The efficacy of internet interventions for depression and anxiety disorders: a review of randomised controlled trials
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CRD summary
This review found that internet interventions for depression and anxiety disorders offered promise for use as self-help applications for consumers or as an adjunct to usual care. These conclusions were supported by the data, but should be interpreted with caution due to lack of statistical data and the possibility of review bias.

Authors’ objectives
To determine the effectiveness of preventive and treatment internet interventions for depression and anxiety disorders.

Searching
The review was an update of a previous one (see Other Publications of Related Interest). All studies included in the previous review were included. PubMed, PsycINFO and Cochrane Central Register of Controlled Trials (CENTRAL) were searched from the period since the last search to June 2009. Search terms were reported. The health intervention web portal Beacon and one relevant journal were screened. The review was restricted to published peer-reviewed studies. No language restrictions were applied.

Study selection
Randomised controlled trials that compared a self-help website intervention or a website intervention that incorporated a self-help component targeted at a depression or anxiety condition to a non-active control group were eligible for inclusion. Trials needed to report a measure of symptom outcome for the target condition. Studies that involved guided delivery of a self-help intervention or in which the intervention was partly delivered by a therapist were included.

Included studies targeted depression, panic disorder, social phobia, post-traumatic stress disorder and unspecified anxiety disorders. All studies involved cognitive-behavioural therapy (CBT) or a CBT component. Where reported, programme duration ranged from one to 13 weeks. Most trials involved some level of therapist input; two trials incorporated a face-to-face component. Most studies were community based, one was based in a clinic and two were based in health maintenance organisations. Most studies involved adults. Mean age ranged from 30 to 50 years. Two trials included children or adolescents and one targeted an older sample. Most studies included waiting list controls, three studies used treatment as usual, six used a passive psycho-educational (information) control and one used an attention placebo.

The authors did not state how studies were selected for inclusion.

Assessment of study quality
Two reviewers independently assessed study quality according to three items on the Cochrane Risk of Bias tool: sequence generation, allocation concealment and incomplete outcome data.

Data extraction
Data were extracted to calculate the effect size difference (ESD) (the difference in Cohen's d between intervention and control groups). When multiple outcomes were reported, the measure most frequently used for the target condition in the included studies was selected.

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

Methods of synthesis
A narrative synthesis was conducted. Results were stratified according to condition and type of control.
Results of the review
Twenty-six RCTs reported in 29 publications (n=4,502 participants as reported in the table presented), range 23 to 786) were included. Nineteen trials were judged to be at low risk of bias in terms of sequence generation, nine in terms of allocation concealment and 17 in terms of incomplete outcome data. Five trials were rated as low risk of bias on all three domains. Sixteen studies performed an intention-to-treat analysis and four performed a quasi-intention-to-treat analysis. Three trials reported long-term follow-up of 32 weeks or 12 months.

**Depression (eight RCTs, n=2,873):** Six trials reported positive effects for CBT compared to control. The two trials that did not show beneficial effects used a psycho-education control group; one other trial that used a psycho-education control group reported beneficial effects. Effect size differences ranged from 0.30 to 0.53 for prevention or quasi-prevention trials and from 0.42 to 0.65 for patients with clinically significant symptoms. Two trials that reported follow-up of 12 months reported continued beneficial effects.

**Anxiety (16 RCTs, n=1,318):** All trials reported a significant positive result on at least one outcome measure. Effect size differences ranged from 0.29 to 1.74 and most exceeded 0.65.

**Depression and anxiety interventions (two RCTs, n=311):** One RCT reported an overall beneficial effect. Effect size differences ranged from 0.07 to 0.64.

Authors' conclusions
Internet interventions for depression and anxiety disorders offered promise for use as self-help applications for consumers or as an adjunct to usual care.

CRD commentary
The review addressed a clear objective. Inclusion criteria were defined. The literature search was adequate. The restriction to published studies risked publication bias; this was not addressed in the review. No language restrictions were applied and so the risk of language bias was minimised. Appropriate steps were taken to minimise bias and errors when assessing risk of bias; it was unclear whether such steps were taken during study selection and data extraction. Study quality was assessed using appropriate criteria and the results were clearly presented. A narrative synthesis appeared appropriate, however, lack of statistical results made the results difficult to interpret. Effect size differences were presented alone without accompanying confidence intervals or measures of statistical significance.

The authors’ conclusions were supported by the data, but should be interpreted with caution due to a lack of statistical data and the possibility of review bias.

Implications of the review for practice and research
**Practice:** The authors stated that people who may benefit from conventional face-to-face psychological treatment or preventive treatment may not receive it due to preference, geographical barriers or a shortage of trained therapists. In such circumstances it was justified for a health care provider to prescribe an internet intervention that had been shown to be effective in community trials. Self-referral of a consumer to a self-help internet service was similarly justified.

**Research:** The authors stated that well-controlled studies were needed to investigate the relative efficacy of automated reminder systems compared with human guidance, the relationship between outcomes and training and the extent to which time spent facilitating self-help determined outcomes. There was a need to investigate whether internet mental health interventions worked equally well for different individuals and groups and in different settings.

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