

The Effect of Music Therapy on Itching, Muscle Cramps, and Comfort in Individuals Receiving Haemodialysis Treatment: A Nursing-Based Quasi-Experimental Study

Hemodiyaliz Tedavisi Alan Bireylere Uygulanan Müzik Terapisinin Kaşıntı, Kas Krampları ve Konfora Etkisi: Hemşirelik Temelli Yarı DeneySEL Bir Çalışma

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Abstract

Aim: This study aimed to determine the effects of music therapy on itching, muscle cramps, and comfort levels in individuals receiving haemodialysis treatment.

Materials and Methods: This single-group pretest-posttest quasi-experimental study was conducted with 39 individuals receiving treatment at the haemodialysis clinic of a public hospital in Türkiye. Participants received 30 minutes of music therapy during each dialysis session for four weeks. Data were collected using the Patient Information Form, the 5-D Itch Scale, the Visual Analog Scale for assessing muscle cramp severity, and the Haemodialysis Comfort Scale Version II. A paired-samples t-test was used to compare pretest and posttest scores.

Results: The mean 5-D Itch Scale score decreased from 14.41 ± 3.36 at pretest to 10.56 ± 3.24 at posttest. The mean Visual Analog Scale score for muscle cramp severity decreased from 7.61 ± 2.08 to 5.48 ± 2.34 , while the mean Haemodialysis Comfort Scale Version II score increased from 81.58 ± 9.86 to 88.69 ± 9.81 . Following music therapy, significant decreases were observed in itching and muscle cramp

Öz

Amaç: Bu araştırma, hemodiyaliz tedavisi alan bireylere uygulanan müzik terapisinin kaşıntı, kas krampları ve konfor düzeyine etkisinin belirlenmesi amacıyla yapılmıştır.

Gereç ve Yöntem: Tek gruplu ön test-son test yarı deneysel desende yürütülen bu araştırma, Türkiye'deki bir kamu hastanesinin hemodiyaliz kliniğinde tedavi gören 39 birey ile gerçekleştirilmiştir. Hemodiyaliz tedavisi alan bireylere dört hafta boyunca her diyaliz seansında 30 dakikalık müzik terapisi uygulanmıştır. Araştırma verileri Hasta Tanıtım Formu, 5-D Kaşıntı Ölçeği, kas krampi şiddetinin değerlendirilmesi için Görsel Analog Skala ve Hemodiyaliz Konfor Ölçeği Versiyon II kullanılarak toplanmıştır. Ön test ve son test puanlarının karşılaştırılmasında bağımlı gruplarda t testi kullanılmıştır.

Bulgular: Hemodiyaliz tedavisi alan bireylerin 5-D Kaşıntı Ölçeği ön test puanı $14,41 \pm 3,36$ iken son test puanı $10,56 \pm 3,24$; kas krampi şiddetine ilişkin Görsel Analog Skala ön test puanı $7,61 \pm 2,08$ iken son test puanı $5,48 \pm 2,34$; Hemodiyaliz Konfor Ölçeği Versiyon II ön test puanı $81,58 \pm 9,86$ iken son test puanı $88,69 \pm 9,81$ olarak bulunmuştur. Müzik terapisi sonrasında bireylerin kaşıntı ve kas krampi düzeylerinde anlamlı azalma, konfor düzeylerinde ise anlamlı

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severity, whereas comfort levels increased significantly (respectively, $t=7.526$; $t=6.681$; $t=-8.114$; $p<0.05$).

Conclusion: Music therapy was found to reduce itching and muscle cramp severity and to increase comfort levels in individuals receiving haemodialysis treatment. Nurses may consider using music therapy as a supportive intervention to reduce commonly experienced symptoms such as itching and muscle cramps and to improve comfort in individuals receiving haemodialysis treatment.

Keywords: Comfort; Haemodialysis; Itching; Muscle Cramps; Music Therapy

INTRODUCTION

Chronic kidney disease (CKD) is a major global health problem associated with substantial morbidity, mortality, and healthcare burden. In 2021, approximately 674 million people worldwide were living with CKD, and the disease accounted for approximately 1.53 million deaths (1). Although early detection and appropriate management can slow disease progression, CKD may progress to kidney failure, requiring kidney replacement therapy to maintain essential kidney functions. Kidney replacement therapy includes dialysis and kidney transplantation, with haemodialysis (HD) being one of the most widely used treatment modalities for patients with kidney failure (2).

The primary goals of HD treatment are to sustain life, replace essential kidney functions, and improve patients' health outcomes. However, despite its therapeutic benefits, HD is associated with a considerable symptom burden that may adversely affect patients' physical and psychological well-being and quality of life (3, 4). Common HD-related symptoms include fatigue, dyspnoea, pain, nausea and vomiting, loss of appetite, muscle cramps, sleep disturbances, and itching (3, 5, 6).

