



COMPLEMENTARY THERAPY IN IMPROVING THE SLEEP QUALITY OF HEMODIALYSIS PATIENTS: A SCOPING REVIEW

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ABSTRACT

Complementary therapies can be used as an alternative for treating sleep disorders among hemodialysis patients. This study intends to determine certain complementary treatment approaches that can improve the sleep quality of hemodialysis patients using Scoping Review. Scopus, ProQuest, PubMed, and Science Direct databases were monitored. Screening according to inclusion criteria, including 2012–2022, full text, journal article type, quantitative, qualitative, and mixed methods, found 6863 articles, which reduced to 6842 after duplication checking. Screening titles and abstracts, as well as design, non-English language, and removing inappropriate articles, left 257 articles. Finally, 11 articles remained for eligibility assessment based on inclusion and exclusion. Four types of complementary therapies can improve sleep quality, including dietary supplements, body and mind modalities, acupuncture/acupressure, and massage. For individuals receiving hemodialysis, this therapy may be a good non-pharmacological alternative for treating sleep problems. Additional studies are needed to validate these results and further advance knowledge about complementary therapies for controlling sleep quality in hemodialysis patients.

Keywords: Chronic Renal Failure, Hemodialysis, Complementary Therapy, Quality of Sleep, Scoping Review.

ABSTRAK

Terapi komplementer dapat digunakan sebagai alternatif dalam mengobati gangguan tidur di antara pasien hemodialisa. Penelitian ini bermaksud untuk menentukan pendekatan pengobatan komplementer tertentu yang dapat meningkatkan kualitas tidur pasien hemodialisa menggunakan Scoping Review. Database Scopus, ProQuest, PubMed, dan Science Direct adalah yang dipantau. Pencarian awal terhadap 6863 artikel ditemukan dengan penyaringan sesuai kriteria inklusi, yang meliputi 2012–2022, teks lengkap, jenis artikel jurnal, metode kuantitatif, kualitatif, dan campuran, dan 6842 setelah pemeriksaan duplikasi. Penyaringan judul dan abstrak, serta desain, non-bahasa Inggris, dan menghapus artikel yang tidak sesuai menyisakan 257 artikel. Akhirnya, 11 artikel tersisa untuk penilaian kelayakan berdasarkan inklusi dan pengecualian. Ada empat jenis terapi komplementer yang dapat digunakan untuk meningkatkan kualitas tidur, termasuk suplemen makanan, modalitas tubuh dan pikiran, akupuntur/akupresur, dan pijat. Bagi individu yang menerima hemodialisis, terapi ini mungkin merupakan alternatif non-farmakologis yang baik untuk mengobati masalah tidur. Untuk memvalidasi hasil ini dan memajukan pengetahuan tentang terapi komplementer untuk mengendalikan kualitas tidur pada pasien hemodialisis, studi tambahan diperlukan.

Kata Kunci: Gagal Ginjal Kronik, Hemodialisis, Terapi Komplementer, Kualitas Tidur, Scoping Review.

INTRODUCTION

Kidney failure is a chronic and incurable illness that involves kidney function problems (Soeli et al., 2021). Chronic Kidney Disease (CKD) is defined as a Glomerular Filtration Rate (GFR) of less than 60 ml/min/1.73 m², albuminuria of at least 30 mg per 24 hours, or signs of kidney damage (e.g., blood or structural abnormalities such as polycystic kidneys or dysplasia) lasting more than 3 months (Chen et al., 2019). 10% of the world's population has chronic kidney disease, with 2.6 million people on hemodialysis (HD), a number expected to increase to approximately 5.4 million by 2030 (Campo et al., 2022). In Indonesia, hemodialysis therapy has increased along with the increasing number of patients with chronic kidney failure. There were 66,433 new patients undergoing hemodialysis in 2018 and 132,142 active patients undergoing hemodialysis in 2018 (Indonesian Renal Registry, 2018).

Hemodialysis therapy is a cutting-edge technique that can replace the kidneys' role in eliminating metabolic waste from the human bloodstream, as well as how the kidneys handle the diffusion, osmosis, and filtration processes (Siwi & Budiman, 2021). Hemodialysis is the process of removing metabolic wastes or certain toxins from the human blood circulation through a semi-permeable membrane, including too much urea, creatinine, uric acid, and other things (Sudijanto & Arofati, 2022). Hemodialysis is performed two to three times in about four hours (Oktarina & Sulistiawan, 2022). Due to impaired kidney function, patients receiving hemodialysis deal with a variety of issues. Physical symptoms that usually appear include loss of appetite, exhaustion, itchiness, cramping of the muscles, easy bruising, shortness of breath, disorientation, numbness in both legs, and dry skin, and joint and bone pain. Patients may also suffer from psychological conditions such anxiety, sadness, social exclusion, loneliness, and a sense of hopelessness. Further research has shown that hemodialysis patients are more likely to suffer restless nights (Sinay & Lilipory, 2019).

Hemodialysis patients often experience decreased sleep quality (Siburian & Silaban, 2023). The following factors may contribute to poor sleep quality in hemodialysis patients: age, gender, weariness, bone pain, stress, anxiety, excessive sleepiness, and restless legs syndrome (Wahyuni et al., 2022). Insufficient sleep can lead to alterations in the neurological, cardiovascular, endocrine, immune, and physiologic systems (Setyaningrum et al., 2022). Meanwhile, good sleep quality is characterized by a person's ability to easily fall asleep at bedtime, maintain uninterrupted sleep, be able to return to sleep after being awakened at night, and experience a smooth transition from sleep to waking up in the morning (Duana et al., 2022). The impact of sleep disturbances experienced by patients undergoing hemodialysis can be prevented through the use of non-pharmacological alternative therapies.

