

Original Article

Examination of the Awareness of Nurses on the Use of Music in Care

Reva Balci Akpinar

Ataturk University Nursing Faculty, Turkey

Meyreme Aksoy

Siirt University School of Health, Turkey

Elif Kant

Ataturk University Health Services Vocational College, Turkey

Serpil Ozmen

Ataturk University Narman Vocational College, Turkey

Correspondence: Reva Balci Akpinar, Ataturk University Nursing Faculty, Turkey, E-mail: reva@atauni.edu.tr

Abstract

Aim: This study was carried out to determine the awareness of nurses on the use of music in nursing care.

Method: 218 nurses working in a university hospital in Turkey were included in this descriptive and cross-sectional study. The data of the study were collected between May 1 and July 15, 2017 using the data collection form consisting of two parts which was prepared by the researchers. Descriptive statistics were used in the evaluation of data.

Results: While 90.8% of the nurses participating in the study stated that they did not receive any education on the use of music in nursing care, 92.7% of them stated that they found the use of music in care useful, and 52.3% and 54.1% of them stated that music could be used in intensive care patients and in relieving stress, anxiety and worry, respectively. Furthermore, 59.2% of the nurses stated that they did not know the effects of the types of music/maqam on mood, 75.7% of them stated that they did not know at what times of the day they would make it listen and 73.4% of them stated that they did not know on which problems it was effective. **Conclusion:** The results of the study indicated that nurses' views on the use of music in care were positive but they should receive education on this subject.

Keywords: Care, Nursing, Music

Introduction

Music is a concept that expresses the whole, process or product of aesthetic that is unique to human and inherent in human consisting of regular and harmonious sounds that we perceive through hearing (Ersanlı and Komurcu, 2007). Music, which is an effective, powerful and universal communication tool in human life, affects the feelings and thoughts of people along with its unique language, structure and elements of expression. Music, which provides integration and harmony between the body and mind, has relaxing, exciting and calming effects. Music stimulates the centers related thinking, learning, speaking and body control in the central nervous system and the cortex and supports the

developments in this area. The history of the recognition of the effects of music on health and its use for therapeutic purposes is quite old. There is information that music was used in cases such as epilepsy, depression, catatonia, hysteria, stroke, aphasia, gout, inflammatory diseases, rheumatism, various pains, plague and measles in Ancient Greece. It is known that the use of music in treatment is also based on ancient histories in Turkish civilizations and that treatments were performed with music in Seljuks and Ottomans (Birkan, 2014; Dobrzynska et al.2006). Music therapy, which also has a wide area of usage for treatment and therapy purposes at the present time (Bradt and Dileo, 2014), is an application which is on the agenda within the health care system in developed countries (Imseytoglu and

Yıldız, 2012). Music is used in clinical areas such as neurology, cardiology, oncology, psychiatry and intensive care and in the treatment of individuals with special needs, and its effects have been scientifically investigated.

Nursing, which has taken the responsibility for the individual's health care, requires a holistic and humanistic approach to the individual. Music is used as a the aesthetic and humanistic means of care that can be used in nursing care. The importance of music and its effect on patients' recovery were emphasized by Florence Nightingale at the beginning of the 1800s, and it was defined as a nursing intervention that increases the comfort of patients (Besel, 2006; Chang and Chen, 2005). Music therapy has been included in the Nursing Interventions Classification System (NIC) with code number 4400, and the framework of the activities that the nurses have to perform within the scope of this intervention has been determined (Erdemir, Kav, and Yilmaz, 2017).

In overseas studies investigating the use of music in care, the rate of utilization of music in the fields of care of nurses was found to be between 15% and 49% (Chu and Wallis, 2007; Hassan et al., 2014). In our country, it is seen that nurses have limited use of music in the clinical field, it is not yet regarded as a routine nursing practice, it is not included in nursing curricula, and it is mainly discussed within the scope of nursing research by the nurses conducting academic studies (Cetin, 2007; Ozcelik and Fadiloglu, 2009). However, the developments in the field of health have changed the roles and responsibilities of nurses. Therefore, nurses should adopt a holistic approach in patient care and add music to this approach. Nurses should have awareness in this regard so that music could be used in care.

