Effectiveness of cognitive behavioural therapy for anxiety and depression in primary care: a meta-analysis

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Abstract

Background. Cognitive behavioural therapy (CBT) is increasingly being delivered in primary care, in a variety of delivery formats such as guided self-help CBT, telephone-based CBT, computerized CBT and standard, one-to-one CBT. However, the vast majority of research has focused on CBT in specialized services, and no previous meta-analysis has examined CBT's effectiveness across delivery formats in primary care.

Objective. To determine the effectiveness of multi-modal CBT (i.e. CBT across delivery formats) for symptoms of anxiety and depression, in primary care.

Methods. A meta-analysis of CBT-focused RCTs, for symptoms of anxiety or depression, in primary care. The authors searched four databases. To be included, RCTs had to be set in primary care or have primary care participants.

Results. Twenty-nine RCTs were included in three separate meta-analyses. Results showed multi-modal CBT was more effective than no primary care treatment ($d = 0.59$), and primary care treatment-as-usual (TAU) ($d = 0.48$) for anxiety and depression symptoms. Moreover, multi-modal CBT in addition to primary care TAU was shown to be more effective than primary care TAU for depression symptoms (no comparisons of this kind were available for anxiety) ($d = 0.37$).

Conclusions. The results from conducted meta-analyses indicate that multi-modal CBT is effective for anxiety and depression symptoms in primary care. Furthermore, based on CBT's economic viability, increasing the provision of CBT in primary care seems justified. Future research should examine if varying levels of qualification among primary care CBT practitioners impacts on the effectiveness of CBT in this setting.

Key words: Anxiety; cognitive behaviour therapy; computer-assisted therapy; depression; primary care; meta-analysis; multimodal treatment.

Introduction

Several meta-analyses have demonstrated that cognitive behavioural therapy (CBT) is effective for common mental health difficulties such as anxiety and depression in a wide range of populations (1). Moreover, the increasing evidence from meta-analyses shows that CBT is also effective when delivered in self-help, telephone and computerized formats (2–4) .

The UK's National Health Service (NHS) rolled out the *Improving Access to Psychological Therapies* (IAPT) initiative in 2008. The goal of IAPT was to significantly increase access to various psychological therapies in primary care, but it initially focused on the provision of CBT. IAPT provides CBT in various low- and high-intensity delivery formats, such as guided

self-help CBT, computerized CBT (cCBT), telephone-based CBT and standard, one-to-one CBT. By March 2011, 3660 new CBT practitioners had been trained and by 2015, IAPT will provide interventions to 900 000 NHS service users annually ([5]). The IAPT initiative reflects the general trend of psychological therapies such as CBT being increasingly provided in primary care ([6]).

Despite its increased provision in primary care, the vast majority of research on CBT has focused on one-to-one CBT, in specialized mental health services ([7]). The few available evaluations of CBT's effectiveness in primary care have yielded positive results, for example, a systematic review indicating that CBT is effective for symptoms of anxiety and depression in primary care ([7]). What has not yet been examined (at least through meta-analysis) is the effectiveness of CBT across low-intensity and high-intensity delivery formats in primary care, for symptoms of anxiety and depression. Such an examination would aid the assessment of whether the increased provision of 'multi-modal' CBT in primary care through initiatives such as IAPT is justified or not. Accordingly, the main aim of this meta-analysis is to determine the effectiveness of multi-modal CBT, for symptoms of anxiety and depression, in primary care. Subanalyses of CBT in specific delivery formats (e.g. face-to-face CBT, self-help CBT) are also undertaken to further aid assessments of CBT's possible effectiveness.

Method

Literature search

The first author conducted a literature search with the aim of identifying RCTs on CBT interventions (in any modality) for anxiety and depression that were set in primary care or had primary care (e.g. GP-referred) participants. Studies in which CBT was delivered in addition to other interventions were included if control conditions in such studies were set up to allow the treatment effects of CBT to be isolated. Only studies from 1997 onwards published in peer-reviewed journals were included. This arbitrary cut-off point was chosen to reflect approximately the recent changes within primary care services ([6]). Time and resource constraints meant that only English language studies could be included.

On the basis of above criteria, the first author searched four databases: *PsycINFO, CINAHL Plus with full text, MEDLINE* and *EMBASE*. Search terms and database subject headings (when available) were used. Terms and subject headings related to anxiety and depression (i.e. anxiety OR anxiety disorder OR panic OR generalized anxiety disorder OR social anxiety OR social phobia OR phobias OR posttraumatic stress disorder OR obsessive compulsive disorder OR depression OR depress*) were combined with terms for randomized controlled trials (i.e. randomized controlled trial OR random*

OR RCT OR controlled trial), primary care (i.e. primary care OR IAPT OR general practic* OR general practitioner OR GP OR family medicine OR family practi* OR family doctor OR physician) and cognitive behavioural therapy (i.e. cognitive behaviour therapy OR cognitive therapy OR CBT OR cognitive behavio* therapy OR behaviour modification OR behaviour therapy). The last search was performed on the 22nd of June 2014. In addition to the database search, manual searches located articles that were included in reference lists of previously identified articles, and previous reviews of CBT were also checked.

Outcome measures

Anxiety and depression self-report outcome measures were used for statistical calculations. However, in studies that examined both anxiety and depression, where possible, outcome measures of general psychological distress (or similar composite measures of anxiety and depression) were used for the 'across difficulties' meta-analyses. This was because general psychological distress is characterized by symptoms of both anxiety and depression ([8]). When this was not possible for 'across difficulties' meta-analyses, the first primary outcome measure for anxiety or depression reported in the study was used.

Quality assessment

To assess the quality of the included RCTs, the authors used three of the seven criteria from the Cochrane Collaboration's tool for assessing risk of bias ([9]). These three criteria were (i) random sequence generation, (ii) allocation concealment and (iii) completeness of outcome data (such data was deemed complete when intention-to-treat analysis was used). Regarding the other criteria, blinding from knowledge of an allocated intervention was not used because experimental conditions in included studies made such blinding impossible. Similarly, blinding of outcome assessment was not used because all the measures included in the meta-analyses were self-report measures. In addition, both selective reporting bias and 'any other' bias were not used because these biases were deemed too ambiguous in nature to objectively detect.

Data synthesis

Using random effects analysis, the authors calculated pooled mean effect sizes using the Comprehensive Meta-analysis program ([10]). Effect sizes were calculated in Cohen's *d* format. Data from the post-intervention data collection point and the first follow-up collection point were used for statistical calculations. Publication bias was assessed through inspection of funnel plots ([10]).

