**Keywords:** Obsessive-compulsive disorder; psychological intervention; individual patient data; meta-analysis; systematic review.

**Introduction[[1]](#footnote-1)**

Obsessive-compulsive disorder (OCD) is characterised by the presence of recurrent obsessions and/or compulsions (American Psychiatric Association [APA], 2013). Obsessions are intrusive thoughts, impulses, or images that cause marked distress. Compulsions are repetitive behaviours or mental acts performed in response to obsessions to alleviate distress (APA, 2013). OCD is the fourth most common mental health disorder in the world (De Putter & Koster, 2017) and has an estimated lifetime prevalence of 2.3% in the United States (Ruscio, 2010). OCD reduces quality of life, impairs social functioning, and increases use of health care services (Bobes et al., 2001; Eisen et al., 2006; Hollander et al., 1998). Risk of suicide is also increased in OCD with the incidence being 10 times higher in OCD patients than in matched controls (de la Cruz et al., 2017). Given the debilitating nature of OCD and patient preference for psychological over pharmacological treatment (McHugh, Whitton, Peckham, Welge, & Otto, 2013), the provision of efficacious psychological treatments for OCD is essential.

Meta-analyses of randomised controlled trials (RCTs) conclude that cognitive therapy (CT), exposure and response prevention (ERP), and CT plus ERP (CT+ERP) are similarly efficacious psychological treatments for OCD, and achieve comparable outcomes when delivered in group and individual formats (Abramowitz, Franklin, & Foa, 2002; Eddy, Dutra, Bradley, & Westen, 2004; Gava et al., 2007; Jónsson & Hougaard, 2009; Olatunji, Davis, Powers, & Smits, 2013; Öst, Havnen, Hansen, & Kvale, 2015; Pearcy, Anderson, Egan, & Rees, 2016; Romanelli, Wu, Gamba, Mojtabai, & Segal, 2014; Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008; Schwartze, Barkowski, Burlingame, Strauss, & Rosendahl, 2016; Skapinakis et al., 2016; Wootton, 2016).[[2]](#footnote-2) As such, clinical practice guidelines internationally recommend ERP, with or without CT, as the first line psychological treatment for OCD; CT alone is recommended as an alternative (APA, 2007; Katzman et al., 2014; National Institute for Health and Care Excellence, 2005).

Most previous meta-analyses in OCD are based solely on effect sizes. However, determining the efficacy of psychological treatment requires outcomes to be assessed using multiple methods (Fisher & Wells, 2005). While effect sizes provide valuable group information about the relative efficacy of psychological treatments, they provide no information about the proportion of patients who recover (i.e. return to normal functioning), the optimal treatment outcome in mental health settings (Keller, 2003). To indicate the proportion of patients who recover following treatment, an evaluation of clinical significance is needed. To date, only two meta-analyses in OCD have evaluated recovery rates following psychological treatments. Eddy et al. (2004) and Öst et al. (2015) reported that 34-52% of OCD patients recovered following CT, ERP, or CT+ERP. However, operational definitions of recovery varied considerably across the RCTs with cut-offs ranging from ≤7 to ≤16 points on the Y-BOCS, which makes it difficult to reach a balanced assessment of treatment efficacy due to a lack of standardised outcome (Fisher & Wells, 2005; Steketee, Siev, Yovel, Lit, & Wilhem, 2019). Amalgamating different operational definitions of recovery is problematic. Furthermore, it should be recognised that many patients receiving psychological treatment improve – up to 85% in clinical practice (Foa et al., 2005) – yet it is unknown what proportion continue to experience debilitating symptoms. Moreover, others may deteriorate; an outcome that is often overlooked in mental health research (Barlow, 2010; Rozental et al., 2018), despite around 5-10% of patients in mental health settings deteriorating following psychological treatment (Barlow, 2010; Cuijpers, Reijnders, Karyotaki, de Wit, & Ebert, 2018; Rozental, Magnusson, Boettcher, Andersson, & Carlbring, 2017). Thus, when evaluating treatment efficacy, it is essential to use standardised indices of recovery, improvement and deterioration in order to be able to make useful comparisons across studies.

Evaluations of treatment outcome also require an adequate evaluation of the long-term effects of psychological treatment (i.e. ≥12 months after completion of psychological treatment). Three previous meta-analyses evaluated long-term effects (Öst et al., 2015; Pozza & Dettore, 2017; Schwartze et al., 2016); Pozza and Dettore (2017) and Schwartze et al. (2016) found no differences in efficacy between group and individual CBT; Öst et al. (2015) found no difference in efficacy between CBT and other treatments (psychological and pharmacological). However, Schwartze et al. (2016) and Öst et al. (2015) aggregated effects 1-12 and 1-60 months post-treatment, respectively making it difficult to determine the durability of treatment effects. Moreover, all three meta-analyses (Öst et al., 2015; Pozza & Dettore, 2017; Schwartze et al., 2016) aggregated effects across different types of CBT (i.e. CT, ERP, and CT+ERP). Thus, the differential long-term efficacy of CT, ERP and CT+ERP remains unclear. A fourth meta-analysis (Olatunji et al., 2013) provided no information regarding the length of the follow-up period.

Given the lack of time and resources currently available to health-care systems, and the restricted access to healthcare services for OCD patients in rural areas (Baer & Minichiello, 2008; Goodwin, Koenen, Hellman, Guardino, & Struening, 2002; Marques et al., 2010; Olatunji, Deacon, & Abramowitz, 2009), there is also a need to know the efficacy of interventions that are both inexpensive and easily accessible. Clinical practice guidelines in the UK, US and Canada recommend self-help psychological treatment (e.g. self-help books, self-help videos, and internet-based treatments) for OCD (APA, 2007; CPA, 2014; NICE, 2005). Three meta-analyses provide support for these recommendations (Dettore, Pozza, & Andersson, 2015; Öst et al., 2015; Schwartze et al., 2016). The first (Dettore et al., 2015) concluded that self-help, telephone and video-conference CBT are more efficacious than control conditions and are just as efficacious as face to face CBT. However, this meta-analysis aggregated effects across the three different forms of treatment delivery (i.e. videoconference, telephone, and self-help) making it difficult to conclude if all delivery formats were equally efficacious. The other meta-analyses (Pearcy et al., 2016; Wootton, 2016) assessed the efficacy of self-help CBT for OCD, concluding pre to post-treatment within-group effect sizes of 0.51 and 1.36, respectively. However, similar to the limitations of meta-analyses that included long-term effects, outcomes were aggregated across different types of self-help CBT (i.e. CT, ERP, and CT+ERP). Thus, the differential efficacy of different types of self-help CBT (i.e. CT, ERP and CT+ERP) is unknown.

In order to obtain a better picture of treatment efficacy, we must overcome the limitations of previous meta-analyses. One solution is to undertake an individual patient data meta-analysis (IPD-MA). IPD-MAs are considered the ‘gold standard’ for meta-analyses (Stewart & Parmar, 1993; Stewart & Tierney, 2002). Instead of using group statistics from published RCTs, IPD-MA combines participant-level data from each relevant RCT into a common dataset. An IPD-MA is needed to evaluate the clinical significance of treatments using a standardized method across RCTs; a major omission from previous meta-analyses. While numerous methods for determining clinical significance exist, the method developed by Jacobson and colleagues (Jacobson, Follette, & Revenstorf, 1984; Jacobson & Truax, 1991) is the most widely used (Ogles, Lunnen, & Bonesteel, 2001) and has good construct validity (Lunnen & Ogles, 1998; Ronk, Hooke, & Page, 2016). According to the Jacobson method, patients can be allocated to four categories: a) ‘recovered’, if they make a statistically reliable change and move from a dysfunctional to a functional population; b) ‘improved’, if they make statistically reliable change but remain part of a dysfunctional population; c) ‘unchanged’, if they do not make statistically reliable change; and d) ‘deteriorated’, if they make statistically reliable change for the worse.

To date, only one review in OCD (Fisher & Wells, 2005) has evaluated the clinical significance of psychological treatments using the standardised Jacobson method (although a recent mega-analysis used this approach to analyse data across eight treatment clinics; please see Steketee et al. (2019) for more details). Fisher and Wells (2005) applied the Jacobson method across five psychotherapy trials to determine the proportion of patients who recovered following CT and/or ERP. An alternative criterion of ‘asymptomatic’ was also applied (Y-BOCS score ≤7; Pallanti et al., 2002). Only 53% and 61% of patients respectively recovered following CT and ERP, and only 21% and 25% of patients were classed as asymptomatic respectively, indicating that most patients continue to experience OCD symptoms following treatment. Thus, the review by Fisher and Wells (2005) provides a different perspective on the efficacy of psychological treatments for OCD compared to previous meta-analyses and proposes that there is considerable scope for improvement. However, this review was conducted 15 years ago, included non-randomized trials, did not investigate the impact of different treatment formats, conducted a limited assessment of treatment effects over follow-up and pooled recovery rates across trials without weighting them, thus yielding potentially misleading summary estimates (Bravata & Olkin, 2001). Moreover, the generalizability of the findings are questionable as only five trials were included in this review (*n* = 198) compared to 37 trials (*n* = 2,414) in a recent meta-analysis in OCD (Öst et al., 2015).

**Aims of Present Study**

We conducted an IPD-MA to evaluate the efficacy of manualized psychological treatments for OCD patients. Our study had two aims:

1. To update and improve the clinical significance review conducted by Fisher and Wells (2005) using standardized Jacobson methodology and asymptomatic criterion.
2. To examine the differential efficacy of psychological treatments for OCD by treatment type (i.e. CT, ERP, and CT+ERP) and format (i.e. group, individual, and self-help) at post-treatment and follow-up.

