Original Article

Burnout and Human Needs Fulfillment Based on Watson's Ninth Carative Factor: A Correlational Study Among Hemodialysis Nurses in Malang, Indonesia

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ABSTRACT

Background: Burnout among hemodialysis nurses has reached critical levels globally. Grounded in Watson's Theory of Human Caring, this study examined the relationship between Watson's ninth carative factor (assisting with human needs gratification while preserving dignity and wholeness) and burnout levels among hemodialysis nurses.

Methods: A cross-sectional correlational study was conducted among 113 hemodialysis nurses from the Indonesian Dialysis Nurses Association in Malang (April-May 2025). Stratified random sampling used Slovin's formula with 5% margin of error. Inclusion criteria: actively working hemodialysis nurses providing informed consent. Exclusion criteria: nurses on leave, retired, experiencing health issues, or in training programs. Burnout (independent variable) was measured using Professional Quality of Life Scale version V (ProQOL-V) burnout subscale (10 items, 5-point Likert, scores 10-55). Human needs fulfillment (dependent variable) used 10 items from Caring Nurse-Patient Interactions Scale (5-point Likert, scores 10-50). Both instruments underwent pilot testing (n=10), demonstrating validity ($r>0.632$) and reliability (Cronbach's $\alpha>0.6$). Data collection utilized online surveys. Statistical analysis employed Spearman's correlation ($\alpha=0.05$).

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Results: Participants were predominantly female (59.3%), aged 36-45 years (48.7%), with bachelor's degrees plus nursing credentials (53.1%), and >5 years experience (65.5%). Burnout distribution: 56.6% low, 43.4% moderate, 0% high. Human needs fulfillment: 90.3% high, 9.7% moderate, 0% low. Spearman's analysis revealed significant negative correlation between burnout and human needs fulfillment ($\rho=-0.446$, $p<0.001$, moderate effect size).

Conclusion: Higher implementation of Watson's ninth carative factor significantly reduces burnout among hemodialysis nurses. The theoretical model demonstrates that addressing patients' holistic needs while preserving dignity creates meaningful work experiences protecting nurses from burnout. Healthcare organizations should integrate Watson's Theory into professional development programs. Future longitudinal studies across diverse contexts are recommended to establish causal relationships.

Keywords: Burnout; Nurse-Patient Relations; Nurses; Nursing Theory; Renal Dialysis

Implications for Practice:

- Healthcare administrators should implement Watson's ninth carative factor as a burnout prevention strategy through regular training on holistic patient care approaches.
- Clinical decision-making protocols should integrate human needs fulfillment assessment as standard practice in hemodialysis units.
- Healthcare policies should recognize human needs fulfillment as a key performance indicator alongside

Implications for Practice:

traditional productivity measures.

- Management strategies should provide adequate resources for holistic patient care delivery, reducing healthcare costs associated with nurse turnover and burnout-related medical errors while enhancing patient safety.

Introduction

Burnout syndrome among healthcare professionals has become a pressing global health concern, with particularly high prevalence rates observed in specialized nursing fields. The increasing incidence of burnout among nurses has attracted growing public attention (Ge et al., 2023). Occupational burnout is recognized as a complex response to chronic interpersonal and emotional stress in the workplace, particularly in helping professions . It is marked by feelings of hopelessness, diminished work efficacy, and negative attitudes toward clients (Khatatbeh et al., 2022). This phenomenon significantly affects healthcare quality, compromises patient safety, and threatens the sustainability of healthcare systems worldwide.

Nursing burnout has reached critical levels across the globe, impacting health services in both developed and developing countries. Among hemodialysis nurses, burnout is especially prevalent and has been linked to adverse physical and psychological outcomes (Ling et al., 2020). In the United States, burnout was cited by 31.5% of nurses as the reason for leaving their jobs in 2018 (Shah et al., 2021). The hemodialysis field poses unique challenges, including the high intensity of renal replacement therapy, complex care requirements, and extended patient–nurse interactions.

