Effectiveness of cognitive behavioural therapy in primary health care: a review
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Background. Depression and anxiety are highly prevalent disorders causing substantial impairment in daily life. Cognitive behavioural therapy (CBT) delivered face-to-face or as self-help has shown to be an effective treatment for these disorders. Such treatments may be suitable for delivery in primary health care.

Aim. The aim of the article was to review research on the effectiveness of CBT for depression and anxiety disorders delivered in primary care by primary care therapists.

Methods. A literature search of quantitative studies of the effectiveness of CBT delivered in primary care was conducted on multiple electronic databases. A total of 17 studies were included in the review.

Results. Eight studies of supported Internet- or computer-based CBT, six of which were randomized controlled trials (RCTs), indicate that this treatment is effective for mild to moderate depression and anxiety. Five studies suggest that this treatment may be more effective than usual care for mild to moderate but not for more severe symptoms. Results of four RCTs of brief therapies using written self-help material suggest that while such interventions are effective, no particular approach outperformed any other, including usual care. Five RCTs of CBT delivered face-to-face show that this treatment can be effective when delivered by therapists highly educated in the mental health field. However, many primary care therapists may find such interventions too time consuming.

Conclusions. CBT delivered in primary care, especially including computer- or Internet-based self-help programs, is potentially more effective than usual care and could be delivered effectively by primary care therapists.

Keywords. Anxiety, cognitive therapy, computer-assisted therapy, depression, family practice, primary health care.

Introduction
Depression and anxiety disorders are highly prevalent disorders with a projected lifetime risk of up to 31% for any mood disorder and 36% for any anxiety disorder.1 Epidemiological studies show 12-month prevalence for depression of up to 7% for men and 11% for women and between 7% and 9% for men and 15% and 18% for women for anxiety disorders.2–4 Depression and anxiety cause substantial impairment in multiple functional domains in daily life, reduction in quality of life and increased medical service utilization.5–7 In fact, the World Health Organization describes depression as a leading cause of disability and social and economic burden, affecting ~121 million people worldwide.8

According to Beck’s cognitive theory, negative or fearful/catastrophic thoughts and biased information processing typically characterize depressed and anxious individuals.9,10 Cognitive behavioural therapy (CBT) attempts to change dysfunctional patterns of thinking and non-adaptive behaviours in order to prevent development and maintenance of symptoms of depression or anxiety. Most research on the effectiveness of CBT has been done in specialized mental health services. These studies show that CBT is as effective as pharmacotherapy in treating mild to moderate depression and a variety of anxiety disorders, with treatment gains that are maintained at long-term follow-up and reduced rates of long-term relapse for depression.11–14
to access, due to insufficient numbers of trained therapists both in primary care and in specialist mental health services.

Research also indicates that cognitive bibliotherapy, using written texts, computer/Internet-based programs or audio/video-recorded material, has a moderate to large effect in reducing symptoms of depression and anxiety. In some cases, self-help shows equal efficacy as face-to-face treatment of relatively short duration. Self-help can be purely self-administered or can be used as part of a minimal contact therapy, which includes the active involvement of a therapist, though to a lesser extent than in traditional therapy. Studies show that minimal contact therapies may be sufficient for several anxiety and depressive disorders but that some form of therapist support may be essential for enhancing the treatment effects.

Psychological problems may account for as much as 30% of consultations in primary care when subthreshold disorders are included, and the majority of these patients will receive most or all of their mental health care in primary care. Findings suggest that patients generally prefer psychological therapy to medication, and if possible, they prefer to consult their GP for treatment. Seeking help from a GP has the advantages of being more accessible, affordable and less stigmatizing than specialized mental health services.

The treatment of depression and anxiety in general practice is often limited to empathic listening, informal supportive therapy, prescription of medication and provision of medical certificates or referrals. Several investigations confirm that only 21–65% of the patients who are treated for depression and anxiety in primary care receive guideline-concordant treatment. Guidelines recommend psychosocial interventions in the treatment of subthreshold and mild to moderate depression and do not recommend using antidepressants routinely to treat these conditions. The structured and time-limited nature of CBT makes this treatment suitable for primary care settings. Especially, using self-help resources to engage patients between sessions could be a viable option as a mean to improve the delivery of psychological interventions in primary health care.

The aim of the present article was to review the research on the effectiveness of CBT for depressive and anxiety disorders delivered in primary health care. The review is selective, in that it focuses on studies where CBT was delivered in primary care by primary care therapists without extensive specialized training in the delivery of structured psychological therapy.

Methods

We undertook a selective review of trials studying the effectiveness of CBT interventions for depression and anxiety disorders delivered in a primary care setting by primary care therapists.

Selection of studies

We included studies where CBT was delivered or supported by primary care therapists, e.g. practice nurses, GPs, social workers or other therapists without extensive specialized training in delivering structured psychological therapy. Twenty studies where CBT was delivered by highly trained or specialist therapists were excluded. Consensus on what constitutes a specialist therapist was reached by referring to the original studies and through discussion in the group of authors. Where no characteristics of the therapists were given in the original articles, authors were contacted to obtain such information. We included one study where a self-help clinic was set up as part of a pragmatic evaluation project since this clinic was considered closely to resemble regular primary care services.