**Method**

The conduct and reporting of this review adheres to the general principles recommended by the Centre for Reviews and Dissemination (2009) and the Meta-Analysis of Observational Studies in Epidemiology (Stroup et al., 2000). This review broadly follows the Preferred Reporting Items for Systematic Reviews and Meta Analyses – IPD (PRISMA-IPD) guidelines (Stewart et al., 2015).

**Eligibility criteria**

Eligibility criteria for the IPD-MA follow the PICOS framework (Liberati et al., 2009).

***Participants***

Adults meeting diagnostic criteria for a primary diagnosis of OCD through a structured diagnostic interview according to Diagnostic and Statistical Manual of Mental Disorders (DSM) 3rd edition revised (DSM III-R; APA, 1987), DSM IV (APA, 2000), DSM 5 (APA, 2013), or the International Statistical Classification of Diseases and Related Health Problems (ICD) equivalent (ICD-10, 1999) were included.

***Interventions***

Psychological interventions were defined as manualized treatments (i.e. RCTs referring to the use of a manual to standardise treatment) using psychological techniques (Temple, Salmon, Tudur-Smith, Huntley, & Fisher, 2018).

***Comparators***

RCTs using either no treatment, WLC, treatment as usual, placebo control (i.e. a control for nonspecific factors), or an alternative psychological treatment were included.

***Outcomes***

Either self-report or clinician rated Y-BOCS scores (Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989) were used as the primary outcome. The Y-BOCS is the ‘gold standard’ measure of OCD severity in RCTs (Kyrios, Hordern, & Fassnacht, 2015). The measure has good inter-rater reliability and high internal validity (Federici et al., 2010; Goodman, Price, Rasmussen, Mazure, Delgado, et al., 1989; Grabill et al., 2008; Woody, Steketee, & Chambless, 1995). While low convergence has been found between the self-report and clinician rated Y-BOCS on some items, there is good construct validity between the two versions on total Y-BOCS scores (Federici et al., 2010; Rosenfeld, Dar, Anderson, Kobak, & Greist, 1992; Steketee, Frost, & Bogart, 1996). Thus, to be more inclusive we included RCTs using either measure.

***Studies***

Only RCTs published in English in a peer-reviewed journal were included.

**Search Strategy**

AMED, CINAHL Plus, Medline and PsycINFO were searched for relevant RCTs from their inception until July 2019, using the following search terms: ((obsessive-compulsive disorder) or OCD) AND (effectiveness or efficacy or versus or randomi\*ed or treatment or random or compar\* or RCT or combin\*) AND ((cognitive therap\*) or (behavio\*r therap\*) or (cognitive behavio\* therap\*) or ERP or exposure or therapy or treatment or intervention) NOT (pediatric or paediatric or youth or adolescent or child\*). Methodological filters limiting search results to title and English language only were applied for each database. Reference lists of included studies and systematic reviews and meta-analyses were hand-searched for additional relevant literature.

**Screening and Selection**

Titles and abstracts were first screened for their relevance by one reviewer (TS or JT). Next, full text copies of potentially relevant papers were examined by the same reviewer (TS or JT). At each stage, 50% of potentially relevant papers were independently assessed by a second reviewer (JWR) to assess for consistency in selection. Discrepancies were resolved through discussion with two other reviewers (PF and MGC).

**Assessment of Risk of Bias**

Risk of bias in the included studies was assessed using the Cochrane Collaboration Risk of Bias tool (Higgins & Green, 2011). Risk of bias was assessed across seven areas: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting and other biases. Risk of bias assessment was completed by TS and cross-checked for accuracy by JWR; disagreement or uncertainty was resolved through consensus or arbitration by MGC.

**Data Extraction**

The authors of eligible RCTs were contacted and anonymized raw data on the Y-BOCS at pre-treatment, post-treatment and follow-up, plus treatment condition, age, and gender of each participant were requested. If both the self-report and clinician rated Y-BOCS were used in an RCT, we requested IPD for the version which was used as their primary outcome measure. One reviewer (TS) independently extracted group level data from published reports of eligible RCTs, including year of publication, country of origin, type of treatment and control conditions, mode of delivery of treatment and control conditions, and duration and number of sessions of treatment and control conditions. A second reviewer (MGC or JWR) independently checked the accuracy of data extraction. Disagreement or uncertainty was resolved through discussion with the wider research team until consensus was reached.

**Coding of Treatment Categories**

Psychological treatments were coded into four broad treatment categories: CT, ERP, CT+ERP, or ‘other’ treatment:

***‘CT’*** was defined astreatment that targeted negative automatic thoughts or cognitive beliefs using cognitive techniques. Behavioural experiments to test negative automatic thoughts and cognitive beliefs could be incorporated but prolonged ERP could not. CT was split into three further categories:

1. *‘Individual CT’* (CT treatments delivered 1:1)
2. *‘Group CT’* (CT treatments delivered to groups of patients simultaneously)
3. *‘Self-help CT’* (CT treatments delivered using the internet or self-help materials)

***‘ERP’*** was definedastreatment that used exposure and response prevention but not cognitive techniques. ERP was split into three further categories:

1. *‘Individual ERP’* (ERP treatments delivered 1:1)
2. ‘*Group ERP’* (ERP treatments delivered to groups of patients simultaneously)
3. *‘Self-help ERP’* (ERP treatments delivered using the internet or self-help materials)

***‘CT+ERP’*** was defined as treatment that used both cognitive techniques as defined for CT above and exposure and response prevention techniques as defined for ERP above. CT+ERP was split into three further categories:

1. *‘Individual CT+ERP’* (CT+ERP treatments delivered 1:1)
2. *‘Group ‘CT+ERP’* (CT+ERP treatments delivered to groups of patients simultaneously)
3. *‘Self-help CT+ERP’* (CT+ERP treatments delivered using the internet or self-help materials)

***‘Other’ treatments*** were defined as psychological interventions that did not fit a defined category.

**Coding of Control Categories**

There were two categories of control condition:

1. *‘Placebo control’*(participants received an intervention to control for nonspecific factors)
2. *‘WLC’* (participants received no treatment)

Consensus regarding coding of treatment and control conditions was achieved through discussion among JT, MGC and PF.

**General Analysis Strategy**

We analysed outcomes at two time periods: post-treatment, defined as the earliest assessment point ≤4 weeks after treatment ended; and follow-up, defined as 3-6 months after treatment ended, giving preference to the assessment point closest to 6 months (we had planned to evaluate treatment effects ≥12 months after treatment ended but only two RCTs provided such data). Treatment efficacy was evaluated using two methods: clinical significance analysis and IPD within-group effect size analysis; both of which were conducted using a standard two-stage IPD approach (Riley, Lambert, & Abo-Zaid, 2010).The two methods had the following elements:

***Clinical significance analysis***

1. Calculation of recovery rates using Jacobson’s first and second criteria, and calculation of improvement and deterioration rates using Jacobson’s second criterion only.
2. Calculation of asymptomatic rates using the asymptomatic criterion.

***Within-group effect size analysis***

1. Calculation of standardised mean difference (SMD) within-group effect sizes.

**Statistical Analysis**

***Preliminary analysis***

Not all eligible RCTs provided IPD. Therefore, we compared pooled pre-post SMD within-group effect sizes of RCTs providing IPD with those not providing IPD to assess whether treatment effects differed. As many studies did not include a control group, we did not calculate between-group effect sizes comparing treatment *vs* control conditions. For the RCTs not providing IPD, effect sizes and 95% confidence intervals (CIs) were calculated using the data available from published reports.

***Clinical significance analysis***

*Jacobson’s clinical significance criteria.* A cut-off point to determine whether a patient was more likely to be drawn from a functional or dysfunctional population was calculated for the Y-BOCS. To determine this cut-off, criterion a), according to classifications by Jacobson and colleagues (Jacobson et al., 1984; Jacobson & Truax, 1991) was used i.e. patients’ post-treatment score falls outside the range of the dysfunctional population, defined as falling at least two standard deviations (SDs) beyond the mean of the dysfunctional population, in the direction of functionality (a detailed description of the different criteria available to determine a cut-off can be found in Jacobson and Truax [1991]). The RCI was calculated using the formula presented in Jacobson and Truax (1991). An RCI greater than ±1.96 is required for the change to be statistically reliable at *p* <.05. The data used to calculate cut-off point a) and the RCI are presented in Table 1. The cut-off point was 12, meaning that post-treatment or follow-up scores ≤12 fell within the functional population. The RCI was 5.29 meaning that a 10-point change in score on the Y-BOCS from pre- to post-treatment or pre-treatment to follow-up was required for reliable change (i.e. ±1.96 x 5.29). The cut-off point and RCI calculated in the present review are the same as those used in Fisher and Wells (2005).

[Please insert Table 1 here]

*Asymptomatic criterion.* Fisher and Wells (2005) highlighted that individuals with a score of 12 on the Y-BOCS could still meet diagnostic criteria for OCD and experience considerable distress. Consequently, an assessment of the proportion of patients who were asymptomatic following treatment was conducted. The same asymptomatic criterion used in Fisher and Wells (2005) was used in the present study, namely a score of ≤7 on the Y-BOCS (Pallanti et al., 2002). This score indicates that a person will have minimal OCD symptoms i.e. similar to the levels experienced by individuals without OCD. While this asymptomatic criterion has not been empirically validated, it has been used in numerous studies to reflect minimal OCD symptoms (Cottraux et al., 2001; Fisher & Wells, 2005; Jones, Wootton, & Vaccaro, 2012; Vaccaro, Jones, Menzies, & Wootton, 2010, 2014; Veale, Page, Woodward, & Salkovskis, 2015).