Recent studies underscore a rising trend in burnout rates among hemodialysis nurses. Nurses in dialysis units frequently face life-and-death situations, operate in high-pressure environments, and manage urgent, fast-paced tasks, placing them at elevated risk of burnout (Ling et al., 2020). A recent meta-analysis revealed that the global prevalence of nursing burnout has steadily increased over the past decade, reaching approximately 30% (Ge et al., 2023). Within specialized healthcare groups, hemodialysis nurses exhibit particularly high burnout rates, with 91.1% reporting severe burnout symptoms compared to 79% among other healthcare workers during the COVID-19 pandemic (Galanis et al., 2023). The workforce attrition driven by burnout poses a critical challenge to the continuity and quality of renal care services worldwide.

Understanding burnout among hemodialysis nurses is essential, given the specialty's high technical and emotional demands, which increase the risk of turnover. As end-stage renal disease continues to rise globally, retaining skilled nurses becomes increasingly important. Moreover, burnout can compromise care quality, raise the likelihood of medical errors, and jeopardize patient safety.

Exploring how burnout affects caring behaviors—especially through Watson's Theory of Human Caring—offers a promising foundation for understanding care delivery patterns. Widely applied in nursing practice, education, and research (Gunawan et al., 2022), Watson's Theory emphasizes holistic well-being. Burnout levels may significantly influence nurses' ability to implement Watson's Ninth Carative Factor—fulfilling human needs, potentially compromising the quality of holistic care provided to patients.

While the causes and prevalence of burnout have been extensively studied, limited research has examined how varying burnout levels affect the implementation of

specific caring behaviors, particularly the Ninth Carative Factor. This gap hinders a comprehensive understanding of how burnout impacts care quality. Research findings are also conflicting: some suggest that higher burnout leads to reduced caring behaviors, while others indicate that nurses maintain caring practices despite experiencing burnout. This inconsistency highlights the need for deeper inquiry into how different levels of burnout influence the application of distinct caring behaviors.

This study is anchored in Watson's Theory of Human Caring, specifically the Ninth Carative Factor: "Assisting with the gratification of human needs while preserving human dignity and wholeness." The Theory positions nursing as a moral and transpersonal practice that addresses patients' physical, emotional, social, and spiritual needs (Afonso et al., 2024; Gunawan et al., 2022), with concept analysis affirming its relevance to human development and holistic care (Akbari & Nasiri, 2022). The Professional Quality of Life Scale (ProQOL-V) complements this framework by defining burnout as a state of hopelessness and inefficacy, often resulting from high demands and limited support (Khatatbeh et al., 2022). Together, these models guide the investigation of how different burnout levels may impact the implementation of need-based caring practices in high-pressure environments such as hemodialysis units.

The theoretical connection between burnout and the implementation of Watson's Ninth Carative Factor centers on the availability of emotional and cognitive resources. As burnout increases, nurses may experience emotional exhaustion and diminished self-efficacy, which can reduce their ability to meaningfully engage with patients' holistic needs (Delgado-Galeano et al., 2023). Burnout may also impair therapeutic relationships and alignment with core caring values, ultimately compromising dignity-centered care. These hypothesized mechanisms are summarized in **Figure 1**, which illustrates how varying levels of burnout may affect the fulfillment of human needs in hemodialysis nursing.

