Guided versus Self-Guided Internet Delivered Cognitive Behavioural Therapy for diagnosed Anxiety and Related Disorders: A Preliminary Meta-Analysis

Lilyan T Oey [1]

Sarah McDonald [1]

Laura McGrath [1]

Blake F. Dear [2]

Bethany M Wootton [1,2]

[1] Discipline of Clinical Psychology, Graduate School of Health, University of Technology, Sydney, NSW, Australia.

[2] Department of Psychology, Faculty of Medicine, Health and Human Sciences, Macquarie University, North Ryde, NSW, Australia.

Corresponding author: Bethany M Wootton. Discipline of Psychology, Graduate School of Health. University of Technology Sydney. PO Box 123 Broadway, Ultimo, NSW 2007, Australia. E. bethany.wootton@uts.edu.au. p. +61 2 9514 3942.

Funding: This was an unfunded study.

Data availability: Data will be made available on request to the corresponding author.

Abstract

Guided and self-guided internet-delivered cognitive-behavioural therapy (ICBT) has been demonstrated to be efficacious in the treatment of anxiety and related disorders (ARDs). The aim of the current study was to examine the efficacy of guided and self-guided ICBT for adults diagnosed with ARDs using a meta-analytic synthesis of randomised controlled trials directly comparing the two treatment approaches. Eleven studies (n = 1414) were included. There was a small, but significant pooled between-group effect size at post-treatment (g = 0.16; 95% CI: 0.03-0.28) favouring guided ICBT. At follow-up the between-group effect size was small and non- significant (g = 0.13; 95% CI: -0.04-0.30). Gender distribution moderated outcome at post-treatment (higher proportions of females resulted in a smaller between-group effect size). Type of support provided in the guided-treatment arm moderated treatment outcome at follow-up (those receiving synchronous support had a larger between-group effect size). Amount of guidance in the guided-treatment arm moderated effect sizes at post-treatment and follow-up (more guidance leading to larger between-group effect sizes). Automated reminders, disorder type and treatment length did not moderate outcomes. The results suggests that guided and self-guided ICBT interventions result in similar outcomes, however guided interventions may be marginally more effective in the short-term.

Keywords: Anxiety Disorder; Cognitive Behaviour Therapy; Internet; Online Therapy

Anxiety and related disorders (ARDs) are characterised by an over-estimation of threat, physiological hyper arousal, and related avoidance behaviours. Disorders included within this term are the DSM-5 anxiety disorders, such as generalised anxiety disorder, panic disorder, agoraphobia, specific phobia, separation anxiety disorder and social anxiety disorder, but also disorders with a significant anxiety component, such as post-traumatic stress disorder, illness anxiety disorder, body-dysmorphic disorder, and obsessive-compulsive disorder. ARDs are common (Kessler et al., 2012; McGrath et al., In Press; Shear et al., 2006), result in significant distress and impairment (Kroenke et al., 2007), and significantly affect quality of life (Olatunji et al., 2007).

Cognitive behavioural therapy (CBT) has been shown to be an efficacious (Hofmann et al., 2012) and effective (Hans & Hiller, 2013) treatment for ARDs, with durable treatment effects (Bandelow et al., 2018; van Dis et al., 2020; Wootton et al., 2015). Despite the efficacy of CBT for the ARDs, less than half of patients with these disorders receive evidence-based treatment in the community (Bijl et al., 2003; Kohn et al., 2004; McCausland et al., 2020). Additionally, patients face many barriers to accessing treatment (Buhlmann, 2011; Gentle et al., 2014; Goetter et al., 2020) and some patients with ARDs prefer to self-manage their symptoms over speaking with a mental health professional (Black et al., In Press; McCausland et al., 2020; Salaheddin & Mason, 2016).

Internet-delivered CBT (ICBT) uses the same evidence-based interventions that are delivered in face-to-face CBT, however, these interventions are provided in a self-help format, where core therapeutic information and skills are taught via online lessons or modules. ICBT has several advantages over face-to-face CBT. Firstly, ICBT allows for greater standardisation of the intervention via the use of standardized content, processes and messaging, ensuring high levels of treatment fidelity with interventions delivered in face-to-

face CBT clinical trials (Andrews et al., 2018). Secondly, ICBT can overcome many of the commonly reported barriers to accessing care, such as stigma, cost or inability to access a trained therapist. Thirdly, the ability for self-management and anonymity via electronic devices and growing consumer comfort with technology enables the delivery of care to those who prefer to self-manage their symptoms. However, because the bulk of the treatment is self-help in nature there is the potential for significant heterogeneity in how participants interpret the information provided in the lessons and how the participants engage in important components of the treatment, such as exposure-based interventions.

ICBT has been demonstrated to be effective in the treatment of ARDs including social anxiety disorder, panic disorder, generalised anxiety disorder, post-traumatic stress disorder and obsessive-compulsive disorder (Guo et al., 2020; Sijbrandij et al., 2016; Stech et al., 2020; Trenoska Basile et al., 2022; Wootton, 2016). ICBT has also been shown to be effective when the treatment is delivered in a transdiagnostic format, where multiple ARDs (and comorbid depressive symptoms) are treated concurrently (Dear et al., 2016; Dear et al., 2015; Fogliati et al., 2016; Newby et al., 2017). Furthermore, gains from ICBT treatment have been found to be maintained at 5 years post-treatment (Hedman et al., 2011) indicating that there are sustainable long-term benefits. Importantly, more recent studies have also suggested that ICBT results in non-inferior results when compared to best-practice face-to-face CBT for the ARDs (Carlbring et al., 2018; Lundström et al., 2022).

