# Web Appendices

## Web Appendix 1: Literature Search details

### Description of the Specialised Register of the Cochrane Common Mental Disorders Group (CCMD-CTR)

The Cochrane Common Mental Disorders Group maintained a specialised register of randomized controlled trials at the University of Bristol to June 2016. This register contains over 40,000 reference records (primary and secondary reports of RCTs) for anxiety disorders, depression, bipolar disorder, eating disorders, self-harm and other common mental disorders which fall within the scope of the CCMD Group. The CCMD-CTR is a partially study-based register with 50% of the reference records tagged to 12,500 individually PICO coded study records. Reports of trials for inclusion in the register were collated from (weekly) generic searches of Medline (1950-), Embase (1974-) and PsycINFO (1967-), quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL) and review specific searches of additional databases. Reports of trials were also sourced from international trial registries, drug companies, the hand-searching of key journals, conference proceedings and other (non-Cochrane) systematic reviews and meta-analyses. Details of CCMD's core (generic) search strategies (used to identify RCTs) can be found on the Group's website (http://cmd.cochrane.org/). By way of example, the MEDLINE search (used to inform the CCMD-CTR) is displayed below.

[N.B. In July 2016 the Cochrane Common Mental Disorders Group moved to the University of York.]

CCMD Core MEDLINE Search (a weekly Ovid search alert based on population and RCT filter only)

1. [MeSH Subject Headings]:

eating disorders/ or anorexia nervosa/ or binge-eating disorder/ or bulimia nervosa/ or female athlete triad syndrome/ or pica/ or hyperphagia/ or bulimia/ or self-injurious behavior/ or self mutilation/ or suicide/ or suicidal ideation/ or suicide, attempted/ or mood disorders/ or affective disorders, psychotic/ or bipolar disorder/ or cyclothymic disorder/ or depressive disorder/ or depression, postpartum/ or depressive disorder, major/ or depressive disorder, treatment-resistant/ or dysthymic disorder/ or seasonal affective disorder/ or neurotic disorders/ or depression/ or adjustment disorders/ or exp antidepressive agents/ or anxiety disorders/ or agoraphobia/ or neurocirculatory asthenia/ or obsessive-compulsive disorder/ or obsessive hoarding/ or panic disorder/ or phobic disorders/ or stress disorders, traumatic/ or combat disorders/ or stress disorders, post-traumatic/ or stress disorders, traumatic, acute/ or anxiety/ or anxiety, castration/ or koro/ or anxiety, separation/ or panic/ or exp anti-anxiety agents/ or somatoform disorders/ or body dysmorphic disorders/ or conversion disorder/ or hypochondriasis/ or neurasthenia/ or hysteria/ or munchausen syndrome by proxy/ or munchausen syndrome/ or fatigue syndrome, chronic/ or obsessive behavior/ or compulsive behavior/ or behavior, addictive/ or impulse control disorders/ or firesetting behavior/ or gambling/ or trichotillomania/ or stress, psychological/ or burnout, professional/ or sexual dysfunctions, psychological/ or vaginismus/ or Anhedonia/ or Affective Symptoms/ or \*Mental Disorders/

2. [Keywords]:

eating disorder\* or anorexia nervosa or bulimi\* or binge eat\* or (self adj (injur\* or mutilat\*)) or suicide\* or suicidal or parasuicid\* or mood disorder\* or affective disorder\* or bipolar i or bipolar ii or (bipolar and (affective or disorder\*)) or mania or manic or cyclothymic\* or depression or depressive or dysthymi\* or neurotic or neurosis or adjustment disorder\* or antidepress\* or anxiety disorder\* or agoraphobia or obsess\* or compulsi\* or panic or phobi\* or ptsd or posttrauma\* or post trauma\* or combat or somatoform or somati#ation or medical\* unexplained or body dysmorphi\* or conversion disorder or hypochondria\* or neurastheni\* or hysteria or munchausen or chronic fatigue\* or gambling or trichotillomania or vaginismus or anhedoni\* or affective symptoms or mental disorder\* or mental health).ti,kf.

3. [RCT filter]:

(controlled clinical trial.pt. or randomized controlled trial.pt. or (randomi#ed or randomi#ation).ab,ti. or randomly.ab. or (random\* adj3 (administ\* or allocat\* or assign\* or class\* or control\* or determine\* or divide\* or distribut\* or expose\* or fashion or number\* or place\* or recruit\* or subsitut\* or treat\*)).ab. or placebo\*.ab,ti. or drug therapy.fs. or trial.ab,ti. or groups.ab. or (control\* adj3 (trial\* or study or studies)).ab,ti. or ((singl\* or doubl\* or tripl\* or trebl\*) adj3 (blind\* or mask\* or dummy\*)).mp. or clinical trial, phase ii/ or clinical trial, phase iii/ or clinical trial, phase iv/ or randomized controlled trial/ or pragmatic clinical trial/ or (quasi adj (experimental or random\*)).ti,ab. or ((waitlist\* or wait\* list\* or treatment as usual or TAU) adj3 (control or group)).ab.)

4. (1 and 2 and 3)

[Field Tags: ti-title; ab-abstract; kf-keyword heading word]

Records were screened for reports of RCTs within the scope of CCMD. Primary and secondary reports of RCTs were tagged to the appropriate study record. Similar weekly search alerts were also conducted on OVID EMBASE and PsycINFO, using relevant subject headings (controlled vocabularies) and search syntax, appropriate to each resource.

### Details of the literature searches

#### Search 1: Psychological therapies for depression

A broad search of all psychological therapies for depression, for the HIRED-MAP project (High Impact Reviews of Effectiveness in Depression - Meta-analysis of Psychological Therapies).

