Clinical trials of interactive computerized patient education: implications for family practice

Krishna S, Balas E A, Spencer D C, Griffin J Z, Boren S A

Authors' objectives
To evaluate the acceptability and usefulness of educational computer-patient interaction through a systematic review of randomised clinical trials.

Searching
MEDLINE, Health, BIOSIS Previews, CINAHL and the Columbia Registry of Information and Utilization Management (dates not provided) were searched using the following search terms: computer, patient education, interactive, randomised controlled trials and controlled clinical trials.

Study selection
Study designs of evaluations included in the review
Only randomised controlled trials (RCTs) were included in the review.

Specific interventions included in the review
Educational computer-patient interactions, which included: interactive instructional computer programs; computerised health assessment and history taking; and computerised information support networks.

Participants included in the review
Patients who were receiving medical attention in the following therapeutic areas: diabetes, asthma, AIDS/HIV, arthritis, Alzheimer's disease, stress management, hypertension, occupational rehabilitation alcoholism and general health management. The overall review population had an age range of 12 to 91 years. Patients were not required to have any previous computer experience.

Outcomes assessed in the review
Effect on disease or disorder being treated. The effect variables varied by indication, but included such variables as reduction in blood glucose in diabetic patients, increased cleanliness of urine samples etc.

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
The studies were assessed for site, sample, randomisation, process of observation, data quality and statistical analysis. Quality assessments were performed independently by trial investigators and discrepancies were eliminated by arriving at a consensus through discussion. The quality of eligible trials was evaluated using a quality evaluation form that consisted of 20 questions. Each study was scored (possible range 1 to 100).

Data extraction
The data were extracted using a data extraction form. The authors do not state how the data were extracted or how many reviewers performed the data extraction. The categories of data extracted included a description of the patients, the setting, the types of intervention, the measurement effect variables and the direction of effect.

Methods of synthesis
How were the studies combined?
A narrative synthesis was undertaken.
How were differences between studies investigated?

The studies were summarised by therapeutic indication within one of the three categories of intervention (i.e. instructional computer programs, computerised health-assessment and history taking, or computerised information support networks).

Results of the review

A total of 22 studies were included in the review. Thirteen studies involved instructional computer programs (n=715); four studies involved computerised health-assessment and history taking (n=274); and five studies involved computerised information support networks (n=1633).

The mean quality score for the studies was 78.8 (range 64 to 94). The individual scores are listed in the review. All studies except one on the treatment of alcoholism reported positive results for interactive educational intervention. Particularly, all diabetes education studies reported decreased blood glucose levels among patients exposed to this intervention. In the group of asthma studies, improved health outcome following the use of computerised patient education was attributed to better management of self-care.

Authors’ conclusions

Controlled evidence indicated that computerised educational interventions can lead to improved health status in several major areas of care. Computerised patient education appears to be not a substitute for, but a valuable supplement to, face-to face time with physicians.

CRD commentary

The review addressed an appropriate question with well-defined inclusion and exclusion criteria. The literature search used a wide range of electronic databases although the dates searched were not provided and these were not supplemented with any handsearching and no attempt appears to have been made to identify unpublished data. The review does not state whether or not articles in languages other than English were included in the search. The studies included in the review were checked for validity and in addition to being randomised controlled trials appear to have been of good quality, some of them including a large number of patients/participants. The basic details of each individual study are tabulated in the review, including details of the outcomes effects assessed in each study, which is particularly important in this review due to the wide variety of effects measured. Given the broad range of outcomes measures looked at, the use of a narrative synthesis is entirely appropriate. Given the nature of the studies included in the review the overall results are by necessity very general. A more detailed evaluation of the findings within therapeutic areas would have been useful. The data as presented in the review support the authors’ rather general conclusions.

Implications of the review for practice and research

Practice: The authors state ‘Computerised patient education appears to be not a substitute for, but a valuable supplement to, face-to face time with physicians’.

Research: The authors do not state any implications for research.

Bibliographic details


PubMedID

9228910

Indexing Status

Subject indexing assigned by NLM
MeSH
Adolescent; Adolescent Behavior; Alcoholism /therapy; Arthritis, Rheumatoid /prevention & control; Asthma /prevention & control; Blood Glucose /analysis; Communication; Computer Communication Networks; Computer-Assisted Instruction; Databases, Bibliographic; Diabetes Mellitus /blood /prevention & control; Family Practice; Health Status; Humans; Hypertension /prevention & control; MEDLINE; Medical History Taking; Occupational Therapy; Outcome Assessment (Health Care); Patient Education as Topic; Physician-Patient Relations; Process Assessment (Health Care); Randomized Controlled Trials as Topic; Risk Assessment; Sexual Behavior

AccessionNumber
11997008596

Date bibliographic record published
31/03/2001

Date abstract record published
31/03/2001

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.