Results

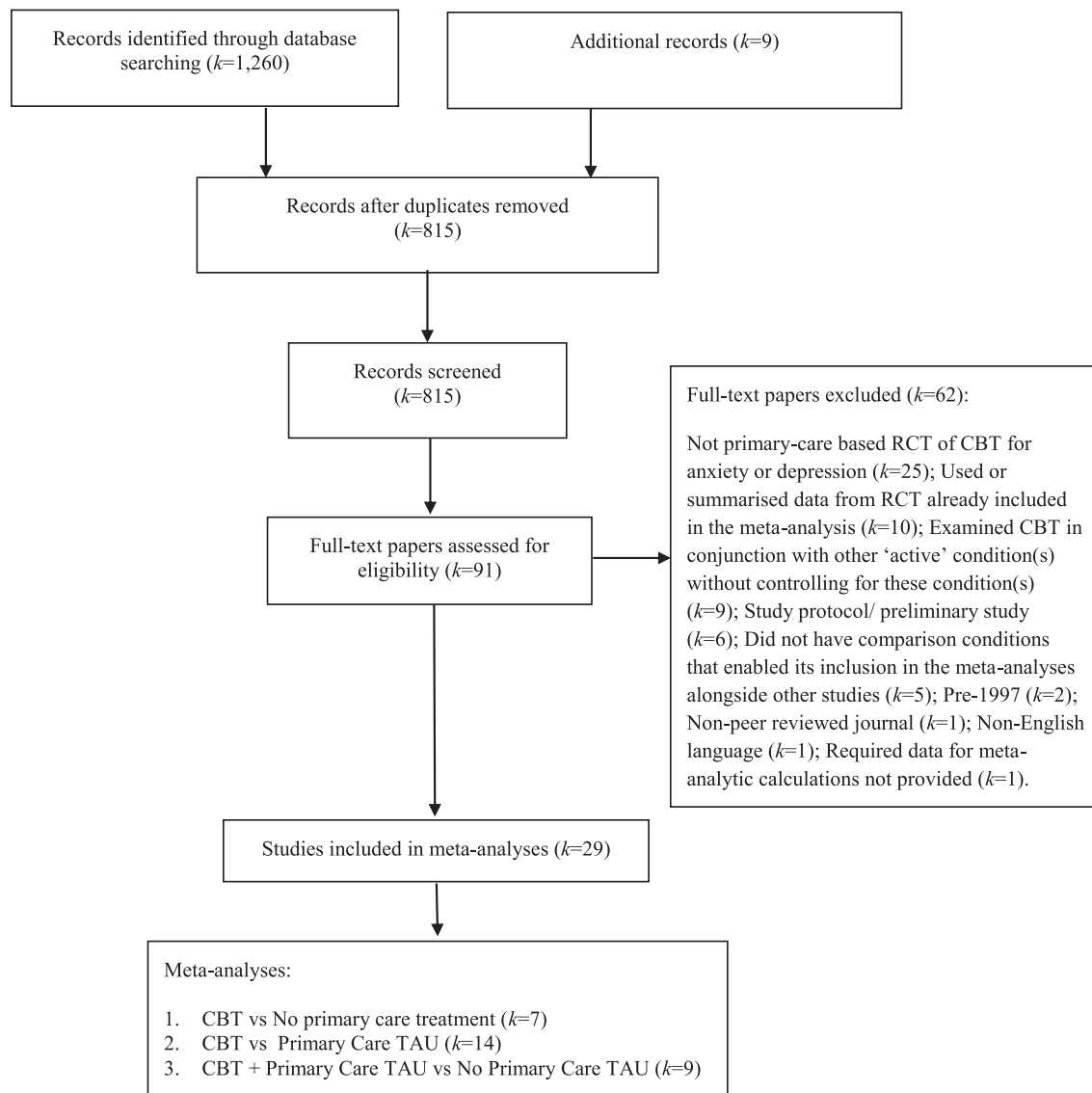### Literature search flow

The literature search flow is displayed in Figure 1. In total, 1269 records were identified. After duplicates were removed, 815 studies were screened at 'abstract' level. After abstract screening, 91 studies were assessed for eligibility at 'full-text' level. Twenty-nine studies were included in the review and these were categorized into three separate meta-analyses (i) CBT compared with no primary care treatment ($k = 7$); (ii) CBT compared with primary care treatment-as-usual (TAU) ($k = 14$); and (iii) CBT in addition to primary care TAU compared with primary care TAU ($k = 9$). The experimental conditions of one study (11) facilitated its inclusion in both the second and third meta-analyses.

Meta-analysis 1: CBT versus no primary care treatment ($k = 7$)

Descriptive data and quality assessment

Both descriptive data and the quality assessment for this meta-analysis's seven RCTs are displayed in Table 1. One study examined face-to-face CBT in primary care, three studies examined computerized/online CBT in primary care and three studies examined guided self-help CBT in primary care. The study that examined face-to-face CBT evaluated it in both standard and group formats which allowed two comparisons from it to be included in the meta-analysis. In terms of presenting difficulties, three studies targeted anxiety, three targeted anxiety and/or depression and one targeted depression. Sample sizes ranged

Figure 1. Literature search and study categorization flow.

Table 1. Descriptive data and quality assessment for meta-analysis 1: CBT versus no primary care treatment

Study	N	% f	Age	Difficulty	Screening	Randomization (n)	Sn	Practitioner(s)	Measure(s)[a]	Times	Quality RS	Quality AC	Quality CD
Face-to-face CBT													
Sharp (12)[b]	97	NS	38	Panic	DSM-IV criteria for panic disorder; score ≥15 on HAS; score ≤20 on MADRS	(i) CBT (31) (ii) Group CBT (20) (iii) Waitlist control (19)	8	Clinical psychologist	HAS; SRT; MADRS; FQ	3 + 6 months	–	–	–
Computerized/online CBT													
Hoifodt (13)	106	73	36	Depression	Score ≥14 and ≤ 20 on BDI-II	(i) cCBT (52) (ii) Delayed treatment (54)	4	Clinical psychologists	BDI-II; HADS	7 weeks, 6 months[c]	+	–	+
Newby (14)	99	78	44	Mixed anxiety or depression, anxiety, depression	Score above clinical threshold on PHQ-9 and/or GAD-7	(i) cCBT (46) (ii) Waitlist control (53)	NS	Clinicians and therapists	PHQ-9; GAD-7; BDI-II, PSWQ	10 weeks; 3 months (cCBT group only).	+	+	+
Nordgren (15)	100	63	36	Anxiety	DSM-IV diagnosis of any anxiety disorder	(i) cCBT (50) (ii) Attention control (50)	5	Masters level students	CORE-OM; BAI; MADRS-S	10 weeks; 1 year (cCBT group only)	+	+	+
Guided Self-help CBT													
Jones (16)	40	NS.	50	Anxiety	Presenting health anxiety symptoms to physician	(i) Guided Self-help CBT (20) (ii) No treatment (20)	NS	Physicians	HAQ; STAI	4 weeks	–	–	–
Lucock (17)	122	62	38	Anxiety or depression	Prior diagnosis	(iii) Guided Self-help CBT (63) (iv) Delayed treatment (59)	2	Primary care graduate mental health workers	CORE-OM	8 weeks	+	+	+
Mead (18)	103	68	40	Anxiety + depression	Score ≥14 on BDI; score ≥11 on anxiety scale of HADS	(i) Guided Self-help CBT (50) (ii) Waitlist control (53)	3	Assistant psychologists	HADS, BDI-II, CORE-OM	3 months	+	+	+

% f, % females in sample; Age, mean age of sample; cCBT, computerized CBT; CBT, Cognitive Behavioural Therapy; N, sample size; NS, not specified; Sn, average number of face-to-face sessions completed by those in CBT intervention group. Times, post-intervention data collection points. Screening and outcome measures: BAI, Beck Anxiety Inventory; BDI-II, Beck Depression Inventory-II; CORE-OM, Clinical Outcomes in Routine Evaluation- Outcome Measure; DSM-IV, Diagnostic and statistical manual of mental disorders, 4th edition; FQ, Fear Questionnaire; GAD-7, Generalized Anxiety Disorder-7; HADS, Hospital Anxiety and Depression scale; HAQ, Health Anxiety Questionnaire; HAS, Hamilton Anxiety Scale; MADRS, Montgomery-Asberg Depression Rating Scale; PHQ-9, Patient Health Questionnaire-9; PSWQ, Penn Worry State Questionnaire; SRT, Symptom Rating Test. Quality assessment: RS, random sequence generation; AC, allocation concealment; CD, completeness of data; '+', Procedure to minimize bias reported; '-', Procedure to minimize bias not reported.

[a]Only the measures relating directly to the mental health difficulty targeted in the study were included.

[b]This study evaluated two different modes of CBT (standard and group) which allowed two comparisons of CBT to be included in the meta-analysis.

[c]Data from this timepoint was not included in the meta-analysis because the delayed treatment control group had received the intervention in the intervening period.

from 40 to 122, and six of the seven studies had clinically screened participants.

The average number of CBT sessions completed ranged from 2 to 8. Study interventions were delivered by clinical psychologists/ therapists ($k = 3$), masters level students ($k = 1$), physicians ($k = 1$), primary care graduate mental health workers ($k = 1$) or assistant psychologists ($k = 1$). In terms of study quality, four of the seven studies met all three quality criteria (9), one study met two criteria, and two studies did not meet any criteria.

