

The Effect of Music Therapy on Cancer Pain Management in Palliative Care Patients: A Systematic Review

Palyatif Bakım Hastalarında Müzik Terapinin Kansere Ağrısı Yönetimine Etkisi: Bir Sistemik Derleme

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ABSTRACT

Objective: This systematic review was conducted to investigate the studies which evaluate the effect of music therapy on cancer pain management in palliative care patients.

Methods: The studies on cancer pain management, both in English and Turkish, whose full text versions were accessible, were systematically analyzed, the studies without full text were not included. The study was conducted by screening CINAHL EBSCOhost MEDLINE, ScienceDirect, Ovi, ProQuest, Web of Science ULAKBİM National Data Bases. Keywords such as "Cancer Pain", "Cancer Pain Management", "Palliative Care" were used to access the studies. 22 research papers were accessed and 7 of them were found to be compatible with the inclusion criteria of our study. Cochrane was established as the guideline to determine levels of evidence.

Results: 5 studies out of 7 that were analyzed during the systematic review were randomized controlled trial; while, one was experimental study, and the other was meta-analysis. When all the study results were analyzed, it was shown that music therapy was effective in reducing the pain. It is informed that music, which has no adverse effect, even in a 20-30 minutes long session, is effective in reducing pain according to the studies that investigate the effects of music in reducing cancer pain.

Conclusion: When the effect of music therapy interventions on the physical and psychological recovery of patients who receive palliative care treatment was investigated, it was concluded that music therapy interventions are highly effective in reducing pain, and no adverse effect was found during the study.

Keywords: Cancer pain, cancer pain management, music therapy, palliative care.

ÖZET

Amaç: Bu sistemik derleme, palyatif bakım hastalarında müzik terapinin kanser ağrısı yönetimine etkisini değerlendiren çalışmalarını incelemek için yapılmıştır.

Yöntem: Kansere ağrısı yönetimine ilişkin Türkçe ve İngilizce tam metnine ulaşılabilen araştırmalar sistemik inceleme kapsamına alınmış tam metin olmayan devam eden çalışmalar kapsam dışı bırakılmıştır. Çalışma CINAHL EBSCOhost MEDLINE, ScienceDirect, Ovi, ProQuest, Web of Science ULAKBİM Ulusal Veri Tabanları tarayarak yürütülmüştür. Çalışmalara ulaşmak için "Kansere Ağrısı", "Kansere Ağrısı Yönetimi", "Müzik Terapisi", "Palyatif Bakım" anahtar kelimeleri kullanılmıştır. 22 araştırma makalesine ulaşılmış, bu çalışmaların 7 tanesinin araştırmaya dâhil edilme kriterlerine uygun olduğu belirlenmiştir. Kanıt düzeylerini belirlemede Cochrane rehber alınmıştır.

Bulgular: Sistemik derlemede incelenen 7 çalışmanın 5'i randomize kontrollü çalışma, birinin deneysel çalışma ve birinin ise meta-analiz çalışması olduğu görülmektedir. Tüm çalışma sonuçları incelendiğinde müzik terapinin ağrı şiddetini azaltmada etkili olduğunu göstermektedir. Kansere ağrısını azaltmada müziğin etkisini inceleyen çalışmalarda, her hangi bir advers etkisi bulunmayan, müziğin yaklaşık 20-30 dk süresince dinletilmesinin 1 seans dahi olsa ağrıyı azaltmada etkili olduğu bildirilmektedir.

Sonuç: Palyatif bakımda tedavi gören kanser hastalarında fiziksel ve psikolojik iyileşmede müzik girişimlerinin etkisi incelendiğinde müzik uygulamalarının ağrıyı büyük oranda azaltıcı etkisi olduğu, çalışma süresince hiçbir advers etkiye rastlanmadığı sonucuna ulaşılmıştır.

Anahtar Kelimeler: Kansere ağrısı, kansere ağrısı yönetimi, müzik terapi, palyatif bakım.

