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## Review Article

# Music Intervention Can Improve Emotion in Cancer Patients during Disease Progression

### Abstract

Music has long been regarded to aid health and loss-adaptation, but effect of music intervention on cancer patients is not well-understood. The aims of this study are to summarize and describe the role of music before and after diagnosis. This review examines music intervention studies with randomized designs for patients with cancer published between 1991 and 2015 from three English-language databases and Chinese-language databases. Ten studies that met specific inclusion criteria were reviewed. Our review indicates that music intervention may have beneficial effects on emotion (anxiety/depression) in patients with cancer. More research is needed to ascertain the most optimal intervention methodology on which cancer populations or which treatment modalities are appropriate for such an intervention.

2. Non-peer reviewed literature was excluded.

### Search strategy

The PICOS strategy, namely Population (P), Intervention (I), Comparison (C), Outcome (O) and Study design (S), was applied for a systematic search of the published articles. In our study, we established P (population) for cancer patients; I (intervention) for music-based intervention; C for comparison of music intervention with another type of intervention or untreated group; O for management of emotion changes and disease progress; S for exception of cross-sectional studies and surveys studies [13,14].

### Review process

The author read the included studies one by one independently and summarized the aim of this review in Table 1: (1) author, (2) sample size, (3) gender, (4) cancer type, (5) main findings. The information was abstracted and filled in the Table by consensus.

### Results

Initially, 277 articles were collected and 88 articles among them were included according to the inclusion and exclusion criteria. The titles and abstracts were then read one by one. 10 articles were selected for the final review and delivered on one occasion [15-24]. Most of the studies (90%) reported significantly emotion improvement after music treatment compared with the control group. Only one study (10%), however, reported no significance between the two groups. The effects of music intervention mentioned in the included studies were analyzed in detail as follows.(Figure 1)

### Discussion

Our review aims to summarize and analyze evidence based proof of effectiveness of music intervention on the management of emotional stress in cancer patients. As presented in the results of included studies, well-structured, trained and organized music intervention showed better effects on the quality of life and emotion

## Introduction

Emotional distress in cancer patients happens during their acute treatment and after treatment ends [1,2]. Some cancer patients were reported to have positive results after treatment. However, many patients suffered severe traumatic stress and showed regressive, withdrawn and angry behaviors [3-6]. Non-pharmaceutical interventions play an important role in alleviating these symptoms, including pain, depression, anxiety, and poor quality of life during the treatment of cancer [7-9]. Among these complimentary interventions, music intervention attracted a lot of attention from both patients and clinicians for fewer side effects and being cost effective [10-12]. This review summarizes evidences supporting effects of music intervention from clinical trials, and presents challenges and opportunities for further research and studies in this emerging area.

## Methods

### Design

This study is a literature review about music interventions to manage emotion changes in cancer patients. The current studies with different designs will be synthesized to address the issue. Thus, the inclusive articles should follow the following inclusion criteria and exclusion criteria.

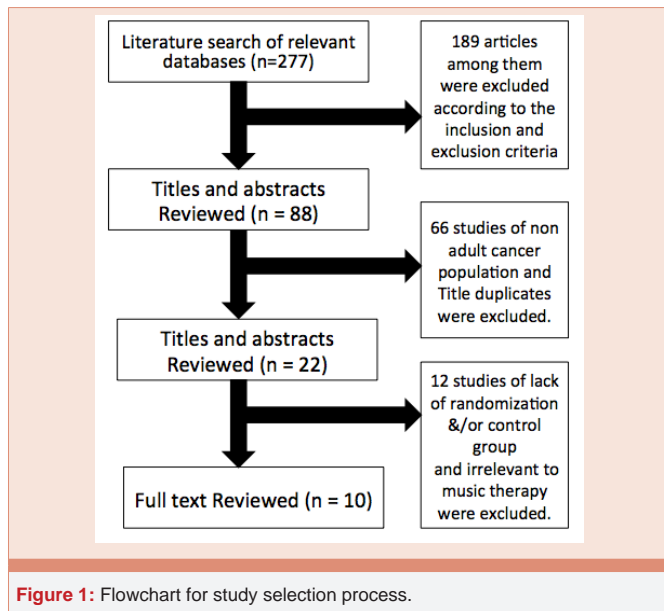
1. Inclusion CriteriFull articles published from 1991 to 2015 in English and Chinese.
2. Trials used a RCT design and tested a music intervention.
3. Sample studies were human subjects of any age.

#### Exclusion Criteria

1. Studies were excluded if the intervention test was not included in the classification of music-based intervention.

**Table 1:** Individual studies investigating the effect of music-based interventions on mood disturbance in cancer patients.