Studies where treatment combined CBT-based self-help with support from the primary care clinic were included. Therapist support was defined as any therapeutic involvement beyond screening procedures and could include face-to-face, telephone or e-mail contact. Studies of purely behavioural interventions were excluded from the review.

One study describing a prevention intervention for depression was included since all participants had symptoms corresponding to subthreshold depression. Two evaluations of interventions for postnatal depression were excluded because the procedure of treatment through home visits deviated from the procedures in other included studies. Four studies described complex interventions comprising both CBT and medication. One of these studies was excluded because the CBT component was minimal, and the main focus was on medication adherence and effect. The three other studies were included because CBT was considered a central part of the interventions. These complex interventions also included medication, collaborative care and choice of treatment and thus do not allow conclusions regarding the relative contribution of each treatment. However, analyses of process of care showing differences between groups in received treatment give some indication on which components might have contributed to the intervention outcomes.

We included only quantitative studies that used symptom measures as the primary end point.

Selection of participants

The selected studies included both adolescent and adult participants. Since only eight of these studies included participants on the basis of a depression and/or anxiety diagnosis according to Diagnostic and Statistical Manual of Mental Disorders or International Classification of Diseases criteria, we also included...
studies where participants were included on the basis of elevated scores on self-report scales. One study including patients with symptoms of somatization was excluded because the focus on unexplained somatic symptoms was considered to differ from the more affective focus in the other included studies.66,67

Search strategy
A search was conducted on Medline (PubMed) databases, PsycINFO, ISI Web of Knowledge and Google until 10 August 2010 for English language papers. Table 1 shows the search terms that were used. We also scrutinized references cited in identified meta-analysis, systematic reviews and single studies to find further studies.

Data extraction. One of the authors (RSH) extracted data from the included studies, and two of the other authors (KW and ME) checked these data. Discrepancies were resolved by referring to the original studies. Data were extracted on symptoms/disorder, sample size, follow-up, dropout, type of intervention, intervention provider, comparison treatment and outcomes.

Results

Internet- or computer-based CBT. The effectiveness of computer- or Internet-based self-help programs has received increased attention during the last decade. We identified eight studies of the effectiveness of supported computer-based CBT (CCBT) delivered in primary care. Six of these studies were randomized controlled trials (RCTs).

A randomized trial by Proudfoot et al.68 and a cluster randomized trial by Hickie et al.69 found evidence of the advantage of including CCBT in addition to treatment as usual. The groups receiving computer- or Internet-based CBT improved more over time on symptom measures than groups receiving usual care alone (see Table 2). The study by Proudfoot et al.68 included patients with all levels of initial depression, mixed anxiety and depression, as well as specific anxiety disorders, while Hickie et al.69 targeted depressive symptoms and psychological distress. In the latter study, all patients, including the control group, received enhanced GP care from GPs with mental health training, and in Proudfoot et al.,68 patients in the intervention group received treatment as usual which did not include any counselling or referral to specialized services, which were interventions included in treatment as usual. Thus, both studies can be considered conservative tests of the interventions. There were, however, major practical difficulties in conducting the trial in Hickie et al.,69 and due to poor recruitment of practices and patients and high attrition rates, the sample size was too small to adequately test the hypothesis. The results must, therefore, be considered as a preliminary indication of the possible effectiveness of this mode of treatment.

Promising results were also found in another RCT including patients with anxiety disorders.62 Here, a complex intervention which included supported computer-based CBT and/or pharmacotherapy supported by medication management, yielded robust effects on all outcome measures compared to usual care. Thirty-four per cent of patients in the intervention group chose only CBT, 9% chose medication only and 57% received both treatments. The intervention effects may, therefore, be mediated either by higher quality medication treatment or by higher rates of quality CBT in the intervention group, as assessed by number and consistency of CBT elements in the psychotherapy sessions. Results show that participants in the intervention group who received at least one CBT session (n = 261; average 7.63 sessions) experienced a significant decrease in symptoms of depression and anxiety that were not moderated by the administration of medications.82 Even though the relative contributions of the CBT and medication components cannot be clearly determined, these results indicate that the CBT component contributed to the positive outcomes of the intervention as a whole.

Two RCTs compared CCBT with treatment as usual for moderately to severely depressed patients.70,71 In both studies, depressive symptoms improved equally significant over time in groups receiving treatment as usual and groups receiving online-/computer-based CBT in addition to usual treatment. In the study by De Graaf et al.,70 the low adherence (see Table 2) may have masked potential intervention effects. On the other hand, poor adherence in this study and lack of intervention effects in both studies may likely be explained by the severity of depressive symptoms.

