Low intensity psychological interventions for the treatment of feeding and eating disorders: a systematic review and meta-analysis

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Keywords

Feeding and eating disorders; Low intensity psychological intervention; Self-help; Systematic review; Meta-analysis

Author contributions statement

ED, SB, RBW, NM and RS designed the study and wrote the protocol. ED and AA conducted the searches and finalised the list of included papers, with guidance from RS. ED extracted the data which was checked by AT. ED conducted the quality assessments, with 10% of studies second-rated by AT. ED conducted the statistical analysis with guidance from SB, AT and RS. ED was responsible for conceptualising the paper and drafting and editing the manuscript. All authors contributed to and have approved the final manuscript.

Acknowledgements

The authors wish to thank Heather Chambers who supported the development of the search strategy.

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Abstract

Feeding and eating disorders are associated with significant illness burden and costs, yet access to evidence-based care is limited. Low intensity (LI) psychological interventions have the potential to increase such access. A systematic review and meta-analysis were conducted on the use of LI psychological interventions for the treatment of feeding and eating disorders. Studies comparing LI interventions against high intensity therapies and non-eating disorder specific psychological interventions were included, as well as those with waiting list control arms. There were three primary outcomes: eating disorder psychopathology, diagnostic and statistical manual of mental disorders (DSM) severity specifier-related outcomes and rates of remission/recovery.

Thirty-three studies met the inclusion criteria, comprising 3665 participants, and 30 studies were included in the meta-analysis. Compared to high intensity therapies, LI psychological interventions were equivalent on reducing eating disorder psychopathology (g = -0.13), more effective at improving DSM severity specifier-related outcomes (g = -0.15), but less likely to achieve remission/recovery (risk ratio (RR) = 0.70). LI psychological interventions were superior to non-eating disorder specific psychological interventions and waiting list controls across all three primary outcomes. Overall, findings suggest that LI psychological interventions can successfully treat eating disorder symptoms. Few potential moderators had a statistically significant effect on outcome. Methodological quality of the studies was poor and therefore results should be interpreted with caution. More research is needed to establish the effectiveness of LI interventions for children and young people, as well as for individuals with anorexia nervosa, avoidant/restrictive food intake disorder (ARFID), pica and rumination disorder.

Introduction

Eating disorders are common and disabling disorders that markedly impair physical health and disrupt psychosocial functioning (Treasure et al., 2020). They have high psychiatric and medical comorbidity, and one of the highest mortality rates among mental health disorders (van Hoeken & Hoek, 2020). Eating disorders can substantially impact an individual's health-related quality of life, and are associated with elevated healthcare utilisation and significant economic costs (Ágh et al., 2016; Santomauro et al., 2021). Given the seriousness of these disorders and the associated illness burden and costs (Striegel Weissman & Rosselli, 2017), there is a salient need for effective treatments.

Evidence-based, specialist psychological therapies have strong empirical support for the treatment of eating disorders (Hay, 2020; Staples et al., 2021). However, access to care for people with eating disorders has long been challenging (Hart et al., 2011), and has worsened since the COVID-19 pandemic (Weissman et al., 2020). The COVID-19 pandemic has adversely impacted individuals with eating disorders, with an increased incidence of first diagnosis (Taquet et al., 2022), and deteriorating symptoms among those with pre-existing diagnoses (Rodgers et al., 2020). This has imposed further strain on healthcare systems which were already over-stretched due to high staff vacancy rates and turnover, both in the UK (Ayton et al., 2022; Rimmer, 2018) and internationally (World Health Organization, 2020). This is concerning given that delays in receiving treatment can increase the risk of chronicity and burden of illness (Striegel Weissman & Rosselli, 2017). While various geographical, financial and patient-associated barriers (e.g., fear of stigmatisation, ambivalence about change and poor mental health literacy) may contribute to this widening treatment gap (Ali et al., 2017), the reality is that the demand for eating disorder treatment far outweighs the availability of resources (Johns et al., 2019; Kazdin et al., 2017).

Mental health professionals require specialised and intensive training to become competent in the delivery of evidence-based treatments for eating disorders (Wilson & Zandberg, 2012), and the cost to implement face-to-face treatment is substantial (Striegel Weissman & Rosselli, 2017). Therefore, expanding the workforce of trained specialists to deliver conventional, face-to-face treatment is not a practical option (Fairburn & Patel, 2014; Machado & Rodrigues, 2019). Instead, the treatment gap highlights the need to expand existing, evidence-based treatments to be delivered in ways that are more easily disseminable and affordable (Kazdin et al., 2017).

A central component of the extension of effective interventions to meet increased demand is the provision of 'low intensity' (LI) psychological treatments. LI psychological interventions are modified, brief versions of evidence-based therapies that can be delivered

using a range of flexible delivery formats, such as bibliotherapy and digital platforms, and have a primary focus on teaching self-management skills to patients and/or their carers (Shafran et al., 2021). They require less therapeutic input than conventional treatments and can be delivered by practitioners who do not possess a core mental health professional qualification (Bennett-Levy et al., 2010). Thus, these interventions are considered low intensity from the provider's perspective and do not reflect low engagement from the client. LI psychological interventions have the potential to reduce actual and perceived barriers to care (Ali et al., 2017), as well as unmet treatment needs, by providing more easily accessible services (Sijbrandij et al., 2020).

During the past decade, there has been a proliferation of LI psychological interventions for the treatment of eating disorders (e.g., Linardon et al., 2020; Traviss-Turner et al., 2017). In the UK, the National Institute for Health and Care Excellence (NICE) recommend cognitive behavioural therapy (CBT)-based guided self-help as the first line treatment for adults with bulimia nervosa (BN) and binge eating disorder (BED), as part of a stepped care treatment model (NICE, 2017). The stepped care model is based on the notion that most patients will derive some benefit from a brief and less intensive intervention, and those who do not can be 'stepped up' to receive a higher intensity treatment (Wilson et al., 2000), such as 16 or more sessions of specifically adapted CBT (CBT-BN) or enhanced CBT (CBT-E). LI psychological interventions have traditionally been based on CBT principles but have more recently extended into other treatment modalities, such as dialectical behavioural therapy (DBT; Kenny et al., 2020) and family-based treatment (FBT; Lock et al., 2017). Numerous clinical studies evaluating the effects of LI psychological interventions for eating disorders have been published and compiled in systematic reviews and meta-analyses (e.g., Aardoom et al., 2013; Beintner et al., 2014; Linardon et al., 2020; Loucas et al., 2014; Perkins et al., 2006; Traviss-Turner et al., 2017).

In their Cochrane review, Perkins and colleagues (2006) found self-help was superior to waiting list, and comparable to specialist psychological therapies, at reducing both eating disorder-specific and psychiatric symptomatology. Beintner and colleagues (2014) conducted a meta-regression and identified various factors that moderated the effectiveness of self-help for BN and BED, including both participant (e.g., age, BMI, eating disorder-related attitudes, a BED diagnosis) and intervention characteristics (e.g., guidance from a specialist, more guidance sessions and internet-based delivery). More recently, Traviss-Turner and colleagues (2017) demonstrated that guided self-help was effective in reducing binge eating episodes and eating disorder psychopathology, compared with both waiting list and other active treatments. Following the shift in focus towards technology in health service

delivery, Linardon and colleagues (2020) conducted a meta-analysis on digital interventions and found digital treatments led to reductions in eating disorder psychopathology, shape/weight concerns and dietary restraint.

Together these meta-analyses show promise for the efficacy of LI psychological interventions in treating eating disorders, predominantly binge eating-related disorders. It still remains unclear whether these interventions are effective for the broader range of feeding and eating disorders. The latest versions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR; American Psychiatric Association (APA), 2022) and the International Classification of Diseases and Related Health Problems (World Health Organization (WHO), 2019) recognise six main feeding and eating disorders: anorexia nervosa (AN), BN, BED, avoidant/restrictive food intake disorder (ARFID), pica and rumination disorder; and a residual category: other specified feeding or eating disorder (OSFED), formerly known as eating disorder not otherwise specified (EDNOS). Furthermore, most of these previous meta-analyses were rather narrow in focus, by aiming at specific patient groups (e.g., individuals with BN and BED; Beintner et al., 2014) and intervention formats (e.g., e-mental health; Linardon et al., 2020), and centring exclusively on self-help with guidance (Traviss-Turner et al., 2017).

In light of a number of RCTs being conducted in recent years, it is timely and relevant to update and build upon existing reviews to evaluate the efficacy of LI psychological interventions for the treatment of feeding and eating disorders included in the recent diagnostic classifications. The literature indicates that LI psychological interventions may be comparable to specialist psychological therapies (Perkins et al., 2006; Traviss-Turner et al., 2017), therefore the current review includes both active and inactive comparators in order to determine the specificity of any effects. It has been argued that treatment success should be based on both behavioural (e.g., frequency of disordered eating behaviours) and cognitive outcomes (e.g., eating disorder psychopathology; Bardone-Cone et al., 2010; Williams et al., 2012). In past reviews, the behavioural outcomes of interest were binge eating frequency (Beintner et al., 2014) and abstinence from binge eating (Traviss-Turner et al., 2017). While important, focusing solely on binge eating-related outcomes precludes an exploration of effects for feeding and eating disorders where binge eating is not a key behavioural symptom. Linardon and colleagues (2017) included remission and recovery as an outcome in their meta-analysis by calculating the remission/recovery rates as defined in each paper and aggregating the various definitions in their analyses.

The primary outcomes in the current review were eating disorder psychopathology, rates of remission and/or recovery, and DSM-5-TR (APA, 2022) specifiers of severity (frequency of inappropriate compensatory behaviours for BN; frequency of binge eating

episodes for BED and body mass index (BMI) for AN). It is also important to understand the moderators that contribute to treatment outcome, as well as user satisfaction, in order to optimise how LI psychological interventions are developed and delivered, and to identify patients who are likely to benefit from such treatment (Haug et al., 2012). Consequently, this review incorporates exploratory analyses to delineate the factors that may explain treatment outcomes, drawing on the moderating variables identified in past reviews (Beintner et al., 2014; Traviss-Turner et al., 2017), as well as exploring potential moderators not previously investigated, such as type of intervention (e.g., CBT, DBT) and mode of delivery (e.g., self-led, parent-led).

Objectives

The present review and meta-analysis sought to systematically assess the evidence-base for the use of LI psychological interventions to treat feeding and eating disorders. Within this, the objectives were to:

- Investigate whether LI psychological interventions for feeding and eating disorders are more efficacious than active (i.e., high intensity, therapist-delivered therapies, and non-eating disorder-specific psychological interventions) and inactive (e.g., waiting list) comparators at posttreatment and follow-up
- Test whether these effects are moderated by certain participant (i.e., age, type of eating disorder) and intervention characteristics (i.e., type, format, mode of delivery, provision and type of guidance, qualification of guide)
- Assess the acceptability of these LI psychological interventions

Methods

The protocol for this systematic review and meta-analysis was prospectively registered with PROSPERO (CRD42022302956). It has been reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021; see Appendix A).

Eligibility criteria

Types of studies

Only randomised controlled trials (RCT) were included to allow assessment of the highest-quality evidence available. Quasi-randomised trials (using alternate allocation) were excluded.

Types of participants

Participants meeting the DSM (versions III-R, IV, IV-TR, 5, 5-TR) or ICD (versions 9, 10, 11) diagnostic criteria for a feeding or eating disorder were eligible for inclusion. This included those with AN, BN, BED, ARFID, pica, rumination disorder, and OSFED (formerly EDNOS).

A standardised assessment of feeding and eating disorder symptomatology was necessary to ascertain diagnoses with the DSM and ICD. There were no restrictions in terms of age (child, adolescent and adult), sex or gender.

Types of interventions

LI psychological interventions designed to treat feeding and eating disorders were included. For the purposes of this review, LI psychological interventions were defined as an intervention that (i) utilises self-help materials, (ii) is six hours or less of contact time (with each contact typically ≤30 minutes), and (iii) any input is provided by practitioners or supporters who have been specifically trained to deliver the intervention (see Shafran et al., 2021). The intervention had to be eating disorder-specific, and a stand-alone treatment to be included.

Studies were excluded if they evaluated LI psychological interventions integrated with another treatment, such as specialist face-to-face psychotherapy augmented with a LI psychological intervention. Studies were also excluded if the variable under experimental manipulation was not the LI psychological intervention, for example, a LI psychological intervention plus a smartphone app compared to a LI psychological intervention alone. We also excluded studies in which the LI psychological intervention was designed to prevent the onset of feeding and eating disorders. There were no restrictions on recruitment or treatment setting.

Types of comparators

Studies comparing a LI psychological intervention against a high intensity psychological treatment, a non-eating disorder specific psychological intervention, or a waiting list control condition were included in the review. Studies comparing two types of the same LI psychological intervention through different delivery formats (e.g., bibliotherapy vs online), and provision of guidance (guided vs unguided) were excluded. We also excluded studies which used a pharmacological treatment as the comparator.

Types of outcomes

Studies were included only if they reported core eating disorder outcomes at baseline and post-intervention at a minimum. Outcomes had to be assessed with standardised, well-validated measures in order to be comparable across studies. Studies were only included in the meta-analyses if statistics allowing for effect size estimation of core eating disorder outcomes (e.g., binge eating frequency, eating disorder-related attitudes) had been reported. Rates of remission/recovery were only extracted and analysed if definitions were outlined in the original manuscripts.

The primary outcomes were as follows:

1) *Eating disorder psychopathology.* Operationalised using the most global measure of eating disorder psychopathology reported in each study. The Eating Disorder Examination (EDE), in interview or self-report questionnaire (EDE-Q) format, was prioritised for this analysis (Fairburn & Beglin, 1994).
2) *DSM specifiers of severity*. For BN, this was based on frequency of inappropriate compensatory behaviours (e.g., self-induced vomiting); for BED, on frequency of objective binge eating episodes; and for AN, on weight status (BMI; kg/m^2). Due to concerns that BMI is not an optimal method to reflect nutritional status in adolescents (Le Grange et al., 2012), Expected Mean Body Weight (EBW) was also used in this analysis. ARFID, pica, rumination disorder and OSFED do not have severity specifiers.
3) *Remission/recovery.* Definitions of remission/recovery varied across studies, with studies defining this variable as either a) abstinence from binge eating and/or inappropriate compensatory behaviours over the past 28 days; b) an EDE global score below one standard deviation of community norms; and c) no longer meeting diagnostic criteria for an eating disorder. In one study, weight remission was defined as ≥95%EBW (Lock et al., 2021). All four definitions were aggregated in the analyses.

The secondary outcomes were these core eating disorder outcomes at short (<12 months) and long-term (≥12 months) follow-up, as well as drop-out rate and acceptability of the interventions. Qualitative results from measures of treatment acceptability were extracted where available.

Information sources and search strategy

The main search strategy involved a search for published studies in the following databases: EMBASE, MEDLINE, PsycINFO, CINAHL and the Cochrane Central Register of Controlled Trials (CENTRAL). Grey literature searches were conducted in the ProQuest Dissertations and Theses Global repositories. Each database was searched from its year of inception to 27th January 2022, and then updated on 5th August 2022. Search terms, including MeSH terms, related to three concepts: 1) feeding and eating disorders; 2) low intensity psychological interventions; and 3) randomised controlled trials. Search terms were developed in collaboration with a librarian. See Appendix B for a full list of search terms used.

Reference lists of included studies and existing systematic reviews were searched for potentially relevant papers, and in-text citations of included studies were also screened. Additional literature was sought through personal contact with researchers in the area, and

by hand searching relevant journals publishing on feeding and eating disorders. The search was restricted to publications in the English language.

Study selection and data collection

Two reviewers (*initials removed for peer review*) independently screened the titles and abstracts of all studies identified from the searches. The reviewers then independently examined the full texts and selected eligible RCTs. Disagreements were resolved through discussion or by consulting a third reviewer (*initials removed for peer review*). The systematic review software, Covidence, facilitated the screening process.

Data extraction and management

Data extraction was carried out by one reviewer (*initials removed for peer review*), using a standardised data extraction form, and independently checked by a second reviewer (*initials removed for peer review*). Discrepancies were resolved through discussion. The following data were extracted from the eligible studies:

- Study identification details – first author, publication year, country
- Study design characteristics – type of RCT, sample size, follow-up length
- Participant characteristics – mean age, percentage female, criteria and assessment tool used to ascertain diagnosis
- Intervention characteristics – type (e.g., CBT), format (e.g., bibliotherapy), mode (e.g., self-led), provision of guidance (guided or unguided), qualification of guide (if any)
- Comparator(s) characteristics – type (high intensity, non-eating disorder specific, waiting list)
- Outcome measures used, including definitions of remission/recovery

We extracted means, standard deviations, and sample size at pre-intervention, post-intervention and at each follow-up thereafter (if any) in both the intervention and comparator groups. We also extracted remission/recovery data at post-treatment and follow-up. Wherever possible, data were extracted from intention-to-treat analyses, including the sample size at randomisation. Where completer analyses were conducted instead, we extracted the sample size of study completers to enable the weighting of the studies in the meta-analysis to be proportional to the amount of data contributed. If insufficient data were reported to meet the requirements for meta-analysis, missing data were requested from study authors to maximise the completeness of the meta-analytic review. If the contact attempts were unsuccessful, the papers were removed from the meta-analysis and included only in the narrative synthesis.