Non-pharmacological therapy, also known as Complementary and Alternative Medicine (CAM), has gained popularity and importance in the context of health and economics, as well as as a companion to medical therapy and as an alternative to the side effects of drugs (Esmayanti et al., 2022).

Complementary therapy for CKD patients undergoing hemodialysis aims to provide relaxation to raise the patient's quality of sleep. A range of complementary and alternative medicine (CAM) methods are employed for CKD patients undergoing hemodialysis, including acupressure, progressive muscle relaxation, religious relaxation techniques, therapeutic foot massage, and aromatherapy (Esmayanti et al., 2022).

Based on these findings, the researchers hope to find the most recent proof of complementary therapy's ability to help hemodialysis patients sleep better.

METHOD

This research uses a scoping review design, namely, a method for identifying literature in depth and comprehensively that is related to the research topic. In this scoping review, the data used was obtained from electronic databases to collect all potentially relevant literature. This literature review uses selection methods and procedures. The search database sources were Scopus, ProQuest, PubMed, and Science Direct databases. The search will use the following keywords: "Complementary Therapies" OR "Therapy, Complementary" OR "Complementary Medicine" OR "Therapies, Alternative" AND "Sleep Quality" OR "Sleep Qualities" AND "Renal Dialysis" OR hemodialysis. Purpose This scoping review was to identify various additional therapeutic modalities that hemodialysis patients can use to improve their sleep quality. The following inclusion criteria were used to assess whether an item was worthy of review: chronic renal failure patients receiving hemodialysis; complementary therapies to improve sleep quality; journal issues from 2012 to 2022; research design (quantitative, qualitative, and mixed techniques); English language publication. Exclusion criteria did not include hemodialysis patients and included papers before 2012, literature reviews, and baseline investigations. This literature review did not require formal ethical approval because all the data came from published material. The peer-reviewed articles will be used to distribute the findings.

The quality and applicability of the review topic and literature review questions are assessed by researchers through screening. Researchers used Mendeley software to help organise search results. Researchers create special folders and name them according to the database used for storing articles. Then the researcher carried out a screening to check for duplicate articles, and duplicate articles were removed and stored in a separate folder. Then the researcher screened the title and abstract to determine suitable articles, and in the next stage, the researcher read the full text of the article according to the inclusion and exclusion criteria; articles that did not have the full text were excluded. The researcher puts suitable articles into a separate folder for further review of their quality.

RESULTS AND DISCUSSION

Filtering the Scopus, ProQuest, PubMed, and ScienceDirect databases according to the inclusion criteria, including 2012–2022, full text, journal article type, quantitative, qualitative, and mixed methods, yielded 6863 articles. Researchers entered the articles into Mendeley based on the folder to check for duplication, resulting in the identification of 21 duplicates and a total of 6842 records screened. The researchers screened the titles and abstracts, as well as design, non-English, and deleted articles that did not match, resulting in the selection of 257 articles for the next stage. In this stage, the researchers reviewed 11 assessments of eligibility based on their inclusion and exclusion standards. The researchers evaluated and summarized the quality of eleven research publications that matched these criteria in the literature review's final report.