Itching and muscle cramps are among the common and clinically important symptoms experienced by individuals receiving HD (3, 5, 6). Muscle cramps are characterized by sudden, painful, involuntary contractions of one or more muscle groups and commonly occur during HD treatment (3, 7, 8). Uraemic itching is also a common and burdensome symptom that may adversely affect sleep, daily activities, psychological well-being, and quality of life (9-11). Both

artış olduğu belirlenmiştir (sırasıyla, $t=7.526$; $t=6.681$; $t=-8.114$; $p<0.05$).

Sonuç: Hemodiyaliz tedavisi alan bireylere uygulanan müzik terapisinin kas krampı ve kaşıntı düzeylerini azalttığı ve konfor düzeyini artırdığı bulunmuştur. Hemodiyaliz tedavisi alan bireylerin sık deneyimledikleri kaşıntı ve kas kramplarının azaltılmasında ve konfor düzeylerinin artırılmasında hemşirelerin müzik terapisini kullanmaları önerilmektedir.

Anahtar Kelimeler: Hemodiyaliz; Kaşıntı; Kas Krampları; Konfor; Müzik Terapisi

symptoms may interfere with treatment tolerance and daily functioning and may contribute to a greater overall symptom burden in individuals receiving HD. These symptoms and other problems associated with HD can negatively affect patients' comfort levels (12, 13).

Comfort is an important component of holistic nursing care and refers to the experience of relief, ease, and the fulfilment of individuals' physical, psychospiritual, sociocultural, and environmental needs (14, 15). Effective management of HD-related symptoms is therefore essential for maintaining patients' comfort and improving their overall treatment experience (12, 13). Because pharmacological approaches may not adequately control all HD-related symptoms, non-pharmacological interventions are increasingly used as complementary strategies in symptom management (6, 16). Nurses play an important role in this process and may incorporate complementary approaches such as massage, aromatherapy, acupuncture or acupressure, reflexology, and music-based interventions into supportive care (16, 17).

Music-based interventions are non-pharmacological approaches that may influence both physiological and psychological responses. Music may promote relaxation, provide distraction from unpleasant stimuli, and influence emotional and autonomic responses, thereby reducing symptom perception and distress (9, 17-20). Previous studies conducted in individuals receiving HD have demonstrated beneficial effects of music interventions on outcomes such as anxiety, depression, quality of life, physiological parameters, itching, and overall well-being (21-28). In particular, a systematic review and meta-analysis reported beneficial effects of music

interventions on several physical and psychological outcomes in adults receiving HD, including itching, although no significant effect on muscle cramps was identified (26). More recently, a systematic review and meta-analysis involving 24 studies and 1,703 participants also demonstrated beneficial effects of music interventions on several psychological and physical outcomes in patients undergoing HD (29). These findings suggest that music-based interventions may represent a practical supportive approach in HD care.

Although previous studies have examined the effects of music-based interventions on various physical and psychological outcomes in individuals receiving HD, evidence regarding their simultaneous effects on itching, muscle cramps, and comfort remains limited. Evaluating these outcomes together may contribute to a more comprehensive understanding of the potential role of MT in symptom management and comfort during HD. Therefore, this study aimed to determine the effects of MT on itching, muscle cramps, and comfort in individuals receiving HD. The following hypotheses were tested:

H0: MT has no effect on itching, muscle cramps, or comfort.

H1: MT reduces itching.

H2: MT reduces muscle cramps.

H3: MT increases comfort.

MATERIALS AND METHODS

Type of Study

This study was conducted using a single-group pretest-posttest quasi-experimental design.

Population and Sample

The population of the study consisted of individuals receiving treatment at the HD clinic of a public hospital in Türkiye between December 2023 and January 2024 (N=46). A census sampling method was used, and all individuals in the study population who met the eligibility criteria were invited to participate.

The study sample consisted of patients aged 18 years and older who had been undergoing haemodialysis treatment for a minimum of six months. Individuals with communication difficulties or diagnosed psychiatric disorders were excluded from the study. Of the 46 individuals in the study population,

two declined to participate, two had verbal communication difficulties, two were transferred to other centres, and one was unavailable due to travel. Therefore, 39 individuals receiving HD treatment were included in the study.

A post hoc power analysis was performed using G*Power software to evaluate the adequacy of the sample size. Based on the observed effect size ($d \approx 0.49$), a two-tailed paired-samples t-test, a significance level of $\alpha = 0.05$, and a sample size of 39, the statistical power was calculated as 0.85, indicating adequate power for detecting the observed pretest-posttest difference.

Data Collection

The research data were collected by the researcher through face-to-face interviews during participants' routine HD sessions in the haemodialysis unit. The average time required to complete the data collection instruments was approximately 15-20 minutes.