*Clinical significance analysis overview.* The proportion of patients classed as ‘asymptomatic’, ‘recovered’, ‘improved’, or ‘deteriorated’ following treatment, and 95% CIs, were calculated for all treatment and control categories. Overall weighted proportions and weighted proportions for each treatment and control category were calculated at post-treatment and follow-up. A weighted pooled event rate was calculated across RCTs using a random effects model (Borenstein, Hedges, Higgins, & Rothstein, 2009). Event rates were then converted to percentages. Sensitivity analyses excluding event-rate outliers were conducted. An event rate was considered an outlier when its 95% CI was outside the 95% CI of the overall mean effect size. Subgroup analyses were used to examine the influence of different treatment categories on outcome. Firstly, the weighted proportion of different treatment categories was examined. Next, Cochrane’s Q test was used to explore whether outcome was moderated by treatment category. Finally, if outcome was moderated by treatment category, 95% CIs of the different treatment categories were inspected: non overlapping 95% CIs indicated significant between group differences. The same process was conducted to explore whether the control category influenced outcome. Proportions for treatment and control categories were only pooled if a minimum of two RCTs provided data. Heterogeneity between studies was also examined. The proportion of total variation that was due to heterogeneity was expressed as the I2 statistic, with values greater than 50% indicating at least moderate heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). Analyses were conducted on a per-protocol rather than intent-to-treat (ITT) basis because, at post-treatment and follow-up, we only received IPD for patients who completed post-treatment and/or follow-up assessments. Analyses were performed using Comprehensive Meta-Analysis, version 3.3.07.

***Within-group effect size analysis***

*SMD within-group effects-sizes.* Because many studies did not include a control group, we did not calculate between-group effect sizes comparing treatment vs control conditions. Instead we calculated within-group effect sizes comparing pre-post and pre-follow-up change. SMD within-group effect sizes with 95% CIs were calculated using IPD by using the following formula (Cohen, 1988), where M1is the pre-treatment mean, M2 is the post-treatment or follow-up mean, Sdifference is the standard deviation of the mean difference, and r is the correlation between the pre-treatment and post-treatment/follow-up scores.

SMDs were adjusted for small-sample bias using Hedges’ *g* (Hedges, 1989) and were pooled across RCTs using the inverse variance random effects model (DerSimonian & Laird, 1986). Overall SMD and 95% CIs and SMD and 95% CIs for each treatment and control category were calculated at post-treatment and follow-up. All SMDs were scaled so that positive values represented a larger reduction in OCD symptomatology over time. The same techniques as in the proportion analysis were used to identify outliers, and explore whether effect sizes were influenced by different treatment or control categories. Effect size analyses were conducted on a per-protocol basis. Analyses were conducted using Comprehensive Meta-Analysis, version 3.3.07.

**Results**

**Study Selection**

The database search retrieved 2,637 citations; 22 more were identified through hand searching. After removal of duplicates, 1,699 remained for screening based on title and abstract. Of these, 1,592 clearly did not meet inclusion criteria. Full text articles of the remaining 107 citations were retrieved and assessed. In total, 44 papers corresponding to 43 RCTs were eligible. IPD were available for 24 (*n* = 1,626) of the 43 (*n* = 2,455) eligible RCTs. Figure 1 shows the study selection process. A complete list of references of eligible RCTs can be found in Appendix A in the online supplementary material.

[Please insert Figure 1 here]

**Study and patient characteristics**

Table 2 describes study and participant characteristics for the 24 included RCTs. In total, 40 treatment and 13 control groups were included in our analyses (*n* = 1,626). Mean Y-BOCS scores across the 40 treatment conditions ranged from 18.03 to 31.86; over half of patients had moderate OCD (Goodman et al., 1989a, 1989b). Of the 40 treatments, 18 were categorised as ERP (10 were individual, six were self-help, and two were group). Thirteen treatments were categorised as CT+ERP (six were group, four were self-help, and three were individual). Eight were categorised as CT (five were individual, two were group, and one was self-help). Only one treatment was categorised as ‘other’ (EMDR; eye movement desensitization and reprocessing). The mean duration of treatment (excluding self-help treatments) was 18 hours (median 18; range 5-32) over a mean of 13 sessions (median 12; range 6-20). In the self-help treatments, participants were instructed to use the self-help material for an average of 11 weeks across the different RCTs (median 12, range 8-12).

[Please insert Table 2 here]

Of the 13 control groups, seven were categorised as WLC and six as ‘placebo controls’ (psychoeducation material on OCD, online non-directive supportive therapy, applied relaxation techniques such as deep breathing, progressive muscle relaxation, and autogenic training, structured problem solving; and stress management). The duration of ‘placebo controls’ was reported for 4 RCTs. Of these, the mean duration was 10.13 hours (*n* = 4; median 10.5; range 4.5-15) over a mean of 10 sessions (*n* = 3; median 12; range 6-12). All post-treatment assessments took place within 4 weeks of treatment completion Of the 19 treatment and 4 control conditions reporting follow-up data, the mean follow-up assessment took place four months after treatment ended (median 3; range 3-6 months).

**Risk of Bias**

The methodological quality of included RCTs is summarised in Table 3. Most included studies did not provide sufficient information to accurately assess risk of bias in certain areas, resulting in these areas being rated as ‘unclear’.

[Please insert Table 3 here]

*Random sequence generation:* although all studies reported randomising participants to treatment or control conditions, ten studies did not describe random sequence generation in enough detail to allow a definite judgement of risk of bias. Furthermore, most studies (*n* = 15; 60%) reported little to no information about allocation concealment.

*Blinding*: as is common in psychological research, no participants or therapists were blinded to intervention allocation. However, 10 studies provided insufficient information about study personnel to determine risk of detection bias.

*Incomplete outcome data and selective reporting:* All studies provided details of attrition rates, with many at low risk of attrition bias. Most studies analysed data on an ITT basis, and adequately described the way that missing data were handled.

*Other sources of bias*: most trials were deemed to be at low risk of other sources of bias.

**Proportion of Missing Data**

At post-treatment, the weighted proportion of missing data for treated patients ranged from 2 - 28% across the different treatment categories. This compared to 7-9% across the control group categories. The proportion of missing data could not be calculated for self-help CT or ‘other’ treatments as not enough trials (*n* = 1) provided post-treatment data. At follow-up, weighted mean proportion of missing data for treated patients ranged from to 5-34% across the different treatment categories. This compared to 16% in placebo controls. Dropout rates were not calculated for group CT, self-help CT, self-help ERP, or ‘other’ treatments as not enough trials (*n* = 1) provided follow-up data (see Table 4).

[Please insert Table 4 here]

**Preliminary Analysis**

The pre to post within-group effect sizes of RCTs that provided IPD and those that did not provide IPD were not significantly different (Q = 0.02, df = 2, *p* = .9).

**Clinical Significance Analysis**

***Jacobson clinical significance criteria***

*Recovery.* Weighted recovery rates for each treatment and control category are in Table 5. At post-treatment, recovery rates were significantly higher for treated patients (32%) compared to controls (3%). Moderate heterogeneity was indicated for treatment (I2=78%). The highest recovery rates were found for individual CT (55%), followed by group CT+ERP (42%) and individual ERP (41%). Recovery rates were comparable between group CT, individual CT+ERP and self-help ERP (27-28%). The lowest recovery rates were group ERP and self-help CT+ERP (12-16%). Treatment category moderated recovery rates. Inspection of 95% CI indicated that individual CT had significantly higher recovery rates (55%) than two categories; individual CT+ERP (27%) and self-help CT+ERP (16%). Only one other significant difference emerged; recovery rates were significantly higher for individual ERP (41%) than self-help CT+ERP (16%). Recovery rates were not moderated by control category (Table 5).

[Please insert Table 5 here]

At follow-up, recovery rates were significantly higher for treated patients (37%) compared to controls (20%) but this difference was not significant. Moderate heterogeneity was indicated for treatment (I2=82%) and controls (I2=79%). Recovery rates were highest for group CT+ERP (61%), closely followed by individual CT (58%). The next highest recovery rates were individual ERP (45%), then group ERP (37%). Self-help CT+ERP had the lowest recovery rate (22%; Table 5). However, treatment category did not moderate recovery rates.

*Improvement and deterioration*. Weighted improvement and deterioration rates for each treatment and control category are presented in Table 6. At post-treatment, improvement rates were significantly higher for treated patients (50%) compared to controls (6%). Moderate heterogeneity was indicated for treatment (I2=84%) and controls (I2=54%). Improvement rates were highest for group CT+ERP (70%). This was closely followed by group individual CT (68%) and individual ERP (62%). Improvement rates were similar between individual CT+ERP (49%) and group CT (42%), whilst the lowest improvement rates were found for self-help ERP, self-help CT+ERP, group ERP (24-32%). Treatment category moderated improvement rates. Inspection of 95% CIs revealed that self-help CT+ERP (24%) and self-help ERP (32%) had significantly lower improvement rates than individual CT (68%) and individual ERP (62%). Self-help CT+ERP also had significantly lower improvement rates than group CT+ERP (70%). Improvement rates were not moderated by the type of control condition (Table 6).

[Please insert Table 6 here]

At follow-up, improvement rates were significantly higher for treated patients (50%) compared to controls (26%) but this difference was not significant. Moderate heterogeneity was indicated for treatment (I2=81%) and controls (I2=78%). Improvement rates were highest for group CT+ERP (88%), markedly higher than the improvement rates for the next highest categories; individual CT (65%) and individual ERP (51%). The lowest improvement rates were group ERP and self-help CT+ERP (34-40%). Treatment category moderated improvement rates. Inspection of 95% CIs revealed that group CT+ERP (88%) had significantly higher improvement rates than individual ERP (51%), group ERP (40%) and self-help CT+ERP (34%; Table 6).

