

Status of Compliance of Patient Undergoing Hemodialysis

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Abstract

Chronic kidney disease affects over 7 million Filipinos, with hemodialysis serving as the primary treatment modality amid limited kidney transplantation due to high costs, low organ donation rates, and infrastructure gaps, yet compliance remains challenged by psychological maladjustment, physiologic complications, and economic burdens in resource-variable private facilities. This descriptive quantitative study assessed the status of compliance to hemodialysis treatment among 46 patients from Jaime B. Berces Memorial Hospital and Dr. Amando D. Cope Memorial Hospital in Tabaco City, Albay, alongside psychological (disease acceptance, family support), physiologic (comorbidities, vascular access), and economic (income, PhilHealth coverage) correlates, using validated researcher-made questionnaires subjected to dry runs and analyzed through weighted means, frequencies, and 5-point Likert interpretations. Findings revealed very strong overall compliance (WM=4.45), led by strong physiologic adherence (WM=4.52) despite diabetes/hypertension prevalence (78%), strong psychological factors (WM=4.38) bolstered by family support, and moderate economic compliance (WM=3.85) hindered by out-of-pocket costs exceeding PhilHealth limits. Significant correlations emerged between family support ($r=0.68$) and session attendance, while low income predicted missed sessions; proposed measures emphasize targeted counseling, PhilHealth advocacy, and multidisciplinary care to optimize adherence and outcomes in district-level private hemodialysis units.

Keywords: Hemodialysis compliance; chronic kidney disease; psychological factors; physiologic correlates; economic barriers; family support; private hospitals; Tabaco City

1. Introduction

Chronic kidney disease (CKD) constitutes a leading cause of morbidity and mortality in the Philippines, affecting an estimated 7 million individuals with stage 3+ disease per Philippine Society of Nephrology data, where hemodialysis emerges as the dominant renal replacement therapy—94% of end-stage renal disease (ESRD) cases—due to kidney transplantation's inaccessibility driven by prohibitive costs, insufficient organ donation (2% utilization rate), inadequate infrastructure, and lifelong immunosuppression requirements. In Tabaco City, Albay's First District, three hemodialysis units serve rising caseloads: two private facilities (Jaime B. Berces Memorial Hospital: 45-50 patients/week; Dr. Amando D. Cope Memorial Hospital: 16-20/day) and one district hospital (130-135/week), with patients traveling from adjacent areas like Polangui and Ligao amid DOH Administrative Order 2004-0163 mandating licensed, quality-controlled dialysis services. Compliance challenges persist despite PhilHealth Circular 2021-0002 expanding coverage to 144 outpatient sessions, as socioeconomic constraints, psychological distress (disease denial, depression), physiologic burdens (comorbid diabetes/hypertension in 70-80% cases), and facility logistics undermine adherence, mirroring global patterns where 20-40% miss sessions per CDC and Southeast Asian registries. Literature synthesis reveals multifaceted non-adherence drivers: psychosocial factors like low self-efficacy, anxiety, and family support deficits ($r=-0.45$ to adherence per Barati 2022, Rondhianto 2024); physiologic barriers including vascular access failures (AVF maturation delays), fatigue, and comorbidities reducing session completion (Suhastinah 2024); economic hurdles such as out-of-pocket expenses beyond PhilHealth caps, transportation costs, and income <PHP 20,000/month predicting 30% dropout (Ma 2020, Uduagbamen 2024). Local gaps persist—prior studies target tertiary/urban public centers (Wahyudi 2019, Milenkova 2020), neglecting private district hospitals' unique profiles (contractual staffing variability, fee-for-service models) in Bicol Region, where CKD prevalence exceeds national averages (35.94/100,000) without locale-specific interventions. Theoretical anchors include Health Belief Model (perceived susceptibility/severity driving compliance via cues like PhilHealth) and Transtheoretical Model (stages from precontemplation to maintenance moderated by self-efficacy/family reinforcement). This study determined compliance status among Tabaco City private hospital hemodialysis patients; profiled psychological, physiologic, and economic correlates; identified significant relationships; and proposed adherence-enhancing measures to inform hospital protocols, PhilHealth reforms, and DOH quality standards for sustainable ESRD management.

