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Practitioner Review: Unguided and guided self-help interventions for common mental health disorders in children and adolescents: a systematic review and meta-analysis

Sophie D. Bennett,[1] Pim Cuijpers,[2] David Daniel Ebert,[3] Mhairi McKenzie Smith,[1] Anna E. Coughtrey,[1,4] Isobel Heyman,[1,4] Grazia Manzotti,[1] and Roz Shafran[1]

[1]UCL Great Ormond Street Institute of Child Health, London, UK; [2]Department of Clinical, Neuro and Developmental Psychology, Amsterdam Public Health research institute, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands; [3]Friedrich Alexander University of Erlangen Nurnberg, Erlangen, Germany; [4]Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK

Mental health problems are common in children and adolescents, yet evidence-based treatments are hard to access. Self-help interventions can increase such access. The aim of this paper was to conduct a systematic review and meta-analysis of the use of guided and unguided self-help for children and young people with symptoms of common mental health disorders. In contrast to previous reviews of self-help in children, all types of self-help and multiple mental health disorders were investigated in order to increase power to investigate potential moderators of efficacy. Importantly, studies with control arms as well as those comparing against traditional face-to-face treatments were included. Fifty studies ($n = 3396$ participants in self-help/guided self-help conditions) met the inclusion criteria. Results demonstrated a moderate positive effect size for guided and unguided self-help interventions when compared against a control group ($n = 44$; $g = 0.49$; 95% CI: 0.37 to 0.61, $p < .01$) and a small but significant negative effect size when compared to other therapies ($n = 15$; $g = –0.17$; 95% CI: –0.27 to –0.07, $p < .01$). Few potential moderators had a significant effect on outcome. Most comparisons resulted in significant heterogeneity and therefore results are interpreted with caution. **Keywords:** Self-help; anxiety; depression; disruptive behaviour; children; adolescents.

Introduction

A recent UK report found that up to 75% of referrals to local Child and Adolescent Mental Health Services were declined by the service and for those accepted, there was an average waiting time for treatment of up to 200 days (Children's Commissioner, 2016). One way of meeting a large need for psychological therapy is through the use of unguided or guided self-help interventions; the latter involving varying degrees of input from a therapist (Bekker, Griffiths, & Barrett, 2016). Self-help reduces both the time burden associated with visiting a clinic and the impact of stigma, as it is possible to access therapy without others knowing. In addition, it is likely to be cost-effective as it requires less therapeutic time and expertise, although this has not yet been fully established (Lewis, Pearce, & Bisson, 2012).

The evidence-base for self-help in children and adolescents is growing, partly as a response to the increasing demand for psychological interventions (Bekker et al., 2016) and the UK Children and Young People's Improving Access to Psychological Therapies (CYP-IAPT) Programme is training therapists to deliver guided self-help interventions within a

stepped-care model. At the same time, there has been a proliferation of self-help interventions (primarily of technology based interventions in recent years) and of associated reviews and meta-analyses. The reviews to date have made an important contribution to the literature but are limited in that they have been highly specific, focusing on only one disorder (e.g. anxiety), type of self-help (e.g. internet, computerised) or age group. For example, a meta-analysis of 14 studies investigating self-help for the treatment of emotional problems in adolescents and young adults (12–25 years old) found only a small, nonsignificant effect size for emotional symptoms, although study quality was poor (Ahmead & Bower, 2008). This analysis did not include younger children and included only those interventions with no or minimal individual contact with a health professional or researcher and therefore some self-help interventions may have been excluded, minimising the ability to investigate the extent to which guidance could be considered as a moderator.

More recent reviews of computerised interventions for anxiety and/or depression in youth, of which the majority were self-help or guided self-help, demonstrated medium to large effect sizes (Ebert et al., 2015; Pennant et al., 2015; Rooksby, Elouafkaoui, Humphris, Clarkson, & Freeman, 2015; Stasiak et al., 2016); although findings were inconclusive

for younger children (Pennant et al., 2015) and noncomputerised interventions, such as bibliotherapy, were not included and therefore the type of self-help could not be investigated. Rickwood and Bradford (2012) conducted a review of self-help only for mild anxiety disorders; the review was not limited to Randomised Controlled Trials (RCTs) and only contained six studies. Self-help programmes may also be effective in the treatment of childhood behaviour disorders (Baumel & Faber, 2018; Montgomery, Bjornstad, & Dennis, 2006; O'Brien & Daley, 2011). Again, these reviews have been specific and/or not restricted to self-help and guided self-help. For example Baumel and Faber (2018) reviewed the impact of technology-assisted parenting programmes for young people with disruptive behaviours.

The specificity of these previous reviews therefore reduces power to investigate potential moderating variables such as the type of self-help (paper versus online) or impact of guidance. Considering the type of self-help has important implications for service development and delivery (e.g. computerised interventions may require provision of computers for those who do not have access at home and may be more expensive to produce in the short term), yet reviews to date have not investigated this as a moderating variable. Furthermore, while it has been assumed that young people prefer modern technology (e.g. Baumel & Faber, 2018), it is not yet established whether this is in fact the case.

The specificity of previous reviews additionally reduces the ability to meta-analyse studies comparing self-help against standard face-to-face treatments as very few such studies exist for each mental health disorder in children. Such analysis is important given that the CYP-IAPT model is based on a stepped-care approach and that UK National Institute for Health and Care Excellence (NICE) guidance recommends guided self-help as a first step for intervention in some child mental health disorders (NICE, 2005). Face-to-face treatments differ in their efficacy, for example interventions for anxiety have demonstrated greater effect sizes than interventions for depression (e.g. Spek et al., 2007). Therefore, it may be that self-help is similar in efficacy to some face-to-face interventions but has small effect sizes when compared to no treatment and therefore may not be a preferred option for commissioners. Conversely, there may be self-help treatments that do not compare favourably to face-to-face treatments but nevertheless are efficacious in comparison to no treatment and therefore suitable to be used in a stepped-care approach. Knowledge of patient characteristics that affect efficacy, including whether symptoms meet diagnostic criteria, would then support decisions regarding which patients are entered into which 'step' in such a care pathway.

Adult reviews have increased power through combining studies of interventions for anxiety and depression (e.g. Cuijpers, Donker, van Straten, Li, & Andersson, 2010) due to high rates of comorbidity between the conditions (Andrews, Slade, & Issakidis, 2002) as well as the presence of transdiagnostic interventions designed to treat both anxiety and depression (e.g. Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010). Similarly, children and young people tend to have multiple comorbidities, with 40% having more than one diagnosis (Merikangas et al., 2010) and high rates of comorbidity amongst the most common childhood mental health disorders (anxiety, depression and disruptive behaviour disorders). There are child interventions designed to treat comorbid mood and conduct problems (e.g. the Modular Approach to Therapy for Children with Anxiety, Depression, Trauma, or Conduct Problems – MATCH-ADTC; Chorpita & Weisz, 2009) and some child studies have investigated the impact of behaviour interventions on mood and vice versa (e.g. Baker, Sanders, Turner & Morawska, 2017a). However, no child reviews to date have combined interventions for anxiety, depression and disruptive behaviour disorders.

This review therefore combines interventions for anxiety, depression and disruptive behaviour in order to investigate possible moderating variables. An understanding of important moderating variables and user satisfaction of interventions may support the development of guidance regarding self-help programmes for children and young people. In particular, it could support services to decide which of the numerous self-help interventions to recommend as they roll out self-help as part of stepped-care.

Objectives

The main aim of this review was to systematically assess the evidence-base for the use of unguided self-help and guided self-help for children and young people with symptoms of common mental health disorders (symptoms of anxiety, depression and/or disruptive behaviour). Within this, the objectives were to:

1. Evaluate the efficacy of unguided self-help and guided self-help interventions for symptoms of common mental health disorders in children and adolescents.
2. Compare the effectiveness of unguided self-help and guided self-help interventions to standard face-to-face interventions for common mental health disorders in children and adolescents.
3. Evaluate whether the presence and/or type of guidance given is associated with outcome.
4. Determine whether type and severity of mental health disorder is associated with outcome.
5. Assess treatment acceptability of unguided and guided self-help for children and young people.

Methods
Identification and selection of studies

Search methods. Two reviewers independently conducted searches and assessed them for inclusion. Disagreements were resolved through discussion with a third reviewer.

Databases: EMBASE, MEDLINE, PsycINFO, CINAHL and the Cochrane Central Register of Controlled Trials databases were searched from inception to 11th February 2018. In addition, grey literature searches were conducted through searching the PsycExtra and WorldCat Theses and Dissertations databases. We also searched for trial registrations through clinicaltrials.gov and WHO International Clinical Trials Registry Platform. Citation searches and searches of reference lists of identified papers were completed. Reference lists of previous reviews were also examined. Additional literature was sought through personal contact with researchers in the area. No restrictions were placed on publication date or language.

Inclusion Criteria. Study type: To minimise bias, only RCTs were included in the search.

Participants: Children up to the age of 18 years, with no lower age limit. Studies with mixed samples including young adults to 25 years old were included, provided the mean age of the sample was under 18 years old. It was acceptable for the intervention to be undertaken primarily with parents, provided that child outcomes were reported. Children must have had impairing symptoms of depression, anxiety and/or disruptive behaviour, assessed through a measure of symptoms such as the Strengths and Difficulties Questionnaire (Goodman, 1997), a diagnostic instrument, such as the Anxiety Disorders Interview Schedule – Child/Parent (Silverman & Albano, 1996) or self/parent reported difficulties.

Interventions: Self-help interventions, including bibliotherapy and computerised therapy were included. Guided self-help interventions were included in the review, provided that the main aim of the intervention was 'self-help' and that the guidance was restricted to supporting children and/or parents through the programme rather than teaching new materials. Studies that evaluated interventions in which the guided self-help was a part of the intervention (blended treatments with face-to-face psychotherapy and some guided self-help elements) were excluded.

Comparators: Trials with any control group (waiting list, treatment as usual, placebo/attention control or other) as well as those comparing against another psychological treatment were included. Studies that reported insufficient data for the effect size to be calculated were excluded.

Outcome measures: Outcome measures were any measure related to mental health, such as standardised measures of depression, anxiety, or disruptive behaviour or diagnostic interviews. The measure had to relate to the mental health of the child and not the parent/carer, although parent-reports of child health/behaviour were acceptable. Qualitative results from measures of treatment acceptability were also extracted where available.

Search terms: Search terms including MeSH terms were divided into three main areas: self-help, intervention and mental health disorder, and the areas combined with the AND operator. See Appendix S1 for full list of search terms. Searches were developed and conducted in collaboration with a librarian (GM).

