**Review**

# Foot Reflexology And Back Massage Reduce Fatigue Levels In Chronic Kidney Disease: Literature Review

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ARTICLE INFO

***Article History***
Submit : Nov 15, 2023
Revised : Dec 22, 2023
Accepted : Dec 25, 2023

***Keywords:***
Foot Reflexology,
Back Massage,
Fatigue,
Chronic Kidney Disease.

## ABSTRACT

***Background:*** *Chronic Kidney Disease(CKD) is a disease that disrupts kidney function and cannot be recovered. The body's inability to maintain metabolism and fluid and electrolyte balance results in an increase in urea Tnon-pharmacological therapy that can be used for patients with Chronic Kidney Disease(CKD)To reduce fatigue, namely foot reflexology and back massage. To find out the implementation of foot reflexology and back massage to overcome the nursing problem of fatigue related to physiological conditions in patients with Kidney Disease(CKD)*

***Methods:*** *Writing this scientific paper uses the research method used in this research, namely, a literature review with the type of study to be identified, namely, a case report.*

***Results:*** *Research was conducted on patients diagnosed with Kidney Disease(CKD). The results of the study showed that the intervention of Foor Reflexology and Back Massage techniques was carried out for two days twice a day; on the first day before the intervention, the fatigue level score was 33 (Severe Fatigue), and after the intervention, the fatigue level score was 14 (Mild Fatigue). ) The second day before the intervention, a fatigue level score 24 (Moderate Fatigue) was obtained. After the intervention, a fatigue level score of 13 (mild fatigue) was obtained.*

***Conclusion:*** *This research shows that foot reflexology and back massage therapy can reduce fatigue in chronic Kidney Disease(CKD) patients.*

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*Cite this as* : Mampesi, A., Muhith, A., & Zahro, C. . (2023). Foot Reflexology And Back Massage Reduce Fatigue Levels In Chronic Kidney Disease: Literature Review. Journal of Applied Nursing and Health, 5(2), 267–275. https://doi.org/10.55018/janh.v5i2.156

## Introduction

*Chronic Kidney Disease*(CKD), more commonly called chronic kidney failure, is a disease that disrupts the function of the kidneys and cannot be recovered. The body's inability to maintain metabolism and fluid and electrolyte balance increases urea (F. S. Sari & Batubara, 2017). Patients with chronic kidney failure will experience a gradual decline in kidney function (Muhammad, 2012). Signs and symptoms commonly experienced by kidney failure sufferers are very common. They are usually also found in other diseases, both physically and psychologically, such as nausea, vomiting, changes in the frequency of urination, and swelling, while

psychological signs and symptoms, such as anxiety, depression, and stress (Amirudin et al., 2021; LaBuzetta et al., 2019).

According to WHO (World Health Organization), Globally, more than 500 million people suffer from ESRD (End Stage Renal Disease), which in the United States is a major health problem with a morbidity rate reaching 8,000,000 people. As many as 600,000 people die from this disease. Data from USRDS states that in the United States, more than 65% of patients with ESRD receive hemodialysis therapy. Worldwide, the overall prevalence of ESRD is recorded at around 10.8%, affecting an estimated 119,500,000 people, which is quite high and increasing rapidly. (Wang et al. 2016) The prevalence of ESRD is the first major disease diagnosis in patients undergoing hemodialysis. As many as 11,456 patients, 82%. Indonesian data revealed by Indonesia (IRR.2018) that only 44.2% underwent hemodialysis therapy in Indonesia, namely ESRD of 18613 patients or 89%.