##### 1a. CCMDCTR-Studies

(all years to 1-January-2012, updated 10-April-2014)

#1 (depress\* or dysthymi\*):sco and (\*therap\* or train\*):sin

[Search fields: sco:health care condition; sin:intervention]

##### 1b. CCMDCTR-References

(all years to 1-January-2012, updated 10-April-2014)

#1 (therap\* or psychotherap\*):ti,ab

#2 (psychotherapy):kw,ky,mh,emt

#3 (acceptance\* or commitment\* or “activity scheduling” or adlerian or art or aversion or brief or “client cent\*” or cognitive or color or colour or compassion-focused or “compassion focus\*” or compassionate or conjoint or conversion or conversational or couples or dance or dialectic\* or diffusion or distraction or eclectic or (emotion and focus\*) or emotion-focus\* or existential or experiential or exposure or expressive or family or focus-oriented or “focus oriented” or freudian or gestalt or “group” or humanistic or implosive or insight or integrative or interpersonal or jungian or kleinian or logo or marital or metacognitive or meta-cognitive or milieu or morita or multimodal or multi-modal or music or narrative or nondirective or non-directive or “non directive” or nonspecific or non-specific or “non specific” or “object relations” or “personal construct” or “person cent\*” or person-cent\* or persuasion or play or ((pleasant or pleasing) and event\*) or primal or problem-focused or “problem focused” or problem-solving or “problem solving” or process-experiential or “process experiential” or psychodynamic or “rational emotive” or reality or “reciprocal inhibition” or relationship\* or reminiscence or restructuring or rogerian or schema\* or self-control\* or “self control\*” or “short term” or short-term or sex or “social effectiveness” or “social skill\*” or socio-environment\* or “socio environment\*” or “solution focused” or solution-focused or “stress management” or supportive or time-limited or “time limited” or “third wave” or transference or transtheoretical or validation) [all fields]

#4 (abreaction or “acting out” or “age regression” or ((assertive\* or autogenic or mind or sensitivity) and train\*) or autosuggestion or “balint group” or ((behavior\* or behaviour\*) and (activation or therap\* or treatment or contracting or modification)) or biofeedback or catharsis or cognitive or “mind training” or counsel\* or “contingency management” or countertransference or “covert sensitization” or “eye movement desensiti\*” or “crisis intervention” or “dream analysis” or “emotional freedom” or “free association” or “functional analys\*” or griefwork or “guided imagery” or hypno\* or imagery or meditation\* or “mental healing” or mindfulness\* or psychoanaly\* or psychodrama or psychoeducat\* or "psychological support\*" or “psychosocial support\*” or “social support\*” or “family support\*” or psychotherap\* or relaxation or "role play\*" or "self analysis" or "self esteem" or "sensitivity training" or (support\* and group\*) or therapist or "therapeutic technique\*" or "transactional analysis") [all fields]

#5. ((#1 or #2) and #3) or #4

#6. (depress\* or dysthymi\*):ti,ab

#7. Tagged to CCMDCTR-Study=empty

[Search fields: ti:title; ab:abstract; kw:Cochrane Review Group (CRG) keywords; ky: other keywords; emt: EMTREE headings; mh: MeSH headings]

#### Search 2: Cognitive behavioural therapies versus treatment as usual for depression

A cross-search of CCMD-CTR-Sudies and CCMD-CTR-References Registers.

(10-Apr-2014 to 7-Aug-2015, updated 6-June-2016)

[N.B. Prior to this date, studies were identified from the global HIRED-MAP searches, detailed above]

#1. ((cognitive NEAR2 (behavi\* or modif\* or restructur\* or intervention or treatment\* or \*therap\* or train\*))) [all fields]

#2. cognitive:ti

#3. (\*CBT\* or cognitive-behavi\*) [all fields]

#4. (RET OR PST):ab

#5. (problem-sol\* or “problem sol\*” or psychoeducat\* or psycho-educat\* or psychodrama or psycho-drama\* or “rational emotive” or “reality \*therap\*” or “role play\*” or schema or schemas or schemata)

#6. (self-control or (self\* NEAR2 (control or efficacy))) [all fields]

#7. “stress manage\*” [all fields]

#8. (group NEXT (\*therap\* or program\* or treatment))[all fields]

#9. (#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8)

#10. depress\*:ti

#11. (depression or depressive):kw,ky,mh,emt

#12. (depress\* and (Beck\* or BDI\* or DSM\* or “Diagnostic and Statistical Manual of Mental Disorders” or Hamilton or HAM-D or HAMD or “International Classification of Diseases” or ICD-10)):ab

#13. (MDD or (depress\* NEAR2 (diagnos\* or episode\* or disorder or major or scale\* or score\* or unipolar))):ab

#14. (#10 or #11 or #12 or #13)

#15. (#9 and #14)

#16. (treatment-as-usual or (treatment\* NEAR2 usual) or (standard NEAR2 care) or (routine NEAR2 care) or (usual NEAR2 medication\*) or (usual NEAR2 care) or TAU):ti,ab

#17. (waitlist\* or wait-list\* or waiting-list\* or “wait\* list\*” or (waiting next (condition or control)) or WLC):ti,ab

#18. ("delayed treatment\*" or “no treatment\*” or “non treatment\*” or nontreatment\* or “minim\* treatment\*” or “untreated group\*” or “untreated control\*” or “without any treatment”):ti,ab

#19. (untreated NEAR3 (patients or participants or subjects or group\* or control\*)):ti,ab

#20. (“no intervention\*” or non intervention\* or non-intervention\* or without any intervention\*):ti,ab

#21. (“receiv\* nothing” or “standard control”):ti,ab

#22. (“no therap\*” or “non therap\*” or nontherap\* or “minim\* therap\*” or “no contact” or pseudotherap\* or “therap\* as usual” or “usual therap\*”):ti,ab

#23. (“reference group” or “observation group”):ti,ab

#24. (“convention\* treatment” or “conventional \*therap\*” or “standard treatment\*”):ti,ab

#25. (#16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24)

#26. (#15 and #25)

#### Search 3. Multimedia-delivered cognitive behavioural therapy versus face-to-face cognitive behavioural therapy for depression in adults

(All years to 10-June-2016)

A cross-search of CCMD-CTR-Sudies and CCMD-CTR-References Registers.