Data extraction and management

Data extraction was completed independently by two raters for each paper and disagreements were resolved through discussion with a third reviewer. Data were extracted on a range of variables: study design characteristics, participant characteristics and intervention characteristics, using a predesigned data extraction form.

Study design. Data were extracted regarding the comparator (face-to-face, attention, waiting list, treatment as usual, medication) and the target condition (anxiety, depression, disruptive behaviour or mixed). Length of follow-up (where present) was also determined. We also categorised studies reporting Intention to Treat (ITT) data versus those which did not (yes/no).

Participant characteristics. Studies were categorised into child (all participants 13 years old or younger), adolescent (participants all older than 13 years old) or mixed studies. Data on mean age and percentage of males were also extracted, in addition to whether participants met diagnostic criteria for the primary mental health disorder using a validated diagnostic measure (yes/no).

Intervention characteristics. We extracted data regarding: whether the intervention was unguided or guided self-help (guidance yes/no) and how the self-help was delivered (written materials/computer/mixed/other).

Assessment of risk of bias in included studies

Risk of bias was assessed using the Cochrane Risk of Bias Tool (Higgins et al., 2011). Ten percent of studies were rated by a second independent rater. Disagreements were resolved through discussion with a third independent reviewer. This tool assesses selection bias (including random sequence generation and allocation concealment), blinding of participants and personnel, blinding of outcome assessment (considered at the individual outcome measure level), attrition bias/incomplete outcome data and selective reporting. Regarding blinding of outcome measures, self-report measures were considered to be at low risk of bias for the purposes of this review. Regarding selective reporting, studies were considered to be at low risk only if there was a study registration or published protocol and the outcomes in the paper matched those prespecified. We examined the relationship between risk of bias and effect size by performing meta-regression techniques. In these analyses, the total bias score was entered as the dependent variable. We compared the effect sizes of studies rated as low risk of bias (all domains evaluated as being at low risk of bias) compared to studies with some risk of bias (one or more domains evaluated as being at unclear or high risk of bias).

Meta-analysis

Measurement of treatment effect. Separate analyses were conducted for studies using control groups and those comparing against face-to-face interventions. Many studies failed to specify a primary outcome measure and therefore multiple measures were used for several studies. This is particularly the case for behaviour interventions. Only measures that directly related to child outcomes were included. Measures of parenting practices or parenting self-efficacy were not included. In cases in which multiple measures were reported, no measures were prioritised. Instead, we combined the results of all measures.

We calculated Hedges' *g* for each study outcome, which is the standardised mean difference adjusting for small sample

sizes. We used the endpoint score only. Where two or more measures were used per outcome (e.g. depression), the pooled effect sizes were calculated in order to include only one effect size per study in the analysis. Only measures relating to the primary outcome of the disorder were used to generate mean effect sizes (e.g. only measures of depressive symptomatology for a study of a depression intervention). To calculate pooled mean effect sizes, we used Comprehensive Meta-Analysis (CMA) software Version 3 (Biostat, Inc 2015). A random-effects pooling model was used in all analyses. We transformed standardised mean differences into the Number Needed to Treat (NNT; the number of patients that must be treated to generate one additional positive outcome) using the Kraemer and Kupfer (2006) formula.

We conducted a series of subgroup analyses, according to the mixed effects model. In this model, studies within subgroups are pooled with the random-effects model, whilst tests for significant differences between subgroups are conducted with the fixed-effects model (Borenstein, Hedges, Higgins, & Rothstein, 2009). For continuous variables, we used random-effects method of moments meta-regression analyses to test whether a significant relationship existed between the continuous variable and the effect size, as indicated by a Z value and associated p-values.

We aimed to analyse the following subgroups:

- Different diagnoses (anxiety, depression and disruptive behaviour).
- Different types of self-help (bibliotherapy versus computerised).
- Different amounts of guidance (i.e. self-help versus guided self-help).
- Different types of guidance (e.g. email, face-to-face, telephone).
- Different severities of mental health disorder (diagnosis confirmed with diagnostic interview versus not meeting diagnostic threshold or diagnosis not confirmed).

In addition, we aimed to conduct meta-regression analyses for age and total risk of bias. Finally, we conducted sensitivity analyses for risk of bias and inclusion of participants aged over 18. We repeated the main analyses with only studies rated as being at low risk of bias for all items except for participant/ personnel blinding (as this is not usually possible within trials of psychological interventions). In addition, as some studies included young people aged 18–25, we conducted analysis of the main intervention effect without these studies included. Finally, we conducted the main analyses using only child-report measures, only parent-report measures and only observer-report measures to determine whether the source of outcome affected the intervention effect.

Treatment acceptability was only analysed qualitatively, as the data were not suitable for meta-analysis.

Assessment of heterogeneity

Statistical heterogeneity was assessed using the I^2 and Cochran's Q statistics (Higgins, Thompson, Deeks, & Altman, 2003). Cochran's Q refers to the summed squared deviations of each study's effect size estimate from the overall meta-analytic effect size estimate. This is compared to a X^2 distribution with $k-1$ degrees of freedom (where k is the number of studies) to derive a p-value. A significant p-value indicates that the effect sizes of different studies may have arisen from different populations. It is commonly used in meta-analysis; however, it has low power for detecting true heterogeneity when there are small numbers of studies. I^2 refers to the percentage of total variation that is due to heterogeneity rather than chance. $I^2 = 100\% \times (Q - df)/Q$, where Q is Cochran's heterogeneity statistic and df is the degrees of freedom. A value of 0% indicates no

observed heterogeneity and larger values show increasing heterogeneity.

Assessment of small study effects

A funnel plot was visually inspected to investigate small-study effects. We also conducted Egger's test to examine the asymmetry of the funnel plot (Egger, Smith, Schneider, & Minder, 1997). Duval and Tweedie (2000) trim-and-fill analysis was used to obtain an unbiased estimate of the pooled effect size. This is a nonparametric data augmentation technique which is used to estimate the number of studies missing from a meta-analysis due to suppression of the most extreme results of the funnel plot. It then imputes from observed data to increase the symmetry of the plot. This method has been criticised as being at high risk of generating false-positives and therefore the results need to be interpreted with some caution (Sterne & Egger, 2011).

Results

Fifty studies met inclusion criteria for the meta-analysis of self-help for anxiety, depression and/or disruptive behaviour disorders in children and young people (see Figure 1 for PRISMA flowchart of study selection), with a total of 3396 children in self-help conditions, 1100 in face-to-face therapy groups and 2366 in control groups. Nineteen studies investigated treatment for disruptive behaviour, 15 investigated treatment for anxiety and 13 investigated treatment for depression. Three investigated treatments for multiple diagnoses (two for depression and anxiety combined, and McGrath et al., 2011a, included groups of children with anxiety and disruptive behaviour, which were analysed separately). Six compared against another therapy only, 35 compared against control groups and nine compared against both. Face-to-face therapies typically included evidence-based individual Cognitive Behavioural Therapy (CBT) programmes for anxiety and depression and individual or group parenting programmes for behavioural difficulties. Full study and intervention characteristics are outlined in Table 1.

Risk of bias

All studies were considered to be at high risk of bias for blinding of participants and personnel, as all were studies of psychological interventions. Of the remaining five criteria considered in the review, 12 studies had low risk of bias across all five, 10 had low risk for four, 12 had low risk for three, 10 had low risk for two, six had low risk for one and none had high risk across all criteria. Thirty-four adequately described random sequence generation, 24 described adequate allocation concealment, 47 described blinding of outcome assessment, 32 had adequate data completion across arms and 24 were registered on a trials database and reported the same outcomes in the final paper. Ten percent of studies were rated by a second rater and there was complete agreement for all domains except
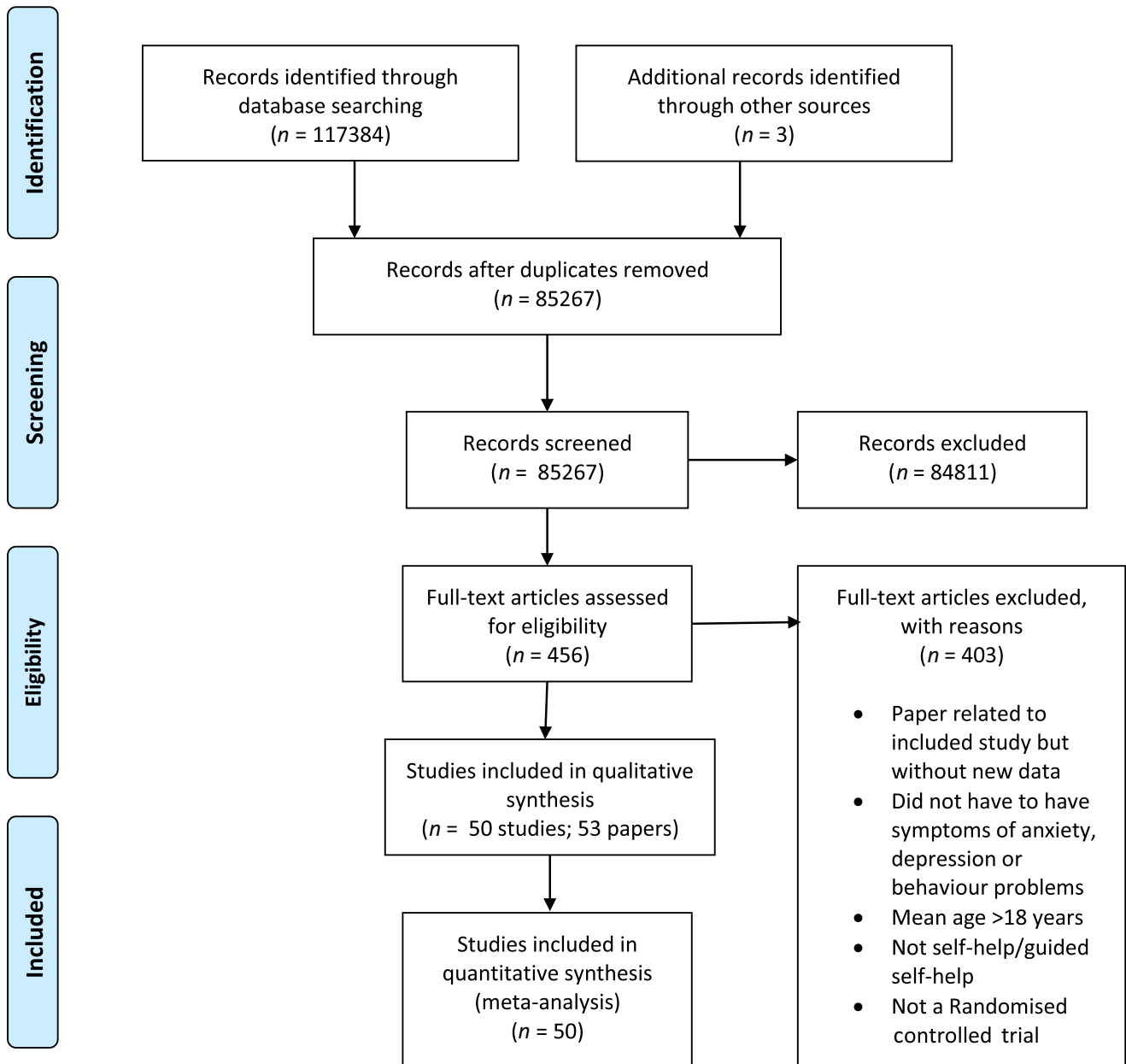
Figure 1 PRISMA flow diagram of study selection [Colour figure can be viewed at wileyonlinelibrary.com]

incomplete outcome data, which was $k = 0.6$. This item is somewhat subjective as there is no clear definition of low attrition. Table 1 provides data on risk of bias for each of the studies.

