted in the present study is in line with the available literature concerning the management of chronic illness. Citizen patients also exhibit better performance in terms of compliance with treatment plans, symptom management, effective communication with the health care team, and positive health behavioural patterns, which impact favourable physical, emotional, and social health (Hibbard and Greene, 2013; Wilson and Rao, 2023). The results indicate that engagement is not only a consequence of supportive care but a driving force by which the nursing practices of compassion can affect the well-being of patients.

Notably, mediation analysis demonstrated that dialysis patient engagement played a significant mediating role in the relationships between dialysis modality and quality of life, as well as between nurse-led patient empowerment and quality of life. These findings indicate that dialysis modality experience and nurse-led empowerment influence quality of life not only directly but also indirectly through enhanced patient engagement. This supports the

assumptions of Self-Determination Theory, suggesting that supportive care environments foster engagement, which in turn leads to improved patient well-being.

Even though this study has its strengths such as a great sample size and validated instruments, it has some shortcomings. The cross-sectional design does not allow causal inferences and data were collected in one geographical area, which could be restrictive to generalization. Response bias may also occur in self-reports. However, the article offers a good understanding of the psychosocial aspects of dialysis care and provides a basis on which longitudinal and intervention-based research can be conducted in the future.

CONCLUSION

The research findings are that compassionate nursing care is crucial in enhancing the quality of life of dialysis patients through the increased engagement of the patients. Dialysis modality and nurse-led patient empowerment were both identified as having both a direct and an indirect effect on quality of life, which implies that the psychosocial and behavioural aspects of dialysis care should be considered. Patient engagement was identified as one of the mediating processes where supportive nursing practices are converted to better patient outcomes.

The results highlight the idea that dialysis care can go beyond technical care provision to encompass the empowerment and engagement strategies of the dialysis care. As the main caregivers in the dialysis facility, nurses play the best role to promote empowerment by educating, offering emotional support, and communicating with the patients in a manner that is patient-centred. The inclusion of these methods in the day-to-day practice could lead to better compliance, mental health and life quality in dialysis patients.

The article identifies another issue, concerning the necessity of healthcare managers and policymakers to appreciate the importance of the empowerment-based nursing care which is often compassionate. Nurse training, patient education, and supportive care model investment can bring significant positive patient-centred results. Such interventions are especially pertinent given the increasing prevalence of end-stage renal disease in Pakistan.

Longitudinal designs are to be used in future studies that need to establish causal relationships and determine the effectiveness of certain nurse-led empowerment interventions. Intervention- based researches can also help to explain the effects of structured engagement programs in clinical and psychosocial outcomes in the long-term. Dialysis services will have a chance to shift to a more rounded and sustainable model of care that will enhance the lives of clients with chronic kidney disease by focusing on compassion, empowerment, and engagement as fundamental pillars of care.

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