At post-treatment and follow-up, deterioration rates were identical and did not significantly differ between treated patients (1-3%) and controls (2-3%). Neither treatment category nor control category moderated deterioration rates (Table 6).

***Asymptomatic criterion***

*Asymptomatic.* Weighted asymptomatic rates for each treatment and control category are presented in Table 7. Moderate heterogeneity was indicated for treatment (I2=80%) and controls (I2=60%). At post-treatment, asymptomatic rates were significantly higher for treated patients (18%) than controls (4%). The highest asymptomatic rates were found for individual CT (41%), markedly higher than the next highest asymptomatic rates; group CT (25%), group CT+ERP (24%) and individual ERP (20%). Asymptomatic rates were lowest for self-help ERP, self-help CT+ERP, individual CT+ERP, and group ERP (9-12%). Treatment category moderated asymptomatic rates. Inspection of 95% CIs revealed only one significant difference between treatment categories; asymptomatic rates were significantly higher for individual CT (41%) than self-help ERP (11%). The control category did not moderate asymptomatic rates (Table 7).

[Please insert Table 7 here]

At follow-up, asymptomatic rates were very similar between treated patients (22%) and controls (20%) and did not significantly differ. Asymptomatic rates remained highest for individual CT (46%), closely followed by group CT+ERP (43%). The next highest asymptomatic rates were found for individual ERP (26%); while group ERP and self-help CT+ERP had the lowest asymptomatic rates (8-11%). Treatment category moderated asymptomatic rates. Inspection of 95% CIs revealed only two significant differences; asymptomatic rates were significantly higher for individual CT (46%) and group CT+ERP than self-help CT+ERP (8%; Table 7).

**Effect Size Analysis**

*SMD within-group effects-sizes.* Weighted SMD within-group effect sizes for each treatment and control category are presented in Table 8*.* At post-treatment, effect sizes were significantly larger for treated patients (*g* = 1.28) than controls (*g* = 0.3). Moderate heterogeneity was indicated for treatment (I2=91%) and controls (I2=80%). Treatment category moderated effect sizes.Individual CT had the largest effect size (*g* = 1.85), closely followed by group CT+ERP (*g* = 1.80), and then individual ERP (*g* = 1.58). Group ERP, self-help ERP, individual CT+ERP, and self-help CT+ERP all had similar effect sizes (*g* = 0.9-1.02); while group CT had the smallest effect size (*g* = 0.41).

[Please insert Table 8 here]

At follow-up, effect sizes were significantly larger for treated patients (*g* = 1.46) than controls (*g* = 0.91). Moderate heterogeneity was indicated for treatment (I2=87%) and controls (I2=83%). Treatment category moderated effect sizes. Group CT+ERP had the largest effect size (*g* = 2.90). The next largest effect sizes were individual CT (*g* = 1.96), individual ERP (*g* = 1.39), and group ERP (*g* = 1.27). Self-help CT+ERP had the smallest effect size (*g* = 1.06; Table 8).

**Discussion**

An IPD-MA of RCTs was conducted to evaluate the efficacy of psychological treatments for OCD. Using Jacobson’s clinical significance methodology enabled investigation of recovery, improvement and deterioration rates. The proportion of patients who were almost absent of OCD symptomology (i.e. similar to the levels experienced by individuals without OCD) was determined by using asymptomatic criterion. Results showed that treated patients were more likely than controls to recover and improve at post-treatment but no more likely to improve at follow-up. Treated patients were also more likely to be asymptomatic than controls at post-treatment. However, treated patients were no more likely to be asymptomatic at follow-up. The likelihood of deteriorating did not differ between treated and control patients at post-treatment or follow-up.

To detect whether different methods of analysis suggested different conclusions, we also evaluated treatment efficacy using within-group effect size analysis. In line with findings of previous meta-analyses, large within-group effect sizes were found for treated patients at post-treatment and follow-up, and within-group effect sizes were significantly larger for treated patients than controls. Thus, the different analysis methods largely converged indicating that psychological treatments are more efficacious than controls for OCD. However, the clinical significance analysis added a practical indication of the actual benefit of psychological treatment. Only 32% of treated patients recovered post-treatment compared with 3% of controls, rising to 38% and 21% respectively after 3 to 6 months. Furthermore, only 18% of treated patients were asymptomatic at post-treatment compared to 4% of controls; and at follow-up only around 20% of patients were asymptomatic regardless of whether they were allocated to treatment or control conditions. Deterioration rates were very low (0-1%) and did not differ between treated and control patients at either post-treatment or at follow-up.

Unlike previous meta-analyses (Abramowitz et al., 2002; Eddy et al., 2004; Gava et al., 2007; Jónsson & Hougaard, 2009; Olatunji et al., 2013; Öst et al., 2015; Pearcy et al., 2016; Romanelli et al., 2014; Rosa-Alcázar et al., 2008; Schwartze et al., 2016; Skapinakis et al., 2016; Wootton, 2016), our IPD-MA showed that treatment efficacy was moderated by treatment type. In general, the most efficacious treatment was individual CT, followed by group CT+ERP and, to a lesser extent, individual ERP. Amongst these treatments, recovery rates of 55%, 42% and 41% respectively were found at post-treatment; while asymptomatic rates of 41%, 24% and 20% respectively were found at post-treatment.

Relative to patients receiving face-to-face interventions, patients receiving self-help interventions were less likely to improve, recover and become ‘asymptomatic’ at post-treatment and follow-up. Specifically, recovery rates for self-help interventions at follow-up ranged from 16% to 27%; ‘asymptomatic’ rates were lower, ranging from 9-11%. These results are surprising given that previous meta-analyses conclude that self-help interventions are efficacious (Pearcy et al., 2016; Wootton, 2016) and that face-to-face and remote forms of CBT for OCD are equally efficacious (Dettore et al., 2015).

**Why Were Treatments Largely Ineffective?**

Collectively, data indicate that most treated patients benefit from psychological therapy, with those receiving individual CT making the greatest gains. However, in practical terms, our findings indicate that even the most effective treatments leave 60% of patients experiencing potentially distressing OCD symptomatology. More worryingly, some self-help interventions leave up to 90% of patients distressed 3-6 months post-intervention. Thus, there remains considerable room for improvement with regards to treatment efficacy.

The low recovery and asymptomatic rates found in the current study raise three important questions. First, why were recovery and asymptomatic rates so low? Second, what is acceptable in order for an intervention to be classed as effective; in other words, should we accept current recovery rates given that a score of 12 on the Y-BOCS can indicate significant OCD symptoms (Fisher & Wells, 2005)? Third, what are the implications for future practice and research?

It is difficult to address the first question without speculation. We know little about treatment fidelity or specific patient or intervention characteristics beyond those reported in the included studies, nor how these may have influenced treatment delivery or outcome. For example, we do not know if different types of obsessions impacted on the efficacy of group interventions. Furthermore, it is plausible that self-help interventions may not have been intensive enough for the samples studied; the mean Y-BOCS scores of patients allocated to self-help interventions ranged from 18-31, indicative of moderate to severe OCD, yet NICE’s stepped care model (National Institute for Health and Care Excellence [NICE], 2005) recommends brief telephone or self-help CT+ERP for individuals with mild OCD symptoms only. This may account for why lower recovery and ‘asymptomatic’ rates were found for self-help interventions in this IPD-MA. Finally, it is possible that different results would have been found if studies evaluating the efficacy of non-manualised psychological interventions had been included. Regardless, data indicate that recommended psychological approaches increased recovery over control conditions by only 17%, and had no impact on ‘asymptomatic’ rates - findings very similar to those observed by Fisher and Wells (2005) 15 years ago.

With regards question two, this is a value judgement but it seems reasonable to conclude that, when only around one-fifth of patients are asymptomatic following psychological treatment in general for OCD, researchers and clinicians should challenge the assertion that highly effective psychological interventions for OCD exist (particularly given that we may even have overestimated the efficacy of psychological treatments because we conducted analyses on a per-protocol rather than ITT basis (Cuijpers et al., 2010)).

When considering question three, we argue that, prior to developing more cost-effective means of delivering existing treatments, there is a need to develop more efficacious interventions for people with OCD. Currently, NICE guidance (2005) advocates a stepped-care approach to treating OCD, in which access to psychological and pharmacological interventions is determined based, in part, on the severity of patients’ symptoms. Whilst this review was able to examine moderator effects of treatment type, there is obvious clinical utility in establishing patient characteristics that are associated with differential treatment responses. However, this is an area that has been largely overlooked in previous meta-analyses. Over 50 years ago, Paul (1967) argued that: “the question towards which all outcome research should effectively be directed is the following: What treatment, by whom, is most effective for this individual with that specific problem, and under which set of circumstances?’ (p.111). Paul’s question represents the first challenge to researchers, given the changing landscape of healthcare and increasing financial pressures upon healthcare providers, and the lack of progress since Fisher and Wells’ original clinical significance review (Fisher & Wells, 2005). We also advocate that researchers go ‘back to basics’, and focus on model-specific research designed to identify and test psychological mechanisms that maintain distress, together with patient moderators of treatment response (Steketee et al., 2019). More recently, major advances in cancer treatment have been achieved following the introduction of ‘precision medicine’ (Schwaederle et al., 2015) – an approach designed to match individuals to individual treatments based on their characteristics (Hamburg & Collins, 2010). Adoption of a similar approach may help to improve the overall efficacy of interventions for OCD, and may shift focus towards more idiosyncratic psychological interventions for OCD.