Treatment Acceptability

Both young people and parents appeared to find self-help and guided self-help interventions acceptable, as indexed by self-reported satisfaction (Appendix S2). Some studies demonstrated lower acceptability for self-help arms in comparison to face-to-face treatment. For studies that compared both guided and unguided interventions, many found that the guided treatment was more acceptable to young people and parents. None found a preference for the unguided treatment.

Meta-analysis

Separate analyses are presented for studies comparing against a control group (Table 2) and those comparing against another therapy (Table 3), as well as for anxiety, depression and behaviour interventions within these (Appendix S3). A final set of analyses considered only those studies considered to be at low risk of bias (Appendix S4).

Self-help versus control. See Figure 2 for a forest plot of effect sizes for studies with a control condition (Table 2). The effect of self-help and guided self-help combined on symptoms of common mental health disorders when compared to a control group (including waiting list, attention and nonactive treatment as usual) was $g = 0.49$ ($n = 44$; 95% CI: 0.37 to 0.61,

Table 1 Study and intervention characteristics

Paper	RoB	Primary symptom (Anxiety, Behaviour, Depression)	Country	Inc. >18	Mean age (years)	% Male	N self-help	N (control)	Inclusion Criteria	Dx confirmed by formal dx interview?	Outcomes	Type of Control	Self help Intervention	Format	Guidance method
Baker 2017	—+——	B	Australia	N	4.4	55	100	100	1 or more of disobedience, fighting and aggression, going shopping, self-esteem identified as an area of concern, SDQ>13	N	ECBI (P, SR); CAPES (P, SR); PCPTOS (Y, O; P; O)	WLC	Triple P Online Brief	Online	Email and then telephone if no response
Berkovits 2010	+++?	B	USA	N	4.29	70	17	13	ECBI intensity 68-132	N	ECBI (P, SR)	F2F	PCIT- Anticipatory Guidance	Paper	Telephone
Chavira 2014	??+ — — —	A	USA	N	9.63	43.7	24	24	SocA, SepA, OCD, SpP or GAD on ADIS-C/P CSR>3	Y	A: ADIS-C/P (Y, O; P, O)	F2F	Cool Kids Outreach-therapist-supported bibliotherapy	Paper	Telephone
Cobham 2012	+++—?	A	Australia	N	9.91	63.6	20	23 (F2F) 12 (WLC)	Prim Anx Dx (GAD, SepA, SoP, SpP, Ag, PD, PTSD) on ADIS-IV-C/P CSR>3	Y	A: ADIS-C-IV-C/P (Y, O; P, O); RCMAS(Y, SR); SCAS (Y, SR); CBCL-Int (P, SR)	F2F	Do as I Do and Facing your Fears bibliotherapy	Paper	Face-to-face then telephone
Conaughton 2017	—+—?	A	Australia	N	9.74	85.7	21	21	Diagnosis Aspergers/High Functioning ASD Childhood Asperger Syndrome TestPrim Anx Dx (SepA, SpP, SAD, GAD) ADIS-C/P CSR >3	Y	ADIS-C/P (Y, O; P, O); CGAS (Y, P, O); SCAS-C (C, SR); SCAS-P (P, SR); CBCL-Int (P, SR)	WLC	BRAVE-ONLINE	Online	Email and telephone
Connell 1997	-?+—?	B	Australia	N	4.26	43.47	12	11	Total ECBI >126	N	ECBI (P, SR); PDR (P, SR)	WLC	'Every parent' book and 'every parent's workbook'. Rural communities	Paper	Telephone
Creswell 2017	—+—+	A	UK	N	9.21	47	68	68	Anxiety associated with clinical impairment	N	CGI-I (Y, P, O)	F2F	Brief guided parent-delivered CBT	Paper	Face-to-face and telephone
Donovan 2014	—+——	A	Australia	N	4.08	46.15	23	29	Prim Anx Dx (SoP, SepA, SpP, GAD) ADIS-C	Y	A: ADIS-P (P, O); CGAS (Y, O)	WLC	BRAVE-ONLINE plus booklet with age-appropriate examples	Online	Email with telephone call to develop hierarchy
Enebrink 2012	—+—?	B	Sweden	N	6.83	57.69	58	46	ECBI>1SD above mean for age group and gender/criteria for clinically relevant problems	N	A: ECBI (P, SR)	WLC	Online version of Swedish program 'comet'	Online	Email
Fleming 2012	—++——	D	New Zealand	N	14.9	56	20	12	CDRS>29	N	D: CDRS-R (Y, O);	WLC	SPARX. For adolescents excluded from mainstream education	Computer	Face-to-face/telephone

(continued)

Table 1 (continued)

Paper	RoB	Primary symptom (Anxiety, Behaviour, Depression)	Country	Inc. >18	Mean age (years)	% Male	N self-help	N (control)	Inclusion Criteria	Dx confirmed by formal dx interview?	Outcomes	Type of Control	Self help Intervention	Format	Guidance method
Hinton 2017	–?+––x	B	Australia	N	6.01	76	51	47	Parent reported behaviour problems and presence of Developmental Disability	N	DBC-P (P, SR); CAPES-DD (P, SR)	TAU (not active)	Triple P Online – Disability (TPOL-D)	Online	Telephone/email
Hoek 2012	–?+–––	D&A	Netherlands	Y	16.07	24.4	22	23	Mild/moderate depr/anx on CES-D 255 < 41	N	CES-D (Y, SR); HADS (Y, SR)	WLC	Problem Solving Therapy	Online	Email
Ip 2016	––+–––	D	Hong Kong	N	14.63	82	130	127	CESD-R 12–40	N	CES-D (Y, SR)	ATTN	Grasp the Opportunity (culturally modified version of CATCH-IT)	Online	N/A
Irvine 2015	??+ – –?	B	USA	N	13.01	52.9	155	152	>4 problematic behaviours (e.g. poor grades, trouble at school, drug use, associating with troublesome peers).	N	B: ECBI (P, SR)	WLC	Parenting Toolkit	Online	N/A
Keller 2009	–?+––?	A	USA	N	8.41	51.35	22	15	GAD > 8, SepA > 4/SpP > 7 on SCARED-P	Y	CBCL-Int (P, SR); SCARED-P (P, SR), SCARED (Y,SR); CAIS (P, SR); DISC IV-P (P, O), RCMAS (Y, SR); Child hierarchy ratings (Y, P, SR)	WLC	Help4anxiouskids.com – Based on Rapee Helping your anxious child: A step-by-step guide for parents	Online	Telephone
Kierfeld 2013	––+––?	B	Germany	N	5.2	50	26	22	CBCL in 75th to 85th‰	N	CBCL (P, SR); FBB-SSV – ODD subscale (P, SR)	WLC	305-page self-help book in 11 chapters	Paper	Telephone
Kling 2010	??++	B	Sweden	N	6	60	61	58 (F2F) 40 (WLC)	SDQ impact/burden > 90th percentile	N	PDR (P, SR); ECBI (P, SR)	F2F WLC	COMET (Communication Method) – includes components of Barkley, Webster Stratton, Bloomquist & Schnell)	Paper	Face-to-face workshop then none
Lavigne 2008	+?+––?	B	USA	N	4.6	53	31	F2F (nurse-led) 49 F2F (psychologist-led) 37	CBCL ≥ 90th percentile, ODD on DSM-IV (from RABI; observation of parent-child interaction; ECBI; CBCL)	Y	ECBI (P, SR); CBCL externalising (P, SR)	F2F	Incredible Years	Paper	N/A
Lillevoll 2014	–?+–+	D	Norway	Y	16.8	43.2	527 (total) 176 (no reminders) 176 (standard email) 175 (tailored email)	180	None (completed baseline survey) but analysed those with reported need of help	N	CES-D (Y, SR)	WLC	MoodGYM	Online	N/A

(continued)

Table 1 (continued)