This study was conducted as a descriptive and cross-sectional study to determine the awareness of nurses on the use of music in care.

Material and Method

Study design and participants: This study was carried out as a descriptive and cross-sectional type and conducted with 218 voluntary nurses who working Ataturk University Research Hospital at Turkey. The data of the study were collected 01.05.2017- 15.07.2017.

Data Collection Tools: The data of the study were collected using the "Data Collection Form" consisting of two parts which was prepared by

the researchers through literature review (Dundar, 2011; Kurt, Celebi, and Cigersci, 2017). The first part of the Data Collection Form included 11 questions aimed at determining the demographic characteristics of nurses and information on the use of music in nursing care, and the second part included 16 statements involving the views on the use of music in care.

Data Collection Methods: The data were collected by face to face interview method in the hospital environment by the researchers. It took 10-15 minutes to respond to the questionnaire.

Evaluation of Data: Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) 20.0 software. Frequency, percentage, mean and standard deviation were used in the evaluation of data.

Generalizability of the Study: The results of the study can be generalized to the hospital where the study was carried out.

Ethical Principles: Ethical approval of the Ataturk University Nursing Faculty Ethics Committee (2017-3/19) and the written work permit of the hospital administration were obtained to carry out the study. Before the application, the nurses were informed about the study and their verbal consent was obtained by explaining that they were free to participate in the study.

Results

The distribution of some data about the sociodemographic characteristics of nurses and their views on the use of music in care is presented in Table 1. It was determined that the average age of the nurses participating in the study was 29.70 ± 7.42 , the average working year was 8.07 ± 6.90 years, and 42.7% of them were working in surgical clinics. It was determined that 90.8% of the nurses did not receive special education on the use of music in care, however, 92.7% of them found the use of music in care useful. 52.3% and 47.2% of the nurses stated that music could be used in the care of intensive care patients and in the care of patients with psychiatric problems, respectively. The ratio of nurses who considered that music could be used in neurological problems was 7.3%. 54.1% and 45.9% of the nurses stated music could be used in cases of anxiety and stress and in the reduction of pain, respectively. While 59.2% of the nurses stated that they did not know the effects of the types of music/maqam on mood, 75.7% of them

stated that they did not know at what times of the day they would make it listen and 73.4% of them stated that they did not know on which problems it was effective (Table 1). When the statements related to the use of music in care were examined, it was determined that 42.2% of the nurses agreed with the statement "Music can only be applied by experts", 40.4% of them agreed with the statement "Music can be applied as a form of treatment alone in some cases", 87.6% of them agreed with the statement "Music can be an

effective method in the healing process of patients", and 86.7% of them agreed with the statement "Music can be used to distract patients' attention from their problems", and 47.7% of them disagreed with the statement "Music is an application that increases the workload of employees". 30.3% of the nurses stated that they were undecided on whether the use of music in care is a method that reduces the cost of care (Table 2).

Table 1. Socio-Demographic Characteristics of Nurses and the Distribution of Their Views on the Use of Music in Care (n=218)

	Min-Max	X±SD
Age	19-56	29.70±7.42
Working Year	1-34	8.07±6.90
	S	%
Educational Status		
Vocational School of Health	60	27.5
Associate Degree	49	22.5
Undergraduate	84	38.5
Postgraduate	25	11.5
Department Worked		
Internal medicine	86	39.4
Surgical	93	42.7
Intensive care	39	17.9
Educational status for the use of music in care		
Received	20	9.2
Not received	198	90.8
Status of finding music useful in care		
Useful	202	92.7
Not useful	16	7.3
Distribution of patient groups in which it is considered that music can be used *		
Intensive care patients	114	52.3
Patients with psychiatric problems	103	47.2
Oncology patients	88	31.2
Pediatric patients	57	26.1
Emergency patients	26	11.9
Terminal period patients	24	11.0
Gynecology and obstetric patients	19	8.7
Patients with neurological problems	16	7.3
Distribution of the situations in which it is considered that music can be used *		
Stress/Anxiety	118	54.1
In reducing patients' pains	100	45.9
In facilitating adaptation to the hospital	28	12.8
In relaxing and calming patients	76	34.9