#1 ("chat room\*" or distance\* or etherap\* or e-therap\* or "instant messag\*" or iCBT\* or i-CBT or cCBT or c-CBT or internet\* or web\* or www\* or online\* or on-line\* or mHealth or multimedia\* or multi-media\* or mobile or email\* or e-mail\* or remote or texting or "text message" or SMS or telehealth\* or telemed\* or telepsych\* or teletherap\* or tele-therap\*) [all fields]

#2 (android or app or apps or cellphone\* or "cell phone\*" or "digital device\*" or "digital technolog\*" or iphone\* or i-phone\* or ipad\* or i-pad\* or "mobile phone" or smartphone or "smart phone") [all fields]

#3 (MoodGym\* or "Mood Gym" or "Beat\* the Blues") [all fields]

#4 (computer\* near (\*CBT\* or cognitive)):ti,ab

#5 (ecompared or e-compared) [all fields]

#6 (blended or bCBT) [all fields]

#7 (DVD or CD-ROM or CDROM) [all fields]

#8 ((manual or book or booklet or leaflet or pamphlet) and (\*face\* or therapist\* or psychotherap\*))

#9 (#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8)

#10 (depress\* or mood or dysthymi\* or "affective disorder\*" or "affective symptom\*"):ti,ab,kw,ky,mh,mc,emt

#11 (#9 and #10)

#12 telephone [all fields]

#13 #12 and #10

#14 #11 or #14

#### Search 4: 'Third wave' cognitive and behavioural therapies versus treatment as usual for depression

(1-Feb-2013, updated 9-July-2015 and 6-June-2016)

[N.B. Prior to this date, studies were identified from the global HIRED-MAP searches, detailed above]

A cross-search of CCMD-CTR-Sudies and References Register

#1 depress\*:ti,ab,kw,ky,mh,mc,emt

#2 (mindfulness\* or “third wave” or third-wave or (\*therap\* and (acceptance\* or commitment\*)) or experiential or (cognitive\* and (restructur\* or defusion)) or (behavio\* and (activation or modification)) or (thought\* and suppress\*) or rumination) [All Fields]

#3 (#1 and #2)

## Web Appendix 2: Additional details on the included interventions

### Description of treatment-as-usual across studies

|  |  |
| --- | --- |
| **Study name** | **Description of Treatment as Usual from paper** |
| Williams 2013 | primary care treatment as usual alone (TAU) All patients had access to standard treatment from their family doctor (n= 140). This would usually entail monitoring, antidepressant prescription and referral for specialist psychological therapies as recommended by national treatment guidelines [1]. These were delivered within a National Health Service (NHS) setting in which access to care is free at the point of contact. Typically reviews would be weekly to monthly. |
| Mohr 2011 | Veterans assigned to TAU continued to receive care through their CBOC and any non-VA they might use. Although receipt of psychotherapy excluded a veteran from entering the study, veterans were free to access all available mental health services once enrolled. |
| Clarke 2009 | Participants assigned to the TAU control group were not granted access to the intervention but were instead linked to an HMO website that provided static information about depression but no interactive skills training |
| Clarke 2005 | "Participants in the TAU control group were denied access to the ODIN intervention. Instead, they were linked to an HMO health information website which provided information about depression but no interactive skills training. " |
| Clarke 2002 | TAU group were redirected to the Kaiser Permanante website which includes information on depression |
| de Graaf 2008 | In the TAU and CCBT&TAU group, participants will be advised to contact their own GP. GPs of patients in the TAU and the CCBT&TAU group will be sent a letter, informing them about their patients' study participation, and advising them to follow the depression guideline as described by the Dutch College of General Practitioners [35]. This guideline states that treatment should formally consist of four to five biweekly consultations over the course of nine weeks in combination with antidepressant treatment if indicated. In case of suicidal risk, social dysfunction, symptom deterioration or non-improvement in six to twelve weeks time, referral to specialist mental health care settings is recommended. In practice however, usual care is whatever the GP prescribes. |
| Dwight-Johnson 2011 | Providers were free to provide any usually available care for depression, including antidepressants or referral to outside services. Care was considered enhanced because patients were encouraged to talk with their primary care provider about depression treatment and providers received a letter informing them of their patient’s depression status and study enrollment. |
| Hallgren 2015 | One-third of the participants received standard treatment for depression administered by their primary care physician who was responsible for determining the type of treatment. In many cases, this consisted of counselling with a CBT focus conducted for about 1 h. Patients attended on average 8.2 (s.d.= 6.4) face-to-face counselling sessions during the 12 week trial. A total of 25% of patients in this group received no recorded treatment. |
| Songprakun 2012 | The control group continued to receive standard care and treatment. |
| Kivi 2014 | Patients randomized to TAU received the treatment typically provided at the participating primary care center. The PRIM-NET project did not constrain the treatments offered to TAU patients except that they were not allowed participation in any Internet based treatment during the study period. TAU therefore could consist of a diverse mix of antidepressants, scheduled contacts with personnel at the primary care center such as GPs or nurses, referral to regular psychotherapy (often preceded by a non-negligible waiting period), or combinations of these options depending on routines and available resources at each primary care center. |
| Casanas 2012 | Usual treatment Members of the control group received usual treatment (visits with the GP and nurses). There was no pattern of visits established; the patients could go to the PCC when they needed to. The GPs and nurses use their own criteria to attend depressed patients. During the visits, the patient was asked about their general health status, adherence to antidepressant treatment (if they had prescribed medication) and the GP and nurses answered any queries about healthy lifestyle (such as sleep, diet and exercise). Each visit lasted 10 to 20 minutes. The participants were free to continue under pharmacological treatment. |
| Cramer 2011 | Usual care Participants in the control arm were given an information booklet. This contained details of local support organisations such as local mental health organisations, counselling services, carers groups and Black and minority ethnic services. An information booklet was given in addition to usual care because it was thought that it might improve study retention in the control arm. Participants in both arms were allowed to continue taking (or start) any antidepressant or other medication prescribed by their GP. |
| Dalgard 2006 | Treatment as usual The control group as well as the intervention group were free to continue eventual ongoing treatment (i.e. "treatment as usual"). As shown in table 1, 44,4% of the intervention group and 42.7% of the control group were on medication at program start and respectively 24.0% and 12.0% on psychotherapy. To which extent this treatment was continued during the program, is, however, not known. |
| Miranda 2003b | Referral to Community Care. Women assigned to community referral as usual were educated about depression and mental health treatments available in the community. The clinician offered to make an appointment for the woman at the end of the clinical interview to facilitate the referral and to speak with the mental health care clinician. Approximately one quarter of the women declined referral. Referred participants were contacted to encourage them to attend the intake appointment for care. |
| Mukhtar 2011 | Treatment as usual No information provided. |
| Scott 1992a | general practitioner care Patients were asked to make an appointment with their own general practioner for treatment.The research staff made no recommendations about treatment but inclusion in the study confirmed a diagnosis of depression. General practioners were aksed to manage each case as he or she would normally and this included referral to other agencies. (page 884 under treatments) |
| Scott 1997 | Treatment as usual Treatment as usual included whatever medication, counselling and referal was deemed appropriate. |
| Serfaty 2009 | Treatment as usual Treatment as usual allowed for whatever medication, routine support, or referral to other services was felt appropriate by the GP. The only constraint was to refrain from referring patients for CBT or other brief talking therapies unless absolutely necessary. Participants could discuss their problems and their physical health, and pain management could be reviewed, medication prescribed, and referrals made to luncheon clubs or day centers. Antidepressant medication as a routine part of TAU was not constrained. We envisaged that the number of participants who began taking antidepressant medication during the course of the trial would likely be small.20,28 General practitioners were notified about patients allocated to the trial for ethical reasons and to ensure that provision of therapy from other sources was limited. |
| Smit 2005 | CAU Patients assigned to the usual care group were referred back to their own PCP and received the care that this PCP deemed appropriate. In most cases, this included a combination of AD medication and counseling during regular visits (van Os et al. 1999). As in current practice PCPs were free to refer patients to any service normally available, such as social workers, private practice psychiatrists or psychologists, or specialized mental health agencies. |
| Teasdale 1984 | Treatment as usual general practioners were asked to treat patients as they would normally. (page 403 under treatment as usual para 3) |
| van den Hout 1995 | Standard treatment (ST). Subjects of both conditions received the regular 5-day program, here called standard treatment. This program included structured group therapy; nonverbal forms of therapy as creative therapy and physical exercise; social skills training; and occupational therapy. When indicated, individual sessions or system therapy were added to the regular program. Medication (antidepressants, anxiolytics) could be used as clinically indicated. |
| Alegria 2014 | Participants randomized into usual care received the typical standard of care in that clinic, determined by the provider the participant was already seeing. It could include watchful waiting, prescription of antidepressants/anxiolytics (such as escitalopram, lorazepam, fluoxetine, paroxetine, and quetiapine, as shown in Table 2), or referral to a mental health clinician for psychotherapy or medication management, depending on severity and clinical opinion. All participants were called on a weekly basis to monitor depression. |
| Chiang 2015 | usual outpatient psychiatric care group |
| Ekers 2011 | Participants were followed up by their GP or primary care mental health worker and were offered interventions deemed appropriate for their condition as per normal practice |
| Ekkers 2011 | Consisted mainly of pharmacotherapy prescribed by a psychiatrist, with or without psychotherapy conducted by a psychologist, or supportive and structured treatment conducted by nurses who specialised in psychosocial and psychiatric care |
| Omidi 2013 | TAU patients continued under the care their any therapy. (anti-depressant medication by psychiatrist). The treatment for depression actually received by patients in the TAU condition was monitored over the intervention period and is summarized in Table 1 (NB: we could not find this information in the paper) |
| Kanter 2015 | TAU described as a strong comparison condition in which therapists were asked to provide their typical treatment for depression to the best of their abilities, and providers implemented a diverse set of techniques based on their theoretical orientations and training. No further information provided. |
| Gilbody 2007 | The control intervention will be usual GP care alone, with no specific encouragement to provide computerised CBT. We will replicate ‘Normal GP practice’ by making no specific patient-level recommendation or requirement to alter usual care by participating in the trial. We will however remind GPs of the existence of NICE guidance on the management of depression, including the prescription of antidepressants, where this is indicated |