Assessment of risk of bias in included studies

Risk of bias (RoB) was assessed using the criteria outlined in the Revised Cochrane Risk of Bias Tool for Randomised Trials (Sterne et al., 2019). Ten percent of studies were rated by a second independent rater (*initials removed for peer review*) and discrepancies were discussed until consensus was reached. RoB was assessed in the following domains: 1) randomisation process; 2) deviations from intended interventions; 3) missing outcome data; 4) measurement of the outcome; and 5) selection of the reported result. For cluster-RCTs, there is an additional domain for RoB arising from the timing of identification or recruitment of participants. For each domain, a rating of low risk, high risk or unclear was assigned. Consistent with previous meta-analyses (e.g., McLean et al., 2022), the impact of RoB was assessed by quantifying domain codes (low risk = 0, some concerns = 1, high risk = 2) and yielding a total RoB score ranging from 0 to 10 for each RCT and 0 to 12 for each cluster-RCT. We performed a meta-regression to examine the relationship between RoB and effect size, with the total RoB score entered as the dependent variable.

Meta-analysis

Measurement of the treatment effect

The software program, Comprehensive Meta-Analysis version 3 (Biostat, Inc 2015), was used for computing and pooling effect sizes. In view of the considerable heterogeneity among the studies, a random effects model was adopted for all meta-analyses. Separate analyses were conducted for studies comparing against high intensity interventions, non-eating disorder-specific interventions and waiting list controls. For trials with more than one LI psychological intervention condition, effect sizes were calculated separately for each intervention.

For continuous outcomes of response (e.g., global EDE score), the effect size indicating the standardised mean difference (SMD) between the two groups at post-test (Hedges' *g*) was calculated for each comparison. Hedges' *g* was chosen as it adjusts for biases caused by small sample sizes (Cuijpers, 2016). A negative *g* favours LI psychological interventions over comparisons. SMDs were transformed into the Number Needed to Treat (NNT), using Kraemer and Kupfer's (2006) formulae. The NTT refers to the number of patients that have to be treated to achieve one additional positive outcome over a comparator. For dichotomous outcomes of response (e.g., abstinence from binge eating), the effect sizes were expressed in terms of the risk ratio (RR), otherwise known as relative risk. The RR is a ratio of the probabilities of achieving remission between two conditions. The RR was chosen because it is easier to interpret than the odds ratio (Cuijpers, 2016). An RR greater than 1 favours LI psychological interventions over comparisons. We recalculated remission and recovery rates for the intent-to-treat analyses using the number of randomised

participants as the denominator of the proportion of remission/recovery; as such, remission and recovery rates in this review may differ from those reported in the original manuscripts. 95% Confidence Intervals (CIs) were calculated for each outcome. Where two or more measures were used per outcome, they were combined and the pooled effect size was calculated so that only one effect size per study was included in the analysis.

A series of subgroup analyses were performed according to the mixed effects model. In this model, studies within subgroups are pooled using a random effects model, while tests for significant differences between subgroups are conducted within the fixed effects model (Borenstein et al., 2021). For continuous variables (e.g., age), meta-regression analyses were used to examine whether there was a significant relationship between the continuous variable and the effect size, as indicated by a regression coefficient (*Z* value) and associated *p*-values. We aimed to explore the potential moderating effects of the following variables:

- Participant age
- Type of eating disorder - (BN, BED, AN, ARFID, pica, rumination disorder, OSFED or mixed (to include transdiagnostic studies))
- Treatment modality (e.g., CBT, DBT)
- Format of intervention (e.g., bibliotherapy, online)
- Mode of delivery (e.g., self-led, parent-led)
- Provision of guidance (guided vs unguided)
- Type of guidance (e.g., email, telephone)
- Qualification of guide (non-specialist, mental health specialist, eating disorder/CBT specialist)

Assessment of heterogeneity

Statistical heterogeneity was examined using Cochran's *Q* and I^2 statistics (Higgins et al., 2003). A significant *Q* statistic indicates varying effect sizes across studies as well as sample or methodological differences that may contribute to variance. The I^2 statistic assesses the percentage of variability due to heterogeneity rather than to random error. A value of 0% indicates no observed heterogeneity, whereas scores of 25%, 50% and 75% indicate low, moderate and high heterogeneity, respectively.

Assessment of publication bias

Publication bias was examined through visual inspection of a funnel plot, and by using Egger's regression intercept to test funnel plot asymmetry (Egger et al., 1997). We also used Duval and Tweedie's (2000) trim-and-fill procedure, which estimates the number of studies

that have to be removed to make the funnel plot symmetrical, and then imputes an estimated effect size after publication bias has been taken into account.

Results

Narrative synthesis

Results of search

As illustrated in the PRISMA flow diagram (see Figure 1), the search strategy yielded 16007 articles after the removal of duplicates. Following title and abstract screening, a total of 204 full-text papers were retrieved, of which 171 were excluded because they did not meet the inclusion criteria. Thirty-three RCTs met inclusion criteria for the narrative synthesis, including one cluster-RCT and seven pilot/feasibility RCTs.

Sample and study characteristics (Table 1)

The included studies encompassed 3665 individuals with eating disorders. The majority of studies included participants aged 18 years or older; only one study focused on adolescents (i.e., aged 12-18; Lock et al., 2021). The studies were predominantly comprised of females, with ten studies having exclusively female participants. Participant gender was not stated in one study (Bailer et al., 2004). The majority of studies focused on participants with BED (*n* = 15) and BN (*n* = 5), and one study focused on participants with AN (Lock et al., 2021). Twelve of the studies included 'mixed' samples with a range of eating disorder diagnoses. No studies included participants with ARFID, pica or rumination disorder.

Across the 33 included studies, 39 LI psychological interventions to treat eating disorders were investigated. The most commonly studied treatment modality was CBT (*n* = 31). Other treatment modalities included Compassion-Focused Therapy (*n* = 1), DBT (*n* = 3), FBT (*n* = 1) and a dissonance-based program (*n* = 1). Two studies used a LI psychological intervention that combined elements from multiple treatment modalities, such as Compassion Attention and Regulation of Eating Behaviour (Duarte et al., 2017) and Acceptance and Commitment Therapy (ACT)-influenced CBT (Strandskov et al., 2017). The majority of studies delivered the LI psychological intervention with a manual or book via bibliotherapy (*n* = 28), nine delivered the intervention using an online platform and two studies used a CD-ROM.

Of the 33 RCTs, eight studies compared a LI psychological intervention against a high intensity psychological intervention, nine against a non-eating disorder-specific psychological intervention and 21 against a waiting list control group. High intensity therapies included group CBT (*n* = 2), individual CBT (*n* = 2), FBT (*n* = 1), Interpersonal Psychotherapy (IPT; *n* = 1), Integrative Cognitive-Affective Therapy (ICAT; *n* = 1), and a specialist outpatient treatment which combined CBT and IPT (*n* = 1).

Although a range of measures were considered appropriate to quantify eating disorder outcomes, most studies administered the EDE (Fairburn & Cooper, 1993) or EDE-Q

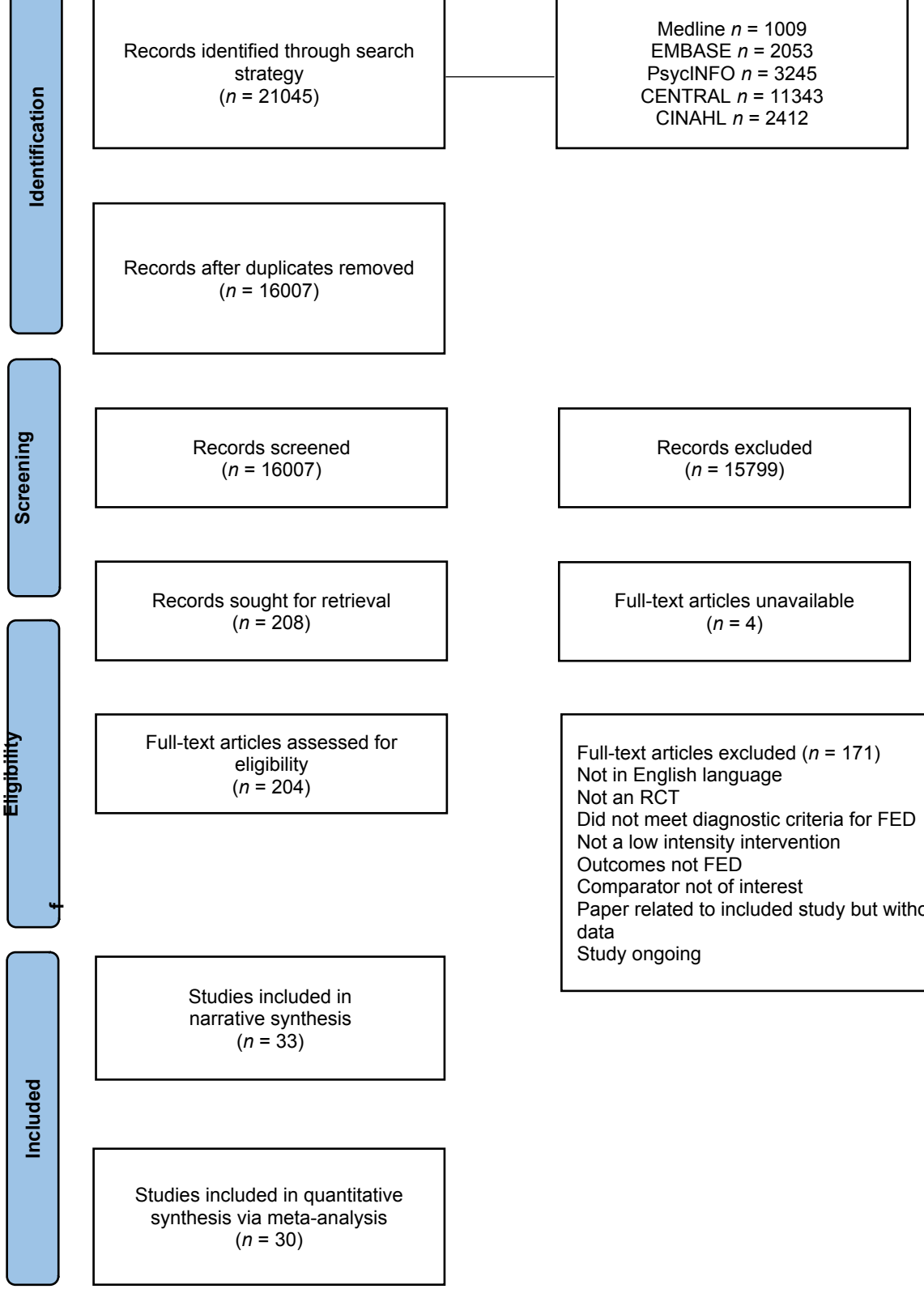

Figure 1 PRISMA flow diagram of study selection.

(Fairburn & Beglin, 1994) to assess eating disorder psychopathology. Alternative outcome measures included in these analyses were the Eating Disorder Inventory (EDI; Garner, Olmsted & Polivy, 1983) and the Binge Eating Scale (BES; Gormally et al., 1982). Full sample and study characteristics are outlined in Table 1.

Risk of bias within randomised controlled trials

Table 1 summarises the RoB across all domains for each study. All studies were considered to be high RoB for 'measurement of the outcome' due to the inability of blinding in this area and the use of self-report measures. As the default overall judgment for each study is high RoB when one of the domains is judged at high risk (Sterne et al., 2019), all studies were rated as high RoB. The median RoB score was 6 out of 10 (range = 3-8) and 25 studies had a total RoB score of ≥5. The one cluster-RCT included in the review (Fitzsimmons-Craft et al., 2020) had a total RoB score of seven (out of 12).

Fifteen of the 33 studies performed well regarding the conduct and reporting of the randomisation process. Most studies conducted intent-to-treat (or modified intent-to-treat) analyses; however, two studies conducted completer analyses only. The domain 'missing outcome data' was frequently rated as being high RoB across studies (n = 31) due to a significant proportion of missing data (>5%), as a result of high dropout and/or reasons suggesting attrition may be due to mental health status. All studies consistently measured relevant outcomes across the intervention and comparator groups, however, as previously stated, they all employed self-report measures. Only 9 of the 33 RCTs had a published or prospectively registered protocol, meaning it was not possible to determine whether the outcome analyses and reporting was consistent with the authors' prespecified protocol.

Treatment acceptability

Only half (*n* = 16) of the studies reported on treatment acceptability, but among those that did, findings suggest that LI psychological interventions were regarded acceptable, as indexed by self-reported satisfaction (Appendix C). Some studies demonstrated lower acceptability for LI interventions when compared to high intensity, face-to-face treatment (Fitzsimmons-Craft et al., 2020). However, Lock and colleagues (2021) found similar acceptability rates between FBT delivered via guided self-help and high intensity FBT delivered via videoconferencing.

Study attrition rates

The attrition rate was calculated as the proportion of randomised participants who did not have post-treatment data. 31 studies provided information about attrition at post-treatment; the mean attrition rate across these studies was 21.6%, ranging from 0%

Table 1. Characteristics of included studies

Study	Country	Participants	Mean age, years (SD)	Outcome measures	Low intensity psychological intervention(s)	Comparator(s)	RoB (total/10)
Jenkins et al., 2021*	UK	*N* = 126; BN, BED, OSFED; 92.8% female; adults	30.5 (10.6)	EDE-Q	CBT GSH-F and CBT GSH-E (Overcoming Binge Eating manual); 9x25 minute sessions; clinical psychologists, qualified nurses with mental health experience (one of who had advanced training in CBT), paraprofessionals	Delayed treatment control	+-++- (6)
Lock et al., 2021	USA and Canada	*N* = 40; AN, 85% female, adolescents	14.9 (1.81)	%EBW; BMI; EDE	FBT GSH; 12x30 minute sessions; PhD psychologists, an MD psychiatrist or licensed social workers (all experienced in FBT)	FBT via videoconferencing; 15x60 minute sessions; PhD psychologists, an MD psychiatrist or licensed social workers (all experienced in FBT)	--++- (4)
Wyssen et al., 2021	Switzerland	*N* = 63, BED, 87% female, adults	37.2 (10.4)	Mini-DIPS; EDE-Q; WBQ	Internet-based CBT GSH (BED-Online); 8 sessions; psychotherapists and psychologists in postgraduate training of psychotherapy	Waiting list control	+-++- (6)
Carter et al., 2020	Canada	*N* = 71; BED; 93% female, adults	40.7 (11.5)	EDE	DBT GSH and DBT USH (The DBT Solution for Emotional Eating manual); DBT GSH 6x30 minutes; DBT GSH clinical psychology graduates	Self-esteem USH (Self-Esteem: A Proven Program of Cognitive Techniques for Assessing, Improving, and Maintaining Your Self-Esteem)	○-++○ (6)
Fitzsimmons-Craft et al., 2020	USA	*N* = 690; BN, BED, purging disorder, unspecified feeding or eating disorder; 100% female; adults	22.1 (4.9)	EDE-Q	Digital CBT GSH (SB-ED); 2x20 minute optional telephone calls and asynchronous text-based support (~16 messages per participant); psychology doctoral students, social work master's students, study staff and postdoctoral fellows	Referral to usual care	-+-++○ (7/12)
Hildebrandt et al., 2020	USA	*N* = 225; BN, BED; 75% female; adults	41.2 (9.9)	EDE-Q	CBT GSH plus Noom Monitor; 8x25 minute sessions; certified health coaches	Standard care	--++- (4)
Peterson et al., 2020	USA	*N* = 112; BED; 82.1% female; adults	39.7 (13.4)	EDE	CBT GSH (Overcoming Binge Eating manual); 10x30 minute sessions; master's level clinician without specialisation in eating disorders	ICAT-BED; 21x50 minute sessions; doctoral-level psychologists and graduate students	--++- (4)
Cachelin et al., 2019	USA	*N* = 40; BED; 100% female; adults	27.0 (8.9)	EDE	CBT GSH (culturally adapted Overcoming Binge Eating manual); 8x25 minute sessions; graduate- and senior-level undergraduate psychology students	Waiting list control	○-++○ (6)
Green et al., 2018	USA	*N* = 82; AN, BN, BED, OSFED; 100% female; adults	26.1 (6.1)	EDE-Q	Online dissonance-based program (the Body Project)	Waiting list control	○-++○ (6)
de Zwaan et al., 2017	Germany	*N* = 178; BED; 87.6% female;	43.2 (12.3)	EDE	Internet-based CBT GSH; 2x90 minute sessions pre- and post-treatment, and weekly	Face-to-face CBT; 20x50 minute sessions; CBT	--++- (4)