ICBT is commonly delivered in one of two ways; (a) as a self-guided intervention, where the patient works through the materials without additional support from a therapist, or (b) as a guided intervention, where the ICBT materials are supplemented with synchronous (e.g., telephone calls, video calls) or asynchronous clinician support (e.g., e-mail contact, moderated forums, private messaging services). Individuals utilising a guided treatment

would typically receive synchronous or asynchronous contact with the therapist of up to 15 minutes a week (Carlbring et al., 2018). Clinician-guided (Andersson et al., 2013; Andersson et al., 2014) and self-guided (Dear et al., 2015; Wootton et al., 2019) ICBT interventions have been demonstrated to be efficacious in the treatments of ARDs. However, self-guided ICBT has some advantages over clinician-guided treatments. For instance, these treatments are more cost-effective as clinician time is not required once the intervention is developed (e.g., Dear et al., 2021). Additionally, self-guided interventions may be particularly attractive to individuals who do not wish to engage with a therapist. Thus, developing effective self-guided ICBT programs as an option and/or entry point to accessing healthcare is vital for reaching people who might otherwise not have access to evidence based mental healthcare.

For almost two decades there has been considerable interest in the relative efficacy and acceptability of clinician-guided and self-guided ICBT, with conflicting evidence regarding their comparability emerging over time. For example, early meta-analyses often indicated that guided remote treatment resulted in better outcomes than self-guided treatment (e.g., Palmqvist et al., 2007; Spek et al., 2007). However, many of these early meta-analyses involved analyses comparing outcomes of guided and self-guided interventions across studies (i.e., non-direct comparisons), where there are numerous other potentially confounding factors (e.g., sample characteristics, study procedures, treatment features) that could be contributing to any observed differences. Since then, a number of randomised controlled trials directly comparing clinician-guided and self-guided treatments have emerged, and many have found no differences in outcomes when the two types of treatment are directly compared within the one study (e.g., Botella et al., 2010; Campos et al., 2019; Dear et al., 2016; Dear et al., 2015). Thus far a meta-analysis examining the between-group efficacy of studies that directly compare these two treatment approaches has not yet been conducted.

Therefore, the aim of the current study was to address this gap in the literature by examining the efficacy of self-guided and guided ICBT for adults with diagnosed ARDs in studies that directly compare the interventions using a randomised controlled trial design.

Method

Registration

The current systematic review and meta-analysis was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Page et al., 2021) statement. The protocol was registered with PROSPERO (CRD42022300156).

Eligibility and search procedure

Relevant articles were retrieved through electronic databases (PsycINFO, MEDLINE, EMBASE, CINAHL and CENTRAL) up until 19th March 2022. The search terms used in the electronic databases included those related to ARDs ('Anxiety disorder' OR 'GAD' OR 'panic disorder' OR 'agoraphobia' OR 'phobia' OR 'SAD' OR 'post*traumatic stress disorder' OR 'PTSD' OR 'obsessive*compulsive disorder' OR 'body dysmorphic disorder' OR 'BDD' OR 'hypochondriasis' OR 'health anxiety'), cognitive-behavioural therapy ('cognitive behav* therapy' OR 'cognitive therapy' OR 'behav* therapy' OR 'CBT'), internet-delivered methodology ('internet' OR 'computer' OR 'eHealth' OR 'e*therapy' OR 'online' OR 'computer*' OR 'remote' OR 'self*help' OR 'e*intervention' OR 'web*based') and trial methodology ('randomi* controlled trial' OR 'clinical trial' OR 'treatment trial'); and ('guid*').

In order to be eligible for inclusion, the following inclusion criteria were used: 1) participants must have a primary ARD, diagnosed via a validated semi-structured diagnostic interview; 2) participants must be aged 18 years or older; 3) the study must directly compare guided and self-guided ICBT; 4) post-treatment and follow-up treatment scores must use a

validated outcome measure of anxiety, 5) must be a randomised controlled trial; and 6) must be published in English, in a peer-reviewed journal. Trials that required participants to physically attend a centre to complete the ICBT treatment were excluded.

Study selection

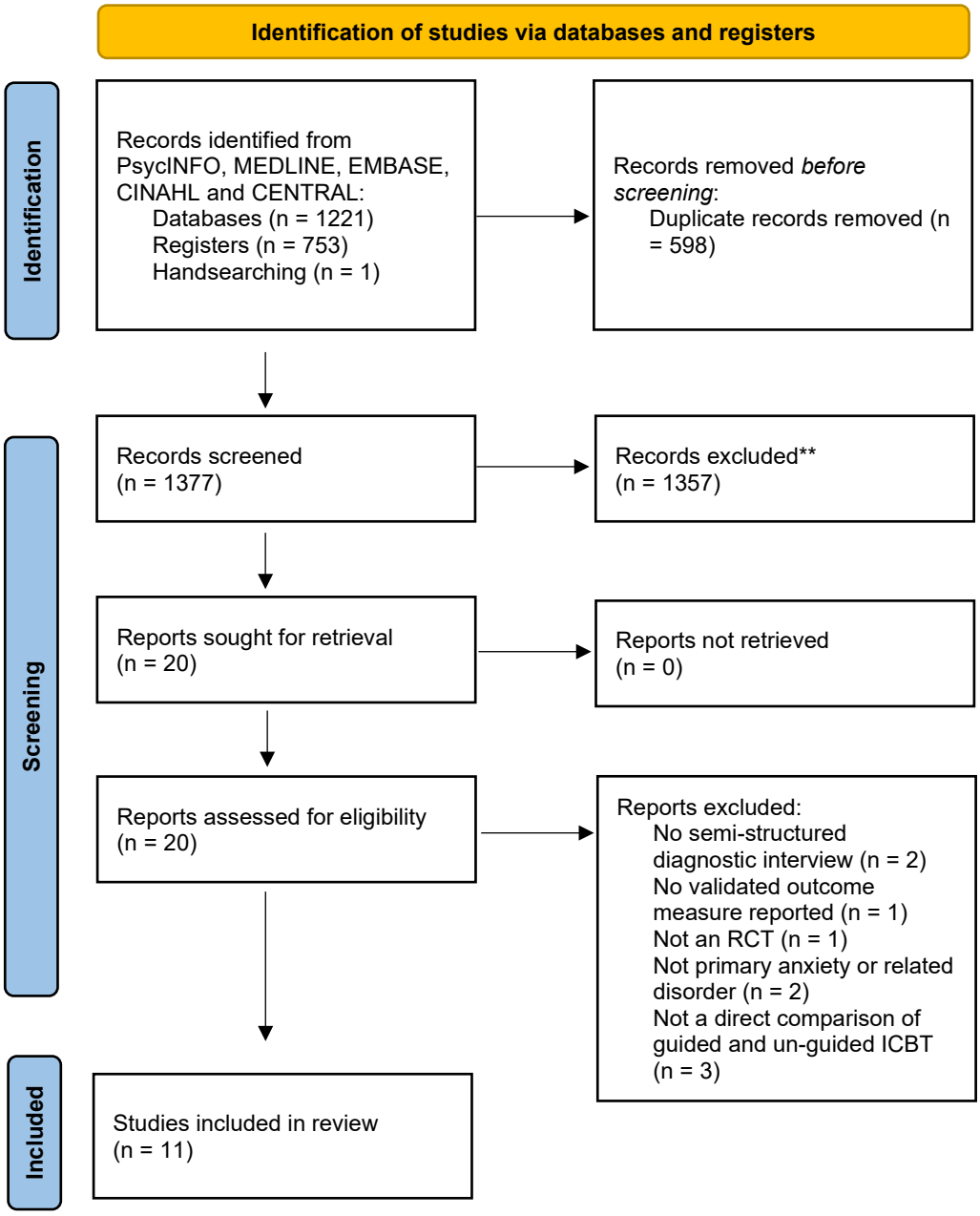
The study flow chart is outlined in Figure 1. The search returned 1975 publications in total. After removal of 598 duplicates, abstracts, and titles of the remaining 1377 records were screened by the first author and 1357 were excluded based on the inclusion/exclusion criteria. A total of 20 full-text records were screened for eligibility by the first author and 11 studies (with 13 comparisons) were included in the study. Ten percent of articles at both the title/abstract and full-text review stage were screened by the third author to ensure accuracy.