Paper	RoB	Primary symptom (Anxiety, Behaviour, Depression)	Country	Inc. >18	Mean age (years)	% Male	N self-help	N (control)	Inclusion Criteria	Dx confirmed by formal dx interview?	Outcomes	Type of Control	Self help Intervention	Format	Guidance method
Lyneham 2006	??+ –+?	A	Australia	N	9.42	51	28 (telephone) 21 (email) 29 (client-initiated)	22	Prim Anx Dx	N	SCAS (P, Y, SR)	WLC	Helping your anxious child: A step by step guide for parents	Paper	A. Telephone B. email C. Telephone and email
Makarushka 2011	??+ –+?	D	USA	N	12.7	44	75	85	CES-D > 13 and K-SADS, excl: mood dis	N	CES-D (Y, SR)	WLC/ATTN	Blues Blaster	Online	N/A
March 2009	–+–+?	A	Australia	N	9.45	45	44	33	Clinical or at-risk range on CBCL-Int or SCAS-C/P and ADIS-C/P ≥ 4	Y	ADIS-C/P (Y, P, O); CGAS (P, Y, O); SCAS-C/P (Y, P, SR); CBCL-R internalising (P, SR)	WLC	BRAVE for children – ONLINE	Online	Email and telephone
McGrath 2011	–+–+––	B&A	Canada	N	ODD:4.92 Anx:8.59 Both:6.87	77.5 36.26	ODD: 39 Anx:50	ODD: 41 Anx: 41	K-SADS-PL, mild/moderate primary dx with impairment in two or more domains	Y	K-SADS-PL (P, Y, O)	TAU	A. Strongest families (parenting the active child) B. Strongest families (chase worries away)	Paper	Telephone
Merry 2012	–+–+––	D	NZ	Y	15.56	34.22	94	93	PHQ-9 10–19, or clinically significant depression	N	CDRS-R (Y, O)	TAU	SPARX	Computer	N/A
Morawska 2006	–?+–+?	B	Australia	N	2.18	50.8	85 (total) 43 (therapist assisted) 42 (self-delivered)	41	Parent reported concerns about child behaviour	N	B: ECBI (P, SR); FOS (P, C, O)	WLC	Every parent's self-help workbook and every parent's survival guide	Paper	A. Telephone B. N/A
Morawska 2014	–+–++?	B	Australia	N	6.06	61.9	73	66	Parent reported concerns about child behaviour	N	ECBI (P, SR); CAPES (P, SR)	WLC	Triple P-Positive Parenting Program Podcast	Podcast	N/A
Poppleaars 2016	–?+–+–	D	Netherlands	N	13.3	0	51	51 (Active Monitoring) 50 (F2F)	RADS-2 < 58	N	RADS-2 (Y, SR)	Attention F2F	SPARX	Computer	N/A
Rabbitt 2016	+++++?	B	USA	N	8.48	58	46	40	Referral for oppositional, aggressive, or antisocial behaviour	N	CBCL (P, SR); IAB (P, SR); CGAS (P,C,O); RDI (P,C,O)	F2F (internet)	Reduced Contact Parent Management Training	Online	Telephone and email
Rapee 2006	–+–+?	A	Australia	N	9.51	58.45	90	87 (WLC) 90 (F2F)	ADIS-CP Prim Dx Anx Dis on DSM-IV	Y	A: ADIS-CP (P, Y, O); SCAS (P, Y, SR)	WLC F2F	Parenting Matters	Paper	Telephone
Reid 2013	–+–+––	B	Canada	N	3.2	56	82	82	Parent reported concerns about child behaviour	N	ECBI (P, SR)	TAU (not active)	Helping your anxious child: A step by step guide	Paper	N/A
Rickhi 2015	? –+ – – J	D	Canada	N	15.3	22.2	16	13	Mild/Moderate Depr on DSM-IV-TR, CDRS-R 40 > 70	Y	D: CDRS-R (Y, O)	WLC	LEAP: Spiritually informed e mental health tool	Online	N/A
Rohde 2014	–?+–+?	D	Canada	Y	15.5	32	128	126 (F2F) 124 (ATTN)	2+ symptoms on adapted CES-D	N	D: adapted K-SADS (Y, O)	F2F ATTN	Feeling Good	Paper	Telephone

Table 1 (continued)

Paper	RoB	Primary symptom (Anxiety, Behaviour, Depression)	Country	Inc. >18	Mean age (years)	% Male	N self-help	N (control)	Inclusion Criteria	Dx confirmed by formal dx interview?	Outcomes	Type of Control	Self help Intervention	Format	Guidance method
Sanders 2000	??+ –+?	B	Australia	N	3.33	68	75	77 (SBFI) 76 (EBFI) 77 (WLC)	ECBI intensity > 127 or ECBI problem >11 and ≥ 1 family adversity factor	N	FOS-RIII negative child behaviour (P, Y, O); ECBI (P, SR); PDR (P, SR)	F2F (SBFI – STANDARD) F2F (EBFI – ENHANCED) WLC	Level 4 Self-help Triple P	Paper	N/A
Sanders 2012	–?+——?	B	Australia	N	4.7	67	60	56	Elevated levels of child behaviour problems on ECBI	N	ECBI (P, SR); SDQ conduct (P, SR); FOS (Y, P, O)	WLC	Triple P Online (TPOL)	Online	Tel
Smith 2015	——+——	D	UK	N	14 (Median)	Not reported	55	57	MFQ-C ≥ 20	N	D: MFQ-C (Y, SR)	WLC	Stressbusters	Computer	N/A
Souander 2016	——+——	B	Finland	N	4.0	61.9	232	232	SDQ conduct problems ≥ 5 Parent reported behaviour difficulties	N	CBCL-Int (P, SR)	Education control	Strongest Families Smart Website (SFSW)	Online	Telephone
Spence 2011	——+———	A	Australia	N	13.98	40.87	44	44 (F2F) 27 (WLC)	Prim Dx SAD, SoP, GAD, SpP	Y	A: ADIS-C/P (Y, P, O)	WLC F2F	BRAVE-online vs. BRAVE Clinic	Online	Telephone and email
Spence 2017	——+—+-	A	Australia	N	11.29	25	48 (CBT-Generic) 47 (CBT-SAD specific)	30	ADIS C/P SAD primary anxiety disorder, with CSR>3	Y	ADIS-C/P (Y, P, O), CGAS (Y, P, O)	WLC	BRAVE-ONLINE (CBT Generic) and Social Anxiety Disorder specific CBT	Online	Telephone and email
Stallard 2011	?+ –+?	A&D	UK	N	12 (Median)	66.7	10	10	Prim Anx Dis or mild/moderate depr	N	A/D: SDQ (P, SR); SCAS (Y, SR); AWS (Y, SR)	WLC	Think Feel Do	Computer	Face-to-face
Stallman 2007	–?+——?	B	Australia	N	12.41 (enhanced) 12.22 (standard) 12.19 (WLC)	60.8	17 (enhanced) 18 (standard)	16	Parental concern regarding behaviour	N	B: SDQ (P, SR)	WLC	Self-directed Teen Triple P	Paper	Telephone
Stasiak 2014	——+———	D	NZ	N	15.2	59	17	17	CDRS-R ≥ 30, or RADS-2 ≥ 76	N	CDRS-R (Y, O); RADS-2 (Y, SR)	ATTN	'Feeling good' (Burns, 1980)	Paper	N/A
Stice 2008	–?+———	D	USA	Y	15.6	44	80	89 (F2F – CBT group) 88 (F2F – supportive-expressive) 84 (TAU)	CES-D ≥ 20	N	D: Adapted version K-SADS (Y, O); BDI (Y, SR)	F2F TAU	The Journey' computerised CBT	Computer	N/A
Thirlwall 2013	——+———	A	UK	N	Median =9.5	52	64 (full) 61 (brief)	69	Prim Diag of GAD, SoP, SepA, PD, SpP on ADIS DSM-IV	Y	A: ADIS-C/P (Y, P, O); CGI-I (Y, P, O)	WLC	Overcoming your Child's Fears and Worries	Paper	A&B: Face-to-face and telephone
Tillfors 2011	+?+——?	A	Sweden	Y	16.5	11	10	9	SAD on SPSQ-C, SCID, public speaking fears	Y	A:SPSQ-C (Y, SR); LSAS-SR (Y, SR);	WLC	Adult version of the written program has been released as a self-help book in Sweden (Furmark, Holmstrom, Sparthan, Carlbring, & Andersson, 2006)	Online	Email

Table 1 (continued)

Paper	RoB	Primary symptom (Anxiety, Behaviour, Depression)	Country	Inc. >18	Mean age (years)	% Male	N self-help	N (control)	Inclusion Criteria	Dx confirmed by formal dx interview?	Outcomes	Type of Control	Self help Intervention	Format	Guidance method
Vigerland 2016	?? ++---	A	Sweden	N	10.1	45	46	47	Prim diag of GAD, SepA, SOP, PD, or SpP on ADIS-C/P	Y	ADIS Clinical Severity Rating (Y, O)	WLC	Previously evaluated for specific phobia	Online	Telephone and email
Wannachaiyakul, 2017	--+--?	D	Thailand	Y	17.74	93	42	42	Incarcerated >6 months, PHQ-9 9-19	N	PHQ-9 (Y, SR)	Non active TAU	Guided Self-Help CBT Program with Therapist Support	Computer	Email
Webster-Stratton 1988	??+--+?	B	Australia	N	4.5	69	29	28 (group discussion) 27 (group discussion videotape modelling) 29 (WLC)	Primary referral problem of misconduct, occurring for > 6 months, clinically sig. number of behavioural problems on ECBI	N	B: CBCL (P, SR); ECBI (P, SR); PDR (P, SR); DPICS total child deviance (Y, O); PBQ (T, SR);	F2F – video group F2F – group discussion WLC	Individually self-administered videotape modelling treatment (IVM)	Video	N/A
Webster-Stratton 1990	??+--?	B	Australia	N	5.1	79.07	17 (IVM) 16 (IVM + therapist Consultation)	14	ECBI ≥11	N	B: CBCL (P, SR); ECBI (P, SR); PDR (P, SR); DPICS total child deviance (Y, O); PBQ (T, SR);	WLC	Individually Administered Videotape Modelling Treatment	Video	Face-to-face and telephone
Wright 2017	--+-+-	D	UK	N	15.35	34	45	46	MFQ≥20	N	MFQ (Y, SR); BDI (Y, SR)	ATTN	Stressbusters	Computer	N/A
Wuthrich 2012	--+----	A	Australia	N	15.17	37	24	19	ADIS-IV-C/P Prim Anx Dis	Y	A: ADIS-C/P (Y, P, O); SCAS-C (Y, SR); SCAS-P (P, SR); SDQEmot (P, SR); CATS (Y, SR);	WLC	Cool teens	Computer	Telephone

RoB – Risk of Bias; + = high risk of bias, − = low risk of bias, ? = unclear risk of bias, for each of the categories considered: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data and selective reporting.

Primary Symptom; A = Anxiety, B = Behavioural difficulties, D = Depression.

Inc. >18 – Study included young people over 18 years of age; Y = Yes, N = No.

Dx confirmed by formal dx interview? – Study participants were diagnosed with a mental health disorder using a validated diagnostic instrument/interview; Y = Yes, N = No.