		adults			email contacts over a 4-month period; coaches	therapists	
Duarte et al., 2017	Portugal	*N* = 22; BED; 100% female; adults	37.7 (7.5)	EDE; BES	CARE USH (manual)	Waiting list control	○+++○ (8)
Strandskov et al., 2017	Sweden	*N* = 92; BN, EDNOS; 96.7% female; adults	29.1 (9.7)	EDE-Q	Online ACT-influenced CBT program; written feedback on website and phone calls (~15 minutes per week for 8 weeks); clinical psychology master's students	Waiting list control	○-++○ (6)
Kelly et al., 2015	Canada	*N* = 31; BED; 83% female; adults	45.0 (15)	EDE-Q	Behavioural strategies USH and Self-compassion USH	Waiting list control	○-++○ (6)
ter Huurne et al., 2015	Netherlands	*N* = 213; BN, BED, EDNOS; 100% female; adults	39.4 (11.6)	EDE-Q	Web-based CBT program (Look at your eating); asynchronous internet-based contact; therapists with a bachelor's degree in nursing or social work or a master's degree in psychology	Waiting list control	--++- (4)
Grilo et al., 2013	USA	*N* = 90; BED; 79% female; adults	45.8 (11.0)	EDE; EDE-Q	CBT USH (Overcoming Binge Eating manual)	Usual care	---+○ (3)
Masson et al., 2013	Canada	*N* = 60; BED; 88.3% female; adults	42.8 (10.5)	EDE; EDE-Q	DBT GSH (DBT for Binge Eating manual); 6x20 minute sessions; researcher	Waiting list control	+-++○ (7)
Carrard et al., 2011	Switzerland	*N* = 74, BED; 100% female; adults	36.1 (11.4)	EDE-Q; EDI-2; TFEQ	Internet-based CBT GSH (online programme adapted from Overcoming Binge Eating); weekly e-mail contact; psychologists	Waiting list control	+-++○ (7)
Sánchez-Ortiz et al., 2011	UK	*N* = 76; BN, EDNOS; 98.7% female; adults	23.9 (5.9)	EDE	Internet-based CBT (Overcoming Bulimia Online), weekly email contact; CBT therapists with eating disorder experience	Delayed treatment control	--++○ (5)
Traviss et al., 2011	UK	*N* = 81; BED; 97% female; adults	36.9 (11.9)	EDE-Q	CBT GSH (Working to Overcome Eating Difficulties manual); one 1-hour introductory session and 6x1 hour sessions; trained mental health professionals	Waiting list control	○-++○ (6)
Striegel-Moore et al., 2010	USA	*N* = 123; BN, BED; 91.9% female; adults	37.2 (7.8)	EDE	CBT GSH (Overcoming Binge Eating manual); one 1-hour introductory session and 7x25 minute sessions; master's level therapists with no familiarity with eating disorders or treating binge eating	Treatment as usual	○-++○ (6)
Wilson, Wilfley, Agras & Bryson, 2010	USA	*N* = 205; BED; 85.4% female; adults	48.3	EDE	CBT GSH (Overcoming Binge Eating manual); one 1-hour introductory session and 9x25 minute sessions; first- or second-year graduate students with no experience in CBTgsh or treating BED	IPT; one 2-hour introductory session and 19x60 minute sessions and BWL 20x50 minute sessions; IPT doctoral-level therapists; BWL not included in meta-analysis	○-++○ (6)
Schmidt et al., 2008	UK	*N* = 97; BN, EDNOS; 96.9% female; adults	27.1 (7.6)	EDE	CD-ROM-based CBT programme (Overcoming Bulimia)	Waiting list control	---+○ (3)

Steele & Wade, 2008	Australia	*N* = 48; BN, EDNOS, 98.9% female; adults	26.0 (5.83)	EDE	CBT GSH (Bulimia Nervosa and Binge-eating; 8x40 minute sessions; postgraduate psychology students	Placebo GSH (Mindfulness-Based Cognitive Therapy for Depression); 8x40 minute sessions; postgraduate Psychology students Perfectionism GSH (When Perfect Isn't Good Enough) not included in meta-analysis	○-++○ (6)
Ljotsson et al., 2007	Sweden	*N* = 73; BN, BED; 94.2% female; adults	34.6 (10.4)	EDE; EDI-2	CBT GSH (Swedish translation of Overcoming Binge Eating manual); weekly email contact; graduate psychology students	Waiting list control	○-++○ (6)
Shapiro et al., 2007	USA	*N* = 66; BED; 92.4% female; adults	39.6 (11.7)	QEWP-R; BES	CD-ROM-based CBT programme (based on Cognitive-Behavioural Treatment for Healthy Weight Control); one brief telephone contact per week; research assistant	Group CBT (based on Cognitive-Behavioural Treatment for Health Eating and Weight Control) and Waiting list control; Group CBT 10x90 minute group sessions; Group CBT PhD level clinical psychologist	○-++○ (6)
Banasiak et al., 2005	Australia	*N* = 109; BN, 100% female, adults	28.9 (8.5)	EDE	CBT GSH (Bulimia Nervosa and Binge-Eating: A Guide to Recovery manual); one 1-hour introductory session and 9x30 minute sessions; GPs with no postgraduate or specialist qualification is psychology or psychiatry	Delayed treatment control	--++○ (5)
Grilo & Masheb, 2005	USA	*N* = 90; BED; 79% female; adults	46.3 (9.0)	EDE-Q; TFEQ	CBT GSH (Overcoming Binge Eating manual); 6x20 minute sessions; doctoral research-clinicians trained in CBT and BED	BWL GSH (LEARN Program for Weight Management manual) 6x20 minute sessions; doctoral research-clinicians trained in CBT and BED; and no treatment manual control not included in meta-analysis	--++○ (5)
Bailer et al., 2004	Austria	*N* = 81; BN; adults	23.8 (4.5)	EB-IV; EDQ; EDI	CBT GSH (German version of Getting Better Bite by Bite); 18x20 minute sessions; first- and second-year residents in psychiatry with no experienced with eating disorders or formal psychotherapy training	Group CBT; 18x90 minute group sessions; experienced therapists	○-++○ (6)
Carter et al., 2003*	Canada	*N* = 72; BED; 100% female; adults	39.7 (10)	EDE; EDE-Q; EDI	CBT USH (Overcoming Binge Eating manual)	Nonspecific USH (Self-Assertion for Women manual) and Waiting list control	--++○ (5)

Durand & King, 2003	UK	*N* = 68; BN; 100% female; adults	26.4 (5.85)	BITE; EDE	CBT GSH (Bulimia Nervosa: a guide to recovery manual); regular contact; general practitioners (GPs)	Specialist clinic treatment (combination of CBT and IPT); weekly or fortnightly session; psychiatrists, psychologists, nurse specialists and dietitians	--++○ (5)
Palmer et al., 2002	UK	*N* = 121; BN; 96.7% female; adults	26.9 (8.4)	EDE	CBT GSH-F, CBT GSH-T and CBT SH-MG (Overcoming Binge Eating manual); CBT GSH-F and CBT GSH-T 4x30 minute sessions, and CBT SH-MG one brief session; nurse therapists experienced in eating disorder treatment	Waiting list control	--++○ (5)
Carter et al., 1998	UK	*N* = 72; BED; 100% female; adults	39.7 (1)	EDE; EDE-Q	CBT GSH and CBT USH (Overcoming Binge Eating manual); CBT GSH 8x25 minute sessions; non-specialist therapists working in primary care	Waiting list control	--++○ (5)
Treasure et al., 1994*	UK	*N* = 81; BN; 100% female; adults	25.8 (4.18)	EDI; BITE	CBT USH (Getting Better Bite by Bite manual)	CBT and Waiting list control; CBT 16 sessions; CBT therapist	○+++○ (8)

Note. Studies with an asterisk* were included in the narrative synthesis but not in the meta-analysis.
AN = Anorexia Nervosa; BED = Binge Eating Disorder; BES = Binge Eating Scale; BITE = Bulimic Investigatory Test Edinburgh; BMI = Body Mass Index; BN = Bulimia Nervosa; BWL = Behavioural Weight Loss; CARE = Compassionate Attention and Regulation of Eating Behaviour; CBT = Cognitive Behavioural Therapy; DBT = Dialectical Behaviour Therapy; EB-IV = Eating Behaviour-IV; EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination Questionnaire; EDI = Eating Disorder Inventory; EDNOS = Eating Disorder Not Otherwise Specified; EDQ = Eating Disorder Questionnaire; FBT = Family-Based Treatment; GSH = Guided Self-Help; GSH-E = Guided Self-Help with Email Guidance; GSH-F = Guided Self-Help with Face-to-Face Guidance; GSH-T = Guided Self-Help with Telephone Guidance; ICAT = Integrative Cognitive-Affective Therapy; IPT = Interpersonal Psychotherapy; Mini-DIPS = Diagnostic Interview for Mental Disorders, short version; OSFED = Other Specified Feeding or Eating Disorder; QEWP-R = Questionnaire on Eating and Weight Patterns-Revised; SB-ED = Student Bodies-Eating Disorders; SH-MG = Self-Help with Minimal Guidance; TFEQ = Three-Factor Eating Questionnaire; USH = Unguided Self-Help; WBQ = Weekly Binges Questionnaire; %EDW = Expected Mean Body Weight.
RoB = Risk of Bias; + = high risk of bias, ○ = some concerns, - = low risk of bias, for each of the categories considered: the randomisation process, deviations from the intended intervention, missing outcome data, measurement of the outcome and selection of the reported result.

(Grilo et al., 2013) to 44.4% (Traviss et al., 2011). There were two studies that did not provide sufficient data to calculate attrition rates. Jenkins and colleagues (2021) reported a drop-out rate of 36.9% in the self-help with face-to-face guidance group and a significantly higher drop-out rate of 67.9% in the self-help with email guidance group. However, the proportion of waiting list participants who dropped out during the treatment phase was not stated. Treasure and colleagues (1994) provided details regarding the number of randomised participants who dropped out during the treatment phase (*n* = 29); however, the total number of randomised participants was not stated and only completer analyses were conducted. Some studies that compared a LI intervention to a high intensity intervention reported a higher drop-out rate among those who received the LI intervention (de Zwaan et al., 2017; Peterson et al., 2020; Wilson et al., 2010). However, Bailer et al. (2004) found the drop-out rate did not differ between their guided self-help condition and high intensity, group CBT condition. Further details on attrition rates for each study can be found in Appendix D.

Meta-analysis

Thirty studies provided sufficient data to be included in the meta-analysis. Separate analyses are presented for studies comparing against a high intensity psychological intervention (Table 2), a non-eating disorder-specific psychological intervention (Table 3) and a waiting list control condition (Table 4). For continuous outcomes (i.e., eating disorder psychopathology and DSM severity specifiers), an effect size (*g*) below 0 favours LI psychological interventions. For dichotomous outcomes (i.e., remission and recovery rates), an effect size (RR) above 1 favours LI psychological interventions.

Low intensity psychological interventions vs high intensity psychological interventions.

Effect size data for the seven studies comparing against a high intensity psychological intervention can be found in Table 2 (7 comparisons). Forest plots of effect sizes on each primary outcome for studies comparing against a high intensity psychological intervention are presented in Appendix E.1. Effect size data for each subgroup analyses are displayed in Appendix E.2. See Appendix E.3 for funnel plots examining publication bias.

For eating disorder psychopathology, the pooled between-group effect size (*g*) at post-treatment was -0.13 (95% CI: [-0.30, 0.04], $p = .13$; NNT = 13.51), suggesting low and high intensity psychological interventions were equally efficacious at reducing eating disorder psychopathology. At short-term (<12 months) follow-up, LI interventions were superior to high intensity interventions at reducing eating disorder psychopathology ($n = 4$; $g = -0.20$; 95% CI: [-0.40, -0.01], $p = .04$). No indication for publication bias was found ($t = 0.56$, $p = 0.60$).

In relation to DSM severity specifier outcomes, there was a small but significant

Table 2 Meta-analysis results for studies comparing a low intensity psychological intervention against a high intensity psychological intervention

	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	7	-0.13	-0.30 to 0.04	-1.51	17.83	.13	13.51	7.30 (0.29)
Only studies with a total risk of bias score of ≤ 4	3	-0.06	-0.28 to 0.16	-0.53	<.001	.60	29.41	0.13 (0.94)
Effect at <12 months follow-up	4	-0.20	-0.40 to -0.01	-2.02	<.001	.04*	8.93	0.71 (0.87)
DSM severity specifier (*g*)	7	-0.15	-0.31 to 0.00	-1.99	<.001	<.05*	11.11	3.35 (0.76)
Only studies with a total risk of bias score of ≤ 4	3	-0.16	-0.38 to 0.06	-1.44	<.001	.15	11.11	1.88 (0.39)
Effect at <12 months follow-up	4	-0.11	-0.32 to 0.10	-1.05	9.10	.30	16.13	3.30 (0.35)
Effect at ≥12 months follow-up	3	-0.12	-0.32 to 0.08	-1.22	<.001	.22	14.71	0.69 (0.71)
Remission/recovery (RR)	5	0.70	0.56 to 0.87	-3.19	<.001	<.01**		1.94 (0.75)
Only studies with a total risk of bias score of ≤ 4	3	0.68	0.54 to 0.86	-3.30	<.001	<.01**		0.85 (0.55)
Effect at <12 months follow-up	4	0.81	0.64 to 1.01	-1.84	<.001	.07		0.73 (0.87)

Note. For hedges' *g,* negative values favour low intensity psychological intervention. For risk ratio, values > 1 favour low intensity psychological intervention.
Ncomp = Number of comparisons; ES = Effect Size.
* $p \leq .05$; ** $p \leq .01$.

effect in favour of LI psychological interventions when compared to high intensity therapies (*g* = -0.15; 95% CI: [-0.31, 0.00], *p* < .05; NNT = 11.11). There was no significant difference between low and high intensity interventions at short-term (*n* = 4; *g* = -0.11; 95% CI [-0.32, 0.10], *p* = .30) or long-term (≥12 months) follow-up (*n* = 3; *g* = -0.12; 95% CI [-0.32, 0.08], *p* = .22). There was no indication for publication bias (*t* = 0.84, *p* = 0.44).

There was an overall effect in favour of high intensity therapies compared with LI interventions on achieving remission and recovery (RR = 0.70; 95% CI [0.56, 0.87], *p* < .01). This means that provision of high intensity therapies increased the chances of remission and/or recovery by around 30%. At short-term follow-up, high and low intensity interventions were comparable in achieving remission and recovery (*n* = 4; RR = 0.68; 95% CI [0.64, 1.01], *p* = .07). There was no indication for publication bias (*t* = 0.67, *p* = .55).

Subgroup and moderator analyses

Meta-regression analyses showed no significant effect of total RoB score on effect size on any of the primary outcomes, and no significant association between age and effect size. There was no significant difference in effect across types of eating disorder, treatment modality, intervention format, mode of delivery, type of guidance or qualification of guide. All interventions included some form of guidance so it was not possible to compare guided and unguided interventions for these comparisons.

Low intensity psychological interventions vs non-eating disorder-specific psychological interventions.

Effect size data for the seven studies comparing eating disorder-specific LI interventions against a non-eating disorder specific psychological intervention can be found in Table 3 (8 comparisons). Forest plots of effect sizes on each primary outcome for studies comparing against non-eating disorder specific interventions are presented in Appendix F.1. Effect size data for each subgroup analyses are displayed in Appendix F.2. See Appendix F.3 for funnel plots examining publication bias.

In relation to eating disorder psychopathology, the pooled effect sizes were significantly greater for LI psychological interventions compared to non-eating disorder-specific interventions (*g* = -0.35; 95% CI [-0.49, -0.22], *p* < .01; NNT = 5.10). These differences were no longer significant at short-term follow-up (*n* = 3; *g* = -0.31; 95% CI [-0.66, -0.04], *p* = .08). No indication for publication bias was found (*t* = 0.42, *p* = 0.70).

Results also showed that LI psychological interventions had a small but significant effect on DSM severity specifier-related outcomes compared to non-eating disorder specific interventions (*g* = -0.22; 95% CI [-0.34, -0.09], *p* < .01; NNT = 8.06), but comparable at short-term follow-up (*n* = 3; *g* = -0.15; 95% CI: [-0.39, 0.04], *p* = .12). Visual inspection of a

Table 3 Meta-analysis results for studies comparing a low intensity psychological intervention against a non-eating disorder specific intervention

	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	5	-0.35	-0.49 to -0.22	-5.11	<.001	.<.01**	5.10	0.09 (>.99)
Effect at <12 months follow-up	3	-0.31	-0.66 to 0.04	-1.76	<.001	.73	5.75	0.65 (0.73)
DSM severity specifier (*g*)	6	-0.22	-0.34 to -0.10	-3.66	<.001	<.01**	8.06	3.20 (0.67)
Only studies with a total risk of bias score of ≤ 4	2	-0.39	-0.62 to -0.15	-3.17	<.001	<.01**	4.59	0.15 (0.70)
Effect at <12 months follow-up	3	-0.17	-0.39 to 0.04	-1.56	<.001	.12	10.42	0.48 (0.79)
Remission/recovery (RR)	7	1.47	1.13 to 1.92	2.87	15.48	<.01**		7.10 (0.31)
Only studies with a total risk of bias score of ≤ 4	2	1.63	0.99 to 2.68	1.93	<.001	.05*		0.71 (0.40)
Effect at <12 months follow-up	4	1.93	1.48 to 0.53	4.81	1.61	<.01**		3.05 (0.38)

Note. For hedges' *g,* negative values favour low intensity psychological intervention. For risk ratio, values > 1 favour low intensity psychological intervention.
Ncomp = Number of comparisons; ES = Effect Size.
* $p \leq .05$; ** $p \leq .01$.

funnel plot indicated that the pooled effect size of studies comparing LI interventions against non-eating disorder specific interventions may have been influenced by publication bias, however Egger's test was not significant (t = 1.87, p = 0.13). Following adjustment for missing studies using Duval and Tweedie's (2000) trim-and-fill procedure (3 imputed studies), Hedges g was -0.16 (95% CI: -0.26, -0.06; NNT = 11.11).