The nursing problems faced by many chronic kidney failure patients undergoing hemodialysis are general anxiety, shortness of breath, and fatigue (weakness). Fatigue itself is one of the most common symptoms in clients with advanced disease. This condition is very disturbing and damages the quality of life. Clients who experience general weakness will feel a loss of energy, fatigue, increased desire to rest, loss of motivation, loss of concentration, and disturbed mood (Samarehfekri et al., 2020, 2023)There are several recommended actions to overcome fatigue: foot reflexology and back massage . This therapy is also believed to be more effective because it can improve sleep quality and reduce fatigue in hemodialysis patients. Massage therapy is one of the most popular complementary and alternative therapies used in nursing and is easy to implement, safe, non-invasive, and relatively cheap. Providing massage therapy is important to increase comfort compliance in undergoing therapy and improve the quality of life for CKD patients undergoing HD. There are various types of massage therapy, but there are no review articles that explain what types of massage therapy are effective in reducing fatigue, anxiety, and sleep disorders in CKD patients undergoing HD. Therefore, researchers conducted a systematic review aimed at examining and reviewing what types of massage therapy can reduce fatigue, anxiety, and sleep quality experienced by CKD patients undergoing HD

## Methods

This article uses the literature review method. Article searches were conducted in September 2023 using Science Direct, Pubmed, and Google Scholar journal databases. The search for journal articles was carried out regularly from the last three years, namely 2020-2023, with the search keywords "EFFORT TO REDUCTION LEVEL OF FATIQUE WITH FOOT REFLEXOLOGY AND BACK MASSAGE IN CKD PATIENTS." Researchers will filter the articles from the selected references without exception based on the title and abstract so that you get more relevant articles. 1) The inclusion criteria in this systematic review are: CKD (Chronic Kidney Disease) Patients, 2)Patients are male and female, 3)Willing to be a research respondent, 4)Can read and write, 5)The patient is at the research site. Exclusion criteria 1)Patients who experience impaired consciousness, 2)Patients who have comorbid diseases, 3)Patients who cannot communicate well. Articles that have been obtained from the database will be assessed using the PICO method by the inclusion and exclusion criteria; the money contains 1) the Title of the article, 2) the Author and year of

publication of the article, 3) the Research methodology (population, sample, intervention, and analysis) 4) Research results.

## Results

The initial literature study found 2,111 articles (167 from Science Direct, four from Pubmed, and 1,940 from Google Scholar). After selecting according to the inclusion criteria and removing articles that were not suitable, 19 articles were found to be reviewed. Based on the results of testing the univariate normality assumption in Table 5.3, the measurement score for the intervention and control groups has a test value of 0.586 and 0.775 because the P value is > 0.05 (greater than the value), then H0 is accepted, meaning that the measurement variable is distributed following a univariate normal distribution. Meanwhile, the post-intervention and control groups had test values of 0.177 and 0.111 because the P value was > 0.05 (greater than the alpha value), then H0 was accepted, meaning that the measurement variable had a value > 0.005, so it could be concluded that there was a significant difference between the pre-and post-intervention score values. After exercise and in the intervention group

