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Original Article

Spiritual Emotional Freedom Technique and Progressive Muscle Relaxation to Reduce Fatigue in Hemodialysis Patients

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ABSTRACT

Background: Fatigue represents a common and debilitating complaint in individuals undergoing dialysis, with substantial implications for quality of life and overall well-being. This study investigated the effect of combining Spiritual Emotional Freedom Technique (SEFT) therapy with Progressive Muscle Relaxation (PMR) exercises on fatigue levels among hemodialysis patients at Dr. Soekardjo Tasikmalaya Regional General Hospital.
Methods: A quasi-experimental pretest-posttest design was employed to evaluate the effects of a combined intervention involving Spiritual Emotional Freedom Technique (SEFT) and Progressive Muscle Relaxation (PMR) on fatigue levels. The study included 49 hemodialysis patients who fulfilled the established inclusion criteria. Fatigue intensity was assessed using the Fatigue Severity Scale (FSS), and statistical analysis was performed with a paired *t*-test, with significance determined at $p < 0.001$. Data collection took place between July and September 2022.
Results: The mean fatigue score significantly decreased from 51.8 ± 10.0 before the intervention to 17.5 ± 5.2 after the intervention ($p < 0.001$).
Conclusion: SEFT therapy combined with PMR exercises effectively reduces fatigue in hemodialysis patients. Nurses are encouraged to incorporate these techniques into comprehensive self-care interventions for hemodialysis patients. The study was constrained by being conducted at a single institution and by the inclusion of a relatively limited number of participants, factors that may restrict the broader applicability of the results. Future research with a larger, multi-center sample is recommended.

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INTRODUCTION

Hemodialysis constitutes the predominant modality of renal replacement therapy for individuals with end-stage chronic kidney disease. Despite its established role in sustaining survival, the treatment is commonly accompanied by a range of adverse effects and clinical complaints, among which fatigue is reported as one of the most frequent and burdensome symptoms (Burdelis & Cruz, 2023; İçigen & Erdem, 2024; Şahan & Güler, 2023). Reported prevalence rates of fatigue among hemodialysis patients vary substantially due to differences in definitions, populations, and research methodologies, ranging from 42% to 97% (Burdelis & Cruz, 2023; Y. Maruyama, Nakayama, Ueda, Miyazaki, & Yokoo, 2021).

Fatigue is a complex, multidimensional phenomenon encompassing physical, cognitive, and emotional depletion, which compromises an individual's capacity to perform daily activities effectively (Ju et al., 2020). It manifests as persistent tiredness even at rest, lack of energy to perform daily tasks, and decreased motivation (McClellan et al., 2004). Fatigue has been strongly

linked to reduced quality of life, impaired social interactions, poor sleep, and increased discomfort. Moreover, it elevates the risk of cardiovascular complications and premature mortality among hemodialysis patients, making effective management essential (Bai, Chang, Chiou, & Lee, 2019; Basu et al., 2016; Ju et al., 2020; Leme et al., 2020; Shi et al., 2024).

Multiple factors, including demographic characteristics, physiological and clinical conditions, psychological aspects, and dialysis-related variables influence the occurrence of fatigue (Cahyati & Rosdiana, 2022; Huiwen Li, Yin, Dong, & Tian, 2023; Picariello, Moss-Morris, Macdougall, & Chilcot, 2016; Shi et al., 2024; Zheng et al., 2023). Preliminary observations at the hemodialysis unit of Dr. Soekardjo Hospital, Tasikmalaya, revealed that fatigue remains a common and persistent complaint among patients, despite the hospital's implementation of standardized operating procedures designed to optimize dialysis outcomes and minimize complications.