**Strengths and Limitations**

This is the first study to use a standardised recovery definition to examine the extent to which recovery and asymptomatic rates for psychological therapies for OCD ‘map onto’ effect size estimates. However, our study has limitations. First, not all authors provided IPD, therefore data from only 24 of the 43 eligible RCTs (representing IPD for 1,626 of 2,455 patients) were analysed. However, there was no difference in pre-post within-group effect sizes between the RCTs that provided data and those that did not, suggesting that the included RCTs were representative of published trials using the Y-BOCS as an outcome measure. Second, only RCTs that used either the self-report or clinician-rated Y-BOCS – the ‘gold standard’ and most widely used measure of OCD severity (Kyrios et al., 2015) - as an outcome measure were included. This means conclusions about the effectiveness of psychological interventions evaluated using other measures of OCD symptom severity cannot be drawn, nor can conclusions regarding the wider effectiveness of psychological interventions for adults with OCD (e.g. impact on anxiety or depressive symptomatology or suicidal ideation, or on broader indices of functioning such as quality of life or family or job role functioning). A more fine-grained analysis of factors associated with OCD severity is needed in order to better understand the wide-ranging impact of OCD. Finally, we were unable to consider the long-term efficacy of treatments because only two RCTs provided long-term (>12 month) follow-up data. Furthermore, small sample sizes and lack of follow-up data for some interventions potentially limits the conclusions that can be drawn about their long-term efficacy.

**Conclusions**

Current psychological interventions for OCD do not lead to deterioration of symptoms, but do not completely alleviate distressing symptoms. Around 80% of patients with OCD remain distressed following manualised psychological treatment, and only 60% can be classed as recovered. Although individual CT shows promise, more efficacious psychological treatments are needed for patients with OCD. Rather than continue to evaluate different modes of delivery of existing treatments, researchers should focus on testing alternative theoretical models, together with patient moderators of treatment response.

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*Table 1.* Data used to determine cut-off point (a) and the RCI on the Y-BOCS

|  |  |  |
| --- | --- | --- |
| **Symbol** | **Definition** | **Value** |
| *M*1 | Mean of the Y-BOCS at pre-treatment for the OCD samplea,b | 24.38 |
| *S*1 | Standard deviation of the Y- BOCS at pre-treatment for the OCD sample | 6.00 |
| *X*1 | Pre-treatment Y-BOCS score of an individual |  |
| *X*2 | Post-treatment score of an individual |  |
| *r*xx | Reliability of the Y-BOCSc | 0.61 |
| *S*E | Standard error of measurement for the Y-BOCS | 3.75 |
| *S*diff | Standard error of difference between the two test scores | 5.30 |
| *Note.* M1= pre-treatment mean; SD1 = pre-treatment standard deviation; Sdiff = pre-treatment standard error of difference; Rxx = test-retest reliability; aAll pre-treatment scores (*n* = 1,626) from 24 studies – we included pre-treatment scores on the Y-BOCS from one additional treatment group from Nakatani et al. (2005) for which we received IPD (n=10) but excluded from the IPD-MA because it did not involve a psychological intervention (i.e. it was a pharmacological intervention); b1% of all participants could not improve or recovery as their Y-BOCS score at pre-treatment was below 10; cTest-retest reliability (Woody et al., 1995); Y-BOCS = Yale–Brown Obsessive Compulsive Scale | | |

*Figure 1*: Flow diagram

Number of additional studies identified through other sources including contact with researchers (*n* = 22)

Number of studies identified through database searching (*n* = 2,637)

## Identification

## Obtaining data

## Available data

## Analysed data

Full-text articles excluded (*n* = 63)

Inappropriate intervention /comparator (*n* = 17)

Participants not exclusively OCD patients (*n* = 11)

Not a randomized controlled trial (*n* = 16)

Secondary paper (*n* = 15)

Publication not English (*n* = 2)

Protocol (*n* = 1)

Not manualized (*n* = 1)

Full-text articles assessed for eligibility   
(*n* = 107)

Number of eligible Studies for which IPD were not sought (*n* = 0)

Number of studies excluded (n = 1,592)

Number of studies for which aggregate data were available (*n* = 43)

Number of studies for which IPD were not provided (*n* = 19) (+1 linked paper)

Number of participants (*n* = 819)

* Could not contact (*n* = 15)
* Did not provide or have access to data (*n* = 4)
* Declined (*n* = 1)

**Aggregate data (report for each main outcome)**

Number of studies included in analysis (*n* = 43)

Number of participants included in analysis (*n* = 2024)

**IPD (report for each main outcome)**

Number of studies included in analysis (*n* = 24)

Number of participants included in analysis (*n* = 1,626)

Number participants excluded (*n* = 10; participants receiving pharmacological intervention)

Number of studies for which IPD were provided (*n* = 24)

Number of participants for whom data were provided (*n* = 1,636)

Number of studies for which IPD were sought (*n* = 43) (+1 linked paper)

Number of studies screened for eligibility (*n* = 1,699)

Number of studies after duplicates removed (*n* = 1,699)