Status of knowing the mental effects of the types of Music/Maqam		
Knows	89	40.8
Does not know	129	59.2
Status of knowing at what times of the day the types of Music/Maqam would be made listened		
Knows	53	24.3
Does not know	165	75.7
Status of knowing on which problems types of Music/Maqam are effective		
Knows	58	26.6
Does not know	160	73.4

* These questions are open-ended questions, so nurses' own assessments were taken as a basis

Table 2. Distribution of Nurses' Views on the Statements Related to the Use of Music in Care (n =218)

	Items	Disagree		Undecided		Agree	
		n	%	n	%	n	%
1	Music can only be applied by experts.	60	27.5	66	30.3	92	42.2
2	Music can be applied as a form of treatment alone in some cases.	65	29.8	65	29.8	88	40.4
3	Music can be used in the care of each patient.	91	41.7	67	30.7	60	27.5
4	Any music maqam provides the same benefit for every patient.	65	29.8	71	32.6	82	37.6
5	The type of music listened may vary by cultures.	24	11	47	21.6	147	67.4
6	Music can be applied in every clinic.	66	30.3	63	28.9	89	40.8
7	Music can be an effective method in the healing process of patients.	9	4.1	18	8.3	191	87.6
8	Music can be used to distract patients' attention from their problems.	8	3.7	21	9.6	189	86.7
9	Music is more effective if it is used together with other care methods.	5	2.3	19	8.7	194	89
10	Music is more effective if it is used together with other care methods.	33	15.1	51	23.4	134	61.5
11	To make listen to music may be an effective method in reducing pain and decreasing the use of analgesics.	7	3.2	35	16.1	176	80.7
12	Music can decrease the cost of care.	16	7.3	66	30.3	136	62.4
13	Music can facilitate patients' compliance with care.	8	3.7	31	14.2	179	82.1
14	The use of music in care increases the workload of employees	104	47.7	51	23.4	63	28.9
15	Music can be used in care in the clinic where I work.	30	13.8	58	26.6	130	59.6
16	Music therapy service should be provided in every hospital.	11	5.1	31	14.2	176	80.7

Discussion

In this study, which was carried out to determine the awareness of nurses on the use of music in care, it was determined that most of the nurses thought music use could be useful, but they did

not receive education about the use of music in care (Table 1).

In the study carried out by Kurt et al. (2017), it was determined that 98.1% of the nurses did not receive education on music therapy. In developed

countries, treatment with music is frequently used in health care services, and also trainings are provided for this field in university undergraduate education (Ucaner and Jelen, 2015). Although the method of treatment with music has a history of thousands of years in our country, there are no courses for use of music in care in the curricula of academic institutions providing nursing education (NCEPH, 2014; Birkan, 2014). However, it is seen that nurses are interested in the subject in the fields of care and in scientific studies (Ersanlı and Komurcu, 2007; Gok and Akpınar, 2015; Imseytoglu and Yıldız, 2012; Kant and Akpınar, 2017). The fact that music therapy, which is also included in the nursing interventions classification (Erdemir et al., 2017), is not addressed in basic nursing education. In addition, clinical practice is not suitable for music therapy and in our country music therapy is not used as a routine nursing initiative, it is thought that nurses limit the use of music therapy in clinical practice.