Inclusion criteria used in the meta-analysis: ADIS-C/P = Anxiety Disorders Interview Schedule Child/Parent versions; ADIS-IV-C/P = Anxiety Disorders Interview Schedule Child/Parent version IV; CBCL = Child Behaviour Checklist; CBCL-Int = Child Behaviour Checklist – Internalising subscale; CDRS-R = Children's Depression Rating Scale – Revised; CES-D = Centre for Epidemiologic Studies Depression Scale; CESD-R = Centre for Epidemiologic Studies Depression Scale Revised; DSM-IV = Diagnostic and Statistical Manual of Mental Disorders Fourth Edition; DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision; ECBI = Eyberg Child Behaviour Inventory; ECBI – I = Eyberg Child Behaviour Inventory Intensity Scale; K-SADS = Schedule for Affective Disorders and Schizophrenia for School Aged Children; K-SADS-PL = Schedule for Affective Disorders and Schizophrenia for School Aged Children – Present and lifetime version; MFQ = Mood and Feelings Questionnaire; MFQ-C = Mood and Feelings Questionnaire Child Version; PHQ-9 = Patient Health Questionnaire; RABI = Rochester Adaptive Behaviour Inventory; RADS-2 = Reynolds Adolescent Depression Scale; SCARED-P = Screen for Child Anxiety Related Disorders Parent Version; SCAS-C = Spence Children's Anxiety Scale – Child Report; SCAS-P = Spence Children's Anxiety Scale – Parent report; SCID = Structured Clinical Interview for DSM-IV; SDQ = Strengths and Difficulties Questionnaire; SPSQ-C = Social Phobia Screening Questionnaire for Children;

Other terms used in the inclusion criteria section: Anx = anxiety; Ag = agoraphobia; CSR = clinical severity rating; Diag = diagnosis; depr = depression; Dis =disorder; Dx =diagnosis; excl = excluding; GAD = generalised anxiety disorder; mood dis = mood disorder; OCD = obsessive compulsive disorder; PD = panic disorder; Prim = primary; PTSD = post traumatic stress disorder; SAD = Social Anxiety Disorder; SepA = separation anxiety; SoP = Social Phobia; SpP = specific phobia.

Outcomes used in the meta-analysis: ACS = Adolescent Coping Scale; ADAS = Abbreviated Dyadic Adjustment Scale; ADIS-C/P = Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions; ADIS-IV-C/P = anxiety disorders interview schedule child/parent version IV; ALIS = Adolescent Life Interference Scale; ATQ = Automatic Thoughts Questionnaire; AWS = Adolescent Well-being Scale; BADS = Behavioural Activation for Depression Scale; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BTPS = Barriers to treatment Participation Scale; CAIS-P = Child Anxiety Impact Scale – Parent report; CAPES = Child Adjustment and Parent Efficacy Scale; CAPES- DD = Child Adjustment and Parent Efficacy Scale –

developmental disability; CATS = Children's Automatic Thoughts Scale; CBCL = Child Behaviour Checklist; CBCL-Int = Child Behaviour Checklist – Internalising subscale; CBCL-R = Child Behaviour Checklist – Revised; CBQ-A = Conflict Behaviour Questionnaire – Adolescent Version; CDI = Children's Depression Inventory; CDRS-R = Children's Depression Rating Scale – Revised; CEQ = Computer Experience Questionnaire; CES-D = Centre for Epidemiologic Studies Depression Scale; CESD-R = Centre for Epidemiologic Studies Depression Scale Revised; CGAS = Children's Global Assessment Scale; CGI-I = Clinical Global Impression Improvement Scale; CNSIE = Children's Nowicki-Strickland Internal-External Control Scale short; CSQ = Client Satisfaction Questionnaire; DASS = Depression-Anxiety-Stress Scale; DBC-P = Developmental behaviour checklist; DISC = Diagnostic Interview Schedule for Children; DISC IV-P = Diagnostic Interview Schedule for Children Parent Version; DPICS = Dyadic Parent-Child Interaction Coding System; ECBI = Eyberg Child Behaviour Inventory; ECBI-I = Eyberg Child Behaviour Inventory Intensity Scale; FBB-ADHD = The Rating Scale for ADHD; FBB-SSV = The Rating Scale for ODD and CD; FBQ = Family Background Questionnaire; FOS = Family Observation Schedule; FOS-RIII = Revised Family Observation Schedule; FSSC-R = Fear Survey Schedule for Children – Revised; GSE = General Self-Efficacy Scale; HADS = Hospital Anxiety and Depression Scale; HADS-A = Hospital Anxiety and Depression Scale Anxiety Subscale; HPLS = Kazdin Hopelessness Scale; HSQ = Home Situation Questionnaire; IAB = Interview for Antisocial Behaviour; KHSC = Kazdin Hopelessness Scale for Children – Present and lifetime version; LSAS-SR = Liebowitz Social Anxiety Scale; MADRS-S = self-rated version of = Schedule for Affective Disorders and Schizophrenia for School Aged Children; K-SADS = Schedule for Affective Disorders and Schizophrenia for School Aged Children; K-SADS-PL the Montgomery – Asberg Depression Rating Scale; MASC = Multidimensional Anxiety Scale for Children; MFQ = Mood and Feelings Questionnaire; MFQ-C = Mood and Feelings Questionnaire Child Version; NIMH DISC-IV = depression and anxiety subscales of the National Institute of Mental Health Diagnostic Interview Schedule for Children Version IV; PAI = Parental Anger Inventory; PAQ = Preferences and Attitudes Questionnaire; PBQ = Behar Preschool Behaviour Questionnaire; PCPTOS = Parent-Child Play Task Observation Schedule; P-Comp = Social Competence Scale – Parent; PDR = Parent Daily Report; PedsQL = Paediatric Quality of Life Inventory; PHQ-9 = Patient Health Questionnaire; PPC = Parent Problem Checklist; PPI = Parent Practices Interview; PPS = Parenting Practices Scale; PPVT = Peabody Picture Vocabulary Test; PQ-LES-Q = Paediatric Quality of Life Enjoyment and Satisfaction Questionnaires; PS = Parenting Scale; PSA = Parenting Scale Adolescent Version; PSBC = Problem Setting and Behaviour Checklist; PSI = Parenting Stress Index; PSOC = Parenting Sense of Competency Scale; PSWQ-C/P = Penn State worry questionnaire for children; PTC = Parenting Task Checklist; QJPS = Questionnaire on Judging Parental Strains; QOLI = Quality of Life Inventory; RABI = Rochester Adaptive Behaviour Inventory; RADS-2 = Reynolds Adolescent Depression Scale; RCMAS = Revised Children's Manifest Anxiety Scale; RDI = Research Diagnostic Interview; RQI = Relationship Quality Index; RSES = Rosenberg Self Esteem Scale; SAI-C = Separation Anxiety Inventory for Children; SAS = Spence Children's Anxiety Scale; SAS-SRY = Social Adjustment Scale Self Report for Youth; SCAS = Spence Children's Anxiety Scale – Child Report; SCAS-C = Spence Children's Anxiety Scale; SCAS-P = Spence Children's Anxiety Scale – Parent report; SCARED = Screen for Child Anxiety Related Disorders; SCID = Structured Clinical Interview for DSM-IV; SQC = Schema Questionnaire for Children; SDQ = Strengths and Difficulties Questionnaire; SDQEmot = Strengths and Difficulties Questionnaire Emotional Subscale; SESBI = Sutter-Eyberg Student Behaviour Inventory; SMFQ-C/P = Short Mood and Feelings Questionnaire; SPAI-C/P = Social phobia and Anxiety Inventory; SPSQ-C = Social Phobia Screening Questionnaire for Children; SWBS = Spiritual and Well-Being Scale; TAAF = Therapeutic Alliance, Adherence and Flexibility; TCQ = Toddler Care Questionnaire; YSR = Youth Self Report.

Other terms used in the outcome section: P = Parent; SR = Self-report; Y = Youth; O = Observer; A = Anxiety; B = Behaviour.

Type of Control; ATTN = Attention Control; EBFI = enhanced Behavioural Family Intervention; F2F = Face to Face intervention; SBFI = standard BFI; SDBFI = self-directed BFI; TAU = Treatment as Usual; WLC = Waiting List Control.

Table 2 Meta-analysis results for studies comparing self-help against a control condition

	Ncomp	g	95%CI	Z	I^2	p	NNT	Q (p)
Overall effect (post)	44	0.49	0.37 to 0.61	8.08	70.30	<.01***	3.68	144.77 (<.01)
Effect without studies inc. >18 years	38	0.50	0.37 to 0.62	7.96	66.18	<.01***	3.62	109.41 (<.01)
Only studies with low risk of bias	11	0.33	0.15 to 0.52	3.50	59.78	<.01***	5.43	24.87 (.01)
Child report only	18	0.45	0.22 to 0.68	3.83	77.60	<.01***	4.00	77.60 (<.01)
Observer report only	23	0.58	0.37 to 0.79	5.44	78.77	<.01***	3.14	103.61 (<.01)
Parent report only	21	0.48	0.33 to 0.63	6.47	60.17	<.01***	3.76	50.21 (<.01)
Effect at <12 months follow-up	14	0.25	0.17 to 0.34	5.66	<.001	<.01***	7.14	9.38 (0.74)
Effect at ≥12 months follow-up	7	0.23	0.11 to 0.35	3.74	17.34	.01***	7.69	7.26 (0.30)
Study characteristics								
Target condition								
Anxiety	13	0.64	0.38 to 0.90	4.88	70.52	.53	2.86	40.70 (<.01)
Behaviour	17	0.44	0.28 to 0.60	5.39	62.67		4.10	42.86 (<.01)
Depression	12	0.47	0.21 to 0.72	3.60	79.43		3.85	53.48 (<.01)
Mixed	2	0.22	−0.48 to 0.92	0.61	38.39		8.06	1.62 (0.20)
Meet diagnostic criteria								
No	28	0.43	0.29 to 0.57	6.13	70.57	.14	4.20	91.73 (<.01)
Yes	16	0.50	0.40 to 0.88	5.26	69.31		3.62	48.88 (<.01)
Type of self-help								
Bibliotherapy	12	0.51	0.28 to 0.74	4.35	75.51	.74	3.55	44.91 (<.01)
Computer	26	0.52	0.34 to 0.70	5.69	74.11		3.50	96.56 (<.01)
Other	6	0.43	0.27 to 0.59	5.16	<.001		4.20	2.86 (0.72)
Supported?								
Both	3	0.49	0.27 to 0.70	4.39	<.001	.01***	3.68	0.10 (0.95)
No	14	0.27	0.14 to 0.40	4.20	41.16		6.58	22.09 (0.05)
Yes	27	0.65	0.46 to 0.84	6.66	75.64		2.82	106.74 (<.01)
Type of support								
Lyneham[+]	1	0.74	0.41 to 1.08	4.34	<.001	.96	2.50	<.001 (>.99)
Email	5	0.71	0.06 to 1.36	2.14	85.84		2.60	28.25 (<.01)
Face-to-face	2	0.61	0.23 to 0.98	3.19	<.001		2.99	0.05 (0.83)
Mixed	11	0.68	0.34 to 1.02	3.95	75.49		2.70	40.79 (<.01)
Telephone	11	0.59	0.34 to 0.85	4.56	69.29		3.09	32.57 (<.01)

Ncomp = Number of comparisons; NNT = Number Needed to Treat; + = More than one condition – telephone, email and mixed.
*p < .1; **p < .05; ***p < .01.

p < .01), corresponding to the number needed to be treated to achieve one additional positive outcome (NNT) of 3.68, although heterogeneity was very high ($I^2 = 70$, $Q = 144$, $p < .01$). The effect size was smaller but remained significant at short-term ($n = 14$; $g = 0.25$, 95% CI: 0.17 to 0.34; $I^2 < .01$, $Q = 9$, $p = .74$) and long-term follow-up ($n = 7$; $g = 0.23$, 95% CI: 0.11 to 0.35; $I^2 = 17$, $Q = 7$, $p = .30$). A meta-regression analysis demonstrated no significant effect of total risk of bias on effect size ($z = −0.88$, $p = .38$).

