Educational interventions by pharmacists to patients with chronic pain: systematic review and meta-analysis

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CRD summary
This well-conducted review concluded that pharmacist-delivered educational interventions seemed to reduce adverse events and improve satisfaction but their clinical benefit on pain intensity was debatable. The findings supported a proof of concept but further research was needed. The authors were suitably cautious in reflecting the limited evidence available and their conclusions appear likely to be reliable.

Authors' objectives
To establish proof of concept of whether educational interventions delivered by pharmacists to patients with chronic pain improved pain-related outcomes.

Searching
Eleven databases including MEDLINE, EMBASE and IPA were searched from inception to December 2009 without language restrictions. The National Institute for Clinical Effectiveness website was searched. Content pages of three relevant journals and reference lists of relevant articles were searched. Search terms were not reported (it was stated that a search strategy was available from the author on request).

Study selection
Eligible studies were randomised trials of patient-based educational interventions delivered by a pharmacist versus usual care, or attention only, for management of chronic pain in adults. Studies had to assess pain and related outcomes. Educational interventions were defined as information, behavioural instructions or advice. Chronic pain was defined as occurring for more than three months or associated with progressive disease.

Where reported, most patients were female, mean ages ranged from 45 to 68 years and patients had knee pain or pain as a result of arthritis or cancer. Baseline pain intensity ranged from 6.0 to 9.7 on the Brief Pain Inventory (BPI) scale (zero to 10). Intervention characteristics included telephone monitoring, individual multicomponent sessions and group education sessions; most incorporated pharmacist pain score monitoring. Half of the studies used primary care pharmacists and half used hospital pharmacists. Studies that used sessions gave between three and six sessions. Most studies compared treatments with usual care. Studies were conducted in USA, UK and Bulgaria.

Two reviewers independently selected studies for inclusion. Disagreements were resolved by discussion or by a third reviewer.

Assessment of study quality
Study quality was evaluated with criteria for adequacy of randomisation methods and reporting, adequacy of allocation concealment, baseline similarity of treatment groups, similar treatment of groups (other than interventions), blinding of outcome assessors, use of intention-to-treat (ITT) analysis and aspects of outcome and result reporting.

One reviewer assessed study quality and a second reviewer checked the results.

Data extraction
Data were extracted in order to calculate risk ratios (RR) or mean differences (MD) with 95% confidence intervals (CI). Authors were contacted for missing data when necessary.

One reviewer extracted data and these were checked by a second reviewer.

Methods of synthesis
Meta-analyses were performed to calculate pooled risk ratios, weighted mean differences or standardised mean differences, with 95% confidence intervals. A random-effects model was used where heterogeneity was detected.
(I²>50% and X²<0.10) and otherwise a fixed-effect model was used. When meta-analysis was not possible, a narrative of results was reported.

**Results of the review**

Four studies were included (400 patients, range 20 to 216). All studies reported adequate randomisation methods but only one study reported adequate allocation concealment. Half of the studies had baseline imbalances for one or more important prognostic variables. Detection bias appeared unlikely in all trials. One study performed ITT analyses. Follow-up ranged from one week to 12 months.

Patients who received pharmacist interventions had a statistically significant reduction in mean pain intensity at around three to four months in most studies (MD -0.49 BPI points, 95% CI -0.79 to -0.20; I²=0%; four RCTs) but not in worst pain or current pain (two RCTs each; current pain analysis showed statistically significant heterogeneity). A statistically significant improvement in overall patient satisfaction was seen in patients who received pharmacist interventions (SMD 0.58, 95% CI 0.24 to 0.92; three RCTs; I²=33%).

Two studies reported significant differences (which favoured pharmacist intervention) in adverse events from medication. There were no significant differences for pain interference with daily life (two RCTs), number of general practitioner consultations (two RCTs) and improving self-efficacy at three months (two RCTs). Further results were reported.

**Authors' conclusions**

Pharmacist-delivered educational interventions seemed to reduce adverse events and improve satisfaction but their clinical benefit on pain intensity was debatable. These findings supported a proof of concept but further research was needed.

**CRD commentary**

The review addressed a clear question and was supported by reproducible eligibility criteria. Attempts to identify all relevant studies in any language were undertaken by searching many electronic databases and using other methods. Suitable methods were employed to reduce the risks of reviewer error and bias throughout the review.

Study quality was assessed and the limitations of the included studies were discussed. Sufficient study details were provided. Appropriate methods were used to pool data and assess heterogeneity. The clinical relevance of the pooled results was discussed.

The review was generally well-conducted. The authors' conclusions were suitably cautious in reflecting the limited evidence available and appear likely to be reliable.

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

**Practice:** The authors stated a need for more organised pharmacotherapy counselling and review by appropriately-trained pharmacists.

**Research:** The authors stated a need for deeper understanding and evaluation of the active components of the interventions within good quality clinical trials and that further studies should examine separately chronic pain due to cancer and chronic pain resulting from non-cancer aetiologies.

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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.