Multi-modal CBT versus no primary care treatment-across difficulties

Across delivery methods and target difficulties, CBT could be compared with no primary care treatment in seven RCTs (and eight comparisons) at post-intervention (average timepoint = 2.4 months; SD = 0.71). Here CBT was more effective than no primary care treatment, yielding a medium effect size ($d = 0.59$; 95% CI = 0.32–0.85). Significant heterogeneity of study results was present ($I^2 = 61.4\%$) but this was somewhat expected due to the differing CBT delivery methods and mental health difficulties. This heterogeneity is addressed in subanalyses below. The funnel plot for this meta-analysis suggested the absence of publication bias. Figure 2 displays the forest plot for the meta-analysis (10).

Multi-modal CBT versus no primary care treatment for anxiety symptoms

Across delivery methods but for anxiety symptoms only, CBT could be compared with no primary care treatment in four RCTs (and five comparisons) at post-intervention (average timepoint = 2.4 months; SD = 0.82). Here CBT was more effective than no primary care treatment, yielding a medium effect size ($d = 0.73$; 95% CI = 0.38–1.08). Heterogeneity of study results was not significant ($I^2 = 55.5\%$).

Multi-modal CBT versus no primary care treatment for depression symptoms

Across delivery methods but for depression symptoms only, CBT could be compared with no primary care treatment in three RCTs at post-intervention (average timepoint= 2.4 months; SD = 0.6). Here CBT was more effective than no primary care treatment, yielding a medium effect size ($d = 0.57$; 95% CI = 0.15–1.03). Heterogeneity of study results was significant ($I^2 = 74.7\%$).

CBT in specific delivery formats versus no primary care treatment

Across difficulties, computerized/online CBT could be compared with no primary care treatment in three RCTs at post-intervention (average timepoint = 2.3 months; SD = 0.4). Here computerized/online CBT was more effective than no primary care treatment, yielding a medium effect size ($d = 0.69$; 95% CI = 0.44–0.99).Heterogeneity of study results was not significant ($I^2 = 38.5\%$). Across difficulties, guided self-help CBT could be compared with no primary care treatment in three RCTs at post-intervention (average timepoint= 2 months; SD = 1). Here guided self-help CBT was more effective than no primary care treatment, yielding a small effect size ($d = 0.25$; 95% CI = 0–0.5). Heterogeneity of study results was not present ($I^2 = 0\%$).

Summary: CBT versus no primary care treatment

This meta-analysis found that multi-modal CBT was more effective than no primary care treatment for anxiety and depression symptoms ($d = 0.59$; 95% CI = 0.32–0.85). Subanalyses which addressed study heterogeneity showed that the strongest evidence is for multi-modal CBT for anxiety symptoms ($d = 0.73$; 95% CI = 0.38–1.08), and for computerized/online CBT across

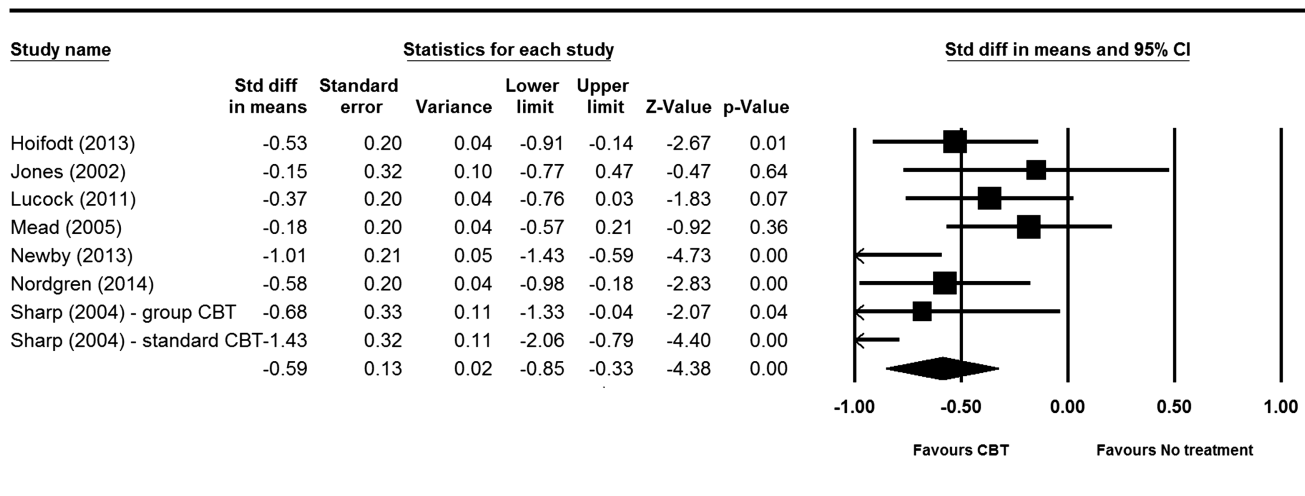| Study name	Statistics for each study							Std diff in means and 95% CI
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Hoifodt (2013)	-0.53	0.20	0.04	-0.91	-0.14	-2.67	0.01	
Jones (2002)	-0.15	0.32	0.10	-0.77	0.47	-0.47	0.64	
Lucock (2011)	-0.37	0.20	0.04	-0.76	0.03	-1.83	0.07	
Mead (2005)	-0.18	0.20	0.04	-0.57	0.21	-0.92	0.36	
Newby (2013)	-1.01	0.21	0.05	-1.43	-0.59	-4.73	0.00	
Nordgren (2014)	-0.58	0.20	0.04	-0.98	-0.18	-2.83	0.00	
Sharp (2004) - group CBT	-0.68	0.33	0.11	-1.33	-0.04	-2.07	0.04	
Sharp (2004) - standard CBT	-1.43	0.32	0.11	-2.06	-0.79	-4.40	0.00	
	-0.59	0.13	0.02	-0.85	-0.33	-4.38	0.00	

Favours CBT   Favours No treatment

Figure 2. Forest plot for CBT versus no primary care treatment meta-analysis.

difficulties (d = 0.69; 95% CI = .044–0.99) with a smaller effect size yielded for guided self-help CBT across difficulties (d = 0.25; 95% CI=0–0.5).

Meta-analysis 2: CBT versus primary care TAU (k=14)

Descriptive data and quality assessment

Both descriptive data and the quality assessment for this meta-analysis's 14 RCTs are displayed in Table 2. Six studies examined face-to-face CBT in primary care, four studies examined guided self-help CBT in primary care, three studies examined computerized/online CBT in primary care, and one study examined telephone-based CBT in primary care. One study examining face-to-face CBT evaluated it in both expert-delivered and lay-delivered formats which allowed two comparisons from it to be included in the meta-analysis. In terms of presenting difficulties, 10 studies targeted depression, three targeted anxiety and/or depression, and two targeted anxiety. Sample sizes ranged from 38 to 303, and 13 of the 14 studies had clinically screened participants.

The average number of CBT sessions completed ranged from 3 to 12. Study interventions were delivered by clinical psychologists/counsellors/therapists (k = 5), practitioners of differing qualifications (k = 4), non-qualified graduates (k = 2), physicians (k = 1) practice nurses (k = 1) or a computer programme (k = 1). The exact nature of TAU was not specified in two studies but the prescription of medication was reported in 11 of the 12 studies that did report this information. In terms of study quality, 3 of the 15 studies met all three quality criteria (9), seven studies met two criteria, two studies met one criterion, and one study did not meet any criteria.

Multi-modal CBT versus primary care TAU

Across delivery methods and target difficulties, CBT could be compared with primary care TAU in 14 RCTs (and 15 comparisons) at post-intervention (average timepoint = 4 months; SD = 2.75), and 11 RCTs at post-intervention follow up (average timepoint = 6.1 months; SD = 3.53). At post-intervention, CBT was more effective than primary care TAU, yielding a small effect size (d = 0.48; 95% CI = 0.27–0.69). This superiority increased in available comparisons at post-intervention follow up, with a medium effect size yielded (d = 0.65; 95% CI = 0.17–1.13). Significant heterogeneity of study results was present (I^2 = 76.5%) but this was somewhat expected due to the differing CBT delivery methods and mental health difficulties. This heterogeneity is addressed in subanalyses below. The funnel plot for this meta-analysis suggested the absence of publication bias. Figure 3 displays the forest plot for the meta-analysis (10).

