

Review On Non-Pharmacological Intervention to Reduce Fatigue in Hemodialysis Patients

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How to cite this article: Yadav R, Deb N. Review On Non-Pharmacological Intervention to Reduce Fatigue in Hemodialysis Patients. GFNPSS-Int. J. Multidiscip. Res. 2026; 7:4: 3369-3372

Submitted: 09 April 2026: **Accepted:** 18 April 2026: **Published:** 30 April 2026

Abstract

Fatigue is one of the most common and distressing symptoms experienced by patients undergoing hemodialysis, significantly affecting their quality of life and daily functioning. It is often associated with factors such as anemia, uraemia, sleep disturbances, reduced physical activity, and the psychological burden of chronic illness. Effective management of fatigue is therefore essential in improving patient outcomes and overall well-being.

Non-pharmacological interventions play a vital role in reducing fatigue among hemodialysis patients. Techniques such as relaxation therapy, deep breathing exercises, yoga, and the zone technique have shown promising results in enhancing energy levels and reducing perceived fatigue. Additionally, structured physical activity, including intradialytic exercises like stretching and light resistance training, helps improve muscle strength, circulation, and endurance. Nutritional support and adequate fluid management also contribute to maintaining energy balance.

Psychological interventions, including counseling and stress management strategies, further assist in reducing emotional distress and improving coping mechanisms. Patient education regarding lifestyle modifications, sleep hygiene, and adherence to treatment regimens is equally important.

Keywords: Fatigue, Hemodialysis, Zone technique, Quality of life.

Introduction

Chronic kidney disease (CKD) is a major global health problem, and patients in the advanced stages often require hemodialysis as a life-sustaining treatment. Although hemodialysis helps in removing waste products and excess fluids from the body, it is frequently associated with various physical and psychological complications. Among these, fatigue is one of the most common and distressing symptoms reported by patients. It is characterized by a persistent feeling of tiredness, lack of energy, and reduced ability to perform daily activities, which significantly affects the quality of life.⁽¹⁾

Fatigue in hemodialysis patients is complex and

multifactorial in nature. It may arise due to physiological factors such as anemia, electrolyte imbalance, toxin accumulation, and muscle wasting. Additionally, psychological factors including anxiety, depression, and stress related to chronic illness and dependency on dialysis further contribute to fatigue. Environmental and treatment-related factors, such as long hours of dialysis sessions, dietary restrictions, and disrupted sleep patterns, also play a significant role. This persistent fatigue leads to decreased physical activity, reduced functional ability, poor treatment adherence, and diminished quality of life.⁽²⁾

Despite advancements in medical management, fatigue often remains under-assessed and inadequately

managed in clinical practice. Pharmacological treatments alone are not always sufficient and may lead to additional side effects. Therefore, there is an increasing emphasis on integrating non-pharmacological interventions that are safe, cost-effective, and easy to implement within routine care. Such approaches focus on holistic management, addressing both physical and psychological aspects of fatigue.⁽³⁾

The zone technique is one such innovative and emerging non-pharmacological intervention aimed at promoting relaxation and mental focus. It involves a combination of deep breathing, guided imagery, and concentration exercises that help individuals enter a calm and focused mental state, often referred to as being “in the zone.” This technique enables patients to divert attention from discomfort and stress, thereby reducing the perception of fatigue and enhancing emotional stability.⁽⁴⁾

In hemodialysis settings, the zone technique can be conveniently practiced during dialysis sessions without disrupting treatment procedures. It requires minimal resources and can be effectively guided by nursing professionals, making it a practical intervention in busy clinical environments. Furthermore, it empowers patients by actively involving them in their own care, promoting self-control and positive coping strategies.⁽⁵⁾

Incorporating the zone technique into nursing care may provide a holistic approach to fatigue management, addressing both mind and body. It holds promise in improving patient comfort, enhancing psychological well-being, and ultimately elevating the quality of life for individuals undergoing hemodialysis. Therefore, it is essential to explore and evaluate the effectiveness of this technique in clinical practice to establish evidence-based strategies for fatigue reduction in this vulnerable population.⁽⁶⁾

Non- pharmacological interventions to reduce fatigue in hemodialysis patients

Non-pharmacological interventions play a vital role in reducing fatigue among hemodialysis patients. Techniques such as relaxation therapy, deep breathing exercises, yoga, and the zone technique have shown promising results in enhancing energy levels and reducing perceived fatigue.