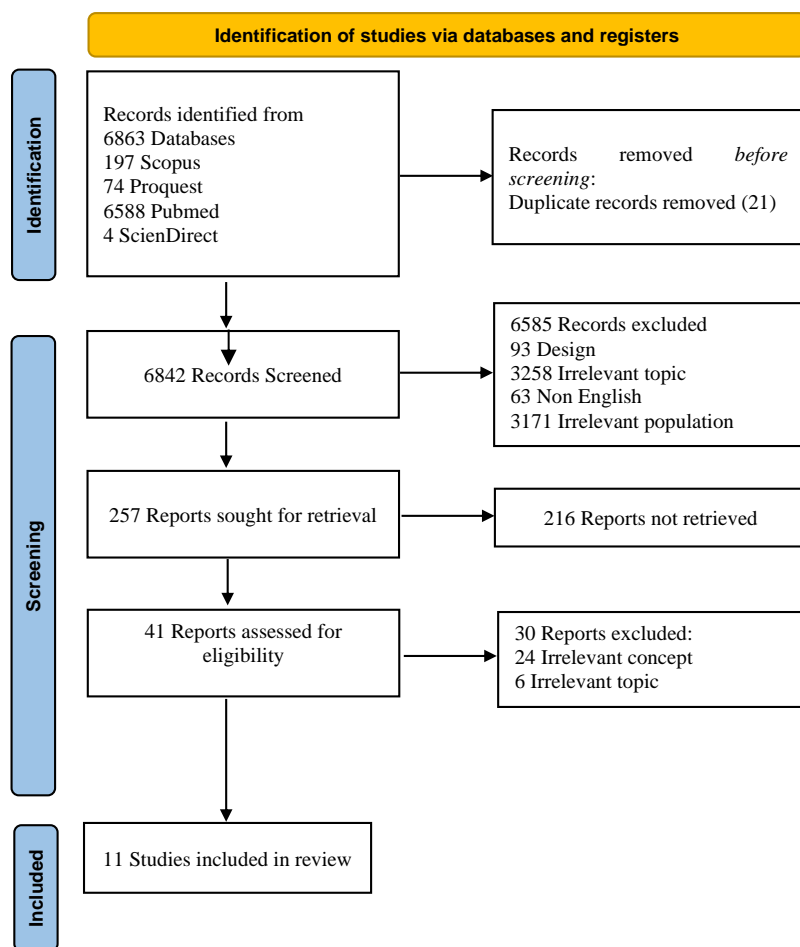


Figure 1: PRISMA flow diagram

Table 1. Data extraction

No	Title	Author and Year	Country	Objective	Design and Total Respondents	Results
1	Comparison of the Effect of Reflexology and Swedish Massage on Restless Legs Syndrome and Sleep Quality in Patients Undergoing Hemodialysis: A Randomized Clinical Trial	(Ghanbari et al., 2022)	Iran	This study looked at how Swedish massage and reflexology helped hemodialysis patients' sleep and RLS.	On 90 individuals, this randomized clinical trial was undertaken.	A Mann-Whitney U test showed that reflexology improved sleep after the intervention more than Swedish massage and sham (p = 0.001). Post-intervention scores were also higher for Swedish massage (p = 0.003) than sham massage. Reflexology and Swedish massage can alleviate restless legs syndrome and enhance sleep quality in hemodialysis patients. Foot reflexology is more successful at treating this condition.
2	The Effects of Valerian on Sleep Quality, Depression, and	(Tammadon et al., 2021)	Iran	examines how valerian affects hemodialysis	39 patients were included	The first and second treatment periods examined Group A and B's usual deviation and mean sleep quality before and after

	State Anxiety in Hemodialysis Patients: A Randomized, Double-Blind, Crossover Clinical Trial		(HD) patients' anxiety and sleep quality.	in a cross-sectional inpatient clinical investigation that was randomized, double-blind, and placebo-controlled.	intervention. The two groups' sleep quality improved significantly after intervention ($p = 0.001$; Cohen's $d = 1.93$), but group A's drop was larger (7.6 vs 3.2). Second phase therapy tested 37 subjects (two from group A absent). Sleep quality scores declined significantly in groups A and B ($p = 0.021$ and 0.001 , respectively), however group A had a lesser reduction (0.9 vs 4.6; $p = 0.001$; Cohen's $d = 1.93$).	
3	Impact of Hot Stone Massage Therapy on Sleep Quality in Patients on Maintenance Hemodialysis: A Randomized Controlled Trial	(Ghavami et al., 2019)	Iran	This investigation examines how maintenance hemodialysis patients' quality of sleep is affected by hot stone massage therapy.	There are 60 male participants in this randomized controlled study, which has a pre-post test design.	The two study groups had similar mean overall PSQI scores before intervention ($P = 0.92$). Following the intervention, the control group's total PSQI score increased, indicating a decrease in sleep quality. On the other hand, the intervention group that underwent hot stone massage therapy had a lower overall PSQI score, indicating better sleep quality. This movement was found to be ($P = 0.001$) statistically significant. The Mann-Whitney test also showed a significant change in overall PSQI scores after the intervention between the two study groups ($P = 0.001$). As a result, receiving hot stone massage therapy while receiving hemodialysis.
4	The Effects of Vibration and Massage on Severity of Symptoms of Restless Leg Syndrome and Sleep Quality in Hemodialysis Patients; A Randomized Cross-Over Clinical Trial	(Azimpour et al., 2019)	Iran	In this study, RLS severity and sleep quality in hemodialysis patients are compared between massage and vibration.	This randomized cross-over trial included 80 hemodialysis patients.	In this study, vibration and massage therapy greatly improved hemodialysis patients' sleep. Massage improved sleep quality whereas vibration therapy diminished it. This was significant since the paired t test revealed a significant difference in sleep quality before and after the intervention ($P = 0.001$). The t-test used to compare the two treatment philosophies also demonstrated a significant difference in sleep quality following the intervention ($P = 0.001$). This study found that vibration and massage therapy improve hemodialysis patients' sleep.
5	The Effects of Massage Therapy on Sleep Quality of Patients with End-Stage Renal Disease	(Malekshahi et al., 2018)	Iran	This study intends to assess how well people with sleep disorders (HPs) sleep at	With 80 patients, this study is an exploratory clinical trial.	The outcomes demonstrated that foot massage was successful in raising the experimental group's sleep quality, as shown by the Pittsburgh score. According to Freedman's statistical study, patients' sleep status generally

	Undergoing Hemodialysis.		night by looking at the impact of foot massage.		improved throughout the course of repeated sessions (P 0.001) and the length of their nights of sleep rose. Based on these findings, foot massage improves sleep quality and can teach hemodialysis patients how to enhance it.	
6	The Effect of Acupuncture Treatment for Chronic Hemodialysis Patients	(Widjaja et al., 2017)	Indonesia	Acupuncture is tested for treating sleeplessness in long-term dialysis patients in this study.	28 participants were included in a double-blind, randomized, controlled clinical investigation.	Upon comparing the PSQI values between the treatment and control groups, the average PSQI score in the treatment group ranged from 13.87 (2.33) to 4.20 (2.27), whereas the score in the control group ranged from 12.31 (3.07) to 11.23 (3.37). The statistical analysis revealed a significant difference in PSQI values between the treatment and control groups, with $p = 0.000$ ($p < 0.05$). This exemplifies how acupuncture therapy can enhance sleep quality.
7	The Effect of Acupressure on Sleep Quality in Hemodialysis Patients.	(Shariati et al., 2012)	Iran	Acupressure's effect on hemodialysis patients' sleep is our goal.	48 end-stage kidney disease patients participated in this randomized clinical trial.	The acupressure and control groups differed significantly in every other sleep quality metric, including subjective sleep quality, sleep latency, length, efficiency, interruption, sleeping pill use, and functioning during the day. These results suggest that end-stage renal disease (ESRD) patients can benefit from acupressure by rapidly improving the quality of their sleep.
8	The Effects of Guided Imagery on State and Trait Anxiety and Sleep Quality Among Patients Receiving Hemodialysis: A Randomized Controlled Trial.	(Afshar et al., 2018)	Iran	This study aims to investigate how guided imagery affects hemodialysis patients' sleep quality, as well as their levels of trait and state anxiety.	This randomized controlled experiment involved 70 hemodialysis patients.	Using the Pittsburgh Sleep Quality Index, the quality of sleep is assessed before and four weeks following an intervention. Covariance analysis revealed significant differences between the intervention and control groups in posttest sleep quality scores (adjusted mean difference: -0.877; 95% CI = -1.51 to -0.24; $P < 0.007$). Because guided visualization helps, hemodialysis patients sleep better.
9	A Sham-Controlled Trial of Acupressure on The Quality of Sleep and Life in Haemodialysis Patients.	(Arab et al., 2016)	Iran	Acupressure was tested on hemodialysis patients' sleep quality.	This research involves 108 hemodialysis participants and is a randomized controlled trial.	Real acupressure decreased from 11.93.13 to 6.21.93, sham acupressure decreased from 11.33.69 to 10.63.82, and control decreased from 10.94.10 to 10.73.94. The difference between groups was very large ($p < 0.001$). The quality of hemodialysis patients' sleep is enhanced by acupressure.