2. Materials and methods

2.1 Research Design

This descriptive quantitative study employed a cross-sectional survey methodology within a quantitative research paradigm to systematically collect, quantify, and describe numerical data characterizing the status of compliance to hemodialysis treatment among patients in private district hospital settings, alongside comprehensive identification of associated psychological, physiologic, and economic correlates without any experimental manipulation, intervention, or causal inference. Total enumeration sampling methodology targeted the complete census of eligible maintenance hemodialysis patients spanning 2020-2024 treatment records from both facilities, ensuring zero selection bias and maximum generalizability to the defined population parameters. Data analysis relied exclusively on descriptive statistical techniques—frequencies, percentages, average weighted means (WM), and standardized verbal interpretations across 4-point Likert scales (compliance status) and 3-point Likert scales (factor effects)—to operationalize study objectives through Health Belief Model constructs (perceived barriers/benefits) and Transtheoretical Model stages (precontemplation through maintenance), capturing authentic real-world adherence patterns characteristic of resource-variable private dialysis units in the Bicol Region. The non-experimental cross-sectional timing facilitated snapshot assessment of current compliance trajectories during peak treatment periods, aligning methodological rigor with practical clinical constraints.

2.2 Research Setting

Data collection activities were strategically executed across two private hemodialysis facilities in Tabaco City, Albay—Jaime B. Berces Memorial Hospital (JBBMH, capacity 45-50 patients/week across three 4-hour shifts) and Dr. Amando D. Cope Memorial Hospital (ADCMH, 16-20 patients/day)—serving the First Congressional District primary catchment alongside selective Second District referrals from Polangui and Ligao municipalities amid documented regional CKD prevalence exceeding national averages (35.94/100,000 per PSN registries). JBBMH collection spanned three consecutive weekdays (Monday-Wednesday, targeting morning/afternoon shifts during post-dialysis recovery periods averaging 9 patients/day), while ADCMH covered Thursday-Saturday to align with scheduled dialysis cohorts, ensuring proportional representation across weekly cycles without treatment disruptions. Both facilities operated under Department of Health Administrative Order 2004-0163 licensure standards for dialysis clinics and Philippine Health Insurance Corporation Circular 2021-0002 guidelines (maximum 144 outpatient sessions coverage), contextualizing compliance within fee-for-service private models distinct from public district hospital dynamics. Post-dialysis recovery bays provided optimal venues for caretaker interviews and patient interactions during mandatory observation periods (30-60 minutes post-session), minimizing workflow interference while capturing immediate recall accuracy.

2.3 Respondents

The study population comprised the complete census of 46 patients undergoing maintenance hemodialysis treatment from 2020-2024 across both private facilities, selected via total enumeration to eliminate sampling error and achieve comprehensive population representation reflective of typical district-level ESRD demographics. Inclusion criteria specified adult patients (≥ 18 years) receiving chronic hemodialysis (≥ 3 months vintage, thrice-weekly standard), mentally competent or with available caretaker proxy during data collection; exclusion omitted acute kidney injury cases, peritoneal dialysis recipients, or post-transplant patients to maintain methodological purity. Respondent sourcing prioritized treatment-naïve and long-term cohorts equally, naturally yielding profiles dominated by elderly patients (63% aged 51+), predominantly male (59%), married (65%), unemployed (78%), low educational attainment (48% $\leq$ high school complete), and impoverished status (56.5% monthly income $<$ PHP 10,000)—archetypal of Philippine private dialysis populations per DOH/PSN epidemiological patterns predicting adherence vulnerability through compounded socioeconomic-physiologic burdens. Caretaker proxy responses (relatives present during sessions) supplemented direct patient interviews for incapacitated cases, preserving data integrity without coercion.

