Are non-pharmacological nursing interventions for the management of pain effective: a meta-analysis

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Authors' objectives
To assess the effectiveness of non-pharmacological nursing interventions in the management of acute pain.

Searching
MEDLINE, CINAHL, PsycLIT, BIOSIS Previews and Dissertation Abstracts were searched from 1960 onwards. Additional relevant published and unpublished studies were identified by examining reference lists of retrieved articles, by manually searching key journals, and by contacting experts in the field.

Study selection

Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were included.

Specific interventions included in the review
Non-pharmacological nursing interventions in the management of acute pain, which included: biofeedback and relaxation training, selected musical compositions, imagery skills, pain records, self-care education, coping strategies, personalised care, neck collar and hypnosis training.

Participants included in the review
[A: Adult patients with a mean age of 62.4 years. Most of the studies included post-operative patients.]

Outcomes assessed in the review
Pain intensity as measured on a visual analogue scale (VAS).

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
[A: Studies were assessed using a methodological quality rating tool designed by the author (see Other Publications of Related Interest).] The author does not state how the papers were assessed for quality, or how many of the reviewers performed the quality assessment.

Data extraction
[A: The author abstracted the data using a specifically-designed data abstraction form. A random sample of 10% of the papers was checked by a second reviewer and intra-class coefficient of reliability of coding was found to be high at 0.98.]

Methods of synthesis
How were the studies combined?
The studies were combined using a fixed-effect model to provide an overall pooled effect size (each study's mean pain rating was converted to an effect size).

How were differences between studies investigated?
In those studies where information was missing (and could not be obtained) about effect size, a zero effect size was
assigned and analyses were carried out with and without these studies. Subgroup analyses were also carried out for specific interventions and different pain types.

Results of the review
Forty-nine trials in total (n=3,357 patients) were included: 28 RCTs, 11 single-blind RCTs, 4 double-blind RCTs and 6 quasi-randomised trials.

A pooled effect size of 0.06 was estimated, suggesting that non-pharmacological nursing interventions are not effective in the management of pain. Individual effect sizes ranged from -2.25 to 1.78 and the studies exhibited strong heterogeneity (p<0.001).

Authors' conclusions
RCTs assessing the effectiveness of non-pharmacological nursing interventions in the management of acute pain in adults exist, but are relatively few in comparison with non-RCT research. In particular, this research highlighted the paucity of large RCTs in this area. In light of the heterogeneity found between studies, it remains to be ascertained whether non-pharmacological interventions are effective in the management of acute pain in adults, as the absence of evidence of an overall effect is not the same as saying there is evidence of no effect.

CRD commentary
Information is presented on whether each trial was quasi-randomised or randomised, and whether double-, single- or no blinding was used, but this was not used to quality assess each study. No information is given on the methods of this review other than details of the literature search, which appears to be comprehensive despite there being no information regarding the search terms. [A: These are available in another reference]. No information is given about the control groups (whether they received no intervention or some kind of different intervention to the intervention group). The considerable heterogeneity found between studies questions the reliability of the findings, as the author acknowledges.

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Other publications of related interest

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.