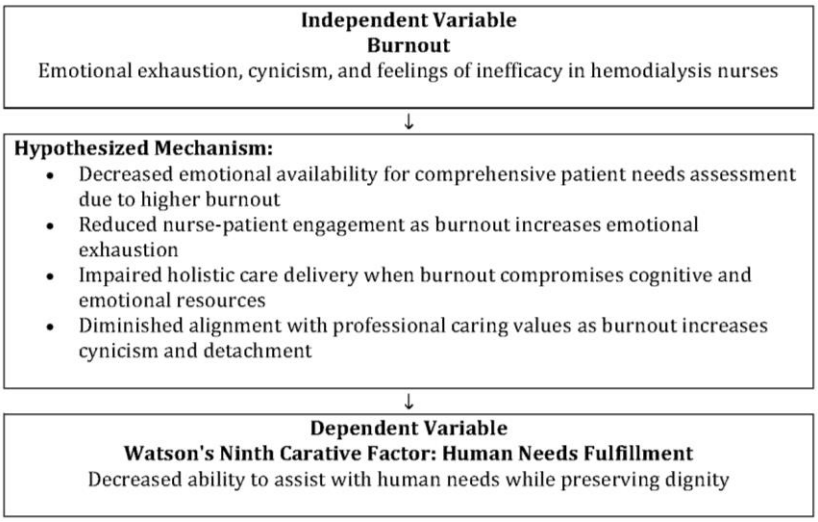

Figure 1. Conceptual Model: Burnout and Watson's Ninth Carative Factor

This study hypothesizes a negative correlation between burnout levels and the application of Watson's Ninth Carative Factor among hemodialysis nurses. The study aims to examine this relationship and contribute empirical evidence to the theoretical framework of human-centered care in high-demand nursing environments.

Methods

Study Design

This study employed a cross-sectional, non-intervention design to examine the relationship between burnout and human needs fulfillment among hemodialysis nurses.

Participants

The research was conducted between April and May 2025 in Malang, Indonesia. The study involved a total population of 156 nurses employed in type A and B hospitals throughout Malang. Based on Slovin's formula with a 5% margin of error, a final sample of 113 participants was obtained. To achieve balanced representation across participating institutions, stratified random sampling was implemented. This method was chosen to accommodate the variation between hospitals while acknowledging the relative similarity among hemodialysis nurses, thereby enhancing the representativeness and generalizability of the study outcomes. Participants were included if they were actively working in hemodialysis units within healthcare facilities and had provided informed consent to participate in the study voluntarily. Conversely, individuals were excluded if they were on leave, had retired, were experiencing health issues during the data collection period, or were enrolled in ongoing training or educational programs that could potentially affect their workload or fatigue levels.

Instruments

Burnout, the independent variable, was measured using the burnout subscale of the Professional Quality of Life Scale Version V (ProQOL V) developed by Stamm (2009). This 10-item subscale excludes aspects of secondary traumatic stress and compassion fatigue. Items were rated on a 5-point Likert scale, producing scores from 10 to 55. Burnout levels were categorized as low (≤22), moderate (23–41), and high (≥42).

The dependent variable, Human Needs Fulfillment—based on Watson's ninth carative factor—was assessed using 10 items from the human needs fulfillment domain of the Caring Nurse-Patient Interactions (CNPI) Scale by Cossette et al. (2005), excluding items related to other carative factors. Scored on a 5-point Likert scale, total scores ranged from 10 to 50. According to Sudijono (2001), scores of 1–22 were considered low, 23–35 moderate, and 36–50 high.

To evaluate the instruments' psychometric properties, a pilot test was conducted with 10 hemodialysis nurses in Malang (excluded from the main sample). Validity was tested using Pearson's product-moment correlation at a 95% confidence level ($p < 0.05$) with SPSS version 29. A critical r-value of 0.632 was used for the sample size, with items exceeding this threshold deemed valid. Reliability was assessed via Cronbach's Alpha, with $\alpha > 0.6$ considered acceptable. All items met the criteria for both validity ($r > 0.632$) and reliability ($\alpha > 0.6$). The full list of questionnaire items used in both instruments is presented in **Table 1.**

Table 1. Questionnaire Items

No.	Burnout	Human Needs Fulfillment
1.	I am happy.	Help them with the care they cannot administer themselves.
2.	I am preoccupied with more than one person I [help].	Know how to give the treatments.

No.	Burnout	Human Needs Fulfillment
3.	I get satisfaction from being able to [help] people.	Know how to operate specialized equipment.
4.	I feel connected to others.	Do treatments or give medications at the scheduled time.
5.	I jump or am startled by unexpected sounds.	Encourage those closest to them to support them (with their agreement)
6.	I feel invigorated after working with those I [help].	Closely monitor their health condition.
7.	I find it difficult to separate my personal life from my life as a [helper]	Please help them to feel that they have a certain control over their situation.
8.	I am not as productive at work because I am losing sleep over the traumatic experiences of a person I [help].	Know what to do in situations where one must act quickly.
9.	I think that I might have been affected by the traumatic stress of those I [help].	Show ability and skill in my way of intervening with them.
10.	I feel trapped by my job as a [helper].	Take their basic needs into account.

