

Spirituality-based interventions in patients undergoing hemodialysis: A systematic review

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MINH

MALAHAYATI INTERNATIONAL JOURNAL
OF NURSING AND HEALTH SCIENCE
ISSN 2620-9152 (Print)
ISSN 2621-4083 (Online)
DOI: 10.33024



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ARTICLE INFORMATION

Received: February, 17, 2024

Revised: June, 22, 2024

Available online: June, 23, 2024

at : <https://ejournal.malahayati.ac.id/index.php/minh>

**Spirituality-based interventions in patients undergoing hemodialysis:
A systematic review**

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Abstract

Background: Interventions rooted in spirituality have shown a beneficial impact on patients facing serious illnesses and undergoing prolonged therapies, such as those with chronic renal failure undergoing hemodialysis. Despite this, few studies have explored the effects of such interventions on the health outcomes of hemodialysis patients with renal failure.

Purpose: To assess the impact of spiritual interventions or therapies on the health outcomes of patients with renal failure undergoing hemodialysis.

Method: Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for systematic reviews. The review was conducted using 8 databases—Scopus, Cochrane, PubMed, Science Direct, Embase, ProQuest, PsycInfo, and Taylor & Francis Online. The review focused on 16 articles comprising Randomized Control Trials (RCTs) and quasi-experimental studies, which were evaluated for bias risk using the Joanna Briggs Institute (JBI) form.

Results: Spiritual interventions, including spiritual counseling, *dhikr* interventions, listening to Qur'anic recitation, prayer, spiritual therapy, spiritual training, and Islamic music therapy, have been identified as effective in reducing both physical and psychological distress among hemodialysis patients.

Conclusion: Implementing spirituality-based interventions shows promise in alleviating distress among patients undergoing hemodialysis.

Keywords: End Stage Kidney Disease; Hemodialysis; Nursing Interventions; Spiritual Based Interventions.

INTRODUCTION

Individuals suffering from kidney failure often encounter various care needs that remain unfulfilled. The experience of living with kidney failure and undergoing hemodialysis significantly affects individuals' self-perception and introduces practical and other complex needs that current services do not adequately address. These needs encompass psychological and emotional well-being, physical health, social support, familial relationships, communication between patients and healthcare providers, family-related concerns, access to

healthcare information, spiritual guidance, daily life management, and practical support (McKie, Turner, & Paterson, 2023).

Patients undergoing hemodialysis expressed moderate levels of hope, social support, anxiety, and depression. Given the connections observed between hope, social support, spiritual well-being, anxiety, depression, and stress, interventions targeting these factors could potentially enhance hope levels among hemodialysis patients (Rambod, Pasyar, & Mokhtarizadeh, 2020). Spiritual

DOI: <https://doi.org/10.33024/minh.v7i4.183>

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interventions have been shown to alleviate suffering, help patients to prepare for end-of-life issues, improve quality of life, and well-being (de Diego-Cordero, Suárez-Reina, Badanta, Lucchetti, & Vega-Escano, 2022). Spiritual healing involves access to an individual's belief system that can be achieved through prayer or religious readings to explore areas of conflict to improve one's HrQOL, while religious activities can improve health outcomes (Chu, Yeam, Low, Tay, Foo, & Seng, 2021; Çoruh, Ayele, Pugh, & Mulligan, 2005). Spiritual healing is effective for overcoming anxiety symptoms and reducing depressive symptoms in chronic kidney disease patients (Chu et al., 2021). Evidence for spiritual practices and meditation has a low level of certainty (Natale, Palmer, Ruospo, Saglimbene, Rabindranath, & Strippoli, 2019).

To enhance care quality and alleviate physical and psychological distress in hemodialysis patients, a nursing approach integrating the patient's spirituality is essential. Therefore, this systematic review was conducted to identify interventions rooted in spirituality aimed at reducing distress in hemodialysis patients with renal failure. The review assesses the impact of these interventions on the health outcomes of such patients and aims to consolidate findings on spiritually based approaches studied in this population undergoing hemodialysis.

RESEARCH METHOD

This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for systematic reviews. The literature search was conducted from September to December 2023 across multiple databases: Scopus, Cochrane, PubMed, ScienceDirect, Embase, ProQuest, PsycInfo, and Taylor & Francis Online. Keywords used included "spiritual intervention OR spiritual therapy OR spiritual care AND hemodialysis patient OR hemodialysis patient."

