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ORIGINAL ARTICLE

THE USE OF MUSIC IN CANCER PATIENTS WITH CHRONIC PAIN
A UTILIZAÇÃO DA MÚSICA EM PESSOAS DOENTES DE CÂNCER COM DOR CRÔNICA
EL USO DE LA MÚSICA EN PACIENTES CON CÁNCER CON DOLOR CRÓNICO

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ABSTRACT

Objective: to identify the effects of music on pain relief, from the perspective of cancer patients with chronic pain. **Method:** this descriptive, exploratory, quantitative and qualitative study was conducted with individuals with cancer and chronic pain. Music sessions were held during three days. At the beginning and end of each session, the patients were interviewed and the numeric pain rating scale was administered. The research project had been previously approved by the Research Ethics Committee of the Hospital, Protocol No. 07/601, CAAE 0052.0.028.000-07. **Results:** all individuals reported a reduction of chronic pain with the music sessions. Before the first music session, the respondents reported disbelief in this form of non-pharmacological therapy. **Conclusion:** after the music sessions, the respondents reported having obtained pain relief, as well as relaxation, evocation of personal memories and the temporary oblivion of problems. **Descriptors:** Neoplasias; Pain; Musicotherapy.

RESUMO

Objetivo: conhecer os efeitos da música no alívio da dor, sob a ótica de pessoas doentes de câncer com dor crônica. **Método:** estudo descritivo, exploratório, de abordagem quantitativa e qualitativa, com indivíduos com câncer e dor crônica. A sessão de música foi aplicada por três dias. Ao início e término de cada sessão foram realizadas a entrevista e a aplicação da escala numérica da dor. Inicialmente foi obtida a aprovação do projeto de pesquisa pelo Comitê de Ética em Pesquisa do Hospital, conforme Protocolo nº 07/601 e CAAE nº 0052.0.028.000-07. **Resultados:** houve redução da dor crônica em todos os indivíduos. Antes da primeira sessão de música, os entrevistados descreveram um sentimento de incredulidade nessa forma de terapia não farmacológica. **Conclusão:** após as sessões de música, os indivíduos relataram ter obtido alívio da dor, além de relaxamento, evocação de lembranças pessoais e esquecimento dos problemas. **Descritores:** Neoplasias; Dor; Musicoterapia.

RESUMEN

Objetivo: conocer los efectos de la música sobre el alivio del dolor, desde la perspectiva de pacientes con cáncer con dolor crónico. **Método:** estudio descriptivo, exploratorio, cuantitativo y cualitativo, con personas con cáncer y dolor crónico. Se aplicaron tres sesiones de música durante tres días. Al principio y al final de cada sesión, se realizaron la entrevista y la aplicación de la escala numérica del dolor. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación del Hospital (protocolo número 07/601; CAAE 0052.0.028.000-07). **Resultados:** hubo una reducción del dolor crónico en todos los pacientes. Antes de la primera sesión de música, los encuestados refirieron sentir incredulidad en relación a esta forma de terapia no farmacológica. **Conclusión:** después de las sesiones de música, los pacientes declararon haber obtenido alivio del dolor, relajación, evocación de recuerdos personales y el olvido de los problemas. **Descriptores:** Neoplasias; Dolor; Musicoterapia.

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INTRODUCTION

Pain is considered one of the most common and feared symptoms of cancer. The pain associated with cancer can lead to a variety of symptoms, both physical and emotional, including changes in sleep, fatigue and depression.¹⁻³

The perception of and reaction to pain vary among individuals with the same disease location and extent and may cause different degrees of suffering. The response to a painful stimulus is therefore individual and depends on the physical and emotional states of the person in pain. Thus, the pain is not only induced by noxious stimuli, but also associated with individual characteristics, such as mood, symbolic meanings attributed to the sensory phenomenon, and cultural and emotional aspects.⁴ According to the literature, there are several therapies to control chronic pain. These include massage, application of heat, acupuncture, music therapy and distraction techniques.⁵

Music therapy is the field of medicine that studies the influence of sound on the human being. It has the aim of opening channels of communication, producing therapeutic, psycho-prophylactic and rehabilitative effects on the individual and on society.⁶

