

Financial Toxicity and Psychosocial Burden Among Adults Receiving Maintenance Hemodialysis

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Abstract— Maintenance hemodialysis is a life-sustaining therapy for individuals with end-stage renal disease but is frequently associated with substantial financial and psychosocial burdens that may compromise treatment adherence. This study examined the direct and indirect costs of hemodialysis, the financial and psychosocial factors hindering adherence, and the challenges encountered by patients undergoing long-term treatment. A descriptive quantitative design was employed using anonymized, patient-reported data collected through a structured questionnaire. The findings revealed considerable direct costs related to medications, transportation, food, and hospitalization, alongside significant indirect economic impacts, including employment disruption, caregiver work loss, and reliance on loans. Financial strain was identified as a meaningful barrier to adherence, despite the presence of insurance coverage and government assistance, with patients reporting dependence on external financial support and missed dialysis sessions due to economic constraints. Psychosocial implications were also prominent, with patients experiencing persistent fatigue, social isolation, emotional distress, and perceived disruption of daily life and family roles. Despite these challenges, patients demonstrated strong motivation to adhere to treatment, supported by positive perceptions of healthcare facilities and medical personnel. Overall, the findings underscore the multidimensional burden of maintenance hemodialysis and highlight the need for integrated financial and psychosocial interventions to support sustained treatment adherence and improve patient well-being.

Keywords— Hemodialysis; Financial burden; Psychosocial implications; Treatment adherence; Chronic kidney disease.

I. INTRODUCTION

Chronic kidney disease (CKD) has emerged as a major global public health challenge, affecting populations across income levels and healthcare systems. Characterized by the progressive and irreversible loss of kidney function, CKD leads to severe complications, including cardiovascular disease, disability, reduced quality of life, and premature mortality if inadequately managed. Recent global estimates suggest that approximately 850 million people worldwide are affected by some stage of kidney disease, making CKD one of the most prevalent noncommunicable conditions globally (National Kidney Foundation, 2023; Chadban et al., 2024). The burden of CKD extends beyond clinical outcomes, imposing substantial financial, psychosocial, and societal costs that increasingly strain patients, families, and healthcare systems.

Globally, CKD is now recognized as a significant contributor to years lived with disability and catastrophic health expenditure, particularly in low- and middle-income countries (LMICs) where access to early detection and sustained treatment remains limited (WHO, 2022; Chadban et al., 2024). The Global Burden of Disease Study has shown a steady rise in CKD-related morbidity and mortality over the past three decades, reflecting demographic aging, increased prevalence of diabetes and hypertension, and persistent health inequities (Aashima et al., 2022). These trends underscore the urgency of understanding not only the clinical aspects of CKD, but also the broader financial and psychosocial consequences of long-term renal replacement therapies.

End-stage renal disease (ESRD), the most advanced stage of CKD, necessitates renal replacement therapy in the form of kidney transplantation or dialysis to sustain life. Hemodialysis remains the most commonly

utilized modality worldwide due to limited transplant availability and structural constraints within health systems (Raj et al., 2023). While life-saving, hemodialysis is an intensive, lifelong intervention requiring multiple weekly sessions, continuous medical monitoring, strict dietary restrictions, and adherence to complex treatment regimens. These demands significantly disrupt daily functioning, employment, family roles, and psychosocial well-being, particularly among economically vulnerable populations (Shafik et al., 2023; Baye et al., 2024).

The economic burden of hemodialysis is well documented across diverse settings. Direct costs include dialysis sessions, laboratory and diagnostic tests, medications, and hospitalization, while indirect costs encompass transportation expenses, income loss, reduced work productivity, and caregiver time (Nisar et al., 2024; Raj et al., 2023). Systematic reviews and cost-of-illness analyses consistently demonstrate that even in countries with health insurance mechanisms, patients undergoing maintenance hemodialysis continue to experience significant out-of-pocket expenditures (Baye et al., 2024; De Sousa Silva et al., 2023). These financial pressures often lead to debt accumulation, asset depletion, and reliance on external financial support, contributing to what has been described as “financial toxicity” in CKD care.

