EFFLEURAGE MASSAGE TO OVERCOME FATIGUE AND EDUCATION TO MEET THE NUTRITIONAL NEEDS OF CKD PATIENTS AFTER HEMODIALYSIS AT DR. M. YUNUS BENGKULU

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ABSTRACT

This study aims to identify and address major nursing problems in CKD patients undergoing hemodialysis, focusing on fatigue and nutritional deficit problems, and evaluating the effectiveness of interventions in the form of effleurage massage and nutrition education using pocket book media. Three CKD patients undergoing hemodialysis therapy at the Hemodialysis Unit of Dr. M. Yunus Hospital, Bengkulu, became the subjects of this case study, which uses a descriptive approach. The findings showed that before the intervention, all three patients experienced moderate levels of fatigue. After being given effleurage massage twice a week and nutrition education, there was a decrease in fatigue levels in all patients and an increase in knowledge about nutritional fulfillment. Nursing diagnoses found include fatigue, nutritional deficits, and hypervolemia. The conclusion of this study is that massage effleurage-based nursing interventions and nutrition education are effective in reducing fatigue levels and improving nutritional understanding of CKD patients undergoing hemodialysis. This approach can be used as one of the nonpharmacological strategies in nursing practice.

Keywords: CKD, Education, Hemodialysis, Nutritional Needs, Fatigue, Effleurage Massage

INTRODUCTION

Progressive and irreversible loss of kidney function is a hallmark of chronic kidney disease (CKD). This condition leads to metabolic, fluid, and electrolyte imbalances, causing symptoms such as uremia or azotemia (1). CKD is also known as an advanced form of various systemic diseases and disorders affecting the urinary tract and kidneys (2)**.** Diagnosis is made if kidney damage persists for more than three months, either structurally or functionally. If the disturbance lasts less than three months, it is categorized as acute kidney injury (Kemenkes, 2022). According to (3)**,** CKD is characterized by a glomerular filtration rate (GFR) below 60 ml/min/1.73 m² for over three months or evidence of kidney damage, such as albuminuria, abnormal urine sediment, electrolyte imbalances, or abnormal imaging or histology results. In some cases, a history of kidney transplantation is also an indicator of CKD.

If left untreated, impaired kidney function can progress to a more severe, even fatal condition. One primary method to slow further damage is hemodialysis therapy, which is

performed for 4–5 hours per session and can cause side effects like stress, headache, low blood pressure, cold sweats, and fatigue (4). Over 500 million people worldwide suffer from CKD and rely on hemodialysis (5). In 2018, there were 35,602 new hemodialysis patients in Indonesia, and this number continues to rise annually (6).

The leading causes of CKD include hypertension (36%), diabetic nephropathy (28%), and primary glomerulopathy (10%) (7). Hypertension increases pressure on kidney blood vessels, triggering damage, while CKD can also elevate blood pressure. Diabetes mellitus is a major cause of kidney damage due to high blood sugar levels damaging nephron structures. According to the World Health Organization (WHO), over 500 million people worldwide suffer from CKD, and over 1.5 million require hemodialysis. CKD-related deaths reach 1.42 million annually, making it the 11th leading cause of death globally (8).

The highest CKD prevalence is in Taiwan (2,990/1,000,000 population), Japan (2,590/1,000,000), and the US (2,020/1,000,000) (9). In Indonesia, CKD prevalence is 0.38% or approximately 713,783 individuals, with 2,850 (19.33%) undergoing hemodialysis, and 96% receiving therap. Hemodialysis is the primary therapy for end-stage renal failure, often required lifelong until transplantation (10). However, 82–90% of hemodialysis patients experience severe fatigue, a serious issue affecting physical and mental health (11).

