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Original Research Article

THE ASSESSMENT OF TREATMENT ADHERENCE AMONG DIALYSIS PATIENTS

ZAINAB R*[1], ARIF S[1], SADDIQUE H[2], TASNEEM SS[2]

[1]*Department of Nursing, Services Hospital Lahore, Pakistan*
[2]*Department of Nursing, the Superior University Lahore, Pakistan*
**Corresponding author`s email address:* ridakazmihealthcaresoldier@gamail.com

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Abstract: *Treatment adherence among dialysis patients is crucial for improving health outcomes and reducing complications associated with chronic kidney disease (CKD). However, adherence rates are often suboptimal due to complex treatment regimens and psychosocial factors.* ***Objective:*** *This study aims to assess treatment adherence among dialysis patients and identify factors influencing adherence behaviors.* ***Methods:*** *A descriptive cross-sectional study was conducted at Jinnah Hospital, Lahore, involving 133 patients with end-stage kidney disease (ESKD) undergoing dialysis. Data were collected using a validated questionnaire covering demographics and adherence behaviors across medication intake, dietary and fluid restrictions, and session attendance. Descriptive and inferential statistical analyses were performed using SPSS version 22, with a significance threshold set at $p < 0.05$.* ***Results:*** *Among the participants, 33.1% displayed poor adherence, 45.1% showed moderate adherence, and only 21.8% exhibited good adherence. Factors associated with non-adherence included forgetting medication (58.6%), intentional session shortening (43.6%), and inconsistent fluid restriction compliance (35.3%).* ***Conclusion:*** *The findings highlight moderate to poor adherence levels among dialysis patients, emphasizing the need for multifaceted interventions. Enhanced patient education, support systems, and multidisciplinary collaboration are recommended to improve adherence rates and health outcomes.*

Keywords: Chronic kidney disease, dialysis, treatment adherence, medication compliance, fluid restriction, patient education, Pakistan

Introduction

Chronic kidney disease (CKD) represents a global public health issue, with millions of individuals progressing to end-stage renal disease (ESRD), where dialysis becomes essential for survival (1). Treatment adherence is a critical determinant of health outcomes among patients undergoing dialysis, as adherence impacts morbidity, mortality, and quality of life (2). However, achieving optimal adherence to dialysis regimens remains challenging due to the complex requirements for dietary restrictions, fluid limitations, and the frequent necessity for dialysis sessions (3).

Adherence in dialysis patients encompasses adherence to multiple components, including medication, diet, fluid intake, and attendance at dialysis sessions. Studies indicate that non-adherence in dialysis patients often results in increased hospitalizations and elevated health care costs (4). Additionally, non-adherence has been linked to poor clinical outcomes such as increased blood pressure, elevated phosphorus levels, and fluid overload, further complicating the management of CKD (5, 6).

Understanding the factors that influence treatment adherence is essential for developing effective interventions tailored to the specific needs of dialysis patients. Research has identified psychosocial factors, health literacy, and provider-patient communication as significant determinants of adherence in dialysis populations (7, 8). Educational interventions, particularly those focused on improving health literacy and patient engagement, have also shown potential in enhancing adherence rates (9). This study aims to evaluate treatment adherence among dialysis patients, exploring the associated factors and potential barriers to adherence, ultimately providing insights to improve patient outcomes.

Methodology

This study employed a descriptive cross-sectional design to evaluate treatment adherence among dialysis patients. The study was conducted at Jinnah Hospital, Lahore, a tertiary healthcare facility providing specialized services for patients with chronic kidney disease (CKD). This setting was selected to ensure a diverse sample representative of patients receiving dialysis in a high-volume public hospital. The study population included patients diagnosed with End-Stage Kidney Disease (ESKD) receiving dialysis treatment at Jinnah Hospital during the study period. To be eligible, patients had to meet the following criteria:

Inclusion Criteria: Adult patients (aged 18 and older) diagnosed with CKD and receiving regular dialysis treatments. Participants had to be cognitively capable of providing informed consent and completing the study questionnaire.

Exclusion Criteria: Patients who were not on dialysis, those with cognitive impairments that would prevent reliable self-reporting, and those unwilling to participate were excluded from the study.