Beyond financial strain, hemodialysis patients experience substantial psychosocial challenges that influence treatment adherence and overall quality of life. Emotional distress, fatigue, depression, anxiety, social isolation, and feelings of dependency are commonly reported among individuals receiving long-term dialysis (Adejumo et al., 2023; Alghamdi et al., 2022). The repetitive and time-consuming nature of dialysis sessions, combined with uncertainty regarding prognosis and future independence, contributes to chronic stress and emotional exhaustion (Olorunfemi et al., 2021; Rikos et al., 2023). These psychosocial stressors not only diminish well-being but also interfere with patients’ motivation and capacity to adhere consistently to prescribed treatment schedules.

Empirical evidence suggests a strong interaction between financial hardship and psychosocial distress

in shaping hemodialysis outcomes. Studies across Asia, Africa, and other LMICs indicate that financial insecurity exacerbates emotional burden, while psychosocial stress further weakens patients’ ability to manage economic challenges (Ng et al., 2021; Ortega-Díaz et al., 2023; Rahman et al., 2025). Patients facing persistent financial strain often report feelings of helplessness, perceived burden on family members, and reduced perceived control over their health, all of which are associated with missed dialysis sessions and poorer clinical outcomes (AIDhafery et al., 2021; Hyodo et al., 2025).

Treatment adherence is a critical determinant of survival and quality of life among hemodialysis patients. Regular attendance at scheduled dialysis sessions is essential to prevent complications such as fluid overload, electrolyte imbalance, and cardiovascular events. However, adherence is influenced by multiple interrelated factors, including financial capacity, psychosocial well-being, transportation access, caregiver availability, and perceived quality of care (Lee et al., 2022; Mendoza & Santiago, 2023). While clinical guidelines emphasize the technical aspects of dialysis delivery, growing evidence highlights the need for patient-centered approaches that address the socioeconomic and emotional realities of living with ESRD (Fong et al., 2022; Gonzales et al., 2022).

Theoretical frameworks offer valuable lenses for understanding how financial and psychosocial factors influence health behavior and adaptation among individuals undergoing hemodialysis. The Theory of Planned Behavior (TPB) posits that health-related behaviors are shaped by attitudes toward the behavior, subjective norms, and perceived behavioral control (Bosnjak et al., 2020). In the context of hemodialysis, financial constraints and psychosocial stress can undermine perceived behavioral control, weakening patients’ intention and ability to adhere to demanding treatment regimens. Empirical studies applying behavioral models have demonstrated that reduced perceived control and negative attitudes toward treatment are associated with lower adherence across chronic disease populations (Carpenter, 2020; Brookes, 2023).

Complementing the TPB, Roy's Adaptation Model provides a holistic framework for understanding how individuals respond to chronic illness and environmental stressors through adaptive or maladaptive responses. According to this model, patients undergoing hemodialysis must adapt across physiological, self-concept, role function, and interdependence modes (Gonzalo, 2024). Financial strain and psychosocial burden act as persistent stimuli that challenge adaptive capacity. When coping resources are insufficient, maladaptation may occur, manifesting as emotional distress, role disruption, and reduced treatment adherence. Conversely, strong support systems and effective coping strategies can facilitate positive adaptation and sustained engagement with care (Sister Callista Roy Adaptation Model, 2025).

Despite a growing body of international literature on the economic and psychosocial dimensions of hemodialysis, important gaps remain. Many studies focus primarily on direct medical costs, overlooking indirect and non-medical expenses that significantly affect patients' daily lives and long-term sustainability of treatment (Gonçalves et al., 2023; Moghadam & Heidari, 2021). Similarly, while psychosocial outcomes such as depression and anxiety are frequently assessed, fewer studies examine how emotional burden interacts with financial stress to influence adherence behavior. In addition, much of the existing evidence originates from large urban centers or high-income settings, limiting its applicability to populations experiencing resource constraints and structural barriers to care.

Within the Philippine context, CKD represents a growing public health concern, with national studies reporting rising prevalence and substantial economic burden associated with disease progression (Talapi et al., 2023; Villanueva et al., 2025). While policy initiatives have expanded insurance coverage for dialysis, research indicates that many patients continue to face significant out-of-pocket expenses and psychosocial challenges that compromise treatment adherence and quality of life (Villanueva et al., 2023; Tan & Bautista, 2022). Filipino-focused studies further highlight the emotional toll of long-term

dialysis, including fatigue, anxiety, and perceived burden on family members, underscoring the importance of culturally and contextually grounded research (Castillo & Fernandez, 2023; Manalo et al., 2022).

