

Table 2: Randomised controlled trials of music therapy for cancer

Source: Joke Bradt, Helen Cooke, CAM-Cancer Consortium. [Music therapy \[online document\]](#). May 2017.

First author (year) [ref]	Study design Participants (number, diagnosis)	Interventions (experimental treatments, control)	Main outcome measures	Main results	Comments
Alam (2016) [22]	RCT Skin cancer patients undergoing cutaneous surgical procedures (n = 151)	1) Music listening (researcher's choice) 2) Guided imagery 3) Control (standard care)	1) Pain (VAS) 2) Anxiety (Spielberger State-Trait Anxiety – short form, STAI-SF)	No statistically significant differences between the treatment arms.	Randomisation method was adequate (block Randomisation) and allocation concealment was used. Failure to demonstrate treatment benefits may be due to the fact that patients were undergoing surgery under local anesthesia and were able to hear sounds of surgical instruments, smell the odor of cautery, and feel physical pressure associated with skin incision and suturing. Listening to pre-recorded music may not be effective as a distractor or relaxation experience under these circumstances. The researchers suggest that the use of patient-selected music rather than researcher-selected music may have been more effective.
Arruda (2016) [23]	RCT Cancer patients with pain (n = 65)	1) Music listening (researcher's choice) 2) Listening to poetry (researcher's choice) 3) Control (standard care)	1) Pain (VAS) 2) Depression (Beck Depression Inventory) 3) Hope (Herth Hope Scale)	Music resulted in improved pain ($P<0.001$) and depression ($P=0.004$), poetry resulted in improved pain ($P<0.001$), depression ($P=0.001$), and hope ($P=0.009$). Pain was the only outcome for which a post-intervention difference between the music and poetry groups and the control group ($P<0.001$).	Randomisation method was adequate (simple randomisation) but allocation method was not clear. The intervention period may have been too short (3 days) to result in larger treatment benefits for depression and hope, according to the authors.

Mische (2017) [24]	RCT Adult cancer patients receiving blood and marrow transplantation (n = 39)	1) Art making 2) Diversional music (patient selected through use of Spotify) 3) Control (standard care)	1) Therapy-related symptoms (Therapy-Related Symptom Checklist) 2) State anxiety (STAI) 3) Physiological distress (vital signs)	No statistical differences were found between groups on all measures	Authors state that participants were randomly assigned to study arms but randomisation method is not specified. Allocation concealment is not described. The study was underpowered. Art and music interventions were not delivered by a trained creative arts therapist. Authors state that they wanted to examine the effect of a low cost option by not involving trained professionals. The authors report that many patients selected spiritual and gospel music and suggest that this may have evoked reflections on their cancer experience and may have temporarily increased their anxiety. The presence of a music therapist could have helped address patients' reflections and feelings in response to the music. The music was offered via a tablet computer. The use of a computer and the Spotify interface may have increased anxiety in some patients unfamiliar with this technology.
Palmer (2015) [25]	RCT Female cancer patients undergoing ambulatory breast surgery (n = 207)	1) patient-selected live music pre-operatively and therapist-selected music intra-operatively 2) patient-selected recorded music pre-operatively and therapist-selected music intra-operatively 3) Control (standard care)	1) anxiety (Global Anxiety-VAS) 2) Anesthesia requirements (amount of propofol required to reach moderate sedation as measured by Bispectral Index) 3) Recovery time (interval between surgery end time and the time when the patient had met discharge criteria) 4) Patient satisfaction (5-item questionnaire)	Greater anxiety reductions in the live music and the recorded music condition compared to control (P<0.001). No statistically significant differences for anesthesia requirements, recovery time and patient satisfaction. The live music condition resulted in a shorter recovery time than the recorded music condition (P=0.018)	Randomisation method was adequate (online randomisation schedule). Online randomisation method ensured allocation concealment. Although those who received live music met discharge readiness criteria 12 minutes earlier than did those who listened to recorded music, this finding needs to be interpreted with caution because of multiple secondary comparisons without statistical adjustment for multiple comparisons.

Robb (2016) [26]	RCT, pilot Young children with cancer and their parents (n = 16)	1) Active music engagement intervention, delivered by parent (AME-P) 2) Audio storybook attention control	1) Child emotional distress (behavioral coding form) 2) Child engagement (behavioral coding form) 3) Parental stress (Profile of Mood States – Short Form; Impact of Events Scale - Revised)	Children in the AME-P condition showed less distress compared to controls (d = 1.07, P=0.04). Parents did not experience stress relief.	Randomisation method was adequate (block randomisation using computer algorithm). Opaque sealed envelopes were used to ensure allocation concealment. Parents were able to deliver AME activities without difficulty, and parent delivery resulted in lower child emotional distress. However, parent interview data indicated that parents would have preferred not to have to deliver the intervention and would, instead, have liked a reprieve from the responsibility to have to keep their child occupied and engaged.
Tuinmann (2016) [27]	RCT Adults with high-dose chemotherapy with autologous stem cell transplantation (n = 66)	1) Music therapy offered by a trained music therapist 2) Control (standard care)	1) Quality of life (EORTC QLQ-C30) 2) Pain (pain subscale of the EORTC QLQ-C30) 3) Anxiety and depression (Hospital Anxiety and Depression Scale – German version, HADS-D) 4) Physical functioning (Karnofsky Performance Score)	No significant differences between the groups for quality of life, anxiety, depression, physical functioning. Greater pain reductions in the music therapy group than the control study arm (P=0.027)	Authors state that random assignment was used but randomisation method is not specified. Allocation concealment is not discussed. The study was underpowered because of larger than anticipated attrition and an overestimation of the effect size in the sample size computations. The music therapy treatment group showed greater improvements in all outcomes compared to the control group but significance could not be reached, likely due to insufficient statistical power.