Three studies compared different interventions without including control groups.58,59,72 In the study by Van Voorhees et al.,59 depressed adolescents receiving an online prevention intervention combined either with a motivational interview or with a brief advice experienced equally significant decreases in depressive symptoms. A possible explanation for the lack of differences between the interventions could be that the abbreviated motivational interview in this study was too short to have the expected persuasive
<table>
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<tr>
<th>Study</th>
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<th>Comparison conditions</th>
<th>Intervention duration, content and level of therapist support</th>
<th>Use of medication and specialized mental health care</th>
<th>N (%)</th>
<th>Measurements</th>
<th>Outcome</th>
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</thead>
<tbody>
<tr>
<td>De Graaf et al.⁷⁰</td>
<td>Depression*</td>
<td>RCT: CCBT (Colour your life): 9 × 30-minute sessions.</td>
<td>Antidepressants:</td>
<td>303 Pre 2 months</td>
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<td>All groups improved significantly on measures of depression, dysfunctional attitudes, general health and work and social adjustment (ES = 0.6-0.9). No significant improvement on a general symptom measure. Significantly more improvement on work and social adjustment with CCBT + TAU. No difference between groups on clinically significant change (29–36% at 6 months).</td>
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<td>1. Unsupported online CCBT (n = 100),</td>
<td>Group 1: 14%</td>
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<td>2. TAU (n = 103),</td>
<td>Group 2: 27%</td>
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<td>3. CCBT + TAU (n = 100).</td>
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<td>Hickie et al.⁹⁹</td>
<td>Depressive symptoms and psychological distress*</td>
<td>Cluster randomized trial: 8 weeks:</td>
<td>Specialized care:</td>
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<td>1. Enhanced GP care (n = 54).</td>
<td>Group 1: 24%</td>
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<td>2. Enhanced GP care + online CBT (n = 29).</td>
<td>Group 2: 36%</td>
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Specialized care:

- Group 1 (n = 36): CCBT
- Group 2 (n = 30): TAU
- Group 3 (n = 12): CCBT + TAU

Adherence to intervention: 0% in both groups

Lost to follow-up:

- Group 1 (n = 28)
- Group 2 (n = 41)