1. Exercise Therapy (Intradialytic Exercise)

Exercise therapy, particularly intradialytic exercise, is an effective non-pharmacological intervention used to reduce fatigue in patients undergoing hemodialysis. It involves performing light to moderate physical activities

during dialysis sessions under supervision. Common exercises include stretching, range-of-motion activities, stationary cycling, and low-resistance strength training. These exercises are safe, feasible, and can be easily incorporated into routine dialysis care without interrupting the treatment process.⁽⁷⁾

Intradialytic exercise helps improve blood circulation, enhances oxygen delivery to tissues, and promotes better removal of metabolic waste products. It also strengthens muscles, improves joint flexibility, and increases overall physical endurance. As a result, patients experience reduced muscle weakness and improved ability to perform daily activities.⁽⁸⁾

Regular participation in exercise therapy has been shown to significantly reduce fatigue levels, which is one of the most common complaints among hemodialysis patients. Additionally, it contributes to improved cardiovascular health, better mood, and enhanced quality of life. Exercise also helps in reducing stress, anxiety, and depression, which are often associated with chronic illness.⁽⁹⁾

2. Relaxation Technique

techniques are simple, non-pharmacological methods used to reduce fatigue and improve overall well-being in patients undergoing hemodialysis. These techniques include deep breathing exercises, progressive muscle relaxation, meditation, and guided imagery, all of which help calm the mind and body. They are easy to perform, require no special equipment, and can be practiced during or after dialysis sessions.⁽¹⁰⁾

Deep breathing exercises promote better oxygenation and help reduce physical tension. Progressive muscle relaxation involves systematically tensing and relaxing different muscle groups, which helps relieve muscle stiffness and promotes a sense of physical comfort. Meditation and guided imagery encourage mental focus and positive thinking, helping patients shift attention away from discomfort and stress.⁽¹¹⁾

Regular use of relaxation techniques reduces anxiety, improves mood, and decreases mental fatigue. It also enhances sleep quality, which is often disturbed in hemodialysis patients. By promoting both physical and psychological relaxation, these techniques contribute to improved energy levels and better coping ability, ultimately enhancing the patient's quality of life.⁽¹²⁾

3. Zone Technique

The zone technique is a method used to reduce fatigue in patients undergoing hemodialysis. It combines mental focus, controlled breathing, and guided relaxation to

help patients achieve a calm and balanced state of mind. During this technique, patients are encouraged to concentrate on slow, deep breathing and visualize peaceful or positive images. This helps divert attention away from discomfort, stress, and fatigue experienced during dialysis sessions. Regular practice of the zone technique promotes relaxation, reduces anxiety, and improves emotional well-being. As a result, patients feel more energized, comfortable, and better able to cope with the physical and psychological challenges of hemodialysis.⁽¹³⁾

4. Yoga and Mind Body Practices

Yoga and mind-body practices are effective non-pharmacological interventions for reducing fatigue in patients undergoing hemodialysis. These practices include simple yoga postures (asanas), breathing techniques (pranayama), and mindfulness or meditation. They are gentle, safe, and can be adapted according to the patient's physical condition, making them suitable even during or between dialysis sessions.⁽¹⁴⁾

Yoga postures help improve flexibility, muscle strength, and joint mobility, which reduces physical discomfort and weakness. Breathing exercises enhance oxygen supply to the body, promote relaxation, and improve lung function. Mindfulness and meditation techniques calm the mind, reduce stress, and improve emotional balance.⁽¹⁵⁾

Regular practice of yoga helps decrease both physical and psychological fatigue by improving energy levels and promoting a sense of well-being. It also aids in better sleep, reduces anxiety and depression, and enhances concentration. Overall, yoga and mind-body practices support holistic health and improve the quality of life in hemodialysis patients.⁽¹⁶⁾