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INTRODUCTION

Palliative care is an approach that aims to increase life quality and it includes practices to prevent and palliate suffering, through early identification and thorough evaluation of primarily pain and also physical, psychosocial and spiritual problems of patients who are faced with life threatening diseases and their families (Connor and Bermedo 2014).

In palliative care patients, pain is the most common symptom and it causes patient the most distress. In palliative care, it is reported that 60-90% of advanced cancer patients experience moderate or severe pain (Kathleen and Foley 2001; Jacobsen et al. 2009). Pain in cancer patients is an experience most feared and described as more terrifying than death itself (Uysal and Kutlutürkan 2016; Arslan et al. 2016). Pain negatively affects the patient and his / her family physically, psychologically, socially and economically (Kabalak et al. 2013; Mercadante et al. 2015). This situation significantly reduces the quality of life of the patient and his / her family.

The main purpose of palliative care is to prevent and reduce pain to improve the quality of life of the patient and their family. Despite the pharmacological methods used in palliative care in accordance with the current guidelines for the evaluation and management of cancer pain, pain can not be adequately treated (Sarihan et al. 2012; Ovayolu and Ovayolu 2017). Pharmacological methods can cause side effects such as sedation, constipation, nausea, anemia, opioid analgesic addiction and decreased pain threshold in patients (Yıldırım et al. 2018). On the other hand, non-pharmacological methods increase the self-effectiveness of patients, create a feeling of being powerful against pain and a sense of control at a high level in pain management, increase the activity level and functional capacity by reducing the feeling of powerlessness, the intensity and severity of the pain experienced, the side effects of analgesic drugs and anxiety (Özçelik and Fadiloğlu 2009; Özveren 2011; Egan et al. 2012; Vandergrift 2013; Hökkä et al. 2014; Ovayolu and Ovayolu 2017). In this context, effective results can be achieved by a combination of medical treatments and complementary/integrative therapies in the management of cancer pain. Co-application of pharmacological and non-pharmacological methods is very important in terms of improving the life quality of palliative care patients and their families.

Music therapy which, is one of the non-pharmacological methods and used as a treatment approach for a long time, affects the right hemisphere of the brain and causes psycho-physiological responses through the limbic system, releases endorphins and enkephalin which leads to a reduction in the intensity of the pain (McConnell and Porter 2017). Music therapy, which is used to improve and maintain mental and physical health, is a natural tool for cancer pain management due to its economical, non-toxic and easily accessible method (Özveren 2011; Keenan and Keithley 2015; Ovayolu and Ovayolu 2017). Although it has been shown that music, which has no side effects, has beneficial effects in cancer patients, in terms of pain, anxiety, fatigue and life quality

according to the research that examines the impact of music in reducing cancer pain, it is noted that more studies with high quality evidence are needed (Running and Seright 2012; Bradt et al. 2016).

Strong and current evidence on the effect of music therapy in cancer pain management, obtained with a systematic screening, can be used to provide more reliable and high quality data, to support evidence-based decision making process, to change existing palliative care practices, to increase the effectiveness of pain management, and to reduce the use and the cost of analgesics (McConnell and Porter 2017; Ay 2018).

These questions were scrutinized in the systematic review which was planned to review studies evaluating the effect of music therapy on cancer pain management in palliative care patients and to examine the data obtained from these studies in a systematic manner:

1. Can music therapy be used in palliative care?
2. Does music therapy have an effect on cancer pain management in palliative care?
3. Do music therapies reduce the perceived severity of cancer pain in palliative care?

METHODS

This study was carried out with systematic review. The following steps were followed during the study process.

1. The problem was identified, then the objective was identified.
2. A comprehensive screening of all the studies published by the researchers was carried out.
3. Elimination was carried out according to the inclusion criteria.
4. It was determined which studies would be included in the review.
5. The findings were synthesized in the studies included in the review.

Inclusion and exclusion criteria;

Studies in Turkish and English that evaluate the effect of music therapy on cancer pain in palliative care patients, were included. The literature review was conducted independently to assess eligibility criteria by the authors. Discrepancies and disagreements regarding eligibility were resolved by discussion. Articles about palliative care in cancer patients, whose full texts were not accessible, were excluded from the study.