Symptoms of psychological distress resolved after treatment for most patients. More patients in the GP care + CBT group experienced a resolution of symptoms compared to the GP care group. This pattern was sustained at 6- and 12-month follow-up. A moderate and clinically meaningful difference between the conditions at post-treatment (ES = 0.4), and a small, but clinically meaningful difference at 6-month follow-up (ES = 0.3). Significant reduction of disability in the GP care group and a trend towards reduction in the GP care + CBT group. No significant difference between conditions.
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<tr>
<td>Marks et al.</td>
<td>Anxiety and depressive disorders (including OCD)</td>
<td>Open pragmatic evaluation: 1. FearFighter (phobia/panic; n = 43). 2. Cope (depression/anxiety; n = 55). 3. Balance (GAD/depression; n = 56). 4. BTSteps (OCD; n = 16).</td>
<td>FearFighter (CCBT); Cope and BTSteps (Booklet + IVR system): Advised to use program at least six times in 12 weeks + six brief contacts with nurse therapists (phone or face-to-face). Balance (CCBT): Advised to use program at least three times in 4 weeks + three brief contacts with nurse therapists.</td>
<td>Medication: Completers: 60%</td>
<td>210</td>
<td>Suitable</td>
<td>All patients: 80% of patients rated themselves as better to some degree, 10% as unchanged and 9% as worse to some degree. Significant improvement per system: FearFighter users on the Fear Questionnaire (ES = 0.6–1.4), Cope users on depression measures (ES = 0.7–1.2), Balance users on depression and anxiety measures (ES = 0.6–1.3). Improvement on work and social adjustment was significant for FearFighter, Cope and Balance (ES = 0.4–0.9).</td>
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<tr>
<td>Proudfoot et al.</td>
<td>Anxiety and/or depression</td>
<td>RCT: 8 weeks: 8 x 50-minute CCBT sessions (Beating the Blues) with homework + technical support from nurse and practical/social help and medication from GP. No psychological intervention or counselling.</td>
<td>Group 1/2 (%) Medication: 42/45</td>
<td>274</td>
<td>Allocation</td>
<td>Depression scores decreased in both groups over time. No significant interaction between treatment and time for any measure, but summary measures analysis show significantly lower depression and work and social adjustment scores for the CCBT group. Significant decrease of negative attributions and increase of positive attributions in the CCBT group. The effect of the intervention on anxiety measures approached significance. Treatment effects are equally significant for patients using or not using medication. Improvements were sustained at 6-month follow-up.</td>
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<td>Roy-Byrne et al.62</td>
<td>Panic disorder, generalized anxiety, social anxiety and PTSD</td>
<td>RCT:</td>
<td>10–12 weeks: eight modules (CALM Tools for Living) tailored to the four anxiety disorders, completed during 6–8 visits + monthly follow-up calls after treatment. Medication management for those using antidepressants.</td>
<td>Group 1/2 (%) Mediation of appropriate dose: Pre: 29/31 6 months: 46/42 12 months: 42/36 18 months: 41/38</td>
<td>1004</td>
<td>Pre 876 6 months 813 12 months 804 18 months</td>
<td>All outcomes (somatization, anxiety, depression, anxiety sensitivity and functional status) were significantly better for the intervention group at 6, 12 and 18 months (ES: –0.3, –0.3 and –0.2). Outcomes for physical health were similar in both groups. A significantly larger proportion of patients in the intervention group responded and remitted at 6, 12 and 18 months (response: 6 months: 57 versus 37%; 12 months: 64 versus 45%; 18 months: 65 versus 51%; remission: 6 months: 43 versus 27%; 12 months: 51 versus 33% and 18 months: 51 versus 37%). NNT: 5.3 at 12 months for response and 5.5 for remission.</td>
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<tr>
<td>Salkovskis et al.71</td>
<td>Major depressive disorder</td>
<td>RCT:</td>
<td>Six to nine modules consisting of three- to six-page booklets. GP is informed of patient progress and provides standard treatment. Medication: 100% in both groups Specialized care: not specified</td>
<td>96 Pre 4 weeks 77 12 weeks (Post) 26 weeks</td>
<td>Both groups improved significantly over time on all depression measures. No group differences. High satisfaction with treatment in both groups.</td>
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<td>1. Intervention including CCBT, medication or both (n = 503).</td>
<td>Average seven CBT sessions and two medication visits. Therapists: 11 social workers/ nurses and 3 psychologists with some/no mental health experience, no formal CBT training. 6 half days of training in the CALM program.</td>
<td>Any medication: Pre: 64/62 6 months: 70/68 12 months: 66/64 18 months: 61/61</td>
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<td>Shandley et al. 72</td>
<td>Panic disorder&lt;sup&gt;b&lt;/sup&gt; 78% with agoraphobia.</td>
<td>Natural groups design: 1. Internet CBT + GP support (PO–GP; n = 53). 2. Internet CBT + e-mail support from psychologist (PO–P; n = 43).</td>
<td>Internet CBT (Panic Online): six modules over 12 weeks. PO–GP: Support and feedback from CBT trained (20–40 hours) GPs. Regular visits encouraged. PO–P: e-mail support and feedback from psychologist, at least weekly.</td>
<td>Medication: PO–GP: 59% PO–P: 44%</td>
<td>96 Pre 69 12 weeks 55 6 months</td>
<td>Stabilized over minimum 2 weeks before start of trial 1 Dropout from intervention (pre-post): PO–GP 38 (16) PO–P</td>
<td>Significant improvement from pre to post on panic parameters, negative affect, panic cognition and quality of life (QoL). Significant difference between groups on two domains of QoL from post-treatment to follow-up: PO–P increased and PO–GP decreased. PO–P versus PO–GP at 6 months: panic-free status (52% versus 47%); high end-state functioning (48% versus 32%). No group differences, except significant increase in high end-state functioning in PO–P group and not in PO–GP group from post-treatment to follow-up. Significantly higher attrition from treatment in the GP group. No significant difference in overall attrition (47% versus 37%). Significant decline in depressive symptoms and number of clinically depressed in both groups from prep to 6 weeks, sustained at 12 weeks. Significant decline in self-harm thoughts and hopelessness for both groups from pre to 6 weeks and 6–12 weeks. MI group: Significantly lower prevalence of hopelessness and cumulative prevalence of depressive episodes at 12 weeks, and significant reduction from pre to 12 weeks in percentage reporting any self-harm thoughts or hopelessness.</td>
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<td>Van Voorhees et al. 19</td>
<td>Persistent subthreshold depression*: Patients' age: 14–21 years.</td>
<td>RCT: 1. Motivational interview (MI; 5–10 minutes) + Internet CBT (n = 43). 2. Brief advice (BA; 1–2 minutes) + Internet CBT (n = 40).</td>
<td>Internet CBT/IPT (CATCH-IT): 14 modules. MI or BA with GPs trained in the approach. Both groups engaged in the Internet site (MI 91%, BA 78%). MI group: three additional motivational phone calls from trained social worker.</td>
<td>Medication and specialized care: 0% in both groups.</td>
<td>83 Pre 6 weeks 80 12 weeks</td>
<td>Under active treatment the last year was an exclusion criterion. Dropout from intervention: MI (5) BA</td>
