Educational interventions to improve cancer pain control: a systematic review

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Authors' objectives
To review studies on educational interventions aimed at improving pain control in patients with advanced cancer.

Searching
MEDLINE (from January 1962), PsycLIT (from 1974) and CINAHL (from 1982 to 1999) were searched for articles published in the English language. The following groups of keywords were used both separately and in combination: 'pain'; 'cancer', 'neoplasms'; 'intervention' or 'program'; 'education', 'document', 'measure', 'information', or 'assessment' and alternative terms.

Study selection
Study designs of evaluations included in the review
The included studies were not restricted to randomised controlled trials (RCTs). The primary studies included RCTs, quasi-experimental studies, pre-test post-test studies, and retrospective reviews of medical records.

Specific interventions included in the review
Educational interventions designed to improve cancer pain were eligible.

The interventions directed at health professionals included: role model training programmes involving physicians, nurses and pharmacists, either on an individual or team basis; a wide range of educational interventions designed for nurses, ranging from a 90-minute programme to an extensive 40-hour programme; the introduction of cancer pain assessment tools into clinical settings; and comprehensive pain intervention programmes designed to improve several aspects of cancer pain assessment and management.

The interventions aimed at patients or family caregivers ranged from a brief 15-minute counselling session by an oncology nurse, to a series of three educational home visits by a nurse who also delivered audiocassette tapes and a log book on drug use.

Participants included in the review
Adults with advanced cancer were eligible. Patients in the following settings were included: oncology units; hospitals including private, community, acute care and teaching hospitals; home and hospice care settings; and out-patient departments.

Outcomes assessed in the review
The inclusion criteria were not defined in terms of the outcomes. The following measures were used to assess the pain outcome: attitudes and knowledge; pain management; and pain relief/quality of life. The tools used to assess the outcomes included the Pain Management Index and the Self-Care Log of drug use.

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

Assessment of study quality
 Validity was not formally assessed, although aspects of it were mentioned in the text.

Data extraction
Two authors independently extracted the data into descriptive tables and the tables were then revised by two other co-
authors. Data were extracted on the author and year of publication, intervention setting, study methods, process assessment, and pain outcome assessment. Any disagreements were resolved by consensus.

**Methods of synthesis**

**How were the studies combined?**
The studies were classified as interventions targeting health professionals or interventions targeting patients and family caregivers. Within this broad classification, the interventions were grouped by type of intervention and a narrative synthesis was undertaken.

**How were differences between studies investigated?**
Differences between the studies were discussed in the text.

**Results of the review**
Thirty-three studies were included, of which six were RCTs.

**Interventions directed at health professionals (25 studies, including 4 RCTs).**

Five of the 7 studies that included an assessment of patients’ pain relief reported a very slight improvement in pain relief. All 7 studies of role model training programmes reported that the intervention was successful in increasing activity by health professionals in implementing targeted cancer pain control activities in their own clinical setting. Only one study (RCT) evaluated the effect of the intervention (a community didactic programme) on patients’ pain management and relief; this study reported no benefit on the patients’ pain. All 5 studies of educational interventions designed for nurses reported an improvement in the nurses’ knowledge about, and attitudes towards cancer pain after the intervention. None of the studies evaluated the patients’ pain levels. The 6 studies examining the introduction of cancer pain assessment tools into clinical settings gave inconsistent results for pain management and relief, with only 2 of the 6 studies reporting lower mean pain intensity scores after the intervention was implemented; the reasons for this reduction were unclear. The 5 studies of comprehensive pain intervention programmes reported the following benefits: an improvement in indicators of adequate pain care with opioid prescription and parenteral administration (1 study); improved patient satisfaction with pain control and nursing pain management, but no decrease in average pain intensity (1 study); a reduction in hospital readmission for uncontrolled pain (1 study); and an increase in compliance with recognised standards or guidelines of cancer pain management practice (2 studies).

**Interventions directed at patients and family caregivers (8 studies, including 2 RCTs).**

These examined a range of interventions that varied greatly in type, content and duration. All 6 studies that addressed patients’ or caregivers knowledge about or attitudes towards cancer pain (6 studies) reported an improvement compared to baseline. All 5 studies (including 2 RCTs) that addressed pain relief reported an improvement in pain relief. Apparently similar benefits were reported for a brief nursing counselling intervention and for more intensive educational interventions. The authors reported methodological deficiencies of the studies, such as small sample sizes, uncontrolled study design and variable quality. In addition, only one third of the included studies included a formal assessment of the patients’ pain levels.

**Authors’ conclusions**
Educational interventions can successfully improve cancer pain knowledge and attitudes of health care professionals, but without having much impact on the patients’ pain levels. The review suggests that further progress may occur through incorporating a systematic and valid method of documenting daily fluctuation in pain levels, and ensuring that documented uncontrolled pain is followed rapidly by clinical assessment and dose adjustment.

**CRD commentary**
The aims were stated and the inclusion criteria were defined in terms of the intervention and participants. Three relevant databases were searched and the keywords used were reported, but the methods used to select the studies were
not described. By restricting the search to articles published in English other relevant studies may have been ommitted, and the lack of an attempt to locate unpublished material raises the possibility of publication bias. The included studies were not restricted by study design and validity was not formally assessed, though some aspects of validity were mentioned in the text. No comment was made on the validity, or otherwise, of methods used to assess the outcomes in the individual studies. Relevant data were extracted and the methods used to extract the data were described. A narrative review was appropriate given the differences between the studies. However, in the narration, attention was not drawn to higher quality studies and the results were not discussed in terms of statistical significance. The evidence presented appears to support the authors' conclusions, but the lack of a validity assessment weakens the strength of the evidence.

**Implications of the review for practice and research**

**Practice:** The authors state that the most promising avenue for improving cancer pain control in ambulatory settings may be brief nursing interventions targeting patients, in combination with a daily pain diary.

**Research:** The authors state that further research is required to assess the effectiveness of new strategies to improve cancer pain control, especially in ambulatory patients, and that the highest priority should be given to multicentre RCTs. The authors acknowledge the difficulty of designing good-quality trials and suggest that a recently proposed analytic framework may be useful (see Other Publications of Related Interest).

**Funding**

Fonds de la Recherche en Sante du Quebec; Hydro Quebec.

**Bibliographic details**


**PubMedID**

11441627

**Other publications of related interest**


**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Attitude of Health Personnel; Attitude to Health; Caregivers /education /psychology; Clinical Competence; Family /psychology; Health Education /methods /standards; Health Personnel /education /psychology; Humans; Inservice Training /methods /standards; Neoplasms /complications; Outcome and Process Assessment (Health Care); Pain /diagnosis /etiology /prevention & control /psychology; Pain Measurement /methods /standards; Quality of Life; Research Design; Terminal Care /methods /standards; Total Quality Management /organization & administration

**AccessionNumber**

12001005352

**Date bibliographic record published**

31/07/2003

**Date abstract record published**
31/07/2003

**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.