Preliminary surveys at RSUD dr. M. Yunus Bengkulu showed most hemodialysis patients experience fatigue, dizziness, nausea, and weight fluctuations. This led researchers to develop interventions like effleurage massage and nutritional education to support CKD patient recovery post-hemodialysis. Fatigue in hemodialysis patients also impacts nutrition and physiology, altering hemoglobin and urea levels, and causing psychological issues like stress, insomnia, and depression. Factors like low sodium in dialysis fluid and rapid ultrafiltration worsen symptoms (12). Current management combines pharmacological and non-pharmacological therapies, with the latter preferred for fewer, safer options. Massage therapy is non-invasive, cost-effective, and improves comfort and quality of life, though more research is needed on its efficacy for fatigue, anxiety, and sleep disorders (13). Nutritional management is also crucial, supporting energy, cell repair, and vitality during therapy. Most patients at RSUD dr. M. Yunus Bengkulu report reduced appetite, nausea, and vomiting post-dialysis. Interviews revealed 8 of 10 patients experience physical symptoms post-hemodialysis.

METHODS

This study employed a case study design with a descriptive methodology. The subjects were three patients two males and one female undergoing hemodialysis treatment at Dr. M. Yunus Regional General Hospital, Bengkulu City. The research was conducted at the hospital's hemodialysis unit from July 7–10, 2025.The interventions included effleurage massage to alleviate fatigue and dizziness complaints, along with nutritional education tailored for CKD patients. Data collection instruments comprised a medical-surgical nursing care assessment form adapted to the hemodialysis unit's standards at Dr. M. Yunus Hospital, as well as protocols for effleurage massage and nutritional counseling. Data presentation was systematic to ensure clarity and facilitate accurate analysis. The data analysis method in this paper utilized a descriptive qualitative approach.

RESULTS AND DISCUSSIONS

Analysis of Client Characteristics

Based on the assessment, three patients were identified with primary complaints of fatigue and nutritional deficits. The first patient, Mr. R, is a 19-year-old unmarried male with no occupation, Muslim, completed elementary education, and resides in Tebeng Merpati 10, Bengkulu City. He was diagnosed with Chronic Kidney Disease (CKD). The second patient, Ms. S, is a 47-year-old married female working as a household assistant, Muslim, completed elementary education, and lives in Taba Penanjung Sukarami. She also suffers from CKD. The third patient, also named Ms. S, is a 41-year-old married female homemaker, Muslim, completed high school, and resides at the same address as the second patient. Her medical diagnosis is also CKD.

Hemodialysis patients often experience extreme fatigue, impacting their nutritional health. Physiological changes like increased urea levels and decreased hemoglobin worsen this condition. Additionally, issues during dialysis, such as rapid ultrafiltration and electrolyte imbalances, exacerbate symptoms. Hemodialysis patients also commonly face psychological problems like anxiety, depression, stress, and sleep disorders (13).

A study by Maryudella Afrida supports the importance of educational interventions, highlighting that low patient knowledge about self-care reduces quality of life. Her research evaluated the impact of a self-care education program on hemodialysis patients' understanding of vascular access, nutrition, and fluid management at home.

Using a quasi-experimental pretest-posttest design without a control group, 38 respondents were selected via sequential sampling and divided into two groups of 19. The intervention group received the education program, while the control group received standard inpatient therapy. Results showed a significant improvement in the intervention group's knowledge compared to the control group ($p = 0.000$), indicating the program positively impacted patients' self-management at home.

This underscores the importance of self-care education programs implemented by healthcare providers, especially nurses, to enhance patients' self-care abilities. Nurses, as health educators, help patients understand diet and fluid management independently. This knowledge is expected to better prepare CKD patients undergoing hemodialysis for daily activities and improve overall quality of life. Structured, continuous education is crucial to empower patients to manage their condition effectively.

Analysis of Main Nursing Problems

A nursing problem or diagnosis is a clinical decision made to assess a patient's response to a health condition or life process that is or may be occurring. This diagnosis aims to identify individual, family, or community reactions to specific health conditions (14). Based on the findings, the researcher identified nursing diagnoses for patients with Chronic Kidney Disease (CKD). Eight potential nursing problems for CKD patients include: excess fluid volume (hypervolemia), ineffective breathing pattern, impaired gas exchange, ineffective peripheral perfusion, fatigue, nutritional deficit, risk of infection, impaired skin integrity, and anxiety. In this study, three main problems were identified: fatigue related to physiological conditions,

indicated by complaints of weakness, dizziness, muscle pain, and the patient's weak and pale appearance; nutritional deficit associated with psychological factors, shown by weight loss and a thin, weak appearance; and hypervolemia due to body fluid regulation disorders, marked by edema in both lower limbs (grade 2 pitting edema).