<td>Significant decline in depressive symptoms and number of clinically depressed in both groups from prep to 6 weeks, sustained at 12 weeks. Significant decline in self-harm thoughts and hopelessness for both groups from pre to 6 weeks and 6–12 weeks. MI group: Significantly lower prevalence of hopelessness and cumulative prevalence of depressive episodes at 12 weeks, and significant reduction from pre to 12 weeks in percentage reporting any self-harm thoughts or hopelessness.</td>
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<td>Written self-help material</td>
<td>Anxiety and depression(^a)</td>
<td>RCT: 1. Guided self-help ((n = 57)). 2. Wait list ((n = 57)).</td>
<td>CBT self-help manual + up to 4 (\times) 30-minute sessions with assistant psychologist.</td>
<td>Medication (Group 1/2): Pre: 65/68% Post: 53/57% Specialized care: currently on wait list.</td>
<td>114 Pre 103 3 months (12)</td>
<td>Dropout from intervention.</td>
<td>No significant difference in effect between groups on measures of anxiety and depression symptoms at 3 months. The effect of the intervention on social functioning approached significance.</td>
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<td>Richards et al.(^{74})</td>
<td>Mild to moderate anxiety and/or depression(^a)</td>
<td>RCT:</td>
<td>3 months: CBT self-help manual + up to three sessions with practice nurse.</td>
<td>Referred to specialized care or counselling ((n = 87)): Group 1: 11% Group 2: 35%</td>
<td>139 Allocated Pre 106</td>
<td>1 month 3 months</td>
<td>Significant improvement over time (1 and 3 months) on measures of general symptoms and QoL, but no difference between groups. Patients in the self-help group were twice as likely to achieve reliable and clinical change at 1 month compared to the TAU group. This difference disappeared at 3 months.</td>
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<tr>
<td>Sorby et al.(^{75})</td>
<td>Panic disorder and generalized anxiety disorder(^b)</td>
<td>RCT:</td>
<td>8 weeks: Anxiety management booklet (CBT) + four consultations with GP. GP explains booklet + adopts usual therapeutic strategies (monitor, guide and encourage).</td>
<td>Group 1/2: Benzodiazepines 33/32% Antidepressants 20/11% No change in dosage during first 2 weeks of trial. Specialized care: not specified</td>
<td>60 Allocated Pre 64 2 weeks 4 weeks</td>
<td>49 8 weeks</td>
<td>Significant improvement over time in both groups on measures of anxiety and depression. Significantly faster improvement in two first weeks for self-help group on measures of anxiety but not depression.</td>
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<tr>
<td>Van Boeijen et al.(^{76})</td>
<td>Panic disorder and generalized anxiety disorder(^b)</td>
<td>RCT: 1. Self-help with support from GP ((n = 53)). 2. CBT in specialized health care ((n = 63)). 3. Simple GP-delivered CBT ((n = 26)).</td>
<td>12 weeks: CBT self-help manual + 5 (\times) 20-minute sessions with GP. 12 (\times) 45-minute sessions with experienced CBT therapists. Any number of sessions with GP. Could include referral for other psychiatric treatment or medication.</td>
<td>Medication: Group 3: 50%</td>
<td>154 Randomization Pre 143</td>
<td>131 6 months 113 12 months 102</td>
<td>All three groups improved equally significant from pre-to post-treatment, 6 and 12 months follow-up on measures of anxiety, worry, panic, avoidance, depression, general health and disability.</td>
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<tr>
<td>Study</td>
<td>Target disorder/symptoms</td>
<td>Comparison conditions</td>
<td>Intervention duration, content and level of therapist support</td>
<td>Use of medication and specialized mental health care</td>
<td>N (%)</td>
<td>Measurements</td>
<td>Outcome</td>
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<tr>
<td>Face-to-face CBT Asarnow et al.65</td>
<td>Adolescent depressiona 42% major depression and 25% moderate to severe depression</td>
<td>RCT: 1. Quality improvement intervention: medication, CBT or both or brief follow-up including CBT components (n = 211), 2. Usual care (n = 207).</td>
<td>6 months: CBT intervention: 13 × 50-minute sessions with care managers (master's/PhD's in mental health or nursing) trained through the project in manualized CBT for depression. 32% of patients received CBT. 19% had 12 or more sessions. Usual care: enhanced with education materials on depression evaluation and treatment and 1–2 hours training.</td>
<td>Medication: baseline: Group 1: 14% Group 2: 18% 6 months: Group 1: 13% Group 2: 16%</td>
<td>418</td>
<td>Pre 344 6 months 327 12 months 322 18 months</td>
<td>Dropout in intervention period: (16) Usual care Adherence to intervention: 4 or more sessions (45)</td>
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<tr>
<td>Kerfoot et al.78</td>
<td>Adolescent depressiona</td>
<td>Natural groups design: 1. Patients of social workers receiving CBT training (n = 29), 2. Routine care: patients of social workers on wait list for CBT training (n = 23).</td>
<td>8 weeks: Eight sessions with social workers trained in brief CBT through one whole day and four half-day workshops.</td>
<td>Any psychotherapy/counselling: Group 1: 32% Group 2: 21%</td>
<td>52 46 33 weeks 17 weeks (45)</td>
<td>Pre 17 weeks 33 weeks</td>
<td></td>
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<tr>
<td>King et al.79</td>
<td>Depressiona</td>
<td>Natural groups design: 1. Patients of GPs receiving CBT training (n = 137), 2. TAU: Patients of GPs on wait list for CBT training (n = 135).</td>
<td>6 months: Any number of consultations with GP trained in CBT through four half-day workshops.</td>
<td>Medication: Group 1: 37% Group 2: 36%</td>
<td>272 246 6 months</td>
<td>Pre 3 months 6 months</td>
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<tr>
<td>König et al.(^{80})</td>
<td>Anxiety disorders(^a)</td>
<td>Cluster randomized trial: 1. Intervention (n = 201). 2. Usual care (n = 188).</td>
<td>6 months: Any number of treatment sessions with physicians trained in basic CBT techniques. Physicians were also offered a flexible psychiatric consultation–liaison service including assessment of specific patients, advice and CBT training.</td>
<td>Medication: Not specified</td>
<td>389 Pre</td>
<td>Post (6 months) 335 9 months</td>
<td>Slight improvement in symptoms of anxiety, depression and QoL in both groups but no significant differences between the groups.</td>
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<tr>
<td>Roy-Byrne et al.(^{63})</td>
<td>Panic disorder(^b)</td>
<td>RCT: 1. Collaborative care (CC): CBT + expert medication recommendations (n = 119). 2. Treatment as usual from PCP (n = 113).</td>
<td>Intervention period: 31/33%</td>
<td>Dropout: Intervention (14) Usual care (13)</td>
<td>232 Pre</td>
<td>Post</td>
<td>Proportion of subjects with no panic attacks and minimal anticipatory anxiety and phobic avoidance was significantly greater in intervention group at all follow-up points (ES = 0.2–0.3). Remission at 12 months was 29% in intervention group and 16% in TAU. Robust intervention effects on anxiety sensitivity (ES = 0.4–0.5), functional status (ES = 0.3), mental health-related QoL (ES = 0.1–0.3) and depressive symptoms (ES = 0.3). Physical health did not change in any of the groups. Number of attended sessions predicted decreased anxiety sensitivity at 3 and 12 months. Number of follow-up calls predicted decreased anxiety sensitivity, phobic avoidance and depression at 12 months. Dose response tendency for rates of response and remission both for CBT and medication.</td>
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</table>