Data extraction

Data were extracted from each article independently by the first and second author and compared for accuracy and any discrepancies were discussed and resolved between the two authors prior to data analysis. The following data was extracted from each article: author, study location, year of publication, sample size, primary diagnosis, treatment length, type of guidance, amount of guidance (in minutes), presence of automated reminders and sample characteristics (e.g., mean age, gender). Outcome data was extracted from the identified primary outcome measure for both groups at post-treatment and longest follow-up (if available). Where more than one primary outcome measure was identified, and when social anxiety disorder was the main diagnosis, the Social Interaction Anxiety Scale (SIAS) (Mattick & Clarke, 1998) was extracted. Similarly, when specific phobia (flying phobia) was the main diagnosis, the Fear of Flying Questionnaire-II (FFQ-II; (Bornas et al., 1999) was extracted.

Figure 1.

PRISMA Flow Diagram



Statistical analyses

All data was analysed using Comprehensive Meta-Analysis (Version 3) (Borenstein et al., 2013). The pooled between-group effect size (Hedges's *g*) were calculated for post-treatment and longest follow-up outcomes using random-effects models. A Hedges's *g* value of 0.2, 0.5, and 0.8 was interpreted as small, medium, and large respectively. A positive *g* value indicates that the guided treatment performed better than the self-guided treatment. Planned moderator analyses were conducted on the following categorical moderators: 1) presence of automated reminders; 2) type of disorder (anxiety disorder or anxiety-related disorder); and 3) type of therapist guidance. Planned meta-regression analyses were conducted on the following continuous moderators: 1) gender distribution of the sample; 2) treatment length; and 3) amount of guidance (in minutes). Heterogeneity was assessed using the I^2 statistic. Heterogeneity is considered low if found to be 25%, moderate at 50% and high at 75% (Higgins et al., 2003). The 'one-study removed' method was used as a sensitivity analysis to assess how the combination of studies impacted individual studies. This was analysed by the overall effect size after the removal of each study. Publication bias was assessed using Duval and Tweedie's Trim and Fill procedure (Duval & Tweedie, 2000). This procedure removes the most extreme small positive studies from the analysis and replaces them with a mirror image, resulting in the best estimate of the unbiased effect size (Borenstein et al., 2009).

Quality Assessment

Risk of bias was assessed using Version 2 of the Cochrane risk-of-bias tool for randomized trials (RoB 2) (Sterne et al., 2019). The RoB2 assesses five domains of potential risk of bias: arising from the randomization process; due to deviations from the intended intervention; due to missing outcome data; in measurement of the outcome; and in selection

of the reported result. The item on participant blinding was not used as blinding is not feasible for studies comparing clinician-guided versus self-guided interventions. Each domain was rated as high, low, or some concerns (Sterne et al., 2019) for each study. The RoB assessment was completed independently by the first and second author with discrepancies discussed until consensus was reached.

Results

Study characteristics

Eleven studies (with 13 comparisons) were included in the study for the post-treatment comparisons and 7 studies (with 8 comparisons) were included in the follow-up comparisons. A summary of the study characteristics can be found in Table 1. For the post-treatment comparisons 1414 individuals were included: 704 in the clinician-guided condition and 713 in the self-guided conditions. For the follow-up comparisons 995 individuals were included: 497 in the clinician-guided condition and 498 in the self-guided conditions. Across studies the follow-up assessments ranged from 6 months to 24 months.

The primary disorders examined across the studies included social anxiety disorder (5/11; 45.45%), specific phobia (flying phobia; 1/11; 9.00%), panic disorder (2/11; 18.18%), generalised anxiety disorder (1/11; 9.00%), somatic symptom disorder/ illness anxiety disorder (1/11; 9.00%), and obsessive-compulsive-disorder (1/11; 9.00%). Across the 13 comparisons the type of guidance included asynchronous (5/13; 38.46%), synchronous (5/13; 38.46%), and as preferred (i.e., participants had the option of choosing they would like to receive asynchronous or synchronous guidance: 3/13; 23.08%). The proportion of female participants ranged from 52% to 79% and the length of treatment ranged from 6 to 12 weeks.