Data Collection and Analysis

The study was conducted by reviewing CINAHL, EBSCOhost, MEDLINE, ScienceDirect, Ovi, ProQuest, Web of Science, ULAKBİM National Data Bases. There were no



year restrictions in screening and studies whose publication dates were up until February 2020, were examined. The MESH keywords such as "Cancer Pain", "Cancer Pain Management", "Music Therapy", "Palliative Care" were used to access the studies. Also, the reference list of all randomized clinical trials and review papers were checked to find suitable studies that were not identified by electronic search. After the abstracts of the papers were scanned, 22 articles were reached. It was determined that 7 of these studies met the criteria for inclusion in the research. These studies were analyzed separately by academicians and their levels of evidence were determined. Cochrane was established as the guideline to determine levels of evidence.

Assessment of evidence levels

Evidence levels of the studies were evaluated by researchers according to Melnyk and Overholt's guideline. The researchers evaluated each study individually and then combined results (Melnyk and Overholt 2011).

RESULTS

The overall process of articles selection is illustrated with the Preferred Reporting Items for Systematic Reviews (PRISMA) flow diagram. 1846 studies were identified in the initial screening. This systematic review included studies examining the effect of music therapy on cancer pain in palliative care patients. Following the initial screening of unrelated titles and elimination of duplications, 542 potentially eligible papers were remaining. After the abstracts of the papers were screened, 22 articles whose full texts had been accessible, were remaining. After the elimination for duplications and other reasons, 7 eligible articles were scrutinized for inclusion in this review (See Fig. 1).

5 studies were randomized controlled trials, 1 was experimental trial, and 1 was meta-analysis out of all the research included in the systematic review (Table 1).

It is notable that all of the studies were conducted with patients with mixed cancer diagnosis (Huang et al. 2010; Gutsell et al. 2013; Warth et al. 2014; Burrai et al. 2014; Warth et al. 2015; Bradt et al. 2016; Krishnaswamy and Nair 2016). It was established that music therapy caused a significant reduction in the severity of pain perceived by patients in all of the studies (Huang et al. 2010; Gutsell et al. 2013; Warth et al. 2014; Burrai et al. 2014; Warth et al. 2015; Bradt et al. 2016; Krishnaswamy and Nair 2016). In some studies, pain intensity was evaluated as well as anxiety (Krishnaswamy and Nair 2016) and stress (Warth et al. 2014). It was seen that a wide variety of music therapy genres were used in the studies, including the sound of veenna, flute (Krishnaswamy and Nair 2016), harp, piano (Huang et al. 2010), saxophone (Burrai et al. 2014), sounds of nature (Warth et al. 2014, Warth et al. 2015) and patients' own preference of music genre (Huang et al., 2010). The studies also showed that the music was played once or twice a week for 20-30 minutes while the patient was lying on a bed with

headphones from a Mp3 player (Huang et al. 2010; Gutsell et al. 2013; Warth et al. 2014; Burrai et al. 2014; Warth et al. 2015; Bradt et al. 2016; Krishnaswamy and Nair 2016).