10	Sleep Hygiene Training Program for Patients on Hemodialysis.	(Saeedi et al., 2014)	Iran	This study examined how effectively sleep hygiene instruction helped hemodialysis patients sleep.	The 82 participants in this study were a part of a clinical trial that was randomized and controlled.	The study found no significant difference in global mean sleep quality scores or component scores between groups before the intervention. After the sleep hygiene instruction session, the intervention group's global mean sleep quality score dropped significantly from baseline. Compared to the control group, the intervention group's global mean score was significantly lower (9.92 ± 3.80 vs. 13.05 ± 4.28). The intervention group had significantly decreased subjective sleep latency, quality, and all other sleep measures. According to this study, learning good sleep hygiene increased the quality of sleep.
11	The Effect of Benson's Relaxation Technique on the Quality of Sleep of Iranian Hemodialysis Patients: A Randomized Trial.	(Rambod et al., 2013)	Iran	This study examines if the Benson relaxation technique improves sleep in hemodialysis patients.	86 people receiving hemodialysis participated in a pre-post test randomized controlled experiment for this investigation.	Eight weeks following the intervention, ANCOVA showed that the two groups' overall scores and the subscale scores for sleep disturbance, daytime dysfunction, sleeping pill use, and subjective sleep quality differed significantly ($p < 0.05$). This illustrates how hemodialysis patients' sleep is significantly enhanced by Benson's relaxation therapy.

Table 2 General characteristics of the article

Category	Results	Number of Articles	Percentage
Research-Design Studies	RCT	10	90,9%
	Clinical Trial	1	9,1%
Types of Complementary Therapy	Reflexology	1	7,7%
	Valerian	1	7,7%
	Vibration	1	7,7%
	Massage	4	30,7%
	Acupuncture	1	7,7%
	Acupressure	2	15,4%
	Guided Imagery	1	7,7%
	Sleep Hygiene Training	1	7,7%
	Benson's Relaxation	1	7,7%
	Year of Publication	2012	1
2013		1	9,1%
2014		1	9,1%
2016		1	9,1%
2017		3	27,2%
2018		1	9,1%
2019		1	9,1%
2021		1	9,1%
2022		1	9,1%

Country	West Asia		90,9%
	Iran	10	
	Southeast Asia		9,1%
	Indonesia	1	
Causes of Kidney Failure	Diabetes Mellitus	3	25%
	High Blood Pressure	3	25 %
	Nephrotic Syndrome	1	8,33 %
	Lupus	1	8,33 %
	Heart Problems	1	8,33 %
	Chronic Glomerulonephritis	1	8,33 %
	Other	2	16,67 %
Measuring Instrument	PSQI Questionnaire	11	100%
Respondents	Hemodialysis	771	100%

Nutritional Supplement

As defined by the Dietary Supplement Health and Education Act (DSHEA) of 1994, food supplements are products that are meant to be added to food and include one or more food ingredients, such as nutrients, minerals, vitamins, spices, amino acids, and other compounds. These dietary supplements could include extracts, metabolites, or a mix of these ingredients. There are no tobacco products in this dietary supplement (Lestari & Pujiama, 2021). In the US, the Food and Drug Administration (FDA) regulates valerian as a dietary supplement (<https://ods.od.nih.gov/factsheets/Valerian-HealthProfessional/>). The traditional applications of *V. officinalis* root as a treatment for insomnia and mild nervous tension are mentioned by the European Medicine Agency (EMA). The recommended oral dosages for lowering anxiety are 400–600 mg of dry hydroalcoholic extract or 0.3–3 g of crushed herbal components (root) given up to three times per day (Shinjyo et al., 2020).

Based on the findings of this review, researchers used dietary supplements to develop the sleep aid valerian. Studies by Taavoni et al., (2011) clinical trials using 530 mg valerian in 100 postmenopausal women for four days demonstrated improved sleep quality compared to placebo. This was discovered after a one-month trial in which group B was given a placebo and group A consumed valerian one hour before bed. Valerian promotes sleep. Research findings Tammadon et al., (2021) valerian officinalis' dried root contained 530 mg in valerian capsules (Sedamin, Goldaru Co, Iran). A placebo or valerian pills were administered to groups A and B, respectively, after participants were randomly split into two groups. The 50 milligram starch placebo capsules have a covering similar to that of the valerian capsules. The drug was to be taken by both groups one hour before bedtime for a duration of one month. Each group's treatment plan was adjusted and the process was repeated after a one-month washout interval. Patients' sleep was measured at the beginning and end of the intervention using the Pittsburgh Sleep Quality Index. For hemodialysis patients, Valerian significantly improved sleep quality. Valerian is hypothesized to inhibit gamma-aminobutyric acid absorption and increase GABA release. Furthermore, recent studies have found that this plant partially agonistically stimulates serotonin and adenosine receptors. These findings may help us understand the basic mechanism by which valerian enhances sleep quality.