Multi-modal CBT versus primary care TAU for anxiety symptoms

Across delivery methods but for anxiety symptoms only, CBT could be compared with no primary care treatment in three RCTs (and four comparisons) at post-intervention (average timepoint = 4.25 months; SD = 2.06). Here CBT was more effective than primary care TAU, yielding a medium effect size (d = 0.46; 95% CI = 0.21–0.72). Heterogeneity of study results was not significant (I^2 = 59.8%).

Multi-modal CBT versus primary care TAU for depression symptoms

Across delivery methods but for depression symptoms only, CBT could be compared with primary care TAU in 11 RCTs at post-intervention (average timepoint= 4.1 months; SD = 2.99). Here CBT was more effective than primary care TAU, yielding a small effect size (d = 0.47; 95% CI = 0.2–0.74). Heterogeneity of study results was significant (I^2 = 80.8%).

CBT in specific delivery formats versus primary care TAU

Across difficulties, face-to-face CBT could be compared with primary care TAU in seven RCTs (and eight comparisons) at post-intervention (average timepoint = 4.6 months; SD = 1.16). Here face-to-face CBT was more effective than primary care TAU, yielding a small effect size (d = 0.45; 95% CI = 0.28–0.62). Heterogeneity of study results was not significant (I^2 = 18%). Across difficulties, computerized/online CBT could be compared with primary care TAU in three RCTs at post-intervention (average timepoint = 2.3 months; SD = 0.57). Here computerized/online CBT was more effective than primary care TAU, yielding a small effect size (d = 0.3; 95% CI = 0.06–0.66).Heterogeneity of study results was significant (I^2 = 70.2%). Across difficulties, guided self-help CBT could be compared with primary care TAU in four RCTs at post-intervention (average timepoint= 4.6 months; SD = 5.08). Here guided self-help CBT was more effective than primary care TAU, yielding a small effect size (d = 0.33; 95% CI = 0.16–0.51). Heterogeneity of study results was not present (I^2 = 0%).

Summary: CBT versus primary care TAU

This meta-analysis found that multi-modal CBT was more effective than primary care TAU for anxiety and depression symptoms (d = 0.48; 95% CI = 0.27–0.69). Subanalyses which addressed study heterogeneity showed that the strongest evidence is for multi-modal CBT for anxiety (d = 0.46; 95% CI = 0.21–0.72), face-to-face CBT across difficulties (d = 0.45; 95% CI = 0.28–0.62), and guided self-help CBT across difficulties (d = 0.33; 95% CI = 0.16–0.51).

Table 2. Descriptive data and quality assessment for meta-analysis 2: CBT versus primary care TAU

Study	N	% f	Age	Difficulty	Screening	Randomization (n)	Sn	Practitioner(s)	Nature of TAU	Measure(s)[a]	Times	Quality RS	AC	CD
Face-to-face CBT														
Cooper (19)	171	100	28	Postnatal depression	Score > 12 on EPDS	(i) CBT (42) (ii) Counselling (41) (iii) Psychodynamic therapy (40) (iv) TAU (primary care; 48)	NS	Specialist and non-specialist therapists	NS	EPDS; SCID-III	4.5, 9, 18 months + 5 years	–	–	+
King (20)	197	75	37	Depression with or without anxiety	Score ≥14 on BDI	(i) CBT (63) (ii) Counselling (67) (iii) TAU (67)	6	Clinical psychologists, counsellors, therapists	ES, medication	BDI	4 + 12 months	–	+	+
Laidlaw (21)	40	73	74	Depression	DSM-IV criteria (as shown on SADS-L); score ≥7 and ≤24 on HDRS. score ≥13 and ≤28 on BDI-II	(i) CBT (20) (ii) TAU (20)	8	Clinical psychologists	Med, physical review, ES, no treatment	BDI-II; HDRS; GDS	18 weeks, 6 months	+	+	–
Power (22)	157	62	36	Depression	SCID-IV diagnosis of depression	(i) CBT (65) (ii) Interpersonal therapy (64) (iii) TAU (28)	12	Clinical psychologists, nurses, psychiatrists	Medication	BDI-II; HDRS	NS + 5 months	–	–	–
Stanley (23)	134	78	66	Anxiety	PRIME-MD; score > 24 on MMSE; SCID-IV diagnosis of generalized anxiety disorder	(i) CBT (64) (ii) TAU (70)	7	Masters-level CBT therapists	Medication, telephone consultation, ES	PSWQ; GADSS	3, 6, 9 + 15 months	+	+	+
Stanley (24)	223	53	67	Anxiety	SCID-IV diagnosis of generalized anxiety disorder	(i) CBT delivered by expert providers (74) (ii) CBT delivered by lay providers (76) (iii) TAU (73)	7	Expert providers were post-doctoral fellows with formal training and experience; lay providers were educated to	NS	PSWQ-Anxiety; GADSS; STAI-T	6 months	+	–	+
Computerized/online CBT														
De Graaf (11)	303	57	45	Depression	Score ≥16 on BDI-II; CIDI diagnosis of depression	(i) cCBT (100) (ii) cCBT + TAU (100) (iii) TAU (103)	3	Computerized sessions	Medication, consultations	BDI-II	2, 3 + 6 months	–	+	+
Kivi (25).	65	66	37	Depression	MINI diagnosis of depression; score < 35 on MADRS-S	(i) cCBT (30) (ii) TAU (35)	5	Computerized sessions	Medication, contacts with primary care staff, onward referral	BDI-II, MADRS-S	3 months	–	+	–

Table 2. Continued

Study	N	% f	Age	Difficulty	Screening	Randomization (n)	Sn	Practitioner(s)	Nature of TAU	Measure(s)[a]	Times	Quality		
												RS	AC	CD
Proudfoot (26)	274	74	43	Depression +/or anxiety	Score >4 on GHQ; score >12 on CISR-PROQSY; primary care presentation of anxiety or depression	(iii) cCBT (+ non-therapeutic GP support; 146) (iv) TAU (128)	8	Computerized sessions	Medication, ES, social help, onward referral	BDI-II; BAI	2, 3, 5 + 8 months	–	+	+
Guided self-help CBT														
Naylor (27)	33	84	51	Depression	Score > 4 on BDI-Fast Screen for medical patients	(i) Guided self-help CBT (15) (ii)TAU (18)	NS.	Physicians	Medication, exercise, physician visit, referral to psychotherapy	BDI- Fast Screen; DAS-A.	6 weeks, 2, 4 months	+	–	+
Richards (28)	67	84	39	Anxiety and/or depression	Presenting with mild to moderate anxiety or depression	(i) Guided Self-help CBT (34) (ii) TAU (33)	NS.	Practice nurses	Medication, advice, formal counselling, referral to counselling, psychology services	CORE-OM; GHQ	1 + 3 months	+	+	+
Williams (29)	203	68	42	Depression	Score > 14 on BDI-II; display no suicidal intent as per BDI-II; non-impaired concentration and motivation as per BDI-II	(i) Guided Self-help CBT (101) (ii) TAU (102)	3	Support workers who were non-clinically qualified psychology graduates	Monitoring, medication, and onward referral, delivered by GPs	BDI-II.	4 + 12 months	+	+	+
Willemse (30)	216	66	40	Depression	Instel screening instrument definition of subthreshold depression	(i) Guided Self-help CBT (107) (ii) TAU (109)	NS	Prevention specialists or clinicians from community mental health teams	TAU was based on national guidelines-otherwise NS	CIDI; CES-D.	12 months	–	+	+
Telephone-based CBT														
Dwight-Johnson (31)	101	78	39	Depression	Score > 10 on PHQ-9	(i) Telephone CBT (50) (ii) TAU (51)	5	Masters-level social workers	Medication, onward referral	SCL; PHQ-9	3 months, 6 months	–	+	+