The open-ended question about the patient group in which music could be used in nursing care was answered as "intensive care patients" by half of the nurses included in the study (52.3%) (Table 1). In the study carried out by Kurt et al. (2017), 59.8% of healthcare professionals indicated that treatment with music could be applied to intensive care patients. When the literature was reviewed, it was determined that most of the studies examining the effects of music were carried out with intensive care patients and that there were evidences regarding the fact that music applications decreased the pain and anxiety levels of patients (Chlan and Halm, 2013), increased patients' compliance with the respiratory device and improved their sleep quality (Hu et al., 2015) and made changes on vital signs (Gok and Akpınar, 2015). In this study, 54.1% of the nurses stated that music could be used in reducing the stress and anxiety levels of patients (Table 1). While it was expected that positive views of nurses regarding the fact that music could be used in relieving stress and anxiety would be higher, the fact that only half of them expressed this effect was associated by the fact that they did not receive education on this subject. In the studies carried out (Chang et al. 2012; Chaput-McGovern and Silverman, 2012; Chlan and Halm, 2013; Huang, Good, and Zauszniewski, 2010; Vural and Aslan, 2014), it has been indicated that music has various effects such as reducing the pain, anxiety

and stress, improving sleep and quality of life, providing healing and comfort, facilitating patient's compliance with the treatment and hospital. But there are also studies showing that music therapy is not effective (Krishnaswamy and Nair, 2016; Chan et al., 2010). This may have been caused by incorrect selection of the types of maqam and rhythm of music.

Unsuitable music genre, rhythm and volume can also have negative effects on individuals. Some music genres have been reported to increase stress hormones and reveal anger and aggression (Sezer, 2011)

The fact that most of the nurses did not know on which problems the types of maqam are effective (Table 1) may have been due to the fact that courses for music therapy are not included in nursing education curricula and this issue is not included within in-service training programs. Furthermore, to know the effects of the type of music or maqam on health requires a highly comprehensive music education. It is considered that the fact that these trainings are provided to nurses by the relevant expert music therapists would be appropriate at least for starting for the use of appropriate type or maqam music in the fields of nursing care. There are many historical sources and artistic claims about the therapeutic effects of classical Turkish music maqams on various health problems (Birkan, 2014). Although music therapy is discussed by neuroscientists, these claims and the physiological effects of the elements such as rhythm, melody, timbre and harmony, which constitute maqam, should be explained by a large number of studies with high level of evidence (Birkan, 2014).

In this study, 42.2% of the nurses stated that music therapy could only be applied by experts (Table 2). Similarly, in the study in which Dundar (2011) examined the knowledge and opinions of healthcare professionals working in the pediatric clinic on music therapy, 66.7% of the participants stated that music therapy should be given only by experts. It is necessary to state that the phrase "music therapy" that we especially avoid using it does not mean the same as "using music in care" (Hohmann et al. 2017). Music therapy refers to an area of expertise in which music is also performed by therapists (Birkan, 2014; Dobrzynska et al., 2006). It is seen that there is a confusion in similar studies about the subject and both applications are used

interchangeably (Chang and Chen, 2005; Leardi et al., 2007; Ozlu, İ., and Avsar, 2016; Zengin et al., 2013). The features, such as the type, maqam and volume of the music listened, and the hours of making listen to music, should be determined in accordance with the individual so that music would create the desired effect on people. It is obvious that a certain level of expertise is required for the selection of appropriate music.

In the study, 89.0% of the nurses stated that it would be more effective to use music with other care methods (Table 2). Similar results were also obtained in the studies carried out on the subject (Dundar, 2011; Kurt et al., 2017). Although the use of music in nursing care has important effects, it may not always provide benefits alone. Music is a complementary application that often provides benefits together with other treatment and care interventions (Gencel, 2006).

In this study, nearly half of the nurses believed that music is a treatment method which can be applied in each clinic (Table 2). The fact that music has a wide area of use and is easily applicable may be effective on this view of nurses. This study result is also similar to the results of previous studies (Dundar, 2011; Kurt et al., 2017). Nowadays, music, which is associated with many areas of health care services and is known to have positive effects on the treatment process of the disease, is a complementary method which is frequently used in palliative care, intensive care, surgical operations, patients with psychiatric disorders, oncology, obstetrics, pediatrics and intensive care units, radiation and chemotherapy treatments, patients in mechanical ventilator, in cases where medical procedures are applied, geriatrics and ambulatory care units (Bradt and Dileo, 2014; Chaput-McGovern and Silverman, 2012; Chlan and Halm, 2013; Huang et al., 2010; Nilsson, 2008).