The first step involved formulating a PICO (Population, Intervention, Comparison, Outcome) question: "What constitutes a spiritually based intervention for patients undergoing hemodialysis?"

Studies included in the review met criteria for RCTs and quasi-experimental designs focusing on spiritually based interventions to reduce distress in adult hemodialysis patients. Articles selected were published within the last decade, available in full-text, and written in English. Exclusion criteria encompassed interventions not specific to hemodialysis in renal failure patients, as well as those focusing on education, psychosocial aspects, and review articles. Articles were independently evaluated based on their title, abstract, and full text against predefined inclusion criteria. Duplicated articles, those not meeting the criteria, and irrelevant studies were excluded from further analysis.

The authors independently extracted comprehensive data from these studies, including details such as authorship, publication year, title, study design, sample size, interventions aimed at distress reduction, duration of interventions, and outcomes.

Each study underwent a critical appraisal following the guidelines provided by the JBI for assessing risk of bias in both RCTs and quasi-experimental studies. The assessment covered six domains: bias related to selection and allocation, intervention implementation bias, bias in outcome assessment and measurement, bias due to participant attrition, appropriateness of statistical analysis, and study design adequacy.

The studies were grouped based on the type of intervention, patient age, surgical period, and outcomes assessed. Spiritual interventions were categorized as spiritual counseling, *dhikr* interventions, listening to Qur'anic recitation, prayer, spiritual therapy, spiritual training, and Islamic music therapy. The majority of studies focused on patients undergoing hemodialysis.

Study outcomes encompassed a range of physiological measures such as blood pressure, pulse rate, respiratory rate, physical health, and pain reduction. Psychological outcomes included variables like hope, anxiety, depression, self-esteem, self-efficacy, mental health, and fear of death.

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RESEARCH RESULTS

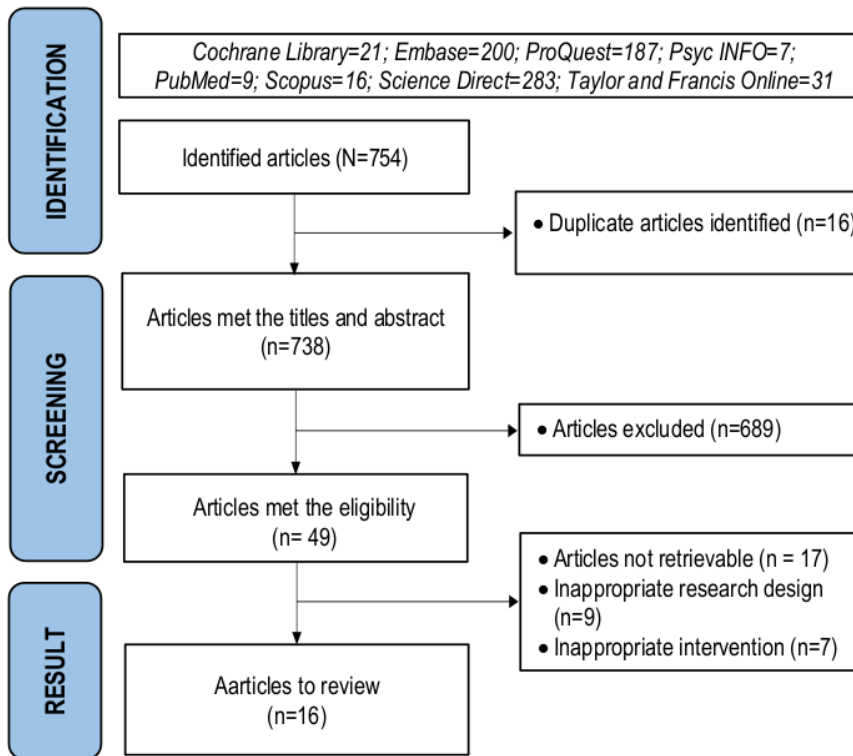


Figure 1. PRISMA Flow Diagram

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Table 1. The Main Characteristics of Included Studies