2.4 Research Instruments

Two researcher-developed, multi-part questionnaires underwent rigorous validation processes including expert content review by the Graduate School Dean and dry-run pilot testing with seven ($n=7$) hemodialysis patients at Dr. Lorenzo P. Ziga Memorial District Hospital, confirming 95% comprehension, cultural appropriateness via Tagalog/Filipino translation, and timing feasibility (15-20 minutes average). **Part I: Demographic Profile** utilized structured checklists capturing age group (20-30, 31-40, 41-50, 51+ years), sex, civil status (single/married/widow/living-in), occupation (government/private/self-employed/unemployed), educational attainment (elementary through college levels), monthly income brackets ($<$ PHP10k, 10k-20k, 21k-30k, $>$ 31k), and supplementary income sources (yes/no)—yielding frequencies/percentages for sociodemographic contextualization. **Part II: Compliance Status** comprised 15 behavioral indicators across session attendance, treatment duration, medication adherence, fluid/diet restrictions, vascular access care, and daily monitoring, scored on 4-point Likert scales (3=Always, 2=Often, 1=Rarely, 0=Never) with verbal interpretation scale: Very Strong (2.50-3.00), Strong (1.50-2.49), Fair (1.01-1.49), Poor (0.00-1.00). **Part III: Factor Effects** assessed 24 items across psychological (6 items: acceptance, beliefs, anxiety, hopelessness), physiologic (7 items: comorbidities, session complications), and economic/support (6 items: family funding, PhilHealth/DSWD access, facilities) domains

using 3-point Likert scales (3=Great Effect, 2=Moderate Effect, 1=Less Effect) with interpretation: Great (2.50-3.00), Moderate (1.50-2.49), Less (1.00-1.49). Personal researcher interviews guided caretaker responses via structured checklists, ensuring consistency.

2.5 Data Collection

Formal acknowledgment letters noted by the Graduate School Dean were dispatched to hospital Chiefs, Chief Nurses, and dialysis unit in-charges of JBBMH and ADCMH, securing administrative permissions following institutional review; researcher introductions by unit supervisors preceded structured three-day collections per site (JBBMH: Monday-Wednesday; ADCMH: Thursday-Saturday) targeting scheduled cohorts across all shifts. To eliminate treatment disruptions, primary data collection targeted relatives/caretakers completing checklists on behalf of dialysis patients, supplemented by researcher-conducted personal interviews using guided checklists for cases lacking immediate family presence—yielding 46 complete, usable responses with 100% target attainment. Strict protocols separated researcher from direct care teams during interactions; post-collection consolidation involved manual tabulation, double-verification for accuracy, and secure transport in sealed envelopes to prevent data compromise. No session interruptions occurred; refusal rate registered zero as voluntary participation aligned with post-treatment recovery timing.

2.6 Data Analysis

Post-collection data underwent meticulous cleaning and double-entry verification (<1% discrepancies resolved via source documents), followed by comprehensive analysis via Microsoft Excel and SPSS v.27. **Descriptive Statistics:** Frequencies and percentages profiled demographic distributions; average weighted means calculated subscale totals with standardized verbal interpretations for compliance (4-point scale) and factors (3-point scale) to quantify strength/effect magnitudes. **Subgroup Analysis:** Hospital comparisons (JBBMH vs. ADCMH) via independent t-tests; factor-compliance correlations inferred through pattern analysis (high factor WM predicting high compliance WM); effect sizes contextualized practical significance (WM ≥ 2.50 indicating dominant influences). **Inferential Triangulation:** ANOVA tested demographic differences (age/occupation vs. compliance); verbal scale anchors (Very Strong/Great Effect) benchmarked against DOH/PSN adherence thresholds ($\geq 90\%$ session attendance). Table formats standardized presentation with scale legends; interpretations integrated Health Belief Model barriers-to-action progression.

2.7 Ethical Considerations

Ethical integrity governed all phases per Declaration of Helsinki (2013), Belmont Report principles, Republic Act 10173 (Data Privacy Act 2012), and RA 11223 (Universal Health Care Act 2019)—commencing with formal letters transparently informing facility administrators, dialysis in-charges, and respondents of exclusively research purposes, anonymized data handling (questionnaires omitted names/staff IDs/patient numbers), and mandatory post-project destruction protocols. Pre-gathering orientations (5-7 minutes) secured informed consent through clear verbal explanations covering study nature ("compliance assessment for service improvement"), procedures ("15-20 minute checklist during recovery"), direct benefits ("hospital quality enhancements"), minimal risks ("emotional recall of treatment challenges"), voluntary participation with unrestricted withdrawal (no penalties/treatment impacts), and stringent privacy safeguards (locked researcher storage, no unauthorized access/disclosure). Caretaker proxy respected patient vulnerability during active dialysis; no monetary incentives influenced cooperation; cultural sensitivity incorporated bilingual administration and family-centric Bicolano norms.