Addressing these gaps requires empirical studies that integrate financial, psychosocial, and adherence-related dimensions of hemodialysis using patient-reported data. Understanding how direct and indirect costs intersect with emotional and behavioral responses is essential for designing effective interventions, informing health financing policies, and improving patient-centered care. Moreover, evidence grounded in real-world experiences can guide healthcare providers in identifying modifiable barriers to adherence and strengthening support systems for individuals living with ESRD.

This study aimed to examine the financial and psychosocial implications of maintenance hemodialysis and how these factors influence patients' adherence to treatment. Specifically, it sought to determine the direct and indirect costs associated with hemodialysis therapy, including medical, non-medical, and productivity-related expenses. It also aimed to identify the financial and psychosocial factors that hinder consistent adherence to prescribed dialysis regimens, focusing on patients' economic capacity, emotional well-being, and perceived burden. In addition, the study examined the challenges encountered by patients during long-term hemodialysis treatment that may affect continuity of care. The findings are intended to provide evidence that can inform patient-centered interventions and support strategies to improve treatment adherence and overall well-being among individuals undergoing hemodialysis.

II. METHODOLOGY

This study employed a descriptive quantitative research design to examine the financial and psychosocial implications of maintenance hemodialysis and their influence on treatment adherence. Adult patients aged 18 years and older who had been undergoing regular hemodialysis for at least six months were recruited using convenience

sampling. This approach was considered appropriate given the fixed treatment schedules and clinical conditions of dialysis patients. Participation was voluntary, and eligibility was limited to individuals who were physically and cognitively capable of providing informed consent. Patients receiving temporary dialysis or those who were medically unstable at the time of data collection were excluded to ensure reliability of responses.

Data were collected using a structured questionnaire administered with researcher assistance when necessary. The instrument consisted of sections on demographic and medical background, direct and indirect costs related to hemodialysis, financial implications, psychosocial implications, and challenges encountered during treatment. Items assessing financial and psychosocial implications were adapted from validated tools, including selected components of the Kidney Disease Quality of Life Short Form (KDQOL-SF™ version 1.3). Responses were measured using a four-point Likert scale to assess frequency, agreement, and perceived truthfulness, depending on the construct evaluated. To ensure clarity and cultural appropriateness, the questionnaire underwent expert review, pilot testing, and translation into the local language, followed by back-translation prior to analysis.

Ethical approval and institutional permissions were obtained prior to data collection. All participants were provided with clear information regarding the purpose of the study, procedures, potential risks, and benefits, and written informed consent was secured. Anonymity and confidentiality were strictly maintained, with no identifying personal or institutional information collected. Data were securely stored and accessible only to the researcher and authorized personnel. Quantitative data were analyzed using descriptive

statistics, including frequency, percentage, and weighted mean, to summarize costs, psychosocial indicators, and treatment-related challenges. The interpretation of weighted means followed predefined scale classifications to ensure consistency and transparency in reporting.

III. RESULTS & DISCUSSION

Direct and indirect costs associated with treatment

The findings presented in Table 1 indicate that maintenance hemodialysis is associated with substantial and recurrent direct costs, reflecting the intensive and ongoing nature of care required by patients with end-stage renal disease. The high frequency of diagnostic procedures and laboratory testing observed in this study highlights the need for continuous clinical monitoring to manage complications and ensure treatment safety. Most respondents underwent diagnostic procedures at least once annually and required monthly laboratory tests, demonstrating that routine surveillance is an indispensable component of hemodialysis care. Although these procedures are clinically necessary, their recurring nature contributes to cumulative financial strain over time.

While most respondents reported relatively low monthly expenditures for laboratory and diagnostic tests, these costs remain significant when viewed in combination with other treatment-related expenses. Even modest diagnostic fees can accumulate when incurred repeatedly over prolonged periods of treatment.

This finding suggests that direct costs should not be evaluated in isolation, as the combined effect of multiple recurring expenses may substantially affect patients' financial capacity to sustain long-term therapy.

