
A systematic review of healthcare professional-led education for patients with osteoporosis or those at high risk for the disease

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CRD summary

The authors concluded that most studies reported improved adherence with treatment recommendations after a healthcare professional-led educational intervention for patients with osteoporosis or at high risk for the disease. The author's conclusion reflects the evidence presented, but potential for language and publication biases, lack of reporting of review methods and differences between studies mean the conclusion's reliability is uncertain.

Authors' objectives

To evaluate the effect of healthcare professional-led education for patients with osteoporosis or those at high risk of the disease on adherence to treatment recommendations.

Searching

PubMed, CINAHL, The Cochrane Library, National Guideline Clearinghouse, Academic Search, Complete Biological Abstracts and Health Source: Nursing/Academic databases were searched to June 2009 for articles in English. Search terms were reported. Reference lists of retrieved articles were scanned for additional studies.

Study selection

Studies that evaluated a healthcare professional-led educational intervention conducted in a community setting for patients with osteoporosis or at high risk of the disease compared with usual care or no intervention were eligible for inclusion. The main outcome was adherence to treatment recommendations, which could include pharmacologic and non-pharmacologic treatment options.

Most professional-led educational interventions were led by nurses; some were led by pharmacists or multi-disciplinary teams. Duration of intervention varied and included individual one-to-one education sessions that ranged from 15 minutes to two hours or group sessions such as workshops. Most studies used a once-time only intervention. Some studies included follow-up by telephone from three days to three months post intervention as part of the intervention. Follow-up varied between studies and ranged from one to nine months. Only two studies included men as participants. The age of the included participants ranged from 45 to 69 years. The proportion of participants diagnosed with osteoporosis varied widely between studies (details reported in the review). Most participants were self-selected and came from settings such as beauty clinics, managed care organisations, clinics and other community settings. Measurement of outcomes varied between studies. Some studies reported that outcomes for groups within studies were measured at differing time periods rather than concurrently.

The author did not state how many reviewers selected studies for inclusion.

Assessment of study quality

The validity of randomised controlled trials (RCTs) was assessed using SIGN guidelines. Other study designs were assessed for validity using methods adapted from Larrabee.

The author did not state how many reviewers assessed validity.

Data extraction

The author did not state how many reviewers extracted data for the review.

Methods of synthesis

Studies were grouped by design and combined in a narrative synthesis. Additional data were provided in a table.

Results of the review

Nine studies were included in the review (n=2,217 participants): four RCTs, two quasi-experimental trials and three uncontrolled descriptive longitudinal studies. All studies were reported to score well for validity. Some studies reported evidence of selection bias and detection bias (self-report measurement). None of the subjects or investigators were blinded for RCTs.

All four RCTs reported improved bone-healthy behaviours in the intervention groups post intervention compared to control groups. Behaviours included increased soy foods, milk, calcium, vitamin D intake/sunlight exposure and exercise (two RCTs) and commencement of hormone replacement therapy and increased vitamin D intake (one RCT). One RCT found no significant differences between groups for initiation or persistence of drug treatment, although there was evidence of increased calcium intake and exercise frequency.

One quasi-experimental study reported a statistically significant increase in dietary calcium intake ($p<0.04$) and use of hormone replacement therapy ($p<0.32$) six months post intervention for an educational intervention led by a multidisciplinary team compared to control. There were no differences in amount of exercise, caffeine use, alcohol intake, smoking, knowledge scores and intake of calcium and/or vitamin D supplements. One quasi-experimental reported significant increases in perceived barriers to calcium intake and significant decreases in exercise frequency in a tailored nursing intervention group compared to control.

Three uncontrolled studies reported improvements post intervention. One study reported an increase in osteoporosis knowledge, fall prevention behaviours and exercise frequency. Increased intake of calcium rich foods and use of calcium supplements were not sustained at 9.5 months follow-up. One uncontrolled study reported improvement in calcium intake, exercise frequency and beginning recommended medication six months post intervention, but no statistical analysis was conducted. One uncontrolled study reported increased intake of calcium/vitamin D together with exercise frequency and gains in strength, balance, flexibility and adherence after an intervention led by a multidisciplinary team at six months post intervention and at two years post intervention reported continued statistically significant improvement for exercise frequency and calcium/vitamin D intake and improvements in bone density scores for the spine.

Authors' conclusions

Most studies reported improved adherence with treatment recommendations for patients with osteoporosis and those at high risk for the disease after a healthcare professional-led educational intervention.

CRD commentary

The review question was clear with broadly defined inclusion criteria. Several relevant sources were searched. The restriction to studies in English meant there was a risk of language bias. No efforts were made to locate unpublished data and so there was a risk of publication bias. Validity was assessed and results of the assessment were reported briefly. The authors did not report whether appropriate efforts were made to reduce reviewer error or bias throughout the review process.

A narrative synthesis was appropriate given the differences between studies in terms of design, interventions, outcomes and participants. The synthesis could have been improved by more clearly reporting outcomes separately from study details. The author reported that not all studies conducted outcome assessment at concurrent time points. The proportion of participants with osteoporosis or at high risk of the disease varied widely between studies.

The author's conclusion reflects the evidence presented, but potential for language and publication biases, lack of reporting of review methods and differences between studies mean the reliability of the conclusions is uncertain.

Implications of the review for practice and research

Practice: The author stated that there was sufficient evidence to support use of healthcare professional-led education for patients with osteoporosis or at high risk of the disease.

Research: The author stated that further research with a nurse in the role of educator was required to validate whether

this healthcare professional was the best choice. Further research of the effect of osteoporosis education on patient perception of healthcare barriers, adherence to pharmacologic treatment for osteoporosis patients (particularly regarding bisphosphonates) and of osteoporosis educational interventions designed specifically for men was required. Future studies should incorporate the recommendations of the National Osteoporosis Foundation regarding patient education.

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