## Eligibility

## Screening

*Table 2. Study and Patient Characteristics for Included Trials*

| **Study** | **Location** | **Funding Source** | **Condition** | **Sample size in report** | **IPD sample sizea** | **Male (*n*)a** | **Female (*n*)a** | **Age, mean (*SD*)a** | **Y-BOCS pre-test meana** | **Treatment intensity** | **Total hours** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Anderson & Rees (2007) | Australia | Division of Health Sciences, Curtin University of Technology | Group CT+ERP | 25 | 20 | 4 | 16 | 34.6 (15.89) | 25.45 (7.25) | 10 x 2hr sessions over 10 weeks | 20 |
|  |  | Individual CT+ERP | 21 | 17 | 6 | 11 | 32.24 (7.60) | 24 (6.2) | 10 x 1hr sessions over 10 weeks | 10 |
|  |  | WLC | 17 | 17 | 6 | 11 | 34.94 (9.45) | 23.65 (4.73) | 0 sessions | 0 |
| Andersson et al. (2012) | Sweden | The Swedish Research  Council and the Swedish Society of Medicine | Self-help CT+ERP | 50 | 49 | 17 | 32 | 34.02 (11.62) | 21.31 (4.57) | 10 modules over 10 weeks | N/R |
|  |  | Placebo controlb | 51 | 51 | 17 | 34 | 36.06 (13.74) | 20.8 (4.04) | 10 weeks (sessions and hours N/R) | N/R |
| Baruah et al. (2018) | India | The Department of Biotechnology (DBT), Government of India grant (BT/PR13334/Med/30/259/2009) | Group ERP | 30 | 29 | 17 | 12 | 30.17 (8.00) | 24.9 (3.93) | 6 x 90-120 min sessions over 3-4 weeks | 9-12 |
|  |  | Placebo controlc | 34 | 28 | 14 | 14 | 31.32 (7.60) | 25.14 (2.62) | 6 x 30-45 min sessions | 3-4.5 |
| Belloch et al. (2011) | Spain and Argentina | The Spanish Ministerio de Ciencia e Innovación (SEJ2006/03893-PSIC, and PSI2010-18340). | Individual CT | 18 | 16 | 6 | 10 | 30.44 (5.70) | 25.81 (4.86) | 18 x 1 hr sessions over 6 months | 18 |
|  |  | Group CT | 26 | 22 | 11 | 11 | 37.14 (10.48) | 26.55 (4.95) | 16 x 2hr sessions over 4 ½ months | 32 |
| Cordioli et al. (2003) | Brazil | The Hospital de Clı´nicas  of Federal University of Rio Grande do Sul | Group CT+ERP | 23 | 22 | 8 | 14 | N/R | 26.55 (4.95) | 12x 2hr sessions over 12 weeks | 24 |
|  |  | WLC | 24 | 23 | 11 | 12 | N/R | 25 (5.07) | 0 sessions | 0 |
| Cottraux et al. (2001) | France | The French Ministry of  Health (PHRC 95 031) | Individual CT | 32 | 30 | 5 | 25 | 36.83 (9.80) | 28.6 (5.14) | 20 x 1hr sessions over 16 weeks | 20 |
|  |  | Individual ERP | 32 | 30 | 11 | 19 | 34.83 (11.58) | 28.33 (5.02) | 20 x 20 120 min sessions over 16 weeks | 20 |
| Gomes et al. (2016) | Brazil | Fundo de Incentivo a Pesquisa e Eventos/Hospital de Clínicas de Porto Alegre (FIPE- HCPA) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). | Group CT+ERP | 74 | 49 | 20 | 29 | 44.69 (14.39) | 27.71 (5.65) | 12 x 2hr sessions over 12 weeks | 24 |
|  |  | WLC | 66 | 39 | 13 | 26 | 38.03 (13.93) | 25.79 (4.81) | 0 session | 0 |
| Hauschildt et al. (2016) | Germany | The German Federal Ministry of Research and Education (01GX1010). | Self-help CT | 64 | 50 | 18 | 32 | 41.14 (11.23) | 21.96 (6.47) | N/R | N/R |
|  |  | Placebo controlb | 64 | 54 | 18 | 36 | 40.19 (9.37) | 21.61 (6.63) | N/R | N/R |
| Herbst et al. (2014) | Germany | The German Research  Foundation (KU 2754/1-1) | Self-help CT+ERP | 16 | 16 | 5 | 11 | 38.19 (8.80) | 20.25 (6.71) | 14 sessions over 8 weeks | N/R |
|  |  | WLC | 18 | 18 | 7 | 11 | 33.22 (9.50) | 20 (5.4) | 0 sessions | 0 |
| Jaurrieta et al. (2008) | Spain | Generalitat de Catalunya (2005SGR00322) | Individual CT+ERP | 19 | 12 | 8 | 4 | 34.75 (12.48) | 26.83 (8.79) | 20 x 45 mins sessions over 20 weeks | 15 |
|  |  | Group CT+ERP | 19 | 16 | 11 | 5 | 30.19 (6.12) | 24.62 (7.84) | 20 x 90 mins sessions over 20 weeks | 30 |
|  |  | WLC | 19 | 19 | 10 | 9 | 32.53 (10.03) | 24.79 (7.27) | 0 sessions | 0 |
| Kobak et al. (2015) | USA | The National Institute of  Mental Health, National Institutes of Health, and Department of Health and Human Services (R43MH090612) | Self-help ERP (ERP alone) | 28 | 28 | 9 | 19 | N/R | 22.82 (3.68) | 12 weeks website use | N/R |
|  |  | Self-help ERP (ERP + lay coaching) | 28 | 28 | 9 | 19 | N/R | 22.71 (3.97) | 12 weeks website use, scheduled weekly phone calls | N/R |
|  |  | Self-help ERP (ERP + therapist coaching) | 31 | 31 | 14 | 17 | N/R | 21.81 (4.05) | 12 weeks website use, scheduled weekly phone calls | N/R |
| Lindsay et al. (1997) | Australia | Not stated | Individual ERP | 9 | 9 | 6 | 3 | N/R | 28.67 (4.56) | 15 hrs over 3 weeks | 15 |
|  |  | Placebo controld | 9 | 9 | 0 | 9 | N/R | 24.44 (6.98) | 15 hrs over 3 weeks | 15 |
| Lovell et al. (2006) | UK | NHS Executive North West (Research and Development Fund). | Individual ERP (via telephone) | 36 | 35 | 16 | 19 | 33.49 (9.22) | 24.74 (4.71) | 2 x 1hr face to face sessions + 8 scheduled calls up to 30 mins, weekly | 2-6 |
|  |  | Individual ERP (face to face) | 36 | 33 | 12 | 21 | 30.15 (10.17) | 23.94 (5.57) | 10 x 1hr sessions | 10 |
| Lovell et al. (2017) | UK | The National Institute for Health Research Health Technology Assessment programme (09-81-01) | Self-help CT+ERP (computerised) | 157 | 106 | 41 | 65 | 36.64 (12.70) | 24.87 (5.37) | Advised to use 6 times over 12 weeks, plus 6 x 10-minute telephone calls | N/R |
|  |  | Self-help CT+ERP (book) | 158 | 119 | 44 | 75 | 35.29 (12.93) | 25.1 (4.6) | Self-help book plus 1 x 1 hr and 10 x 30 min sessions over 12 weeks | N/R |
|  |  | WLC | 158 | 121 | 54 | 67 | 36.76 (12.24) | 12.24 (5.36) | 0 sessions | 0 |
| Marsden et al. (2018) | UK | Leeds Community Healthcare NHS Trust | ‘Other’ treatmente | 29 | 15 | 5 | 10 | 31.33 (10.98) | 24.47 (7.11) | 16 sessions | N/R |
|  |  | Individual ERP | 26 | 18 | 6 | 12 | 35.00 (17.19) | 27.17 (7.65) | 16 sessions | N/R |
| McLean (2001) | Canada | The British Columbia Health Care Research Foundation (06 97-1; 211 95-1) | Group CT | 49 | 31 | 16 | 15 | 35.87 (9.57) | 21.9 (5.83) | 12 x 2.5 hr sessions over 12 weeks | 30 |
|  |  | Group ERP | 44 | 32 | 17 | 15 | 33.94 (10.02) | 21.78 (4.56) | 12 x 2.5 hr sessions over 12 weeks | 30 |
| Meyer et al. (2010) | Brazil | Not stated | Group CT+ERP (CT+MI+TM) | 48 | 47 | 9 | 38 | 38.57 (12.69) | 30.68 (4.23) | 12 x 2hr sessions weekly + 2 x 1hr MI + TM sessions before group sessions | 26 |
|  |  | Group CT+ERP (CT only) | 45 | 43 | 12 | 31 | 38.30 (12.73) | 31.86 (4.55) | 12 x 2hr sessions weekly + 2 1hr control sessions | 26 |
| Nakatani et al. (2005) | Japan | The Ministry of Education, Culture, Sports, Science and Technology (C14570931) and the Ministry of Health, Labor Welfare (14A-1) | Self-help ERP | 10 | 10 | 3 | 7 | 32.50 (11.15) | 29.9 (3.11) | 12 x 45 min sessions weekly over 12 weeks | 9 |
|  |  | Placebo controlf | 8 | 8 | 3 | 5 | 35.88 (8.73) | 30.5 (3.67) | 12 x 45 min sessions weekly over 12 weeks | 9 |
| Tolin et al. (2007) | USA | The Patrick and Catherine Weldon Donaghue Medical Research Foundation | Individual ERP | 21 | 17 | 8 | 9 | 35.47 (12.99) | 24.06 (4.93) | 15 sessions twice weekly over 7 ½ weeks | N/R |
|  |  | Self-help ERP | 20 | 17 | 13 | 4 | 40.88 (13.02) | 22.29 (3.74) | Instructed reading over 6 weeks | N/R |
| van Oppen et al. (1995) | Netherlands | Not stated | Individual CT | 35 | 28 | 26 | 2 | 34.1 (10.8) | 24.14 (5.12) | 16 x 45 min sessions over 16 weeks | 12 |
|  |  | Individual ERP | 36 | 29 | 0 | 29 | 35.3 (10.1) | 25.41 (7.01) | 16 x 45 min sessions over 16 weeks | 12 |
| Vogel et al. (2014) | Norway | The Norwegian Extra Foundation for Health and Rehabilitation (2009/3/0075). | Individual ERP | 10 | 10 | 4 | 6 | 28.80 (9.25) | 24.2 (4.29) | 9 x 30-45 min telephone + 6 x 90 min videoconference sessions over 12 weeks | 13.5 - 15.75 |
|  |  | Self-help ERP | 10 | 10 | 5 | 5 | 29.80 (10.34) | 24.1 (2.73) | 12 weeks | N/R |
|  |  | WLC | 10 | 10 | 3 | 7 | 40.70 (11.08) | 23.4 (2.8) | 0 sessions | 0 |
| Vogel et al. (2004) | Norway | The National Council for Mental Health Norway | Individual ERP + CT | 16 | 12 | 5 | 7 | 28.67 (7.57) | 25.42 (2.94) | 2 x 2hr sessions weekly over 6 weeks | 24 |
|  |  | Individual ERP | 19 | 15 | 2 | 13 | 38.87 (13.71) | 23.2 (2.86) | 2 x 2hr sessions weekly over 6 weeks | 24 |
| Whittal et al. (2005) | Canada | Not stated | Individual CT | 34 | 30 | 8 | 22 | 35.57 (9.67) | 23.5 (4.33) | 50-60 min sessions over 12 weeks | 10-12 |
|  |  | Individual ERP | 37 | 29 | 14 | 15 | 34.24 (11.31) | 21.66 (5.92) | 50-60 min sessions over 12 weeks | 10-12 |
| Whittal et al. (2010) | Canada | The Canadian Institutes of Health Research. | Individual CT | 40 | 37 | 17 | 20 | 31.57 (8.91) | 18.03 (6.29) | 12 x 1hr sessions over 12 weeks | 12 |
|  |  | Placebo controlg | 33 | 32 | 20 | 12 | 31.31 (10.70) | 17.28 (7.71) | 12 x 1hr sessions over 12 weeks | 12 |
| *Note.* CT= Cognitive Therapy; ERP = Exposure and Response therapy; WLC = Waitlist Control; MI = Motivational Interviewing; N/R = Not Reported; SD = standard decision; TM = thought mapping; Y-BOCS = Yale Brown Obsessive-Compulsive Scale.  a based on IPD provided; bPsychoeducation; cRelaxation Control; dAnxiety management training; eEye Movement Desensitization and Reprocessing; fPill Placebo + Autogenic Training; gStress Management Training | | | | | | | | | | | |

*Table 3:* Risk of bias of included trials

| **Author(s)** | **Random sequence generation (selection bias)** | **Allocation concealment (selection bias)** | **Blinding of participants and personnel (performance bias)** | **Blinding of outcome assessment (detection bias)** | **Incomplete outcome data (attrition bias)** | **Selective reporting (reporting bias)** | **Other sources of bias** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Anderson & Rees (2007) | Unclear | Unclear | High | Unclear | Low | High | Low |
| Anderson et al. (2012) | Low | Unclear | High | Low | Low | Low | Low |
| Baruah et al. (2018) | Low | Low | High | Low | Low | Low | Low |
| Belloch et al. (2011) | Unclear | Unclear | High | High | High | High | Low |
| Cordioli et al. (2003) | Low | Low | High | Low | Low | Low | Low |
| Cottraux et al. (2001) | Unclear | Unclear | High | Unclear | High | Low | High |
| Gomes et al. (2016) | Low | Unclear | High | Unclear | Low | Low | Low |
| Hauschildt et al. (2016) | Unclear | Low | High | Low | Low | Low | Low |
| Herbst et al. (2014) | Low | Unclear | High | Unclear | Low | Low | Low |
| Jaurietta et al. (2008) | Low | Low | High | Unclear | Low | High | Low |
| Kobak et al. (2015) | Low | Unclear | High | Low | Unclear | High | High |
| Lindsay et al. (1997) | Unclear | Unclear | High | Unclear | Unclear | Unclear | Low |
| Lovell et al. (2017) | Low | Low | High | Low | Low | Low | Low |
| Lovell et al. (2006) | Low | Low | High | Low | Low | Low | Low |
| Marsden et al. (2017) | Low | Low | High | Low | Low | Low | Low |
| McLean (2001) | Low | Unclear | High | Unclear | High | Low | Low |
| Meyer et al. (2010) | Low | Unclear | High | Low | Low | Low | Low |
| Nakatani et al. (2005) | Unclear | Low | High | Low | Low | Unclear | Low |
| Tolin et al. (2007) | Low | Unclear | High | Low | Low | Low | Low |
| van Oppen et al. (1995) | Unclear | Unclear | High | Unclear | High | High | Low |
| Vogel et al. (2014) | Unclear | Unclear | High | Low | Unclear | Unclear | Unclear |
| Vogel et al. (2004) | High | Low | High | High | Low | Unclear | Low |
| Whittal et al. (2005) | Unclear | Unclear | High | Low | High | Low | Low |
| Whittal et al. (2010) | Unclear | Unclear | High | Unclear | High | Low | Low |