Author	Purpose	Method	Results
(Afazel, Aghajani, & Morassaei, 2013)	To determine the effects of spiritual counseling on the hope in hemodialysis patients.	Clinical Trial Study	The mean expectancy of the intervention group patients after spiritual counseling (33.36±5.9) was higher than before (28.48±3.2) (p<0.0001). In the control group, there was no significant difference in pre- and post-expectations. The mean expectancy was significantly higher in the intervention group after spiritual counseling compared to the control group (p<0.0001).
(Anggun, Kusumawinakhayu, & Mustikawati, 2021)	To discover <i>dhikr</i> 's influence on the level of anxiety and depression in patients on hemodialysis	Quasi experiment	⁹ This study showed a decrease in the mean anxiety level from 5.83 to 1.67 in the experimental group (p=0.003). The mean level of depression decreased from 9.67 to 4.67 in the experimental group (p = 0.003).
(Asadzandi, Mazandarani, Saffari, & Khaghanizadeh, 2022)	To investigate the effect of spiritual care on spiritual experiences of hemodialysis patients.	Randomized Controlled Trial	Before the intervention, there was no significant difference in the spiritual experience scores of the intervention group (75.20 ± 9.14) and the control group (76.63 ± 10.03), (P = 0.523). Three months after the intervention, there was a significant difference between the intervention group (82.93 ± 5.69) and the control group (77.24 ± 12.09), (P < 0.0001).
(Babamohamadi, Sotodehasi, Koenig, Al Zaben, Jahani, & Ghorbani, 2017)	To examine the effect of the Holy Qur'an recitation on depressive symptoms in hemodialysis patients.	Randomized Controlled Trial	¹ The mean baseline depression score was 33.6 (±6.7) in the experimental group and 29.3 (±9.0) in the control group. At the end of treatment, the depression score of the experimental group was 14.5 (±4.8) and that of the control group was 31.6 (±9.2). Results from the general linear model showed a significant treatment effect (F = 9.30, p = 0.004, Cohen's d = 0.85).
(Babamohamadi, Sotodehasi, Koenig, Jahani, & Ghorbani, 2017)	To investigate the impact of Qur'an recitation on anxiety in hemodialysis patients	Randomized Controlled Trial	¹ The intervention group's baseline anxiety score from 128.1 (SD = 13.0) to 82.1 (SD = 11.3), while the control group had no change in anxiety score (118.3, SD = 14.5), vs (120.1, SD = 14.4). A comparison between subjects at follow-up and baseline, showed a significant

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2015)

(Brasileiro, Prado, Assis, Nogueira, Lima, & Chaves, 2017)

5 To assess the effect of prayer on blood pressure, heart rate and respiratory rate in patients with chronic kidney disease and learn their perception of the intervention.

Randomized
Controlled
Trial

12 decrease in anxiety in the intervention group compared to the control group ($F = 15.5$, $p = 0.0002$, $d = 1.03$).

The mean of initial diastolic blood pressure of the intervention group from 145.9 to 136.9 ($p < 0.001$). While the control group from 138.1 to 143.4 ($p < 0.001$). The mean of initial diastolic blood pressure of the intervention group was 86.1 to 82.8 ($p < 0.001$). While the mean of diastolic blood pressure of the control group was 79.5 to 80.2 ($p < 0.224$). The mean of pulse frequency of the intervention group before was 75.6 to 71.4 ($p < 0.001$). Meanwhile, the mean of pulse frequency of the control group was 73.4 and 73.8 ($p < 0.402$). The mean of respiratory frequency of the intervention group before (18.5) and after (17.2) ($p < 0.001$). While the mean of respiratory frequency of the control group was 18.9 and 19.5 ($p < 0.001$). Intra-group analysis, a significant decrease ($P < 0.01$) of blood pressure, pulse frequency and respiratory frequency was observed in the evaluation group of the prayed-for people.

(Darvishi, Otoghi, & Mami, 2020)

11 To determine the effectiveness of spiritual therapy on spiritual well-being, self-esteem and self-efficacy in patients on hemodialysis.

Quasi
Experiment

The spiritual health score of the experimental group changed from 39.32 ± 3.38 to 43.40 ± 2.82 significantly compared to the control group ($p = 0.01$). The experimental group's self-esteem score changed from 42.65 ± 2.61 to 45.90 ± 3.88 significantly compared to the control group ($p = 0.01$). The experimental group's self-efficacy score changed from 40.99 ± 2.19 to 44.65 ± 2.58 .

