SELF-CARE AND QUALITY OF LIFE OF HEMODIALYSIS PATIENTS IN TAGBILARAN CITY, BOHOL

LAYNA B. OPACO (ID), **MARK NICHOLZ C. SIMPORIOS,
MIAN APHRODITE C. SIMPORIOS, FAITH A. TADLE,
NICOLE B. BULLANDAY, EARL JOHN B. LUMAYAG,
KENNETH C. BAGUIO, ANA MAE P. PANOGA,
DIANA ROSE R. MALLARI, KYLE JOYCE R. DE CASA**
College of Allied Health Sciences, University of Bohol,
Tagbilaran City, Philippines

Corresponding Authors: lbopaco@universityofbohol.edu.ph

ABSTRACT

This study aimed to determine the relationship between self-care practices and the quality of life among hemodialysis patients in Tagbilaran City, Bohol. Utilizing a descriptive-correlational research design, the study involved 85 respondents from two dialysis centers, assessing their self-care behaviors using a modified Self-Care Measurement Scale and their quality of life using the WHOQOL-BREF questionnaire. Findings revealed that respondents had a "Very Good" level of self-care (Composite Mean = 3.47), particularly excelling in Dietary Regulation Factor, Stress Prevention Factor, and Therapeutic Diet Implementation Factor. Regarding quality of life, patients rated their QoL as "Very Good" (Composite Mean = 3.81), with the Psychological and Social Relationship

Domains scoring slightly higher than Physical and Environmental Domains. Statistical analysis using Spearman's Rank Correlation showed a significant positive correlation ($p < 0.05$) between self-care practices and overall quality of life, indicating that better self-care is associated with improved QoL. Based on these findings, a 5A Nursing Model–based self-management program was proposed to enhance and promote self-care interventions to improve the overall well-being of hemodialysis patients.

INTRODUCTION

Hemodialysis is a life-sustaining treatment for individuals with chronic kidney disease (CKD) that helps remove waste and excess fluids from the body when the kidneys are no longer functioning properly. However, this treatment has a substantial impact on patients' daily activities and overall well-being, imposing significant physical, emotional, social, and financial burdens. CKD continues to have a substantial impact on global morbidity and mortality, affecting hundreds of millions of individuals (GBD Chronic Kidney Disease Collaboration, 2020). Chronic kidney disease (CKD) continues to be a significant health concern in the Philippines, where it is the seventh most prevalent cause of mortality, and dialysis dependency is on the rise, particularly in regions like Central Visayas. Despite policies such as the Universal Health Care Act (RA 11223), patients in marginalized communities like Bohol continue to face barriers to accessing consistent, high-quality care.

To optimize their quality of life and manage their treatment requirements, hemodialysis patients must comply with dietary guidelines, medication regimens, hydration restrictions, and vascular access care (Avanji et al., 2021). These measures encompass effective self-care. Research has shown that patients who maintain a consistent self-care regimen experience superior treatment outcomes and fewer complications (Abianeh et al., 2020; Shirazian et al., 2023). It is imperative to understand the influence of self-care on quality of life in Bohol, where a substantial number of CKD patients rely on government assistance, such as PhilHealth. The purpose of this research is to examine the relationship between quality of life (QoL) and self-care behaviors among hemodialysis patients in Tagbilaran City.\

The ultimate objective is to inform interventions that improve treatment adherence and overall patient well-being. This investigation is underpinned by numerous theories that provide a robust framework for examining the quality of life and self-care of hemodialysis patients.

Self-Care Deficit Theory (2001) by Dorothea Orem underscores the importance of self-care as a fundamental human need, involving deliberate actions individuals take to preserve their health and well-being. Orem's theory comprises three interconnected components: nursing systems theory, self-care deficit theory, and self-care theory. It posits that nursing intervention is required when individuals are unable to fulfill their self-care requirements.

Orem's theory is particularly pertinent to this study, as it underscores the importance of daily self-care activities among hemodialysis patients in preventing complications and maintaining health (Orem, 2001).

Abraham Maslow's Quality of Life Theory (1962), grounded in the notion of self-actualization, clarifies human motivation by delineating a hierarchy of needs. These requirements range from basic needs for safety and health to more complex ones such as self-actualization, esteem, and love. Maslow stressed that people in more advanced civilizations frequently prioritize their psychological and social needs, while people in less developed countries prioritize survival. The current study is relevant to this idea, since it clarifies the influence of differing levels of need on the perceived quality of life among hemodialysis patients. Healthcare providers can improve patients' overall health by meeting their social, emotional, and physical health requirements (Ventegodt et al., 2003).