When a sound reaches the brain, it acts in the limbic system (the center of emotions), specifically in the amygdaloid complex. In a situation of stress, fear or sadness, the amygdaloid complex sends a message to the hypothalamus. The hypothalamus then releases corticotropin-releasing hormone to the pituitary gland, which in turn releases adrenocorticotrophic hormone (ACTH) into the bloodstream. ACTH circulates in the bloodstream until it reaches the adrenal glands, which then release cortisol. Changes in the pattern of cortisol secretion were found to be associated with depression, psychological stress and physiological stress, such as hypoglycemia, fever, trauma, surgeries, fear, pain, physical exercise or extreme temperatures.⁷⁻⁹

At the same time, cortisol inhibits other functions, notably insulin secretion, which causes glucose released by the liver to be

available for muscle consumption to escape or face a threat. Music activates the auditory cortex, reducing the activity of the amygdaloid complex and inhibiting the whole chain of reactions. Cortisol stops being released and the person calms down.¹⁰

The physiological effects of music involve sensory, hormonal and physio-motor reactions, such as changes in metabolism, release of adrenaline, regulation of respiratory rate, changes in arterial blood pressure, fatigue and muscle tone reduction, and increase in the threshold for sensory stimuli, improving attention and concentration.¹¹

Music therapy activities, besides being highly rewarding and complete, causing a catharsis, also stimulate our sensitivity, putting us in direct contact with our emotions and establishing a bond that leads to better social integration and living.^{10,11}

Several studies show the combination of the knowledge and practical use of music in health care with medical practices, the field that came to known as music therapy, especially since the XX century.⁷⁻⁹ In nursing practice, music has been identified as a complementary therapeutic tool in the management and control of acute and chronic pain. The first Music Therapy program was developed in 1977 at a palliative care service of the Royal Victoria Hospital. Its aim was to meet the needs of individuals that could not be met by therapeutic efforts nor by their families. This therapy encompassed mental/psychological, social, physical and spiritual dimensions.⁹

The motivation for this research originated because it is an area which holds great potential for nursing care. In Brazil, the use of music therapy is not a common practice. There are only a few reports in the literature on the subject. This practice is mostly used by oncology nurses in the United States of America (USA). Given that many cancer patients experience treatment-related side effects, including pain, alternative therapies can be used as an adjuvant analgesic.

Thus, it is important that nurses start using music therapy for relief of

After the transcription and reading of the transcripts answers were then coded for theme content. The definition of units of meaning provided an approximation of the reality experienced by cancer patients with chronic pain and the effects of music on pain relief. Three units of meaning were identified: one before the music sessions and two after the music sessions.

RESULTS

Table 1 refers to the individuals' characteristics, type of tumor and the analgesic drug used. Most subjects were females (60%), aged 60-80 years (60%) and had primary tumor with bone metastasis (30%). The analgesic drug class used by most individuals was that of strong opioids (45%), followed by weak opioids (30%). Patients also made use of nonsteroidal anti-inflammatory drugs (15%) and adjuvant medications for pain control (10%).

Table 1. Distribution of subjects according to sex, age, tumor type of tumor and analgesic drug classes used. São Paulo (SP), 2011.

Sample characterization	n	%
Sex		
Male	4	40
Female	6	60
Age (years)		
20-40	2	20
41-60	2	20
61-80	6	40
Tumor type		
Primary tumor with bone metastasis	3	30
Primary tumor with metastasis to the Central Nervous System	1	10
Giant cell cancer of the spinal column + sternum + thorax + lung	1	10
Single primary tumor (breast, prostate)	3	20
Acute Myeloid Leukemia	2	20
Analgesic classes		
Strong opioid ^a	9	45
Weak opioid ^b	6	30
Non-steroidal anti-inflammatory drugs ^c	3	15
Adjuvant medications ^d	2	10

Legend: a : strong opioids - dimorph®, oxycodone, fentanyl, b: weak opioids – Tramadol hydrochloride, c : non-steroidal anti-inflammatory drugs - dipyrone®, profenid®, tylenol®, d ; adjuvant medications - neurontin®, diazepam®

The following table shows the pain scores of cancer patients before and after the music

sessions according to the numeric pain rating scale.

