Table 1: Systematic reviews of music therapy for cancer

Source: Ava Lorenc, Joke Bradt, CAM-Cancer Consortium. Music therapy [online document]. http://cam-cancer.org/en/music-therapy, October 2020

First author (year) [ref]	Main outcomes	Number of studies Type of studies Number of patients Included	Main results/Conclusion	Comments
Bradt (2016)	A Cochrane systematic review examining the effects of music therapy and music medicine interventions on psychological and physical outcomes in people with cancer.	52 RCTs and quasi-randomised trials (participants n = 3731) 47 adult trials, 5 paediatric trials 23 music therapy trials, 29 music medicine trials Trials took place in 9 different countries. No trials were excluded based on article language.	Results suggest that music interventions may have a moderate to large effect on anxiety (SMD = - 0.71; 95% CI -0.98 to -0.43, P<0.00001), moderate effect on depression (SMD = -0.40; 95% CI -0.74 to -0.06, P=0.02), large effect on pain (SMD = - 0.91; 95% CI -1.46 to -0.36, P=0.001), and small to moderate effect on fatigue (SMD = -0.38; 95% CI -0.72 to -0.04, P=0.03). There was no difference between the effect of music therapy and music medicine for anxiety, depression and mood. Music therapy but not music medicine interventions demonstrated a moderate effect on quality of life (SMD=0.42; 95% CI 0.06 to 0.78, P=0.02). Small treatment benefits were found for heart rate, respiratory rate and blood pressure. Meta-analyses did not find support for an effect of music interventions on mood or distress.	Searches were comprehensive: 14 electronic databases were searched and 17 journals were hand-searched. Most trials were at high risk of bias and therefore the quality of the evidence is low. The main reason for receiving a high risk of bias rating was the lack of blinding. Blinding is often impossible in music therapy and music medicine studies that use self-report outcomes, since participants know whether or not they listened to music and/or participated in active music making. Therefore, it is often impossible for these types of studies to receive a low or even moderate risk of bias even if they have adequately addressed all other risk factors (e.g. randomization, allocation concealment, etc.).

Bro (2017)	A systematic review and meta-analysis of psychological and physical effects of music interventions in active cancer treatment (anxiety, distress, quality of life, depression, relaxation, fatigue, nausea, and pain)	25 RCTs (20 for meta-analysis; n=1565). 17 used recorded music, 8 used live music; 15 were passive listening, 10 were active participation with music therapists. 20 used patient-selected music and 23 were individualised to the patient. Music intervention applied during chemotherapy, surgery, radiotherapy or other procedures/hospitalisation.	Music reduced anxiety (SMD −0·80 [95% CI, −1.35 to −0.25]), pain (SMD −0.88 [95% CI −1.45 to −0.32]), and improved mood (SMD −0.55 [95% CI, −0.98 to −0.13]). No significant difference for depression, spirit, distress, quality of life, relaxation, fatigue or nausea The most effective mode of music intervention appeared to be passive listening to self-selected, recorded music in a single session.	Comprehensive search and sound methodology. Included English or German studies. Did not assess publication bias. High heterogeneity and low to very low study quality. Small sample sizes and risk of underpowered studies limit the findings. Information on intervention content was lacking, as was focus on patients' musical background/preference.
Gramaglia (2019)* *excluded for methodological reasons	A systematic review (no meta-analysis) of music interventions on adults with cancer.	40 studies (33 RCTs, 3 cohort, 1 case-control, 3 retrospective studies). 28 studies used receptive music techniques, 12 used a trained therapist, 19 used music medicine.	Of the 26 studies that evaluated anxiety, 20 found a reduction after music intervention, with greater reduction for those using music therapists. Of the 16 evaluating depression, 13 found a decrease after intervention. Of 13 evaluating pain, 9 found a reduction, and of 11 evaluating quality of life, 6 found an improvement. Greater reductions in anxiety and depression were observed in breast cancer patients.	Only searched 2 databases and risk of bias not assessed. Although this review does not say it is a systematic review in the title it does in the text. Included all study designs not just RCTs and no meta-analysis, so of limited use and we did not use the data in the summary.
Kiernan (2017)	A systematic review of music interventions for acute and delayed chemotherapy-induced nausea and vomiting (CINV)	10 studies (any study design) 2 were randomised and 6 were controlled. 3 studies used patient-preferred music. 8 studies used music therapy during acute CINV. 5 studies evaluated music as the sole intervention.	Of the 5 studies that evaluated a music intervention on its own, only 2 produced statistically significant results.	Only searched databases (no grey literature searches). No meta-analysis. Studies were very heterogeneous and nearly all used convenience sampling. Small sample size, design heterogeneity, and minimal study controls make comparison among studies challenging. Included all study designs – the majority were not RCTs so it is difficult to draw any conclusions about effectiveness. Included interventions which combined music therapy with another intervention.