Additional analyses were undertaken using only the 11 studies with low risk of bias across all domains with the exception of participant/personnel blinding. Considering only those with low risk of bias, the overall effect was reduced but remained significant ($g = 0.33$; 95% CI: 0.15 to 0.52, $p < .01$), corresponding to an NNT of 5.43. Again, heterogeneity for this comparison was high ($I^2 = 59$, $Q = 25$, $p < .01$).

Small study effects. A funnel plot (Figure 4A) suggested that the effect size for studies with control comparators was influenced by small studies, which was confirmed with Egger's test ($t = 4.99$; $p < .01$). Following adjustment for missing studies using the Duval and Tweedie (2000) trim-and-fill procedure

(13 imputed studies), Hedges' *g* for the overall outcome analysis was 0.29 (95% CI: 0.15 to 0.43), corresponding to an NNT of 6.17.

Subgroup and moderator analyses. All subgroups showed self-help to be more effective than the control conditions. The only significant subgroup difference was in level of support; there was a statistically significant difference ($p < .01$) between the effect sizes of guided therapies ($n = 27$; $g = 0.65$; 95% CI: 0.46 to 0.84; $I^2 = 75.64$) and those without guidance ($n = 14$; $g = 0.27$; 95% CI: 0.14 to 0.40; $I^2 = 41.16$), although heterogeneity was high in both groups. The difference was smaller and no longer statistically significant when only studies with low risk of bias were considered (supported studies $n = 7$; $g = 0.35$; 95% CI: 0.11 to 0.59; $I^2 = 56$; nonsupported studies $n = 4$; $g = 0.31$; 95% CI: −0.02 to 0.65; $I^2 = 73$). There were no other subgroup differences when only studies with low risk of bias were considered (Appendix S4). A meta-regression analysis demonstrated no significant effect of age on effect size ($z = 0.49$, $p = .62$).

Anxiety self-help versus control studies. There was a medium-large overall effect size for anxiety studies ($n = 13$; $g = 0.64$, 95% CI: 0.38 to 0.90),

Table 3 Meta-analysis results for all studies comparing self-help against face-to-face therapy

	Ncomp	g	95%CI	Z	I^2	p	NNT	Q (p)
Overall effect (post)	15	−0.17	−0.27 to −0.07	−3.27	20.64	.01[***]	10.42	17.64 (0.22)
Effect without studies inc. >18 years	12	−0.21	−0.33 to −0.08	−3.31	12.13	.01[***]	8.47	12.52 (0.33)
Only studies with low risk of bias	2	0.07	−0.16 to 0.31	0.62	<.001	.54	25.00	0.18 (0.67)
Child report only	4	0.03	−0.26 to 0.31	0.18	61.45	.86	62.50	7.78 (0.05)
Observer report only	11	−0.20	−0.40 to <.001	−1.98	72.24	.05[**]	8.93	36.03 (<.001)
Parent report only	8	−0.24	−0.37 to −0.10	−3.48	<.001	<.01[***]	7.46	6.82 (0.45)
Effect at <12 months follow-up	11	−0.09	−0.21 to 0.04	−1.39	21.17	.16	20.00	12.69 (0.24)
Effect at ≥12 months follow-up	6	−0.02	−0.16 to 0.11	−0.32	18.45	.75	83.33	6.13 (0.29)
Study characteristics								
Target condition								
Anxiety	5	−0.17	−0.41 to 0.06	−1.45	28.82	.20	10.42	5.62 (0.23)
Behaviour	6	−0.28	−0.43 to −0.13	−3.72	<.001		6.41	3.31 (0.65)
Depression	4	−0.07	−0.25 to 0.10	−0.80	39.60		25.00	4.97 (0.17)
Meet diagnostic criteria								
No	10	−0.16	−0.28 to −0.04	−2.61	24.33	.79	11.11	11.89 (0.22)
Yes	5	−0.19	−0.42 to 0.03	−1.71	28.42		9.43	5.59 (0.23)
Type of self-help								
Bibliotherapy	10	−0.25	−0.36 to −0.15	−4.78	<.001	.01[**]	7.14	8.25 (0.51)
Computer	4	0.08	−0.11 to 0.26	0.80	<.001		21.74	0.25 (0.97)
Other	1	−0.20	−0.60 to 0.20	−1.00	<.001		8.93	<.001 (>.999)
Supported?								
No	7	−0.18	−0.35 to −0.01	−2.08	52.82	.94	9.80	12.72 (0.05)
Yes	8	−0.17	−0.31 to −0.02	−2.29	<.001		10.42	4.91 (0.67)
Type of support								
Face-to-face	1	−0.27	−0.63 to 0.09	−1.48	<.001	.19	6.58	<.001 (>.99)
Mixed	4	<−0.01	−0.23 to 0.23	−0.02	<.001		>166.67	1.42 (0.70)
Telephone	3	−0.28	−0.50 to −0.06	−2.53	<.001		6.41	0.16 (0.92)

Ncomp, Number of comparisons; NNT, Number Needed to Treat.
*p < .1; **p < .05; ***p < .01.

although there was significant heterogeneity ($I^2 = 71$; $Q = 41$, $p < .01$; Appendix S3). The only moderator that could be investigated was type of self-help, as all but one study included established diagnosis and all but one included guidance; this comparison was not statistically significant ($p = .16$).

Disruptive behaviour self-help versus control studies. Disruptive behaviour interventions demonstrated an overall medium effect size ($n = 17$; $g = 0.44$; 95% CI: 0.28 to 0.60), although heterogeneity was again high ($I^2 = 63$; $Q = 43$, $p < .01$; Appendix S3). The effect was not significant when only studies with low risk of bias were considered ($n = 3$; $g = 0.20$, 95% CI: −0.10 to 0.51; $I^2 = 58$; $Q = 4.81$, $p = .09$). The only significant comparison was between supported interventions ($n = 9$; $g = 0.62$, 95% CI: 0.34 to 0.90; $I^2 = 69$), studies with supported and unsupported arms ($n = 3$; $g = 0.49$, 95% CI: 0.27 to 0.70, $I^2 < 0.01$) and nonsupported studies ($n = 5$; $g = 0.15$, 95% CI: 0.01 to 0.29, $I^2 < 0.01$), with supported interventions demonstrating larger effect sizes.

Depression self-help versus control studies. An overall medium effect size was found for depression studies ($n = 12$; $g = 0.47$, 95% CI: 0.24 to 0.72, $p < .01$), although heterogeneity was high ($I^2 = 79$; $Q = 53$, $p < .01$; Appendix S3). Studies with guidance ($n = 4$; $g = 0.78$, 95% CI: −0.03 to 1.58, $I^2 = 92$) had a greater effect size than unguided studies ($n = 8$; $g = 0.34$, 95% CI: 0.14 to 0.55, $I^2 = 54$) but there was high heterogeneity and the difference was not statistically significant ($p = .30$).

Self-help versus face-to-face therapy

Overall, the effect of self-help (both guided and unguided) on symptoms of common mental health disorders for the 15 studies that compared it to face-to-face therapy was $g = −0.17$ (95% CI: −0.27 to −0.07; $p < .01$) in favour of the face-to-face therapies (Table 3). This corresponds to an NNT to achieve one additional positive outcome of 10.42. Heterogeneity was low ($I^2 = 21$; $Q = 18$, $p = .22$). A regression analysis demonstrated a significant effect of total risk of bias on effect size ($z = 2.26$, $p = .02$), with lower risk associated with a more positive effect size (i.e. closer to the effect of standard face-to-face treatment).

See Figure 3 for a forest plot of effect sizes for studies comparing against an alternative therapy and Table 3 for effect size data. There was no significant difference in comparison with alternative therapies at either short-term (<12 months) or long-term (≥12 months) follow-up.