Number	Author	Sample Size	Gender	Cancer Type	Main Findings
15	Binns-Turner	30	Female	Breast cancer	Music intervention significantly reduced nxiety from the control group
16	Bulfone et al	60	Female	Breast cancer	Significant difference between the two groups in anxiety
17	Burrai	52	Both	Various cancers	Live music could improve the oxygen saturation and mood in cancer patients.
18	Hanser	42	Female	Breast cancer	No significant difference found between groups
19	Juan Liao	170	Both	Various cancers	Significantly improve quality of life and Karnofsky performance score
20	Palmer JB	207	Female	Breast cancer	Music intervention can manage preoperative anxiety
21	Yi Wang	60	Both	Lung cancer	Music intervention improved analgesia effects and decreased doses of sufentanil. In addition, music intervention reduced stress and anxiety on cancer patients.
22	Vachiramom V	100	Both	Skin cancer	Music reduced anxiety in skin cancer patients
23	Zhao	95	Both	Various cancers	Experimental group showed significantly less anxiety than control group post-intervention
24	Zhou K	170	Female	Breast cancer	Music therapy could reduce depression, anxiety and length of hospital stay in female breast cancer patients



**Figure 1:** Flowchart for study selection process.

improvement in cancer patients. However, there is no clear clinical practice guidelines used in the clinical study [25-28]. Thus, standard is recommended for the intervention quality control, in which the researchers can reduce the dropout rate reported in previous studies [29,30].

The included 10 studies were all random assignments and specified eligible criteria. Only one study reported double blind trial, namely blind subjects and blind therapists. Thus, the placebo effects could not be ignored in the majority of studies. The interventions applied in the studies varied in content, duration, and dose. Most interventions were individualized according to the needs of subjects and therapists.

Through this review, despite having limited investigations in this field, we found that a much stricter methodology should be highlighted and paid attention to [31]. In addition, diverse methodologies were

found in the studies which affected the heterogeneity of meta-analysis and review article [32-34]. For example, the present review article could hardly make a conclusion on the effects of music-based intervention due to different cancer types, genders, and measurement tools.

### Perspective

Specifically, more conceptual and mechanisms studies of this field are needed. To get an optimal intervention for cancer populations, it is urgent for the researchers to obtain identification of methodological components because inconsistencies would block the development of music therapy. Different results from various studies, which might contribute to various cancer types, different cancer stages, various treatments, and different intervention durations, should be explored for the psychological beneficial of cancer patients in the future investigations. Additionally, theoretical framework, which can provide rationale for the intervention of cancer patients, should also be highlighted and paid attention to. Homogenous populations, including cancer types and cancer stages, and intervention durations, should be considered for the future clinical translation.

### References

- Desplenter F, Bond C, Watson M, Burton C, Murchie P, et al. (2012) Incidence and drug treatment of emotional distress after cancer diagnosis: a matched primary care case-control study. *Br J Cancer* 107: 1644-1651.
- Iwamitsu Y, Shimoda K, Abe H, Tani T, Okawa M, et al. (2005) The relation between negative emotional suppression and emotional distress in breast cancer diagnosis and treatment. *Health Commun* 18: 201-215.
- Anton S, Gugić D, Katinić K, Topić J (2015) Efficacy of Different Psychiatric Treatment Methods of Liaison Psychiatrist in Treatment of Women with Breast Cancer. *Coll Antropol* 39: 377-383.
- Norberg AL, Lindblad F, Boman KK (2005) Parental traumatic stress during and after paediatric cancer treatment. *Acta Oncol* 44: 382-388.
- Carter J, Rowland K, Chi D, Brown C, Abu-Rustum N, et al. (2005) Gynecologic cancer treatment and the impact of cancer-related infertility. *Gynecol Oncol* 97: 90-95.
- Levine EG, Eckhardt J, Targ E (2005) Change in post-traumatic stress symptoms following psychosocial treatment for breast cancer. *Psychooncology* 4: 618-635.