There was an overall effect in favour of LI psychological interventions compared to non-eating disorder specific interventions on achieving remission and/or recovery (RR = 1.47; 95% CI [1.13, 1.92], p < .01), with those who received a LI intervention having an increased chance of remission and/or recovery of 47%. This effect increased and remained significant at short-term follow-up (n = 4; RR = 1.93; 95% CI [1.48, 0.53], p < .01). There was no indication for publication bias (t = 0.50, p = 0.64).

Subgroup and moderator analyses

Meta-regression analyses showed no significant effect of total RoB score on effect size on any of the primary outcomes, and there was no significant association between age and effect size. Subgroup analyses found no potential moderating effect among any of the variables investigated. All interventions were self-led so it was not possible to explore the moderating effect of 'mode of delivery'.

Low intensity psychological interventions vs waiting list controls.

Meta-analyses were performed at the post-intervention timepoint only. It was not possible to conduct analyses at follow-up due to trials using a crossover design, nor was it possible to explore the moderating effect of 'mode of delivery' as all interventions were self-led. Meta-regression analyses found no significant association between age and effect size on any of the comparisons.

Effect size data for the 17 studies comparing against a waiting list control condition can be found in Table 4 (22 comparisons). Forest plots of effect sizes on each primary outcome for studies comparing against waiting list controls are presented in Appendix G.1. Effect size data for each subgroup analyses are displayed in Appendix G.2, and funnel plots examining publication bias are in Appendix G.3.

For eating disorder psychopathology, the pooled effect sizes were moderate, statistically significant, and in favour of the LI psychological intervention (g = -0.68; 95% CI [-0.90, -0.46]; p < .01; NNT = 2.70). However, Cochran's Q-test identified moderately high heterogeneity across these studies (I^2 = 67; Q = 42, p < .01). Meta-regression analyses revealed that the total RoB score had a significant effect on effect size (z = -2.28, p = 0.02); only two studies with a waiting list condition had a total RoB score of $\leq$4. When considering moderators, there was a significant effect of 'format of intervention', with bibliotherapy (n = 8;

Table 4 Meta-analysis results for studies comparing a low intensity psychological intervention against waiting list controls

	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	15	-0.68	-0.90 to -0.46	-6.05	66.57	.<.01**	2.70	41.88 (<.01)
Only studies with a total risk of bias score of ≤ 4	2	-0.24	-0.56 to 0.07	-1.54	43.69	.13	7.46	1.78 (0.18)
DSM severity specifier (*g*)	14	-0.60	-0.74 to -0.45	-8.05	<.001	<.01**	3.05	8.77 (0.79)
Remission/recovery (RR)	11	3.01	1.93 to 4.69	4.87	<.001	<.01**		7.55 (0.67)

For hedges' *g,* negative values favour low intensity psychological intervention. For risk ratio, values > 1 favour low intensity psychological intervention.
Ncomp = Number of comparisons; ES = Effect Size
* $p \leq .05$; ** $p \leq .01$.

g = -0.93, 95% CI: [-1.28 to -0.58]) superior to online (*n* = 5; *g* = -52; 95% CI [-0.69, -0.35]) and CD-ROM interventions (*n* = 2; *g* = -0.12; 95% CI [-0.46, 0.21]). Subgroup analyses also revealed a moderating effect of 'type of guidance', with email guidance (*n* = 3; g = -0.82; 95% CI [-1.09, -0.54]) more efficacious than online guidance (*n* = 2; *g* = -0.39; 95% CI [-0.61, -0.16]). Visual inspection of a funnel plot indicated potential publication bias; however, Egger's test was not significant (*t* = 1.97, *p* = 0.07) and Duval and Tweedie's (2000) trim-and-fill procedure resulted in no imputed studies.

Results showed a moderate effect in favour of LI psychological interventions on DSM severity specifier outcomes compared with waiting list (*g* = -0.60; 95% CI [-0.74, -0.45], *p* < 0.01; NNT = 3.05). Meta-regression analyses revealed no significant effect of total RoB score on effect size, and no statistically significant differences among any of the subgroups investigated. A funnel plot indicated that the effect size may have been influenced by publication bias, although Egger's test was not significant (*t* = 2.01, *p* = 0.07). Following adjustment for missing studies using Duval and Tweedie's (2000) trim-and-fill procedure (2 imputed studies), *g* was -0.57 (95% CI: [-0.71, -0.42]).

The effect of LI psychological interventions on achieving remission and/or recovery when compared to waiting list controls was RR = 3.01 (95% CI [1.93, 4.69], *p* < .01). This suggests that individuals who received a LI psychological intervention were 3x more likely to achieve remission and/or recovery than individuals waiting for treatment. However, a meta-regression analysis demonstrated that total RoB score was significantly associated with effect size (*z* = 1.94, *p* = 0.05); only one study in this comparison had a total RoB score of $\leq$4. Subgroup analyses found no significant differences between subgroups. A funnel plot indicated that the effect size was influenced by publication bias, which was confirmed by Egger's test (*t* = 3.02, *p* = 0.01). After adjusting for missing studies using Duval and Tweedie's (2000) trim-and-fill procedure (5 imputed studies), the RR reduced to 2.41 (95% CI: [1.60, 3.62]).

Discussion

This systematic review and meta-analysis aimed to systematically assess the evidence base for the use of LI psychological interventions for the treatment of feeding and eating disorders. The relative efficacy of LI psychological interventions was examined in comparison to high intensity psychological interventions, non-eating disorder specific psychological interventions and waiting list control conditions. Thirty-seven pooled comparisons using data from 30 studies were conducted.

Overall, findings suggest that LI psychological interventions can successfully treat eating disorder symptoms. Effect sizes varied as a function of the comparison condition. LI psychological interventions were superior to waiting list controls with moderate effects,

demonstrated a small positive effect compared to non-eating disorder specific interventions, and were generally comparable to high intensity therapies at posttreatment. These findings are consistent with the pattern observed in prior meta-analyses of eating disorder treatments, which have also found strong effects for self-help compared to waiting list (Aardoom et al., 2013; Traviss-Turner et al., 2017), and similar outcomes to therapist-delivered psychological therapies (Perkins et al., 2006).

LI psychological interventions were consistently more efficacious than waiting list controls on all three primary outcomes, with an NNT of around three, indicating that one in every three patients will benefit from such an intervention. In these studies, there was evidence to suggest that self-help delivered via bibliotherapy may be favourable to computerised treatments. However, RCTs comparing two types of the same intervention delivered through different formats were excluded from the current review so this requires further investigation. In their RCT, Wagner and colleagues (2013) compared two types of CBT guided self-help for BN (bibliotherapy vs internet-based) and found that internet-based guided self-help was not superior to its bibliotherapy equivalent. Given the shift towards e-mental health interventions in recent years, it is essential that more RCTs comparing different types of self-help (e.g., online vs bibliotherapy) are conducted in order to prevent the promulgation of ineffective or even harmful interventions (Loucas et al., 2014).

This meta-analysis showed that, perhaps unsurprisingly, LI interventions with an emphasis on eating disorders were more effective at treating eating disorder symptoms than non-eating disorder specific interventions. Notably, however, the size of the pooled effect was smaller than that for studies with a waiting list control condition, which suggests interventions without an eating disorder focus (e.g., self-esteem self-help) may have some therapeutic benefit for individuals with eating disorders (Carter et al., 2020). LI interventions were generally comparable to therapist-delivered, high intensity therapies, although individuals were more likely to achieve remission and/or recovery if they received a more intensive treatment. However, these results should be interpreted with caution because of the limited quantity and quality of RCTs from which these conclusions have been drawn. There is a need for well-conducted trials exploring the effects of LI psychological interventions, particularly in comparison to specialist therapist-delivered therapies.

A number of reviews across mental health disorders have found guided self-help has greater adherence and effectiveness compared to self-help without guidance (Bennett et al., 2019; Cuijpers et al., 2019; Pearcy et al., 2016). However, the subgroup analyses in this review revealed no significant differences in the effectiveness of LI psychological interventions with and without guidance. Trials comparing guided self-help to unguided self-help have had mixed results. Loeb and colleagues (2000) found guided self-help to be

superior in reducing the occurrence of binge eating, whereas Ghaderi and colleagues showed no significant differences between guided and unguided self-help in regards to eating disorder psychopathology (Ghaderi, 2006; Ghaderi & Scott, 2003). Although it was beyond the scope of the current review, direct comparisons of self-help with varying levels of guidance would be helpful.

Eating disorders are one of the most common problems in children and adolescents who access mental health services (National Collaborating Centre for Mental Health, 2015) and the number of young people needing treatment has reached record levels (Iacobucci, 2021). We know that early access to support is important for treatment outcomes (Treasure et al., 2015), however only one RCT on an adolescent population fulfilled the inclusion criteria for this review. In their feasibility trial, Lock and colleagues (2021) found adolescents with AN who underwent an online FBT guided self-help programme made clinical improvements in terms of weight gain and eating-related cognitions. There is also some evidence to suggest that guided self-help can be effective for adolescents with BN. Schmidt and colleagues (2007) compared CBT guided self-care to family therapy in a sample of adolescents with BN and related disorders. The results indicated that CBT guided self-care offered a more rapid reduction of bingeing, as well as being regarded more acceptable and less expensive to administer. The amount of guidance in the guided self-care condition exceeded our cut-off of ≤6 hours of therapist contact time, hence this study was not included in this review. Nevertheless, these findings suggest children and adolescents with eating disorders may well benefit from LI psychological interventions. More interventions which address the specific developmental needs of young people need to be developed, and then studied in large RCTs, before clinicians consider adopting this approach (O'Mara et al., 2022).

This review highlights various other gaps in our knowledge about the effectiveness of LI psychological interventions for the treatment of feeding and eating disorders. Most of the LI psychological interventions studied in this meta-analysis were based on CBT principles, and while we attempted to investigate the potential moderating effects of treatment modality, these analyses were insufficiently powered to detect effects. As such, the empirical standing of other types of LI psychological interventions, such as DBT and FBT, is still unknown. Similarly, the majority of the studies in this review either recruited participants with eating disorders characterised by recurrent binge eating, or used the Overcoming Binge Eating (Fairburn, 2013) manual in their intervention. Very few studies focused on AN and atypical eating disorders (OSFED, formerly EDNOS), despite guided self-help being recommended for the latter (NICE, 2017). No studies included participants with ARFID, pica or rumination

disorder. Further research investigating the use of LI psychological interventions for the range of eating disorders currently under-represented in the literature is necessary.

Limitations

Limitations to this meta-analysis must be considered. Firstly, our definition of a 'low intensity' psychological intervention (i.e., ≤6 hours of therapist contact time) meant some relevant papers were excluded from our analyses (e.g., Schmidt et al., 2007). Secondly, the number of trials was relatively small for many of the comparisons and subgroup analyses, and therefore possibly underpowered. Findings should therefore be interpreted with caution. In addition, the methodological quality of the studies in this meta-analysis was poor. Based on the criteria outlined in the Cochrane risk of bias tool (Sterne et al., 2019), all studies were considered to be at high RoB. The most common problem, aside from a lack of blinding of participants which is common in psychological treatment studies, was a bias through missing outcome data. The possibility of publication bias is another limitation. Publication bias is a substantial problem for the credibility of meta-analytic results, as it yields overestimated effects and may suggest the presence of non-existent effects (Aert et al., 2019). Although attempts were made to limit publication bias through grey literature searches and visual inspections of funnel plots (Winters & Weir, 2017), some unpublished trials could have been missed which may have inflated effect size estimates. Furthermore, the trim-and-fill method has been criticised for having a high false positive rate which needs to be considered when interpreting the findings (Sterne & Egger, 2000). More fully powered trials which address these limitations are warranted.

Implications

Notwithstanding these shortcomings, these results have clear implications related to the use of LI psychological interventions for the treatment of eating disorders. In line with NICE recommendations for the treatment of adults with BED, BN and related disorders (NICE, 2017), our findings suggest LI CBT interventions seem to be an appropriate first step in a stepped care model of treatment delivery for adults with binge-eating related disorders. Given the similar effects to high intensity therapies, LI CBT interventions may also be a promising alternative to specialist treatment. It is, of course, important to take patients' needs and preferences, and the availability of resources, into account when making treatment decisions. Considering their relatively low costs and ease of accessibility, LI interventions have the potential to give people timely access to treatment for their eating disorder at a time when this is so desperately needed (Weissman et al., 2020).

While the preliminary evidence for the potential efficacy of alternative LI interventions (e.g., FBT, DBT) looks promising, more research is needed before practitioners should adopt these treatments. The value of LI psychological interventions for children and adolescents,

and people with AN, is at present uncertain, and nothing is currently known about its effect as a treatment for ARFID, pica or rumination disorder. More studies are required to establish the effectiveness of LI psychological interventions for these patient groups. The quality of these RCTs was far from optimal and more work needs to be done to ensure that future trials meet higher standards and can therefore offer more robust conclusions.

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Appendix A. Adapted PRISMA checklist

Table A.1.

Adapted PRISMA Checklist for 'Low intensity psychological interventions for the treatment of feeding and eating disorders: a systematic review and meta-analysis'

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review. The Title includes one or two keywords to optimize search engine discoverability of the article.	Pg1
ABSTRACT			
Abstract	2a	See the PRISMA 2020 for Abstracts checklist. The Abstract is structured and is a recommended maximum of 250 words. Using the headers "Objective," "Method," "Results," and "Discussion," the Abstract concisely summarizes the article. The Abstract includes at least three of the manuscript's identified keywords.	Pg2
Keywords	2b	Keywords are provided that capture relevant core concepts. Keywords may be single words ("health") or short multi-word terms ("health services utilization"). The Editor recommends at least five keywords.	Pg2
Public Significance	2c	The Public Significance statement (< 70 words) explains why this research is important. It is written in plain English for a general, educated public.	Pg2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Pg3-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Pg6
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Pg7-11
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Pg9
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Appendix B
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Pg9
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pg9-11
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Pg8-12
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Pg9-10

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Pg10
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Pg10-12
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Pg7-10 Table 1 (Pg 15-18)
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Pg9-11
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Tables 2 (Pg20), 3 (Pg22) and 4 (Pg24) Appendix E-G
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Pg9-12
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Pg12
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Pg12
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Pg10
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Pg12-14 Figure 1 (Pg13)
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Pg26-27
Study characteristics	17	Cite each included study and present its characteristics.	Table 1 (Pg15-18)
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Pg14 Table 1 (Pg15-18)
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Appendix E-G
Results of	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Pg12-25

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
syntheses	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Pg12-25 Tables 2 (Pg20), 3 (Pg22) and 4 (Pg24)
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Pg19-25 Table 1 (Pg15-18)
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pg25-29
	23b	Discuss any limitations of the evidence included in the review.	Pg27-29
	23c	Discuss any limitations of the review processes used.	Pg28
	23d	Discuss implications of the results for practice, policy, and future research.	Pg28-29
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Pg6
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Pg6
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	N/A
Competing interests	26	Declare any competing interests of review authors.	N/A
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	N/A

This checklist is adapted for IJED rom: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: http://www.prisma-statement.org/

Appendix B. Search terms

Feeding and eating disorder:

eating disorder*, feeding disorder* anorexi*, bulimi*, bing*, other specified feeding or eating disorder, OSFED, EDNOS, unspecified feeding or eating disorder, UFED, avoidant restrictive food intake disorder, ARFID, pica, rumination disorder

Low intensity:

low intensity, audio*, book*, distance*, homework, information, instruct*, instant messaging, iCBT, internet*, web*, phone, mobile, e-mail*, email*, leaflet*, material*, multi-media, multimedia, online*, on-line, pamphlet*, program*, remote, tele*, tape*, workbook*, self help, self-help, self change, self-change, self care, self-care, self directed, self-directed, self manage, self-manage, minimal guidance, minimal contact, bibliotherapy*, manual*, computer*, www, cd-rom, cd, cdrom, DVD, floppy, video*, virtual*