*Table 4*. Weighted mean dropout rates for each treatment and control condition at post-treatment (≤4 weeks after treatment) and follow-up (3-6 months after treatment).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Post-treatment** | |  | **Follow-up** | |
|  |  | ***k*** | **Missing data % [95% CI]** |  | ***k*** | **Missing data**  **% [95% CI]** |
| **Psychological Treatment** |  |  |  |  |  |  |
| Individual CT+ERP |  | 3 | 28% [17-40%] |  |  | |
| Group CT |  | 2 | 23% [3-54%] |  |  | |
| Individual ERP |  | 10 | 15% [8-24%] |  | 7 | 24% [11-39%] |
| Group ERP |  | 2 | 15% [0-44%] |  | 2 | 15% [0-47%] |
| Self-help CT+ERP |  | 4 | 14% [3-30%] |  | 3 | 27% [9-51%] |
| Group CT+ERP |  | 6 | 13% [4-27%] |  | 3 | 5% [2-10%] |
| Individual CT |  | 5 | 12% [8-18%] |  | 2 | 16% [6-25%] |
| Self-help ERP |  | 6 | 2% [0-7%] |  |  | |
| Self-help CT |  | 1 |  |  |  | |
| ‘Other’ treatment |  | 1 |  |  |  | |
| **Controls** |  |  |  |  |  |  |
| WLC |  | 7 | 9% [1-22%] |  |  | |
| Placebo Control |  | 6 | 7% [1-15%] |  | 4 | 16% [11-21%] |
| *Note.* k = number of conditions ; N/R = Not reported; CI = confidence interval; CT = cognitive therapy; ERP = exposure and response prevention; WLC = waitlist control | | | | | | |
|  | | | | | | |

*Table 5.* Weighted recovery rates according to Jacobson’s clinical significance criteria at post-treatment (≤4 weeks after treatment) and follow-up (3-6 months after treatment).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Post-treatment** | | |  |  |  |  | **Follow-up** | | | |  |  |  |
|  |  | ***k*** | ***n*** | **Recovery % [95% CI]** | **I2** | **Q(df)** | ***p*** |  | ***k*** | ***n*** | **Recovery % [95% CI]** | | **I2** | **Q(df)** | ***p*** |
| **Psychological Treatment** |  | **40** | **1192** | **34% [27-41%]** | **0.78** |  |  |  | **22** | **716** | **37% [28-47%]** | | **0.82** |  |  |
| Treatment type |  |  |  |  |  | 23.2(7) | <.01\* |  |  |  |  | |  | 8.96(4) | .06 |
| *Individual CT* |  | 5 | 141 | 55% [45-66%] | 0.35 |  |  |  | 2 | 63 | 58% [30-82%] | | 0.80 |  |  |
| *Group CT+ERP* |  | 6 | 197 | 42% [24-62%] | 0.83 |  |  |  | 3 | 111 | 61% [36-81%] | | 0.83 |  |  |
| *Individual ERP* |  | 10 | 220 | 41% [35-48%] | 0.00 |  |  |  | 7 | 141 | 43% [35-52%] | | 0.00 |  |  |
| *Group CT* |  | 2 | 53 | 28% [6-72%] | 0.87 |  |  |  |  |  | |  |  |  |  |
| *Individual CT+ERP* |  | 3 | 41 | 27% [16-43%] | 0.00 |  |  |  |  |  | |  |  |  |  |
| *Self-help ERP* |  | 6 | 124 | 27% [18-48%] | 0.20 |  |  |  |  |  | |  |  |  |  |
| *Self-help CT+ERP* |  | 4 | 290 | 16% [6-35%] | 0.88 |  |  |  | 3 | 232 | 22% [11-39%] | | 0.85 |  |  |
| *Group ERP* |  | 2 | 61 | 12% [0-83%] | 0.84 |  |  |  | 2 | 60 | 37% [26-50%] | | 0.00 |  |  |
| *Self-help CT* |  | 1 |  |  |  |  |  |  |  |  | |  |  |  |  |
| *‘Other’ treatment* |  | 1 |  |  |  | 0.13(1) | 0.72 |  |  |  | |  |  |  |  |
| **Controls** |  | **13** | **429** | **5% [2-9%]** | 0.46 |  |  |  | **4** | **154** | **20% [9-39%]** | | **0.79** |  |  |
| Control type |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |
| *Placebo Control* |  | 6 | 182 | 4% [1-18%] | 0.66 |  |  |  | 4 | 154 | 20% [9-39%] | | 0.79 |  |  |
| *WLC* |  | 7 | 247 | 6% [3-10%] | 0.00 |  |  |  |  | | | |  |  |  |
| **Treatment**  **vs. control** |  |  |  |  |  | 30.43(1) | <.01\* |  |  | | | |  | 2.66(1) | .10 |
| Note. CI = confidence interval; CT = cognitive therapy; df = degrees of freedom; ERP = exposure and response prevention; k = number of conditions; n = number of patients; N/R = not reported; WLC = waitlist control | | | | | | | | | | | | | | | |

*Table 6.* Weighted improvement and deterioration rates according to Jacobson’s second criterion (RCI) at post-treatment (≤4 weeks after treatment) and follow-up (3-6 months after treatment).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | |  |  | **Post-treatment** | | |  |  |  |  |  | |  | |  | **Follow-up** | | | |  |  |  |
|  |  | ***k*** | ***n*** | **Improvement % [95% CI]** | **I2** | **Q(df)** | ***p*** | **Deterioration % [95% CI]** | **I2** | **Q(df)** | ***p*** |  | ***k*** | ***n*** | **Improvement % [95% CI]** | | **I2** | **Q(df)** | ***p*** | **Deterioration % [95% CI]** | | **I2** | **Q(df)** | ***p*** |
| **Psychological Treatment** |  | **40** | **1192** | **50% [42-59%]** | **0.84** |  |  | **2% [1-3%]** | 0.00 |  |  |  | **22** | **716** | **50% [40-60%]** | | **0.81** |  |  | **2% [1-3%]** | | **0.00** |  |  |
| Treatment type |  |  |  |  |  | 40.8(7) | <.01\* |  |  | 3.5(7) | .89 |  |  |  |  | |  | 16.4(4) | <.01\* |  | |  | 0.82(4) | .94 |
| *Individual CT* |  | 5 | 141 | 68% [56-78%] | 0.42 |  |  | 2% [1-6%] | 0.00 |  |  |  | 2 | 63 | 65% [34-88%] | | 0.82 |  |  | 2% [0-11%] | | 0.00 |  |  |
| *Group CT+ERP* |  | 6 | 197 | 70% [46-87%] | 0.86 |  |  | 2% [1-6%] | 0.00 |  |  |  | 3 | 111 | 88% [63-97%] | | 0.80 |  |  | 1% [0-7%] | | 0.00 |  |  |
| *Individual ERP* |  | 10 | 220 | 62% [55-68%] | 0.00 |  |  | 2% [0-6%] | 0.00 |  |  |  | 7 | 141 | 51% [43-59%] | | 0.00 |  |  | 3% [1-7%] | | 0.00 |  |  |
| *Individual CT+ERP* |  | 3 | 41 | 49% [34-64%] | 0.00 |  |  | 3% [1-15%] | 0.00 |  |  |  |  |  |  | |  |  |  |  | |  |  |  |
| *Group CT* |  | 2 | 53 | 42% [8-86%] | 0.91 |  |  | 2% [0-12%] | 0.00 |  |  |  |  |  |  | |  |  |  | |  |  |  |  |
| *Self-help ERP* |  | 6 | 124 | 32% [18-50%] | 0.61 |  |  | 3% [1-9%] | 0.00 |  |  |  |  |  |  |  |  |  |  | |  |  |  |  |
| *Group ERP* |  | 2 | 61 | 23% [2-76%] | 0.89 |  |  | 2% [0-10%] | 0.00 |  |  |  | 2 | 60 | 40% [28-53%] | | 0.00 |  |  | 2% [0-11%] | | 0.00 |  |  |
| *Self-help CT+ERP* |  | 4 | 290 | 23% [14-35%] | 0.72 |  |  | 1% [0-3%] | 0.00 |  |  |  | 3 | 232 | 34% [25-46%] | | 0.65 |  |  | 1% [0-4%] | | 0.00 |  |  |
| *Self-help CT* |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |
| *‘Other’ treatment* |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |
| **Controls** |  | **13** | **429** | **6% [3-12%]** | **0.54** |  |  | **2% [1-5%]** | 0.00 |  |  |  | **4** | **154** | **26% [13-44%]** | | **0.78** |  |  | **3% [1-9%]** | | **0.00** |  |  |
| Control type |  |  |  |  |  | 0.69(1) | 0.41 |  |  | 0.06(1) | .81 |  |  |  |  | |  |  |  |  | |  |  |  |
| *Placebo Control* |  | 6 | 182 | 5% [1-21%] | 0.73 |  |  | 2% [1-6%] | 0.00 |  |  |  | 4 | 154 | 26% [13-44%] | | 0.78 |  |  | 3% [1-9%] | | 0.00 |  |  |
| *WLC* |  | 7 | 247 | 10% [7-15%] | 0.00 |  |  | 2% [1-6%] | 0.00 |  |  |  |  | |  | |  |  | | | |  |  |  |
| **Treatment vs control** |  |  |  |  |  | 45.39(1) | <.01\* |  |  | 0.00(1) | .95 |  |  | |  | |  | 4.88(1) | .03\* |  | |  | 0.58(1) | .49 |
| *Note.* CI = confidence interval; CT = cognitive therapy; df = degrees of freedom; ERP = exposure and response prevention; *k* = number of conditions; *n* = number of patients; N/R = not reported; tx = treatment; WLC = waitlist control | | | | | | | | | | | | | | | | | | | | | | | | |

