A comprehensive review and a meta-analysis of the effectiveness of Internet-based psychotherapeutic interventions

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CRD summary

This review concluded that there was support for the application of psychotherapeutic interventions through the Internet, especially for treatment of anxiety and stress-effects. Although the authors' conclusions reflected the evidence presented, the uncertain quality of the included studies, potential for bias and variability across studies mean that the authors' conclusions should be interpreted with caution.

Authors' objectives

To assess the effectiveness of internet-based psychotherapeutic interventions.

Searching

PsycINFO, MEDLINE and Scopus databases and Google Scholar were searched for English-language studies to March 2006. Search terms are available from the authors. Reference lists were searched to identify additional studies.

Study selection

Eligible studies assessed the effectiveness of Internet-based psychotherapeutic interventions based on the actual implementation of a psychological intervention (rather than just the provision of online support or an online assessment). Studies had to include at least five participants receiving online treatment, where treatment effectiveness was based on at least pre-post quantitative comparison which used at least one outcome measure.

Over two-thirds of the included studies assessed the effectiveness of web-based therapy and the rest investigated etherapy; most studies used randomised controlled trials. Within these studies a range of problems and psychological distresses were treated, but the majority of studies dealt with: panic and anxiety; depression; and weight loss. A range of effectiveness measures were employed (746 measures of effects were reported but the average number of measures used per study was eight), the majority of which utilised self-reported outcomes. The age of participants varied, but most studies were conducted in participants aged over 25 years of age.

The authors stated neither how studies were selected for the review nor how many reviewers performed the selection.

Assessment of study quality

The authors did not state that they assessed validity.

Data extraction

Data on outcomes from each study were extracted and used to calculate Hedges' g mean effect size (ES), weighted by sample size, and 95% confidence intervals (CIs).

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

Methods of synthesis

Effect sizes were pooled using a fixed-effects model. Influence of moderator variables was analysed and included: type of outcome measure of effectiveness; type of problem; time of measuring effectiveness; type of therapeutic theoretical approach (cognitive-behavioural therapy (CBT), psychoeducational and behavioural); age of patients; comparison of web-based therapies; etherapy; contribution of online supplements to main treatment mode; and internet-based versus face-to-face therapy. When data were missing for a specific moderator, it was either omitted or included in the "other" category. A sensitivity analysis was undertaken to assess the impact of excluding outlying effect sizes. Statistical heterogeneity was assessed using the Q statistic.

Results of the review

Ninety-two studies were included in the review (n=9,764, range six to 2,341).

The overall mean weighted effect size was 0.53; average effects varied from a minimum effect size of –0.10 (treating panic disorder through online information alone) to a maximum of 1.68 (treating smoking cessation through tailored CBT). Older adults (25 to 39 years) formed the age category that was treated most effectively (ES 0.62; n=6,941).

Post-traumatic stress disorder (ES 0.88; n=148) and panic and anxiety disorders (ES 0.80; n=498) were the types of problem that were most effectively treated by online therapy; significant heterogeneity was present. Compared with other therapeutic approaches applied online, CBT (ES 0.83; n=3,960) was significantly more effective; behavioural techniques appeared to be the least suited for online treatment (ES 0.23; n=1,136). Significant heterogeneity was present. Web-based therapy (ES 0.54) was found to be as effective as etherapy (ES 0.46).

Authors' conclusions

There was support for the application of psychotherapeutic interventions through the Internet; online therapy was especially effective for treating anxiety and stress-effects that lasted after therapy ended and on average was as effective as face-to-face intervention.

CRD commentary

The review question was clear and supported by appropriate inclusion criteria. An adequate search of the literature was undertaken. The search was restricted to publications in English and so language bias may have been introduced. The search did not appear to include any attempt to locate unpublished data and so relevant studies may have been missed. Methods used for study selection and data extraction were not reported and it was unclear whether appropriate methods were used to minimise error and bias. Study quality was not formally assessed, so the reliability of the included studies was unclear. Standard statistical methods were used to pool data. An appropriate assessment of statistical heterogeneity was reported; significant heterogeneity present for some comparisons which suggested that the models used for the analysis may not have been appropriate. The impact of moderator variables was explored and reported.

Although the authors' conclusions reflected the evidence presented, the uncertain quality of the included studies, potential for bias and variability across studies mean that the authors' conclusions should be interpreted with caution.

Implications of the review for practice and research

Practice: The authors stated that when web-based self-help therapy was applied on an interactive website that may be accessed only by prescreened authorised patients, then therapy success should increase.

Research: The authors stated that future meta-analyses should attempt to evaluate study quality, which should be used to guide studies selected for the review or should be used as a moderator variable with an examination of its effects. Future studies should also use different statistical models.

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