%, f, % females in sample; Age, mean age of sample; CBT, Cognitive Behavioural Therapy; cCBT, Computerized CBT; ES, emotional support; N, sample size; NS, not specified; Sn, average number of face-to-face or computerized (where applicable) sessions completed by those in CBT intervention group; TAU, primary care treatment-as-usual; Times, post-intervention data collection points. Screening and outcome measures: BAI, Beck Anxiety Inventory; BDI-II, Beck Depression Inventory; BDI-II, Beck Depression Inventory-II; CES-D, Centre for Epidemiological Studies Depression Scale; CIDI, Composite International Diagnostic Interview; CISR-PROQSY, Clinical Interview Schedule-Revised PROQSY; CORE-OM, Clinical Outcomes in Routine Evaluation- Outcome Measure; DASS-21, Depression and Anxiety Stress Scales–21; DAS-A, Dysfunctional Attitude Scale- Abbreviated; DSM-IV, Diagnostic and statistical manual of mental disorder, 4th ed.; EPDS,Edinburgh Post Natal Depression Scale; GADSS, Generalized Anxiety Disorder Severity Scale; GDS, Geriatric Depression Scale; GHQ, General Health Questionnaire; HDRS, Hamilton Depression Rating Scale; MADRS-S, Montgomery Aberg Depression Rating Scale; MINI, Mini International Neuropsychiatric Interview; MMSE, Mini Mental State Exam; PHQ-9, Patient Health Questionnaire-9; PRIME-MD, Primary Care Evaluation of Mental Disorders scale; PSWQ, Penn State Worry Questionnaire; SCL, Hopkins Symptom Checklist; SADS-L, Schedule for Affective Disorders and Schizophrenia; SCID-III, Structured Clinical Interview for DSM-III; SCID-IV, Structured Clinical Interview for DSM-IV; SPS, Social Provisions Scale; STAI-T, State-Trait Anxiety Inventory. Quality assessment: RS, random sequence generation; AC, allocation concealment; CD, completeness of data; '+', procedure to minimize bias reported; '–', procedure to minimize bias not reported.

[a]Only the measures relating directly to the mental health difficulty targeted in the study were included.
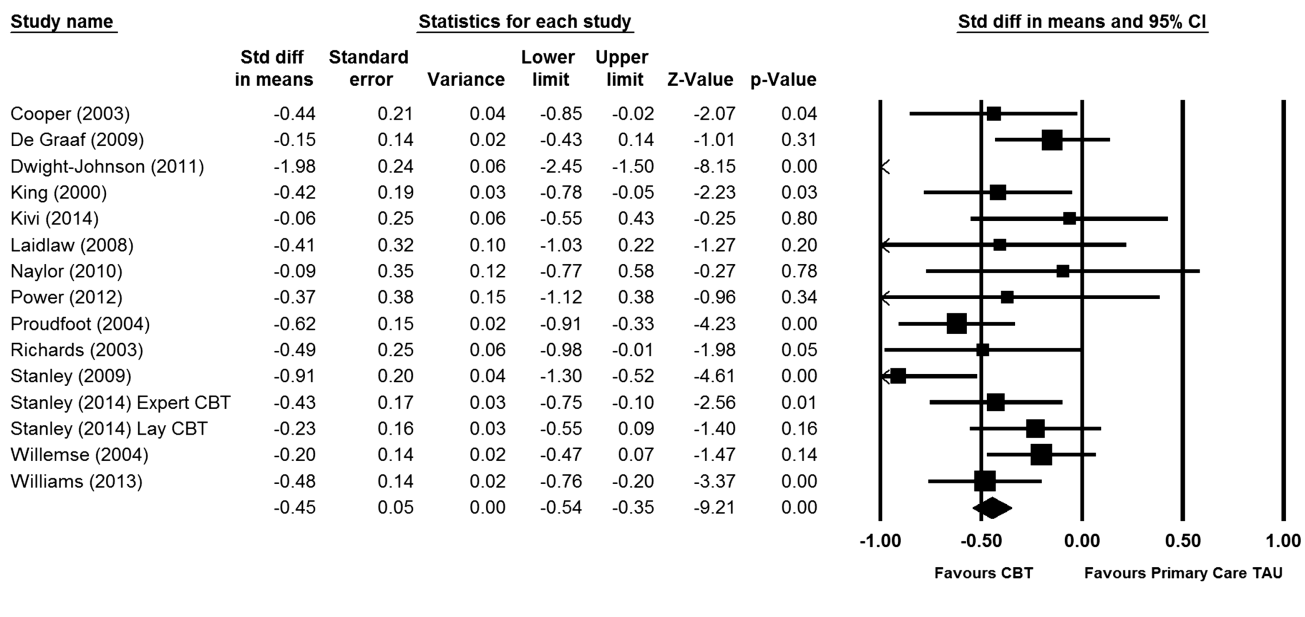
Study name	Statistics for each study							Std diff in means and 95% CI
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Cooper (2003)	-0.44	0.21	0.04	-0.85	-0.02	-2.07	0.04	
De Graaf (2009)	-0.15	0.14	0.02	-0.43	0.14	-1.01	0.31	
Dwight-Johnson (2011)	-1.98	0.24	0.06	-2.45	-1.50	-8.15	0.00	
King (2000)	-0.42	0.19	0.03	-0.78	-0.05	-2.23	0.03	
Kivi (2014)	-0.06	0.25	0.06	-0.55	0.43	-0.25	0.80	
Laidlaw (2008)	-0.41	0.32	0.10	-1.03	0.22	-1.27	0.20	
Naylor (2010)	-0.09	0.35	0.12	-0.77	0.58	-0.27	0.78	
Power (2012)	-0.37	0.38	0.15	-1.12	0.38	-0.96	0.34	
Proudfoot (2004)	-0.62	0.15	0.02	-0.91	-0.33	-4.23	0.00	
Richards (2003)	-0.49	0.25	0.06	-0.98	-0.01	-1.98	0.05	
Stanley (2009)	-0.91	0.20	0.04	-1.30	-0.52	-4.61	0.00	
Stanley (2014) Expert CBT	-0.43	0.17	0.03	-0.75	-0.10	-2.56	0.01	
Stanley (2014) Lay CBT	-0.23	0.16	0.03	-0.55	0.09	-1.40	0.16	
Willemse (2004)	-0.20	0.14	0.02	-0.47	0.07	-1.47	0.14	
Williams (2013)	-0.48	0.14	0.02	-0.76	-0.20	-3.37	0.00	
	-0.45	0.05	0.00	-0.54	-0.35	-9.21	0.00	

Figure 3. Forest plot for CBT versus primary care TAU meta-analysis.

Meta-analysis 3: CBT + primary care TAU versus primary care TAU (***k*** = 9)

Descriptive data and quality assessment

Both descriptive data and the quality assessment for this meta-analysis's nine RCTs are displayed in Table 3. Five studies examined face-to-face CBT in primary care, three studies examined computerized/online CBT in primary care and one study examined telephone-based CBT in primary care. One study examined both nurse-delivered and therapist-delivered CBT which allowed two comparisons from it to be included in the meta-analysis. In terms of presenting difficulties, all eight studies targeted depression symptoms which meant that no studies targeting anxiety symptoms could be included in this meta-analysis.

Sample sizes in included studies ranged from 34 to 419 and all nine studies had clinically screened participants. The average number of CBT sessions completed ranged from 3 to 11. Study interventions were delivered by clinical psychologists or therapists ($k = 7$), or computer programmes ($k = 2$). The exact nature of TAU was not specified in six studies but the prescription of medication was reported in all three studies that did report this information. In terms of study quality, four of the nine studies met all three quality criteria (9), three studies met two criteria, and two studies did not meet any criteria.

Multi-modal CBT + Primary Care TAU versus primary care TAU. Across delivery methods and targeting depression symptoms, CBT in addition to primary care TAU could be compared with primary care TAU in nine RCTs (and 10 comparisons) at post-intervention (average timepoint = 3.5 months; SD = 1.87), and seven RCTs at post-intervention follow up

(average timepoint=8.8 months; SD = 5.07). At post-intervention, CBT in addition to primary care TAU was more effective than primary care TAU, yielding a small effect size ($d = 0.37$; 95% CI = 0.25–0.5). This superiority was maintained in available comparisons at post-intervention follow up, with a small effect size yielded ($d = 0.32$; 95% CI = 0.21–0.42). Significant heterogeneity of study results was not present ($I^2 = 29.7\%$) and it is again noted that all studies targeted depression. The funnel plot for this meta-analysis suggested the absence of publication bias. Figure 4 displays the forest plot for the meta-analysis (10).