Small study effects. A funnel plot did not demonstrate small study effects in the studies comparing self-help against other therapies (Figure 4B) and
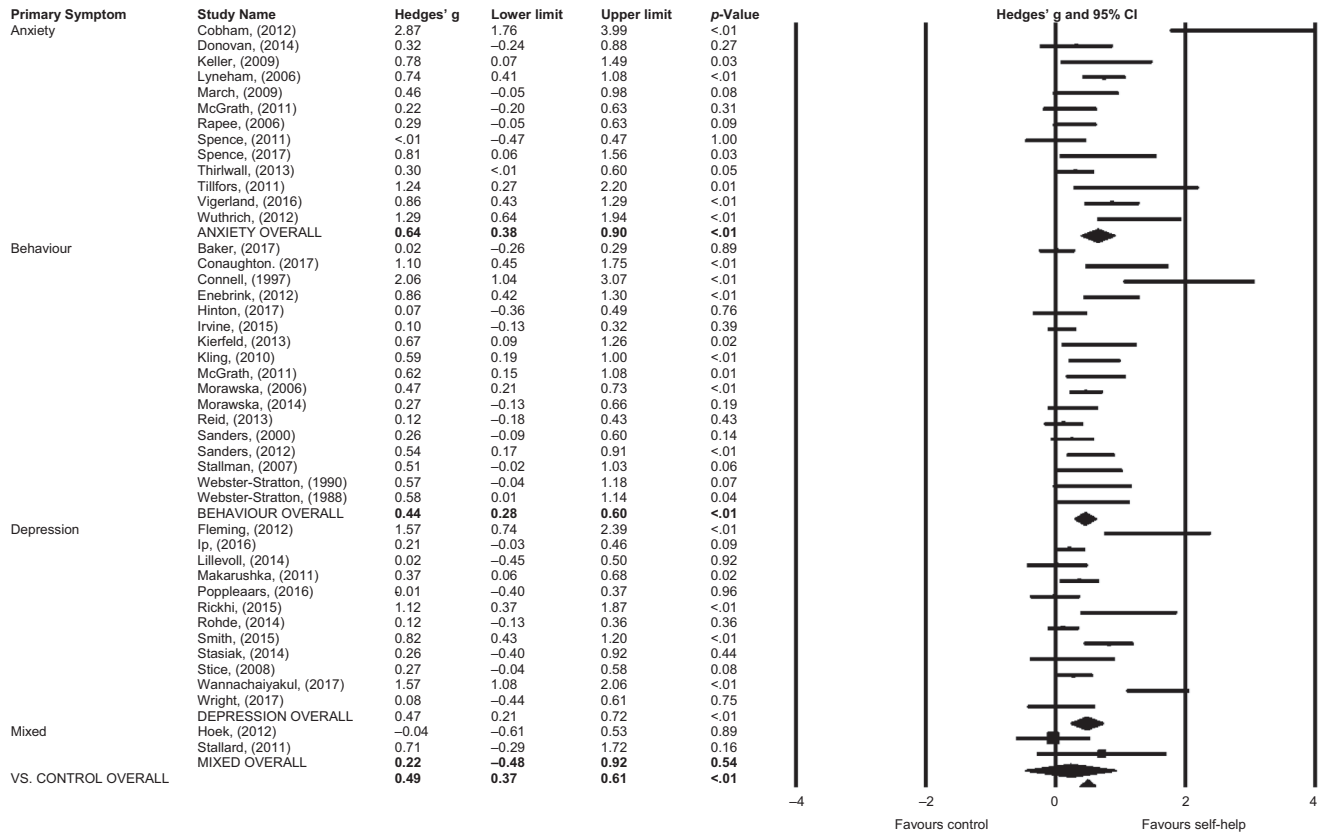
Primary Symptom	Study Name	Hedges' g	Lower limit	Upper limit	p-Value	Hedges' g and 95% CI
Anxiety	Cobham, (2012)	2.87	1.76	3.99	<.01	
	Donovan, (2014)	0.32	−0.24	0.88	0.27	
	Keller, (2009)	0.78	0.07	1.49	0.03	
	Lyneham, (2006)	0.74	0.41	1.08	<.01	
	March, (2009)	0.46	−0.05	0.98	0.08	
	McGrath, (2011)	0.22	−0.20	0.63	0.31	
	Rapee, (2006)	0.29	−0.05	0.63	0.09	
	Spence, (2011)	<.01	−0.47	0.47	1.00	
	Spence, (2017)	0.81	0.06	1.56	0.03	
	Thirlwall, (2013)	0.30	<.01	0.60	0.05	
	Tillfors, (2011)	1.24	0.27	2.20	0.01	
	Vigerland, (2016)	0.86	0.43	1.29	<.01	
	Wuthrich, (2012)	1.29	0.64	1.94	<.01	
	ANXIETY OVERALL	**0.64**	**0.38**	**0.90**	**<.01**	
Behaviour	Baker, (2017)	0.02	−0.26	0.29	0.89	
	Conaughton. (2017)	1.10	0.45	1.75	<.01	
	Connell, (1997)	2.06	1.04	3.07	<.01	
	Enebrink, (2012)	0.86	0.42	1.30	<.01	
	Hinton, (2017)	0.07	−0.36	0.49	0.76	
	Irvine, (2015)	0.10	−0.13	0.32	0.39	
	Kierfeld, (2013)	0.67	0.09	1.26	0.02	
	Kling, (2010)	0.59	0.19	1.00	<.01	
	McGrath, (2011)	0.62	0.15	1.08	0.01	
	Morawska, (2006)	0.47	0.21	0.73	<.01	
	Morawska, (2014)	0.27	−0.13	0.66	0.19	
	Reid, (2013)	0.12	−0.18	0.43	0.43	
	Sanders, (2000)	0.26	−0.09	0.60	0.14	
	Sanders, (2012)	0.54	0.17	0.91	<.01	
	Stallman, (2007)	0.51	−0.02	1.03	0.06	
	Webster-Stratton, (1990)	0.57	−0.04	1.18	0.07	
	Webster-Stratton, (1988)	0.58	0.01	1.14	0.04	
	BEHAVIOUR OVERALL	**0.44**	**0.28**	**0.60**	**<.01**	
Depression	Fleming, (2012)	1.57	0.74	2.39	<.01	
	Ip, (2016)	0.21	−0.03	0.46	0.09	
	Lillevoll, (2014)	0.02	−0.45	0.50	0.92	
	Makarushka, (2011)	0.37	0.06	0.68	0.02	
	Poppleaars, (2016)	0.01	−0.40	0.37	0.96	
	Rickhi, (2015)	1.12	0.37	1.87	<.01	
	Rohde, (2014)	0.12	−0.13	0.36	0.36	
	Smith, (2015)	0.82	0.43	1.20	<.01	
	Stasiak, (2014)	0.26	−0.40	0.92	0.44	
	Stice, (2008)	0.27	−0.04	0.58	0.08	
	Wannachaiyakul, (2017)	1.57	1.08	2.06	<.01	
	Wright, (2017)	0.08	−0.44	0.61	0.75	
	DEPRESSION OVERALL	0.47	0.21	0.72	<.01	
Mixed	Hoek, (2012)	−0.04	−0.61	0.53	0.89	
	Stallard, (2011)	0.71	−0.29	1.72	0.16	
	MIXED OVERALL	**0.22**	**−0.48**	**0.92**	**0.54**	
VS. CONTROL OVERALL		**0.49**	**0.37**	**0.61**	**<.01**	

Favours control — Favours self-help (scale −4 to 4)

Figure 2 Forest plot of effect sizes for studies comparing self-help with a control therapy.

Primary symptom	Study Name	Hedges' g	Lower limit	Upper limit	p-value	Hedges' g and 95% CI
Anxiety	Chavira, (2014)	−0.38	−0.94	0.18	0.18	
	Cobham, (2012)	0.28	−0.31	0.88	0.36	
	Creswell, (2017)	−0.15	−0.55	0.25	0.46	
	Rapee, (2006)	−0.43	−0.78	−0.09	0.01	
	Spence, (2011)	<.01	−0.41	0.41	1.00	
	ANXIETY OVERALL	**−0.17**	**−0.41**	**0.06**	**0.15**	
Behaviour	Berkovits, (2010)	−0.22	−1.03	0.59	0.59	
	Kling, (2010)	−0.27	−0.63	0.09	0.14	
	Lavigne, (2008)	−0.23	−0.55	0.10	0.17	
	Rabbitt, (2016)	0.03	−0.47	0.53	0.91	
	Sanders, (2000)	−0.44	−0.69	−0.19	<.01	
	Webster-Stratton, (1988)	−0.20	−0.60	0.20	0.32	
	BEHAVIOUR OVERALL	**−0.28**	**−0.43**	**−0.13**	**<.01**	
Depression	Merry, (2012)	0.11	−0.18	0.39	0.45	
	Poppleaars, (2016)	0.11	−0.28	0.50	0.57	
	Rohde, (2014)	−0.27	−0.51	−0.02	0.03	
	Stice, (2008)	−0.12	−0.34	0.09	0.26	
	DEPRESSION OVERALL	**−0.07**	**−0.25**	**0.10**	**0.42**	
Face to face overall		**−0.17**	**−0.27**	**−0.07**	**<.01**	

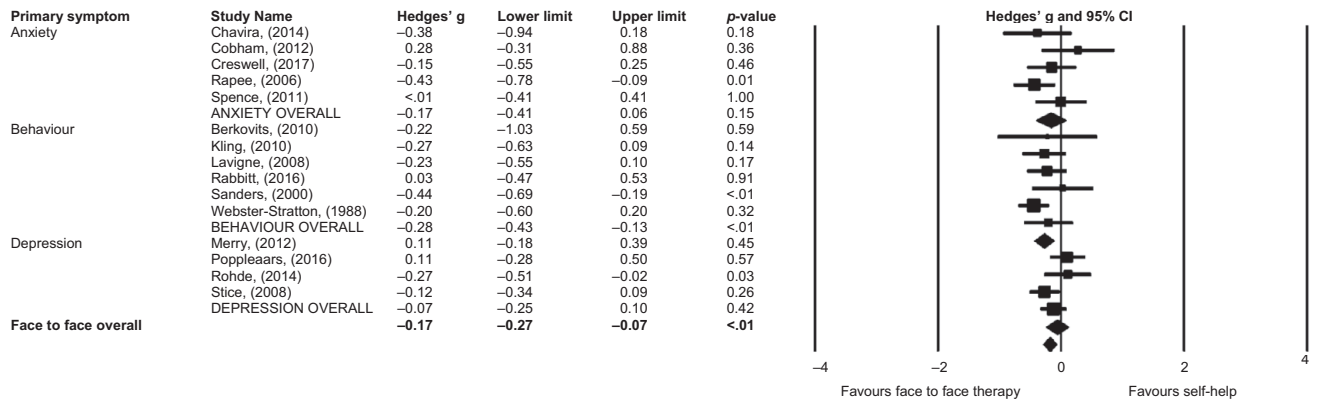Favours face to face therapy — Favours self-help (scale −4 to 4)

Figure 3 Forest plot of effect sizes for studies comparing self-help with face-to-face therapy.

Egger's test was not significant ($t = 0.85$, $p = .21$). Following adjustment for missing studies using the Duval and Tweedie (2000) trim-and-fill procedure (1 imputed study), Hedges' g for the overall outcome analysis was −0.18 (95% CI: −0.29 to −0.08).

Subgroup and moderator analyses. The effect size for computerised interventions ($n = 4$; $g = 0.08$, 95% CI: −0.11 to 0.26; $I^2 < .01$) was greater than that for bibliotherapy ($n = 10$; $g = -0.25$, 95% CI: −0.36 to −0.15; $I^2 <.01$) and video intervention ($n = 1$; $g = -0.20$, 95% CI: −0.60 to −0.20; $I^2 <.01$) and this difference was statistically significant ($p = .01$). A meta-regression demonstrated a significant effect of

total risk of bias on age ($z = 2.24$, $p = .03$), with older participants demonstrating greater effect sizes than younger participants. However, the effect was no longer significant after primary difficulty was added into the model as a covariate ($z = -0.97$, $p = .33$).