Pharmacological interventions, such as intravenous administration of levocarnitine or erythropoietin, have been shown to alleviate fatigue in hemodialysis patients (Moledina & Perry Wilson, 2015). However, these therapies must be administered cautiously due to the potential for adverse effects related to reduced kidney function. As a result, non-pharmacological interventions have gained increasing attention, with evidence supporting their effectiveness in reducing fatigue (Amini, Goudarzi, Masoudi, Ahmadi, & Momeni, 2016; Hui Li, Zuo, Long, & Li, 2021). Progressive Muscle Relaxation (PMR) has been demonstrated to reduce fatigue by alleviating anxiety, improving sleep quality, and enhancing overall well-being (Amini et al., 2016; Ghozhdi, Ghaljeh, & Khazaei, 2022). Emotional Freedom Techniques (EFT) and its spiritual variant, Spiritual Emotional Freedom Techniques (SEFT), have also been associated with psychological and physiological improvements that may indirectly reduce fatigue (Bach et al., 2019; Bakkarang et al., 2023; Ghaderi, Nazari, & Shaygannejad, 2021; Irman & Wijayanti, 2022; Tang et al., 2023).

Although SEFT and PMR have each been shown to produce favorable outcomes, empirical evidence regarding their combined application for fatigue management in hemodialysis populations remains limited. The present study seeks to fill this gap by examining the effectiveness of integrating SEFT with PMR as a non-pharmacological strategy for alleviating fatigue among patients undergoing hemodialysis.

METHODS

The research adopted a quasi-experimental pretest–posttest design to assess the impact of a combined intervention consisting of Spiritual Emotional Freedom Technique (SEFT) and Progressive Muscle Relaxation (PMR) on fatigue levels in patients undergoing hemodialysis. The investigation was carried out in the Hemodialysis Unit of Dr. Soekardjo Hospital, Tasikmalaya City, Indonesia, over the period from July to September 2022.

Participants were selected through purposive sampling, yielding a total of 49 individuals receiving regular hemodialysis treatment. Eligibility criteria included an age range of 25-60 years, the presence of fatigue as identified by the Fatigue Severity Scale (FSS), a hemodialysis schedule of twice weekly, and agreement to participate as evidenced by written informed consent. Patients were excluded if they had hemoglobin levels below 8 g/dL or were currently using sleep-related medications.

Purposive sampling, while suitable for targeting specific populations, carries a risk of selection bias, which may affect the generalizability of results. To mitigate this, recruitment was carried out across both morning and afternoon HD shifts, with efforts made to include patients from diverse demographic and clinical backgrounds representative of the broader HD population at the study site.

The intervention consisted of a combined SEFT and PMR program conducted over four weeks, with a minimum of four sessions per week. Each session lasted approximately 30–40 minutes and was delivered by trained facilitators. The SEFT procedure followed three structured stages: Set-up (participants focused on their feelings of fatigue while reciting a spiritual affirmation), Tune-in (patients identified specific physical or emotional symptoms associated with fatigue), and Tapping (gentle tapping was applied to specific meridian points while maintaining focus on fatigue symptoms). Each SEFT session lasted 15–20 minutes.

PMR was implemented immediately after SEFT. Participants were guided through systematic tensing and relaxing of major muscle groups, following a standardized PMR procedure. Each PMR session lasted 15–20 minutes. Facilitators SEFT and PMR consisted of nurses and researchers who had completed certified SEFT training, ensuring standardization and safety in therapy delivery.

Participants received illustrated manuals to encourage independent practice at home. Family members and trained research assistants observed home sessions and recorded adherence using structured observation sheets. Compliance was monitored weekly through direct observation and follow-up phone calls.

The study protocol received ethical approval from the Health Research Ethics Committee of Poltekkes Kemenkes Tasikmalaya (Approval No.: KP-KEPK/0107/2022).

Prior to enrollment, participants were fully informed about the study's aims, procedures, potential risks, and anticipated benefits, after which written informed consent was obtained. Participant confidentiality was rigorously protected, and individuals retained the right to discontinue their involvement at any stage without any impact on their ongoing medical care.

Fatigue levels were evaluated using the Fatigue Severity Scale (FSS), a nine-item instrument commonly applied to assess fatigue in populations with chronic conditions. The scale has been shown to possess excellent internal reliability, with a reported Cronbach's alpha of 0.93, as well as robust construct validity. For this study, the instrument underwent forward-backward translation into Indonesian and was pre-tested with HD patients to ensure cultural and linguistic appropriateness. Scores were analyzed both as continuous variables and categorical classifications to reflect varying fatigue severity levels.

