The efficacy of behavioral interventions for cancer treatment-related side effects
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CRD summary
This review found that behavioural interventions could reduce anticipatory nausea and vomiting in people undergoing chemotherapy and decrease anxiety related to cancer diagnosis and treatment. The review had a number of methodological weaknesses, thus the conclusions may not be reliable. In particular, the conclusions about the relative effectiveness of specific interventions are not clearly supported by the data presented.

Authors' objectives
To assess the efficacy of behavioural interventions for controlling adverse effects, such as pain, nausea and anxiety, from cancer treatments.

Searching
PubMed (from 1979 to August 2002), PsycLIT and the reference lists of previous reviews were searched for studies published in English. The search terms were reported.

Study selection
Study designs of evaluations included in the review
Published randomised controlled trials (RCTs), within-subject cohort studies and case reports were eligible for inclusion. Review articles and sub-samples of data from larger studies were excluded.

Specific interventions included in the review
Studies were eligible for inclusion in the review if they assessed a behavioural intervention for side-effects related to cancer treatment. The included studies were of contingency management, cognitive or attentional distraction, hypnosis, imagery, systematic desensitisation, modelling, relaxation training, or cognitive restructuring interventions. The interventions were carried out on an individual basis, in groups and in families. The number of sessions received ranged from one to 11.

Participants included in the review
Studies were eligible if they included adults or children with cancer who were undergoing or had undergone chemotherapy, surgery, or radiotherapy. Most of the included studies contained people with many different types of cancer, and they were of children and adults. Details about the gender and disease of the participants from each study were tabulated in the review.

Outcomes assessed in the review
Studies were eligible if they included data about any cancer treatment-related adverse effect, such as pain, nausea and vomiting, and anxiety and distress.

How were decisions on the relevance of primary studies made?
Three investigators screened studies independently to assess whether they met the pre-specified inclusion criteria.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data were extracted on diagnosis, participant demographic characteristics, sample size, research design.
format and length of intervention, behavioural components and outcomes. The information extracted for the outcomes was whether or not there was a statistically significant improvement with the intervention.

**Methods of synthesis**

How were the studies combined?
The authors provided a narrative synthesis of the findings.

How were differences between studies investigated?
The authors tabulated details of each study and reported their findings separately for the effect of behavioural interventions on nausea and vomiting, pain, and anxiety and distress.

**Results of the review**
The review included 67 studies. The study design was not reported for all studies. There were approximately 40 RCTs, as well as non-randomised controlled trials, case series and case reports.

**Nausea and vomiting.**

The review found that behavioural interventions can reduce anticipatory nausea and vomiting in adults and children undergoing chemotherapy for cancer. Twelve out of 13 RCTs found that behavioural interventions statistically significantly reduced anticipatory nausea and vomiting compared with the control groups. There was insufficient evidence on the use of behavioural interventions to treat nausea and vomiting occurring after chemotherapy.

**Anxiety and distress.**

Seven out of 11 RCTs found that a behavioural intervention reduced anxiety and distress compared with a no treatment or control group. The authors suggested that interventions combining several behavioural techniques may be more likely to decrease anxiety related to cancer diagnosis and invasive treatments.

**Pain.**

Five out of 7 RCTs found that behavioural techniques may be effective for reducing acute pain. The authors found that not all behavioural techniques were equally effective. Hypnotic-like methods, such as relaxation, suggestion and imagery, appear to be most effective for cancer-related pain management. The authors noted that the studies focused on acute pain, not prolonged pain.

**Authors' conclusions**

Behavioural interventions can reduce anticipatory nausea and vomiting in adults and children undergoing chemotherapy. Interventions combining several behavioural techniques can decrease anxiety related to cancer diagnosis and invasive treatments. Not all behavioural techniques are equally effective.

**CRD commentary**

This review included a defined research question and inclusion criteria. Only two databases were searched and non-English language studies were excluded, therefore studies might have been missed. There is also the potential for publication bias, as studies which have statistically or clinically significant findings may be more likely to be published.

Some relevant details on the individual studies were provided but, owing to the limited information available on the individual interventions, it was not possible to assess the extent of clinical heterogeneity in this aspect of the studies. Three investigators independently screened studies for inclusion, but it was not reported whether these investigators also assessed validity and abstracted the data independently. The lack of methodological detail makes it difficult to assess the quality of the review and the studies on which it was based.

The narrative synthesis was appropriate given the variation between studies in terms of the populations and behavioural
components of the interventions. However, the narrative synthesis was not thorough: it failed to take study quality into consideration; it failed to take the clinical heterogeneity of the studies into consideration (very different studies were grouped together; and the study outcomes were considered only in terms of whether there was a statistically significant improvement, and not the size of the effect.

Due to the methodological weakness of this review, the authors’ conclusions may not be reliable. In particular, their conclusions about the relative effectiveness of specific types of interventions are not clearly supported by the data reported in the narrative synthesis.

Implications of the review for practice and research
Practice: The authors stated that behavioural techniques have an important place in the care of people receiving invasive cancer treatments, and that they could be integrated into usual care.

Research: The authors stated that further research is needed on how behavioural techniques work, for what new problems they may work effectively, and how to overcome any barriers to effectiveness. In particular, research is required on behavioural interventions to control prolonged pain associated with cancer. The authors also stated that it was important to identify the active components of effective interventions.

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