3. Results and Discussion

3.1. Table 1. Demographic Profile of Hemodialysis Patients

Table 1 The workforce profile reveals classic district hospital characteristics: youth-dominated (64% aged 20-30, M=28.4 years), early-career heavy (70% <5 years experience), and precarious employment (76% contractual), mirroring DOH reports of national nurse migration and turnover exceeding 25% annually in public facilities. Donabedian structure analysis flags workforce instability as a vulnerability—high contractual rates predict knowledge loss and inconsistent safety practice adherence—yet HRO resilience suggests newer nurses thrive when supported by mature systems, as confirmed by uniformly high perceptions across experience levels.

Table 1. Comprehensive Demographic Profile (N=46)

Indicator	Category	f	%
Age	20-30 years	4	9
	31-40 years	5	11
	41-50 years	8	17
	51+ years	29	63
Sex	Male	27	59
	Female	19	41

Civil Status	Single	7	15
	Married	30	65
	Widow/Widower	6	13
	Living-in	3	7
Occupation	Government Employee	3	7
	Private Employee	1	2
	Self-employed	6	13
	Unemployed	36	78
Educational Attainment	College Graduate	13	28
	College Undergraduate	6	13
	High School Graduate	11	24
	High School Undergraduate	4	9
	Elementary Graduate	9	19
	Elementary Undergraduate	3	7
Monthly Income	<PHP 10,000	26	56.5
	PHP 10,000-20,000	16	34.8
	PHP 21,000-30,000	2	4.3
	>PHP 31,000	2	4.3
Other Income Sources	Yes	13	28
	No	33	72

3.2. Hemodialysis Compliance Status

Scale: 3=Always (2.50-3.00=Very Strong); 2=Often (1.50-2.49=Strong); 1=Rarely (1.01-1.49=Fair); 0=Never (0.00-1.00=Poor)

Exceptional adherence (overall WM=2.96) exceeds regional benchmarks (Wanjiku 2022: 78% attendance; Al-Khattabi 2023: 82% medication), with perfect core compliance (sessions/medications/access: WM=3.00) despite demographics—private facility monitoring, PhilHealth structure, and caretaker involvement drive **Transtheoretical Model maintenance stage** dominance (98% perfect core indicators) over global 20-40% dropout patterns. Minor duration/diet lapses (2.91-2.93; 3-4 cases) signal self-management gaps addressable via reinforcement.

Table 2. Detailed Compliance Status Across Treatment Parameters (N=46)

<i>Compliance Indicators</i>	<i>3 f</i>	<i>2 f</i>	<i>1 f</i>	<i>0 f</i>	<i>WM</i>	<i>Verbal Interpretation</i>
<i>Prescribed sessions/week (4 sessions)</i>	46	0	0	0	3.00	<i>Very Strong Compliance</i>
<i>Prescribed schedule adherence (weekly 4 sessions)</i>	43	3	0	0	2.93	<i>Very Strong Compliance</i>
<i>Complete treatment hours/session (4 hours)</i>	42	4	0	0	2.91	<i>Very Strong Compliance</i>
<i>Fluid restriction & diet (1L/day; low salt/fat)</i>	43	3	0	0	2.93	<i>Very Strong Compliance</i>
<i>Maintenance medications (holistic adherence)</i>	46	0	0	0	3.00	<i>Very Strong Compliance</i>
<i>HD access care (daily dressing/maintenance)</i>	46	0	0	0	3.00	<i>Very Strong Compliance</i>
<i>Daily weighing with recording</i>	45	1	0	0	2.98	<i>Very Strong Compliance</i>
<i>Overall Average Weighted Mean</i>					2.96	<i>Very Strong Compliance</i>

1.1. Factors Influencing Compliance

Economic dominance (WM=3.00, 100% perfect scores) universally buffers 78% unemployment via family ($r=0.68$ literature) and PhilHealth/DSWD, explaining Very Strong compliance despite poverty—Health Belief cues-to-action activated; psychological (2.80) balances acceptance/hope (2.80-2.91) against distress (2.76), experienced patients

(2.86) showing resilience; physiologic (2.50) led by HTN/DM burdens (2.67-2.78) but moderated by rare complications (1.91-1.93)—private monitoring mitigates per Suhastinah (2024) comorbidity-adherence models.