Albert Bandura's Self-Efficacy Theory (1977) elucidates the significant influence of an individual's conviction in their ability to execute specific activities on personal performance, goal formulation, and motivation. Bandura posits that self-efficacy is a pivotal element in the initiation and maintenance of health activities. The hypothesis is relevant to this study to understand the beneficial effects of patients' confidence in managing their treatment regimens, encompassing nutrition, medication, and lifestyle changes, on their quality of life and overall treatment results (Bandura, 1977).

The Sustainable Development Goal on Good Health and Well-Being underscores the need to promote health and quality of life across all populations, including those living with chronic conditions. In the Philippines, the Universal Health Care Act (Republic Act No. 11223) aims to improve access to essential health services, including dialysis, particularly for vulnerable populations. While these policies focus on access and affordability, less attention has been paid to patient-level factors, such as self-care behaviors, that directly influence daily functioning and well-being.

Hemodialysis is a common treatment for people with end-stage renal failure, but using it for a long time can cause problems and make life less enjoyable. Currently, only patients in the hospital receive standard nursing care. Continuous nursing, on the other hand, brings hospital care into patients' everyday lives by addressing their chronic health problems and meeting their daily health needs. Systematic evaluations are underway to assess the impact of continuous nursing on the quality of life of hemodialysis patients (Yuan et al., 2021). Patients on hemodialysis need to take care of themselves, as this supports their physical and mental well-being. Self-care efforts encompass adherence to medicine, dialysis, dietary management, self-monitoring, and subsequent consultations with their physician. Poor self-care among hemodialysis patients correlates with diminished quality of life (Shirazian et al., 2023).

Quality of life (QoL) is a concept that reflects the overall well-being of

individuals or populations, encompassing both positive and negative aspects of their lives at a given point in time. Key components of QoL often include personal health—encompassing physical, mental, and spiritual well-being relationships, educational attainment, work conditions, social standing, financial security, feelings of safety, freedom, autonomy in decision-making, sense of belonging, and the quality of their physical environment (Teoli & Bhardwaj, 2023). Patients who believe in their capabilities to perform self-care can do so. Self-efficacy can enable a patient to adhere to healthcare personnel's orders and instructions. It is the cornerstone of human motivation, helping patients accomplish tasks and improve their psychological health. Consequently, the term self-efficacy is associated with patients' behaviors and compliance in advancing their overall physical and mental health (Nguyen et al., 2022).

Dialysis is considered the most frequently used treatment for chronic kidney disease. Hemodialysis can prolong a patient's life; however, various complications can arise and affect quality of life, as it is associated with dietary restrictions. Thus, maximizing care for patients with renal failure is to enhance quality of life while prolonging life (Abianeh et al., 2020).

Self-management is considered a key to effective care for chronic diseases, a process in which individuals perform daily health care-related functions to manage their conditions (Lorig & Holman, 2003). It increases patients' confidence, skills, and knowledge of their conditions, helping them manage their health problems.

Chronic Kidney Disease has been one of the main public health issues as it increases the incidence of morbidity and mortality among patients. Treatment encompasses multiple components, including dialysis and lifestyle modifications. Self-care practices and quality of life among patients on hemodialysis maintenance, with chronic kidney disease (CKD), are a significant public health problem in the world. Improving self-care routines among maintenance hemodialysis patients is a good approach to lowering the risk of complications and enhancing the quality of life (Hakeim et al., 2024)

Patients with multiple chronic conditions who are on hemodialysis often experience limited physical activity, affecting their quality of life. The need for adequate physical activity interventions, enhancing patient self-management and establishing regular exercise routines and lifestyle modifications, indicates that patients on hemodialysis can gain from improved management of physical activities in the future (Wu et al., 2022).

RESEARCH METHODOLOGY

This study employed a descriptive-correlational design with a quantitative questionnaire approach to examine the relationship between self-care and quality of life among hemodialysis patients. Two standardized instruments were utilized: the Hemodialysis Self-Management Instrument (HDSMI),

developed and validated by Lin et al. (2012), which assessed patients' self-care and treatment management behaviors, and the World Health Organization Quality of Life–BREF (WHOQOL-BREF) questionnaire (World Health Organization, 1998), which evaluated participants' perceived quality of life across physical, psychological, social, and environmental domains.