Table 1

Overview of Included Studies

Study	Country	Primary diagnosis	Sample	% Female	Maximum treatment length (weeks)	Type of guidance	Mean guidance (mins)	Automated reminders in SG group	Extracted Primary measure	Longest follow-up (months)
Berger et al. (2011) (a)	Switzerland	SAD	G, *N* = 27 SG, *N* = 27	52	10	A	NR	No	SIAS	6
Berger et al. (2011) (b)	Switzerland	SAD	G, *N* = 27 SG, *N* = 27	56	10	A	NR	No	SIAS	6
Campos et al. (2019)	Spain	SP (FP)	G, *N* = 23 SG, *N* = 23	70	6	S	NR	Yes	FFQ-II	12

Ciuca et al. (2018)	Romania	PD	G, *N* = 36 SG, *N* = 37	67	12	S	247.2	No	PDSS-SR	6
Dear et al. (2015)	Australia	GAD	G, *N* = 168 SG, *N* = 170	76	8	AP	33.54	Yes	GAD-7	24
Dear et al. (2016)	Australia	SAD	G, *N* = 112 SG, *N* = 108	58	8	AP	36.54	Yes	MINI-SPIN	24
Fogliati et al. (2016)	Australia	PD	G, N = 72 SG, *N* = 73	79	8	AP	36.79	Yes	PDSS-SR	24
Hedman et al. (2016)	Sweden	SSD or IAD	G, *N* = 32 SG, *N* = 33	74	12	A	63.6	No	HAI	6
Kobak et al. (2015) (a)	USA	OCD	G, *N* = 31 SG, *N* = 28	64	12	S	NR	No	YBOCS	N/A
Kobak et al. (2015) (b)	USA	OCD	G, *N* = 28 SG, *N* = 28	60	12	S	NR	No	YBOCS	N/A

Titov et al. (2008)	Australia	SAD	G, *N* = 31 SG, *N* = 30	77	10	A	168	Yes	SIAS	N/A
Titov et al. (2009)	Australia	SAD	G, *N* = 81 SG, *N* = 82	52	8	S	38.7	Yes	SIAS	N/A
Wang et al. (2020)	China	SAD	G, *N* = 33 SG, *N* = 47	70	8 weeks	A	NR	No	SIAS	N/A

Note. SAD: social anxiety disorder; SP: specific phobia; FP: flying phobia; PD: panic disorder; GAD: generalised anxiety disorder; SSD: somatic symptom disorder; IAD: illness anxiety disorder; OCD; obsessive-compulsive disorder; G: guided; SG: self-guided; NR: not reported; A = Asynchronous support; S = Synchronous support AP = As preferred support (synchronous or asynchronous); SPS: Social Phobia Scale; FFQ-II: The Fear of Flying Questionnaire-II; PDSS-SR: Panic Disorder Severity Scale; GAD-7: Generalised Anxiety Disorder Scale; MINI-SPIN: Mini-Social Phobia Inventory; HAI: Health Anxiety Inventory; YBOCS: Yale-Brown Obsessive-Compulsive Scale; N/A: Not applicable; USA; United States of America.

Overall between-group effect sizes for clinician-guided versus self-guided treatment

A forest plot presenting the effect sizes of each study as well as the pooled between-group effect size of all studies at post-treatment is presented in Figure 2. The pooled between-group effect size at post-treatment across all comparisons was small (k = 13; g = 0.16; 95% CI: 0.03-0.28), however significantly favoured clinician-guided treatment (p = .02). Heterogeneity was low suggesting consistency across studies (I^2 = 24.17; Q_{12} = 15.83, p = 0.20). The one study removed method indicated no change to the effect size (g = 0.16; 95% CI: 0.03-0.28) and the Trim and Fill procedure indicated there was no publication bias with no studies trimmed.

A forest plot presenting the effect sizes at follow-up of each study as the pooled between-group effect size of all studies is presented in Figure 3. At follow-up, the pooled between-group effect size was small (k = 8; g = 0.13; 95% CI: -0.04-0.30) and non-significant (p = 0.13). Heterogeneity was low (I^2 = 37.14) suggesting minimal differences across studies. The one study removed method indicated no change to the effect size (g = 0.13; 95% CI: -0.04-0.30), however the Trim and Fill procedure indicated some evidence of publication bias with four studies trimmed (adjusted g = -0.00; 95% CI: -0.19-0.18).

Moderator analyses

Presence of automated reminders in self-guided group. At post-treatment there was a small pooled between-group effect size for studies without automated reminders (k = 7; g = 0.15, 95% CI: -0.06-0.363; I^2 = 0.00) as well as studies with automated reminders (k = 6; g = 0.16, 95% CI: -0.01-0.33; I^2 = 58.67). The difference between these groups was non-significant at post-treatment (Q_1 = 0.00, p = 0.96) indicating that the between-group effect sizes were similar for studies with automated reminders, as well as those without automated reminders. At follow up the results were similar with a small pooled between-group effect

size for studies without automated reminders ($k = 4$; $g = 0.26$, 95% CI: -0.02-0.53; $I^2 = 0.00$) as well as studies with automated reminders ($k = 4$; $g = 0.05$, 95% CI: -0.14-0.24; $I^2 = 53.96$). The difference between these groups was non-significant at follow-up ($Q_1 = 1.44$, $p = 0.23$).

Figure 2.