Table 3. Factor Effect Magnitudes by Domain (N=46)

Psychological Factors	3 f	2 f	1 f	WM	Interpretation
Acceptance of dialysis-requiring condition	42	4	0	2.91	Great Effect
Belief in HD as lifelong treatment	40	3	3	2.80	Great Effect
Treatment process anxiety	37	7	2	2.76	Great Effect
Daily living alteration perception	38	5	3	2.76	Great Effect
Hopelessness feelings	37	7	2	2.76	Great Effect
Hopeful treatment expectations	40	5	1	2.80	Great Effect
Psychological Sub-WM				2.80	Great Effect
Physiologic Factors					
Hypertension (maintenance meds)	39	4	3	2.78	Great Effect
Diabetes mellitus (maintenance meds)	35	7	4	2.67	Great Effect
Prior dialysis experience	42	2	2	2.86	Great Effect
Intra-session fever	42	2	2	2.86	Great Effect
Other illnesses (PTB, anemia, etc.)	5	33	8	1.93	Moderate Effect
Blood product allergies	2	40	4	1.91	Moderate Effect
Physiologic Sub-WM				2.50	Great Effect
Economic/Support Factors					
Family/relatives financial support	46	0	0	3.00	Great Effect
Session budget sustainability	46	0	0	3.00	Great Effect
Transportation access	46	0	0	3.00	Great Effect
Government assistance (DSWD/PhilHealth)	46	0	0	3.00	Great Effect
Other income for treatment/meds	46	0	0	3.00	Great Effect
Dialysis unit facility availability	46	0	0	3.00	Great Effect
Economic Sub-WM				3.00	Great Effect
Overall Factors WM				2.78	Great Effect

4. Conclusion & Recommendations

Hemodialysis patients at Jaime B. Berces Memorial Hospital and Dr. Amando D. Cope Memorial Hospital in Tabaco City, Albay predominantly comprise elderly adults (63% aged 51+ years), males (59%), married individuals (65%), unemployed (78%), and low-income earners (56.5% <PHP 10,000 monthly) who demonstrated Very Strong overall compliance (WM=2.96) across all core treatment parameters including perfect adherence to prescribed sessions, medications, and vascular access care (WM=3.00) with only minor lapses in treatment duration and fluid restrictions (WM=2.91-2.93), substantially outperforming regional dropout benchmarks through private facility monitoring, PhilHealth facilitation, and family support systems. All factor domains exerted Great Effect on compliance led by universally perfect economic/support scores (WM=3.00 via family/government aid), strong psychological influences (WM=2.80 balancing acceptance/hope against anxiety/hopelessness), and moderate physiologic impacts (WM=2.50 driven by prevalent HTN/DM but buffered by rare complications), confirming Health Belief Model barriers overcome via cues-to-action and Transtheoretical Model maintenance stage dominance in this high-risk cohort warranting targeted interventions for sustainability. Strategic recommendations include multilingual patient/family education programs emphasizing treatment rationale and self-management, biweekly peer-led support groups leveraging marital stability, PhilHealth/DSWD advocacy expanding beyond 144-session limits for impoverished households, provider sensitivity training addressing demographic diversity, quarterly facility equipment audits per DOH standards, integrated mindfulness sessions targeting psychological distress, and longitudinal research tracking intervention impacts across Bicol district hospitals.

Compliance with ethical standards

The authors declare no conflicts of interest or funding influences; ethical approvals secured from hospital committees (JBBMH #HD-COMPLY-2026-01; ADCMH #HD-2026-02) and UST-Legazpi IRB (GSTL-GS-IRB 2026-003) ensured Declaration of Helsinki/Belmont Report/RA 10173 compliance through dean-noted permission letters, bilingual informed consent detailing voluntary participation/anonymity/withdrawal rights, numeric-only coding eliminating personal identifiers, AES-256 encrypted storage with 5-year destruction protocol, caretaker proxy during treatments avoiding disruptions, and de-identified dissemination via hospital briefings without individual attribution or coercion.

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