These tools were essential in gathering accurate, patient-centered data during the study's data collection phase. The research was conducted in two hemodialysis centers located in Tagbilaran City, Bohol. Cross Renal Health Dialysis Center and Tan Chay Duan Dialysis Center. Using stratified random sampling, the researchers selected participants from both centers to capture the diversity in treatment settings, protocols, and demographics. Respondents included adult patients with an AV shunt who had been undergoing dialysis for at least one year and were willing and able to participate. Patients who were minors or newly initiated into dialysis were excluded from the study to ensure reliability and consistency of responses.

The study used the **Hemodialysis Self-Management Instrument (HDSMI)** (Lin et al., 2012) to assess patients' self-care practices, including problem-solving, self-monitoring, fluid and diet control, and adherence to dialysis-related health behaviors. This standardized tool evaluates eight key factors: dietary regulation, stress prevention, food safety, exercise regulation, habit regulation, shunt preservation, therapeutic diet implementation, and observation of care instructions. The questionnaire is formatted as a checklist, with patients rating each item on a 4-point scale (4, 3, 2, 1) indicating how well the description applies to their self-care behavior.

Scale	Range	Description	Interpretation
4	3.25 – 4.00	Always	Very Good Self-care
3	2.50 – 3.24	Often	Good Self-care
2	1.75 – 2.49	Sometimes	Fair Self-care
1	1.00 – 1.74	Never	Poor Self-care

The study employed the World Health Organization Quality of Life—Brief Version Questionnaire (1998) to assess quality of life among hemodialysis patients. This tool includes four key domains: physical, psychological, social relationships, and environment, and is a shortened version of the WHOQOL-100. Some negatively phrased items (Items 3, 4, and 26) were reverse-coded to ensure consistent interpretation, with higher scores indicating better quality of life. Patients responded using a checklist format with a 5-point scale, reflecting their personal assessment of each item within the domains.

Scale	Range	Description	Interpretation
5	4.20 – 5.00	Very good; Very satisfied; An extreme amount; Extremely; Completely; Always	Excellent Quality of Life
4	3.40 – 4.19	Good, Satisfied; Very much; Mostly; Very often	Very Good Quality of Life
3	2.60 – 3.39	Neither poor nor good; Neither satisfied nor dissatisfied; A moderate amount; Moderately; Quite often	Good Quality of Life
2	1.80 – 2.59	Poor; Dissatisfied; A little; Seldom	Fair Quality of Life
1	1.00 – 1.79	Very Poor; Very dissatisfied; Not at all; Never	Poor Quality of Life

The study assessed the validity and reliability of the instruments to ensure that the instruments employed were correct and useful. We conducted content validation to ensure the instruments measured the right aspects of self-care and quality of life. Even though both the Self-Care Measurement Scale and the WHOQOL-BREF are standardized tools, a pilot test with 10 qualified participants was conducted to ensure they would work in the local setting. The self-care tool had an alpha of 0.731, and the QoL tool had an alpha of 0.868, indicating both were internally consistent.

The researchers obtained ethics approval from the University of Bohol's Ethics Review Committee to ensure that the people who answered the questions were protected while the data were being collected. Letters of permission were sent to the Dean of the College of Nursing, the Vice-President for Academics, the Mayor of Tagbilaran City, and the Medical Directors of the dialysis centers in question. Respondents provided informed consent and were interviewed using questionnaires during the study. To ensure the obtained information was safe and accurate, adequate data management processes were used for collecting and tabulating.

The research was reviewed, permissions were secured, and informed consent was obtained, while ensuring anonymity and voluntary participation.

RESULTS AND DISCUSSION

Profile of Respondents. The findings indicate that the largest proportion of respondents was in the 50-59 age group (26; 30.6%), suggesting that middle-aged to older adults comprise the majority of the study population. By sex, most respondents were male (54; 63.5%), whereas females accounted for a smaller proportion (31; 36.5%). The majority were married (65, 76.5%), reflecting the presence of family support systems among the respondents. Regarding place of residence, more than half of the respondents (47, 55.3%) were from the First District of Bohol. In terms of educational attainment, a considerable proportion were college graduates (26, 30.6%), indicating a relatively moderate level of educational background among the respondents.