Discussion

Overall, self-help (both guided and unguided) was associated with significant moderate to large effects on symptoms of anxiety, depression and disruptive behaviour, although there was very high heterogeneity. The overall effect size when comparing self-help to face-to-face therapy was negative, suggesting that
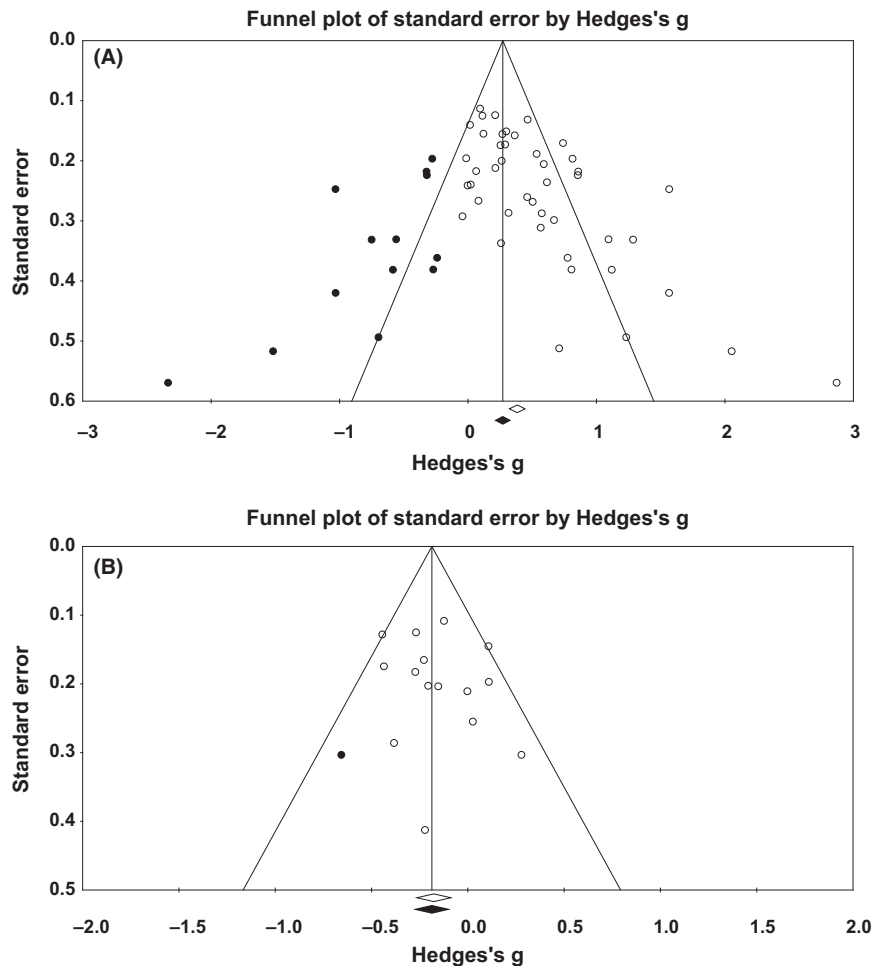
Figure 4 (A) Funnel plot with imputed studies for studies comparing self-help against a control condition. (B) Funnel plot with imputed studies for studies comparing self-help against a face-to-face condition.

self-help is better than no intervention but slightly worse than face-to-face treatments. In addition, the overall difference in effect size between guided and unguided self-help interventions together and face-to-face treatments was small and corresponded to an NNT of 10, which may not be of clinical significance. The same pattern of results was seen across studies of interventions for depression, anxiety and disruptive behaviour disorders when considered both together and separately, which is important given the high rates of comorbidity amongst these common mental health disorders in children (Merikangas et al., 2010). These findings, coupled with relatively low costs, ease of accessibility and patient acceptability may suggest that self-help could be a viable option for treatment for common childhood mental health disorders. However, few studies were considered to be at low risk of bias across all domains considered and there is a great need for well-conducted trials with low risk of bias, particularly comparing against face-to-face treatments. In addition, it is difficult to evaluate the extent to which studies comparing against face-to-face therapies used self-help as a 'control' arm, or rather, were powered as noninferiority trials to test equivalence to face-to-face treatments. Further fully powered

noninferiority trials would be beneficial. The majority of potential moderators were not found to have an effect. We note that heterogeneity was high for many of the comparisons and therefore results of moderation analyses may not be reliable. Significant small study effects for studies comparing against a control group, as is often found in studies of psychological interventions (Driessen, Hollon, Bockting, Cuijpers, & Turner, 2015), may have led to an overestimation of the effect of self-help against control groups.

These potential findings of near-equivalence for self-help compared to face-to-face interventions are in agreement with a number of previous reviews across mental health disorders in adults. Some have found that the interventions have comparable effect sizes (Cuijpers et al., 2010; Perkins, Murphy, Schmidt, & Williams, 2006; Priemer & Talbot, 2013). Other reviews have found that although self-help is more effective than no intervention, it is less effective than traditional face-to-face therapy (Hirai & Clum, 2006; Mayo-Wilson & Montgomery, 2013).

Given the efficacy in comparison to no treatment and similar effects to standard face-to-face treatment, self-help may be particularly useful if used in a stepped-care model where those that do not respond are then offered face-to-face treatment. This

review did not include any studies of stepped-care in children as there are none that consider self-help alone against stepped-care. In fact, there are very few studies of stepped-care in children. A recent trial comparing stepped-care in child anxiety with standard face-to-face CBT found that the stepped-care approach (Step 1 – guided self-help, Step 2 – standard CBT, Step 3 – individually tailored treatment) produced equivalent effect sizes to standard CBT alone but with significantly less therapist time. Within the stepped-care approach, the strongest treatment gains were seen in Step 1 (self-help; 36 patients remitted from the primary disorder) and Step 2 (a further 36 patients remitted from the primary disorder) rather than Step 3 (a further 13 patients remitted from the primary disorder; Rapee et al., 2017). There does not appear to be strong evidence to only offer self-help treatments as a first step for less severe cases given there was no difference in efficacy for those meeting diagnostic criteria compared to those that did not. However, again, this comparison had high levels of heterogeneity and the result requires replication with further studies with low risk of bias. Future studies should investigate the stepped-care model across other common mental health disorders.

Overall, in studies comparing self-help against control groups, the presence of support was associated with better outcome. This finding was significant when disruptive behaviour interventions were considered alone. The same pattern was true in depression studies but the result was not significant. As almost all anxiety studies included guidance, it is not possible to assess whether this is true for anxiety interventions. Importantly, this result was not seen when only the studies with low risk of bias were considered, although heterogeneity was also very high in this comparison and only four studies were not supported. The finding of potential superiority of guided intervention compared to unguided intervention is consistent with findings of many reviews of self-help that demonstrate greater effect sizes for greater amounts of therapist contact (e.g. Gellatly et al., 2007 a review of self-help for depression; Lewis et al., 2012 a review of self-help for anxiety disorders; O'Brien & Daley, 2011 self-help for childhood behaviour disorders; Pearcy, Anderson, Egan, & Rees, 2016 a review of self-help for obsessive compulsive disorder; van Boeijen et al., 2005 self-help for anxiety). Previous research has indicated that increased therapist contact may also be associated with improved acceptability of the intervention (O'Brien & Daley, 2011) and there was some support for this from the present review. The nonsignificant difference between studies with and without guidance for the treatment of depression may warrant further investigation. Previous reviews have suggested that the level of therapist contact required may vary according to diagnosis (Newman, Erickson, Przeworski, & Dzus, 2003).

Other reviews of the type, rather than amount, of therapist contact, suggest that whilst some therapist contact is important, this does not need to be in the form of 'guidance'; 'nonguidance' contact, such as emails to encourage treatment adherence, are also effective (Talbot, 2012). Many studies were not clear with regard to the amount of therapeutic 'guidance' versus nontherapeutic 'encouragement' given and so this was not analysed within our review. However, we did not find any effect of the format of guidance given (i.e. telephone calls, face-to-face, email or mixed). There was some evidence for greater effect sizes in trials of computerised interventions compared to bibliotherapy or other types of self-help.

One key factor that may affect the outcome of self-help interventions is the amount and type of involvement of parents (e.g. Manassis et al., 2014). This may also be associated with patient age – younger children and adolescents may perhaps be more able to make use of a self-help intervention without guidance if there is high-parental involvement, for example. Unfortunately, it was not possible to investigate the extent to which this was associated with effect size, as this was in turn associated with the primary difficulty; studies of interventions for behaviour problems and anxiety typically involve parents to some extent and those of depression interventions typically do not. Given the increasing evidence for efficacious interventions delivered entirely to parents (e.g. Thirlwall et al., 2013a), future research would benefit from description of the exact amount and type of parental involvement in the intervention across different diagnoses.

Few patient characteristics appeared to make significant differences to the effect size, although there was a significant effect of age on effect size for the studies comparing against face-to-face treatment, with studies of older children and young people demonstrating effect sizes more similar to the face-to-face interventions than studies of younger children. However, this effect was not seen when primary diagnosis was considered in the model. The presence or absence of young people aged over 18 did not make a significant difference to the overall pattern of results.

Limitations

Whilst the broad nature of our inclusion criteria aimed to draw together literature from across child and adolescent studies, this was also a limitation as it created significant heterogeneity. This was heightened by the failure of many studies to specify a primary outcome measure. Several comparisons are under-powered due to the small number of studies with particular characteristics and most studies had risk of bias for at least one of the Cochrane risk of bias domains. Results of moderator analyses should therefore be interpreted with caution. Many studies excluded children and young people with intellectual and developmental disabilities and results may not

generalise to these groups of children and young people, although they are known to have particularly high rates of common mental health disorders (Emerson, 2003). Similarly, all studies were conducted in high-income countries.

Directions for Future Research

Overall, additional studies are needed to compare guided self-help treatments against standard face-to-face treatments across anxiety, depression and disruptive behaviour. These results would suggest that guided interventions may be preferable to those without guidance. Direct comparisons of different methods of self-help (e.g. bibliotherapy compared to computerised treatments) would be helpful. Further research investigating the use of self-help and guided self-help interventions in young people who are under-represented by the current research, such as those with intellectual and developmental disabilities and those from low and middle-income countries is warranted.

Supporting information

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Appendix S1. Search terms.
Appendix S2. Satisfaction measures.
Appendix S3. Meta-analysis comparison results separated by primary diagnosis for studies with a control comparator.
Appendix S4. Low Risk of Bias studies comparing against control conditions.

Correspondence

Sophie D. Bennett, UCL Great Ormond Street Institute of Child Health, 30 Guilford Street, London WC1N 1EH, UK; Email: sophie.bennett.10@ucl.ac.uk

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Key points

- Self-help can increase access to therapy to meet a growing unmet need.
- Self-help is efficacious in treating common childhood mental health disorders.
- Guided self-help may be more efficacious than self-help, but this needs further research.
- Self-help interventions for this population may be slightly less effective than face-to-face treatments.

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