Are cancer-related decision aids effective? A systematic review and meta-analysis


CRD summary
This review concluded that cancer-related decision aids were effective in increasing patient knowledge compared with usual practice without increasing anxiety particularly in the area of cancer screening. The authors conclusions reflected the evidence presented, but due to various methodological biases and few studies for some outcomes, their reliability is uncertain.

Authors’ objectives
To investigate the effectiveness of cancer-related decision aids in screening, prevention and treatment; specifically, whether decision aids were more effective than usual practice and whether one type of decision aid was more effective than another.

Searching
Published trials were identified through a search of EMBASE, HealthStar, CancerLit, CINAHL, Sociological Abstracts, PsycINFO and The Cochrane Library to June 2006. MEDLINE was searched to March 2007. Reference lists of included articles and published reviews were searched.

Study selection
Randomised controlled trials (RCTs) of decision aids compared with usual care or another decision aid in patients with cancer or at increased risk of cancer were eligible for inclusion. Decision aid was defined as an intervention designed primarily to help patients (or patients and clinicians together) with making cancer-related health care decisions when options were available for screening, prevention and treatment. Outcomes included patient knowledge, anxiety, decisional conflict, patient satisfaction and role in decision making.

Interventions included detailed brochures, counselling, a decision board (a visual aid used by a clinician), software programs accessed in a clinic or on the Internet, a standard script that was read aloud, videotapes and workbooks with audiotapes. Comparison groups included wait list control group, usual practice or another decision aid. Most trials involved decisions aids for breast and prostate cancer. Three trials focused on colorectal cancer screening, two focused on cervical cancer screening and one focused on ovarian cancer prevention.

Two reviewers independently selected studies for inclusion. Disagreements were resolved through discussion.

Assessment of study quality
Methodological quality was assessed by two independent reviewers using established criteria (Jadad scale and Downs and Black scale). Disagreements were resolved by consensus.

Data extraction
For trials with sufficient data, results for each relevant comparison were extracted and used to calculate an effect size (ES) by taking the means between the groups post intervention and dividing by the pooled standard deviation. Where the standard deviation was unavailable it was calculated from the standard error, 95% confidence interval (CI) or the exact p value where possible. Authors of included studies were contacted if outcomes were missing or omitted from included trials.

The authors did not state how many reviewers performed data extraction.

Methods of synthesis
Studies were grouped by type of intervention (screening or prevention/treatment). Individual effect sizes were weighted using the inverse of the variance. The pooled effect size and corresponding 95% confidence intervals (CIs) were calculated using a fixed-effect meta-analysis where there was no evidence of statistical heterogeneity; a random-effects
model was used if statistically significant heterogeneity was observed. Heterogeneity was assessed using the \(X^2\) test. A meta-regression was used to assess statistical heterogeneity across all comparisons. Sensitivity analyses were conducted to test the influence of the type of cancer, context (screening/prevention/treatment) and type of comparison.

**Results of the review**

The review included 34 trials. The number of included participants was unclear.

**Screening:**

Decision aids significantly increased knowledge (ES 0.67, 95% CI 0.40 to 0.94; 18 comparisons) compared to control groups. When five studies (six comparisons) with a waiting list control were excluded, the effect size was 0.50 (95% CI 0.27 to 0.73). Decision aids significantly reduced anxiety compared to usual care (ES -0.30, 95% CI -0.53 to -0.08; three studies). No significant heterogeneity was observed.

In six of nine comparisons, patients randomised to decision aids had significantly less decisional conflict compared with the usual practice group. When data was pooled across five comparisons, significant heterogeneity was present and there were no significant differences between groups.

**Prevention/Treatment:**

Across the three studies that measured knowledge, there were significant improvements in the decision aid group (ES 0.50, 95% CI 0.31 to 0.70). There were no significant differences between groups in for anxiety or decisional conflict. No significant heterogeneity was observed for these analyses.

Treatment preference/intention was measured in three comparisons and was significantly different in only one comparison. Three studies reported patients' role in decision making and this was increased in all three studies in the decision aid group. Satisfaction with decision making was significantly increased in three of four studies.

**Comparison of different decision aids:**

In studies that measured knowledge, there were no significant differences in screening studies. In prevention/treatment studies, more intensive decision aids had a significant effect on knowledge (ES 0.33, 95% CI 0.10 to 0.56). There were no differences between different types of decision aid for anxiety or decisional conflict.

**Authors' conclusions**

Cancer-related decision aids were effective in increasing patient knowledge compared with usual practice and did not increase anxiety, particularly in the area of cancer screening. Further research was needed to determine the effectiveness of decision aids in the prevention and treatment context.

**CRD commentary**

This review addressed a clear question supported by appropriate inclusion criteria. Relevant databases were searched, although language restrictions were unclear and there appeared to be no attempts to identify unpublished data. Search terms were not reported and publication bias was not considered in the report. Validity was assessed using established criteria, but results of the assessment were not reported, which made it difficult to assess reliability of the evidence presented. Suitable methods were used to minimise risks of reviewer error and bias in study selection and validity assessment; it was unclear whether similar methods were used for data extraction. Results were pooled using meta-analysis where data was available and narrative synthesis where data was insufficient. Results for some outcomes only included a small number of studies. Heterogeneity was assessed. Subgroup and sensitivity analyses were pre-planned. The authors conclusions reflected the evidence presented, but due to various methodological biases and few studies for some outcomes, their reliability is uncertain.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further decision aid research was required, particularly in the area of cancer.
prevention and treatment, for other types of cancer besides breast and prostate, and in the metastatic or palliative setting.

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