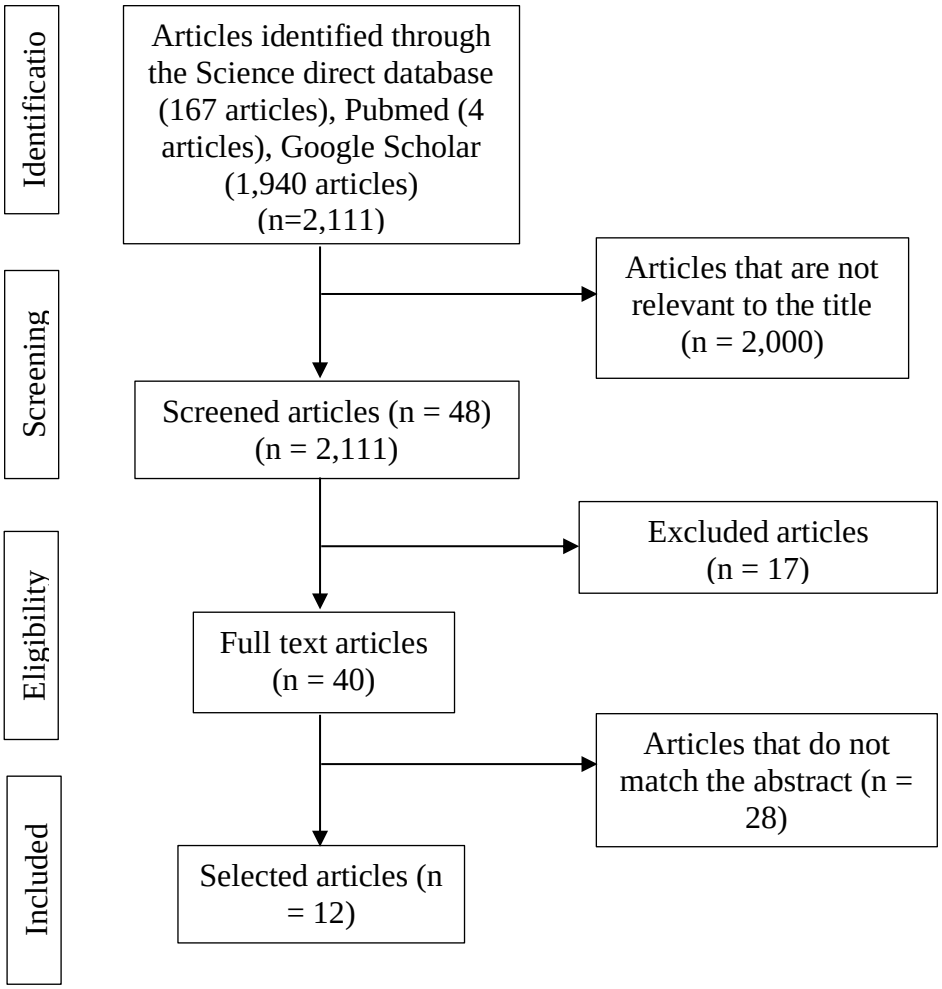


Figure 1. Literature Search Flow Diagram

Tabel 1. Extraction Data

| No. | Title, Author, And Year Of Article Publication | Research Methodology | Research result |
|---|---|---|---|
| 1 | The Effect Of Reducing Fatigue Levels With Foot Reflexology And Back Massage In Ckd Patients | Design: Literature Review<br>Subject: 5 articles<br>Variable: Foot Reflexology<br>Instrument: Article search via Science Direct, Elsevier, Proquest, and Google Scholar.<br>Analysis: A search through the journal database was conducted using an advanced search with full-text articles that met the relevant inclusion and exclusion criteria and excluded articles that did not match. | The review of 5 articles that have been obtained shows that the provision of progressive muscle relaxation therapy effectively reduces blood sugar levels in diabetes mellitus patients. |
| 2 | Complementary Therapy To Overcome Fatigue In Hemodialysis Patients: Literature Review | The stages used in this review are identifying based on keywords, screening titles and abstracts, selecting the suitability of articles, and selecting articles based on criteria. | Overall, complementary therapies can reduce the fatigue scale of hemodialysis patients. |
| 3 | Massage Therapy Reduces Fatigue, Anxiety, And Sleep Disturbance In Chronic Kidney Failure Patients Undergoing Hemodialysis (Pratiwi et al., 2023) | Using full-text articles in English using Scopus, ScienceDirect, Pubmed, CINAHL, and ProQuest with publication limits from 2016 to 2021. The keywords used are "massage therapy" AND "fatigue" AND "Anxiety" AND "sleep disorder," OR "sleep quality" AND "Chronic Kidney Disease" AND "hemodialysis | The research results showed that from the ten articles reviewed, there were types of massage therapy, namely back massage, foot massage, hand massage, and a combination with aromatherapy oils known to be more effective in reducing fatigue and anxiety scores and improving sleep quality. This review concludes that massage therapy is an effective, efficient therapy |