A 40.4% of the nurses stated that they disagreed with the statement "music can be used in the care of each patient". In the study in which Dundar (2011) examined the views of healthcare personnel working in pediatrics clinic on music therapy, the vast majority of the participants (60%) stated that each patient was not an appropriate candidate for music therapy. In the study carried out by Kurt et al. (2017) 37.7% of the nurses and 36.3% of the doctors stated that music could not be applied in every patient group. It may be useful to search for an answer to the question "Is music necessary in in the care of

each patient?" in discussing this result. Although the use of music is not compulsory in the care of each patient, the statement "it can be used in the care of each patient" can be considered correct when universality, diversity, relaxing effect of music, the fact that it is a means of making use of spare time and can be used as a communication language are taken into account.

In this study, 67.4% of nurses considered that the type of music/maqam to be chosen vary by cultures (Table 2). The musical understanding of individuals varies depending on the sociocultural structure of the society they live in and the education they have received. Individuals can communicate more effectively with the music of their own culture. Therefore, they are further affected by the music of their own culture (Gencel, 2006). The American Operating Room Nurses Association (AORN) recommends that nurses who will apply the method of treatment with music should take into account the patients' music preferences (AORN), (2015). There are studies indicating that patients with music therapy, which was applied by considering the patients' music preferences, were further benefited from the therapeutic effects of music compared to the other patient group (Leardi et al., 2007; Mitchell and MacDonald, 2006). On the other hand, the universality of music, what nurses try to do with the music they play, and which problem they intend to solve should not be ignored. It is stated that the music that is not carefully selected although it is appropriate to the patient's culture and preference may lead to undesired feelings and may trigger musicogenic epilepsy, psychotic attack and depression. Therefore, the nurse should not decide only with the patient's preferences and should choose the music that fits for purpose (Birkan, 2014).

In this study, the vast majority of nurses (87.6%) stated that music was an effective method in the healing process of patients (Table 2). In a similar study carried out previously, it was also determined that the vast majority of healthcare professionals had the same opinion. (Kurt et al., 2017) In the study in which the effect of music on the healing process in patients with coronary artery bypass grafting was examined by Vural and Aslan (2014), it was determined that music decreased the severity of anxiety and pain through relaxation, and thus, positively affected the patient's healing process and shortened the length of hospital stay. In a study carried out, it was determined that music was effective in

relaxation in the individual and distracting patients' attention (Kant and Akpınar, 2017). In the study, the vast majority of nurses (86.7%) considered the use of music as an effective method in distracting patients' attention from their problems (Table 2). In the study of Dundar (2011), it was determined that all of the healthcare professionals considered the use of music effective in distracting the attention of the patients receiving medical treatment (Dundar, 2011). Non-compliance with the treatment is a condition that is frequently encountered and leads to the disruption of treatment of patients or rejection of treatment. Music facilitates patient compliance to the hospital and treatment process by alleviating the symptoms such as pain, anxiety and stress. In this study, it was determined that 82.1% of nurses thought that music facilitated the patients' compliance with care (Table 2). In some previous studies, it was also determined that healthcare professionals stated that music facilitated the patients' compliance with treatment process (Dundar, 2011; Kurt et al., 2017).

In this study, 80.7% of nurses considered that music therapy was an effective method which can be used for treating pain and decreasing the use of analgesics (Table 2). Music, one of the nonpharmacological methods that are used in the relief of pain, leads to a decrease in pain severity by increasing endorphin release (Nilsson, 2008). Furthermore, music reduces the patient's perception of pain by distracting patient's attention from the painful stimulant. When the literature is reviewed, it is seen that music is an effective method in reducing pain and decreasing the use of analgesics (Nilsson, 2008; Vural and Aslan, 2014). The interest in free treatments in recent years has increased the demand for the use of music in care. Music is a method of treatment which is painless, reliable and cheap and has no side effect when it is used correctly (White, 2000). In this study, 62.4% of nurses considered music as a method that decreases the cost of care (Table 2). In the study of Dundar (2011), 80% of healthcare professionals stated that music therapy was not costly and could reduce the cost of care.