Data were collected using the Patient Description Form, the 5-D Itch Scale, the Visual Analog Scale (VAS) for muscle cramps, and the Haemodialysis Comfort Scale Version II (HDCS-II). Each instrument was administered twice: at baseline before initiation of the music intervention (pretest) and at the end of the four-week intervention period (posttest).

Patient Description Form: Patient Description Form: The form was developed by the researcher based on the relevant literature and consists of 15 questions assessing participants' sociodemographic and clinical characteristics. Sociodemographic variables include age, sex, marital status, educational level, employment status, place of residence, economic status, and household composition. Clinical variables include weekly haemodialysis frequency, duration of haemodialysis treatment, adherence to medication and dietary recommendations, presence of other chronic diseases, availability of a person providing care support, and the ability to meet personal needs independently.

5-D Itch Scale: It was developed by Elman et al. (30), and the Turkish validity and reliability study of the scale was conducted by Altınok Ersoy and Akyar (31). The total score ranges from a minimum of 5 points (no itching) to a maximum of 25 points (very severe itching). In the Turkish validity and reliability study, the scale demonstrated a Cronbach's alpha coefficient of 0.60 (31). In the current study, higher internal consistency was

observed, with Cronbach's alpha values calculated as 0.74 for the pre-test and 0.72 for the post-test.

Visual Analog Scale (VAS): Developed by Huskisson, Jones and Scott (32), VAS is used to convert certain values that are difficult to measure numerically into numerical data. The simplicity of its application and its lack of language dependency are notable features. It is a 10 cm horizontal line divided into equal segments, where one end represents "very good" and the other "very bad." Patients are asked to mark the number that best corresponds to their symptoms. "0" indicates the most comfortable state, while "10" represents the worst state (32). In this study, VAS was used to evaluate muscle cramps.

Haemodialysis Comfort Scale Version II (HDCS-II): The scale was originally developed by Koşar Şahin and Çınar Pakyüz (33) to evaluate the comfort levels of patients receiving HD treatment. The instrument consists of 26 items rated on a five-point Likert scale. It encompasses six subdimensions: Physical Relief, Physical Relaxation, Psychospiritual Relaxation, Psychospiritual Strengthening, Environmental Strengthening, and Sociocultural Relaxation. The total possible score ranges from 26 to 130, with higher scores indicating greater perceived comfort. In the Turkish adaptation study, the scale yielded a Cronbach's alpha coefficient of 0.79 (33). In the present study, the internal consistency was found to be stronger, with Cronbach's alpha values of 0.83 for the pre-test and 0.96 for the post-test, indicating excellent reliability.

Implementation of MT

Passive MT (passive music listening) was applied to individuals receiving HD treatment by the researcher during all HD sessions over a four-week period. Three participants received HD twice weekly, whereas the remaining participants received HD three times per week. The therapies were conducted after the second hour of HD sessions. Each intervention session lasted 30 minutes and consisted of a five-minute rhythmic breathing exercise followed by 25 minutes of passive music listening. The rhythmic breathing exercise was performed at the beginning of each session to promote relaxation and prepare participants for the music-listening period. The literature suggests that prolonged music listening can cause discomfort in patients, but a 15-30 minute session would be appropriate;

therefore, the duration of the intervention was limited to 30 minutes (5, 34). The literature indicates that the Hijaz makam may be beneficial in conditions related to the urinary system (35); therefore, music in the Hijaz makam was selected for the intervention.

Music therapy was conducted using music recordings, a computer, and external speakers provided by the researcher. The recordings were obtained from the official website of the Turkish Music Research and Promotion Group (TÜMATA), and permission for their use was obtained from TÜMATA. The sound level was adjusted to a comfortable listening level for the participants; no fixed decibel level was used.

During the planning stage of the research, the investigator participated in the Rhythm Therapy Specialist Certificate Program organized by the Rhythm Therapy Music and Rhythm Therapy Academy. The study was subsequently conducted after the successful completion of this training. The Hijaz makam used in the intervention was selected with the guidance of the instructors in the certificate program.

In the initial phase, the researcher met with the individuals receiving HD treatment and explained the purpose and methodology of the study. Consent forms were obtained, and pretests were conducted. MT sessions began following the second meeting. In each session, participants first performed five minutes of rhythmic breathing exercises and then listened to music in the Hijaz makam for 25 minutes.

The intervention was scheduled after the second hour of HD because this period was considered a more demanding phase of the dialysis session, during which treatment-related discomfort and symptoms may become more noticeable. Previous studies have also implemented music interventions during the later stages of HD sessions (36). Therefore, the intervention was planned to promote relaxation, reduce treatment-related discomfort, and support participants' comfort during the remainder of the HD session.