DISCUSSION

This study focuses on the relationship between music therapy and cancer pain in palliative care patients. All of the studies showed that music therapy reduces cancer pain and has a positive effect on palliative care patients. In one of these studies, patients were divided into music therapy and control groups in order to evaluate the effect of music therapy on anxiety and pain in cancer patients treated in palliative care units. The music therapy group listened to music for 20 minutes. It was concluded that there was statistically significant reduction in pain level in the music group compared to the control group (Krishnaswamy and Nair 2016). It was reported that a 30 minutes long music therapy conducted with terminally ill patients to evaluate the physiological and psychological impact of a standard music therapy on palliative care patients in a randomized controlled trial, was effective in reducing pain intensity (Warth et al. 2014). Gutsell et al (2013) conducted a study with palliative care patients (87% diagnosed with cancer) and found a significant decrease in pain scores in the pain scale of the experimental group which received music therapy, and the Functional Pain Scale scores of the experimental group were lower than those of the control group that received no application (Gutsell et al. 2013). The study which evaluated the psychological and physiological effects of applications of vibroacoustic-stimulated music therapy in palliative care patients with cancer diagnosis, concluded that the pain intensity decreased with music therapy between 5 and 9 sessions of 30 minutes (Warth et al. 2015). In the randomized controlled trial to evaluate the effect of music on cancer pain, patients in the experimental group were given 30 mins. long music session according to their preferences. Patients in the control group were given 30 minutes long resting session. The intensity of pain was evaluated with VAS before and after the applications. The post test showed a significant decrease in pain intensity in the music group compared to the control group (Huang et al. 2010). In the experimental study, which was conducted to evaluate the effect of saxophone music on psychological parameters, pain and mood in cancer patients, 30 minutes of saxophone music was played once a week for 4 weeks. Patients in the control group were given 30 minutes long resting session. Pain assessment was performed with VAS before and after applications. There is no significant difference in the level of pain in either group. Only in the music group, the post test showed a significant decrease in pain level (Burrai et al. 2014).

CONCLUSION

Music therapy programs are used in palliative care in many countries of the world. Music therapy is indicated to help manage symptoms in cancer and palliative care that are presented as an emergency. Careful music therapy technics



can reduce pain (Magill and Berenson 2008). In studies examining the effect of music in reducing cancer pain, it is stated that music, which has no adverse effects, is effective in reducing pain, even if it is only a session of 20-30 minutes) and according to research, if the patient chooses his/ her preference in terms of music genre, music therapy is effective (Bradt et al. 2016). The application of this method to all patients experiencing pain, including palliative care patients, can contribute positively to patients' pain management. In this context, it is recommended to conduct large sample size studies to determine the effect of music therapy practices on cancer pain and pain management and to use them in clinics.

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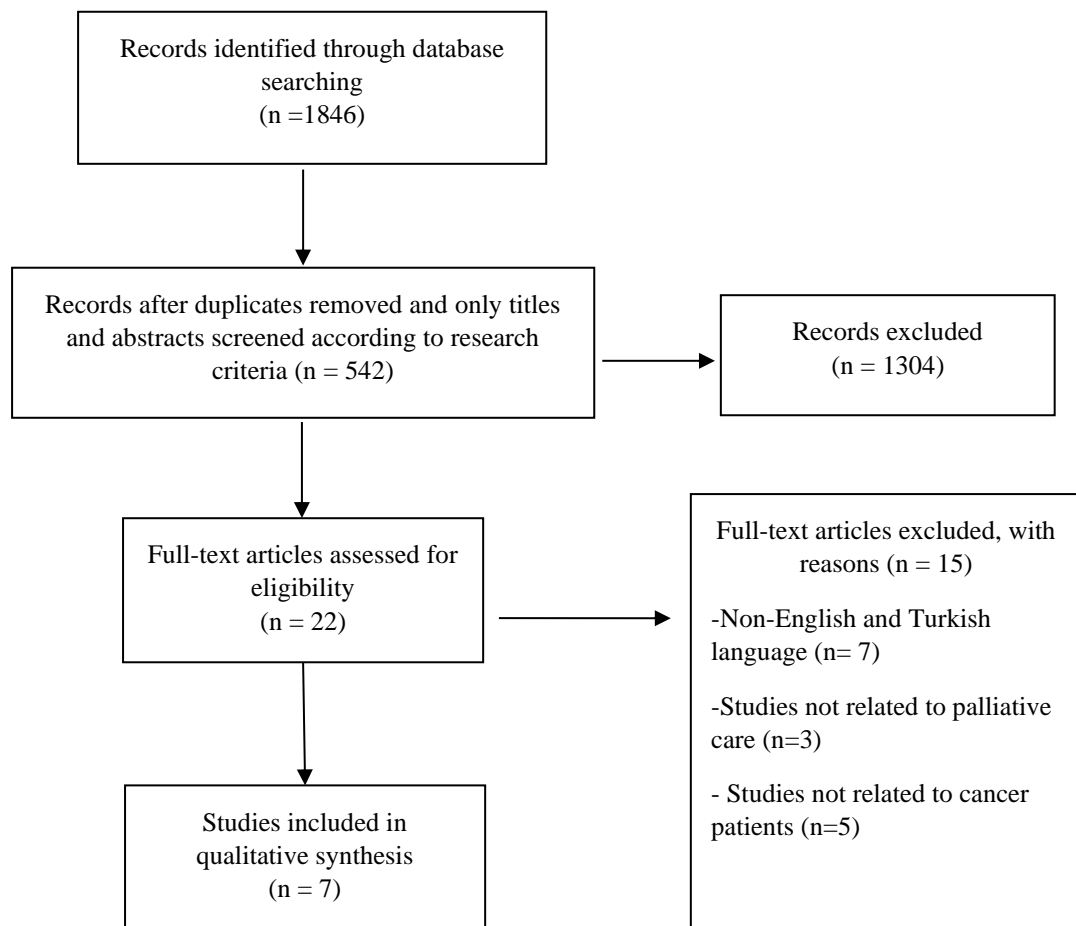