Post-treatment Effect Sizes of Guided versus Self-Guided ICBT

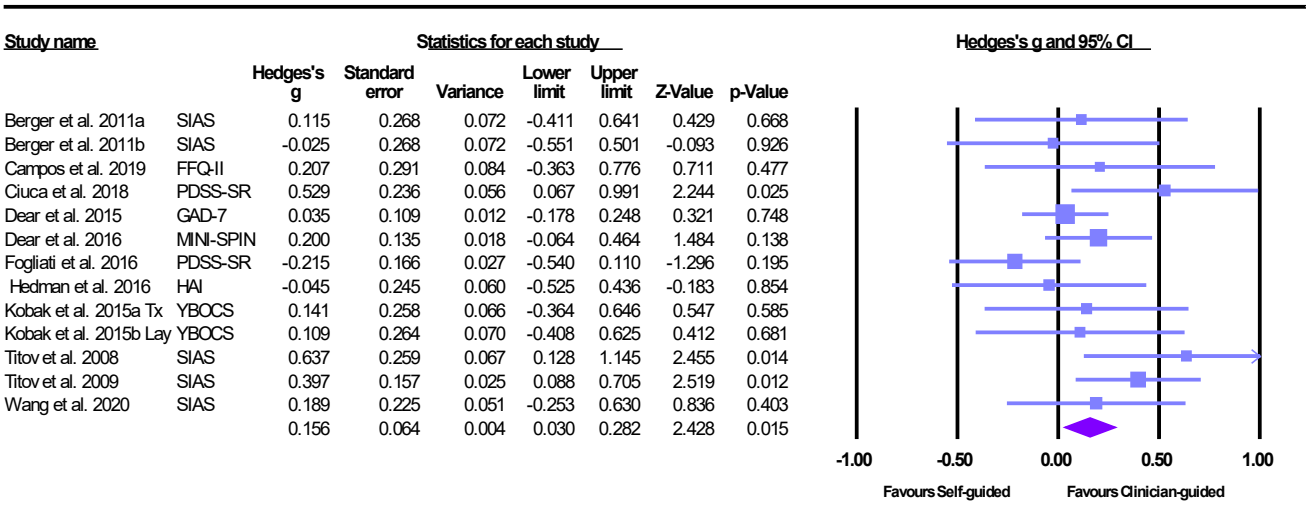
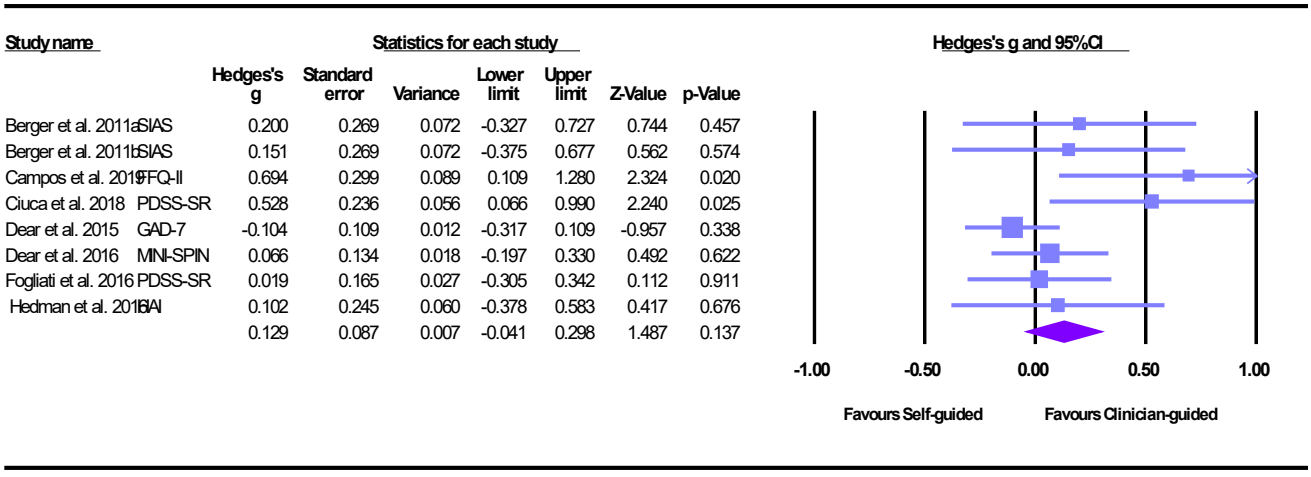


Figure 3.

Follow-up Effect Sizes of Guided versus Self-Guided ICBT



Disorder type. Due to small sample size, studies were divided in to either anxiety disorder (social anxiety disorder, panic disorder, specific phobia, or generalised anxiety disorder; 10/13; 76.92%) or anxiety-related disorder (obsessive-compulsive disorder or somatic symptom/illness anxiety disorder; 3/13; 23.08%) At post-treatment subgroup analyses indicated there was a small pooled between-group effect size for studies treating anxiety disorders (k = 10; g = 0.18, 95% CI: 0.03-0.32; I^2 = 40.63) and anxiety-related disorders (k = 3; g = 0.07, 95% CI: -0.26-0.39; I^2 = 0.00). The difference between these groups was non-significant at post-treatment (Q_1 = 0.38, p = 0.54) indicating that the between-group effect sizes were similar for anxiety disorders and anxiety and related disorders. The results at follow up were similar with a small between-group effect size for studies treating anxiety disorders (k = 7; g = 0.14, 95% CI: -0.05-0.33; I^2 = 46.07) and anxiety-related disorders (k = 1; g = 0.10, 95% CI: -0.48-0.69; I^2 = 0.00). The difference between these group means indicated this difference was non-significant at follow-up (Q_1 = 0.02, p = 0.90).

Type of therapist support in the clinician-guided condition. At post-treatment there was a small between-group effect size for studies where participants could choose their preferred guidance (i.e., synchronous or asynchronous) (k = 3; g = 0.03, 95% CI: -0.13-0.19; I^2 = 46.96), as well as studies that used asynchronous guidance (k = 5; g = 0.17, 95% CI: -0.05-0.40; I^2 = 12.69) and those that used synchronous guidance (k = 5; g = 0.32, 95% CI: 0.11-0.52; I^2 = 0.00). However, there was no significant difference between the groups at post-treatment (Q_2 = 4.67, p = 0.10) indicating that the between-group effect sizes were similar across all types of guidance.

At follow up there was a small between-group effect size for studies where the participant could choose their preferred guidance (k = 3; g = -0.03, 95% CI: -0.17-0.12; I^2 =

0.00) and a small between-group effect size for studies who provided asynchronous guidance ($k = 3$; $g = 0.15$, 95% CI: -0.15-0.44; $I^2 = 0.00$). However, there was a medium between-group effect size at follow-up for studies that were provided with synchronous guidance ($k = 2$; $g = 0.59$, 95% CI: 0.23-0.95; $I^2 = 0.00$). The difference between these groups was significant at follow-up ($Q_2 = 9.81$, $p = 0.01$). There was a significant difference between synchronous and 'as preferred' guidance' ($Q_1 = 9.55$, $p < .01$), however there was no significant difference in between-group effect sizes between synchronous and asynchronous guidance' ($Q_1 = 3.47$, $p = .06$). There was also no significant difference in between-group effect size between those studies providing asynchronous or 'as preferred' guidance ($Q_1 = 1.07$, $p = 0.30$).