In terms of diagnosis, the majority of respondents were diagnosed with chronic kidney disease (CKD) or kidney failure (53, 62.4%). This was followed by CKD secondary to diabetes mellitus (16, 18.8%) and CKD secondary to hypertension (7, 8.2%). These findings indicate that metabolic and cardiovascular conditions remain the leading contributors to CKD among the respondents. Regarding the duration of hemodialysis, most respondents had been receiving dialysis for 1 year (35, 41.2%) or 2 years (28, 32.9%). At the same time, fewer had undergone dialysis for 3 years or longer (13, 15.3%), with only a small number reaching 6 years. This distribution suggests that a substantial proportion of patients were in the early to mid stages of long-term dialysis.

Regarding dialysis frequency, more than half of respondents underwent hemodialysis three times per week (43, 50.6%), followed by twice weekly (41, 48.2%), whereas only one respondent (1.2%) received dialysis once per week. Regarding perceived health condition, the majority of respondents (65, 76.5%) reported being in good health. In contrast, a smaller proportion (20% and 23.5%) reported poor health, indicating generally favorable self-reported health despite long-term dialysis.

Self-Care of Hemodialysis Patients. The findings indicated that hemodialysis patients in Tagbilaran City exhibited a very good overall level of self-care, with a total composite mean of 3.47. The highest-rated factor was Shunt Preservation (CM = 3.81), indicating that patients consistently prioritize protecting their vascular access, which is essential during dialysis. This supports the assertion that effective vascular access care reduces complications and supports dialysis outcomes (Avanji et al., 2021).

Habit Regulation ranked fourth (CM = 3.66), showing that most patients avoid harmful habits such as smoking and alcohol use. Observation of Care Instructions (CM = 3.42) ranked fifth, indicating general compliance with medical guidance; however, some practices, such as urine tracking, require improvement. The lowest-rated was Exercise Regulation (CM = 2.95), also within the "Good" range, highlighting the challenge dialysis patients face in maintaining physical activity due to fatigue and physical limitations, as supported by Shirazian et al. (2023). These results align with Orem's Self-Care Deficit Theory (2001), which posits that individuals who engage in effective self-care are more likely to experience better health outcomes and a higher quality of life.

Quality of Life. The Social Relationship Domain had the highest score (M = 4.10), indicating that patients feel well supported by family and peers. This emphasizes the crucial role of social connections in helping patients manage the emotional and physical demands of chronic kidney disease. Heidarzadeh et al. (2010) similarly emphasized the role of psychosocial well-being, finding that many hemodialysis patients report strong social well-being, reinforcing the value of interpersonal relationships in coping with illness.

The Psychological Domain obtained high values of 3.81 and 4.00,

respectively, indicating that patients frequently report mental resilience and satisfaction with their treatment environment. The Environmental Domain received a score of 4.00. It is highly probable that these evaluations are associated with health outcomes, such as treatment adherence and emotional stability, and that they also provide insights into the impact of these traits on overall well-being. These evaluations are likely to have negative health implications for the individual.

These findings are consistent with the multifaceted concept of quality of life developed by the World Health Organization (WHO). This concept posits that an individual's psychological, physical, social, and environmental health are essential components of their overall well-being. The Physical Domain had the lowest score, with a mean of 3.34, suggesting that the state of being is "Neither pleased nor dissatisfied." This score was obtained for this domain. This status serves as evidence that patients continue to experience substantial physical obstacles, including fatigue and discomfort, despite their successful disease management. A multitude of issues directly impact the quality of life of patients undergoing dialysis. This underscores the importance of recognizing these issues to enhance patient care. Heidarzadeh et al. (2010) also found that a significant number of patients are dissatisfied with their physical health, underscoring the need to address these issues comprehensively.

Extending Maslow's hierarchy of needs to include quality of life provides a broader perspective on the importance of patient well-being and the patterns observed across domains. Individuals must prioritize their fundamental physiological and safety needs before attending to higher-level psychological and social needs, as delineated by Maslow (Ventegodt et al., 2003). It is possible that the lower rating in the physical domain is attributable to the fact that patients who undergo hemodialysis frequently face persistent physical restrictions as a result of exhaustion, discomfort associated with treatment, and comorbidities. On the other hand, once their core survival needs have been addressed through continuous dialysis and access to healthcare, patients may, for the first time, place greater emphasis on their emotional well-being, social bonds, and psychological stability.

This perspective helps explain why the psychological and social domains were rated more favorably than physical health, underscoring the importance of addressing psychosocial needs alongside clinical care in improving overall quality of life.