Intervention:

1. therap*
2. interven*
3. treat*
4. psychol*

Randomised controlled trial:

1. randomi*ed controlled trial*
2. clinical trial*
3. random*
4. allocat*
5. trial*
6. groups

Appendix C. Satisfaction measures

Table C.1

Self-reported satisfaction with low intensity psychological interventions across studies

Study	Measure	Main Findings
Bailer et al., 2004	N/A	
Banasiak et al., 2005	Custom Attitudes Towards Treatment Scale	Attitudes towards treatment scores were favourable. Mean Satisfaction with Treatment score was 6.89/10 (SD = 2.46), Satisfaction with GP score was 6.25/10 (SD = 3.20), Satisfaction with Treatment Outcome score was 5.93 (SD = 2.51) and Treatment Credibility score was 8.36 (SD = 2.24).
Cachelin et al., 2019	Client Satisfaction Questionnaire (Attkisson & Zwick, 1982)	Participants who completed the intervention (n = 15) reported a high level of satisfaction with the programme. Mean score 30.5/32 (SD = 1.91; range 26-32).
Carrard et al., 2011	Custom Satisfaction with Programme Questionnaire	No data reported, but states that the programme was well accepted by individuals with BED who are seeking treatment
Carter et al., 1998	Custom Suitability and Likely Effectiveness of Treatment Scale	Participants rated both the guided and unguided self-help versions of the intervention to be highly credible. Guided self-help: suitability (M = 7.3/10; SD = 2.7) and likely effectiveness (M = 8.6/10; SD = 1.8) Unguided self-help: suitability (M = 7.0/10; SD = 1.7) and likely effectiveness (M = 8.1/10; SD = 1.5).
Carter et al., 2003*	Custom Suitability and Likely Effectiveness of Treatment Scale	Participants reported moderate levels of satisfaction with the intervention. Suitability: M = 6.7/10; SD = 2.2 Expected effectiveness: M = 4.8/10; SD = 2.5
Carter et al., 2020	Custom Suitability and Effectiveness Scale	Participants were generally very satisfied with both the guided and unguided self-help versions of the intervention. Guided self-help: suitability (M = 88.8/100; SD = 15.2) and effectiveness (M = 77.3/100; SD = 17.8) Unguided self-help: suitability (M = 75.3/100; SD = 23.2) and effectiveness (M = 66.8/100; SD = 19.3).
de Zwaan et al., 2017	N/A	

Duarte et al., 2017	Custom Feedback on Intervention Questionnaire	Most participants reported that the practices were very useful and rated the materials within the programme as very important.
Durand & King, 2003	Custom Satisfaction with Treatment Questionnaire	Most participants found some aspects of the self-help programme helpful. The intervention was praised for: - Behaviourally-focused early stages - Having a structure to follow - Having someone to talk to Criticisms included: - Time consuming and discipline - Time constraints of GP affected their GP's ability to help them - Attending the clinic because of work commitments Proposed improvements to self-help programme: - More frequent/longer appointments - GP training - More active participation on the part of therapists - Involvements of other professionals - Meeting other patients with similar problems
Fitzsimmons-Craft et al., 2020	N/A	
Green et al., 2018	N/A	
Grilo & Masheb, 2005	Custom Treatment Expectations and Treatment Suitability Scale	Participants rated the extent to which the treatment was 'logical' as high (M = 8.8/10; SD = 1.3).
Grilo et al., 2013	N/A	
Hildebrandt et al., 2020	N/A	
Jenkins et al., 2021*	N/A	
Kelly et al., 2015	The Credibility/Expectancy Questionnaire (Devilly & Borkovec, 2000)	Participants were fairly satisfied with both the behavioural strategies intervention and self-compassion intervention. Behavioural strategies: intervention credibility (M = 7.0/10; SD = 1.2) and binge reduction expectancy (M = 71.8%; SD = 20.4) Self-compassion intervention: intervention credibility (M = 7.2/10; SD = 1.3) and binge reduction expectancy (M = 69.1%; SD = 19.7).
Ljotsson et al., 2007	N/A	
Lock et al., 2021	Therapy Suitability and	Parents reported the intervention as both suitable and acceptable. At the end

	Patient Expectancy (TPSE) The Helping Alliance Questionnaire (HAQ; De Weert-Van Oene et al., 1999)	of session 1, parents' ratings on the TSPE were as follows: - Suitability of the treatment (M = 7.9; SD = 2.0) - Expectations of therapy (M = 7.4; SD = 1.8) Parents rated the following domains at session 1 and session 8: - Improvement scores rose from M = 2.6 (SD = 0.9) to M = 3.8 (SD = 0.9) - Helpfulness subscale rose from M = 4.8 (SD = 4.8) to M = 7.8 (SD = 4.4) - Cooperation subscale M = 11.9 (SD = 5.7) to M = 12.4 (SD = 4.8)
Masson et al., 2013	N/A	
Palmer et al., 2002	N/A	
Peterson et al., 2020	Therapy Suitability and Patient Expectancy (TPSE)	Participants were generally satisfied with the intervention, with a mean score of 8.7/10 (SD = 1.7) for treatment suitability and 8.3 (SD = 1.5) in terms of expectations for success.
Sánchez-Ortiz et al., 2011	N/A	
Schmidt et al., 2008	N/A	
Shapiro et al., 2007	N/A	
Steele & Wade, 2008	N/A	
Strandskov et al., 2017	N/A	
Striegel-Moore et al., 2010	Custom Acceptability and Treatment Expectancies Scale	Participants found the intervention to be suitable (M = 4.2/5; SD = 0.7) and were reasonably confident that the treatment would be successful (M = 3.8/5; SD = 0.8).
ter Huurne et al., 2015	Custom Treatment Acceptability Scale	Participants were satisfied with both the intervention and their therapist. Most participants evaluated the intervention as rather (46%, 42/91) or very (35%, 32/91) useful. On average, participants rated the intervention with a 7.6/10 (SD = 1.3) and their therapist with an 8.1 (SD = 1.0). The majority of participants considered the online contact to be (very) pleasant (77%; 70/91), personal (60%; 55/91) and safe (92%; 84/91). Almost all participants said that the support of the therapist added value and identified the therapeutic support as one of the most valuable and important components of the treatment. Some participants missed other forms of contact (e.g., face-to-face or via telephone).

		Reasons for dropping out or stopping the intervention prematurely included: - Personal reasons or problems (33%; e.g., lack of time, psychological problems, lack of motivation) - Treatment content/protocol (29%; e.g., eating diary annoying/too time consuming, assignments not supportive, not enough attention for weight loss) - Online method (21%; e.g., lack of contact, too open-ended)
Traviss et al., 2011	N/A	
Treasure et al., 1994*	N/A	
Wilson, Wilfley, Agras & Bryson, 2010	Custom Treatment Expectations and Treatment Suitability Scale	Participants were generally satisfied with the intervention, rating treatment suitability as 7.6/10 (SD = 2.1) and likely effectiveness 7.5 (SD = 2.2).
Wyssen et al., 2021	Custom Treatment Satisfaction Scale	Treatment satisfaction of completers was high with a mean value of 8.3/10 (SD = 1.5). Reasons for discontinuation included: - Burden/strain (6.3%) - Dissatisfaction with the program (4.8%) - Lack of time (4.8%) - Lack of motivation (4.8%) - Switch to another treatment (1.6%)

Appendix D. Attrition rates

Table D.1

Study attrition rates

Study	Main Findings
Bailer et al., 2004	10 out of 40 (25%) participants given the self-help manual did not complete the treatment phase. 15 out of 41 (36.6%) of those who received group CBT did not complete the treatment phase. The overall drop-out rate during the treatment phase was 30.8% (*n* = 25). The drop-out rate did not differ significantly between the two groups. Drop-outs did not differ significantly from completers on clinical or demographic variables at baseline.
Banasiak et al., 2005	18 out of 54 (33.3%) dropped out of the guided self-help intervention and 16 out of 55 (29.1%) dropped out of the delayed treatment control group. The overall attrition rate during the intervention phase was 31.2% (*n* = 34). There was no statistically significant difference between the two groups' attrition rates. There were no significant differences between those who completed the trial and those who dropped out on demographic variables, clinical features or outcome variables at baseline.
Cachelin et al., 2019	A total of 11 out of 40 (27.5%) participants did not complete the RCT. 6 out of 21 (28.6%) assigned to the guided self-help group did not complete the intervention. 5 out of the 19 (26.3%) participants in the waiting list condition did not complete the posttreatment assessment. The completer and non-completer groups were similar on all baseline demographic characteristics, help-seeking and outcome variables of interest.
Carrard et al., 2011	9 out of 37 (24.3%) participants allocated to the internet group and 4 out of 37 (10.8%) allocated to the delayed treatment group did not complete the posttreatment assessment. The overall attrition rate at posttreatment was 17.6% (13 out of 74). Dropouts had more concerns about shape and a higher drive for thinness compared to completers. Demographic characteristics and other outcome variables of both groups were similar at baseline.
Carter et al., 1998	The overall attrition rate during the intervention phase was 12.5% (9 out of 72), 8 (33.3%) from the guided self-help group and 1 (4.2%) from the waiting list group. Five of the dropouts provided posttreatment data (1 from waiting list and 4 from guided self-help), so posttreatment data was available for 68 out of 72 (94.4%) participants.
Carter et al., 2003*	20 out of 85 (23.5%) participants dropped out of the study and did not attend the posttreatment assessment: 5 (17.9%) were from the CBT self-help group, 7 (25%) from the nonspecific self-help group and 8 (27.6%) from the waiting list control group. There was no statistically significant difference between the three conditions in terms of rates of attrition. There were also no significant differences between the dropouts and completers in terms of baseline characteristics.
Carter et al., 2020	28 out of 74 (37.8%) did not complete the posttreatment questionnaires. At posttreatment, 29% in the DBT guided self-help group, 15% in the DBT unguided self-help group and 33% in the self-esteem unguided self-help group failed to provide data. There were no statistically significant differences between the three conditions in terms of attrition rates at posttreatment. Posttreatment completers reported lower baseline BSI-GSI scores than noncompleters, but these two

	groups did not differ on any other baseline variables.
de Zwaan et al., 2017	Treatment attrition and study dropout during treatment were low, with an overall attrition rate of 9.6%. 13 out of 89 (14.6%) participants allocated to guided self-help intervention and 4 out of 89 (4.5%) allocated to CBT intervention did not provide posttreatment data. CBT was more successful in retaining patients in the trial than was guided self-help.
Duarte et al., 2017	6 out of 17 (35.3%) participants in the intervention group and 7 out of 16 (43.8%) in the waiting list control group did not complete the posttreatment assessments. The overall attrition rate at posttreatment was 39.4%.
Durand & King, 2003	12 out of 34 (35.3%) participants in the self-help group and 6 out of 34 (17.6%) participants in the specialist treatment group did not provide posttreatment data. The overall attrition rate at posttreatment was 26.5%.
Fitzsimmons-Craft et al., 2020	Of the 385 participants randomised to the intervention condition, 158 (41%) did not complete the postintervention assessment. Of the 305 randomised to the control condition, 62 (20.3%) did not complete the postintervention assessment. The overall attrition rate at postintervention was 31.9%.
Green et al., 2018	17 out of the total 82 (20.1%) participants did not complete the postintervention assessment.
Grilo & Masheb, 2005	Of the 90 participants, 70 (78%) completed treatment and 20 (22%) did not. Dropout rates were 13% for the CBT guided self-help group (*n* = 32 of 37), 34% (*n* = 13 of 38) for the BWL guided self-help group and 13% (*n* = 2 of 15) for the control group. The drop-out rate was significantly lower for CBT guided self-help compared to BWL guided self-help.
Grilo et al., 2013	All 48 participants completed the RCT so the attrition rate was 0%.
Hildebrandt et al., 2020	The total dropout rate was 32.8%, with dropout rates of 42.1% and 35.1% for the CBT guided self-help group and standard care groups, respectively.
Jenkins et al., 2021*	Across the two treatment conditions, only 50% of participants completed treatment. The attrition rate was 36.8% (*n* = 14 of 38) for the face-to-face group and 67.9% for the email group (*n* = 19 of 28). There was a greater dropout rate in the email supported self-help group compared to the face-to-face self-help group.
Kelly et al., 2015	Out of the 41 participants in the study, 6 (14.6%) dropped out early or failed to provide data at the posttreatment assessment, 4 (26.6%) in the self-compassion intervention group, 1 (7.7%) in the behavioural strategies intervention group and 1 (7.7%) in the waiting list control group.
Ljotsson et al., 2007	11 of the 35 (31%) participants did not complete the full 12 weeks treatment program. Completers reported fewer subjective bulimic episodes than dropouts at the baseline assessment. All other baseline measures were equivalent across completers and dropouts. The overall attrition rate at posttreatment was 91.8% (*n* = 67 out of 73). Only 4 of the 37 (10.1%) participants in the treatment condition and 2 of the 36 (5.6%) participants in the waiting list condition failed to complete the post-treatment assessment.
Lock et al., 2021	The overall attrition rate across treatment arms was 15% (*n* = 3). 2 out of 20 (10%) of participants in the FBT guided self-help condition dropped out of treatment and did not complete the end of treatment assessment. 2 of the 20 (10%) of participant in the high intensity FBT group dropped out of treatment, however only 1 of the 20 (5%) failed to provide

	posttreatment data.
Masson et al., 2013	9 of the 30 (30%) of the treatment group discontinued treatment and did not complete the posttreatment assessment. 3 of the 30 (10%) of the waiting list control group left the study prematurely. The overall attrition rate was 20%.
Palmer et al., 2002	30 out of the total 121 (24.8%) participants in the study dropped out of the study. Dropout rates across the four conditions were: 23.3% (*n* = 7) in the face-to-face guided self-help group, 25% (*n* = 7) in the telephone guided self-help group, 21.9% (*n* = 32) in the minimal guidance self-help group and 29% (*n* = 9) in the waiting list control group.
Peterson et al., 2020	Of the 112 participants across both treatment arms, 23 (20.5%) did not complete treatment, including 16 (28.6%) in the CBT guided self-help group and 7 (12.5%) in the ICAT group. End of treatment assessments could not be obtained for 17 (30.3%) of CBT guided self-help group and 11 (19.6%) of the ICAT group. The overall attrition rate at posttreatment was 25%. ICAT was associated with a significantly higher treatment completion rates and lower drop out than CBT guided self-help.
Sánchez-Ortiz et al., 2011	The overall attrition rate at posttreatment was 11.8%. 2 of the 38 (5.3%) in the CBT intervention group and 7 of the 38 (18.4%) in the delayed treatment control group did not complete posttreatment assessment measures.
Schmidt et al., 2008	The overall attrition rate at posttreatment was 16.5%. 8 out of 49 (16.3%) in the CD-ROM group and 8 out of 48 (16.7%) in the waiting list control group failed to provide posttreatment data.
Shapiro et al., 2007	Dropout rates within the intervention phase were 7 (31.5%) for the CD-ROM condition, 9 (40.9%) for the group CBT condition and 2 (9%) for the waiting list condition. There were significantly more dropouts in the CBT group condition compared to waiting list condition. The overall attrition rate at posttreatment was 27.3%.
Steele & Wade, 2008	The attrition rate for participant in this trial was 25%, with a dropout rate of 4 (26.7%) for the CBT self-help group, 2 (11.8%) for the perfectionism self-help group and 4 (40%) in the placebo intervention group.
Strandskov et al., 2017	Altogether, 19 participants dropped out of treatment during the treatment phase and another participant did not fill in the posttreatment assessment. The overall dropout rate was 21.7%. 15 (32.6%) of participants in the treatment group discontinued treatment prematurely and 4 (8.7%) participants in the waiting list control group dropped out.
Striegel-Moore et al., 2010	Dropout was low, with only 11 out of 123 (8.9%) dropping out during the treatment phase. 7 out of 59 (11.9%) in the guided self-help group and 4 out of 64 (6.3%) in the usual care group did not complete the posttreatment assessment.
ter Huurne et al., 2015	Within the web-based CBT group, 36 participants (33.3%) were considered treatment non-completers. Posttest assessments were not completed by 11 (10.2%) in the web-based CBT group and 2 (1.9%) in the waiting list group. The overall attrition rate at posttreatment was 5.4%. There was a higher study dropout in the web-based CBT group compared to waiting list. Participants who withdrew from the study more often lived alone and had less self-esteem at baseline than participants who completed the posttest.

Traviss et al., 2011	The overall attrition rate from point of randomisation was 44.4%. 23 of 42 (54.8%) participants allocated to guided self-help failed to completed post-intervention measures. 13 of 39 (33.3%) participants in the waiting list control group did not complete post-intervention measures.
Treasure et al., 1994*	Of the randomised participants, 29 dropped out of treatment after starting: 14 were assigned to use the self-help manual, 7 were assigned to CBT and 8 were from the waiting list. It is not clear what percentage of participants randomised this was as the numbers reported do not include these participants (completer analyses).
Wilson, Wilfley, Agras & Bryson, 2010	At posttreatment, dropout rates were 30%, 7% and 28% for the CBT guided self-help group, IPT group and BWL group, respectively. The overall attrition rate for posttreatment assessments measures was 17.3% (*n* = 36 out of 208). IPT had a significantly lower attrition rate than both CBT guided self-help and BWL.
Wyssen et al., 2021	27% of all participants dropped out during the active treatment phase. Out of 24 participants who entered the online program, 8 (33.3%) dropped out during the active treatment phase. Dropout rates did not differ among the three groups.