At baseline, fatigue scores were measured using the FSS. Participants then completed the four-week SEFT and PMR intervention program. Following the intervention, the same instrument was administered to assess changes in fatigue levels. Data were collected by trained research assistants using standardized procedures to ensure reliability. Observation sheets and compliance logs were reviewed weekly to monitor intervention fidelity.

Data analysis was conducted using univariate and bivariate statistical methods, and paired t-tests were used to compare pre- and post-intervention fatigue scores.

RESULTS

Table 1. Respondents' Characteristics (n = 49)

Variables	Mean	SD	Min – Max	95% CI
Age	48.02	8.98	27 – 60	45.44 – 50.60
Length of HD	43.35	33.61	8 - 138	33.69 – 53.00
Hb Rate	9.31	1.01	8 – 11.80	9.02 – 9.60
Kt/V	1.63	0.25	1.03 – 2.08	1.56 – 1.70
IDWG	3.15	0.84	2 - 5	2.91 – 3.39
Fatigue Before	51.78	9.98	28 - 67	48.91 – 54.64
Fatigue After	17.47	5.22	9 - 31	15.97 – 18.97

Note: Hb = hemoglobin, Kt/V = dialysis adequacy, IDWG = interdialytic weight gain.

The average age of participants was 48.02 years (SD = 8.98), indicating that most respondents were middle-aged adults, which is a group often associated with higher fatigue risk due to prolonged dialysis and comorbidities. The mean hemoglobin level was 9.31 g/dL, slightly below recommended targets for HD patients, potentially contributing to fatigue. The average pre-intervention fatigue score was 51.78, reflecting moderate-to-severe fatigue, while the post-intervention score dropped to 17.47, indicating a substantial improvement.

Table 2. Distribution of Respondents by Gender and Insomnia Complaints (n = 49)

Variables	n	%
Gender		
Male	20	40.8
Female	29	59.2
Insomnia Complaints		
Yes	42	85.7
No	7	14.3

The majority of participants were female (59.18%), which is consistent with national HD demographics where women tend to report higher levels of fatigue. Most respondents (85.71%) also experienced insomnia, a known factor that exacerbates fatigue in HD patients.

Table 3. Distribution of Average Fatigue Scores Before and After the Intervention (n = 49)

Fatigue Score	Mean	SD	SE	p-v*alue*
Before	51.78	9.98	1.16	<0,001
After	17.47	5.22		

The paired t-test showed a statistically significant decrease in fatigue scores following the four-week SEFT and PMR intervention ($p < 0.001$). The mean fatigue score reduction from 51.78 to 17.47 represents a very large effect size (Cohen's d = 4.31), indicating that the combined intervention had a powerful impact on alleviating fatigue.

Clinically, this suggests that integrating psychological and physiological approaches such as SEFT and PMR into routine HD care can provide substantial benefits in managing fatigue, which is a common and debilitating symptom among HD patients.

DISCUSSION

The average age of participants in this study was 48.02 years, indicating that most were middle-aged adults. Previous studies have shown that fatigue in hemodialysis (HD) patients is influenced by both physiological and psychosocial factors rather than age alone. Older adults tend to experience fatigue due to decreased muscle mass, comorbidities, and limited physical reserve, while younger patients often report higher psychological distress, which may also manifest as fatigue (Aoun et al., 2024; Ouyang et al., 2023). In this study, most respondents were female (59.2%), which is consistent with previous reports that women experience higher fatigue levels than men, possibly due to differences in hormonal factors, psychosocial roles, and coping mechanisms (van de Luijtgaarden et al., 2019; Yang & Lu, 2017). Furthermore, insomnia was prevalent in 85.7% of respondents, a condition that has been strongly associated with increased fatigue in HD populations (Alshammari et al., 2024; Azak & Altundag Dündar, 2012).