(Durmuş, & Ekinci, 2022)

To determine the effect of spiritual care on the anxiety and depression levels of patients receiving hemodialysis treatment

Randomized
Controlled
Trial

4 The mean scores of the control group patients between the pre-test and post-test of anxiety ($t = -0.832$, $p = 0.411$) and depression ($W = -0.777$, $p = 0.437$) were found to be statistically insignificant differences ($p > 0.05$). The mean scores of the experimental group patients between the pre-test and post-test of anxiety ($t = -5.270$, $p = 0.000$) and depression ($W = 3.811$, $p = 0.001$) were found to be statistically significant differences ($p < 0.05$).

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<p>(Farih, Mkacher, Bouzguenda, Jaafar, ALKandari, Salah, & Farih, 2017)</p>	<p>1 To determine whether listening to Holy Qur'an recitation would augment the beneficial effects of physical exercise on physiological and psychological measures in elderly patients undergoing hemodialysis</p>	<p>Quasi Experiment</p>	<p>7 All measured parameters improved significantly compared to baseline in both groups, except Kt/V in the control group ($p > 0.05$). The final measurements were significantly higher in the intervention group than the control group for all measured parameters, except for 6 Minutes Walk Training (6MWT) performance and SF-36 Physical Component Summary ($p > 0.05$).</p>
<p>(Hosseini, Naseri-Salahshour, Farsi, Esmaeili, Sajadi, Maddah, & Fournier, 2022)</p>	<p>1 To investigate the effect of spirituality-oriented psychological counseling (SOPC) on fear of death (FOD) among hemodialysis patients</p>	<p>Randomized Controlled Trial</p>	<p>Before the intervention, there was no significant difference between the intervention and control groups in fear of death (60.75 ± 5.72 vs. 61.48 ± 16.23, $p = 0.26$). After the intervention, the mean fear of death score in the intervention group decreased significantly compared to the control group (35.01 ± 15.23 vs. 60.72 ± 16.79, $p = 0.01$). Meanwhile, the mean score of fear of death in the control group had no significant difference ($p = 0.26$).</p>
<p>(Hosseinpour, Nooryan, Larki, Shirazi, & Zoladi, 2020)</p>	<p>To determine the effect of spiritual intelligence training on hope of patients with CKD undergoing hemodialysis</p>	<p>Randomized Controlled Trial</p>	<p>6 Initially there was no significant difference between the intervention group and the control group in terms of spiritual intelligence and hope ($p > 0.05$). After the intervention, the level of hope in the intervention group (20.82 ± 3.21) compared to the control group (18.03 ± 3.41) increased significantly ($p < 0.05$).</p>
<p>(Al Husna, Sari, Fikri, & Arifianto, 2023)</p>	<p>To determine the effect of Islamic music therapy in reducing pain in CKD patients undergoing hemodialysis.</p>	<p>Pre-experimental study</p>	<p>The control group that was not given Islamic music therapy experienced pain in the range of 4-10 (Numeric Rating Scale). While the Islamic music therapy intervention group experienced pain in the range of 0-5 (numeric scale). The control group and the Islamic music therapy intervention group experienced different levels of discomfort. The P value was 0.001 (0.05) according to the Mann-Whitney statistical test.</p>
<p>(Mashitah, 2020)</p>	<p>To reveal the effect of Quran recitation therapy on depression level of CKD patients undergoing</p>	<p>Quasi-experiment</p>	<p>1 Depression scores in the treatment group showed a significantly higher decrease than the control group. The decrease in depression level in the treatment group was 17.43 ± 9.00, while in the control group it was 7 ± 7.19 ($p = 0.002$, $p < 0.05$).</p>

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hemodialysis in Hemodialysis