| No. | Title, Author, And Year Of Article Publication | Research Methodology | Research result |
|---|---|---|---|
| | | | with no side effects for HD patients. |
| 4 | The Effect Of Eight Forms Of Moving Meditation On Reducing Fatigue In Post-Haemodialysis Patients (L. M. Sari et al., 2017) | The research uses a Quasi-Experimental Design in the form of Pre-Post Test One Group Design is carried out for 20-30 minutes. The sample in this study amounted to 18 people, and the sampling technique used was accidental sampling. Data collection uses FAS sheets and statistical tests using the Paired T-Test test formula. Data collection uses FAS sheets statistical tests. | This research shows an average of pre-29.917, post-25.333, and decreased fatigue 4.5833 in post-hemodialysis patients with p-value < α (0.000 < 0.05). |
| 5 | The Effect Of Progressive Muscle Relaxation On Blood Sugar Levels Of Type 2 DM Patients At PKU Muhammadiyah Hospital Yogyakarta (Widiastuti & KL, 2023). | Design: Quasi-experimental pre-post test control group Subjects: 73 respondents (intervention group: 36 respondents and control group: 37 respondents) Variables: Progressive muscle relaxation and blood sugar levels Instruments: Glucometer Analysis: Wilcoxon t-test and Mann-Whitney | From the results of the Wilcoxon t-test p-value for the intervention group (0.00) < (0.05), while in the Mann-Whitney test, the control group p-value (0.00 < (0.05), it can be concluded that there is a difference between before and after progressive muscle relaxation. , and there was no difference in the control group. |
| 6 | Factors Associated With Fatigue In Chronic Kidney Failure Patients Undergoing Hemodialysis(Santoso et al., 2022) | This research is a non-experimental research with a correlational design. The sampling technique uses a total sampling technique. | There is an effect of progressive muscle relaxation in reducing blood sugar levels in diabetes mellitus patients with p-value (0.00) < (0.05). |
| | The Effect Of Foot Massage With Olive Oil On Fatigue In Hemodialysis | The research design used a quasi-experiment with a post-test on two intervention groups. The | After the foot massage, the fatigue score in the intervention group became. The statistical test |

| No. | Title, Author, And Year Of Article Publication | Research Methodology | Research result |
|---|---|---|---|
| | Patients(Nurdina et al., 2023) | sampling technique uses convenience sampling. The total research sample was 52 respondents, divided into two intervention and control groups. | results showed a significant difference in the mean level of fatigue between the intervention group and the control group, with a significant p-value of 0.000 < 0.05. K |
| 7 | The Effect Of Intradialytic Exercise On Fatigue In Hemodialysis Patients: Literature Review (Nurmansyah & Arofiati, 2019) | This research method uses literature review techniques. Data collection through internet research using Google Scholar, PubMed, and Proquest with the keywords intradialytic exercise, fatigue, and hemodialysis | Results with keywords included were 2,449 research journals. Then, a screening process was conducted, and ten journals meeting the discussion criteria were obtained. From the results of the review, intradialytic exercise has an impact on fatigue levels. |
| 8 | Application Of Pursed Lips Breathing To Fatigue In Patients With Chronic Kidney Failure (A Hamed & Mohamed Abdel Aziz, 2020) | The data collection techniques are interviews and observation, assessment, intervention, implementation, and evaluation. The application instrument used in data collection was the FACIT questionnaire sheet to measure the fatigue scale in patients. The implementation of pursed lips breathing is carried out using the pursed lips breathing SOP. | The results of the application after carrying out FACIT showed a change in the fatigue level score from 28 (fatigue) to 46 (not fatigue) |
| 9 | The Effect Of Breathing Exercise On The Level Of Fatigue In Hemodialysis Patients | This research uses a quasi-experimental research with a pre and post-test design and purposive sampling technique. | The results of the paired T-test obtained a p-value of 0.000, which indicates that it is significant. Differences in fatigue levels before and after breathing exercises. |