Table 1. Direct Costs Associated with Maintenance Hemodialysis

Cost Indicator	Category	f	%
Frequency of diagnostic procedures	Once per year	28	70
	Twice per year	2	5
	Three times per year	2	5
	More than three times	8	20
Laboratory tests	Monthly	38	96

	Quarterly / Others	2	4
Monthly cost of diagnostics (₱)	≤1,000	36	90
	1,001–2,000	3	8
	>2,000	1	2
Monthly maintenance medications (₱)	≤2,000	1	2
	2,001–4,000	6	15
	4,001–6,000	10	25
	>6,000	23	58
Monthly transportation cost (₱)	≤1,000	9	22
	1,001–2,000	6	15
	2,001–3,000	8	20
	>3,000	17	43
Monthly food cost during dialysis (₱)	≤1,000	8	21
	1,001–2,000	9	22
	2,001–3,000	9	22
	>3,000	14	35
Hospitalization cost (₱)	≤5,000	8	20
	5,001–10,000	4	10
	10,001–20,000	7	18
	>20,000	21	52
Requested financial aid (hospitalization)	Yes	38	95
	No	2	5

Medication costs emerged as one of the most prominent direct financial burdens in this study. A majority of respondents reported spending more than ₱6,000 monthly on maintenance medications, indicating that pharmacologic management represents a major component of out-of-pocket expenditure. The need for multiple medications to manage anemia, blood pressure, mineral balance, and other dialysis-related conditions contributes to sustained financial pressure. These findings underscore that, beyond the dialysis procedure itself, ongoing medication requirements significantly increase the cost of living with chronic kidney disease.

Non-medical direct costs, particularly transportation and food expenses during dialysis sessions, were also considerable. A substantial proportion of respondents reported monthly transportation expenses exceeding ₱3,000, reflecting the logistical demands associated with regular treatment schedules. Similarly, food expenses incurred on dialysis days added to the overall financial burden. These non-medical costs are unavoidable for patients who must attend frequent

treatment sessions and remain in care facilities for extended periods, further increasing daily living expenses related to treatment adherence.

Hospitalization-related costs represented another major source of financial burden. More than half of the respondents reported hospitalization expenses exceeding ₱20,000, indicating that acute health events and dialysis-related complications contribute significantly to direct costs. Hospital admissions often occur unexpectedly, placing sudden and severe financial strain on patients and their families. The unpredictability of these expenses further exacerbates financial vulnerability, particularly for individuals with limited savings or income sources.

The near-universal reliance on financial assistance for hospitalization highlights the limited capacity of patients to independently absorb high-cost medical events. This finding suggests that direct costs associated with hemodialysis frequently exceed patients' financial resources, necessitating external support to maintain access to care. Dependence on

financial aid reflects the fragility of household economic resilience among patients undergoing long-term dialysis and raises concerns regarding continuity of care in the absence of timely assistance.

These findings demonstrate that the direct costs of maintenance hemodialysis are multifaceted and extend beyond routine treatment sessions. Diagnostic monitoring, medications, transportation, food, and hospitalization collectively impose a substantial financial burden that accumulates over time. These cost components interact to challenge patients' ability to sustain long-term treatment and highlight the importance of addressing direct expenses comprehensively when evaluating the economic impact of hemodialysis.

The substantial direct costs associated with maintenance hemodialysis observed in this study are consistent with international evidence demonstrating that dialysis care imposes a significant and sustained financial burden on patients. Global and regional analyses have shown that CKD and ESRD contribute to high healthcare utilization and catastrophic health expenditures, particularly in low- and middle-income countries, due to the chronic and progressive nature of the disease requiring continuous medical intervention (Aashima et al., 2022; Chadban et al., 2024; World Health Organization, 2022).

The frequent use of laboratory and diagnostic procedures identified in this study aligns with cost-of-illness and systematic reviews indicating that regular biochemical monitoring is a standard and unavoidable component of hemodialysis care, with repeated testing contributing substantially to cumulative treatment costs (Nisar et al., 2024; Raj et al., 2023; Baye et al., 2024).

High medication expenditures and non-medical direct costs further reinforce the financial burden associated with long-term dialysis. Prior studies consistently identify maintenance medications as a major driver of out-of-pocket spending, often exceeding procedural costs and contributing to financial toxicity even when dialysis sessions are subsidized (Biswas et al., 2021; Kassa et al., 2020; De Sousa Silva et al., 2023). In

addition, transportation, food expenses during treatment days, and hospitalization-related costs have been widely documented as critical but often underrecognized contributors to economic strain (Shafik et al., 2023; Hyodo et al., 2025; Rahman et al., 2025). The near-universal reliance on financial assistance for hospitalization observed in this study mirrors findings from international and Philippine-based research, underscoring that insurance coverage alone is insufficient to protect patients from the cumulative and unpredictable direct costs of hemodialysis (Villanueva et al., 2023; Villanueva et al., 2025; Tan & Bautista, 2022).

