The anxiety- and pain-reducing effects of music interventions: a systematic review

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CRD summary
This review concluded that music interventions can help reduce or control peri-operative patient anxiety and pain. Although the authors' conclusions were suitably cautious, given the potential for bias and the heterogeneity among studies, they should be interpreted with caution.

Authors' objectives
To assess the effects of music interventions on pain and anxiety in peri-operative hospitalised patients.

Searching
MEDLINE, AMED and CINAHL were searched between January 1995 and January 2007 for articles in English. Search terms were reported. References of retrieved articles and relevant journals were searched manually.

Study selection
Randomised controlled trials (RCTs), including trials based on random or quasi-random methods, that assessed the effects of music interventions, conducted pre-, intra- and/or peri-operatively in patients over 17 years were eligible for inclusion. Eligible studies were required to measure pain, anxiety and stress indications. Studies using live music or music used only in conjunction with other non-pharmacologic interventions were excluded from the review.

Included studies were of men and/or women undergoing various types of elective surgery. Most studies were conducted postoperatively. Mean ages ranged between 34 and 76 years. The music was soothing, mostly self-selected and played for varying durations. Interventions were compared with a control or other interventions. Most studies used headphones to provide music. Reported outcomes included anxiety, pain, vital signs and blood sample indicators and were measured using various different tools, including questionnaires and medication use.

The authors did not state how many reviewers screened studies for relevance.

Assessment of study quality
Methodological quality was assessed on the following criteria: blinding, allocation concealment, follow-up, sample size calculation and validity/reliability of outcome measures. Studies were given a score from 0 to 10 (10 denoted highest quality). The authors did not state how many reviewers assessed quality.

Data extraction
The authors did not state how the data was extracted.

Methods of synthesis
Due to methodological differences, meta-analysis was not undertaken. Instead, data were presented as a narrative synthesis taking into consideration publication dates.

Results of the review
Forty-two RCTs (n=3,936) were included in the review. Sample sizes ranged from nine to 500 patients. Seven studies scored 8 or 9 on quality; 11 studies were of insufficient quality, scoring 3 or less.

Twelve of 24 studies (50 per cent) that assessed anxiety and 13 of 22 studies (59 per cent) that assessed pain reported significant reductions in anxiety and pain with music interventions. Between 27 per cent and 38 per cent of studies that assessed various vital signs reported reported benefits with music. Other vital signs were reported in the review.

Authors' conclusions
Music intervention helped reduce or control peri-operative anxiety and pain.
CRD commentary
The objectives of the review and the inclusion criteria were clear. The literature search was adequate. The authors acknowledged the potential for language and publication bias due to language restrictions and not searching for unpublished articles. The authors did not report the processes used for study selection, validity assessment or data extraction, thus the potential for reviewer error and bias could not be ruled out. Although the quality of the studies was assessed using a modified version of previously published criteria, the authors acknowledged that the quality was insufficient in a number of studies, which may affect the reliability of the conclusions. Due to the differences in methodological methods, a narrative synthesis was appropriate. However, there were also clinical differences in terms of patient surgical procedures and few patient characteristics, such as co-morbidities, were reported it was unclear how comparable patients were at baseline. Further, as some studies included interventions with music plus other components, it was unclear not only whether music alone or in combination was the most effective but also against which comparators they were most effective. Although the authors’ conclusions appeared appropriate, given the above limitations they should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further research should investigate the effects of music specifically composed for individual patients, groups or settings and assess different effects relating to patient gender, age and ethnicity. Further research should also include the assessment of music interventions using an audio pillow. Any research should provide greater details and maintain high quality standards.

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