Note. BWL = Behavioural Weight Loss; CBT = Cognitive Behavioural Therapy; DBT = Dialectical Behaviour Therapy; FBT = Family-Based Treatment; ICAT = Integrative Cognitive-Affective Therapy; IPT = Interpersonal Psychotherapy.

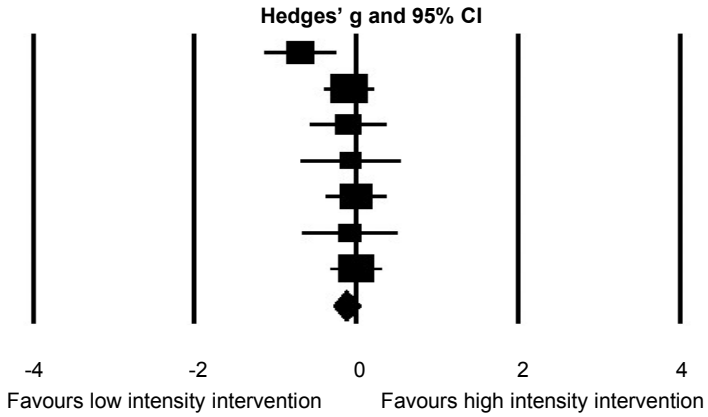
Appendix E. Low intensity psychological interventions vs High intensity psychological interventions

1) Forest plots of effect sizes on each primary outcome for studies comparing against a high intensity psychological intervention
   - Eating disorder psychopathology
   - DSM severity specifier-related outcomes
   - Remission and/or recovery rates
2) Meta-analysis results for studies comparing a low intensity psychological intervention against a high intensity psychological intervention on all three primary outcomes
3) Funnel plots with imputed studies for studies comparing a low intensity psychological intervention against a high intensity psychological intervention

Figure E.1.1

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and high intensity psychological interventions on eating disorder psychopathology

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Bailer 2004	-0.69	-1.14	-0.25	0.00
de Zwaan 2017	-0.09	-0.39	0.21	0.55
Durand 2003	-0.10	-0.57	0.37	0.69
Lock 2021	-0.07	-0.68	0.53	0.81
Peterson 2020	-0.01	-0.37	0.36	0.98
Shapiro 2007	-0.08	-0.66	0.50	0.78
Wilson 2010	0.00	-0.33	0.33	1.00
Vs. High Intensity Intervention Overall	**-0.13**	**-0.30**	**0.04**	**0.13**

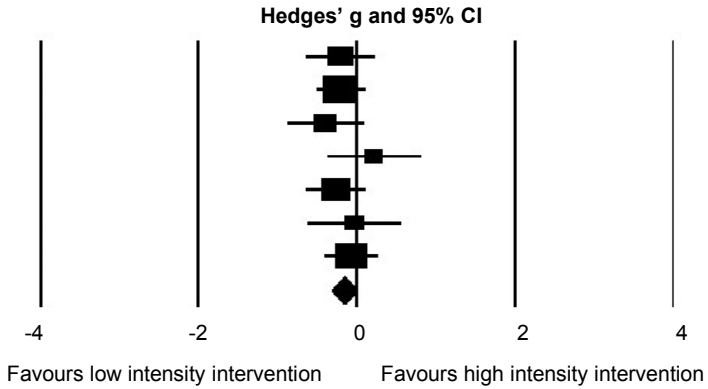


Note. Negative values favour low intensity psychological intervention.

Figure E.1.2

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and high intensity psychological interventions on DSM severity specifier-related outcomes

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Bailer 2004	-0.19	-0.63	0.24	0.38
de Zwaan 2017	-0.19	-0.49	0.11	0.21
Durand 2003	-0.38	-0.86	0.09	0.12
Lock 2021	0.23	-0.38	0.84	0.46
Peterson 2020	-0.25	-0.62	0.11	0.18
Shapiro 2007	-0.02	-0.60	0.56	0.96
Wilson 2010	-0.06	-0.39	0.27	0.74
Vs. High Intensity Intervention Overall	**-0.15**	**-0.31**	**0.00**	**<0.05**

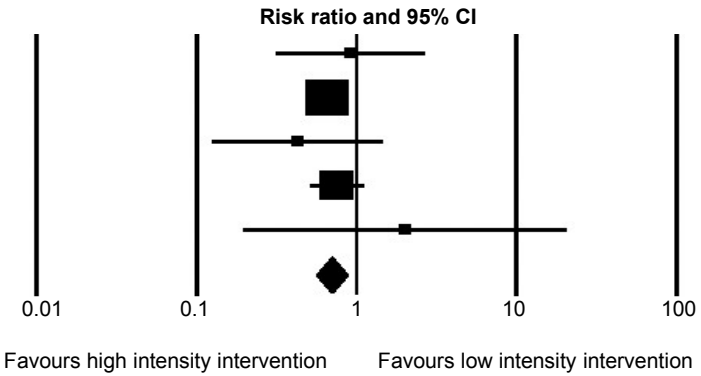


Note. Negative values favour low intensity psychological intervention.

Figure E.1.3

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and high intensity psychological interventions on rates of remission and recovery

Study name	Risk ratio	Lower limit	Upper limit	*p*-Value
Bailer 2004	0.92	0.32	2.64	0.87
de Zwaan 2017	0.66	0.49	0.88	0.01
Lock 2021	0.43	0.13	1.46	0.18
Peterson 2020	0.75	0.51	1.09	0.14
Shapiro 2007	2.00	0.20	20.49	0.56
Vs. High Intensity Intervention Overall	**0.70**	**0.56**	**0.87**	**<0.01**



Note. Values greater than 1 favour low intensity psychological intervention.

Table E.2 *Meta-analysis results for studies comparing a low intensity psychological intervention against a high intensity psychological intervention on all three primary outcomes*

	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	7	-0.13	-0.30 to 0.04	-1.51	17.83	.13	13.51	7.30 (0.29)
Study characteristics								
Type of eating disorder								
AN	1	-0.07	-0.68 to 0.53	-0.24	<.001	.52	25.00	<.01 (>.99)
BED	4	-0.04	-0.22 to 0.14	-0.46	<.001		45.45	0.22 (0.97)
BN	2	-0.40	-0.98 to 0.18	-1.34	69.11		4.50	3.24 (0.07)
Treatment modality								
CBT	6	-0.14	-0.34 to 0.05	-1.42	31.23	.84	12.82	7.27 (0.20)
FBT	1	-0.07	-0.68 to 0.53	-0.24	<.001		25.00	<.01 (>.99)
Format of intervention								
Bibliotherapy	4	-0.18	-0.49 to 0.13	-1.15	57.94	.90	9.80	7.13 (0.07)
CD-ROM	1	-0.08	-0.66 to 0.50	-0.28	<.001		21.74	<.01 (>.99)
Online	2	-0.09	-0.36 to 0.18	0.53	<.001		20.00	<.01 (0.71)
Mode of delivery								
Parent-led	1	-0.07	-0.68 to 0.53	-0.24	<.001		25.00	<.01 (>.99)

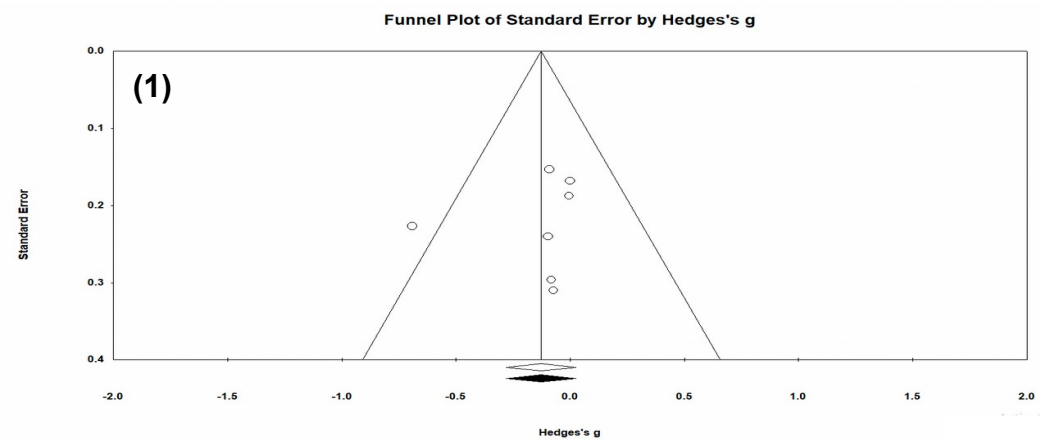
Self-led	6	-0.14	-0.34 to 0.05	-1.42	31.23	.84	12.82	7.27 (0.20)
Type of guidance								
Email	1	-0.09	-0.39 to 0.21	-0.59	<.001	.07	20.00	<.01 (>.99)
Face-to-face	1	-0.69	-1.14 to -0.25	-3.05	<.001		2.67	<.01 (>.99)
Telephone	1	-0.08	-0.66 to 0.50	-0.28	<.001		21.74	<.01 (>.99)
Unknown	4	-0.03	-0.23 to 0.18	-0.27	<.001		62.50	0.15 (0.99)
Qualification of guide								
Eating disorder/CBT (or equivalent) specialist	2	-0.09	-0.36 to 0.18	-0.64	<.001	0.69	20.00	<.01 (0.96)
Non-specialist	5	-0.16	-0.42 to 0.09	-1.25	44.30		11.11	7.18 (0.12)
DSM severity specifier (*g*)	7	-0.15	-0.31 to 0.00	-1.99	<.001	<.05*	11.11	3.35 (0.76)
Study characteristics								
Type of eating disorder								
AN	1	0.23	-0.38 to 0.84	0.74	<.001	.35	7.69	<.01 (>.99)
BED	4	-0.15	-0.33 to 0.03	-1.62	<.001		11.90	0.90 (0.83)
BN	2	-0.28	-0.60 to 0.04	-1.71	<.001		4.50	0.33 (0.57)
Treatment modality								
CBT	6	-0.18	-0.34 to -0.02	-2.25	<.001	.20	9.80	1.71 (0.89)
FBT	1	0.23	-0.38 to 0.84	0.74	<.001		7.69	<.01 (>.99)
Format of intervention								
Bibliotherapy	4	-0.19	-0.39 to <.01	-1.95	<.001	.75	9.43	1.38 (0.71)
CD-ROM	1	-0.02	-0.60 to 0.56	-0.06	<.001		83.33	<.01 (>.99)
Online	2	-0.07	-0.45 to 0.31	-0.35	33.06		25.00	1.50 (0.22)
Mode of delivery								
Parent-led	1	0.23	-0.38 to 0.84	0.74	<.001		7.69	<.01 (>.99)
Self-led	6	-0.18	-0.34 to -0.02	-2.25	<.001	.20	9.80	1.71 (0.89)
Type of guidance								
Email	1	-0.19	-0.49 to 0.11	-1.25	<.001	.96	9.43	<.01 (>.99)
Face-to-face	1	-0.19	-0.63 to 0.24	-0.87	<.001		9.43	<.01 (>.99)
Telephone	1	-0.02	-0.60 to 0.56	-0.06	<.001		83.33	<.01 (>.99)
Unknown	4	-0.15	-0.35 to 0.06	-1.38	1.15		11.90	3.04 (0.39)
Qualification of guide								
Eating disorder/CBT (or equivalent) specialist	2	-0.07	-0.45 to 0.31	-0.35	33.06	0.61	25.00	1.49 (0.22)
Non-specialist	5	-0.18	-0.36 to <.01	-1.87	<.001		9.80	1.70 (0.79)
Remission/recovery (RR)	5	0.70	0.56 to 0.87	-3.19	<.001	<.01**		1.94 (0.75)
Study characteristics								

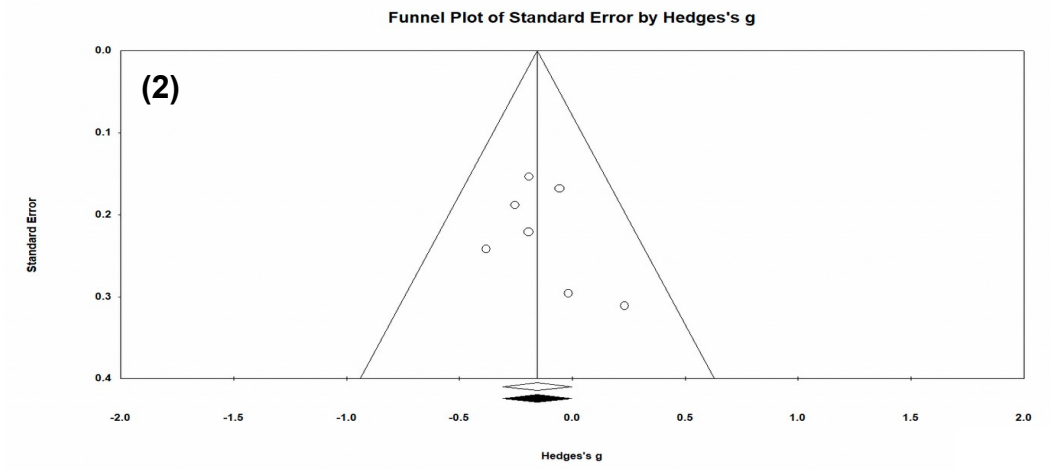
Type of eating disorder							
AN	1	0.43	0.13 to 1.46	-1.35	<.001	.65	<.01 (>.99)
BED	3	0.70	0.55 to 0.88	-3.03	<.001		1.09 (0.58)
BN	1	0.92	0.32 to 2.64	-0.16	<.001		<.01 (>.99)
Treatment modality							
CBT	4	0.71	0.56 to 0.89	-2.99	<.001	.43	1.33 (0.72)
FBT	1	0.43	0.13 to 1.46	-1.35	<.001		<.01 (>.99)
Format of intervention							
Bibliotherapy	2	-0.77	0.54 to 1.10	-1.46	<.001	.50	0.12 (0.73)
CD-ROM	1	2.00	0.20 to 20.49	0.58	<.001		<.01 (>.99)
Online	2	-0.64	0.48 to 0.86	-3.02	<.001		0.44 (0.51)
Mode of delivery							
Parent-led	1	0.43	0.13 to 1.46	-1.35	<.001		<.01 (>.99)
Self-led	4	0.71	0.56 to 0.89	-2.99	<.001	.43	1.33 (0.72)
Type of guidance							
Email	1	0.66	0.49 to 0.88	-2.77	<.001	.75	<.01 (>.99)
Face-to-face	1	0.92	0.32 to 2.64	-0.16	<.001		<.01 (>.99)
Telephone	1	2.00	0.20 to 20.49	0.58	<.001		<.01 (>.99)
Unknown	2	-0.71	0.50 to 1.03	-1.82	<.001		0.72 (0.40)
Qualification of guide							
Eating disorder/CBT (or equivalent) specialist	2	0.64	0.48 to 0.86	-3.02	<.001	.39	0.44 (0.51)
Non-specialist	3	0.78	0.55 to 1.12	-1.35	<.001		0.76 (0.68)

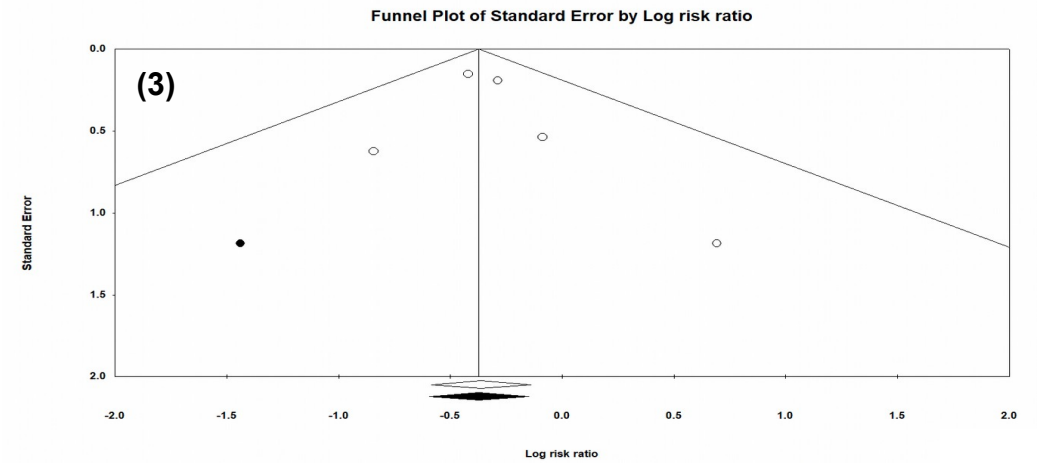
Note. For hedges' *g,* negative values favour low intensity psychological intervention. For risk ratio, values > 1 favour low intensity psychological intervention.
AN = Anorexia Nervosa; BED = Binge Eating Disorder; BN = Bulimia Nervosa; CBT = Cognitive Behavioural Therapy; ES = Effect Size; FBT = Family-Based Treatment; Ncomp = Number of comparisons; NNT = Number Needed to Treat.
* $p \leq .05$; ** $p \leq .01$.