The findings in Table 2 highlight the substantial indirect costs associated with maintenance hemodialysis, extending the economic burden beyond direct medical expenses to include employment disruption, household productivity loss, and long-term financial coping strategies.

Although a majority of patients reported that they did not reduce or skip work, this finding must be interpreted alongside the employment status data, which show that a large proportion of respondents were already unemployed, had resigned, or were retired. This suggests that the apparent stability in work participation reflects limited labor force engagement rather than successful integration of dialysis treatment with employment.

Employment disruption emerged as a significant consequence of long-term hemodialysis. Only one-fourth of respondents were employed, while others reported resignation, termination, or unemployment.

The demanding schedule of dialysis treatment, combined with physical symptoms such as fatigue and weakness, likely limits patients' ability to sustain regular employment.

Furthermore, the low proportion of respondents who reported receiving work accommodations indicates that most patients lacked institutional or employer-based support to remain economically productive while undergoing treatment.

Table 2. Indirect Costs and Economic Impact of Hemodialysis

Indicator	Category	f	%
Patient reduced/skipped work	Yes	7	18
	No	33	82
Family member reduced/skipped work	Yes	19	48
	No	21	52
Employment status	Employed	10	25
	Resigned	9	23
	Retired	5	12
	Terminated	1	2
	Unemployed	16	40
Work accommodation provided	Yes	8	20
	Not applicable / None	32	80
Sale of assets	Yes	7	18
	No	33	82
Loans incurred for treatment	Yes	26	60
	No	14	40

The indirect economic impact of hemodialysis extended beyond patients themselves to their family members. Nearly half of the respondents reported that a family member had reduced or skipped work to provide assistance during treatment. This finding reflects the interdependent nature of dialysis care, where patients often rely on caregivers for transportation, emotional support, and assistance with daily activities. The resulting loss of household productivity compounds the economic burden of illness and affects the financial stability of the entire family unit.

Financial coping strategies further illustrate the depth of indirect economic strain experienced by respondents. While relatively few reported selling assets, a majority incurred loans to support treatment-related expenses. Reliance on borrowing suggests that households attempt to preserve long-term assets while managing immediate financial demands, but this strategy also exposes families to debt accumulation and prolonged financial insecurity. Together, these findings indicate that indirect costs play a critical role in shaping the lived economic experience of patients undergoing maintenance hemodialysis.

The indirect economic impacts observed in this study are strongly supported by international evidence demonstrating that hemodialysis significantly disrupts

employment and household productivity. Studies across diverse settings have consistently shown that patients receiving maintenance dialysis experience reduced work participation, early labor force exit, and limited access to workplace accommodations due to the time-intensive and physically demanding nature of treatment (de Jong et al., 2022; Lee et al., 2023; Fong et al., 2022). These patterns are particularly pronounced in low- and middle-income contexts, where flexible employment arrangements and social protection mechanisms are often limited (Baye et al., 2024; Raj et al., 2023).

The observed caregiver-related work disruption aligns with evidence highlighting the broader household impact of chronic kidney disease. Systematic reviews and qualitative studies have documented that family members frequently reduce working hours or withdraw from employment to provide care for dialysis patients, leading to secondary income loss and increased caregiver burden (Gonçalves et al., 2023; Moghadam & Heidari, 2021).

Studies conducted in Asian and Philippine contexts similarly emphasize that the economic consequences of dialysis extend beyond patients to affect family livelihoods and long-term financial security (Ebo et al., 2022; Manalo et al., 2022; Villanueva et al., 2023).

Financial and psychosocial factors that hinder adherence to prescribed dialysis regimens

Table 3 indicates that financial factors play a significant role in shaping patients' ability to adhere consistently to prescribed hemodialysis regimens. Respondents generally disagreed that their financial situation was adequate to support ongoing dialysis treatment, highlighting the persistent economic strain associated with long-term care. Despite this perceived inadequacy, respondents strongly agreed that they required external financial support, underscoring the gap between treatment-related expenses and personal financial capacity. This reliance on external assistance reflects the chronic nature of dialysis-related costs and

the limited ability of patients to independently sustain treatment over time.