Body and Mind

Body and mind interventions are exercises that emphasise stretching and relaxing muscles, training in physical coordination, and controlling breath and movement (Aqila et al., 2021). Progressive relaxation, guided visualization, music therapy, humor therapy, sleep hygiene, and aromatherapy are some instances of mind-body therapies (P et al., 2019). Increasing Benson's level of relaxation method involves the use of deep, focused breathing, taking into account the patient's beliefs. This method aims to create an internal environment that is conducive for patients to achieve higher health and well-being. The practice of guided imagery makes use of the mind's ability to steer the body towards

healing and preserving health. Through the use of all the senses-including visual, tactile, guided, sight, and hearing-this method communicates with the body. Simple guided imagery is a technique for achieving relaxation and distancing oneself from unpleasant feelings (Febriaty & Anita, 2021). Benson relaxation therapy can reduce anxiety, sleep quality, and fatigue because it uses spiritual values, which can improve the quality of life of hemodialysis patients (Krismiadi et al., 2023).

Non-pharmacological therapies such as Benson therapy and the Imagery Guide approach have been shown to be successful in addressing psychological and physical problems in patients receiving chronic renal illness on hemodialysis. Patients on hemodialysis frequently struggle with a variety of medical and mental issues, including discomfort, anxiety, disturbed sleep, and others (Kevin & Wihardja, 2022). From the research conducted Rambod et al., (2013) the intervention group listened to Benson relaxation method recordings for 20 minutes twice a day for eight weeks. This study highlights the Benson relaxation technique's benefits for hemodialysis patients' sleep. At week eight of the intervention, there were notable variations between the two groups' global scores and subscale scores on the Pittsburgh Sleep Quality Index, including subjective sleep quality, dysfunction, daytime sleep disruption, and use of sleep medicine. Next on research Afshar et al., (2018) before and four weeks after the intervention, the Pittsburgh Sleep Quality Index assessed sleep quality. Hemodialysis patients benefit from guided visualization. Patients receiving hemodialysis can experience much better quality sleep because to guided visualization.

Sleep hygiene therapy aims to optimise conditions before going to sleep. Some of the steps in this therapy include avoiding consuming drinks containing caffeine or alcohol before going to bed, keeping cell phones away, not turning on the television in the bedroom, maintaining a comfortable room temperature, and ensuring adequate lighting (Fitria et al., 2018). This is supported by research Saeedi et al., (2014) six times a week, participants in the intervention group took part in a half-hour sleep hygiene instruction session. The program included lectures, group discussions, direct instruction, and a combination of in-person and online learning. The program's one-month mark was used to compare the intervention and control groups' participant sleep quality ratings. To quantify the quality of sleep over the previous month, the Pittsburgh Sleep Quality Index (PSQI), a validated self-report questionnaire, was utilized. The hemodialysis patients' sleep quality appears to be enhanced by the sleep hygiene training program, according to study results.

Acupuncture/Acupressure

Simple acupuncture, moxibustion, electro-acupuncture, hot acupuncture, point injection, and acupressure are some of the variations. These alternatives to needles or electrical stimulation involve applying pressure with the fingers or other objects to the acupuncture points (Viscuse et al., 2017). Acupressure is a non-invasive technique that stimulates anatomical sites with finger pressure as opposed to acupuncture therapy, it stimulates particular bodily regions using needles. Acupuncture therapy is generally simple and painless. Researchers have conducted many studies to reveal the benefits of acupuncture therapy in overcoming various health problems. Acupressure is a technique that comes from Traditional Chinese Medicine (TCM) and works on the principle of redistribution of Qi, which is life energy. According to TCM theory, an interruption of the non-smooth flow of Qi is believed to cause illness. The principles of acupressure treatment combine the medicinal principles of acupuncture and Chinese medicine, but with a simpler approach than acupuncture (Komariah et al., 2021).

From the research done Wang et al., (2020) acupuncture helps insomniacs sleep longer and better with few adverse effects. Insomnia has two phenotypes dependent on sleep duration: short-term and long-term. Studies have shown that acupuncture is 2.2 points more effective than a placebo in lowering PSQI ratings. The findings of a review of one study article corroborate this Widjaja et al., (2017) The control group underwent a fake technique in which a needle was inserted into an elastic bandage in similar sites, whereas the acupuncture group received treatment in HT7 Shenmen, PC6 Neiguan, GV20 Baihui, and EX-HN1 Sishenchong. The treatment group's significantly higher PSQI scores than the control groups imply that acupuncture enhances the quality of sleep. This is in line