Figure 1. Schema for study selection.



Table 1. Summary of the research that was included in the study

Study	Design	Sample	Intervention that was Administered	Conclusion	Level of Evidence
Krishnaswamy and Nair 2016	RCT Mixed phase and mixed cancer diagnosis.	E n=7	20 mins. Listen to music (sounds of veena and flute) from an MP3 player with headphones	It was reported that the pain intensity was reduced in the experimental group compared to the control group.	II
		C n=7	20 mins. Distraction		
Huang et al. 2010	RCT Mixed phase and mixed cancer diagnosis.	E n=62	Listening to music for 30 mins. in patients with a pain level 3 and above in the last 24 hours, Taiwanese music, American music (piano) and Harp	Pain intensity was evaluated with VAS 30 mins after the sessions. A significant decrease in pain was found in the post test, in the music group compared to the control group.	II
		C n=64	Resting in bed for patients with pain level 3 and above in the last 24 hours		
Burrai et al. 2014	RCT Mixed phase and mixed cancer diagnosis.	E n=26	Listening to saxophone music for 30 minutes once a week for 4 weeks in the music room (lying on the bed, isolated from other sounds, door closed).	The pain level was significantly reduced in the post test in the evaluation with VAS in the music group.	II
		C n=26	Patients were given a 30 minute resting session.		
Warth et al. 2014	RCT Terminal phase Mixed cancer diagnosis.	E n=44	Low-sound listening session with monochrome and vocal improvisation was conducted as 2 sessions of 30 minutes. Patients performed breathing exercises with the rhythm of the music, and underwent post-test before and after music therapy (5 mins before and after). 2. Sessions 1. It was carried out the same way 2 days after the session.	Pain intensity was reduced in both groups.	II
		C n=44	20 mins. Mindful-based stress reduction Program (listening with earphones from a MP3 player, body scan, breathing exercise, soft female voice listening) was applied, patients were again given pretest before application, 5 min after the application post-test was applied. It was carried out the same way 2 days after the session.		
Gutgsell et al. 2013	RCT 87% were diagnosed with cancer	E n=100	Standard care was administered with 20 minutes of music therapy.	The music group's pain scores were found to be significantly lower according to VAS.	II
		C n=100	Nursing care program including analgesia program was administered.		
Warth et al. 2015	RCT Mixed phase and mixed cancer diagnosis.	Single group (n=9)	30-minute vocal to each patient Between 5 and 9 sessions of music in the improvisation style and Ionian or Mixolydian mode were played. Pain was assessed with VAS before and after each session.	When the post test pain scores were examined, it was determined that the intensity of the pain was reduced.	III
Bradt et al. 2016	Adult and pediatric oncology patients. Mixed phase and mixed cancer diagnosis.	N = 3731	7 studies, 528 participants; SMD: -0.91, 95% CI -1.46 to -0.36, P = 0.001,	It was concluded that music practices had a significant effect on reducing pain and no adverse effects were observed.	I

RCT: Randomized controlled trial, E; Experimental group, C; Control group, VAS; Visual Analog Scale,