CBT in specific delivery formats + primary care TAU versus primary care TAU

For depression symptoms, face-to-face CBT in addition to primary care TAU could be compared with primary care TAU in five RCTs (and six comparisons) at post-intervention (average timepoint = 3.6 months; SD = 2). Here face-to-face CBT in addition to primary care TAU was more effective than primary care TAU, yielding a small effect size ($d = 0.39$; 95% CI = 0.24–0.53). Heterogeneity of study results was not present ($I^2 = 0\%$). For depression symptoms, computerized/online CBT in addition to primary care TAU could be compared with primary care TAU in three RCTs at post-intervention (average timepoint = 5.6 months; SD = 2.51). Here computerized/online CBT in addition to primary care TAU was more effective than primary care TAU, yielding a small effect size ($d = 0.36$; 95% CI = 0.03–0.69). Heterogeneity of study results was significant ($I^2 = 76.1\%$).

Table 3. Descriptive data and quality assessment for meta-analysis 3: CBT + primary care TAU versus primary care TAU

Study	N	% f	Age	Difficulty	Screening	Randomization (n)	Sn	Practitioner(s)	Nature of TAU	Measure(s)[a]	Times	Quality RS	AC	CD
Face-to-face CBT														
Carta (32)	64	65	42	Depression	Score > 14 on BDI	(i) CBT +TAU (34) (ii) TAU (30)	NS	Psychologists	NS	BDI	6 months	−	−	−
Milgrom (33)	68	100	32	Postnatal depression	Score > 13 on EPDS	(i) Nurse CBT + TAU (22) (ii) Psychologist CBT + TAU (23) (iii) TAU (23)	4	Clinical psychologist	NS	BDI-II; DASS-21	8 weeks	+	+	+
Scott (34)	34	67	41	Depression	DSM-IV criteria for depression; score ≥20 on BDI	(i) Brief CBT +TAU (18) (ii) TAU (16)	6	CBT therapist	Med, Counselling, referral	BDI-II; HDRS	7, 19, 32, 58 weeks	−	−	−
Serfaty (35)	204	79	74	Depression	Score ≥5 on GDS; GMSHES diagnosis of depression; score > 14 on BDI-II	(i) CBT + TAU (70) (ii) Talking control + TAU (67) (iii) TAU (67)	7	CBT therapists	Med, ES, referral	BDI-II	4 + 10 months	+	+	+
Wiles (36)	419	73	50	Depression	Score ≥15 on BDI-II; using medication; ICD-10 criteria for depression	(i) CBT +TAU (206) (ii) TAU (213)	11	Therapists representative of those working for a national public health service	NS; no limits imposed	BDI-II	6 + 12 months	+	+	+
Computerized/online CBT														
De Graaf (11)	303	57	45	Depression	Score ≥16 on BDI-II; CIDI diagnosis of depression	(i) cCBT (100) (ii) cCBT + TAU (100) (iii) TAU (103)	3	Computerized sessions	Medication, consultations	BDI-II	2, 3 + 6 months	−	+	+
Kessler (37)	210	68	35	Depression	Score ≥14 on BDI; ICD-10 diagnosis of depression	(i) Online (therapist-delivered) CBT + TAU (113) (ii) TAU (97)	6	Online CBT therapist	NS	BDI	4 + 8 months	+	+	+
Levin (38)	190	77	44	Depression	DSM-IV diagnosis of depression or anhedonia	(i) cCBT + TAU (99) (ii) TAU (91)	6	Computerized sessions	NS	SCID-IV; CES-D	6 weeks; 6 months	+	−	+[b]
Telephone-based CBT														
Ludman (39)	393	76	44	Depression	Score > 0.5 on HSCL	(i) Telephone CBT + medication management+ TAU (198) (ii) TAU (195)	4	Masters-level therapists	NS	HSCL; PHQ-9	6 months + 18 months	+	−	+

% f, % females in sample; Age, mean age of sample; CBT, cognitive behavioural therapy; cCBT, computerized CBT; ES, emotional support; N, sample size; NS, not specified; Sn, average number of face-to-face, computerized or telephone-based sessions completed by those in CBT intervention group; TAU, primary care treatment-as-usual; Times, post-intervention data collection points. Screening and outcome measures: BDI, Beck Depression Inventory; BDI-II, Beck Depression Inventory-II; CES-D, Epidemiological Studies Depression Scale; CIDI, Composite International Diagnostic Interview; DSM-IV, Diagnostic and statistical manual of mental disorder, 4th ed.; GDS, Geriatric Depression Scale; GMSHES, Geriatric Mental State and History and Etiology Schedule; HDRS, Hamilton Depression Rating Scale; HSCL, Hopkins Symptom Check List; ICD-10, International Classification of Diseases-10; PHQ-9, Patient Health Questionnaire-9; SCID-IV, Structured Clinical Interview for DSM-IV. Quality assessment: RS, random sequence generation; AC, allocation concealment; CD, completeness of data; '+', procedure to minimize bias reported; '−', procedure to minimize bias not reported.

[a]Only the measures relating directly to the mental health difficulty targeted in the study were included.

[b]This study did not use 'intention-to-treat' analysis. However, the attrition rate (i.e. 1% at post-intervention) was so low that the validity of the findings was very unlikely to be affected by the absence of this analysis.
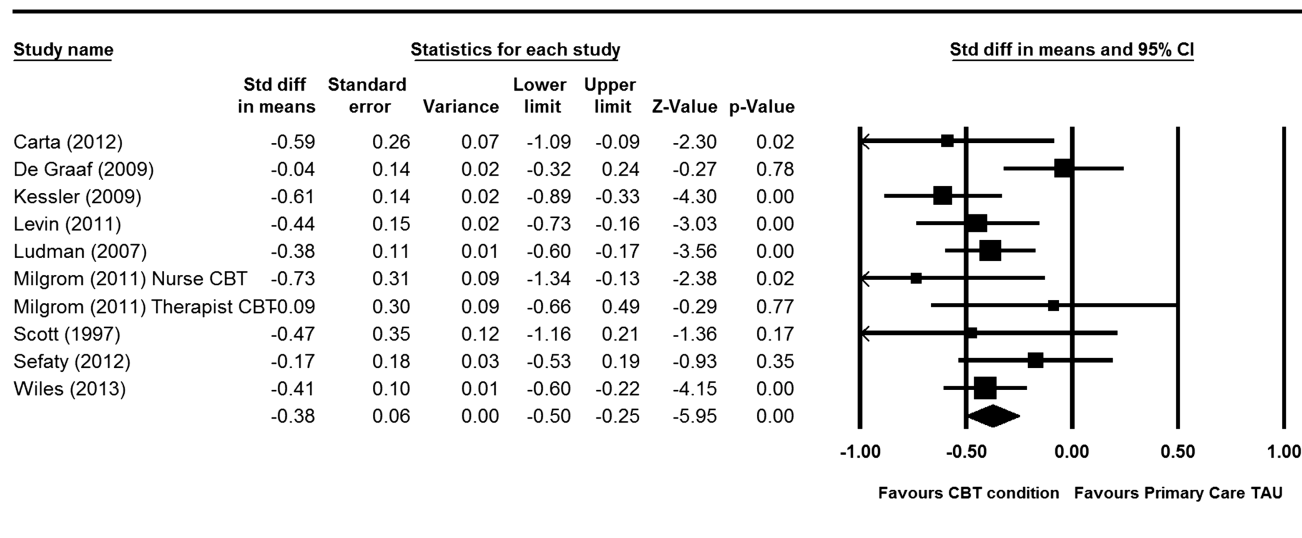
Study name	Statistics for each study							Std diff in means and 95% CI
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	
Carta (2012)	-0.59	0.26	0.07	-1.09	-0.09	-2.30	0.02	
De Graaf (2009)	-0.04	0.14	0.02	-0.32	0.24	-0.27	0.78	
Kessler (2009)	-0.61	0.14	0.02	-0.89	-0.33	-4.30	0.00	
Levin (2011)	-0.44	0.15	0.02	-0.73	-0.16	-3.03	0.00	
Ludman (2007)	-0.38	0.11	0.01	-0.60	-0.17	-3.56	0.00	
Milgrom (2011) Nurse CBT	-0.73	0.31	0.09	-1.34	-0.13	-2.38	0.02	
Milgrom (2011) Therapist CBT	-0.09	0.30	0.09	-0.66	0.49	-0.29	0.77	
Scott (1997)	-0.47	0.35	0.12	-1.16	0.21	-1.36	0.17	
Sefaty (2012)	-0.17	0.18	0.03	-0.53	0.19	-0.93	0.35	
Wiles (2013)	-0.41	0.10	0.01	-0.60	-0.22	-4.15	0.00	
	-0.38	0.06	0.00	-0.50	-0.25	-5.95	0.00	