A sample size of 133 participants was calculated using Slovin's formula, with a confidence level of 95% and a margin of error of 5%. This sample size was considered adequate to capture a representative view of treatment adherence among dialysis patients in this setting.

Purposive sampling was used to recruit participants, aiming to include a diverse range of patients with different demographic backgrounds. This approach allowed for the deliberate selection of patients receiving dialysis to obtain comprehensive data on adherence patterns and influencing factors.

Data were collected using an adapted, validated questionnaire designed specifically to assess treatment adherence in dialysis patients. The questionnaire consisted of two main sections:

Demographic Information: Including age, gender, employment status, marital status, and educational level.

Treatment Adherence Questions: Focusing on medication intake, adherence to dietary and fluid restrictions, attendance at dialysis sessions, and other factors associated with adherence behaviour. The questionnaire was administered in Urdu to ensure clarity and comprehension among participants.

Before data collection, the study objectives were explained to each participant, and informed consent was obtained. The data collection period spanned nine months to ensure adequate participation. The questionnaire was administered in a face-to-face setting by trained research assistants to minimize potential misunderstandings and improve data reliability. Privacy and confidentiality were rigorously maintained throughout the process.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software, version 22. Descriptive statistics, including frequencies, percentages, and means, were calculated to summarize demographic variables and adherence scores. Inferential statistics, including chi-square tests, were employed to explore relationships between demographic factors and adherence levels. A p-value of <0.05 was considered statistically significant.

Ethical approval was obtained from the Ethics Review Committee of Jinnah Hospital, Lahore, before study commencement. All participants were informed of their rights, including voluntary participation, confidentiality, and the ability to withdraw at any time. No identifying information was collected, and all responses were anonymized to maintain participant privacy. Additionally, all procedures were in line with the Declaration of Helsinki guidelines on ethical principles for medical research involving human subjects.

Results

A total of 133 dialysis patients participated in this study. Table 1 summarizes the demographic characteristics, including gender, age distribution, employment status, and marital status.

The majority of participants were male (60.2%) and within the age groups of 45-54 (45.1%) and 56-64 years (47.4%). Nearly half of the participants were employed (46.6%), with the remainder either retired or unemployed. A slight majority were married (55.6%).

Treatment adherence was classified into three categories: poor, moderate, and good adherence. Table 2 presents the adherence levels among the participants.

Among the participants, 33.1% demonstrated poor adherence, 45.1% had moderate adherence, and only 21.8% achieved good adherence. This suggests that a substantial proportion of patients have moderate to poor adherence to their treatment regimens.

Participants were asked several questions about their adherence behaviours, such as medication intake, session adherence, and fluid restrictions. Table 3 provides an overview of their responses.

The data reveal that 56.4% of participants reported stopping medication when they felt worse, and 58.6% occasionally forgot to take their medication. Additionally, 43.6% reported intentionally shortening their dialysis sessions, with a notable portion (40.6%) doing so by more than 20 minutes. Fluid restriction compliance was inconsistent, with only 35.3% following restrictions consistently.

Table 1: Demographic Characteristics of Study Participants

Characteristic	Frequency (n=133)	Percentage (%)
Gender		
Male	80	60.2
Female	53	39.8
Age Group (Years)		
18-29	2	1.5
30-44	8	6.0
45-54	60	45.1
56-64	63	47.4
Employment Status		
Employed	62	46.6
Unemployed	13	9.8
Retired/Other	58	43.6
Marital Status		
Married	74	55.6
Unmarried	59	44.4

Table 2: Treatment Adherence Scores among Dialysis Patients

Adherence Level	Frequency (n=133)	Percentage (%)
Poor Adherence	44	33.1
Moderate Adherence	60	45.1
Good Adherence	29	21.8

Table 3: Adherence Behavior among Study Participants

Adherence Behavior	Response	Frequency	Percentage (%)
Medication Adherence			
Stop taking medication when feeling worse	Yes	75	56.4
	No	58	43.6
Forget to take medication	Yes	78	58.6
	No	55	41.4
Dialysis Session Adherence			
Shortened session (1-2 times in last month)	Yes	58	43.6

	No	75	56.4
Shortened session by more than 20 minutes	Yes	54	40.6
	No	79	59.4
Fluid Restriction Compliance			
Followed fluid restrictions every time	Yes	47	35.3
Followed fluid restrictions rarely	Rarely	36	27.1
Never followed fluid restrictions	Never	32	24.1

Discussion

This study assessed treatment adherence among dialysis patients, revealing that many participants exhibited moderate to poor adherence levels across several domains, including medication intake, session adherence, and fluid restriction. Our findings are consistent with previous literature, which highlights adherence as a significant challenge in managing chronic kidney disease (CKD) and end-stage kidney disease (ESKD) patients on dialysis(rida article).