Conclusion

In the study, it was determined that nurses did not receive any education on the use of music in care, they found the use of music in care useful, and they considered music as an effective method in reducing pain, anxiety and worry of

patients, facilitating patient compliance with care, and distracting their attention from their problems.

As a result of this study, it is recommended that the use of music in care should be included in nursing education and in-service training programs, the certification of nurses for music therapy should be ensured in necessary cases, and the institutions should extend the use of music by providing the necessary infrastructure and resources.

References

- Besel, J. M. (2006). The Effects of Music Therapy on Comfort in the Mechanically Ventilated Patient in the Intensive Care Unit. Doctorate Thesis, Montana State University-Bozeman, College of Nursing.
- Birkan, Z. (2014). Music therapy, its historical development and applications. Music therapy, historical development and applications. *Ankara Journal of Acupuncture and Complementary Medicine*, 2(1):37-49.
- Bradt, J. and Dileo, C. (2014). Music interventions for mechanically ventilated patients. *The Cochrane Library*.(12) 1-10.
- Gencil, Ö. (2006). Music therapy. *Kastamonu Education Journal*, 14(2), 697-706.
- Cetin, O. B. (2007). Use of complementary and alternative medicine in Eskişehir. *Socioeconomic*, 6(6):89-105.
- Chan, M.F., Chan, E.A. and Mok, E., (2010). Effects of music on depression and sleep quality in elderly people: A randomised controlled trial. *Complementary Therapies In Medicine* ,18 (3):150-159.
- Chang, E.-T., Lai, H.-L., Chen, P.-W., Hsieh, Y.-M. and Lee, L.-H. (2012). The effects of music on the sleep quality of adults with chronic insomnia using evidence from polysomnographic and self-reported analysis: a randomized control trial. *International Journal of Nursing Studies*, 49(8): 921-930.
- Chang, S. C. and Chen, C. H. (2005). Effects of music therapy on women's physiologic measures, anxiety, and satisfaction during cesarean delivery. *Research in Nursing and Health*, 28(6):453-461.
- Chaput-McGovern, J. and Silverman, M. J. (2012). Effects of music therapy with patients on a post-surgical oncology unit: A pilot study determining maintenance of immediate gains. *The Arts in Psychotherapy*, 39(5): 417-422.
- Chlan, L. and Halm, M. A. (2013). Does music ease pain and anxiety in the critically ill? *American Journal of Critical Care*, 22(6): 528-532.
- Chu, F.-Y. and Wallis, M. (2007). Taiwanese nurses' attitudes towards and use of complementary and alternative medicine in nursing practice: a cross-