(Moodi, Arian, Moodi, & Dastjerdi, 2020)	To evaluate the effectiveness of spiritual therapy on depression, anxiety, and stress in hemodialysis patients referred to the dialysis ward of special diseases center of Birjand in 2019 – 2020	Semi-experimental study	<p>1 Depression, anxiety, and stress scores before the intervention in patients in the experimental and control groups were not significantly different ($P = 0.61$). After the intervention and three months after the intervention, the depression, anxiety and stress scores of the experimental group patients were significantly lower than those of the control group ($P < 0.001$).</p>
(Nasrollahi, Asadzandi, Mohammadzadeh, Farahani, & Tayyebi, 2021)	To evaluate the effect of spiritual care based on the Sound Heart Model on depression in hemodialysis patients	Randomized Controlled Trial	<p>1 There was no significant difference in the mean depression score between the intervention group and the control group before the intervention ($p = 0.604$). After the intervention, the difference was significant ($p = 0.000$). There was no statistically significant difference in the mean depression score in the control group before and after the intervention ($p = 0.259$), whereas this difference was significant in the intervention group ($p < 0.001$).</p>
(Eloia, Ximenes, Eloia, Galindo, Barros, & Caetano, 2021)	To evaluate the effect of prayer on religious/spiritual coping and on the hope of patients with chronic kidney disease undergoing hemodialysis.	Randomized Controlled Trial	<p>2 Participants used positive coping with high mean values in both groups: control - 3.62 and intervention - 3.26 and negative coping was used only slightly (control - 1.66 and intervention - 1.47). Total coping use was between 2.35 and 2.48 in the intervention group ($p = 0.015$). Hope variables were better in the intervention group: optimism ($p = 0.001$), short-term and long-term plans ($p = 0.004$), remembering happy moments ($p = 0.039$) and appreciating life ($p = 0.050$).</p>

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DISCUSSION

The duration of spiritually based interventions varied across the 16 research articles reviewed. There are several spiritually-based interventions that can reduce the physical and psychological distress of patients undergoing hemodialysis, including the following:

Spiritual Counseling

Spiritual counseling can have a positive effect on the hope of hemodialysis patients. It assists patients in continuing treatment and recovering and has physical, spiritual and mental effects (Afazel et al, 2022; Darvishi et al, 2020; Hosseini et al, 2022; Nasrollahi et al, 2021). Therefore, it is recommended that this type of counseling be implemented in treatment plans and that authorities, managers and scholars pay more attention. It is hoped that by undergoing this spiritual counseling, patients' recovery and comfort will be accelerated and improved.

The importance of holistic and community-oriented care is also highly noted in the care of hemodialysis patients. The Voice of the Heart model in the Islamic paradigm is a recommended option in the spiritual care of Muslim patients. The use of this model is effective in improving patients' spiritual well-being, self-esteem, and self-efficacy, and provides positive outcomes such as improved quality of life and better treatment. Spirituality therapy can also be used as an effective intervention to improve spiritual well-being in hemodialysis patients.

Spiritual counseling can also play a role in reducing the fear of death in chronic hemodialysis patients, especially in the Muslim population. Nurses can play a positive role in reducing these fears and psychological counseling also has a positive impact on hemodialysis patients. However, the generalizability of the results of this study is limited due to spiritual and cultural differences between this country and other societies. Therefore, it is recommended that further research be conducted on the effect of spiritual counseling in other populations.

The Voice of the Heart model, with its holistic and community approach, can reduce the level of depression in hemodialysis patients. This model includes various elements such as positive thinking,

developing relationships with God, self, others, and nature. Therefore, the use of this model is highly recommended for patients undergoing chronic treatment such as renal failure patients with hemodialysis therapy.

Overall, these five studies show that spiritual counseling and spirituality therapy have a positive impact on hemodialysis patients. Holistic and spiritually-oriented care is also an important aspect of this treatment. However, more research needs to be done on the effect of these counseling and therapies in different populations and their effect on various aspects of patient well-being.

Hearing Scripture Readings

One of the interventions used to reduce the psychological distress of hemodialysis patients is by listening to Qur'anic recitations. Various verses and prayers that are played to patients undergoing hemodialysis include Surah Yasin, traditional chants and others (Babamohamadi et al, 2015; Babamohamadi et al, 2017; Frih et al, 2017; Mashitah, 2020). These four studies found that listening to Qur'anic verses for 20 minutes three times a week for 1 month reduced depressive symptoms in hemodialysis patients in Iran regardless of age. However, further research is needed to replicate these results in hemodialysis patients in other Muslim countries as well as in patients with chronic diseases in general to answer questions related to the mechanism and whether or not the same effect can be achieved by listening to other surahs in the Qur'an.