### Treatment sessions (based on all 207 arms)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Minimum | Median | Mean | Maximum | Missing |
| No. sessions | 1 | 8 | 9.15 | 24 | 88 |
| Average session length | 15 | 60 | 76.64 | 420 | 111 |

### Delivery method (based on the 122 CBT arms)

#### Group vs. individual

|  |  |
| --- | --- |
| DELIVERY | NO. ARMS |
| Individual | 72 |
| Group | 48 |
| Individual/group | 2 |

#### Interaction

|  |  |
| --- | --- |
| DELIVERY | NO. ARMS |
| One-way | 11 |
| One-way/two-way | 17 |
| Two-way | 94 |

#### Synchronicity

|  |  |
| --- | --- |
| DELIVERY | NO. ARMS |
| Asynchronous | 11 |
| Asynchronous/Synchronous | 4 |
| Synchronous | 96 |

#### Tailored interventions

|  |  |
| --- | --- |
| DELIVERY | NO. ARMS |
| Not tailored | 20 |
| Tailored | 102 |

#### Mode of delivery level

|  |  |
| --- | --- |
| METHOD | NO. ARMS |
| Audio | 1 |
| Booklet | 1 |
| Computer | 23 |
| Distance | 3 |
| Distance, videophone | 1 |
| Distance/F2F telephone\* | 1 |
| Face to face | 86 |
| F2F/booklet | 1 |
| F2F/computer | 2 |
| F2F/mobile phone | 1 |
| F2F/leaflet/booklet | 1 |

\* participants could do the first session face to face

### Multimedia methods

NOTE: variables in this section are only relevant for hybrid and multimedia interventions. Nonetheless, the numbers of missing values indicate that this information is not available for some (or most) of the multimedia interventions.

#### Format

|  |  |
| --- | --- |
| METHOD | NO. ARMS |
| Audio | 1 |
| Text | 18 |
| Text, audio | 2 |
| Text, audio, video | 3 |
| Text, video | 4 |
| Missing | 29 |
| TOTAL | 122 |

#### Gaming features

|  |  |
| --- | --- |
| METHOD | NO. ARMS |
| No | 30 |
| Yes | 5 |

#### Mobile vs. no mobile

|  |  |
| --- | --- |
| METHOD | NO. ARMS |
| Mobile | 1 |
| Missing | 121 |

### Components of CBT interventions

|  |  |
| --- | --- |
| **Content component label** | **Examples of therapeutic tools used** |
| ALL COGNITIVE  Assessment of cognitions  Restructuring of negative automatic thoughts  Schema work  Other cognitive techniques | Identification of automatic thoughts  Identifying core beliefs and attributions  Explore the connection between their cognitions and their behaviour  Exercises to identify dysfunctional thinking  Thought recording  How to identify unhelpful thoughts  Illustrates how to change thought patterns from negative to positive  Reinforces previously acquired skills in thought challenging  Restructure dysfunctional thinking  Challenging core beliefs  Interrupting and distancing oneself from negative thoughts  Distractions |
| Behavioural activation | Activity scheduling  Problem directed behaviour problems e.g. activity scheduling and problem solving  Increasing engagement in positive activities  Structuring activities |
| Goal setting | Reflection on long-term goals and the development of a structure to achieve these goals  Identifying realistic treatment goals  Defining goals/values |
| Psychoeducation | Overview of depression  Inducing awareness of depression  Provide information about cognitive, physical and behavioural symptoms of depression  Introduction to depression from a CBT perspective with a behavioural focus  Informational content  Education about depressive symptoms and the link between behaviour and mood |
| Social skills training | Interpersonal skills  Assertiveness training  Emphasis the value of social contact and physical activity |
| Problem solving | Active problem solving  Identifying specific problems  Addressing problems related to depressive symptoms in general, such as inactivity and avoidance behaviours |
| Relaxation | Progressive muscle relaxation  Basic deep breathing techniques  General relaxation strategies |
| Homework | Homework  Assignments |
| Final session | Highlight personal warning signs  Making a plan to prevent relapse into depressive moods in the future  Making a personal plan for the future  Relapse prevention |
| Acceptance and commitment therapy | Acceptance and commitment |
| Mindfulness | Mindfulness |