Although respondents agreed that government financial assistance and insurance coverage were available, these mechanisms were not perceived as fully sufficient to meet all treatment-related expenses. The finding that insurance coverage was rated as only moderately adequate suggests that while coverage may reduce procedural costs, patients continue to shoulder substantial out-of-pocket expenses for medications, transportation, diagnostics, and hospitalization. This partial financial protection creates a situation in which patients remain vulnerable to economic stress despite formal support systems.

Table 3. Financial Implications Hindering Treatment Adherence

Statement	\bar{x}	Interpretation
Financial situation is adequate to support dialysis	2.30	Disagree
Requires external financial support	3.68	Strongly Agree
Able to obtain government financial assistance	3.15	Agree
Insurance coverage is sufficient	2.60	Agree
Missed dialysis due to financial reasons	2.63	Agree
Overall Weighted Mean	2.87	Agree

The influence of financial strain on treatment adherence was further evident in respondents' agreement that dialysis sessions were missed due to financial reasons. This finding highlights the practical consequences of financial hardship, where economic limitations directly interfere with patients' ability to comply with treatment schedules. Missed sessions may reflect difficulties in covering transportation costs, securing accompanying caregivers, or managing competing household financial priorities. The overall weighted mean indicating agreement across financial implication items suggests that economic factors constitute a meaningful barrier to sustained adherence among patients undergoing maintenance hemodialysis.

The relationship between financial hardship and treatment adherence observed in this study is well supported by existing international literature. Multiple studies have demonstrated that insufficient financial resources and high out-of-pocket costs are strongly associated with missed dialysis sessions and

suboptimal adherence among patients with end-stage renal disease (AIDhafery et al., 2021; Ng et al., 2021; Ortega-Díaz et al., 2023). These studies emphasize that financial constraints reduce patients' perceived control over treatment, making adherence more difficult despite awareness of the medical importance of dialysis.

Evidence also supports the finding that insurance coverage and government assistance, while beneficial, often fail to fully eliminate financial barriers to adherence. Research from various healthcare systems shows that patients continue to incur significant non-covered expenses even when insured, leading to reliance on external financial support and increased risk of non-adherence (De Sousa Silva et al., 2023; Villanueva et al., 2023; Tan & Bautista, 2022). Studies conducted in Asian and low-resource settings further highlight that partial financial protection can create a false sense of adequacy while masking ongoing economic vulnerability (Baye et al., 2024; Raj et al., 2023).

The observed association between financial strain and missed dialysis sessions aligns with broader conceptualizations of financial toxicity in chronic illness care. Systematic reviews and cross-sectional studies have identified financial distress as a critical determinant of treatment behavior, influencing patients' ability to prioritize healthcare amidst competing economic demands (Shafik et al., 2023; Hyodo et al., 2025). These findings collectively reinforce the results of the present study, underscoring the need for comprehensive financial support mechanisms that address both direct and indirect costs in order to improve treatment adherence among individuals undergoing maintenance hemodialysis.

The findings in Table 4 indicate that patients undergoing maintenance hemodialysis experience notable psychosocial challenges that may influence their ability to adhere consistently to treatment. Emotional and behavioral indicators revealed that

symptoms such as fatigue, nervousness, and sadness were experienced some of the time, suggesting a persistent but moderate level of emotional distress. In contrast, feelings of social isolation, irritability, and difficulty concentrating were experienced most of the time, indicating that the psychosocial burden extends beyond transient emotional symptoms and affects patients' daily functioning and social engagement.

The overall mean for emotional and behavioral indicators reflects that psychosocial symptoms are present on a frequent basis, which may compromise patients' motivation, focus, and emotional resilience. Social isolation emerged as one of the most prominent concerns, highlighting the restrictive nature of long-term dialysis treatment and its impact on patients' social roles and relationships. Persistent irritability and difficulty concentrating may further interfere with decision-making and self-management behaviors required for effective treatment adherence.