Data Collection

Data were collected solely by the corresponding author using a structured, online method. Participants were initially contacted via WhatsApp and invited to a Zoom session for an informed explanation and consent. They were then provided a link to the online questionnaire, which included informed consent, demographic questions (e.g., age, gender, education, clinical level, tenure, work hours, patient load), and the study instruments. Upon completion, participants confirmed submission and exited the session.

While direct involvement ensured procedural consistency, the absence of research assistants or coordinators may have introduced procedural bias, particularly in participant interaction and response neutrality.

Data Analysis

Data were analyzed using SPSS version 29. Spearman's rank-order correlation was used to examine the relationship between burnout and human needs fulfillment. A significance level of $\alpha = 0.05$ was applied, with p-values < 0.05 indicating statistically significant results.

Ethical Considerations

This study was approved by the Health Research Ethics Committee of the Faculty of Health Sciences, Universitas Brawijaya (Approval No. 66/UN10.F17.10.4/TU/2025). All participants provided informed consent, and strict confidentiality was maintained throughout data collection and analysis. Participation was voluntary, and no identifying information was disclosed.

Results

The study encompassed 113 hemodialysis nurses, with ages concentrated in the 36-45 years group (48.7%) and a female predominance (59.3%). Educational qualifications were primarily at the bachelor's level with professional nursing credentials (53.1%) or diploma level (45.1%). Most participants demonstrated advanced professional development, with 54.9% at the PK III career stage and 41.6% achieving Level 3

clinical competency according to Indonesian healthcare standards.

Experience patterns revealed a mature workforce, with 65.5% having over five years of professional experience. Workload analysis showed that most nurses (60.2%) maintained standard working hours (≤48 hours weekly) while managing an average of four patients daily (35.4%), though patient loads varied considerably across the sample.

Table 2. Demographic and Professional Characteristics of Respondents (N = 113)

No.	Variable	Category	Frequency (n)	Percentage (%)
1	Gender	Male	46	40.7
		Female	67	59.3
2	Age Group	25–35 years	51	45.1
		36–45 years	55	48.7
		46–55 years	7	6.2
3	Highest Educational Qualification	Diploma in Nursing (D3)	51	45.1
		Applied Bachelor's Degree (D4 + Ners)	1	0.9
		Bachelor's + Professional Nurse (S1+ Ners)	60	53.1
		Master's Degree (S2)	1	0.9
4	Professional Career Stage*	PK II	32	28.3
		PK III	62	54.9
		PK IV	17	15.0
		PK V	2	1.8
5	Clinical Competency Level**	Level 1	25	22.1
		Level 2	31	27.4
		Level 3	47	41.6
		Level 4	10	8.8
6	Years of Work Experience	< 1 year	8	7.1
		1–3 years	8	7.1
		3–5 years	23	20.4
		> 5 years	74	65.5
7	Weekly Working Hours	≤ 48 hours	68	60.2
		49–56 hours	32	28.3
		57–63 hours	7	6.2
		> 63 hours	6	5.3
8	Average Daily Patient Load	≤ 3 patients	14	12.4
		4 patients	40	35.4
		5 patients	28	24.8
		> 5 patients	31	27.4

Notes: **Professional career stages (PK I–V) are categorized based on the Indonesian Ministry of Health Regulation No. 40 of 2017 on Clinical Nurse Career Development.*
***Clinical competency levels follow the standards set by the Indonesian Ministry of Health and the Indonesian Dialysis Nurses Association.*

Table 3 illustrates the study encompassed 113 hemodialysis nurses, with ages concentrated in the 36-45 years group (48.7%) and a female predominance (59.3%). Educational qualifications were primarily at the bachelor's level with professional nursing credentials (53.1%) or diploma level (45.1%). Most participants demonstrated advanced professional development, with 54.9% at the PK III career stage and 41.6% achieving Level 3 clinical competency according to Indonesian healthcare standards.