-1.00   -0.50   0.00   0.50   1.00

Favours CBT condition   Favours Primary Care TAU

Figure 4. Forest plot for CBT + primary care TAU versus primary care TAU meta-analysis.

Summary: CBT + TAU versus primary care TAU
This meta-analysis found that multi-modal CBT in addition to primary care TAU was more effective than primary care TAU for depression symptoms ($d = 0.37$; 95% CI = 0.25–0.5). The validity of this meta-analysis is strengthened by the absence of significant heterogeneity across study results. Subanalyses showed that the strongest evidence is for face-to-face CBT ($d = 0.46$; 95% CI = 0.21–0.72). The three study results for computerized/online CBT studies varied relatively widely but also favoured the CBT condition ($d = 0.36$; 95% CI = 0.03–0.69).

Conclusions

Summary of main findings
To determine the effectiveness of multi-modal CBT when provided in primary care, for symptoms of anxiety and depression, three meta-analyses were undertaken. The first meta-analysis ($k = 7$) found that multi-modal CBT was more effective than no primary care treatment for anxiety and depression symptoms, yielding a medium effect size ($d = 0.59$). Taking into account study heterogeneity, a subanalysis showed more robust evidence for CBT for anxiety symptoms than CBT for depression symptoms. The second meta-analysis ($k = 14$) found that multi-modal CBT was more effective than primary care TAU for anxiety and depression symptoms, yielding a small effect size ($d = 0.48$). Taking into account study heterogeneity, a subanalysis showed more robust evidence for CBT for anxiety symptoms than CBT for depression symptoms. The third meta-analysis ($k = 9$) found that multi-modal CBT in addition to primary care TAU was more effective than primary care TAU for depression symptoms (no comparisons were available for anxiety symptoms), yielding a small effect size ($d = 0.37$). The validity of this analysis was

strengthened by the absence of significant heterogeneity across study results.

To further aid assessments of CBT's effectiveness in primary care for symptoms of depression and anxiety, analyses of CBT in specific delivery formats (e.g. face-to-face CBT, self-help CBT) were also undertaken. There were substantially less studies that could be included in these analyses than the main three analyses. Nevertheless, good preliminary evidence was found in favour of: (i) face-to-face CBT compared with primary care TAU ($d = 0.45$), and as an addition to primary care TAU ($d = 0.46$); (ii) computerized/online CBT compared with no primary care treatment ($d = 0.69$), and as addition to primary care TAU ($d = 0.36$); and (iii) guided self-help CBT compared with no primary care treatment ($d = 0.25$), and primary care TAU ($d = 0.33$).

Overall, the results of these three meta-analyses provide good preliminary evidence for the effectiveness of multi-modal CBT in primary care, for symptoms of anxiety (in particular) and depression. Looking at specific delivery formats, good preliminary evidence was found for face-to-face CBT, computerized/online CBT and guided self-help CBT. In addition, it is noted that the results of two studies examining telephone-based CBT (which were not comparable with each other through meta-analysis) also favoured CBT's effectiveness.

Comparison with existing literature

The results are in line with those from a meta-analyses which showed that psychotherapy (including, but not limited to CBT) is effective for depression symptoms in primary care (40,41), a meta-analyses which showed that brief psychotherapy (including, but not limited to CBT) is effective for both anxiety and depression symptoms in primary care (42), and a systematic review which showed that CBT is effective for anxiety and

depression symptoms in primary care (7). What is unique about this study is that it reviewed through meta-analysis CBT's effectiveness in primary care for anxiety and depression symptoms, across delivery formats and also in specific delivery formats (e.g. guided self-help CBT).

Methodological issues

First, the number of included studies was relatively low and only English-language studies were included. Second, various studies had small sample sizes. Third, substantial heterogeneity across study results was present in various analyses undertaken. Although this heterogeneity was addressed in subanalyses, its presence indicates the possibility that some included studies may not be directly comparable to each other. Fourth, the quality of studies was mixed. Taking the three meta-analyses together, the studies met 58 out of 87 quality criteria.

Clinical implications and future research

This meta-analysis provides good preliminary evidence for the effectiveness of multi-modal CBT for symptoms of depression and anxiety, in primary care. Moreover, as providing CBT in primary care is economically viable (43) the increased rollout of multi-modal CBT in primary care (e.g. the IAPT initiative) seems justified.

In terms of future research areas, the heterogeneity in results pertaining to computerized/online CBT is worthy of attention. A possible reason for this heterogeneity concerns the type of practitioner support provided alongside these interventions. A previous meta-analyses found that therapist-assisted computerized/online CBT yields a large effect sized whereas unguided computerized/online CBT yields a small effect size (44). Moreover, the format of support that can be offered alongside computerized/online cCBT can vary widely [e.g. telephone calls, emails, comments on a private forum, one-to-one sessions (45)]. Therefore, future research should be directed towards determining how differing types of practitioner support and differing support formats impact upon the effectiveness of computerized/online CBT in primary care settings.

Finally, as the qualifications of practitioners providing CBT interventions in included studies varied widely, future research should examine if varying levels of qualification among primary care CBT practitioners impacts on the effectiveness of CBT in this setting. It is worth noting that one such study included in this review found no significant difference in effectiveness between CBT provided by expert practitioners (post-doctoral fellows with formal training and experience) and CBT provided 'lay' practitioners (bachelor-level practitioners with no previous mental health training or experience (24)). Further studies investigating the relationship between qualification level and CBT's

effectiveness in primary care are particularly needed because many graduate-level practitioners already provide CBT in primary care through initiatives such as IAPT.

Declaration

References

1. Butler AC, Chapman JE, Forman EM, Beck AT. The empirical status of cognitive-behavioral therapy: a review of meta-analyses. *Clin Psychol Rev* 2006; **26**: 17–31.
2. Bower P, Richards D, Lovell K. The clinical and cost-effectiveness of self-help treatments for anxiety and depressive disorders in primary care: a systematic review. *Br J Gen Pract* 2001; **51**: 838–45.
3. Mohr DC, Vella L, Hart S, Heckman T, Simon G. The effect of telephone-administered psychotherapy on symptoms of depression and attrition: a meta-analysis. *Clin Psychol (New York)* 2008; **15**: 243–53.
4. Andrews G, Cuijpers P, Craske MG, McEvoy P, Titov N. Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: a meta-analysis. *PLoS One* 2010; **5**: e13196.
5. Clark DM. Implementing NICE guidelines for the psychological treatment of depression and anxiety disorders: the IAPT experience. *Int Rev Psychiatry* 2011; **23**: 318–27.
6. Wagner AW, Bystritsky A, Russo JE *et al.* Beliefs about psychotropic medication and psychotherapy among primary care patients with anxiety disorders. *Depress Anxiety* 2005; **21**: 99–105.
7. Høifødt RS, Strøm C, Kolstrup N, Eisemann M, Waterloo K. Effectiveness of cognitive behavioural therapy in primary health care: a review. *Fam Pract* 2011; **28**: 489–504.
8. Mirowsky J, Ross CE. Measurement for a human science. *J Health Soc Behav* 2002; **43**: 152–70.
9. HigginsJGT, Green S. *Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0.* 2011.www.cochrane-handbook.org.
10. BorensteinM, HedgesL, HigginsJ, RothsteinH. *Comprehensive Meta-analysis Version 2.* Englewood, NJ: Biostat, 2006.
11. de Graaf LE, Gerhards SA, Arntz A *et al.* Clinical effectiveness of online computerised cognitive-behavioural therapy without support for depression in primary care: randomised trial. *Br J Psychiatry* 2009; **195**: 73–80.
12. Sharp DM, Power KG, Swanson V. A comparison of the efficacy and acceptability of group versus individual cognitive behaviour therapy in the treatment of panic disorder and agoraphobia in primary care. *Clin Psychol Psychother*. 2004;**11**(2):73–82.
13. Høifødt RS, Lillevoll KR, Griffiths KM *et al.* The clinical effectiveness of web-based cognitive behavioral therapy with face-to-face therapist support for depressed primary care patients: randomized controlled trial. *J Med Internet Res* 2013; **15**: e153.
14. Newby JM, Mackenzie A, Williams AD *et al.* Internet cognitive behavioural therapy for mixed anxiety and depression: a randomized controlled trial and evidence of effectiveness in primary care. *Psychol Med* 2013; **43**: 2635–48.