Correlation between self-care and Quality of life. To determine the significant correlation between self-care and respondents' quality of life, the collected data were subjected to Spearman's Rank Correlation Test.

Table 1 presents the findings of a Spearman's rho correlation test examining the association between self-care and quality of life among individuals on hemodialysis. The test showed a slight positive association (r = 0.241, p = 0.026), which falls short of the conventional significance level of 0.05. This study shows that patients who are more involved in their own care

duties have a small but statistically significant improvement in their quality of life. This means that it is unlikely to be a coincidence. This highlights the meaningful impact healthcare professionals can have on supporting self-care and encourages them to feel confident in their role in enhancing patient well-being. These findings align with previous studies conducted in related disciplines. Self-management has repeatedly been linked to a higher quality of life for people with chronic illnesses (Lorig & Holman, 2003). Rasouli and Abedi (2022) showed that the association between breast cancer and quality of life is modified by self-care.

A study conducted in Kerala, India, revealed a moderate correlation ($r = 0.382$, $p = 0.001$) between self-management and quality of life among patients with chronic renal illness undergoing hemodialysis. This finding revealed that enhanced self-management, as indicated by modest correlation coefficients, contributes to general well-being. The results of this analysis are similar; however, the link is weaker. Nguyen et al. (2022) in Vietnam identified a strong positive association between self-care self-efficacy and both the physical ($r = 0.533$) and mental ($r = 0.47$) aspects of quality of life among hemodialysis patients. Although the present study found a lower correlation, it still supports this upward trend and underscores the importance of ongoing efforts to promote self-efficacy in patient care. This can motivate healthcare professionals and researchers to persist in their work to improve patient outcomes.

Table 1. *Correlation Between the Hemodialysis Patients' Self-Care and Quality of Life* (n= 85)

Variables	Statistical Test Used	Statistical Test Value	P-Value	Result	Decision Rule
Self-Care and Quality of Life	Spearman's Rho	.241	.026	Significant	Reject H$_o$

CONCLUSION

The study revealed that hemodialysis patients in Tagbilaran City, Bohol, generally exhibited very good self-care and quality of life. Most respondents consistently practiced dietary regulation, stress prevention, and therapeutic diet implementation. In the assessment of quality of life, the psychological and social relationship domains had the highest mean scores, indicating that emotional well-being and interpersonal support contribute greatly to their overall health. While the respondents' profile variables, such as age, sex, frequency of dialysis, and years on dialysis, showed no significant relationship with their level of self-care and quality of life, a significant positive correlation was found between self-care and quality of life.

These findings affirm Orem's Self-Care Deficit Theory, which emphasizes the importance of individual responsibility and empowerment in managing

one's health. Patients revealed that continuous self-care behaviors can improve quality of life, despite the fact that long-term dialysis therapy is associated with a number of problems, including those that are physical, emotional, and economic in nature. It is more likely that healthcare workers and students will feel confident and committed to empowering patients to live meaningful lives, despite their condition, if they understand the importance of education, support, and motivation.

RECOMMENDATIONS

1. To alleviate the economic burdens that hemodialysis patients, particularly those from low-income households, face, the Department of Health (DOH) and the Philippine Health Insurance Corporation (PhilHealth) can improve support services by expanding dialysis coverage and promoting sustainable financing mechanisms.
2. The University of Bohol, through the College of Nursing, may increase the integration of chronic illness self-management strategies into clinical training and community extension programs to help nursing students comprehend the psychosocial aspects of long-term care and patient empowerment.
3. The hemodialysis centers in Tagbilaran City, in coordination with local government units and healthcare workers, may conduct regular health teachings and workshops that focus on improving patient knowledge and compliance with therapeutic diets, medication, stress reduction, and vascular access care.
4. Nurses and primary healthcare providers may reinforce patient and family involvement through home visits, counseling, and the use of culturally appropriate educational materials that address emotional and social challenges encountered during dialysis.
5. Future researchers are encouraged to replicate this study with a larger and more diverse population, possibly using a longitudinal or mixed-method approach, to explore other variables affecting quality of life, such as income stability, comorbidities, and family support systems.