## Web Appendix 3: Evidence Synthesis Technical Details

**Network Meta-Analysis Model**

If we consider each delivery format and combination of components to define an intervention, , then a “**full interaction model**” for a continuous outcome is:



where  indicates the intervention, , on arm  of study  ,  is the mean difference in the measurement instrument (e.g. BDI for depressive symptoms) for intervention  relative to intervention 1, and  the between study standard deviation in intervention effects. This model can be thought of as the most detailed, as it treats each combination of interventions as distinct.

We explored a variety of alternative models for the intervention effects, , to explore therapy effects and component effects as follows.

We fitted a model where all active therapies were categorised into either face-to-face CBT or multimedia CBT (if any multimedia component was present), and a common intervention effect assumed depending on CBT therapy type (with multimedia component or not). So is assumed equal for all interventions  that are classified as CBT, and similarly for multimedia CBT, . This can be thought of as the most coarse level, where different forms of CBT are “lumped” to estimate an overall therapy effect with the only distinction being whether a multimedia component is present or not.

We extended the therapy effects model to also account for component effects and other features of the interventions. The resulting **“main effects model”** is defined by adding these in a network meta-regression:



where  is an indicator of whether a multimedia component was present or not, is an indicator of cognitive techniques,  is an indicator of behavioural activation,  is an indicator of psycho-education,  is an indicator of homework,  is an indicator of problem solving,  is an indicator of social skills training,  is an indicator of relaxation techniques,  is an indicator of goal setting, and  is an indicator of final session. The regression coefficients  are interpreted as effect modifiers to the overall average CBT effect. The average therapy effect is for face-to-face CBT, so that:



We also included different types of delivery (Group or Individual and whether Tailored or not) as additional covariate terms to this model.

We produced results for the complete regression model above (i.e. fully adjusting for all covariates), and also just including each covariate on its own (unadjusted analysis).

The length and number of sessions were non-binary covariates, and are incorporated in the random effects specification:



where  is the value of the covariate in trial  arm , and we set for inactive interventions, and constant for active therapies.