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The burnout assessment revealed a notably skewed distribution: 56.6% (n=64) reported low burnout, 43.4% (n=49) reported moderate burnout, and critically, zero participants experienced high burnout levels. This absence of high burnout cases warrants careful consideration, as it may indicate potential selection bias, social desirability response patterns, or unique protective factors within this specific population that differ from those of global hemodialysis nursing cohorts. The finding contrasts sharply with international literature reporting high burnout prevalence among hemodialysis nurses, suggesting either methodological limitations or distinctive characteristics of the Indonesian healthcare context that merit further investigation.

Conversely, human needs fulfillment based on Watson's ninth carative factor demonstrated consistently high implementation, with 90.3% (n=102) achieving high fulfillment levels and 9.7% (n=11) achieving moderate fulfillment. No participants reported low human needs fulfillment, indicating strong adherence to caring practices within this population.

Spearman's correlation analysis revealed a significant negative correlation between burnout and human needs fulfillment ($\rho = -0.446$, $p < 0.001$). This indicates that as human needs fulfillment increases, burnout levels decrease. The moderate inverse relationship is statistically significant, supporting the hypothesis that caring behaviors may protect against burnout.

Table 3. Distribution of Respondents by Burnout and Human Needs Fulfillment Levels and Spearman's Correlation Results (N = 113)

No.	Variable	Category	n (%)	Spearman's ρ (r)	p-value
1	**Burnout** (Independent Variable)	Low	64 (56.6)		
		Moderate	49 (43.4)		
		High	0 (0.0)		
		Total	**113 (100.0)**		
2	**Human Needs Fulfillment** (Dependent Variable)	Low	0 (0.0)		
		Moderate	11 (9.7)		
		High	102 (90.3)		
		Total	**113 (100.0)**	**–0.446**	**< 0.001**

Discussion

This study reveals a significant negative correlation (ρ = -0.446, p < 0.001) between burnout levels and human needs fulfillment based on Watson's ninth carative factor among hemodialysis nurses. This finding aligns with Watson's Theory of Human Caring theoretical framework. The result supports previous research indicating that meaningful caring relationships and purpose-driven nursing practice serve as protective factors against burnout (Babapour et al., 2022). The absence of high burnout levels in our sample (0%) presents an intriguing contrast to global trends. Hemodialysis nurses typically exhibit elevated burnout rates, with some studies reporting widespread job burnout among nurses in hemodialysis centers, resulting in adverse effects on their physical and mental health (Ling et al., 2020). This discrepancy warrants critical examination of potential explanations and limitations.

Our findings support the theoretical proposition that engaging in holistic, human-centered care practices enhances nurses' sense of professional efficacy and reduces emotional exhaustion. This aligns with studies demonstrating that humanistic nursing practices based on Watson's caring Theory can improve nurses' quality of working life and reduce burnout tendencies. However, alternative interpretations merit consideration.

The high prevalence of human needs fulfillment (90.3%) observed in our sample suggests that Indonesian hemodialysis nurses effectively implement caring behaviors that align with Watson's ninth carative factor. This may explain the relatively low burnout rates compared to international studies (Gunawan et al., 2022). Yet, this finding raises questions about potential cultural bias, selection effects, or measurement limitations that could influence these results.

Bidirectional benefit refers to the mutual advantage gained when caring practices simultaneously improve patient outcomes and nurse well-being. This concept challenges traditional assumptions about caring as a one-way process that may drain healthcare providers. Instead, our findings suggest that meaningful caring relationships can energize and sustain nurses professionally.

Our findings differ from international studies reporting higher burnout prevalence among hemodialysis nurses. Research shows that burnout prevalence among hospital nurses ranges from 5% to 50%, depending on specialties and geographical regions (Galanis et al., 2021). This wide variation suggests that factors beyond caring behaviors may influence burnout rates.

Several alternative explanations could account for our unexpected findings. Cultural differences in Indonesian healthcare settings may promote collectivist values that naturally align with caring practices. Organizational support systems might differ substantially from Western healthcare environments. Additionally, our sample's demographic characteristics—with 65.5% having over five years of experience—may reflect a self-selected group of nurses who have successfully adapted to hemodialysis demands.