The MT sessions were regularly conducted over four weeks, and posttests were administered at the end of the intervention period to complete the study (Figure 1).

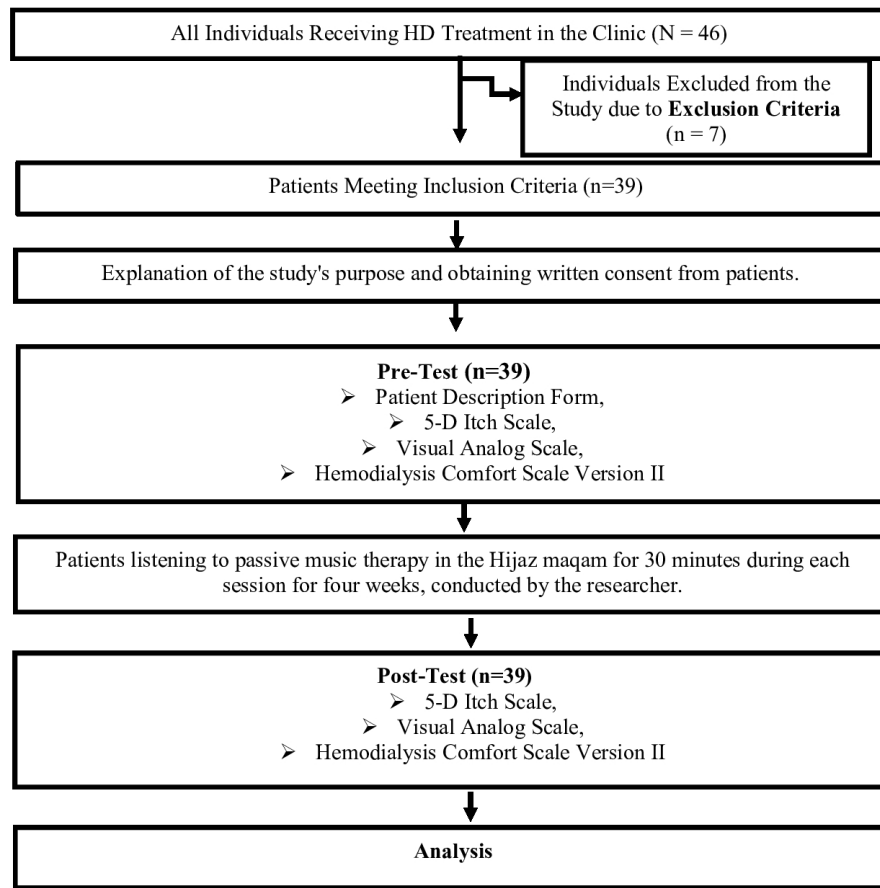


Figure 1. Implementation of the study

Ethical Aspect of the Study

Prior to the commencement of the study, ethical approval was obtained from the Amasya University Non-Invasive Clinical Research Ethics Committee of the researchers' university (date: 18.05.2023; approval no: 2023/72). Institutional permission was also secured from the healthcare facility where the data were collected (date: 30.10.2023; approval no: E-62949364-929-227933291). All participants received detailed information regarding the aim and procedures of the study, and they were clearly informed that their involvement was based entirely on voluntary participation. Written informed consent was obtained from all participants prior to data collection. To ensure confidentiality, each participant was assigned an identification code, and no personally identifiable information was included in the research database. All research data were stored on a password-protected computer accessible only to the researchers and were used solely for scientific purposes. The findings were reported in aggregate form to prevent the identification of individual participants. The study was

conducted in accordance with the principles of the Declaration of Helsinki and adhered to established research and publication ethics standards.

Data Analysis

Statistical analyses were performed using IBM SPSS Statistics version 23.0. Descriptive statistics were calculated to summarize the data. Prior to inferential analyses, the assumption of normality was assessed by examining skewness and kurtosis values. Differences between pre-test and post-test mean scores were evaluated using the paired-samples t-test. Statistical significance was set at $p < 0.05$.

RESULTS

The mean age of individuals receiving HD treatment was 58.94 ± 12.89 years. Regarding sociodemographic characteristics, most participants were married (87.2%), unemployed (97.4%), reported a moderate economic status (92.3%), and lived with their spouse and children (84.5%).

Regarding clinical characteristics, most participants received HD three times per week (92.3%), adhered to medication treatment (94.9%) and dietary recommendations (89.7%), had a person supporting their care (74.4%), and were able to meet

their personal needs independently (97.4%) (Table 1).

Table 2 presents the pretest and posttest mean scores and comparisons of the 5-D Itch Scale, VAS for muscle cramp severity, and HDCS-II.