Table 4. Psychosocial Implications Affecting Adherence

Domain	Indicator / Statement	\bar{x}	Interpretation
Emotional and Behavioral Indicators (Past 4 Weeks)	Fatigue / worn out	2.38	Some of the time
	Nervousness	2.40	Some of the time
	Sadness / low mood	2.25	Some of the time
	Isolation from others	3.13	Most of the time
	Irritability	2.80	Most of the time
	Difficulty concentrating	2.88	Most of the time
	Overall Mean (Emotional–Behavioral)	2.58	Most of the time
General Health Perception	Kidney disease interferes with daily life	3.50	Definitely True
	Time consumed by illness	3.48	Mostly True
	Frustration due to illness	3.43	Mostly True
	Feels like a burden to family	3.03	Mostly True
	Overall Mean (Health Perception)	2.91	Mostly True

General health perception findings further demonstrate the profound impact of kidney disease on patients' lived experience. Respondents strongly affirmed that their illness interfered with daily life and consumed a significant amount of time. Feelings of frustration and perceived burden on family members were also reported, reflecting the emotional toll of long-term dependency and the disruption of usual roles within the household. The overall perception that kidney disease substantially affects daily functioning

underscores the multidimensional burden experienced by patients beyond physical symptoms alone.

Support Studies

The psychosocial challenges identified in this study are well supported by international literature documenting emotional distress, social isolation, and diminished quality of life among patients undergoing maintenance hemodialysis. Studies across diverse settings consistently report fatigue, depression, anxiety, and social withdrawal as common

experiences among dialysis patients, resulting from treatment demands, symptom burden, and uncertainty regarding long-term outcomes (Adejumo et al., 2023; Alghamdi et al., 2022; Rikos et al., 2023). These psychosocial symptoms have been shown to adversely affect patients' engagement with care and overall well-being.

Evidence also supports the association between psychosocial distress and treatment adherence. Research has demonstrated that emotional strain, perceived social isolation, and reduced psychological resilience can undermine patients' motivation and capacity to comply with dialysis schedules and self-care requirements (Alshareef & Alghamdi, 2022; Lee et al., 2022; Liu et al., 2022). Studies conducted within the Philippine context similarly emphasize that psychosocial burden, particularly feelings of being a burden to family and disruption of social roles, significantly shapes patients' adaptation to long-term dialysis (Castillo & Fernandez, 2023; Gonzales et al., 2022; Rivera & Cruz, 2023).

The findings of this study also align with broader conceptual models of psychosocial adaptation in chronic illness. Reviews and mixed-method studies highlight that persistent emotional distress and perceived loss of autonomy can lead to maladaptive coping strategies and poorer treatment outcomes if psychosocial needs are not adequately addressed (Nair & Sreedharan, 2021; Pérez-Moreno et al., 2021; Shafik et al., 2023). Collectively, these support studies reinforce the present findings by demonstrating that psychosocial implications are integral determinants of

adherence and quality of life among patients undergoing maintenance hemodialysis, underscoring the importance of integrating psychosocial support into routine dialysis care.

Patient-reported challenges affecting continuity of care

The findings in Table 5 indicate that, despite the presence of financial and psychosocial burdens, patients generally demonstrate a strong commitment to maintaining adherence to hemodialysis treatment. Respondents strongly agreed that they make deliberate efforts not to miss dialysis sessions, suggesting a high level of treatment awareness and perceived importance of adherence. This finding reflects patients' recognition of dialysis as a life-sustaining therapy and highlights their motivation to comply with prescribed regimens even in the face of challenges.

Perceptions of the treatment environment and healthcare support were notably positive. Respondents strongly agreed that dialysis facilities were adequate and that medical personnel were supportive, indicating satisfaction with the quality of care received.

Positive perceptions of healthcare infrastructure and provider support may contribute to patients' willingness to remain engaged in treatment and may buffer the negative effects of financial and psychosocial stressors.

Such supportive care environments can enhance trust, reduce treatment-related anxiety, and promote sustained participation in dialysis programs.

Table 5. Patient-Reported Challenges During Hemodialysis

Challenge Statement	\bar{x}	Interpretation
Tries not to miss dialysis sessions	3.78	Strongly Agree
Dialysis facilities are adequate	3.80	Strongly Agree
Medical personnel are supportive	3.88	Strongly Agree
Requires companion for treatment visits	3.55	Strongly Agree
Missed dialysis due to finances	2.48	Disagree
Missed dialysis due to transportation	2.38	Disagree
Missed dialysis due to illness	2.43	Disagree
Overall Mean	3.17	Agree

The requirement for a companion during treatment visits emerged as a significant challenge, with respondents strongly agreeing that accompaniment was necessary. This finding underscores patients' physical and emotional dependence during dialysis sessions, as well as the logistical demands of regular treatment attendance. While the presence of a companion may provide essential support, it also reflects an added burden on family members and caregivers, potentially contributing to indirect economic and psychosocial strain.