5. Sleep Hygiene Education

Sleep hygiene education is an important approach to reduce fatigue in patients undergoing hemodialysis. Many patients experience poor sleep quality due to physical discomfort, stress, and treatment-related factors, which contributes significantly to fatigue. Educating patients about healthy sleep habits can improve their overall rest and energy levels.⁽¹⁷⁾

Key components include maintaining a regular sleep schedule by going to bed and waking up at the same time each day. Patients are advised to avoid caffeine, heavy meals, and electronic device use before bedtime, as these can interfere with sleep. Creating a comfortable sleep environment such as a quiet, dark, and well-ventilated room—also promotes better sleep.⁽¹⁸⁾

Relaxation techniques like deep breathing or meditation before sleep can help calm the mind. Daytime naps should be limited to avoid disturbing night time sleep. By improving sleep quality through these practices, patients can experience reduced fatigue, better mood, and enhanced overall well-being.⁽¹⁹⁾

6. Nutritional Management

Nutritional management plays a vital role in reducing fatigue among hemodialysis patients. A balanced diet rich in essential nutrients helps maintain adequate energy levels and supports overall health. Proper protein intake is important to prevent muscle wasting and improve strength. Managing fluid intake and maintaining electrolyte balance, especially sodium, potassium, and phosphorus, are crucial to avoid complications that contribute to fatigue. Patients are also encouraged to consume iron-rich foods to prevent anemia, a major cause of tiredness. Individualized dietary plans, guided by healthcare professionals, help reduce weakness, improve physical function, and enhance the quality of life.⁽²⁰⁾

7. Psychological Support

Psychological support is an essential non-pharmacological intervention for reducing fatigue in patients undergoing hemodialysis. Many patients experience emotional distress due to the chronic nature of their illness, dependence on dialysis, and lifestyle limitations. This often leads to anxiety, depression, and stress, which significantly contribute to fatigue.⁽²¹⁾

Providing counseling and emotional support helps patients express their feelings, fears, and concerns in a safe environment. It improves their coping ability and promotes a positive outlook toward treatment. Stress management techniques such as relaxation exercises, mindfulness, and cognitive-behavioural strategies further help in reducing mental burden.⁽²²⁾

Support from family members, healthcare providers, and peer groups also plays a crucial role in enhancing emotional well-being. When psychological health improves, patients experience better motivation, improved sleep, and reduced fatigue. Thus, integrating psychological support into routine care enhances both mental and physical health outcomes in hemodialysis patients.⁽²³⁾

Conclusion

Fatigue remains one of the most common and challenging symptoms experienced by patients undergoing hemodialysis, significantly affecting their physical functioning, emotional stability, and overall

quality of life. Despite advancements in medical treatment, fatigue is often under-recognized and inadequately managed through pharmacological approaches alone. Therefore, the integration of non-pharmacological interventions has become increasingly important in providing comprehensive and patient-centered care.⁽²⁴⁾

Non-pharmacological strategies such as intradialytic exercise, relaxation techniques, yoga and mind-body practices, zone technique, sleep hygiene education, nutritional management, and psychological support offer a holistic approach to fatigue management.⁽²⁵⁾

Incorporating these interventions into daily nursing care empowers patients to actively participate in their own health management, enhancing their confidence and coping abilities. Furthermore, these approaches promote better adherence to treatment, improved sleep quality, and overall functional independence.⁽²⁶⁾

In conclusion, non-pharmacological interventions play a vital role in reducing fatigue among hemodialysis patients. A multidisciplinary and individualized approach is essential to achieve the best outcomes. By adopting these strategies, healthcare providers can significantly enhance patient comfort, improve quality of life, and support long-term well-being. Future research should focus on standardizing these interventions and evaluating their long-term effectiveness in diverse clinical settings.⁽²⁷⁾

Financial support and sponsorship: Nil

Conflicts of interests: There is no conflict of interest

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