Table 1. Distribution of Descriptive Characteristics of Individuals Receiving HD Treatment (n=39)

Variables		$\bar{X}$	SD
Age (min: 26, max:81)		58.94	12.89
		n	%
Gender	Female	19	48.7
	Male	20	51.3
Marital status	Married	34	87.2
	Single	5	12.8
Educational status	Literate	9	23.1
	Primary school	19	48.7
	Middle school-high school	9	23.1
	University	2	5.1
Employment status	Employed	1	2.6
	Unemployed	38	97.4
Place of residence	Rural	17	43.6
	Urban	22	56.4
Economic status	Moderate	36	92.3
	Poor	3	7.7
Household	Single	1	2.6
	Spouse and child	33	84.5
	Mother and father	4	10.3
	Other	1	2.6
Weekly HD session	2 times	3	7.7
	3 times	36	92.3
HD treatment duration	6 months - 5 years	16	41.0
	Over 5 years	23	59.0
Medication treatment adherence	Yes	37	94.9
	No	2	5.1
Dietary adherence	Yes	35	89.7
	No	4	10.3
Presence of other chronic diseases	Yes	21	53.8
	No	18	46.2
Presence of caregivers/ persons supporting care	Yes	29	74.4
	No	10	25.6
Independent self-sufficiency	Yes	38	97.4
	No	1	2.6
HD: Haemodialysis, SD: Standard deviation, $\bar{X}$: Mean			

Table 2. Distribution and Comparison of Pre-Test and Post-Test Mean Scores of the 5-D Itch Scale, VAS (Muscle Cramp Measurement), and HDCS-II in Individuals Receiving HD Treatment

Variables		Pre-Test	Post-Test	Test	Significance	t	p
5-D Itch Scale		39	14.41±3.36	39	10.56±3.24	7.526	0.000*
VAS (Muscle Cramp Measurement)		39	7.61±2.08	39	5.48±2.34	6.681	0.000*
HDCS-II		39	81.58±9.86	39	88.69±9.81	-8.114	0.000*
HDCS-II sub-dimensions	Physical Relief	39	10.48±2.48	39	11.20±2.65	-2.636	0.012*
	Physical Relaxation	39	14.92±2.91	39	16.94±2.77	-5.131	0.000*
	Psychospiritual Relaxation	39	26.94±4.55	39	30.33±5.16	-8.355	0.000*
	Psychospiritual Strengthening	39	12.84±3.26	39	13.69±3.01	-4.168	0.000*
	Environmental Strengthening	39	5.79±0.97	39	5.71±1.07	1.000	0.324
	Sociocultural Relaxation	39	10.69±2.26	39	10.87±2.15	-2.483	0.018*
HD: Haemodialysis, HDCS-II: Haemodialysis Comfort Scale Version II, t: t-test, VAS: Visual Analog Scale, $\bar{X}$: Mean, SD: Standard Deviation, *p<0.05							

The mean 5-D Itch Scale score decreased from 14.41±3.36 at pretest to 10.56±3.24 at posttest, and the mean VAS score for muscle cramp severity decreased from 7.61±2.08 to 5.48±2.34. In contrast, the mean HDCS-II score increased from 81.58±9.86 to 88.69±9.81. These changes were statistically significant for itching ($t=7.526$, $p<0.001$), muscle cramp severity ($t=6.681$, $p<0.001$), and comfort ($t=-8.114$, $p<0.001$).

Regarding the HDCS-II subdimensions, significant increases were observed in Physical Relief ($p=0.012$), Physical Relaxation ($p<0.001$), Psychospiritual Relaxation ($p<0.001$), Psychospiritual Strengthening ($p<0.001$), and Sociocultural Relaxation ($p=0.018$). No statistically significant change was observed in Environmental Strengthening ($p=0.324$) (Table 2).

DISCUSSION

Itching is a common symptom in individuals receiving HD treatment and may negatively affect adaptation to the disease and quality of life (6, 10). Both pharmacological and non-pharmacological approaches are used in the management of itching, including topical/systemic treatments and complementary interventions such as breathing exercises, aromatherapy, acupressure, and MT (6, 11). In this study, MT, a non-pharmacological method, was applied to individuals receiving HD treatment, and it was found that MT significantly reduced itching levels. Similarly, the study by Burrai et al. (23) demonstrated that MT conducted with

live saxophone music reduced itching levels in individuals receiving HD treatment. Another study by Burrai et al. (24) also reported a reduction in itching following live music intervention. Other studies in the literature support the beneficial effect of MT on itching (25, 26). These findings are consistent with the results of the present study.