## Web Appendix 4: Table of Included Studies

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | N participant | Included arms | Active Intervention | Components | Comparator | Number of sessions | Session length (minutes) | Active Intervention delivery | Group/ Individual |
| Andersson 2005 | 117 | 2 | CBT | Cog, BA, PE, Final | AP | 5 | NR | Computer | Individual |
| Arean 1993 | 48 | 2 | CBT | Cog, PS | WL | 12 | 90 | Face-to-face | Group |
| Berger 2011 | 76 | 3 | 1. 3rd wave 2. 3rd Wave | 1. Cog, BA, PE, SST, Rel, Mindful 2. Cog, BA, PE, SST, Rel, Mindful | WL | 10 | 35 | Computer | Individual |
| Besyner 1979 | 26 | 2 | CBT | Cog, PE | WL | 4 | 120 | Face-to-face | Group |
| Beutler 1990 | 42 | 2 | CBT | Cog, BA, PE | AP | 20 | 30 | Face-to-face | Group |
| Breckenridge 1985 | 47 | 2 | CBT | Cog, PS | WL | 18 | NR | Face-to-face | Individual |
| Brown 1984 | 63 | 4 | CBT | All: Cog, BA, PE, SST, Rel | WL | 12 | 120 | Face-to-face | 1: Group 2: Individual 3: Individual |
| Carrington 1979 | 20 | 2 | CBT | Cog | WL | 12 | 50 | Face-to-face | Individual |
| Casanas 2012 | 231 | 2 | CBT | BA, PE, SST, PS, Rel | TAU | 12 | 90 | Face-to-face | Group |
| Chan 2012 | 50 | 2 | CBT | Cog, BA, PE, Rel | WL | 10 | 90 | Face-to-face | Group |
| Chiang 2015 | 81 | 2 | CBT | Cog, PS | TAU | 12 | 120 | Face-to-face | Group |
| Choi 2012 | 63 | 2 | CBT | Cog, BA, SST, PS | WL | 6 | NR | Computer | Individual |
| Choi 2014 | 158 | 3 | CBT | 1. PE, PS 2. PE, PS | AP | Arm 1: 6 Arm 2: 6 | Arm 1. 30 Arm 2: 60 | 1. Hybrid 2. Face-to-face | Individual |
| Clarke 2002 | 299 | 2 | CBT | Cog | TAU | NR | NR | Computer | Individual |
| Clarke 2005 | 255 | 3 | CBT | 1. Cog 2. Cog | TAU | NR | NR | 1. Computer 2. Computer | Individual |
| Clarke 2009 | 160 | 3 | CBT | Cog, BA, PE | TAU | NR | NR | Computer | Individual |
| Collins 1997 | 59 | 2 | CBT | Cog | WL | 12 | NR | Face-to-face | Group |
| Comas-Diaz 1981 | 18 | 2 | CBT | Cog, SST | WL | 5 | 90 | Face-to-face | Group |
| Cramer 2011 | 73 | 2 | CBT | Cog, BA, PS, Rel | TAU | 12 | NR | Face-to-face | Group |
| Dalgard 2006 | 155 | 2 | CBT | Cog, BA, PE, SST, HW | TAU | 8 | 150 | Face-to-face | Group |
| de Graaf 2008 | 303 | 3 | CBT | 1. Cog, BA, SST, Rel, HW 2. Cog, BA, SST, Rel, HW | TAU | NR | 30 | 1. Computer 2. Computer | Individual |
| Dimidjian 2004 | 50 | 2 | 1. 3rd wave 2. CBT | 1. BA 2. Cog, BA | NA | Arm 1: 24 Arm 2: 24 | Arm 1: 50 Arm 2: 50 | Face-to-face | Individual |
| Dowrick 1996 | 317 | 2 | CBT | PS | NT | 6 | 30 | Face-to-face | Individual |
| Dunn 1979 | 20 | 2 | CBT | Cog | TAU | 16 | NR | Face-to-face | Individual |
| Dwight-Johnson 2011 | 101 | 2 | CBT | Cog, BA, HW | TAU | 8 | 47.5 | Hybrid | Individual |
| Egede 2015 | 241 | 2 | 1. 3rd wave 2. 3rd Wave | BA | NA | Arm 1: 8 Arm 2: 8 | Arm 1: NR Arm 2: 60 | 1. Face-to-face 2. Videophone | Individual |
| Ekers 2011 | 47 | 2 | 3rd Wave | BA | TAU | 12 | 60 | Face-to-face | Individual |
| Embling 2002 | 38 | 2 | CBT | Cog, BA | WL | 12 | 75 | Face-to-face | Group |
| Epstein 1987 | 22 | 2 | CBT | Cog | WL | 8 | 90 | Face-to-face | Group |
| Faramarzi 2008 | 82 | 2 | CBT | Cog, PE, Rel | NT | 10 | 120 | Face-to-face | Group |
| Fuchs 1977 | 18 | 2 | CBT | Cog, HW | WL | 6 | 120 | Face-to-face | Group |
| Gawrysiak 2009 | 30 | 2 | 3rd Wave | BA | NT | 9 | 90 | Face-to-face | Individual |
| Gilbody 2007 | 691 | 3 | CBT | 1. Cog, BA, PS, HW 2. Cog, PE, Rel | TAU | Arm 1: 8 Arm 2: 6 | Arm 1: 50 Arm 2: NR | Computer | Individual |
| Hallgren 2015 | 629 | 2 | CBT | BA | TAU | 5 | 52.5 | Computer | Individual |
| Hamamci 2006 | 21 | 2 | CBT | Cog, BA, PE, PS | NT | 11 | 180 | Face-to-face | Group |
| Hamdam-Mansour 2009 | 84 | 2 | CBT | BA, PS | NT | 10 | 45 | Face-to-face | Group |
| Hegerl 2010 | 120 | 2 | CBT | Cog, BA | AP | 9 | 90 | Face-to-face | Group |
| Hess-Homeier 1981 | 14 | 2 | CBT | Cog, BA, PE | WL | 24 | 45 | Face-to-face | Individual |
| Hoifodt 2013 | 106 | 2 | CBT | Cog, BA, Rel, PS | TAU | 5 | 75 | Hybrid | Individual |
| Horrell 2014 | 459 | 2 | CBT | Cog, BA, PE, PS | TAU | 1 | 420 | Face-to-face | Group |
| Kanter 2015 | 43 | 2 | 3rd Wave | BA | TAU | NR | 50 | Face-to-face | Individual |
| Katon 1996 | 153 | 2 | CBT | BA, PE, (optional: SST, PS, Rel) | TAU | 5 | 30 | Face-to-face | Individual |
| Kelly 1982 | 11 | 2 | CBT | Cog, PS, HW | PP | 6 | 75 | Face-to-face | Group |
| Kessler 2009 | 297 | 2 | CBT | Cog, BA, GS, PE, HW, Final | TAU | 10 | 55 | Computer | Individual |
| Kivi 2014 | 92 | 2 | 3rd Wave | BA, Mindful, ACT | TAU | NR | NR | Computer | Individual |
| Losada 2015 | 87 | 3 | 1. 3rd wave 2. CBT | 1. ACT 2. Cog, BA, Rel | AP | 8 | 90 | Face-to-face | Individual |
