Effectiveness of printed patient educational materials in chronic illness: a systematic review of controlled trials

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Authors' objectives
To answer the question: Do printer educational materials as a sole intervention have any effect on patient knowledge or behaviour?

Searching
MEDLINE and HealthSTAR were searched from 1965 to February 2000 for publications in the English language, using the following terms: 'hypertension' and ('pamphlet*' or 'booklet*'); 'hypertension' and 'patient education'. A cited reference search was conducted in SciSearch for several articles. MEDLINE was also searched using the terms 'English' and 'randomiz*' and 'education' and ('leaflet*' or 'booklet*' or 'pamphlet*' or 'print*'). The author's existing database of trials of interventions to improve adherence in hypertension was also searched, and the bibliographies of identified studies were reviewed.

Study selection
Study designs of evaluations included in the review
Studies with a parallel control group, in which group assignment was by randomisation (RCT), quasi-randomisation or matching, were eligible for inclusion.

Specific interventions included in the review
Studies that compared the use of printed educational material provided to patients with usual care were eligible for inclusion. Studies in which the printed information was combined with another intervention, or in which the content of the printed material was solely or specific to the individual patient, were excluded. The included studies used multi-page booklets given to the patient at an office visit, and leaflets either given at an office visit or mailed to the patients' homes. The studies were conducted in the patients' homes, primary care, out-patient and in-patient departments.

Participants included in the review
Studies of patients with a chronic organic illness were eligible for inclusion. The included studies were in patients with rheumatoid arthritis, symptomatic polyarthritis, back pain, hip pain, sciatica and hypertension.

Outcomes assessed in the review
The inclusion criteria were not defined in terms of the outcome. The primary outcomes in the review were patient knowledge and/or patient behaviour. Patient knowledge was assessed using questionnaires. Patient behaviour was assessed using the number of office visits for back pain, while patient adherence was assessed either by prescription filling or by appointment keeping. The duration of follow-up ranged from 1 week to 18 months.

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
Validity was assessed based on the Cochrane Collaboration criteria (see Other Publications of Related Interest): study described as randomised (quasi-randomised studies were classified as criterion not met); the handling of drop-outs (criterion met if outcomes reported for greater than 90% of the assigned patients); and blinding of the observers to patient assignment. Each criterion was scored as '+' when the criterion was adequately met and '-' when it was not. The author does not state how the papers were assessed for validity, or how many of the reviewers performed the validity assessment.
Data extraction
The author extracted data on study design, methodology and results. Odds ratios (OR) and 95% confidence intervals (CIs), based on assigned patients, were calculated where proportional data were presented.

Methods of synthesis
How were the studies combined?
The studies were grouped according to patient group (arthritis, back pain, and hypertension) and a narrative synthesis was undertaken.

How were differences between studies investigated?
Differences between the studies in terms of study validity were discussed in the text of the review.

Results of the review
Eight controlled trials (4,047 patients) were included: 4 RCTs (1,005 patients), 2 quasi-controlled trials (2,223 patients), one factorial study (727 patients) and one matched study (92 patients).

Arthritis (2 RCTs, 457 patients): both RCTs found a statistically-significant increase in patient knowledge scores with printed information in comparison with the control; the differences in knowledge scores between the groups were 14 and 15%. One RCT met one quality criterion while the other met two criteria.

Back pain (one RCT with 392 patients and one quasi-RCT with 1,872 patients): both trials found a statistically-significant increase in patient knowledge scores with printed information in comparison with the control. In the RCT, the difference in knowledge scores between the groups was 7%, while in the quasi-RCT, the OR of improvement in knowledge was 1.35. The increase in knowledge was maintained at 6 months in the RCT, but was not maintained in the quasi-RCT at 12 months. The RCT found no statistically-significant difference in provider visits for back pain, whereas the quasi-RCT found a significant reduction in provider visits among patients who received printed material compared with the control. The RCT met three quality criteria, while the quasi-RCT met one criterion.

Hypertension (one RCT with 156 patients, one quasi-RCT with 351 patients, one factorial study with 727 patients, one matched study with 92 patients): none of the studies found any significant difference, either in patient knowledge or adherence for printed material, compared with the control. The RCT met two quality criteria, the factorial study met one, and the other two studies did not meet any criteria.

All four trials of hypertensive patients were published in the early 1980s. Three of the four arthritis and back-pain trials were published in the mid-to-late 1990s.

Authors’ conclusions
Printed patient education materials alone are effective in arthritis and back pain, but are ineffective in hypertension. The use of printed information in symptomatic conditions is justified on efficacy grounds, although economic evaluations of their cost-effectiveness relative to other means of patient education have not been carried out. The management of asymptomatic conditions such as hypertension is problematic.

CRD commentary
The aims of the review were stated and the inclusion criteria were defined in terms of the study design, intervention and participants. Only two databases were searched for hypertension and one for other diseases. This limited search, plus the exclusion of non-English language publications, may have resulted in the omission of other relevant studies. The lack of attempts to locate unpublished material raises the possibility of publication bias.

The methods used to select the studies were not described. Validity was assessed using validated criteria, and relevant information on the individual studies were extracted and tabulated clearly. No details were given of the methods used to assess validity or extract the data. A narrative synthesis was appropriate given the small number of identified studies,
and the results from the included studies were discussed in relation to study validity. The author's stated objective was to limit studies to one type of information in order to obtain a homogeneous sample, but homogeneity was not tested.

There appears to be only one author of this review yet the review states 'We did .'. and this is confusing. In view of the limitations mentioned above, the author’s conclusion should be interpreted with caution.

**Implications of the review for practice and research**
Practice: The author states that printed patient education materials alone are effective in arthritis and back pain, but are ineffective in hypertension.

Research: The author did not state any implications for further research.

**Bibliographic details**

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
Pamphlets; Patient Education as Topic /methods; Teaching Materials

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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.