Another common symptom during HD treatment is muscle cramps, which usually affect the lower extremity muscles, hands, arms and abdominal muscles (7, 37). Due to muscle cramps, HD sessions cannot be completed, and dialysis adequacy decreases. Decreased dialysis adequacy adversely affects prognosis, resulting in a decline in quality of life (7, 22, 37, 38). Various pharmacological treatments are used to prevent muscle cramps; however, these treatments often have numerous side effects. Therefore, non-pharmacological treatments without side effects are recommended (7, 8, 37). In this study, MT, a non-pharmacological intervention, was found to significantly reduce muscle cramp levels in individuals receiving HD treatment. There is no research in the literature examining the effect of MT on muscle cramps in individuals receiving HD treatment. This research is significant because it is the first to evaluate the effects of MT on muscle cramps in individuals receiving HD treatment.

Improving the comfort levels of individuals receiving HD treatment is fundamental to quality nursing care and represents a positive outcome of such care (13). Studies indicate that patients with higher comfort levels recover more quickly and

cope better with the problems encountered throughout their illness (39-40). In this study, MT, as a nursing intervention, was shown to improve the comfort levels of patients undergoing HD treatment. Following the MT sessions, individuals receiving HD treatment verbally reported that their treatment process felt pleasant and enjoyable, and that they relaxed by distancing themselves from negative emotions and stress. It is also thought that the reduction in itching and muscle cramps, HD-related symptoms, achieved through MT indirectly contributed to the increase in comfort levels. Similarly, Zarurati et al. (41) found that MT improved comfort levels in individuals receiving HD treatment. Lin et al. (27) reported that MT using music selected by patients provided relaxation and thus improved comfort. In the meta-analysis conducted by Kim et al. (28), MT was found to promote relaxation and reduce stress in individuals receiving HD treatment.

Study Limitations

The limitations of this study include the absence of a control group due to the insufficient number of patients at the center, the inability to prospectively evaluate the symptoms experienced by individuals, and the reliance solely on subjective data to assess the experienced symptoms.

CONCLUSION

Music therapy applied to individuals receiving HD treatment was found to reduce levels of itching and muscle cramps while increasing comfort levels. It is suggested that nurses incorporate MT into care practices to reduce common symptoms, including itching and muscle cramps, and to enhance the comfort of patients undergoing HD. Future randomized controlled studies with larger samples and robust methodological designs are recommended to strengthen the evidence regarding the effects of MT on HD-related symptoms and comfort.

ETHICS COMMITTEE APPROVAL

Prior to the commencement of the study, ethical approval was obtained from the Amasya University Non-Invasive Clinical Research Ethics Committee of the researchers' university (date: 18.05.2023; approval no: 2023/72).

DECLARATION OF CONFLICT OF INTEREST

Any financial or other interest related to the study there is no conflict.

FINANCIAL SUPPORT

No institution/organization provided financial support related to the study.

References

1. Tao W, Chen C, Zhang J, Jiang X, Deng L. Burden of chronic kidney disease and its attributable risk factors in 204 countries and territories, 1990–2021: results from the Global Burden of Disease Study 2021. *Medicine*. 2026;105(32):e50111. <https://doi.org/10.1097/MD.00000000000050111>
2. Kidney disease: improving global outcomes (KDIGO) CKD work group. KDIGO 2024 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney International*. 2024;105(4S):S117-314. <https://doi.org/10.1016/j.kint.2023.10.018>
3. Tuna D, Ovayolu N, Kes D. Common problems in hemodialysis patients and the problem solving recommendations.

PEER REVIEW

External independent, double blind.

AUTHOR CONTRIBUTIONS

Study conception and design: ST, MÇY

Data collection: ST, MÇY

Data analysis and interpretation: ST, MÇY

Manuscript preparation: ST, MÇY

Critical review: ST, MÇY

NefroHemDergi [Internet]. 2018[cited 2026 March 15];13(1):17-25.