**TAU**, treatment as usual; **ES**, effect size; **OCD**, obsessive compulsive disorder; **IVR**, interactive voice response; **GAD**, generalized anxiety disorder; **PTSD**, posttraumatic stress disorder; **NNT**, number needed to treat; **IPT**, interpersonal psychotherapy; **PCP**, primary care physician.  
\(^a\)Diagnosis according to Diagnostic and Statistical Manual of Mental Disorders or International Classification of Diseases criteria.  
\(^b\)Inclusion based on elevated scores on self-report scales.
power. Also, participants received financial incentives to participate, which may have enhanced investment and adherence to the treatment. Thus, a generally high level of motivation may have masked group differences. This bias also challenges the generalizability of the results to settings where financial incentives are absent.

A study by Shandley et al. found that an Internet-based intervention for panic disorder supported by GPs with some CBT training resulted in clinically significant improvements (see Table 2) and was equally effective as the same intervention supported by a more specialized mental health provider (e-mail support from a psychologist). A methodological problem was that the GP group initially had a higher degree of comorbidity and a higher proportion of participants on medication, which can suggest more severe illness in this group.

An open pragmatic study evaluated four CCBT packages for panic/phobia, depression/anxiety, generalized anxiety/depression and obsessive–compulsive disorder. Completers of each system improved significantly on measures specific to their problems and clinically meaningful effect sizes of ≥0.8 were obtained. These effect sizes were broadly comparable to the figures for computer-aided care and face-to-face CBT in other studies. However, even though completers and non-completers were indistinguishable when starting treatment, the amount of improvement should be regarded with some caution because of the high rates of refusal (20%) and non-completion (29%). Users of a shorter and more basic program for generalized anxiety/depression with less therapist support did not attain clinically meaningful effect sizes.

**Written self-help material**

Self-help books share many similarities with computer-based CBT but are more static and have fewer opportunities for interactivity and tailoring of components and feedback. We identified four RCTs using written self-help material with clinician support in primary care. Results from these studies are mixed. Two studies including heterogeneous groups of patients with symptoms of anxiety and/or depression found no or limited beneficial effects of guided self-help compared to a waiting list condition or usual treatment. A significant proportion of patients in the Mead et al. study reported reading at least half of the manual and undertaking therapeutic activities, and 88% of the patients attended at least one session, while 54% attended all four sessions. This suggests that the lack of effect cannot be accounted for by problems with adherence. The study by Richards et al. could only detect large-scale main effects due to poor recruitment rates and a high level of dropout. The high rates of refusal and attrition also introduce potential bias to the sample and point to feasibility issues for the intervention.

More positive results come from two studies of patients with panic and generalized anxiety disorders. Van Boeijen et al. concluded that the use of GP supported self-help in primary care can be considered a feasible and effective treatment for patients with these disorders. This treatment seems to be comparable to face-to-face CBT in secondary care. Sorby et al. found that treatment as usual both with and without the addition of an anxiety management self-help booklet resulted in significant improvement on measures of depression and anxiety. However, the self-help group improved significantly faster on several anxiety measures during the first weeks of treatment. In this study, GPs adopted their usual therapeutic strategies and were not specifically trained to deliver the anxiety management treatment. This suggests that GPs may be able to administer a self-help package effectively without special training.