Table 2. Pain scores of cancer patients according to the numeric pain rating scale. São Paulo (SP), 2011.

Cancer patients	Pain score before the 1st music session	Pain score after the 1st music session	Pain score before the 2nd music session	Pain score after the 2nd music session	Pain score before the 3rd music session	Pain score after the 3rd music session
01	8	2	6	4	4	2
02	3	0	1	0	2	0
03	4	0	2	0	5	0
04	4	1	3	0	7	3
05	5	3	3	0	2	0
06	7	3	5	0	8	2
07	7	3	5	0	8	2
08	4	1	6	0	5	0
09	4	1	5	0	4	0
10	8	2	5	1	4	0

There was a reduction in the pain scores after the music sessions in 100% of cases (Table 2).

We can see that patients had moderate to severe pain before the music session (interviewees 01, 03, 04, 05, 06, 07, 08,

09 and 10), and obtained a reduction in pain intensity from baseline after the music session. (Table 2)

clientele is predominantly individuals of high socio-economic strata. In addition, most of them Jewish ancestry. The homogeneous music repertoire chosen was found to be helpful in this study.

The respect for the musical preference, i.e., the music an individual prefers to listen to, is advocated by music therapists¹¹, who have a different approach from that used by nurses in daily life due to the absence of a comprehensive discography in the hospital environment. We will not discuss here which of the two is the best approach to be used. We simply mention those practices that we consider appropriate to be included in the scope of our activities. We focus more on the relationship music/listener, regardless of their musical preferences, i.e. what is in the music and the feelings that it awakens in the listener. The musical preference in passive listening brings another contradictory issue from the therapeutic point of view: the ISO principle (ISO comes from the Greek word 'isos' and means equal). This principle should be carefully evaluated when the therapeutic use of music is proposed. The ISO principle, which can be classified into gestaltic, cultural, individual or universal, is a dynamic concept that summarizes the notion of the existence of a sound or set of sounds that characterize or individualize each human being, condensing sound archetypes^{11,13} that may be contained in classical music, particularly in Great Musical Works, in the case of the universal ISO.

According to this principle, the states of mind of an individual can be changed through music. To do so, for example, to minimize the anxiety of an individual, he should listen to a more agitated song, which should then be gradually replaced by a slower rhythm in order to favor a state of relaxation. This is configured in Hevner's Mood wheels, which features eight mood qualities and is composed by adjectives that are related but differ from one another. If used systematically, it can lead to the smooth transition from one mood quality to the other¹¹. If, hypothetically, this was the goal of the therapy, letting the individual choose the

repertoire - depending on his/her preferred musical style - could conceal a certain state of mind, make its diagnosis difficult, or even fail to meet the real needs of the person. This did not happen in this study because all subjects chose erudite music, i.e. universal ISO.

The issue a person's control over the environment, which inevitably imposes itself, can be solved by offering pre-determined musical selections. In this context, the individual may choose a song (having, in a way, his preference respected) among those defined by the nurses. Songs to which they have greater knowledge about their effects and the treatment to which they should be used in each clinical situation.

The meaning units identified show that there was a significant reduction in chronic pain in the interviewees. Before the first music session, the respondents reported disbelief in this form of non-pharmacological therapy. It is known that people with chronic pain undergo several pharmacological and non-pharmacological treatments and that this type of pain is often difficult to control. These individuals may show disbelief in alternative therapies because they are still not widespread or used frequently. Many health professionals also do not use this form of therapy, probably because they do not feel prepared to do it.

The use of music therapy sessions resulted in partial or complete pain relief. Some respondents were able to sleep better, were more relaxed and calm, while others reported that the music evoked personal memories. Studies on the effect of music on people with pain concluded that muscle relaxation, decreased pain perception, more restful sleep and empowerment of the individual to collaborate with treatment can be reached by the use of music.¹⁵⁻¹⁸

The findings of the statistical and discourse analyses (according to Bardin) were complementary. Music therapy made it possible to work with the connections of feelings, symbols and stories. Every 'moment' of music therapy is unique, marked by its differences and similarities, and this feature allows us to perceive the leading role played by the patients during

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