Available from: <https://dergipark.org.tr/tr/pub/hemsire/article/363161>

4. Mi-Kyoung CHO, Kim SY, Shim HY. Validity and reliability of the Korean version of the dialysis symptom index for hemodialysis patients. *Journal of Nursing Research*. 2018;26(6):399-410. <https://doi.org/10.1097/jnr.0000000000000267>
5. Akgöz N, Arslan S. Examination of symptoms in patients who are on hemodialysis treatment. *NefroHemDergi* [Internet]. 2017[cited 2026 March 13];12(1):20-8. Available from: <https://dergipark.org.tr/en/pub/hemsire/article/349913>
6. Tayaz E, Koç A. Symptom management and nursing in chronic renal failure patients receiving hemodialysis treatment. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi*. 2020;23(1):147-56. <https://doi.org/10.17049/ataunihem.441384>
7. Flythe JE, Hilliard T, Lumby E, Castillo G, Orazi J, Abdel-Rahman EM, et al. Fostering innovation in symptom management among hemodialysis patients: paths forward for insomnia, muscle cramps, and fatigue. *Clinical journal of the American Society of Nephrology*. 2019;14(1):150-60. <https://doi.org/10.2215/CJN.07670618>
8. Xu D, Yang A, Ren R, Shan Z, Li YM, Tan J. Vitamin K2 as a potential therapeutic candidate for the prevention of muscle cramps in hemodialysis patients: a prospective multicenter, randomized, controlled, crossover pilot trial. *Nutrition*. 2022;97:111608. <https://doi.org/10.1016/j.nut.2022.111608>
9. Şahin A, Sarıtaş SÇ, Soylu A. Complementary health approaches used in uremic pruritus. *NefroHemDergi*. 2020;15(2):96-103. <https://doi.org/10.47565/ndthdt.2020.11>
10. Shirazian S, Aina O, Park Y, Chowdhury N, Leger K, Hou L, et al. Chronic kidney disease-associated pruritus: impact on quality of life and current management challenges. *Int J Nephrol Renov Dis*. 2017;10:11-26. <https://doi.org/10.2147/IJNRD.S108045>
11. Kazak A, Özkaraman A. Uremic pruritus and nursing management. *Celal Bayar Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi*. 2020;7(3):408-12. <https://doi.org/10.34087/cbusbed.695705>
12. Demir CA, Özer Z. The Relationship of symptoms and comfort in patients receiving hemodialysis. *NefroHemDergi*. 2022;17(1):10-27. <https://doi.org/10.47565/ndthdt.2022.49>
13. Melo GAA, Aguiar LL, Silva RA, Quirino GS, Pinheiro AKB, Caetano CA. Factors related to impaired comfort in chronic kidney disease patients on hemodialysis. *Revista Brasileira de Enfermagem*. 2019;72(4):889-95. <https://doi.org/10.1590/0034-7167-2018-0120>
14. Orak NŞ, Çınar Pakyüz S, Kartal A. Scale development study: comfort on hemodialysis patients. *NefroHemDergi* [Internet]. 2017[cited 2026 March 13];12(2):68-77. Available from: <https://dergipark.org.tr/tr/pub/hemsire/article/331781>
15. Terzi B, Kaya N. Comfort theory and analysis. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi* [Internet]. 2017[cited 2026 March 10];20(1):67-74. Available from: <https://dergipark.org.tr/tr/pub/ataunihem/article/303469>
16. Büyükbayram Z, Aksoy M. Integrative methods used for symptom management of hemodialysis patients. *NefroHemDergi* [Internet]. 2021[cited 2026 March 11];16(1):30-40. Available from: <https://dergipark.org.tr/en/download/article-file/1516096>
17. Kurap Öcebe D, Kolcu M, Uzun K. Music therapy and elderly health. *Sağlık Bilimleri Üniversitesi Hemşirelik Dergisi* [Internet]. 2019[cited 2026 March 10];1(2):112-5. Available from: <https://dergipark.org.tr/tr/pub/sbuhemsirelik/article/511556>
18. Dai WS, Huang ST, Xu N, Chen Q, Cao H. The effect of music therapy on pain, anxiety and depression in patients after coronary artery bypass grafting. *J Cardiothorac Surg*. 2020;15(1):81. <https://doi.org/10.1186/s13019-020-01141-y>
19. Koç E. Ruhun ve bedenin gıdası: geçmişten günümüze müzik ve tıp. *Konuralp Medical Journal*. 2016;8(1):51-5. <https://doi.org/10.18521/ktd.83286>
20. Uyar M, Korhan EA. The effect of music therapy on pain and anxiety in intensive care patients. *The Journal of The Turkish Society of Algology*. 2011;23(4):139-47. <https://doi.org/10.5505/agri.2011.94695>
21. Hagemann PMS, Martin LC, Neme CMB. The effect of music therapy on hemodialysis patients' quality of life and depression symptoms. *J Bras Nefrol*. 2019;41(1):74-82. <https://doi.org/10.1590/2175-8239-jbn-2018-0023>
22. Melo GAA, Rodrigues AB, Firmeza MA, Grangeiro ASM, de Oliveira PP, Caetano JA. Musical intervention on anxiety