| Ly 2015 | 93 | 2 | 1. 3rd wave 2. 3rd Wave | 1. BA, PE, HW, Final 2. BA, PE, HW, Final | NA | Arm 1: 4 Arm 2: 10 | Arm 1: 60 Arm 2: 60 | 1. Hybrid 2. Face-to-face | Individual |
| Malouff 1984 | 53 | 3 | 1. 3rd wave 2. 3rd Wave | 1. Cog 2. PS | WL | Arm 1: 4 Arm 2: 4 | Arm 1: 90 Arm 2: 90 | Face-to-face | Group |
| McInndoo 2016 | 30 | 2 | 3rd Wave | BA, GS | WL | 4 | 60 | Face-to-face | Individual |
| Miranda 2003b | 179 | 2 | CBT | Cog,BA | TAU | 8 | NR | Face-to-face | Group/individual |
| Mohr 2011 | 85 | 2 | CBT | Cog, BA, GS, PS, HW | TAU | 16 | 47.5 | Multimedia | Individual |
| Mohr 2012 | 325 | 2 | 1. CBT 2.CBT | 1. Cog, SST, Rel, BA 2. Cog, BA, SST, Rel | NA | Arm 1: 18 Arm2: 18 | Arm 1: 45 Arm 2: 45 | 1. Face-to-face 2. Multimedia | Individual |
| Mukhtar 2011 | 113 | 2 | CBT | HW | TAU | 8 | 180 | Face-to-face | Group |
| Nezu 1986 | 26 | 2 | CBT | PS | WL | 8 | 105 | Face-to-face | Group |
| Nezu 1989 | 43 | 3 | CBT | 1. PS 2. PS, HW | WL | 10 | 105 | Face-to-face | group |
| Omidi 2013 | 90 | 3 | 1: 3rd Wave 2: CBT | 1. BA, HW, Mindful 2. Cog, BA | TAU | 8 | 120 | Face-to-face | Group |
| Pace 1993 | 89 | 2 | CBT | Cog | WL | 7 | 45 | Face-to-face | Individual |
| Pecheur 1980 | 21 | 3 | CBT | 1. Cog, HW 2. Cog, HW | WL | 8 | 50 | Face-to-face | Individual |
| Pellowe 2006 | 52 | 2 | 1. CBT 2.CBT | 1. Cog, HW 2. Cog, HW | NA | Arm 1: 8 Arm 2: 8 | Arm 1: 50 Arm 2: 50 | Face-to-face | Individual |
| Perini 2009 | 48 | 2 | CBT | Cog, BA, SST, PS, HW | WL |  | NR | Multimedia | Individual |
| Propst 1980 | 47 | 4 | CBT | 1. Cog 2. Cog | AP, AP | 8 | 60 | Face-to-face | group |
| Propst 1992 | 49 | 3 | CBT | 1. Cog, BA, HW 2. Cog, BA, HW | WL | 18 | 50 | Face-to-face | group |
| Rehm 1981 | 63 | 5 | CBT | 1. BA, HW 2. BA, GS, HW 3. BA, GS, HW 4. BA, GS, HW | WL | 7 | NR | Face-to-face | group |
| Richards 2013 | 101 | 2 | 1. CBT 2.CBT | 1. Cog, BA, GS, PS 2. Cog, BA, GS, PS | NA | Arm 1: 8 Arm 2: 8 | NR | Multimedia | Individual |
| Ross 1985 | 67 |  | 1.CBT 2.CBT | Cog | WL | Arm 1: 12, Arm 2: 12 | Arm 1:90, Arm 2: 45 | Face-to-face | 1: Group 2: Individual |
| Ruwaard 2009 | 54 | 2 | CBT | Cog, SST, HW, Final | WL | 8 | 180 | Multimedia | Individual |
| Schmidt 1983 | 56 | 5 | CBT | Cog, BA, AT | WL | Arms 1-3: 8 | Arms 1-3: 90 | Face-to-face | 1: Individual, Arms 2-3: Group |
| Schmitt 1988 | 26 | 2 | CBT | PS | PP | 12 | 105 | Face-to-face | Group |
| Scott 1992a | 60 | 2 | CBT | Cog | TAU | NR | 50 | Face-to-face | Individual |
| Scott 1997 | 48 | 2 | CBT | Cog, PE | TAU | 6 | 30 | Face-to-face | Individual |
| Serfaty 2009 | 204 | 3 | CBT | Cog | TAU, AP | 12 | 50 | Face-to-face | Individual |
| Shah 2011 | 34 | 2 | CBT | Cog, BA, GS, PE, SST, PS, Rel, Final | WL | 8 | NR | Multimedia | Individual |
| Sharif 2012 | 60 | 2 | CBT | Cog, PE, SST, Rel | NT | 6 | 90 | Face-to-face | Group |
| Shaw 1977 | 24 | 3 | CBT | Cog | AP, TAU | 4 | 120 | Face-to-face | Group |
| Skinner 1983 | 16 | 2 | CBT | Cog, PE | AP | Arm 1: 5 Arm 2: 5 | 60 | Face-to-face | Individual |
| Smit 2005 | 116 | 2 | CBT | Cog, PE | TAU | 11 | 45 | Face-to-face | individual |
| Songprakun 2012 | 56 | 2 | CBT | Cog, BA, PE, SST, PS, Rel, HW | TAU | 8 | NR | Multimedia | Individual |
| Taylor 1977 | 14 | 2 | CBT | Cog, BA | WL | 6 | 40 | Face-to-face | Individual |
| Teasdale 1984 | 44 | 2 | CBT | Cog, BA, GS, PE, HW | TAU | 20 | 60 | Face-to-face | Individual |
| Ünlü Ince 2013 | 96 | 2 | CBT | PS | WL | 5 | NR | Multimedia | Individual |
| Usaf 1990 | 60 | 2 | CBT | Cog, BA, PE, SST, Rel | WL | 10 | 120 | Face-to-face | Group |
| van den Hout 1995 | 29 | 2 | CBT | BA | TAU | 12 | 90 | Face-to-face | Group |
| Vernmark 2010 | 88 | 3 | CBT | Cog, BA, | WL | Arm 1: 7, Arm 2: 8 | NR | 1: multimedia 2: multimedia | Individual |
| Wagner 2014 | 62 | 2 | 1. CBT 2.CBT | 1. BA, PE, SST, HW, Final 2. BA, PE, SST, HW, Final | NA | Arm 1: 8 Arm 2: 8 | Arm 1: 60 Arm 2: NR | 1: Face-to-Face 2: Multimedia | Individual |
| Williams 2013 | 281 | 2 | CBT | HW, Final | TAU | 3 | 40 | Hybrid | Individual |
| Wilson 1983 | 17 | 2 | CBT | Cog | WL | 8 | 60 | Face-to-face | Individual |
| Wollersheim 1991 | 24 | 3 | CBT | Cog, BA, SST, PS, Rel | WL | Arm 1:10, Arm 2: 3 | Arm 1:120 | 1: Face-to-Face 2: Hybrid | 1: Group 2: Individual |
| Wong 2008 | 337 | 2 | CBT | Cog, BA, PE | NT | 10 | 150 | Face-to-face | Group |
| Wright 2005 | 45 | 2 | CBT | Cog, BA, PE. HW, Final | WL | 9 | 50 | Hybrid | Individual |
| Zeiss 1979 | 44 | 2 | CBT | Cog | WL | 12 | NR | Face-to-face | Group |
| Zettle 1984 | 19 | 2 | 1. 3rd wave 2.CBT | 1. Cog, BA 2. Cog, BA | NA | Arm 1: 12 Arm 2: 12 | Arm 1: 60 Arm 2: 60 | Face-to-face | Individual |
| Zettle 1989 | 31 | 2 | 1. 3rd wave 2.CBT | 1. BA 2. Cog, BA | NA | Arm 1: 12 Arm 2: 12 | Arm 1: 90 Arm 2: 90 | Face-to-face | Group |