The adherence levels in our study show that only 21.8% of patients achieved good adherence, while the majority displayed moderate (45.1%) to poor (33.1%) adherence. This outcome aligns with studies indicating that adherence rates among dialysis patients are often suboptimal, primarily due to the complexity of the regimen, the physical and psychological toll of chronic disease, and socio-economic barriers(rida article). Patients often struggle to follow strict dietary and fluid restrictions, medication schedules, and dialysis sessions, which can collectively contribute to adverse health outcomes, including increased morbidity and mortality (10, 11).

Medication adherence was notably low, with 56.4% of participants reporting that they stopped medication when feeling unwell, and 58.6% occasionally forgetting their doses. Such behaviour is often reported in chronic disease patients, where factors like side effects, medication burden, and lack of understanding about the importance of consistent intake influence adherence rates (12). Moreover, a lack of tailored patient education on the consequences of non-adherence may exacerbate these patterns (13). Research suggests that educational interventions and counselling focusing on medication management can lead to significant improvements in adherence (14).

Session adherence analysis revealed that 43.6% of participants reported shortening their dialysis sessions on at least one occasion in the previous month. This finding is critical as dialysis duration and frequency are directly associated with patient survival and quality of life (15). Shortening or missing dialysis sessions can lead to inadequate toxin removal, volume overload, and increased hospitalizations (16). Studies indicate that patient engagement and counselling on the risks associated with irregular sessions are effective strategies to improve adherence and reduce session skipping (14).

Our findings show that fluid restriction compliance was inconsistent, with only 35.3% of patients consistently following the guidelines. Non-adherence to fluid restrictions can lead to complications such as fluid overload, hypertension, and heart failure, significantly impacting patient prognosis (17). The difficulty of adhering to fluid restrictions in dialysis patients is well-documented and linked to the physical discomfort and lifestyle modifications required. Behavioural interventions, such as motivational interviewing and structured educational sessions, have been proposed as effective strategies to improve adherence to fluid management (18).

The results underscore the importance of a multidisciplinary approach to improve treatment adherence in dialysis patients. Strategies involving nursing staff, dietitians, and psychologists can help address the various facets of adherence, including medication intake, session regularity, and lifestyle modifications. For instance, continuous education on the importance of adhering to treatment protocols can empower patients and improve health outcomes (19). Enhanced patient-provider communication and the use of adherence-tracking tools could further support patients in maintaining consistent adherence (10).

This study was conducted in a single-centre setting with a purposive sample, which may limit the generalizability of the findings. Additionally, reliance on self-reported adherence behaviours could introduce recall and reporting bias. Future research should consider a multi-centre design to provide a broader perspective on adherence patterns among diverse patient populations. Longitudinal studies examining adherence over time, as well as randomized controlled trials testing adherence-improving interventions, are recommended to validate and extend these findings (14).

Conclusion

The current study highlights that treatment adherence among dialysis patients remains a significant concern, with the majority of patients exhibiting moderate to poor adherence levels. Addressing these adherence challenges requires a comprehensive and personalized approach, combining patient education, behavioural counselling, and consistent follow-up. Improving adherence can lead to better health outcomes, fewer complications, and potentially lower healthcare costs associated with non-compliance in dialysis patients.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-NSU-083/23)

Consent for publication

Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

RIDA ZAINAB (Charge Nurse)
Coordination of collaborative efforts.
Study Design, Review of Literature.
SUNDUS ARIF (Charge Nurse)
Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
Conception of Study, Final approval of manuscript.
HUMAIRA SADDIQUE (Assistant professor)
Manuscript revisions, critical input.
Coordination of collaborative efforts.
SYEDA SIDRA TASNEEM (Director)
Data acquisition, and analysis.
Manuscript drafting.
Data entry and Data analysis, drafting article.

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