- and vital parameters of chronic renal patients: a randomized clinical trial. *Rev Latino-Am De Enfermagem*. 2018;26:e2978. <https://doi.org/10.1590/1518-8345.2123.2978>
23. Burrai F, Micheluzzi V, Zito MP, Pietro G, Sisti D. Effects of live saxophone music on physiological parameters, pain, mood and itching levels in patients undergoing haemodialysis. *Journal of Renal Care*. 2014;40(4):249-56. <https://doi.org/10.1111/jorc.12078>
 24. Burrai F, Forton Magavern E, Micheluzzi V, Magnaghi C, Apuzzo L, Brioni E. Effectiveness of music to improve anxiety in hemodialysis patients: a systematic review and meta-analysis. *Holistic Nursing Practice*. 2019;34(6):324-33. <https://doi.org/10.1097/HNP.0000000000000411>
 25. Demirtas S, Houssais C, Tanniou J, Misery L, Brenaut E. Effectiveness of a music intervention on pruritus: an open randomized prospective study. *JEADV*. 2020;34(6):1280-5. <https://doi.org/10.1111/jdv.16149>
 26. Yangöz ŞT, Özer Z. Effects of music intervention on physical and psychological problems in adults receiving haemodialysis treatment: a systematic review and meta-analysis. *Journal of Clinical Nursing*. 2022;31(23-24):3305-26. <https://doi.org/10.1111/jocn.16199>
 27. Lin YJ, Lu KC, Chen CM, Chang CC. The effects of music as therapy on the overall well-being of elderly patients on maintenance hemodialysis. *Biological Research for Nursing*. 2012;14(3):277-85. <https://doi.org/10.1177/1099800411413259>
 28. Kim Y, Evangelista LS, Park YG. Anxiolytic effects of music interventions in patients receiving incenter hemodialysis: a systematic review and meta-analysis. *Nephrology Nursing Journal: Journal of The American Nephrology Nurses' Association* [Internet]. 2015[cited 2026 January 18];42(4):339-48. Available from: <https://pmc.ncbi.nlm.nih.gov/articles/PMC10188276/>
 29. Lin F, Chen L, Gao Y. Music therapy in hemodialysis patients: systematic review and meta-analysis. *Complementary Therapies in Medicine*. 2024;86:103090. <https://doi.org/10.1016/j.ctim.2024.103090>
 30. Elman S, Hynan LS, Gabriel V, Mayo MJ. The 5-D itch scale: a new measure of pruritus. *British Journal of Dermatology*. 2010;162(3):587-93. <https://doi.org/10.1111/j.1365-2133.2009.09586.x>
 31. Altınok Ersoy N, Akyar İ. Validity and reliability of 5-d itch scale on chronic renal disease patients. *ACU Sağlık Bil Derg*. 2018;9(4):455-61. <https://doi.org/10.31067/0.2018.66>
 32. Huskisson EC, Jones J, Scott PJ. Application of visual-analogue scales to the measurement of functional capacity. *Rheumatology*. 1976;15(3):185-7. <https://doi.org/10.1093/rheumatology/15.3.185>
 33. Kosar Sahin C, Cinar Pakyuz S. A scale development study: hemodialysis comfort scale version II. *Journal of Research in Nursing*. 2022;27(5):449-64. <https://doi.org/10.1177/17449871211041834>
 34. Li XM, Zhou KN, Yan H, Wang DL, Zhang YP. Effects of music therapy on anxiety of patients with breast cancer after radical mastectomy: a randomized clinical trial. *Journal of Advanced Nursing*. 2012;68(5):1145-55. <https://doi.org/10.1111/j.1365-2648.2011.05824.x>
 35. Birkan ZI. Music therapy, its historical development and applications. *Ankara Akupunktur ve Tamamlayıcı Tıp Dergisi* [Internet]. 2014[cited 2025 April 22];2:37-49. Available from: <https://www.aktuelsikoloji.com/d/file/d10.pdf>
 36. Koca Kutlu A, Eren AG. Effects of music on complications during hemodialysis for chronic renal failure patients. *Hemodialysis International*. 2014;18(4):777-84. <https://doi.org/10.1111/hdi.12161>
 37. Cox KJ, Parshall MB, Hernandez SHA, Parvez SZ, Unruh ML. Symptoms among patients receiving in-center hemodialysis: a qualitative study. *Hemodialysis International*. 2017;21(4):524-33. <https://doi.org/10.1111/hdi.12521>
 38. Kesik G, Özdemir L. Nursing approaches to prevent intradialytic hypotension. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi* [Internet]. 2019[cited 2026 January 17];22(1):58-63. Available from: <https://dergipark.org.tr/tr/pub/ataunihem/article/394882>
 39. Amaç HY, Çam R. The patient comfort in day surgery patients and factors affecting the patient comfort. *Journal of Health Sciences of Adıyaman University*. 2019;5(1):1222-37. <https://doi.org/10.30569/adiyamansaglik.481605>
 40. Yılmaz CK. Determination of correlation between the severity of dyspnea and general comfort level in hospitalized copd patients. *E-Journal of Dokuz Eylül University Nursing Faculty*. 2020;13(4):222-30. <https://doi.org/10.46483/deuhfed.677896>
 41. Zarurati M, Pishgooie SAH, Farsi Z, Karbaschi K. The effect of music therapy on comfort level and some vital signs of patients undergoing hemodialysis. *Military Caring Sciences*. 2017;3(4):221-32. <https://doi.org/10.18869/acadpub.mcs.3.4.221>