7. Mackereth P, Farrell C, Bardy J, Molassiotis A, Finnegan-John J (2015) Legitimising fatigue after breast-cancer treatment. *Br J Nurs* 24: S4, S6, S8-12.
8. Darkow T, Maclean R, Joyce GF, Goldman D, Lakdawalla DN (2012) Coverage and use of cancer therapies in the treatment of chronic myeloid leukemia. *Am J Manag Care* 18: S272-278.
9. Wright M (2005) Children receiving treatment for cancer and their caregivers: a mixed methods study of their sleep characteristics. *Pediatr Blood Cancer* 56: 638-645.
10. Eckhouse DR, Hurd M, Cotter-Schaufele S, Sulo S, Sokolowski M, et al. (2014) A randomized controlled trial to determine the effects of music and relaxation interventions on perceived anxiety in hospitalized patients receiving orthopaedic or cancer treatment. *Orthop Nurs* 33: 342-351.
11. Lai WS, Chao CS, Yang WP, Chen CH (2010) Efficacy of guided imagery with theta music for advanced cancer patients with dyspnea: a pilot study. *Biol Res Nurs* 12: 188-197.
12. Lotufo PA (2003) The noise stops you from hearing good music: the possibilities for a mortality reduction program for cancer of the colon and rectum in Sao Paulo. *Sao Paulo Med J* 121: 95-96.
13. Fagerlund A, Cormio L, Palangi L, Lewin R, Santanelli di Pompeo F, et al. (2015) Gynecomastia in Patients with Prostate Cancer: A Systematic Review. *PLoS One* 10: e0136094.
14. Karlstad O, Starup-Linde J, Vestergaard P, Hjellevik V, Bazelier MT, et al. (2013) Use of insulin and insulin analogs and risk of cancer - systematic review and meta-analysis of observational studies. *Curr Drug Saf* 8: 333-348.
15. Binns-Turner PG, Wilson LL, Pryor ER, Boyd GL, Prickett CA (2011) Perioperative music and its effects on anxiety, hemodynamics, and pain in women undergoing mastectomy. *AANA J* 79: S21-27.
16. Bulfone T, Quattrin R, Zanotti R, Regattin L, Brusaferrero S, et al. (2009) Effectiveness of music therapy for anxiety reduction in women with breast cancer in chemotherapy treatment. *Holist Nurs Pract* 23: 238-242.
17. Burrai F, Micheluzzi V, Bugani V (2014) Effects of live sax music on various physiological parameters, pain level, and mood level in cancer patients: a randomized controlled trial. *Holist Nurs Pract* 28: 301-311.
18. Hanser SB, Bauer-Wu S, Kubicek L, Healey M, Manola J, et al. (2006) Effects of a music therapy intervention on quality of life and distress in women with metastatic breast cancer. *J Soc Integr Oncol* 4: 116-124.
19. Liao J, Yang YF, Cohen L, Zhao YC, Xu Y (2013) Effects of Chinese medicine five-element music on the quality of life for advanced cancer patients: a randomized controlled trial. *Chin J Integr Med* 19: 736-740.
20. Palmer JB, Lane D, Mayo D, Schluchter M, Leeming R (2015) Effects of Music Therapy on Anesthesia Requirements and Anxiety in Women Undergoing Ambulatory Breast Surgery for Cancer Diagnosis and Treatment: A Randomized Controlled Trial. *J Clin Oncol* 33: 3162-3168.
21. Wang Y, Tang H, Guo Q, Liu J, Liu X, et al. (2015) Effects of Intravenous Patient-Controlled Sufentanil Analgesia and Music Therapy on Pain and Hemodynamics after Surgery for Lung Cancer: A Randomized Parallel Study. *J Altern Complement Med* 21: 667-762.
22. Vachiramon V, Sobanko JF, Rattanaumpawan P, Miller CJ (2013) Music reduces patient anxiety during Mohs surgery: an open-label randomized controlled trial. *Dermatol Surg* 39: 298-305.
23. Zhao P (2008) Intervention effects of musical therapy to physiological and psychological conditions in process of radiotherapy for patients with cancer. *Chin J Cancer Prev Treat* 15: 1097-1099.
24. Zhou KN, Li XM, Yan H, Dang SN, Wang DL (2011) Effects of music therapy on depression and duration of hospital stay of breast cancer patients after radical mastectomy. *Chin Med J (Engl)* 124: 2321-2327.
25. Austin D (2010) The psychophysiological effects of music therapy in intensive care units. *Paediatr Nurs* 22: 14-20.
26. Abrams B (2010) Evidence-based music therapy practice: an integral understanding. *J Music Ther* 47:351-79.
27. Chlan L, Tracy MF (1999) Music therapy in critical care: indications and guidelines for intervention. *Crit Care Nurse* 19: 35-41.
28. Roach JA, Langdon ME, DeFalco R, George CJ (2014) Using music to maintain the correct rhythm during CPR. *Nurs Times* 110: 12-15.
29. Kraus N1, Hornickel J, Strait DL, Slater J, Thompson E (2014) Engagement in community music classes sparks neuroplasticity and language development in children from disadvantaged backgrounds. *Front Psychol* 5: 1403.
30. Maratos AS, Gold C, Wang X, Crawford MJ (2008) Music therapy for depression. *Cochrane Database Syst Rev* (1): CD004517.
31. Popescu M, Otsuka A, Ioannides AA (2004) Dynamics of brain activity in motor and frontal cortical areas during music listening: a magnetoencephalographic study. *Neuroimage* 21: 1622-1638.
32. Lewis-Mikhael AM, Bueno-Cavanillas A2, Ofir Guiron T3, Olmedo-Requena R2, Delgado-Rodríguez M, et al. (2016) Occupational exposure to pesticides and prostate cancer: a systematic review and meta-analysis. *Occup Environ Med* 73: 134-144.
33. Gerrald KR, Van Scoyoc E, Wines RC, Runge T, Jonas DE (2012) Saxagliptin and sitagliptin in adult patients with type 2 diabetes: a systematic review and meta-analysis. *Diabetes Obes Metab* 14: 481-492.
34. Di Ciommo V, Russo P, Ravà L, Caprino L (2003) Interferon alpha in the treatment of chronic hepatitis C in children: a meta-analysis [correction of metanalysis]. *J Viral Hepat* 10: 210-214.

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