Computer-based education for patients with hypertension: a systematic review

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CRD summary
The evidence did not support computer-based patient education as capable of changing health behaviours. The studies included in the review were reported as being able to affect knowledge, self-care behaviours and self efficacy. The author’s conclusion reflects the data presented, but the small number of included studies and their unknown quality make the reliability of the conclusion uncertain.

Authors' objectives
To evaluate the benefits of using computer-based interventions to provide patient education to individuals with hypertension.

Searching
PubMed, Web of Knowledge, CINAHL, ERIC, EMBASE and PsycINFO databases were searched with no language restrictions from 1994 to April 2009; search terms were reported. Reference lists of included studies and relevant reviews and The Cochrane Library were searched. Authors of included studies were contacted to locate unpublished data.

Study selection
Clinical trials that evaluated the effectiveness of computer-based education for adult patients (18 years or older) with hypertension diagnosed by a healthcare professional were eligible for inclusion. To be included the computer-based education program had to be used by the patients with the aim of educating them about their chronic disease.

Most of the included interventions were specifically designed for patients with high blood pressure; one was designed for participants with a variety of chronic conditions, one of which was hypertension. Three studies used interactive websites available for access over a period of months. Two studies used a program that participants used under the guidance of an on-site moderator. Control conditions included usual care, standard education, pamphlet or website registration and searching Yahoo. Intervention durations ranged from 60 minutes to 12 months. Participants were aged from 18 to 89 years. Most of the the studies were conducted in USA; the others were conducted in France and Korea. Outcomes assessed included change in blood pressure control, knowledge, self efficacy and self-care behaviours.

The results of the search were reviewed by one reviewer to remove duplicate articles, reviews and clearly irrelevant studies, then two reviewers independently selected studies for inclusion. Disagreements were resolved through discussion.

Assessment of study quality
The author did not state that validity was assessed.

Data extraction
Two reviewers independently exacted data for the relevant outcomes. Disagreement were resolved through discussion.

Methods of synthesis
Data were grouped by outcome and combined in a narrative synthesis.

Results of the review
Five studies reported in nine articles were included in the review (n=1,379 participants): four randomised controlled trials (RCTs) and one non-randomised controlled trial. Sample size ranged from 22 to 778. Follow-up ranged from immediately after the intervention to 12 months.

Changes in blood pressure control (one RCT): Access to a website and pharmacist assistance in creating a management plan significantly improved the proportion of participants with controlled blood pressure compared to those who received usual care or a website only intervention (p<0.01).
Changes in knowledge (three studies): Knowledge scores improved after an interactive computer-learning tool program (p<0.005, one RCT), a standard education and computer program (p=0.02, one RCT) and an online internet community intervention (p=0.000, one non-RCT) compared to control groups.

Self-efficacy and self-care behaviours (two studies): One study reported a statistically significant improvement in self-efficacy after an online internet program compared to control (p=0.027). One RCT found no significant differences between an internet-based chronic disease self-management program and usual care. Both studies reported statistically significant improvements in self-care behaviours in the intervention group compared to control (p=0.001, one non-RCT; p=0.024, one RCT).

Authors’ conclusions
The evidence did not support computer-based patient education as capable of changing health behaviours. The studies included in the review reported being able to affect knowledge, self-care behaviours and self efficacy.

CRD commentary
The review question was clear with appropriate inclusion criteria. Several relevant sources were searched without language restriction, and authors were contacted for unpublished data, thereby reducing the potential for publication and language bias. Appropriate methods were used to reduce reviewer error and bias for study selection and data extraction. Validity was not assessed and so the results from these studies and any synthesis may not be reliable. A narrative synthesis was appropriate given the differences between studies in terms of study design, interventions and outcomes.

The author’s conclusion reflects the data presented, but the small number of included studies and their unknown quality mean the reliability of the conclusions is uncertain.

Implications of the review for practice and research
Practice: The author stated that although computer-based educational interventions were not sufficient to replace provider-based education, they can help healthcare professionals face the challenges of the current healthcare environment.

Research: The author stated a need for additional trials to evaluate use of computer-based patient education for changing health behaviours of patients with hypertension.

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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.