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Effects of internet-based cognitive behavioral therapy on anxiety and depression symptoms in cardiovascular disease patients:A meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 October 2023 and was last updated on 10 October 2023.

INTRODUCTION

Review question / Objective This meta-analysis was to critically evaluate the effects of Internet-based cognitive behavioral therapy (ICBT) on the symptoms of anxiety and depression in cardiovascular disease patients.

Condition being studied ICBT presents a more contemporary and flexible alternative to face-to-face sessions and may result in higher participation rates and better compliance. The overall results of relevant meta-analysis suggested that ICBT could effectively improve anxiety and depressive symptoms in patients with chronic diseases, but has not been focused on cardiovascular disease patients. However, ICBT interventions for cardiovascular disease patients are still in their early stages, with few published results from randomized controlled trials (RCTs) of ICBT interventions, and recent findings remain contradictory and generally inconclusive. Meanwhile, there remains substantial ambiguity and variability regarding the relationship between the effects of ICBT and the form, intensity, duration, length and frequency of the intervention.

METHODS

Participant or population Cardiovascular disease patients diagnosed with anxiety or depression, and those with anxiety or depressive symptoms that did not reach diagnostic criteria for mental disorders were to be included.No limitations were imposed regarding age, gender, race, or disease severity.

Intervention ICBT.

Comparator Usual care or placebo intervention.

Study designs to be included Studies designed as randomized controlled trials (RCTs) were included, with no limitations imposed on factors such as language, geographical location, publication date, or study phase.

Eligibility criteria Studies that met one of the following conditions were excluded: 1. Duplicate publications; 2. Incomplete literature (such as no mention of treatment plans for the experimental group and control group, lack of the above measurable outcome indicators, etc.); 3. Unavailable Full text.

Information sources The Cochrane Library, PubMed, Embase, PsycINFO, Chinese Biomedical (CBM) database, China National Knowledge Infrastructure (CNKI), Chinese Scientific Journal database (VIP), and WanFang database.

Main outcome(s) Trials using anxiety or depressive symptoms as a primary or secondary outcome and containing extractable anxiety or depression scores were included. Anxiety and depression indicators were measured using validated self-report measures.

Quality assessment / Risk of bias analysis The included studies were independently assessed by two reviewers using the Cochrane Handbook for Systematic Reviews to determine their risk of bias from the following seven domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other sources of bias. Each question can be rated as follows: yes (+), low risk of bias; no (-), high risk of bias; unclear(?),unclear risk of bias. Disagreements were resolved by discussion between the two reviewers. If no agreement was reached, arbitration by a third person was used.

Strategy of data synthesis Review Manager 5.4 software was used for statistical analysis. Heterogeneity (variability in the participants, interventions, and outcomes) and methodological heterogeneity (variability in the study design and risk of bias) were assessed first.
Statistical heterogeneity is a consequence of clinical or methodological diversity or both among the studies. If moderate clinical heterogeneity was identified, subgroup analyses were conducted on status of treatment, form of intervention, number of modules and the length of program when there were at least two studies on a stratum, taking into account the possible influence of these variables on anxiety and depression outcomes. In each analysis, I2 was used to measure the statistical heterogeneity among the trials. If $P > 0.1$ and $I2 < 50\%$, due to the homogeneity of the trials, the fixed effects model was used for analysis; if $P < 0.1$ and $I2 \geq 50\%$, the random effects model was used. If $P < 0.1$ and the source of heterogeneity was unidentified, a descriptive analysis was performed instead of a meta analysis. For continuous data, the weighted mean difference (WMD) and 95% confidence interval (CI) were determined for the individual trials. The standardized mean difference (SMD) was used if different outcome assessment tools were used.

Subgroup analysis Possible sources of heterogeneity were detected using subgroup analysis.

Sensitivity analysis We intended to conduct a sensitivity analysis to assess the robustness of the outcomes by excluding studies with uncertain random sequence generation.

Country(ies) involved China.

Keywords Internet-based cognitive behavioral therapy; Anxiety; Depression; Cardiovascular disease patients; Meta-analysis.

Contributions of each author
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