Gender distribution. Meta-regression analyses indicated gender distribution was a significant predictor of between-group treatment effects at post-treatment ($k = 13$; $Q_{(1)} = 5.40$, $p = 0.02$); studies with more women had a smaller between group effect size. However, gender distribution was no longer a significant predictor at follow-up ($k = 8$; $Q_{(1)} = 0.49$, $p = 0.49$).

Treatment length. Meta-regression analyses indicated treatment length was not a significant predictor of between-group treatment effects at post-treatment ($k = 13$; $Q_{(1)} = 0.22$, $p = 0.64$) or follow-up ($k = 8$; $Q_{(1)} = 0.28$, $p = 0.59$).

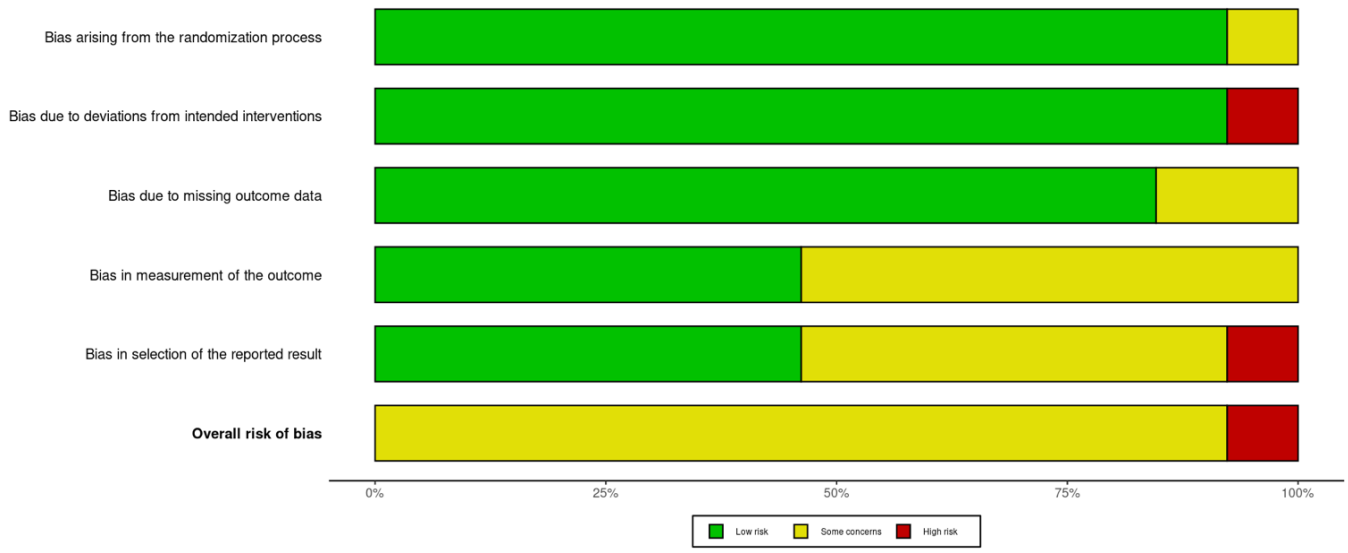
Amount of guidance. Meta-regression analyses indicated amount of guidance significantly predicted between-group treatment effects at post-treatment ($k = 7$; $Q_{(1)} = 3.91$, $p = 0.048$) with studies with more guidance being associated with larger between-group effect size. This finding was also seen at follow-up ($k = 5$; $Q_{(1)} = 5.15$, $p = 0.02$).

Risk of bias. The risk of bias assessment is summarised in Figure 4. Across all studies, 10 out of 11 (90.91%) studies used intention-to-treat methods, while one (i.e., Wang et al.,

2020) used completer analysis. All studies were judged as having some concerns of risk of bias, except for one study by (Wang et al., 2020) which was judged to have high risk of bias. These concerns were predominantly due to the following: 1) risk of bias in measurement of the outcome, where assessment of self-report outcomes might be influenced by participants' knowledge of the intervention they received; and 2) risk of bias in selection of the reported result, where there was either no pre-specified analysis plan, or where the extent of follow-up data produced was not consistent with the registered analysis plan.

Figure 4.

Risk of Bias Assessment



Discussion

The aim of the current study was to conduct a systematic review and meta-analysis of published randomized controlled trials directly comparing the efficacy of guided and self-guided ICBT for adults with diagnosed ARDs. Overall, the pooled between-group effect size was small, but statistically significant at post-treatment (g = 0.16) favouring guided treatments. At follow-up however, the pooled between-group effect size was small and non-significant, demonstrating equivalent outcomes. These results indicate that, while guided ICBT may be marginally more effective than self-guided treatments at post-treatment, these differences are not durable in the long term. It is possible that the additional short-term improvements in the clinician-guided treatment over the self-guided treatment is explained by enhanced adherence to the treatment due to the presence of a therapist. It is also possible that the improved outcome in clinician-guided interventions is the result of a higher rate of treatment completion. Enhanced adherence to treatment and treatment completion in clinician-guided treatments over self-guided treatments have been found in some studies that have directly compared the two treatment approaches (e.g., Ciuca et al., 2018). However, this outcome is not consistently found, with other studies demonstrating no differences (e.g., Berger et al., 2011; Titov et al., 2009). These will be important variables to examine in future research and may be diagnosis specific.