with earlier research showing how well acupuncture and acupressure work to alleviate insomnia. In chronic hemodialysis patients who struggle with insomnia, studies by Nasiri et al., Shariati et al., Zou et al., Wu et al., Shiow et al., and Arab et al. found that body acupuncture and ear acupuncture employing acupressure techniques both enhance sleep quality. Study Shariati et al., (2012) in 15 minutes, the patient had 9 minutes of acupoint massage (3 minutes per acupoint) and 6 minutes of soothing massage. Three-day-a-week intervention was one course. Four weeks were spent on it. The patient was in a better physical and mental state when the intervention began one hour after hemodialysis. Shenmen (He7), He Gu (Li4), and Sanyingjiao (sp6) were allocated to the acupressure group to improve sleep. Harmonization was used to apply constant pressure to exact acupoints with slight rotational motions throughout the acupressure intervention. This was done quickly—two revolutions per second. After the intervention, the acupressure group differed significantly from the control group. Acupressure improves Hemodialysis patients' sleep faster and better, according to this study. And from the results of research Arab et al., (2016) the trial lasted four weeks, after which the findings were reassessed. For four weeks, the intervention group got three sessions of acupressure on bilateral Shenmen points (HT7). HT7 is located on the wrist, on the radial side of the flexor carpi ulnaris, in a dip along the proximal edge of the pisiform bone. One hour after dialysis, 3-4 kg of pressure was applied to the thumb for 8 minutes (3 minutes at each location with 2 minutes of rest in between), using a circular motion at a speed of two rotations per second. The control group was given either sham acupressure or no treatment. Sham acupressure was applied at locations 0.5 cm away from the actual points, rather than along usual meridian patterns. The third group received no treatment other than routine daily care. Acupressure appears to help hemodialysis patients sleep better.

Massage

Masase, which comes from Arabic and French, means "to touch" or "to touch". In Indonesian, this term is known as massage. In addition, massage can also be enhanced by knowledge of the human body or mechanical hand movements against the human body by using various forms of grip or techniques (Hartatik & Sari, 2021). The use of massage therapy to alleviate physical pain as well as its side effects, including exhaustion, anxiety, and depressive illnesses (Viscuse et al., 2017). Has an influence on improving the quality of hemodialysis patients, supported by research Ghanbari et al., (2022) the Swedish massage group received reflexology three times a week for 20 minutes on both feet (10 minutes per leg) for four weeks. The sham group received a knee-to-foot touch once a week for four weeks under the same conditions as the experimental group. Reflexology and Swedish massage can be beneficial for hemodialysis patients who struggle with insomnia and restless legs syndrome. However, foot reflexology is more effective.

Next in research Ghavami et al., (2019) the back is then massaged for 20 minutes with this stone. A back massage proceeds up to the neck from the lower back. Following hemodialysis, the intervention was carried out for a total of 12 sessions over a period of 4 weeks, on average, 3 days a week. The patient re-completed the PSQI survey a month after the last massage session. Patients on hemodialysis may benefit from undergoing hot stone massage therapy, which helps improve their sleep. Other studies researched by Azimpour et al., (2019) for one month, each group got the matching intervention three times a week, with each session lasting ten minutes. One month following the initial intervention, the intervention was modified in a cross-over design between the two groups. Sleep quality was measured before and after the intervention with appropriate questionnaires. When vibration treatment and massage therapy are compared for their impact on sleep quality, it becomes clear that massage therapy improves sleep quality, whereas vibration therapy lowers it. The outcomes demonstrate that vibration and massage therapy greatly enhance hemodialysis patients' sleep quality. As well as previous research in research Malekshahi et al., (2018) for four weeks straight, foot massages were given during dialysis for a total of ten minutes per session. The study's findings indicate that foot massage has the desired impact and improves patients' sleep quality in the hemodialysis unit.

STUDY LIMITATIONS

Utilizing just four databases for search purposes, all literary sources discovered through this search are all English-language articles.

CONCLUSIONS AND SUGGESTIONS

Analysis The scoping study found that complementary therapy benefits hemodialysis patients' ability to sleep better as a non-pharmacological treatment. Based on the findings of this analysis, there are four types of complementary therapy, including dietary supplements like valerian, mind-body modalities like Benson Relaxation, guided imagery, a sleep hygiene training program, acupuncture and acupressure, massage including Swedish and reflexology massages, hot stone massage therapy, vibration and massage, and massage therapy. Further research is required to confirm these findings and progress our understanding of complementary medicines to enhance sleep quality in hemodialysis patients. More research will shed light on the efficacy, mode of action, and potential long-term effects of these non-pharmacological therapies for the community of hemodialysis patients.