Figure E.3

Funnel plot with imputed studies for studies comparing low intensity psychological interventions against high intensity psychological interventions on (1) eating disorder psychopathology; (2) DSM severity specifier-related outcomes; and (3) rates of remission/recovery







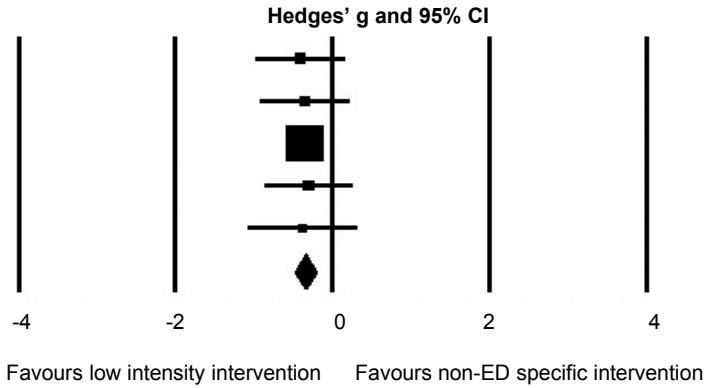
Appendix F. Eating disorder-specific low intensity psychological interventions vs Non-eating disorder specific psychological interventions

1) Forest plots of effect sizes on each primary outcome for studies comparing against a non-eating disorder specific psychological intervention
   - Eating disorder psychopathology
   - DSM severity specifier-related outcomes
   - Remission and/or recovery rates
2) Meta-analysis results for studies comparing an eating disorder-specific low intensity psychological intervention against a non-eating disorder specific psychological intervention on all three primary outcomes
3) Funnel plots with imputed studies for studies comparing an eating disorder-specific low intensity psychological intervention against a non-eating disorder specific psychological intervention

Figure F.1.1

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and non-eating disorder specific psychological interventions on eating disorder psychopathology

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Carter 2020 (GSH)	-0.41	-0.98	0.15	0.15
Carter 2020 (USH)	-0.35	-0.92	0.22	0.22
Fitzsimmons-Craft 2020	-0.35	-0.50	-0.20	0.00
Grilo 2013	-0.30	-0.86	0.26	0.29
Steele 2008	-0.38	-1.07	0.32	0.29
Vs. Non-Eating Disorder Specific Intervention Overall	**-0.35**	**-0.49**	**-0.22**	**<0.01**

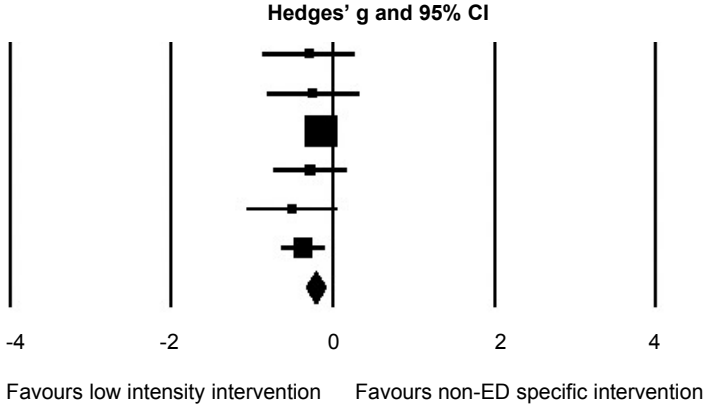


Note. Negative values favour low intensity psychological intervention. GSH = Guided self-help; USH = Unguided self-help.

Figure F.1.2

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and non-eating disorder specific psychological interventions on DSM severity specifier-related outcomes

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Carter 2020 (GSH)	-0.29	-0.85	0.28	0.32
Carter 2020 (USH)	-0.24	-0.81	0.32	0.40
Fitzsimmons-Craft 2020	-0.14	-0.29	0.01	0.07
Grilo 2005	-0.27	-0.72	0.18	0.23
Grilo 2013	-0.49	-1.06	0.08	0.09
Steele 2008	-0.36	-0.63	-0.10	0.01
Vs. Non-Eating Disorder Specific Intervention Overall	-0.22	-0.34	-0.10	0.00

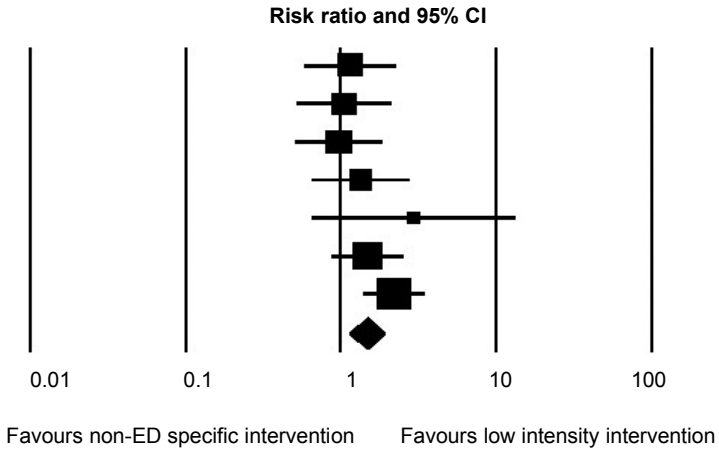


Note. Negative values favour low intensity psychological intervention. GSH = Guided self-help; USH = Unguided self-help.

Figure F.1.3

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and non-eating disorder specific psychological interventions on rates of remission and recovery

Study name	Risk ratio	Lower limit	Upper limit	*p*-Value
Carter 2020 (GSH)	1.17	0.60	2.29	0.64
Carter 2020 (USH)	1.06	0.53	2.13	0.86
Fitzsimmons-Craft 2020	0.99	0.52	1.88	0.98
Grilo 2005	1.37	0.66	2.86	0.40
Grilo 2013	3.00	0.67	13.40	0.15
Hildebrandt 2020	1.51	0.89	2.56	0.12
Steele 2008	2.23	1.44	3.46	0.00
Vs. Non-Eating Disorder Specific Intervention Overall	**1.47**	**1.13**	**1.91**	**0.00**



Note. Values greater than 1 favour low intensity psychological intervention. GSH = Guided self-help; USH = Unguided self-help.

Table F.2 *Meta-analysis results for studies comparing a low intensity psychological intervention against a non-eating disorder specific psychological intervention on all three primary outcomes*

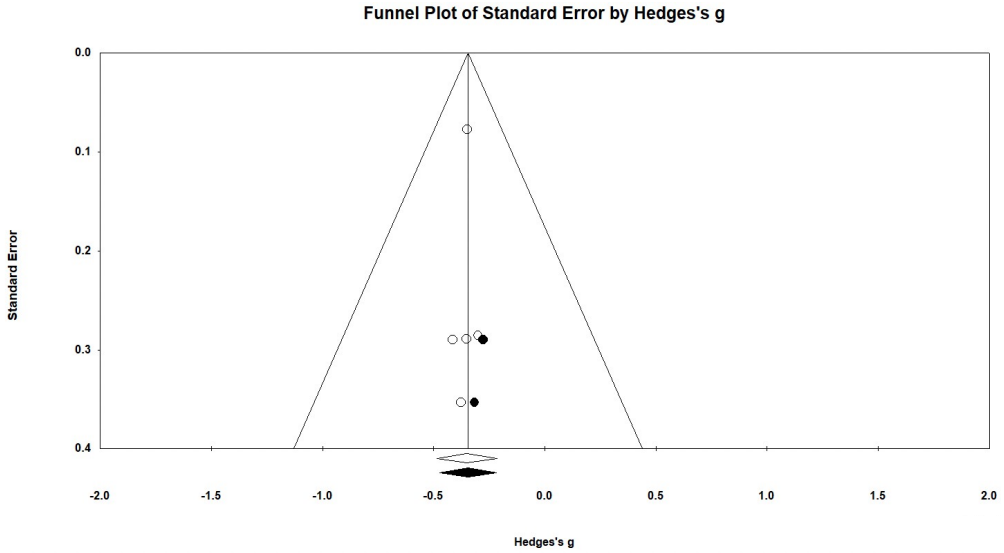
	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	5	-0.35	-0.49 to -0.22	-5.11	<.001	.<.01**	5.10	0.09 (>.99)
Study characteristics								
Type of eating disorder								
BED	3	-0.36	-0.68 to -0.03	-2.13	<.001	>.99	5.00	0.08 (0.96)
BN	1	-0.38	-1.07 to 0.32	-1.07	<.001		4.72	<.01 (>.99)
Mixed	1	-0.35	-0.50 to -0.20	-4.52	<.001		5.10	<.01 (>.99)
Treatment modality								
CBT	3	-0.35	-0.49 to -0.20	-4.76	<.001	.87	5.10	0.03 (0.98)
DBT	2	-0.38	-0.78 to 0.02	-1.87	<.001		4.72	0.02 (0.88)
Format of intervention								
Bibliotherapy	4	-0.36	-0.65 to -0.06	-2.38	<.001	.95	5.00	0.08 (0.99)
Online	1	-0.35	-0.50 to -0.20	-4.52	<.001		5.10	<.01 (>.99)
Provision of guidance								
Guided	3	-0.35	-0.50 to -0.21	-4.85	<.001	.90	5.10	0.05 (0.97)
Unguided	2	-0.33	-0.72 to 0.07	-1.60	<.001		5.43	0.02 (0.90)
Type of guidance								
Online	1	-0.35	-0.50 to -0.20	-4.52	<.001	.97	5.10	<.01 (>.99)
Unknown	1	-0.38	-1.07 to 0.32	-1.07	<.001		4.72	<.01 (>.99)
Video call	1	-0.41	-0.98 to 0.15	-1.43	<.001		4.39	<.01 (>.99)
DSM severity specifier (*g*)	6	-0.22	-0.34 to -0.10	-3.66	<.001	<.01**	8.06	3.20 (0.67)
Study characteristics								
Type of eating disorder								
BED	4	-0.32	-0.58 to -0.05	-2.34	<.001	.60	5.56	0.47 (0.93)
Mixed	2	-0.23	-0.44 to -0.01	-2.07	52.29		7.69	2.10 (0.15)
Treatment modality								
CBT	4	-0.22	-0.35 to -0.09	-3.33	4.35	.84	8.06	3.14 (0.37)
DBT	2	-0.26	-0.66 to 0.14	-1.29	<.001		6.85	<.01 (>.99)
Format of intervention								
Bibliotherapy	5	-0.34	-0.53 to -0.15	-3.57	<.001	.10	5.26	0.53 (0.97)
Online	1	-0.14	-0.29 to 0.01	-1.83	<.001		12.83	<.01 (>.99)
Provision of guidance								
Guided	4	-0.21	-0.33 to -0.08	-3.29	<.001	.46	8.47	2.29 (0.52)

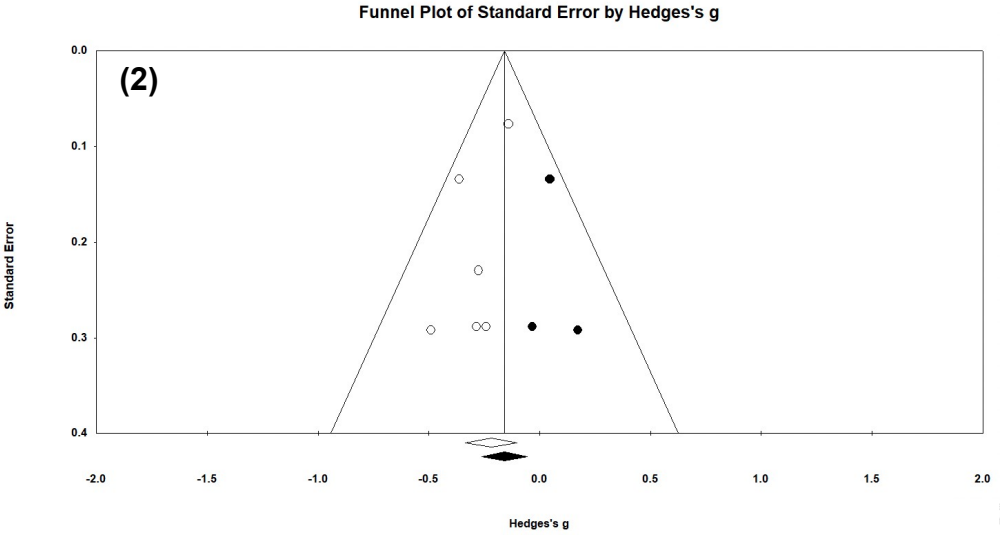
Unguided	2	-0.36	-0.77 to 0.04	-1.77	<.001		5.00	0.37 (0.54)
Type of guidance								
Face-to-face	1	-0.28	-0.73 to 0.18	-1.20	<.001	.51	6.41	<.01 (>.99)
Online	1	-0.14	-0.29 to 0.01	-1.83	<.001		12.82	<.01 (>.99)
Telephone	1	-0.36	-0.63 to -0.10	-2.71	<.001		5.00	<.01 (>.99)
Video call	1	-0.29	-0.85 to 0.28	-0.99	<.001		6.17	<.01 (>.99)
Remission/recovery (RR)	7	1.47	1.13 to 1.92	2.87	15.48	<.01**		7.10 (0.31)
Study characteristics								
Type of eating disorder								
BED	4	1.27	0.86 to 1.87	1.19	<.001	.48		1.61 (0.66)
Mixed	3	1.57	1.00 to 2.46	1.95	54.14			4.36 (0.11)
Treatment modality								
CBT	5	1.61	1.61 to 2.23	2.86	23.35	.22		5.22 (0.27)
DBT	2	1.12	0.69 to 1.81	0.46	<.001			0.04 (0.85)
Format of intervention								
Bibliotherapy	6	1.59	1.22 to 2.07	3.45	4.63	.18		5.24 (0.39)
Online	1	0.99	0.52 to 1.88	-0.03	<.001			<.01 (>.99)
Provision of guidance								
Guided	5	1.49	1.11 to 2.02	2.62	24.67	.93		5.31 (0.26)
Unguided	2	1.43	0.57 to 3.59	0.77	33.89			1.51 (0.22)
Type of guidance								
Face-to-face	1	1.37	0.66 to 2.86	0.84	<.001	.26		<.01 (>.99)
Online	1	0.99	0.52 to 1.88	-0.03	<.001			<.01 (>.99)
Telephone	1	1.51	0.89 to 2.57	1.54	<.001			<.01 (>.99)
Unknown	1	2.23	1.44 to 3.46	3.59	<.001			<.01 (>.99)
Video call	1	1.17	0.60 to 2.29	0.46	<.001			<.01 (>.99)
Qualification of guide								
Eating disorder/CBT specialist (or equivalent)	1	1.37	0.66 to 2.86	0.84	<.001	.12		<.01 (>.99)
Mental health specialist	1	2.23	1.44 to 3.46	3.59	<.001			<.01 (>.99)
Non-specialist	3	1.25	0.88 to 1.77	1.24	<.001			<.01 (>.99)

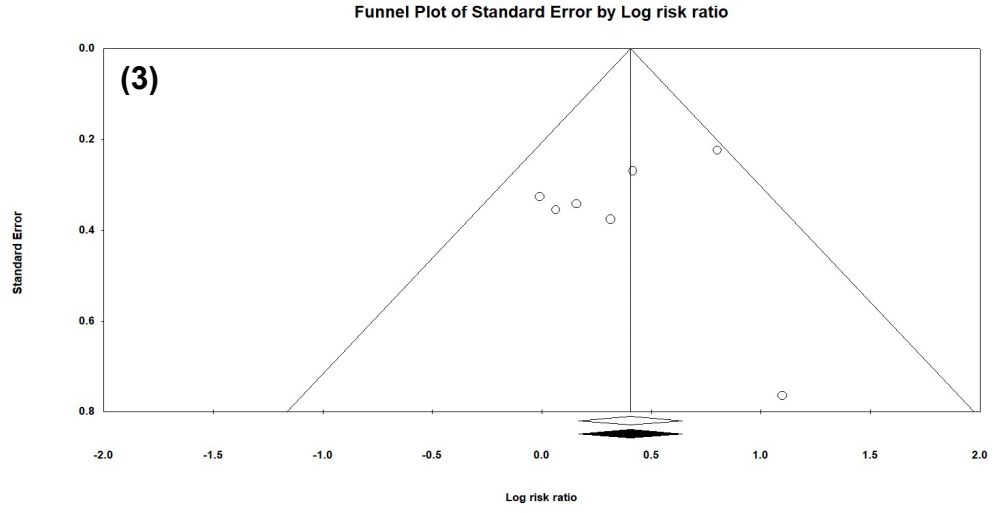
Note. For hedges' *g,* negative values favour eating disorder-specific low intensity psychological intervention. For risk ratio, values > 1 favours eating disorder-specific low intensity psychological intervention.
BED = Binge Eating Disorder; CBT = Cognitive Behavioural Therapy; DBT = Dialectical Behaviour Therapy; ES = Effect Size. Ncomp = Number of comparisons; NNT = Number Needed to Treat.
* $p \leq .05$; ** $p \leq .01$.