Table of study characteristics for 91 studies included in the network meta-analysis.

Component Key:

**ACT** Acceptance & commitment therapy, **AP** Attention placebo, **BA** Behavioural activation, **Cog** Cognitive Therapy, **Final** Final session, **GS** Goal setting, **HW** Homework, **Mindful** Mindfulness-based CBT, **NA** Not applicable, **NT** No treatment, **PS** Problem solving, **PE** Psychoeducation, **PP** Psychological placebo, **Rel** Relaxation, **SST** Social skills training, **TAU** Treatment as Usual, **WL** Waiting List.

## Web Appendix 5: Risk of Bias Assessments



Risk of bias assessments for each study are presented in Web Figure 1.

## Web Appendix 6: Additional NMA results

### Comparison of model fit for Therapy Effect models (Deviance Information Criterion, DIC)

|  |  |  |  |
| --- | --- | --- | --- |
|  | FE consistency model | RE consistency  model | RE inconsistency model |
| Change in depression scores – short term | 17240 | -313.3 | -313.5 |
| Change in depression scores – mid term | 4715 | -162.1 | -162.8 |
| Change in quality of life scores – short term | 6566 | -118.3 | -118.5 |
| Remission – short term | 468.6 | 415.2 | 417.2 |
| Response – short term | 148.5 | 147.4 | 143.7 |
| Dropout – short term | 740.2 | 703 | 707.2 |

Lower values indicate better model fit. FE: fixed-effect; RE: random-effects.

### Therapy Effect models for binary outcomes assuming a ‘best case scenario’

#### Remission



#### Response



### Therapy Effect models for change in depression scores using only Beck Depression Inventory

#### Short term

****

TAU: treatment as usual; F2F CBT: face-to-face cognitive behavioural therapy; DIMC: difference in mean change; CrI: credible interval.

#### Mid term



TAU: treatment as usual; F2F CBT: face-to-face cognitive behavioural therapy; DIMC: difference in mean change; CrI: credible interval.

### Main Effects models across different outcomes

The figures in this section present results using component-level NMA (Main Effects model). Intervention main effects for No treatment, Wait list, Placebo, and CBT relative to TAU are presented on top of each figure. Then, effect modifiers for the CBT effect are interpreted as the additional effects for CBT interventions that contain that effect modifier (adjusted for all other effect modifiers).

#### Change in depression scores at mid term



TAU: treatment as usual; CBT: cognitive behavioural therapy; sDIMC: standardised difference in mean change; CrI: credible interval.

#### Change in quality of life scores at short term



TAU: treatment as usual; CBT: cognitive behavioural therapy; sDIMC: standardised difference in mean change; CrI: credible interval.

#### Remission at short term



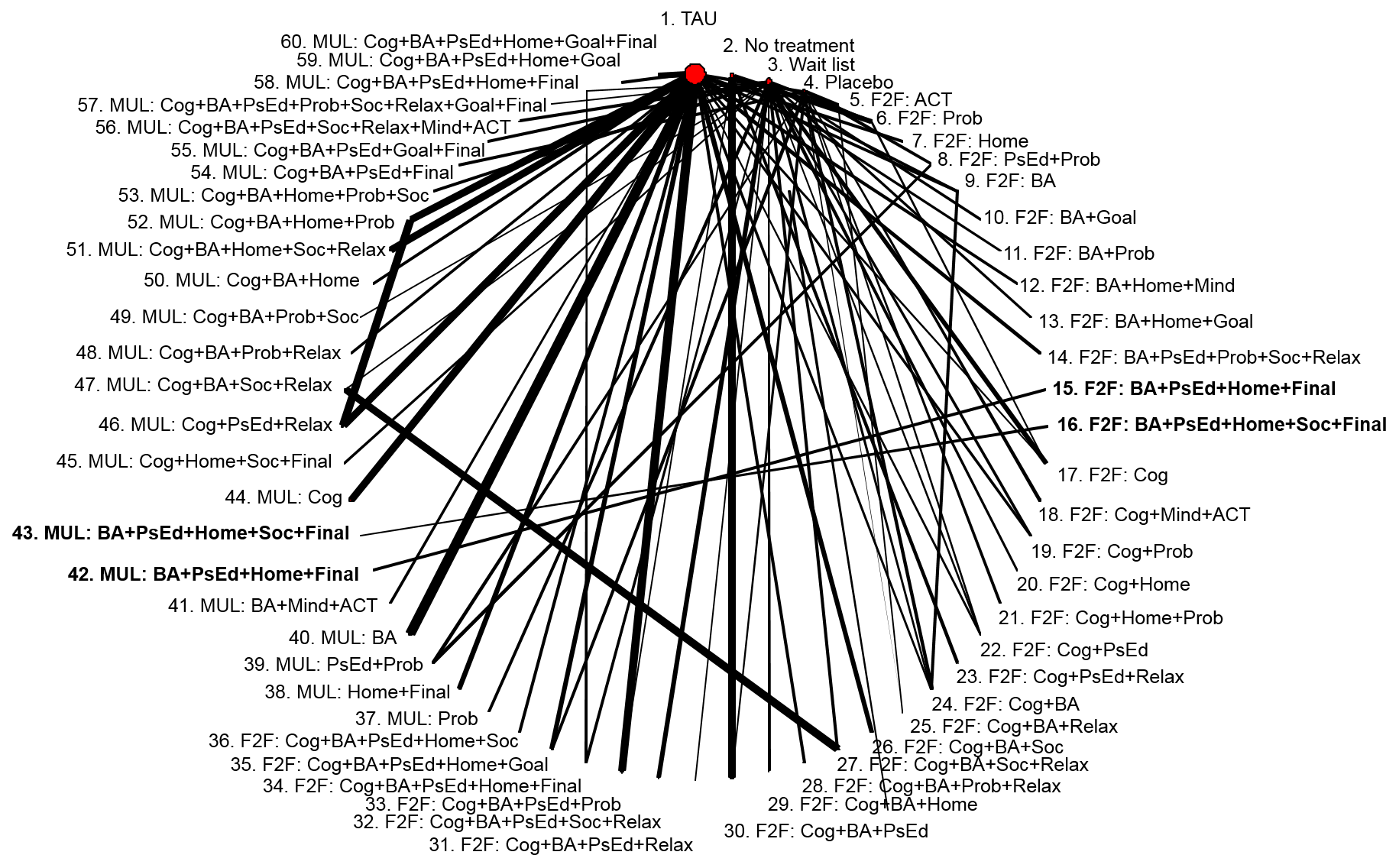
TAU: treatment as usual; CBT: cognitive behavioural therapy; OR: odds ratio; CrI: credible interval.

#### Drop-out at short term



TAU: treatment as usual; CBT: cognitive behavioural therapy; OR: odds ratio; CrI: credible interval.

### Full Interaction model for change in depression scores at short term



Disconnected interventions (not included in the analysis) are highlighted in bold



TAU: treatment as usual; F2F CBT: face-to-face cognitive behavioural therapy; Cog: cognitive techniques; BA: behavioural activation; PsEd: psychoeducation; Home: homework; Prob: problem solving; Soc: social skills training; Relax: relaxation; Goal: goal setting; Final: final session; Mind: mindfulness CBT; ACT: acceptance and commitment therapy; sDIMC: standardised difference in mean change; CrI: credible interval.