REFERENCES

- Afshar, M., Mohsenzadeh, A., Gilasi, H., & Sadeghi-Gandomani, H. (2018). The effects of guided imagery on state and trait anxiety and sleep quality among patients receiving hemodialysis: A randomized controlled trial. *Complementary Therapies in Medicine*, 40(1), 37–41. <https://doi.org/10.1016/j.ctim.2018.07.006>
- Aqila, N. A. W., Qtrunnada, A., Pasa, A. P., Anggraeni, A. F., & Ningrum, O. F. (2021). Pengaruh Intervensi Mind-Body Terhadap Peningkatan Kualitas Hidup Lansia (Studi Literatur). *FISIO MU: Physiotherapy Evidences*, 2(3), 162–175. <https://doi.org/10.23917/fisiomu.v2i3.15201>
- Arab, Z., Shariati, A. R., Asayesh, H., Vakili, M. A., Bahrami-Taghanaki, H., & Azizi, H. (2016). A Sham-Controlled Trial of Acupressure on the Quality of Sleep and Life in Haemodialysis Patients. *Acupuncture in Medicine*, 34(1), 2–6. <https://doi.org/10.1136/acupmed-2014-010369>
- Azimpour, S., Hosseini, H. S., Eftekhari, A., & Kazemi, M. (2019). The effects of vibration and massage on severity of symptoms of restless leg syndrome and sleep quality in hemodialysis patients; a randomized cross-over clinical trial. *Journal of Renal Injury Prevention*, 8(2), 106–111. <https://doi.org/10.15171/jrip.2019.20>
- Campo, S., Lacquaniti, A., Trombetta, D., Smeriglio, A., & Monardo, P. (2022). Immune System Dysfunction and Inflammation in Hemodialysis Patients: Two Sides of the Same Coin. *Journal of Clinical Medicine*, 11(13), 1–14. <https://doi.org/10.3390/jcm11133759>
- Chen, T. K., Knicely, D. H., & Grams, M. E. (2019). Chronic Kidney Disease Diagnosis and Management: A Review. *JAMA*, 322(13), 1294–1304. <https://doi.org/10.1001/jama.2019.14745>
- Duana, P. M., Murtiwi, & Prima, A. (2022). Kualitas Tidur Pada Pasien Hemodialisis Di Era Pandemi Covid-19. *Jurnal Media Keperawatan: Politeknik Kesehatan Makassar*, 13(1), 121–128. <https://doi.org/10.32382/jmk.v13i1.2419>
- Esmayanti, R., Waluyo, A., & Sukmarini, L. (2022). Terapi Komplementer pada Pasien CKD dengan Sleep Disorder. *Jurnal Keperawatan Silampari*, 5(2), 1028–1035. <https://doi.org/10.31539/jks.v5i2.3563>
- Febriaty, S., & Anita. (2021). Pengaruh Guided Imagery Terhadap Kualitas Tidur Klien Pre Operasi. *Jurnal Ilmu Kesehatan Indonesia (JIKSI)*, 2(1), 49–53. <http://jurnal.umitra.ac.id/index.php/JIKSI/article/view/665>
- Fitria, P. N., Permana, I., & Yuniarti, F. A. (2018). Pengaruh Musik Instrument Dan Sleep Hygiene Terhadap Gangguan Tidur Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisa Di RS

- PKU Muhammadiyah Yogyakarta. *Dinamika Kesehatan*, 9(2), 467–480. <https://ojs.dinamikakesehatan.unism.ac.id/index.php/dksm/article/view/359/325>
- Ghanbari, A., Shahrbabaki, P. M., Dehghan, M., Mardanparvar, H., Abadi, E. K. D., Asghar, E., & Khorrami, E. S. (2022). Comparison of the Effect of Reflexology and Swedish Massage on Restless Legs Syndrome and Sleep Quality in Patients Undergoing Hemodialysis: a Randomized Clinical Trial. *International Journal of Therapeutic Massage & Bodywork: Research, Education, & Practice*, 15(2), 1–13. <https://doi.org/10.3822/ijtmb.v15i2.705>
- Ghavami, H., Shamsi, S., Abdollahpoor, B., Radfar, M., & Khalkhali, H. R. (2019). Impact of hot stone massage therapy on sleep quality in patients on maintenance hemodialysis: A randomized controlled trial. *Journal of Research in Medical Sciences*, 24(1), 1–7. https://doi.org/10.4103/jrms.JRMS_734_18
- Hartatik, S., & Sari, R. P. (2021). Efektivitas Terapi Pijat Kaki Tahun 2020. *Nusantara Hasana Journal*, 1(2), 26–36. <https://nusantarahasanajournal.com/index.php/nhj/article/view/36>
- Indonesian Renal Registry. (2018). 11th Report Of Indonesian Renal Registry 2018. In *Indonesian Renal Registry (IRR)*. [https://www.indonesianrenalregistry.org/data/IRR 2018.pdf](https://www.indonesianrenalregistry.org/data/IRR%2018.pdf)
- Kevin, C., & Wihardja, H. (2022). Efekifitas Relaksasi Benson Dan Teknik Guided Imagery Terhadap Kecemasan Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisis: Studi Literatur. *Journal of Health Science and Physiotherapy*, 4(1), 22–31. <https://doi.org/10.35893/jhsp.v4i1.83>
- Komariah, M., Mulyana, A. M., Maulana, S., Rachmah, A. D., & Nuraeni, F. (2021). Literature Review Terkait Manfaat Terapi Akupresur Dalam Mengatasi Berbagai Masalah Kesehatan. *Jurnal Medika Hutama*, 2(4), 1223–1230. https://scholar.google.com/scholar?hl=id&as_sdt=0%2C5&q=LITERATURE+REVIEW+TERKAIT+MANFAAT+TERAPI+AKUPRESUR+DALAM+MENGATASI+BERBAGAI+MASALAH+KESEHATAN+Maria&btnG=
- Krismiadi, D., Wihastuti, T. A., & Ismail, D. D. S. L. (2023). Differences Between the Effects of The Benson Relaxation Technique and Deep Breath on Anxiety, Sleep Quality, and Fatigue in Hemodialysis Patients. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 8(2), 101–108. <https://doi.org/10.30604/jika.v8i2.1654>
- Lestari, yovita E., & Pujiama, R. (2021). Pola Penggunaan Suplemen Oleh Masyarakat Di Apotek Gratia. *PHARMACY: Jurnal Ilmu Farmasi (Journal of Pharmaceutical Science)*, 5(1), 252–260. <https://jurnal.adila.ac.id/index.php/jif/article/view/76>
- Malekshahi, F., Aryamanesh, F., & Fallahi, S. (2018). The effects of massage therapy on sleep quality of patients with end-stage renal disease undergoing hemodialysis. *Sleep and Hypnosis: A Journal of Clinical Neuroscience and Psychopathology*, 20(2), 91–95. <https://doi.org/10.5350/Sleep.Hypn.2017.19.0138>
- Oktarina, Y., & Sulistiawan, A. (2022). Self Efficacy and Quality of Life in Chronic Renal Failure Persons on Hemodialysis. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 7(2), 369–374. <https://doi.org/10.30604/jika.v7i2.910>
- P, I. H., Tampubolon, L. F., & Ndruru, S. (2019). Pengaruh Teknik Relaksasi Guided Imagery Terhadap Kualitas Tidur Pada Lansia Di Upt Pelayanan Sosial Lansia Binjai. *Elisabeth Health Journal*, 4(2), 39–48. <https://doi.org/10.52317/ehj.v4i2.266>
- Rambod, M., Pourali-Mohammadi, N., Pasyar, N., Rafii, F., & Sharif, F. (2013). The effect of Benson's relaxation technique on the quality of sleep of Iranian hemodialysis patients: A randomized trial. *Complementary Therapies in Medicine*, 21(6), 1–8. <https://doi.org/10.1016/j.ctim.2013.08.009>
- Saeedi, M., Shamsikhani, S., Farahani, P. V., & Haghverdi, F. (2014). Sleep hygiene training program for patients on hemodialysis. *Iranian Journal of Kidney Diseases*, 8(1), 65–69. <https://pubmed.ncbi.nlm.nih.gov/24413724/>
- Setyaningrum, N., Setyawan, A., & Bistara, D. N. (2022). The effect of lavender essential oil aromatherapy on sleep quality in hemodialysis patients. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 7(S2), 155–160. <https://doi.org/10.30604/jika.v7is2.1423>