**Face-to-face CBT**

Five RCTs evaluated the effect of face-to-face CBT delivered in primary care. In three studies, primary care clinicians were randomized to receive an educational package on CBT or to a wait list for this training. Analyses found no significant differences in patient outcomes between groups receiving CBT from trained clinicians and those receiving routine care. In fact, in the study by Kerfoot et al., the majority of patients in both groups had residual depressive symptoms post-treatment (see Table 2). In this sample of adolescents, problems were often chronic and severe and included high rates of behavioural and social problems. However, only half of the sample had major depression. The intervention may therefore be more effective in a more typical sample of depressed adolescents.

Two studies suggest positive effects of face-to-face CBT components included in complex interventions. In one study of patients with panic disorder, behaviour health specialists were trained to deliver CBT and to coordinate care, including pharmacotherapy. The intervention had robust positive effects on several outcome measures, and improvement was significantly greater in the intervention group compared to the group receiving usual care (see Table 2). In this study, the content and quality of the CBT were evaluated and reported. Still, the exact contribution of CBT cannot be determined since many patients also used medication and received medication management. However, the following results suggest that improved outcomes in the intervention group may be at least partly attributed to the CBT component. Firstly, the proportion of patients receiving quality CBT was significantly larger in the intervention group than in the usual care group. The differences in quality of pharmacotherapy were not significant. Secondly, results indicate a dose–response tendency where number of attended CBT sessions and follow-up calls were related...
to better outcomes. Thirdly, patients receiving both CBT and medication (n = 62) improved significantly more on anxiety and depression measures than the group using only medication (n = 49).\textsuperscript{65}

Asarnow \textit{et al.}\textsuperscript{65} trained care managers to deliver CBT for adolescent depression as part of a quality improvement intervention that also included expert leader teams, patient and clinician choice regarding treatment modality and support to primary care clinicians with patient evaluation, education and medication. After the intervention phase, patients reported significantly fewer symptoms compared to patients receiving usual care (see Table 2). The intervention also had positive indirect long-term effects.\textsuperscript{77} This suggests that the initial benefit of the intervention may have produced a shift towards a healthier path, for example by lowering the risk for chronic or recurrent depression. Neither here it can be clearly determined if the intervention effects are due to the CBT part of the intervention. However, the main difference in received treatment between the groups was an increase in psychotherapy in the intervention group. The groups did not differ on rates of medication or combined treatment. This suggests that the CBT component of the intervention has contributed to the improved outcomes in the intervention group. Fidelity to the CBT model was encouraged through regular consultations with the therapists but was not required or reported, which is a limitation of the study.

**Discussion**

The main objective of this review was to provide an overview of the available evidence on the effectiveness of CBT for depressive and anxiety disorders delivered in primary care by primary care therapists. It is impossible to draw an overall conclusion since the 17 included studies differed on several methodological aspects, including content of the intervention, treatment provider, comparison groups, outcomes and patient populations. The level of support and the degree to which the support was related to the use of self-help programs also varied.

Consistent with results from prior academic clinical trials, this review suggests that clinician-supported Internet- or computer-based CBT delivered in primary care is effective for mild to moderate depression and anxiety. A tentative conclusion indicated by some studies is that this treatment may be more effective in treating mild to moderate symptoms of depression and anxiety than treatment as usual.\textsuperscript{52,68,69} However, although all three studies were RCTs and two can be considered conservative tests of the interventions, one study did not recruit enough participants to adequately test the hypothesis\textsuperscript{69} and another tested a complex intervention,\textsuperscript{62} and thus, the contribution of the CBT component to the overall effect could not be clearly interpreted. In treating depressive symptoms in the moderate to severe range, two relatively large high-quality randomized trials suggest that this treatment may not be more effective than usual care.\textsuperscript{70,71}

Also, this is in line with previous research on self-help and computer-guided interventions.\textsuperscript{15,18,20} With supported Internet- or computer-guided CBT being equally or potentially more effective than usual treatment for mild to moderate symptoms, primary care providers may consider offering such treatment as an alternative to pharmacological treatment or as a supplement to augment treatment with medications. Studies showing that patients generally prefer psychological therapy to medication emphasizes the relevance of a more psychologically orientated treatment option in primary care.\textsuperscript{26–28} Studies suggest that especially for depression and panic disorder, CBT may have an enduring effect that extends beyond the end of treatment.\textsuperscript{86–89} While relapse rates are high for patients withdrawn from pharmacotherapy, CBT seems to be as effective in preventing relapses in the long term as keeping patients on medication.\textsuperscript{86,88,89} Although such results remain to be replicated with briefer self-help treatments, the potential for positive long-term effects of CBT would further support the use of such treatments as a valuable alternative to the present usual treatment.

Some studies suggest that guided CBT-based self-help may be as effective as similar interventions delivered by more specialized mental health providers or as face-to-face CBT in specialized mental health care.\textsuperscript{72,76} However, the interventions of these two studies differed widely, and one of the studies used a natural groups design without randomization. No firm conclusions can therefore, be made on the present basis.