*Table 7.* Weighted asymptomatic rates according to according to the asymptomatic criterion (YBOCS≤7) at post-treatment (≤4 weeks after treatment) and follow-up (3-6 months after treatment).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Post-treatment** | | |  |  |  |  | **Follow-up** | | | |  |  |  |
|  |  | ***k*** | ***n*** | **Asymptomatic % [95% CI]** | **I2** | **Q(df)** | ***p*** |  | ***k*** | ***n*** | **Asymptomatic % [95% CI]** | | **I2** | **Q(df)** | ***p*** |
| **Psychological Treatment** |  | **40** | **1192** | **18% [14-24%]** | 0.80 |  |  |  | **22** | 716 | **22% [15-30%]** | | **0.77** |  |  |
| Treatment types |  |  |  |  |  | 15.1(7) | .04\* |  |  |  |  | |  | 12.54(4) | <.01\* |
| *Individual CT* |  | 5 | 141 | 41% [21-64%] |  |  |  |  | 2 | 63 | 46% [32-61%] | | 0.29 |  |  |
| *Group CT* |  | 2 | 53 | 25% [7-60%] | 0.80 |  |  |  |  |  | |  |  |  |  |
| *Group CT+ERP* |  | 6 | 197 | 24% [16-34%] | 0.47 |  |  |  | 3 | 111 | 43% [32-55%] | | 0.33 |  |  |
| *Individual ERP* |  | 10 | 220 | 20% [15-26%] | 0.00 |  |  |  | 7 | 141 | 26% [16-38%] | | 0.44 |  |  |
| *Individual CT+ERP* |  | 3 | 41 | 11% [4-25%] | 0.00 |  |  |  |  |  | |  |  |  |  |
| *Self-help CT+ERP* |  | 4 | 290 | 9% [3-26%] | 0.85 |  |  |  | 3 | 232 | 8% [2-28%] | | 0.88 |  |  |
| *Self-help ERP* |  | 6 | 124 | 11% [7-19%] | 0.00 |  |  |  |  |  | |  |  |  |  |
| *Group ERP* |  | 2 | 61 | 9% [1-58%] | 0.72 |  |  |  | 2 | 60 | 11% [0-79%] | | 0.82 |  |  |
| *Self-help CT* |  | 1 |  |  |  |  |  |  |  |  | |  |  |  |  |
| *Other* |  | 1 |  |  |  |  |  |  |  |  | |  |  |  |  |
| **Controls** |  | **13** | **429** | **4% [1-12%]** | 0.60 |  |  |  | **4** | **154** | **20% [6-49%]** | | **0.88** |  |  |
| Control type |  |  |  |  |  | 0.78(1) | .38 |  |  |  |  | |  |  |  |
| *Placebo Control* |  | 6 | 182 | 6% [1-32%] | 0.85 |  |  |  | 4 | 154 | 20% [6-49%] | | 0.88 |  |  |
| *WLC* |  | 7 | 247 | 2% [1-6%] | 0.00 |  |  |  |  | | | |  |  |  |
| **Treatment vs. control** |  |  |  |  |  | 6.84(1) | <.01\* |  |  | | | |  | 0.03(1) | .88 |
| *Note.* CI = confidence interval; CT = cognitive therapy; df = degrees of freedom; ERP = exposure and response prevention; *k* = number of conditions; *n* = number of patients; N/R = not reported; WLC = waitlist control | | | | | | | | | | | | | | | |

*Table 8.*  Within-group effect sizes at post-treatment (≤4 weeks after treatment) and follow-up (3-6 months after treatment).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | |  | **Post-treatment** | | |  |  |  |  |  | **Follow-up** | | |  |  |  |  |
|  | | |  | ***k*** | ***n*** | **Hedge’s g  [95% CI]** | ***p*** | **I2** | **Q(df)** | ***p*** |  | **k** | **N** | **Hedge’s g**  **[95% CI]** | ***p*** | **I2** | **Q(df)** | ***p*** |
| **Psychological treatment** | | |  | **40** | **1194** | **1.28 [1.07, 1.49]** | **<.01** | **0.91** |  |  |  | **22** | **732** | **1.46 [1.18, 1.74]** | **<.01\*** | **0.87** |  |  |
| Treatment type | | |  |  |  |  |  |  | 34.15 (7) | <.01\* |  |  |  |  |  |  | 14.57 (6) | <.02\* |
| *Individual CT* | | |  | 5 | 141 | 1.85 [1.45, 2.26] | <.01\* | 0.43 |  |  |  | 2 | 63 | 1.96 [0.75, 3.18] | <.01\* | 0.81 |  |  |
| *Group CT+ERP* | | |  | 6 | 197 | 1.80 [1.08, 2.53] | <.01\* | 0.92 |  |  |  | 3 | 111 | 2.90 [1.64, 4.15] | <.01\* | 0.86 |  |  |
| *Individual ERP* | | |  | 10 | 222 | 1.58 [1.38, 1.77] | <.01\* | 0 |  |  |  | 7 | 141 | 1.39 [1.13, 1.66] | <.01\* | 0.26 |  |  |
| *Group ERP* | | |  | 2 | 61 | 1.02 [0.46, 1.58] | <.01\* | 0.73 |  |  |  | 2 | 60 | 1.27 [0.95, 1.60] | <.01\* | 0 |  |  |
| *Self-help ERP* | | |  | 6 | 124 | 1.02 [0.6, 1.44] | <.01\* | 0.72 |  |  |  |  | | |  |  |  |  |
| *Self-help CT+ERP* | | |  | 4 | 290 | 0.91 [0.58, 1.24] | <.01\* | 0.83 |  |  |  | 3 | 232 | 1.06 [0.76, 1.36] | <.01\* | 0.70 |  |  |
| *Individual CT+ERP* | | |  | 3 | 41 | 0.9 [0.58, 1.22] | <.01\* | 0.49 |  |  |  |  | | |  |  |  |  |
| *Group CT* | | |  | 2 | 53 | 0.41 [-0.50,1.33] | .38 | 0.97 |  |  |  |  | | |  |  |  |  |
| *Self-help CT* | | |  | 1 |  |  |  |  |  |  |  |  | | |  |  |  |  |
| *‘Other’ treatment* | | |  | 1 |  |  |  |  |  |  |  |  | | |  |  |  |  |
| **Control** | | |  | **13** | **429** | **0.30 [0.14, 0.46]** | **<.01\*** | **0.8** |  |  |  | **4** | **154** | **0.91 [0.46, 1.36]** | **<.01\*** | **0.83** |  |  |
| Placebo Control | | |  | 6 | 182 | 0.44 [0.12, 0.75] | <.01\* | 0.88 |  |  |  | 4 | 154 | 0.90 [0.46, 1.35] | <.01\* | 0.89 |  |  |
| WLC | | |  | 7 | 247 | 0.20 [0.04, 0.20] | 0.01\* | 0.63 |  |  |  |  | | |  |  |  |  |
| **Treatment vs. control** | | |  |  |  |  |  |  | 53.43 (1) | <.01\* |  |  | | |  |  | 4.17(1) | .04\* |
|  |  | *Note.* CI = confidence interval; CT = cognitive therapy; df = degrees of freedom; ERP = exposure and response prevention; *k* = number of conditions; *n* = number of patients; N/R = not reported; WLC = waitlist control | | | | | | | | | | | | | | |  |  |

1. Abbreviations: CI = Confidence interval; CT = Cognitive therapy; DSM = Diagnostic and Statistical Manual of Mental Disorders; EMDR = Eye movement desensitisation and reprocessing; ERP = Exposure and response prevention; ICD = International Statistical Classification of Diseases and Related Health Problems; IPD = Individual patient data; IPD-MA = Individual patient data meta-analysis; ITT = Intention to treat; OCD = Obsessive-compulsive disorder; RCT= Randomised controlled trial; SMD = Standardised mean difference; WLC = Waitlist control; Y-BOCS = Yale-Brown Obsessive Compulsive Scale [↑](#footnote-ref-1)
2. within-group effect sizes of 0.51-1.83, and between-group effect sizes of 0.57-1.50 in favour. of psychological treatment compared to controls (active control, wait-list control (WLC), treatment as usual) and 0.18-0.80 in favour of psychological treatment compared to pharmacological treatment [↑](#footnote-ref-2)