- sectional survey. *International Journal of Nursing Studies*, 44(8): 1371-1378.
- Cigersci, Y., Kurt, H. and Celebi, S. (2016). Opinions of health professionals on music therapy as a supplementary care and alternative treatment method. *Afyon Kocatepe University Academic Music Research Journal*, 2(4):13-26.
- Gok, M. and Akpınar, R.B. (2015). Effect of Different Auditory Stimuli on Vital Signs, Oxygen Saturation and Coma Level of Intensive Care Patient. Institute of Health Sciences. Doctorate Thesis, Ataturk University, Erzurum, Turkey.
- Complementary Care Interventions. (2015) *AORN Guidelines for Perioperative Practice*. <https://aornguidelines.org/guidelines/content?sectionid=173731466&view=book>. Date of Access:20.12.2018
- Dobrzynska, E., Cesarz, H., Rymaszewska, J. and Kiejna, A. (2006). Music therapy—History, definitions and application. *Arch Psychiatr Psychother*, 8(1): 47-52.
- Dundar, S. A. (2011). The thoughts of nurses and doctors in pediatric clinics upon the application of music in clinics. *ADU Journal of Medical Faculty*, 12(3): 11-15. <http://hdl.handle.net/11607/2065>
- Erdemir, F., Kav, S. and Yilmaz, A. A. (2017). Nursing Interventions Classification (NIC): Nobel Kitabevi in Istanbul, Turkey.
- Ersanlı, C. and Komurcu, N. (2007). Effect of musical therapy and labor education at first pregnancy with inductio. Institute of Health Sciences, Doctorate Thesis, Marmara University, Istanbul, Turkey.
- Hassan, A., Allam, A., Al Kindi, S., Abu Zeinah, G., Eziada, S. and Bashir, A. (2014). Knowledge, attitudes and practices of oncology nurses towards complementary and alternative medicine for cancer care in Qatar. *J Anesth Clin Res*, 5(12): 2-7.
- Hohmann, L., Bradt, J., Stegemann, T. and Koelsch, S. (2017). Effects of music therapy and music-based interventions in the treatment of substance use disorders: A systematic review. *PloS One*, 12(11):187-363.
- Hu, R.-F., Jiang, X.-Y., Chen, J., Zeng, Z., Chen, X.Y., Li, Y., Huining, X. and Evans, D. (2015). Non-pharmacological interventions for sleep promotion in the intensive care unit. *Cochrane Database of Systematic Reviews*, (10):2-10.
- Huang, S.-T., Good, M. and Zauszniewski, J. A. (2010). The effectiveness of music in relieving pain in cancer patients: a randomized controlled trial. *International Journal of Nursing Studies*, 47(11):1354-1362.
- Imseytoglu, D. and Yildiz, S. (2012). Music therapy in neonatal intensive care units. *Florence Nightingale Nursing Journal*, 20(2): 160-165.
- Kant, E. and Akpınar, R. B. (2017). The effect of music and the pressure applied on pain induced by intramuscular injection. *International Journal of Caring Sciences*, 10(3), 1313-1318.
- Krishnaswamy, P. and Nair, S. (2016). Effect of music therapy on pain and anxiety levels of cancer patients: A pilot study. *Indian Journal of Palliative Care*, 22(3):307.
- Leardi, S., Pietroletti, R., Angeloni, G., Necozone, S., Ranalletta, G., and Del Gusto, B. (2007). Randomized clinical trial examining the effect of music therapy in stress response to day surgery. *British Journal of Surgery: Incorporating European Journal of Surgery and Swiss Surgery*, 94(8): 943-947.
- Mitchell, L. A., and MacDonald, R. A. (2006). An experimental investigation of the effects of preferred and relaxing music listening on pain perception. *Journal of Music Therapy*, 43(4): 295-316.
- National Core Education Program in Nursing (NCEPH). Retrieved from: http://www.hemed.org.tr/index.php?option=com_content&task=view&id=547&Itemid=178. Date of Access:20.12.2018
- Nilsson, U. (2008). The anxiety-and pain-reducing effects of music interventions: a systematic review. *AORN Journal*, 87(4): 780-807. <https://doi.org/10.1016/j.aorn.2007.09.013>
- Ozcelik, H., and Fadiloglu, Ç. (2009). Reasons for the use of complementary and alternative medicine in cancer patients. *Turkish Journal of Oncology*, 24(1):48-52.
- Ozlu, Z., Ince, S., and Avsar, G. (2016). The effect of music therapy on pain in cholecystectomy patients. *Journal of Anatolia Nursing and Health Sciences*, 19(2):100-105. <https://doi.org/10.17049/ahsbd.33111>
- Sezer, F. (2011). The effect of music on anger and psychological symptoms. *International Journal of Human Sciences*, 8 (1): 1472-1493.
- Ucaner, B., and Jelen, B. (2015). Music therapy practices and training in some countries. *Folklore and Literature*, 81 (1), 35-46.
- Vural, F., and Aslan, F. (2014). The effect of guided imagery and music on recovery process in patients with coronary artery bypass surgery. *Turkey Clinics Journal of Nursing Sciences*, 6(1): 26-37.
- White, J. M. (2000). State of the science of music interventions: critical care and perioperative practice. *Critical Care Nursing Clinics*, 12(2): 219-225.
- Zengin, S., Kabul, S., Al, B., Sarcan, E., Dogan, M., Yildirim, C. (2013). Effects of music therapy on pain and anxiety in patients undergoing port catheter placement procedure. *Complementary Therapies in Medicine*, 21(6): 689-696