Results of four RCTs of brief therapies using written self-help material suggest that although such interventions are effective for depression and anxiety disorders, no particular approach outperformed any other, including usual care. All the reviewed interventions using written CBT material were less extensive than most therapies and included only between three and five sessions, and in two of the studies,\textsuperscript{73,76} the consultations were of short duration. Such interventions may potentially be a beneficial amendment to treatment as usual for some anxiety disorders but may be insufficient for patients with mixed depression and anxiety. This is consistent with results from the study of CCBT by Marks \textit{et al.}\textsuperscript{58} where a shorter treatment program for mixed depression and anxiety was less effective than more extensive programs. This is also in line with current guidelines for the treatment of depression where six to eight sessions are recommended for persistent subthreshold depression or mild to moderate depression.\textsuperscript{37}

Training primary care therapists to deliver face-to-face CBT for depression or anxiety does not seem to
have advantages compared to treatment as usual.\textsuperscript{78–80} None of the reviewed studies evaluated to which extent the clinicians applied their new skills when treating patients, and hence, the quality of the CBT intervention remains uncertain. This limits the conclusions that can be drawn because poor results may be caused either by true lack of effect or by feasibility issues hampering the delivery of the intervention. Low feasibility was suggested in the study by van Boeijen et al.,\textsuperscript{76} where GP-delivered CBT was considered too time consuming, and GPs often preferred treatment with antidepressants or referral to secondary care. Problems with recruitment and dropout of therapists were also encountered in the studies by Kerfoot et al.,\textsuperscript{79} King et al.\textsuperscript{80} and König et al.\textsuperscript{80} This indicates that most primary care therapists may find this process too time consuming.

Two studies suggest that face-to-face CBT in primary care may be effective when delivered properly by highly educated therapists with a master or PhD degree in the mental health field who are motivated to find time to both acquire the skills and knowledge of the approach and to apply these skills in the clinical setting under close supervision. This must, however, be interpreted with caution since the studies included complex interventions and the contribution of the CBT components cannot be clearly determined.

\textit{Methodological issues and future directions}

The majority of the reported studies are randomized controlled studies, which by the virtue of their design attempt to reduce potential biases. Most compared CBT to treatment as usual or no treatment. Still, several studies compared different treatment protocols without including control groups. Future studies should include such appropriate comparative elements as medication or usual care. This is necessary to determine how much of the patients' improvement is due to the passage of time, any therapist contact or to the intervention of interest and if this treatment is more effective than the present treatment. Usual treatment cannot be clearly defined since researchers have not attempted to constrain or interfere with primary care therapists' usual choice of treatment in order to replicate natural conditions. However, usual treatment generally includes medication, some level of supportive therapy and/or referral to mental health specialists. Treatment varies between countries due to differences in guidelines and different ways of organizing primary health care. It also varies between individual GPs depending on competence, preferences and characteristics of the patient–physician relationship.

Most studies reported rates of dropout from the interventions varying between 0\% and 88\%, with the vast majority being in the 15–30\% range. Dropout rates in this range are comparable to those of other psychological therapies for depression and anxiety, including face-to-face CBT and counselling.\textsuperscript{90–93} A weakness in many studies of face-to-face CBT is the lack of evaluation of therapists' fidelity to the structure and content of the intervention. Uncertainty of the actual content of the intervention makes it difficult to draw clear conclusions concerning treatment effect. A related issue, when evaluating self-help interventions, is the evaluation of participants' adherence to the self-help program. This is measured and reported in most studies on computer- or Internet-based CBT, whereas in studies using written self-help material, only one out of four reported such information.

Future research should aim to determine which duration of treatment, treatment components and amount of therapist contact is needed to obtain positive outcomes for different disorders. Another important issue for investigation is to study the effectiveness of treatment delivered by therapists with limited training compared with more extensively trained therapists. Other important issues for further research refer to for whom these interventions are effective and acceptable and how to prevent dropout and enhance adherence.

\textbf{Conclusions}

In summary, this review shows that CBT-based self-help with clinician support delivered in everyday primary care setting represents an effective treatment for depression and anxiety disorders. Such interventions seem to be effective both when supported by GPs, nurses, social workers or individuals with academic degrees in the mental health or health behaviour field. Some studies suggest that for mild to moderate symptoms computer- or Internet-based CBT is more effective than treatment as usual. However, for more severe depressive symptoms, computer- or Internet-based self-help in addition to usual care does not outperform the effect of usual care alone. More research is needed to further confirm this conclusion. However, especially for patients preferring psychologically orientated treatment, primary care providers may consider offering this kind of treatment as an alternative to pharmacological treatment.

Brief supported CBT-based self-help treatments using written material did not outperform treatment as usual in this review. Whether supported self-help treatments of longer duration would be more effective than usual care cannot be answered by the studies reviewed.

Training of primary care therapists in delivering face-to-face CBT does not seem to enhance treatment effects relative to usual treatment in primary care. Such interventions may not be feasible for the majority of therapists because of the time and engagement needed to learn the approach and to apply new skills in the clinical work.
Declaration

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Conflict of interest: none.

References


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