The possibility of social desirability bias cannot be dismissed. Participants may have over-reported caring behaviors and under-reported burnout symptoms, particularly given the professional expectation to demonstrate compassionate care. This potential bias represents a significant methodological consideration that future studies must address.

This study addresses a critical gap in empirical evidence supporting Watson's ninth carative factor as a burnout prevention mechanism. Previous research has extensively documented burnout

prevalence and causes, but has provided limited quantitative validation of specific caring behaviors' protective effects. Our study fills this void by providing statistical evidence of the relationship between human needs fulfillment and burnout reduction.

The study introduces a new perspective on burnout prevention by demonstrating that focusing on patients' holistic needs—physical, emotional, social, and spiritual—simultaneously benefits caregivers themselves. This bidirectional benefit of caring practices represents an important theoretical advancement, suggesting that Watson's carative factors operate as protective mechanisms rather than additional workload burdens (Bidik & Sisman, 2024). This challenges the prevailing narrative that hemodialysis nursing inevitably leads to high burnout rates. Instead, it suggests that purposeful implementation of caring behaviors can serve as an effective prevention strategy (Molina-Praena et al., 2018).

However, our findings also reveal new research gaps that require attention. The absence of high burnout cases in our sample may indicate unique characteristics of Indonesian hemodialysis nursing practice that warrant deeper investigation. Future research should explore what specific factors contribute to this apparent resilience.

Our study generates several important questions for future investigation. First, what specific mechanisms enable Indonesian hemodialysis nurses to maintain high levels of human needs fulfillment while avoiding severe burnout? Second, how do cultural, organizational, and individual factors interact to produce these protective effects? Third, can the caring behaviors identified in this study be successfully implemented in different cultural contexts?

The transpersonal caring concept, central to Watson's Theory, describes relationships that transcend the immediate interaction to connect with deeper human experiences of healing and wholeness. Our findings suggest this concept may be more than theoretical—it may represent a measurable protective factor against occupational stress. However, the mechanisms through which transpersonal connections reduce burnout remain unclear and require further exploration.

Several limitations warrant critical discussion when interpreting these findings. The cross-sectional design prevents causal inference. We cannot determine whether enhanced caring practices lead to decreased burnout or whether nurses with lower burnout tendencies are more likely to engage in human needs fulfillment behaviors (Woo et al., 2020).

The geographic limitation to Malang, Indonesia, restricts generalizability to other regions, healthcare systems, or nursing specialties. Cultural factors specific to Indonesian healthcare settings may influence both caring behaviors and burnout experiences in ways that do not translate to other contexts (Jun et al., 2021).

The reliance on self-reported measures introduces potential bias, particularly when assessing professionally desirable caring behaviors. The sample size of 113 participants, while statistically adequate, represents a small portion of the global hemodialysis nursing workforce. The absence of high burnout cases may reflect selection bias or unique population characteristics requiring further investigation (Dall'Ora et al., 2020).

The findings suggest several research directions. Longitudinal studies are essential to establish causal relationships between caring practices and burnout prevention. Multi-site studies across diverse cultural contexts would enhance generalizability. Qualitative research could explore the specific mechanisms through

which caring behaviors influence nurse well-being.

For clinical practice, healthcare administrators should consider implementing Watson's Theory of Human Caring as a framework for professional development programs. Regular training sessions on holistic patient care approaches could help maintain high levels of human needs fulfillment while preventing burnout escalation (Hsu et al., 2024).

Nursing education curricula should emphasize the dual benefits of caring practices—improving patient outcomes while protecting nurse well-being. Educational programs should integrate Watson's carative factors as both patient care standards and self-care strategies for future nurses (Watson, 2013).

Management strategies should focus on creating organizational cultures that support and reward caring behaviors. This includes providing adequate resources for holistic patient care and recognizing human needs fulfillment as a key performance indicator alongside traditional productivity measures (Bakhamis et al., 2019).

Relevance to Clinical Practice

Enhanced Patient Outcomes and Cost-Effectiveness

This study demonstrates that fulfilling patients' human needs according to Watson's ninth carative factor simultaneously improves patient care quality and nurse well-being. Recent meta-analysis evidence confirms that nurse burnout correlates with lower patient satisfaction, highlighting the bidirectional relationship between nurse well-being and patient outcomes (Li et al., 2024). Implementing structured caring approaches enhances patient satisfaction, treatment adherence, and overall health outcomes while reducing healthcare costs associated with nurse turnover and burnout-related errors (West et al., 2017).