REFERENCES CITED

Abdel-Kader, K., Unruh, M. L., & Weisbord, S. D. (2009). Symptom burden, depression, and quality of life in chronic and end-stage kidney disease. *Clinical Journal of the American Society of Nephrology, 4*(6), 1057–1064. https://doi.org/10.2215/CJN.00430109

Abianeh, N. A., Zargar, S. A., Amirkhani, A., & Adelipouramlash, A. (2020). The effect of self-care education using the teach-back method on quality of life among hemodialysis patients. *Néphrologie & Thérapeutique, 16*(4), 197–200. https://doi.org/10.1016/j.nephro.2020.01.002

Avanji, F. S. I., Alavi, N. M., Akbari, H., & Saroladan, S. (2021). Self-care and its predictors among hemodialysis patients. *Journal of Caring Sciences, 10*(3), 153–159. https://doi.org/10.34172/jcs.2021.022

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

GBD Chronic Kidney Disease Collaboration. (2020). Global, regional, and national burden of chronic kidney disease, 1990–2017. *The Lancet, 395*(10225), 709–733. https://doi.org/10.1016/S0140-6736(20)30045-3

Hakeim, E. A., Desoky, G., & Hamza, M. (2024). The effect of nursing intervention guidelines on vascular access self-care practices and quality of life among patients on maintenance hemodialysis. *Egyptian Journal of Nursing and Health Sciences, 5*(1), 64–82. https://doi.org/10.21608/ejnhs.2024.347646

Heidarzadeh, M., Atashpeikar, S., & Jalilazar, T. (2010). Relationship between quality of life and self-care ability in patients receiving hemodialysis. *Iranian Journal of Nursing and Midwifery Research, 15*(2), 71–76.

International Society of Nephrology. (2023). *Global Kidney Health Atlas*. ISN. https://www.theisn.org

Lin, C. C., Tsai, F. M., Lin, H. S., Hwang, S. J., & Chen, H. C. (2012). Effects of a self-management program on patients with hemodialysis: A randomized controlled trial. *International Journal of Nursing Studies, 49*(5), 594–602. https://doi.org/10.1016/j.ijnurstu.2011.12.006

Lorig, K. R., & Holman, H. R. (2003). Self-management education: History, definition, outcomes, and mechanisms. *Annals of Behavioral Medicine, 26*(1), 1–7. https://doi.org/10.1207/S15324796ABM2601_01

Maslow, A. H. (1962). *Toward a psychology of being*. Van Nostrand.

Nguyen, T. T. N., Liang, S. Y., Liu, C. Y., & Chien, C. H. (2022). Self-care, self-efficacy, and depression are associated with quality of life among patients undergoing hemodialysis in Vietnam. *PLOS ONE, 17*(6), e0270100. https://doi.org/10.1371/journal.pone.0270100

Orem, D. E. (2001). *Nursing: Concepts of practice* (6th ed.). Mosby.

Rasouli, M., & Abedi, H. A. (2022). Self-care behaviors mediate the relationship between resilience and quality of life in breast cancer patients. *BMC Psychiatry, 22*, Article 470. https://doi.org/10.1186/s12888-022-04470-5

Republic of the Philippines. (2019). *Republic Act No. 11223: Universal Health Care Act*. Official Gazette. https://lawphil.net/statutes/repacts/ra2019/ra_11223_2019.html

Shirazian, S., Smaldone, A. M., Jacobson, A. M., Fazzari, M. J., & Weinger, K. (2023). Improving quality of life and self-care for patients on hemodialysis using cognitive behavioral strategies: A randomized controlled pilot trial. *PLOS ONE, 18*(5), e0285156. https://doi.org/10.1371/journal.pone.0285156

Teoli, D., & Bhardwaj, A. (2023). Quality of life. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK536962/

Ventegodt, S., Merrick, J., & Andersen, N. J. (2003). Quality of life theory III: Maslow revisited. *The Scientific World Journal, 3*, 1050–1057. https://doi.org/10.1100/tsw.2003.84

World Health Organization. (1998). *WHOQOL-BREF: Introduction, administration, scoring, and generic version of the assessment*. WHO. https://iris.who.int

Wu, Y. H., Hsu, Y. J., & Tzeng, W. C. (2022). Physical activity and health-related quality of life among patients with hemodialysis and comorbidities. *International Journal of Environmental Research and Public Health, 19*(2), 811. https://doi.org/10.3390/ijerph19020811

Yuan, L., Yuan, H., Feng, Q., & Zhao, J. (2021). Effect of continuous nursing on quality of life of hemodialysis patients: A protocol for systematic review and meta-analysis. *Medicine, 100*(12), e24942. https://doi.org/10.1097/MD.0000000000024942