Kohler (2020)	A systematic review and meta-analysis of music therapy for psychosocial outcomes in adult cancer patients. (Note that they did not limit by outcome although protocol has a list of psychological/physical/ cancer outcomes)	30 studies (21 for meta-analysis, n not reported) Music therapy from a trained music therapist.	Meta-analysis found small but significant effects of music therapy on psychological well-being (d = 0.35, p < 0.001) and quality of life (d = 0.36, p = 0.023). Moderator analyses identified studies with a single session of music therapy and the use of receptive techniques to produce larger effects regarding psychological well-being.	Only searched 3 databases but some hand-searching included. High risk of bias in all studies. Small sample size in many studies. Did not report numbers of patients in meta-analysis.
Li (2020)	A systematic review and meta-analysis of effects of music therapy on quality of life, anxiety, depression and pain in people with cancer	19 RCTs (participants n = 1548). Only included RCTs with a standard care control group. Most included various cancers. All music therapy. 9 from China, others from 6 other countries.	Meta-analysis found significant effects in favour of music therapy for anxiety (SMD = −1.51, 95% CI: [−2.27, 0.75], p < 0.05, I2 = 91%); depression (SMD = −1.12, 95% CI: [−1.87, −0.38], p < 0.05, I2 = 94%); pain (SMD = −0.73, 95% CI: [−0.94, −0.52], p < 0.05, I2 = 0%); and QoL (SMD = 0.54, 95% CI: [0.40, 0.69],p < 0.05, I2 = 49%), although subgroup analysis showed effects for quality of life were only for interventions of between 1 and 2 months.	Only included RCTs with a standard care control group. Included English and Chinese studies. Only searched databases (no grey literature searches). Overall, all trials included had a 'high risk of bias', mainly due to lack of blinding but also poor design and reporting of allocation concealment and blinding of outcome assessment. No publication bias observed.
Wang (2018)	A systematic review and meta-analysis of music interventions on physical and mental status of patients with breast cancer.	30 RCTs (participants n=2559). 24 studies were in Chinese (6 in English). Only included standard care control groups. Most studies used receptive music listening on headphones, music mostly chosen by researcher and patient.	Music intervention was significantly effective in lowering systolic blood pressure (SMD –0.63, 95% CI –0.85 to –0.42; p < 0.00001), diastolic blood pressure (SMD –0.64, 95% CI –1.06 to –0.22; p =0.003), and heart rate (SMD –0.45, 95% CI –0.66 to –0.24; p < 0.0001), and in relieving anxiety (Hamilton Scale: mean difference (MD) –7.04, 95% CI –9.31 to –4.78; p < 0.00001; Self-Rating Anxiety Scale: MD –7.40, 95% CI –10.28 to –4.52; p < 0.00001; State Anxiety Inventory: MD –12.40, 95% CI –21.86 to –2.94; p = 0.01), and depression (MD –7.39, 95% CI –8.35 to –6.43; p < 0.00001).	Searched 9 English and Chinese databases. 9 high quality studies, 21 poor quality. Substantial heterogeneity among studies. Unable to assess publication bias which is therefore a possibility.

Yangoz (2019)	A systematic review and meta-analysis of music interventions on cancer-related pain	6 RCTs (participants n = 593). All used passive instrumental music listening.	Moderate effect on cancer-related pain (*p* = 0.001, H edge's g = 0.55, 95% CI 0.19–0.92, 593 patients), but high heterogeneity. No difference based on duration or frequency of intervention. No publication bias. No adverse effects.	Searched many databases but no other methods. Not clear if screening was duplicated. Could not access full text of 6 studies. Studies had small sample sizes.

CI – confidence interval
RCT – randomised controlled trial
SMD – standardised mean difference