Planned, but preliminary, moderator analyses indicated that type of clinician-support may be important in the delivery of ICBT interventions. The results of the current study demonstrated that at follow-up (but not post-treatment) guided interventions that utilised a synchronous method of contact (i.e., telephone or internet-videoconferencing) produced a larger between-group effect sizes than those that provided asynchronous (e.g., email or direct messaging symptoms) contact. However, it is important to note that only two studies that

utilised synchronous support in the current study reported follow-up data, thus this finding should be considered preliminary. This finding is largely consistent with the results of a meta-analysis investigating the efficacy of ICBT for chronic pain (Terpstra et al., 2022), which found similar results. This has important clinical implications given asynchronous methods of contact are cheaper and easier to implement than synchronous interventions. Future research may wish to directly compare the efficacy of synchronous and asynchronous contact methods in ICBT to investigate whether one is more efficacious than the other. Preliminary research with patients with depression demonstrate outcomes are equivalent (Lindner et al., 2014), but these studies tend to be under-powered and thus further research is required.

The amount of guidance used in the guided-ICBT arm moderated the between-group effect sizes at post-treatment and follow-up. This indicates that guided ICBT interventions may be more effective than self-guided ICBT interventions when a certain amount of clinician guidance is used. In the present study there was great variability in the amount of guidance in the included studies (mean = 89.2; range 33 – 247 minutes), and notably there was greater mean time of guidance than what has been typically seen for synchronous or asynchronous contact (Carlbring et al., 2018). Given that there is an implication from the present study that the amount of contact may impact the treatment outcomes, future research should aim to better understand the optimal amount of guidance that is required to produce adequate treatment outcomes. Potentially, a meta-analysis of individual participant data may assist in understanding the relationship between amount of guidance and outcome. This will ensure that ICBT interventions are delivered in the most cost-effective way.

Meta-regression analyses indicated that at post-treatment gender distribution was a significant predictor of between-group effect sizes with studies with a higher proportion of

women having a smaller between-group effect size. This may indicate that women may benefit equally from guided and self-guided interventions, however males may benefit more from guided interventions. It is important to note that gender distribution only moderated outcomes at post-treatment and the finding was no longer significant at follow up. It is also important to note that participants in most studies evaluating ICBT for ARDs are predominantly female (e.g., Fogliati et al., 2016; Wang et al., 2020). Despite this, further research is required comparing the efficacy of the remote treatment formats for each gender. It is also important that this research is conducted in samples that are representative of those seen in real life clinical settings.

Despite evidence to suggest that automated reminders are important to enhance treatment efficacy in ICBT treatments for some patients, such as those with comorbid mental health difficulties (Titov et al., 2013), moderator analyses in this study did not indicate any differences in between-group effect sizes in studies that utilised automated reminders in the self-guided group. This finding is also consistent with a meta-analysis that found that the use of persuasive design principles, such as automated reminders, had no impact on outcome in self-guided ICBT interventions for anxiety disorders (McCall et al., 2021). However, it is important to note that in this study there was moderate heterogeneity amongst studies with automated reminders, and minimal heterogeneity amongst studies without. Thus, it is important to replicate these findings as more studies emerge in the literature.

There were also no differences in the pooled between-group effect sizes based on disorder type. However, due to the small number of studies, disorders were dichotomised into ‘anxiety’ disorders and ‘anxiety-related’ disorders. As more studies emerge it will be important to examine whether there are any differences for individual disorder types as it is possible that some diagnostic categories respond better to guided vs. self-guided treatment.

For example, disorders that are more heterogeneous, such as obsessive-compulsive disorder, may require some guidance to ensure that patients understand how to apply the skills to their own symptoms. Finally, treatment length was a non-significant predictor of between-group treatment effects in our study indicating that factors other than the length of treatment may be more useful to predict treatment outcomes.

Overall, the present study demonstrates that guided and self-guided ICBT treatments result in similar overall outcomes at follow-up. However, it is important to acknowledge some limitations and important contextual considerations when considering the findings of the current study. First, although there is growing interest in the field, there was a limited number of studies eligible for inclusion. It will be important for the findings of this study to be replicated as more comparisons of guided and self-guided ICBT emerge. The smaller number of included studies meant that only a limited number of moderators were able to be examined, and that the findings of the moderator analyses need to be treated as preliminary. Secondly, all but one study was classified as having some concern of risk of bias, and one study was classified as having a high risk of bias. Thus, it is important to interpret the results with caution. It is important for future research to be of higher quality and focus in particular on the inclusion of clinician-administered scales to measure treatment outcome and pre-registering data analytic plans. Given these limitations it is important to consider our results as preliminary.

Several important contextual considerations are also important to consider. Firstly, participants in the included RCTs were willing to be randomised to either a guided or self-guided intervention as part of the study requirements and none of the studies examined treatment preferences at baseline. Participants in routine care settings may have particular preferences for treatment and it is unclear if the current results would translate to real-world

treatment settings. Secondly, all the studies in the present meta-analysis included some contact with a therapist during the screening process (i.e., for the purpose of diagnostic assessment). In many routine care settings such clinician contact is not provided for those accessing self-guided treatments and thus results in real-world settings may differ from those seen in the current study. This is important given previous research has found that those completing ICBT interventions who do not have any contact with a clinician prior to commencing treatment tend to experience less improvement on secondary depressive symptoms and general distress, and tend to be less satisfied with treatment (Boettcher et al., 2012). Finally, most ICBT studies that use a clinician-guided approach limit the amount of contact provided to participants and some participants may wish to have additional contact with their therapist. Looking at the amount of therapist time requested by the participant, rather than amount of therapist time provided will be an important moderator in future studies.

In conclusion, the results of the current study indicate that the outcomes from guided and self-guided ICBT for adults with diagnosed ARDs are slightly better for guided treatments at post-treatment and similar at follow-up. While preliminary, these results indicate that either treatment approach could be recommended and therefore choice can be based on patient preference. It is important for the results of the current study to be replicated as more robust studies emerge in the literature. Future research will also benefit from the ongoing examination of moderators of treatment outcome to ascertain whether guided or self-guided interventions may be more efficacious for certain patients.

Acknowledgements

None

Declaration of Interest

The authors have no competing interests to declare.