Hemodialysis therapy contributes to significant physical fatigue in patients, aligning with Jafar's (2019) study that hemodialysis procedures lasting 4-5 hours lead to extreme fatigue and physical stress. Malnutrition, anemia, and lifelong dependence on dialysis are linked to this complex subjective reaction. Fatigue is also influenced by clinical, pharmacological, biochemical-hematological, psychological, cognitive, and socio-demographic factors. Research indicates CKD patients on hemodialysis experience less fatigue with non-pharmacological care like foot massage. Three respondents (two female, one male), aged 45-65, with junior high to high school education, reported feeling quite tired before receiving foot massage at a general hospital. Fatigue scores dropped from 22 to 17 (Respondent I), 24 to 17 (Respondent II), and 21 to 16 (Respondent III) after twice-weekly therapy, reinforcing that regular massage, particularly foot massage, reduces physical fatigue in CKD patients on hemodialysis. Beyond physiological approaches, nurses play a vital role in providing education and psychosocial support to enhance overall quality of life.

Analysis of Nursing Interventions

This research followed the (15)**.** Nursing interventions were evaluated on July 7 and 10, 2025, focusing on non-pharmacological relaxation and energy management via effleurage massage. Results showed a significant reduction in fatigue levels (from scale 5 pre-intervention to scale 1 post-intervention). Patients reported reduced post-hemodialysis fatigue and weakness. Hemodialysis patients typically experience psychological stress, including anxiety from procedures and side effects. The 4-5 hour process often causes stress, headaches, fatigue, and low blood pressure symptoms. These physiological and psychological effects lower quality of life. Depression is a commonly experienced psychological disorder among patients undergoing hemodialysis and has a strong association with insomnia and fatigue, Therefore, depression, insomnia, and fatigue should be early assessed and effectively treated by renal professionals in order to improve the quality of life in hemodialysis patients and reduce their morbidity and mortality (16).

Fatigue stems from energy imbalances caused by physical weakness, excessive activity, and lack of sleep. Anemia, uremia, malnutrition, depression, and inactivity contribute to hemodialysis fatigue. Long-term hemodialysis patients with high urea and creatinine levels also experience reduced red blood cell production, worsening fatigue and anemia (17). CKD fatigue management includes pharmacological (e.g., anemia treatment) and non-pharmacological approaches like effleurage massage. This technique uses gentle, rhythmic strokes to improve circulation, reduce metabolic waste buildup, and enhance oxygen/nutrient distribution. Effleurage stimulates relaxation-related nerves, triggering the hypothalamus to lower stress hormones (cortisol) and increase comfort hormones (serotonin, dopamine) (14)**,** boosting energy and reducing fatigue.

Back massage also improves sleep quality by lowering stress hormones via sympathetic nervous system stimulation (18). These findings align with (19), who reviewed massage

therapy efficacy for hemodialysis patients, noting reductions in sleep issues, fatigue, and anxiety. Variations in massage type include location, technique, timing, and duration.

CONCLUSION

1. This study involved three CKD patients undergoing hemodialysis at RSUD dr. M. Yunus Bengkulu, experiencing fatigue, dizziness, weight loss, and reduced appetite. Subjects included two females and one male selected based on these complaints.
2. All respondents reported post-hemodialysis fatigue. On day one, they received effleurage massage and nutritional education, resulting in reduced fatigue and improved nutritional understanding.
3. Nursing diagnoses included fatigue due to physical condition, psychological nutritional deficit (weight loss), and hypervolemia (edema).
4. Interventions followed SIKI (2016), incorporating effleurage massage and nutrition education via a booklet, "Nutritional Fulfillment for CKD Patients.
5. These interventions effectively reduced fatigue and improved nutrition knowledge, enhancing quality of life for CKD patients on hemodialysis.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

(LFL) data curation, investigation, validation, project administration: (LFL): concept, methodology, formal analysis, supervision, writing review & editing; (ZZ): visualization, resources, writing original draft; (EO, HW): writing original draft, writing review & editing.

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