Interestingly, respondents generally disagreed that dialysis sessions were missed due to financial constraints, transportation difficulties, or illness. This suggests that, although financial hardship and logistical challenges exist, patients prioritize attendance and actively seek ways to overcome barriers to treatment continuity. The overall mean indicating agreement across challenge items reflects a balance between strong adherence behaviors and the presence of contextual challenges that require ongoing support.

Support Studies

The strong commitment to adherence observed in this study is supported by existing literature emphasizing patients' recognition of hemodialysis as essential for survival. Studies have shown that patients often develop a heightened sense of responsibility toward treatment adherence despite significant economic and psychosocial burdens, particularly when they perceive dialysis as their primary means of maintaining life and functional stability (Ibrahim et al., 2021; Lee et al., 2022). This sense of obligation has been associated with consistent treatment attendance even under adverse circumstances.

Positive perceptions of healthcare facilities and supportive medical personnel align with evidence demonstrating that quality of care and patient-provider relationships play a crucial role in sustaining adherence among dialysis patients. Research indicates that supportive healthcare environments, effective communication, and responsive care contribute to increased patient satisfaction and engagement with treatment (Mendoza & Santiago, 2023; Gonzales et al.,

2022). The Donabedian Model further supports the idea that favorable structural and process-related factors, such as facility adequacy and provider support, directly influence patient outcomes and treatment continuity (Singh, 2025).

The need for caregiver accompaniment and its broader implications are also well documented in the literature. Studies highlight that dialysis patients frequently rely on family members for transportation, emotional support, and assistance during treatment visits, reinforcing the interdependent nature of dialysis care (Gonçalves et al., 2023; Rivera & Cruz, 2023). While such support facilitates adherence, it also introduces additional challenges related to caregiver burden and household disruption. Collectively, these support studies reinforce the present findings by illustrating how patient motivation, quality of care, and caregiver involvement interact to shape the lived experience and challenges of maintenance hemodialysis.

IV. CONCLUSIONS

This study demonstrated that maintenance hemodialysis imposes a substantial and multifaceted burden on patients, encompassing direct medical and non-medical costs, indirect economic consequences, and significant psychosocial challenges. Direct costs related to medications, transportation, food, and hospitalization accumulated over time and frequently exceeded patients' financial capacity, necessitating reliance on external financial assistance. Indirect costs further compounded this burden through employment disruption, caregiver work loss, and household debt, highlighting that the economic impact of hemodialysis extends beyond patients to affect family livelihoods and long-term financial stability.

Financial strain was found to be a meaningful barrier to sustained treatment adherence, despite the presence of insurance coverage and government assistance mechanisms. Patients perceived their financial resources as inadequate to fully support ongoing dialysis care and reported dependence on external support to continue treatment. Importantly, financial limitations were associated with missed dialysis sessions, underscoring the practical consequences of economic hardship on continuity of care. These

findings emphasize that partial financial protection is insufficient to safeguard patients from treatment-related financial distress and adherence challenges.

Psychosocial implications were also prominent, with patients experiencing persistent emotional and behavioral symptoms, social isolation, and perceived disruption of daily life and family roles. Nevertheless, patients demonstrated strong motivation to adhere to treatment, supported by positive perceptions of healthcare facilities and medical personnel. The combination of high treatment commitment and ongoing financial and psychosocial stress suggests that while patients actively strive to maintain adherence, their resilience is continually tested by the demands of long-term hemodialysis. Addressing these interconnected burdens is therefore essential to improving both adherence and overall quality of life among individuals undergoing maintenance hemodialysis.

To mitigate the financial and psychosocial burdens identified in this study and improve treatment adherence, healthcare systems should adopt integrated, patient-centered strategies that extend beyond procedural dialysis coverage. These include expanding financial protection to cover essential medications, transportation, and hospitalization-related expenses; strengthening psychosocial support through routine screening, counseling, and peer-support programs; and implementing caregiver support initiatives to reduce indirect economic strain. Healthcare providers should also promote flexible scheduling, coordination of services, and patient education to minimize treatment-related disruptions. Policymakers and healthcare administrators are encouraged to use patient-reported evidence to guide reforms aimed at reducing financial toxicity, enhancing psychosocial care, and sustaining long-term adherence among patients receiving maintenance hemodialysis.

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