15. Nordgren LB, Hedman E, Etienne J *et al.* Effectiveness and cost-effectiveness of individually tailored Internet-delivered cognitive behavior therapy for anxiety disorders in a primary care population: A randomized controlled trial. *Behav Res Ther* 2014; **59**: 1–11.

16. Jones FA. The role of bibliotherapy in health anxiety: an experimental study. *Br J Community Nurs* 2002; **7**: 498–504.

17. Lucock M, Kirby R, Wainwright N. A pragmatic randomized controlled trial of a guided self-help intervention versus a waiting list control in a routine primary care mental health service. *Br J Clin Psychol* 2011; **50**: 298–309.

18. Mead N, MacDonald W, Bower P *et al.* The clinical effectiveness of guided self-help versus waiting-list control in the management of anxiety and depression: a randomized controlled trial. *Psychol Med* 2005; **35**: 1633–43.

19. Albon E, Tsourapas A, Frew E *et al.* Structural neuroimaging in psychosis: a systematic review and economic evaluation. *Health Technol Assess* 2008; **12**: iii–iv, ix–163.

20. King M, Sibbald B, Ward E *et al.* Randomised controlled trial of non-directive counselling, cognitive-behaviour therapy and usual general practitioner care in the management of depression as well as mixed anxiety and depression in primary care. *Health Technol Assess* 2000; **4**: 1–83.

21. Laidlaw K, Davidson K, Toner H *et al.* A randomised controlled trial of cognitive behaviour therapy vs treatment as usual in the treatment of mild to moderate late life depression. *Int J Geriatr Psychiatry* 2008; **23**: 843–50.

22. Power MJ, Freeman C. A randomized controlled trial of IPT versus CBT in primary care: with some cautionary notes about handling missing values in clinical trials. *Clin Psychol Psychother* 2012; **19**: 159–69.

23. Stanley MA, Wilson NL, Novy DM *et al.* Cognitive behavior therapy for generalized anxiety disorder among older adults in primary care: a randomized clinical trial. *JAMA* 2009; **301**: 1460–7.

24. Stanley MA, Wilson NL, Amspoker AB *et al.* Lay providers can deliver effective cognitive behavior therapy for older adults with generalized anxiety disorder: a randomized trial. *Depress Anxiety* 2014; **31**: 391–401.

25. Kivi M, Eriksson MCM, Hange D *et al.* Internet-based therapy for mild to moderate depression in Swedish primary care: short term results from the PRIM-NET randomized controlled trial. *Cognitive behav Therapy*. 2014:1–10.

26. Proudfoot J, Ryden C, Everitt B *et al.* Clinical efficacy of computerised cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *Br J Psychiatry* 2004; **185**: 46–54.

27. Naylor EV, Antonuccio DO, Litt M *et al.* Bibliotherapy as a treatment for depression in primary care. *J Clin Psychol Med Settings* 2010; **17**: 258–71.

28. Richards A, Barkham M, Cahill J *et al.* PHASE: a randomised, controlled trial of supervised self-help cognitive behavioural therapy in primary care. *Br J Gen Pract* 2003; **53**: 764–70.

29. Williams C, Wilson P, Morrison J *et al.* Guided self-help cognitive behavioural therapy for depression in primary care: a randomised controlled trial. *PLoS One* 2013; **8**: e52735.

30. Willemse GR, Smit F, Cuijpers P, Tiemens BG. Minimal-contact psychotherapy for sub-threshold depression in primary care. Randomised trial. *Br J Psychiatry* 2004; **185**: 416–21.

31. Dwight-Johnson M, Aisenberg E, Golinelli D *et al.* Telephone-based cognitive-behavioral therapy for Latino patients living in rural areas: a randomized pilot study. *Psychiatr Serv* 2011; **62**: 936–42.

32. Carta M, Petretto D, Adamo S *et al.* Counseling in primary care improves depression and quality of life. *Clin Pract Epidemiol Ment Health* 2012; **8**: 152–7.

33. Milgrom J, Holt CJ, Gemmill AW *et al.* Treating postnatal depressive symptoms in primary care: a randomised controlled trial of GP management, with and without adjunctive counselling. *BMC Psychiatry* 2011; **11**: 95.

34. Scott C, Tacchi MJ, Jones R, Scott J. Acute and one-year outcome of a randomised controlled trial of brief cognitive therapy for major depressive disorder in primary care. *Br J Psychiatry* 1997; **171**: 131–4.

35. Serfaty MA, Haworth D, Blanchard M *et al.* Clinical effectiveness of individual cognitive behavioral therapy for depressed older people in primary care: a randomized controlled trial. *Arch Gen Psychiatry* 2009; **66**: 1332–40.

36. Wiles N, Thomas L, Abel A *et al.* Cognitive behavioural therapy as an adjunct to pharmacotherapy for primary care based patients with treatment resistant depression: results of the CoBalT randomised controlled trial. *Lancet* 2013; **381**: 375–84.

37. Kessler D, Lewis G, Kaur S *et al.* Therapist-delivered Internet psychotherapy for depression in primary care: a randomised controlled trial. *Lancet* 2009; **374**: 628–34.

38. Levin W, Campbell DR, McGovern KB *et al.* A computer-assisted depression intervention in primary care. *Psychol Med* 2011; **41**: 1373–83.

39. Ludman EJ, Simon GE, Tutty S, Von Korff M. A randomized trial of telephone psychotherapy and pharmacotherapy for depression: continuation and durability of effects. *J Consult Clin Psychol* 2007; **75**: 257–66.

40. Cuijpers P, van Straten A, van Schaik A, Andersson G. Psychological treatment of depression in primary care: a meta-analysis. *Br J Gen Pract* 2009; **59**: e51–60.

41. Bortolotti B, Menchetti M, Bellini F, Montaguti MB, Berardi D. Psychological interventions for major depression in primary care: a meta-analytic review of randomized controlled trials. *Gen Hosp Psychiatry* 2008; **30**: 293–302.

42. Cape J, Whittington C, Buszewicz M, Wallace P, Underwood L. Brief psychological therapies for anxiety and depression in primary care: meta-analysis and meta-regression. *BMC Med* 2010; **8**: 38.

43. Layard R, Clark DM, Knapp M, Mayraz G. *Cost-Benefit Analysis of Psychological Therapy- Centre for Economic Performance Report.* 2007.

44. Spek V, Cuijpers P, Nyklícek I *et al.* Internet-based cognitive behaviour therapy for symptoms of depression and anxiety: a meta-analysis. *Psychol Med* 2007; **37**: 319–28.

45. Twomey C, O'Reilly G, Byrne M et al. A randomized controlled trial of the computerized CBT programme, MoodGYM, for public mental health service users waiting for interventions. *Br J Clin Psychol* 2014 May 15 [Epub ahead of print] doi:10.1111/bjc.12055.