The mean hemoglobin (Hb) level of participants was 9.31 g/dL, which is slightly below the recommended target for HD patients. Low Hb levels are a well-documented cause of fatigue as they impair oxygen transport and contribute to anemia-related symptoms (Hamza, Metzinger, & Metzinger-Le Meuth, 2020; McClellan et al., 2004; Yamasaki et al., 2016). Dialysis adequacy in this study was suboptimal, with a mean Kt/V of 1.63, below the minimum recommended level of 2.0. Although the relationship between dialysis adequacy and fatigue remains inconsistent, inadequate clearance of uremic toxins may indirectly contribute to fatigue through increased inflammation and other complications (Chauhan & Mendonca, 2015; Suparti, Sodikin, & Endiyono, 2020). The average interdialytic weight gain (IDWG) was 3.15 kg, reflecting a moderate level of fluid overload between dialysis sessions. Excessive IDWG is known to cause intradialytic complications, such as hypotension and muscle cramps, which exacerbate post-dialysis fatigue (Huiwen Li et al., 2023).

The findings revealed a substantial reduction in fatigue following four weeks of integrated Spiritual Emotional Freedom Technique (SEFT) and Progressive Muscle Relaxation (PMR) interventions. Mean fatigue scores declined markedly from 51.78 to 17.47, with the difference reaching statistical significance ($p < 0.001$) and yielding a very large effect size (Cohen's $d = 4.31$). These results indicate that the combined application of SEFT and PMR produces a pronounced

clinical benefit in mitigating fatigue among hemodialysis patients. Moreover, the outcomes align with earlier research demonstrating the efficacy of PMR in alleviating stress, enhancing sleep quality, and reducing symptoms associated with fatigue (Amini et al., 2016; D, A, & Ibrahim, 2020; Irman & Wijayanti, 2022; Kaplan Serin, Ovayolu, & Ovayolu, 2020). SEFT, as a spiritual adaptation of Emotional Freedom Techniques, may reduce psychological distress and enhance coping mechanisms. Prior studies on EFT have reported improvements in anxiety, depression, and sleep quality among HD patients, which are closely linked to reductions in fatigue levels (Irman & Wijayanti, 2022; Tang et al., 2023). The integration of SEFT and PMR provides a holistic approach, addressing both psychological and physiological contributors to fatigue. This approach is especially valuable given that pharmacological treatments such as erythropoietin and levocarnitine, while effective, can cause side effects and are not suitable for all patients (T. Maruyama et al., 2017; Yamamoto et al., 2023).

Despite these promising results, several limitations must be considered. The investigation was confined to a single clinical setting and involved a relatively modest sample size (n = 49), which may restrict the external validity of the results. Furthermore, the lack of a control group limits the ability to exclude potential placebo effects or spontaneous fluctuations in fatigue levels over the study period. Purposive sampling may also introduce selection bias, although efforts were made to include participants with diverse demographic and clinical backgrounds. Furthermore, fatigue was measured using the FSS, which, while reliable, is a self-reported instrument and may be influenced by recall or social desirability bias. Future studies should address these limitations by using randomized controlled designs, larger multi-center samples, and objective measures of fatigue.

The very large effect size observed in this study highlights the potential for integrating SEFT and PMR into routine HD care. These interventions are low-cost, safe, and feasible to implement in both clinical and home settings. Training nurses and dialysis staff to deliver SEFT and PMR could enhance patient-centered care and help address fatigue, a common and debilitating symptom in HD patients, ultimately improving their overall quality of life and treatment outcomes.

CONCLUSION

This study demonstrated that the combination of SEFT and PMR effectively reduced fatigue levels in hemodialysis patients, with a substantial decrease in fatigue scores indicating strong clinical benefits. These results support the potential of non-pharmacological, holistic interventions to address fatigue, one of the most common and challenging symptoms experienced by this population.

While promising, these findings should be interpreted carefully due to several limitations, including the small sample size, single-site setting, and absence of a control group. These factors may limit the generalizability of the results and the ability to establish causality.

Future research should explore the effects of SEFT and PMR in larger, multi-center randomized controlled trials and examine their long-term impact on patient well-being. Clinically, integrating SEFT and PMR into routine care could offer a practical, low-cost strategy to complement existing treatment approaches, improving both fatigue management and overall quality of life for patients undergoing hemodialysis.

Author's Contribution Statement: Ida Rosdiana: Conceptualization, Methodology, original draft preparation. **Yanti Cahyati:** Data curation, writing, reviewing, and editing. **Asep Riyana**: Investigation, validation.

Conflicts of Interest: The authors report no financial or non-financial conflicts of interest associated with this research.

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