- Shariati, A., Jahani, S., Hooshmand, M., & Khalili, N. (2012). The effect of acupressure on sleep quality in hemodialysis patients. *Complementary Therapies in Medicine*, 20(6), 417–423. <https://doi.org/10.1016/j.ctim.2012.08.001>
- Shinjyo, N., Waddell, G., & Green, J. (2020). Valerian Root in Treating Sleep Problems and Associated Disorders—A Systematic Review and Meta-Analysis. *Journal of Evidence-Based Integrative Medicine*, 25(1), 1–31. <https://doi.org/10.1177/2515690X20967323>
- Siburian, C. H., & Silaban, N. Y. (2023). The Effect of Foot Massage with Oil Aromatherapy on Hemodialysis Patients' Sleep Quality. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 8(1), 33–38. <https://doi.org/10.30604/jika.v8i1.1398>
- Sinay, J. M., & Lilipory, M. (2019). Kecemasan dan kualitas tidur berhubungan dengan lama menjalani hemodialisa pada pasien gagal ginjal kronik. *Moluccas Health Journal*, 1(1), 10–18. <http://ojs.ukim.ac.id/index.php/natuna>
- Siwi, A. S., & Budiman, A. A. (2021). Kualitas Hidup Pasien Gagal Ginjal Kronik Yang Menjalani Terapi Hemodialisa. *Jurnal Keperawatan Muhammadiyah Bengkulu*, 9(2), 1–9. <https://doi.org/10.36085/jkmb.v9i2.1711> JURNAL
- Soeli, Y. M., Amu, I. V., & Sune, Z. A. (2021). Stress Level And Hemodialysis Duration Of Patients With Chronic Kidney Failure Undergoing Hemodialysis. *Jurnal Aisyah : Jurnal Ilmu Kesehatan*, 6(1), 125–131. <https://doi.org/10.30604/jika.v6is1.773>
- Sudijanto, D. A., & Arofiati, F. (2022). Terapi Slow Stroke Back Massage Terhadap Peningkatan Kualitas Tidur Pasien Chronic Kidney Disease (CKD) Yang Menjalani Hemodialisis. *Jurnal Keperawatan Silampari*, 5(2), 1219–1229. <https://doi.org/10.31539/jks.v5i2.3451>
- Taavoni, S., Ekbatani, N., Kashaniyan, M., & Haghani, H. (2011). Effect of valerian on sleep quality in postmenopausal women: a randomized placebo-controlled clinical trial. *Menopause: The Journal OfThe North American Menopause Society*, 18(9), 951–955. <https://doi.org/10.1097/gme.0b013e31820e9acf>
- Tammadon, M. R., Nobahar, M., Hydarinia-Naieni, Z., Ebrahimian, A., Ghorbani, R., & Vafaei, A. A. (2021). The Effects of Valerian on Sleep Quality, Depression, and State Anxiety in Hemodialysis Patients: A Randomized, Double-blind, Crossover Clinical Trial. *Oman Medical Journal*, 36(2), e255–e255. <https://doi.org/10.5001/omj.2021.56>
- Viscuse, P. V., Price, K., Millstine, D., Bhagra, A., Bauer, B., & Ruddy, K. J. (2017). Integrative medicine in cancer survivors. *Current Opinion in Oncology*, 29(4), 235–242. <https://doi.org/10.1097/CCO.0000000000000376>
- Wahyuni, T., Nelwati, N., & Rahmiwati, R. (2022). Karakteristik Kualitas Tidur Pasien ESRD yang Menjalani Hemodialisis. *Jurnal Keperawatan Silampari*, 6(1), 629–634. <https://doi.org/10.31539/jks.v6i1.4668>
- Wang, C., Yang, W., Yu, X., Fu, C., Li, J., Wang, J., Xu, W., Zheng, Y., Chen, X., & Chen, Y. (2020). Acupuncture for insomnia with short sleep duration: protocol for a randomised controlled trial. *BMJ Open*, 10(3), 1–11. <https://doi.org/10.1136/bmjopen-2019-033731>
- Widjaja, J. A., Simadibrata, C., Srilestari, A., & Marbun, M. B. H. (2017). The effect of acupuncture treatment for insomnia in chronic hemodialysis patients. *Journal of Physics: Conference Series*, 884(1), 1–6. <https://doi.org/10.1088/1742-6596/884/1/012130>