| No. | Title, Author, And Year Of Article Publication | Research Methodology | Research result |
|---|---|---|---|
| 10 | The Effects Of Massage Therapy On Sleep Quality Of Patients With End-Stage Renal Disease Undergoing Hemodialysis(A Hamed & Mohamed Abdel Aziz, 2020) | Design: Quasi-experimental pre-post test Subjects: 27 respondents (13 intervention group respondents and 14 control group respondents) Variables: Progressive Muscle relaxation and blood sugar levels Instruments: observation sheet and glucometer Analysis: Wilcoxon signed the rank test | Progressive Muscle relaxation is effective on blood sugar levels in people with diabetes mellitus p-value (0.00) < (0.05). |
| 11 | Effect Of Back Massage On Reducing Physical Fatigue In Chronic Renal Failure Patients(Malekshahi et al., 2018) | and physical fatigue in chronic kidney failure patients. The research method uses a quasi-experimental design. The entire population in this study was chronic kidney failure; the sampling technique used a total sampling of 25 people | The results of the study showed that there was an effect of back massage on reducing physical fatigue in chronic kidney failure patients at the Royal Prima Medan Hospital with a p-value of 0.000 < 0.05 |

## Discussion

The hemodialysis process is an intervention carried out throughout the patient's life with a frequency of 2-3 times/week. The duration of each hemodialysis session is 4-6 hours per hemodialysis session. As specified by Pernefri 7, the minimum hemodialysis service is 10-12 hours per week (Timby, 2010). Changes that will occur in patients undergoing hemodialysis include clinical and psychological changes. Psychological changes that arise due to ESRD disease include physiological and psychological stress, which can also contribute to causing disorders. Clinical changes include fatigue, sexual dysfunction, decreased appetite, anemia, difficulty concentrating, skin disorders, and muscle pain (Restless Legs Syndrome). Of the several clinical problems (RLS), it is a problem that patients often complain about because it causes discomfort. It is a motor (movement) disorder characterized by an uncomfortable condition in the legs with symptoms in the form of aches and pains, a burning sensation spreading in nature, twitching in the legs, itching and tingling, and cramps in the leg muscles. Patients who experience RLS problems will have an impact on Sleep Quality problems—based on research conducted by Christoforos D. Giannaki et al. (2011) entitled 70 CKD patients undergoing hemodialysis therapy, including 30 dialysis patients who experienced RLS symptoms and 40 dialysis patients who did not experience RLS.

Based on the results of previous

research, which has become a reference for researchers, it can be concluded that RLS symptoms in dialysis patients will generally occur in patients undergoing hemodialysis, and these symptoms will be experienced more often when patients want to start resting, namely at night. RLS symptoms experienced by dialysis patients will interfere with the patient's rest and sleep because symptoms such as tingling, cramps, itching, and burning sensation in the patient's limbs will worsen the patient's sleep both in quantity and quality. In this case, dialysis patients who experience RLS symptoms and are known to have decreased sleep quality are given intervention following established standard procedures that will reduce the perceived RLS symptoms. This happens because the exercise will increase relaxation in the patient's muscle mass, which is experiencing atrophy due to the patient's CKD disease. Increased muscle mass relaxation can relieve discomfort in the legs so that the patient's sleep quality can be improved by providing this exercise intervention.

The results obtained from the assessment showed one main nursing diagnosis, namely fatigue related to physiological conditions. The interventions provided, namely Foot Reflexology and Back Massage, were measured using the FAS (FATIQUE ASSESSMENT SCALE) measuring instrument, resulting in a score of 13 (Mild Fatigue) for respondents.in respondents aged 58 years with Chronic Kidney Disease.

## Conclusion

*Literature review* shows that giving foot reflexology and back massage to patients with CKD cases undergoing hemolysis is effective in reducing fatigue levels by relaxing the body. This relaxation therapy can be done regularly daily with the rule of 2x a day for 15-20 minutes to get maximum results.

## Authors Contributions

The author carries out tasks from data collection, data analysis, making discussions to making manuscripts

## Conflicts of Interest

There is no conflict of interest

## Acknowledgment

Thank you to the respondents and to those who have helped in this research

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