Listening to Qur'anic recitation resulted in a large decrease in anxiety in hemodialysis patients, regardless of age, gender, and family status (Babamohamadi et al, 2015; Babamohamadi et al, 2017). Therefore, it is recommended to continue research into the effects of listening to Qur'anic recitation on anxiety and other psychological disorders. This therapy can be used in conjunction with other therapies to achieve better results in hemodialysis patients.

Listening to Qur'anic recitation combined with interdialytic endurance-resistance training can improve physical condition and quality of life, and

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significantly reduce anxiety in dialysis patients. It is considered a readily available and less expensive complementary therapy to address anxiety, decreased physical performance, and quality of life in dialysis patients (Farih et al., 2017). Qur'an recitation therapy can be done together with the medical therapy that hemodialysis patients are receiving.

Qur'an recitation therapy is effective in overcoming depression in hemodialysis patients (Mashitah, 2020). This therapy can be carried out in line with the medical treatment being received by the patient and is considered an Islamic psychotherapy that can be applied in clinical settings.

Although there are challenges in implementing this therapy in hemodialysis units that have busy activities, there needs to be a system that can integrate Qur'an recitation therapy into clinical services so as not to increase the workload of health workers. Qur'an recitation therapy should be carried out on an ongoing basis by patients themselves to maintain positive beliefs about their illness.

Religious Music Therapy

One such spiritually-based intervention that uses another audio approach is spiritual music therapy. In this review, articles were found that examined the effects of Islamic music therapy on patients undergoing hemodialysis (Al Husna et al, 2023).

Islamic music therapy can be used to manage pain in patients undergoing hemodialysis cannulation. Islamic music, which contains spiritual aspects and lyrics that draw closer to God, can create a calm and comfortable atmosphere for patients. It also has physiological effects that help reduce stress, anxiety and pain.

Islamic and spiritual music can provide a feeling of peace and increase spiritual awareness in patients. Islamic music therapy can also increase the release of endorphins which have an analgesic effect, helping to reduce pain. In addition, patients tend to like music-related activities, and nurses can use music therapy creatively in their interventions. Music therapy, especially Islamic music therapy, can be used as an effective non-pharmacological therapy in managing pain in patients.

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Pray or be prayed for

This review found two articles that used prayer interventions to improve the physical and psychological health of patients undergoing hemodialysis (Brasileiro et al, 2017; Eloia et al, 2021). In addition, there is also a prayer intervention to remember God in the form of *dhikr* therapy (Anggun et al, 2021).

The results of the three evaluations before and after the intervention showed that prayer had a satisfactory effect on hemodialysis patients. Prayer was effective in reducing blood pressure, heart rate, and respiratory rate in the patients studied. Patients with chronic kidney disease undergoing hemodialysis perceive prayer as a complementary intervention that provides relief from suffering. The nursing team can use prayer as a method to provide spiritual support to patients in dealing with the discomfort, medication, anxiety, and lifestyle changes caused by hemodialysis.

Prayer increases the patient's will to live and affects the level of hope during treatment. Prayer is a simple and cost-effective measure that can be easily implemented without disrupting hospital routines. Future research is recommended to evaluate the relationship between the level of hope and different periods of care as well as the factors that influence the level of hope. In addition, it is necessary to develop research that ensures the use of prayer by nurses.

Spiritual Training

Spiritual care training can reduce levels of anxiety and depression in patients undergoing hemodialysis treatment (Durmuş & Ekinci, 2022; Hosseinpour et al, 2020; Moodi et al, 2020). In addition to pharmacological treatment, spiritual care can be a useful psychosocial treatment method and needs to be incorporated into patient education programs. By strengthening spiritual training, it can be an effective complementary therapy option for patients undergoing hemodialysis.

Spiritual care can be used as a healthcare intervention for the management of anxiety and depression in hemodialysis patients. Spiritual intelligence training also improves the hope and mental health of patients with chronic kidney disease

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undergoing hemodialysis. Hemodialysis patients often use their spiritual and religious beliefs as a way to cope with the disease, and spiritual healing is considered effective in reducing depression, anxiety and stress. Further research is needed to explore the effects of spiritual healing in other settings and populations.

CONCLUSION

Spiritual-based non-pharmacological interventions that can alleviate physical and psychological distress in chronic renal failure patients undergoing hemodialysis include spiritual counseling, listening to scripture readings, religious music therapy, praying or being prayed for, and spiritual training.

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DOI: <https://doi.org/10.33024/minh.v7i4.183>

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