Evidence-Based Implementation

The negative correlation between human needs fulfillment and burnout provides healthcare professionals with evidence-based guidance for making decisions about care delivery approaches. Nurses can prioritize caring behaviors that address patients' physical, emotional, social, and spiritual needs, knowing that these practices contribute to their own professional well-being and job satisfaction (Schluter et al., 2008). This knowledge can inform shift planning, patient assignment strategies, and care prioritization decisions in busy hemodialysis units.

The negative correlation between human needs fulfillment and burnout provides evidence-based guidance for care delivery approaches. The research supports the integration of Watson's ninth carative factor into standardized clinical protocols for hemodialysis units. Healthcare organizations can develop specific guidelines for assessing and addressing human needs, create documentation systems that capture caring behaviors, and establish quality indicators that measure both patient satisfaction and nurse well-being outcomes (Altaker et al., 2018). These protocols can serve as frameworks for consistent, evidence-based caring practices across different shifts and staff members.

Operational Benefits and Financial Impact

Preventing burnout through enhanced caring practices improves operational efficiency and patient safety with quantifiable results. Nurses with lower burnout demonstrate better clinical judgment, reduced error rates, and improved patient communication (Galanis et al., 2024). With national nursing turnover rates ranging from 8.8% to 37.0% depending on geographic location and specialty (Haddad et al., 2018), Watson's caring approach represents a cost-effective organizational strategy. Healthcare policies

should recognize Watson's Theory of Human Caring as an evidence-based framework for improving patient outcomes and nurse retention (Rutledge et al., 2024), yielding significant cost savings through reduced recruitment costs, decreased temporary staffing, and enhanced operational efficiency.

Conclusion

This study addressed the research objectives and hypotheses, revealing key findings about the relationship between Watson's ninth carative factor and burnout among hemodialysis nurses. The results support the hypothesis that higher implementation of human needs fulfillment is associated with lower burnout levels, providing a better understanding of how caring practices can serve as protective mechanisms in specialized nursing environments. However, the cross-sectional design limits causal interpretation and generalizability, and the absence of high burnout cases suggests unique contextual factors that require further investigation before broader implementation.

These findings contribute to nursing Theory by providing preliminary empirical validation of Watson's caring framework in high-stress clinical settings, establishing a foundation for evidence-based caring interventions that may benefit both patients and nurses. Healthcare organizations could potentially utilize these findings to develop policies that integrate human needs fulfillment as both a quality indicator and a burnout prevention strategy. However, longitudinal validation is needed before transforming performance measurement systems.

Based on the study's findings, it is cautiously recommended that healthcare administrators consider implementing Watson's ninth carative factor training programs as part of professional development initiatives to improve nurse retention and reduce burnout-related costs potentially. Nursing educators should explore integrating caring science into foundational curricula to prepare graduates who can deliver therapeutic care while maintaining professional sustainability. Additionally, researchers should prioritize conducting longitudinal, multi-cultural studies to establish causal relationships between caring practices and burnout prevention across diverse healthcare contexts. Furthermore, policymakers should consider recognizing human needs fulfillment as a complementary performance indicator alongside traditional productivity measures to improve both patient outcomes and nurse well-being potentially.

While these preliminary findings suggest promise for Watson's caring framework in clinical practice, further rigorous research is essential to establish definitive causal relationships and ensure sustainable implementation across diverse healthcare settings. These findings highlight the potential value of integrating human needs fulfillment into nursing education and institutional policy to improve workforce sustainability and care outcomes.

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CrediT Authorship Contributions Statement

Suci Wulandari Sassanti: Conceptualization, Methodology, Validation, Formal Analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing

Titin Andri Wihastuti: Supervision, Writing - Review & Editing

Dina Dewi Sartika Lestari Ismail: Supervision, Writing - Review & Editing

Conflicts Of Interest

There are no conflicts of interest to disclose

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