Figure F.3

Funnel plot with imputed studies for studies comparing low intensity psychological interventions against non-eating disorder specific psychological interventions on (1) eating disorder psychopathology; (2) DSM severity specifier-related outcomes; and (3) rates of remission/recovery







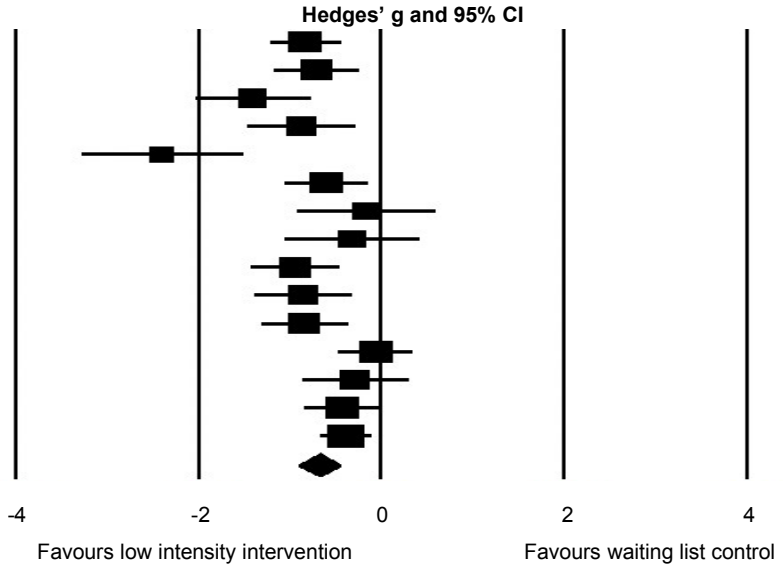
Appendix G. Low intensity psychological interventions vs Waiting list control conditions

1) Forest plots of effect sizes on each primary outcome for studies comparing against a waiting list control condition
   - Eating disorder psychopathology
   - DSM severity specifier-related outcomes
   - Remission and/or recovery rates
2) Meta-analysis results for studies comparing a low intensity psychological intervention against waiting list controls on all three primary outcomes
3) Funnel plots with imputed studies for studies comparing a low intensity psychological intervention against a waiting list control condition

Figure G.1.1

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and waiting list controls on eating disorder psychopathology

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Banasiak 2005	-0.81	-1.20	-0.43	0.00
Carrard 2011	-0.70	-1.16	-0.23	0.00
Carter 1998 (GSH)	-1.39	-2.01	-0.77	0.00
Carter 1998 (USH)	-0.86	-1.44	-0.28	0.00
Duarte 2017	-2.39	-3.27	-1.51	0.00
Green 2018	-0.59	-1.03	-0.15	0.01
Kelly 2015 (Behavioural-SH)	-0.16	-0.90	0.59	0.68
Kelly 2015 (CFT-SH)	-0.30	-1.03	0.42	0.41
Ljotsson 2007	-0.93	-1.40	-0.45	0.00
Masson 2013	-0.84	-1.37	-0.32	0.00
Sánchez-Ortiz 2011	-0.83	-1.29	-0.36	0.00
Schmidt 2008	-0.05	-0.44	0.35	0.81
Shapiro 2007	-0.27	-0.85	0.31	0.36
Strandskov 2017	-0.42	-0.83	-0.01	0.05
ter Huurne 2015	-0.37	-0.64	-0.10	0.01
vs. Waiting list Control Overall	**-0.68**	**-0.89**	**-0.46**	**<0.01**

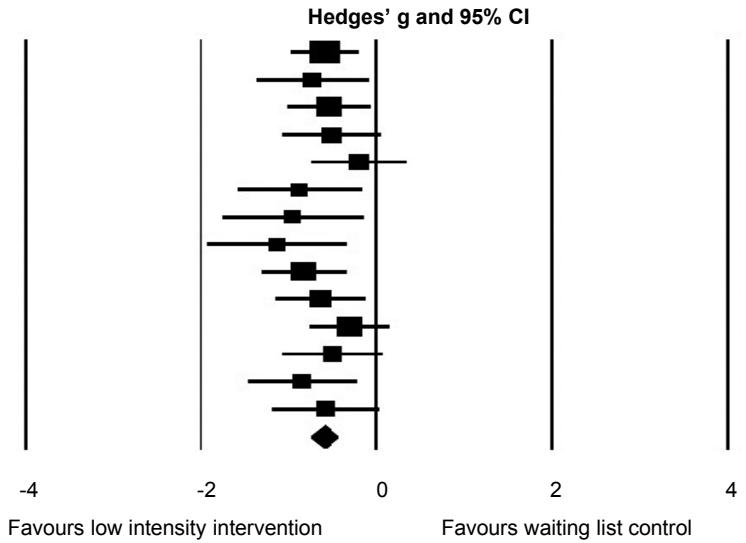


Note. Negative values favour low intensity psychological intervention. Behavioural-SH = Behavioural guided self-help; CFT-GSH = Compassion-focused therapy-based self-help; GSH = Guided self-help; USH = Unguided self-help.

Figure G.1.2

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and waiting list controls on DSM severity specifier-related outcomes

Study name	Hedge's g	Lower limit	Upper limit	*p*-Value
Banasiak 2005	-0.58	-0.96	-0.20	0.00
Cachelin 2019	-0.72	-1.34	-0.09	0.03
Carrard 2011	-0.53	-0.99	-0.07	0.02
Carter 1998 (GSH)	-0.50	-1.07	0.06	0.08
Carter 1998 (USH)	-0.19	-0.75	0.37	0.51
Duarte 2017	-0.86	-1.56	-0.16	0.02
Kelly 2015 (Behavioural-SH)	-0.94	-1.73	-0.15	0.02
Kelly 2015 (CFT-SH)	-1.12	-1.90	-0.33	0.01
Ljotsson 2007	-0.82	-1.29	-0.35	0.00
Masson 2013	-0.62	-1.14	-0.11	0.02
Sánchez-Ortiz 2011	-0.29	-0.73	0.16	0.21
Shapiro 2007	-0.49	-1.08	0.10	0.10
Wyssen 2021	-0.84	-1.45	-0.23	0.01
Wyssen 2021	-0.57	-1.17	0.03	0.06
vs. Waiting list Control Overall	-0.60	-0.74	-0.45	0.00

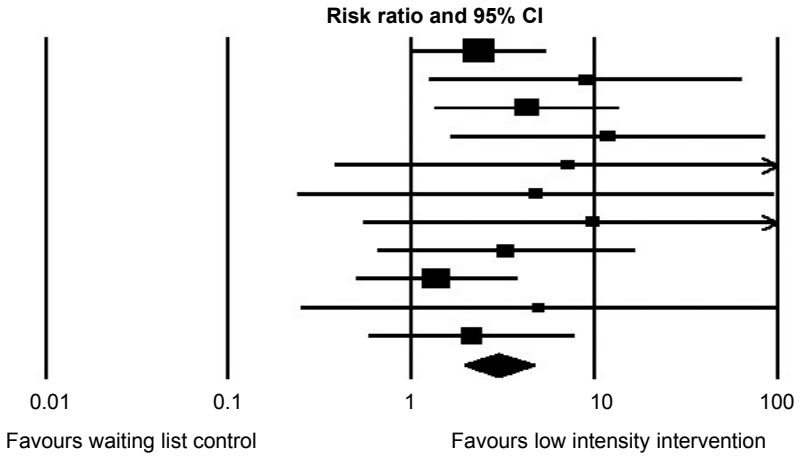


Note. Negative values favour low intensity psychological intervention. Behavioural-SH = Behavioural guided self-help; CFT-GSH = Compassion-focused therapy-based self-help; GSH = Guided self-help; USH = Unguided self-help.

Figure G.1.3

Forest plot of controlled between-group effect sizes for comparisons between low intensity psychological interventions and waiting list controls on rates of remission and recovery

Study name	Risk ratio	Lower limit	Upper limit	*p*-Value
Banasiak 2005	2.36	1.02	5.47	0.05
Cachelin 2019	9.05	1.27	64.21	0.03
Carrard 2011	4.33	1.35	13.96	0.01
Masson 2013	12.00	1.66	86.59	0.01
Palmer 2002 (GSH-F)	7.23	0.39	134.21	0.18
Palmer 2002 (SH-MG)	4.85	0.24	97.11	0.30
Palmer 2002 (GSH-T)	9.93	0.56	176.60	0.12
Sánchez-Ortiz 2011	3.35	0.66	16.87	0.14
Schmidt 2008	1.39	0.51	3.80	0.53
Shapiro 2007	5.00	0.25	98.52	0.29
Traviss 2011	2.17	0.60	7.80	0.24
vs. Waiting list Control Overall	**3.01**	**1.93**	**4.69**	**0.00**



Note. Values greater than 1 favour low intensity psychological intervention. GSH-F = GSH with face-to-face guidance; GSH-MG = Self-help with minimal guidance; GSH-T = GSH with telephone guidance.

Table G.2 *Meta-analysis results for studies comparing a low intensity psychological intervention against waiting list controls on all three primary outcomes*

	Ncomp	ES	95%CI	*Z*	I^2	*p*	NNT	*Q* (*p*)
Eating disorder psychopathology (*g*)	15	-0.68	-0.90 to -0.46	-6.05	66.57	<.01**	2.70	41.88 (<.01)
Study characteristics								
Type of eating disorder								
BED	9	-0.82	-1.16 to -0.49	-4.79	66.71	.13	2.28	24.03 (<.01)
Mixed	6	-0.50	-0.75 to -0.26	-4.07	55.58		3.62	11.01 (0.05)
Treatment modality								
CBT	10	-0.62	-0.86 to -0.38	-5.10	62.01	.74	2.96	23.69 (<.01)
CFT	1	-0.31	-1.03 to 0.42	-0.82	<.001		5.75	<.01 (>.99)
DBT	1	-0.84	-1.03 to -0.32	-3.17	<.001		2.23	<.01 (>.99)
Dissonance-based	1	-0.59	-1.03 to -0.15	-2.63	<.001		3.09	<.01 (>.99)
Mixed	2	-1.36	-3.29 to 0.57	-1.38	93.67		1.51	15.81 (< .01)
Format of intervention								
Bibliotherapy	8	-0.93	-1.28 to -0.58	-5.17	65.06	<.01**	2.04	20.03 (<.01)
CD-ROM	2	-0.12	-0.45 to 0.21	-0.71	<.001		14.71	<.01 (>.99)
Online	5	-0.52	-0.69 to -0.35	-5.95	<.001			<.01 (>.99)
Provision of guidance								
Guided	9	-0.69	-0.90 to -0.49	-6.56	48.25	.93	2.67	15.46 (0.05)
Unguided	6	-0.67	-1.21 to -0.13	-22.43	80.31		2.75	25.39 (<.01)
Type of guidance								
Email	3	-0.82	-1.09 to -0.54	-5.90	<.001	.04*	2.28	0.46 (0.80)
Online	2	-0.39	-0.61 to -0.16	-3.37	<.001		4.59	0.03 (0.86)
Telephone	2	-0.57	-1.61 to -0.49	-3.69	51.62		3.18	2.07 (0.15)
Unknown	2	-1.05	-1.61 to -0.49	-3.69	58.07		1.85	2.39 (0.12)
Qualification of guide								
Eating disorder/CBT specialist (or equivalent)	1	-0.83	-1.29 to -0.36	-3.49	<.001	.87	2.26	<.01 (>.99)
Mental health specialist	1	-0.70	-1.16 to -0.23	-2.94	<.001			<.01 (>.99)
Non-specialist	7	-0.68	-0.94 to -0.42	-5.10	59.13			14.68 (0.02)
DSM severity specifier (*g*)	14	-0.60	-0.74 to -0.45	-8.05	<.001	<.01**	3.09	8.77 (0.79)
Study characteristics								
Type of eating disorder								
BED	12	-0.61	-0.77 to -0.45	-7.38	<.001	.82	2.99	6.05 (0.87)
Mixed	2	-0.55	-1.07 to -0.03	-2.06	60.89		3.31	2.56 (0.11)
Treatment modality								

CBT	11	-0.56	-0.72 to -0.40	-6.93	<.001	.48	3.25	6.31 (0.79)
CFT	1	-1.12	-1.90 to -0.33	-2.79	<.001		1.75	<.01 (>.99)
DBT	1	-0.62	-1.14 to -0.11	-2.39	<.001		2.96	<.01 (>.99)
Mixed	1	-0.86	-1.56 to -0.16	-2.41	<.001		1.51	<.01 (>.99)
Format of intervention								
Bibliotherapy	9	-0.65	-0.84 to -0.47	-6.91	<.001	.65	2.82	5.79 (0.67)
CD-ROM	1	-0.49	-1.08 to 0.10	-1.64	<.001		3.68	<.01 (>.99)
Online	4	-0.51	-0.78 to -0.26	-3.91	<.001			<.01 (>.99)
Provision of guidance								
Guided	10	-0.58	-0.74 to -0.42	-7.10	<.001	.57	3.14	3.72 (0.93)
Unguided	4	-0.72	-1.16 to -0.27	-3.17	37.95		2.56	4.84 (0.18)
Type of guidance								
Email	3	-0.54	-0.84 to -0.24	-3.51	21.80	.93	3.36	2.56 (0.28)
Online	2	-0.70	-1.13 to -0.27	-3.21	<.001		2.63	0.37 (0.54)
Telephone	3	-0.61	-0.94 to -0.28	-3.63	<.001		2.99	0.26 (0.88)
Unknown	2	-0.55	-0.87 to -0.24	-3.44	<.001		3.31	0.05 (0.83)
Qualification of guide								
Eating disorder/CBT specialist (or equivalent)	1	-0.29	-0.74 to 0.16	-1.26	<.001	.39	6.17	<.01 (>.99)
Mental health specialist	3	-0.62	-0.94 to -0.31	-3.90	<.001		2.96	0.66 (0.72)
Non-specialist	6	-0.63	-0.83 to -0.42	-5.97	<.001		2.91	1.16 (0.95)
Remission/recovery (RR)	11	3.01	1.93 to 4.69	4.87	<.001	<.01**		41.88 (<.01)
Study characteristics								
Type of eating disorder								
BED	5	3.77	2.06 to 6.87	4.32	<.001	.28		3.37 (0.50)
Mixed	6	2.30	1.20 to 4.44	2.49	<.001			3.00 (0.70)
Treatment modality								
CBT	10	2.80	1.77 to 4.41	4.43	<.001	.16		5.56 (0.78)
DBT	1	12.00	1.66 to 86.59	2.46	<.001			<.01 (> .99)
Format of intervention								
Bibliotherapy	7	3.45	1.92 to 6.22	4.13	<.001	.32		4.56 (0.60)
CD-ROM	2	1.58	0.61 to 4.11	0.94	<.001			0.64 (0.42)
Online	2	3.97	1.54 to 10.23	2.85	<.001			0.06 (0.80)
Provision of guidance								
Guided	10	3.62	2.21 to 5.93	5.11	<.001	.09		4.73 (0.86)
Unguided	1	1.39	0.51 to 3.80	0.63	<.001			<.01 (>.99)
Type of guidance								

Email	2	3.97	1.54 to 10.23	2.85	<.001	.24	0.06 (0.80)
Face-to-face	1	7.23	0.40 to 134.21	1.33	<.001		<.01 (> .99)
Telephone	4	9.25	2.92 to 29.37	3.78	<.001		0.23 0.97)
Unknown	3	2.39	1.20 to 2.74	2.49	<.001		0.24 (0.88)
Qualification of guide							
Eating disorder/CBT specialist (or equivalent)	4	4.79	1.49 to 15.44	2.63	<.001	.85	0.51 (0.92)
Mental health specialist	2	3.16	1.33 to 7.50	2.61	<.001		0.61 (0.43)
Non-specialist	4	3.89	1.76 to 8.61	3.53	8.87		3.29 (0.35)

Note. For hedges' *g,* negative values favour low intensity psychological intervention. For risk ratio, values > 1 favour low intensity psychological intervention.
BED = Binge Eating Disorder. CBT = Cognitive Behavioural Therapy; DBT = Dialectical Behaviour Therapy; ES = Effect Size; Ncomp = Number of comparisons; NNT = Number Needed to Treat.
* $p \leq .05$; ** $p \leq .01$.

Figure G.3

Funnel plot with imputed studies for studies comparing low intensity psychological interventions against waiting list controls on (1) eating disorder psychopathology; (2) DSM severity specifier-related outcomes; and (3) rates of remission/recovery