References

Andersson, G., Carlbring, P., Ljótsson, B., & Hedman, E. (2013). Guided internet-based CBT for common mental disorders. *Journal of Contemporary Psychotherapy*, *43*(4), 223-233. http://www.scopus.com/inward/record.url?eid=2-s2.0-84884799569&partnerID=40&md5=d35240f70431bf3f983f9b55aa9a1561

Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., & Hedman, E. (2014). Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: A systematic review and meta-analysis. *World Psychiatry*, *13*(3), 288-295. https://doi.org/10.1002/wps.20151

Andrews, G., Bell, C., Boyce, P., Gale, C., Lampe, L., Marwat, O., Rapee, R., & Wilkins, G. (2018). Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the treatment of panic disorder, social anxiety disorder and generalised anxiety disorder. *Australian and New Zealand Journal of Psychiatry*, *52*(12), 1109-1172. https://doi.org/10.1177/0004867418799453

Bandelow, B., Sagebiel, A., Belz, M., Görlich, Y., Michaelis, S., & Wedekind, D. (2018). Enduring effects of psychological treatments for anxiety disorders: Meta-analysis of follow-up studies. *The British Journal of Psychiatry*, *212*, 333-338. https://doi.org/10.1192/bjp.2018.49

Berger, T., Caspar, F., Richardson, R., Kneubühler, B., Sutter, D., & Andersson, G. (2011). Internet-based treatment of social phobia: A randomized controlled trial comparing unguided with two types of guided self-help. *Behaviour Research and Therapy*, *49*(3), 158-169. https://doi.org/10.1016/j.brat.2010.12.007

Bijl, R. V., de Graaf, R., Hiripi, E., Kessler, R. C., Kohn, R., Offord, D. R., Ustun, T. B., Vicente, B., Vollebergh, W. A., Walters, E. E., & Wittchen, H. U. (2003). The

prevalence of treated and untreated mental disorders in five countries. *Health Aff (Millwood)*, *22*(3), 122-133. https://doi.org/10.1377/hlthaff.22.3.122

Black, J., Paparo, J., & Wootton, B. M. (In Press). A Preliminary Examination of Treatment Histories, Barriers, and Preferences of Women with Symptoms of Social Anxiety Disorder *Behaviour Change*.

Boettcher, J., Berger, T., & Renneberg, B. (2012). Does a pre-treatment diagnostic interview affect the outcome of internet-based self-help for social anxiety disorder? A Randomized controlled trial [Article]. *Behavioural and Cognitive Psychotherapy*, *40*(5), 513-528. https://doi.org/10.1017/S1352465812000501

Borenstein, M., Hedges, L., Higgins, J., & Rotherstein, H. (2013). *Comprehensive meta-analysis*. In (Version 3.0) Biostat Inc.

Borenstein, M., Hedges, L. V., & Higgins, J. P. (2009). *Introduction to meta analysis*. Wiley.

Bornas, X., Tortella-Feliu, M., García de la Banda, G., Fullana Rivas, M. À., & Llabrés, J. (1999). Validación factorial del Cuestionario de Miedo a Volar. [Factorial validation of the Fear of Flying Questionnaire.]. *Análisis y Modificación de Conducta*, *25*, 885-907.

Botella, C., Gallego, M. J., Garcia-Palacios, A., Guillen, V., Baños, R. M., Quero, S., & Alcañiz, M. (2010). An internet-based self-help treatment for fear of public speaking: A controlled trial [Article]. *Cyberpsychology, Behavior, and Social Networking*, *13*(4), 407-421. https://doi.org/10.1089/cyber.2009.0224

Buhlmann, U. (2011). Treatment barriers for individuals with body dysmorphic disorder: An internet survey [Article]. *Journal of Nervous and Mental Disease*, *199*(4), 268-271. https://doi.org/10.1097/NMD.0b013e31821245ce

Campos, D., Bretón-López, J., Botella, C., Mira, A., Castilla, D., Mor, S., Baños, R., & Quero, S. (2019). Efficacy of an internet-based exposure treatment for flying phobia (NO-FEAR Airlines) with and without therapist guidance: A randomized controlled trial [Article]. *BMC Psychiatry*, *19*(1), Article 86. https://doi.org/10.1186/s12888-019-2060-4

Carlbring, P., Andersson, G., Cuijpers, P., Riper, H., & Hedman-Lagerlöf, E. (2018). Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: an updated systematic review and meta-analysis. *Cogn Behav Ther*, *47*(1), 1-18. https://doi.org/10.1080/16506073.2017.1401115

Ciuca, A. M., Berger, T., Crişan, L. G., & Miclea, M. (2018). Internet-based treatment for panic disorder: A three-arm randomized controlled trial comparing guided (via real-time video sessions) with unguided self-help treatment and a waitlist control PAXPD study results. *Journal of Anxiety Disorders*, *56*, 43-55. https://doi.org/10.1016/j.janxdis.2018.03.009

Dear, B. F., Karin, E., Fogliati, R., Dudeney, J., Nielssen, O., Scott, A. J., Gandy, M., Bisby, M. A., Heriseanu, A. I., Hathway, T., Staples, L., Titov, N., & Schroeder, L. (2021). A Cost-effectiveness Analysis of an Internet-delivered Pain Management Program Delivered With Different Levels of Clinician Support: Results From a Randomised Controlled Trial. *The Journal of Pain*, *22*(3), 344-358. https://doi.org/10.1016/j.jpain.2020.11.003

Dear, B. F., Staples, L. G., Terides, M. D., Fogliati, V. J., Sheehan, J., Johnston, L., Kayrouz, R., Dear, R., McEvoy, P. M., & Titov, N. (2016). Transdiagnostic versus disorder-specific and clinician-guided versus self-guided internet-delivered treatment for Social Anxiety Disorder and comorbid disorders: A randomized controlled trial

[Article]. *Journal of Anxiety Disorders*, *42*, 30-44. https://doi.org/10.1016/j.janxdis.2016.05.004

Dear, B. F., Staples, L. G., Terides, M. D., Karin, E., Zou, J., Johnston, L., Gandy, M., Fogliati, V. J., Wootton, B. M., McEvoy, P. M., & Titov, N. (2015). Transdiagnostic versus disorder-specific and clinician-guided versus self-guided internet-delivered treatment for generalized anxiety disorder and comorbid disorders: A randomized controlled trial [Article]. *Journal of Anxiety Disorders*, *36*, 63-77. https://doi.org/10.1016/j.janxdis.2015.09.003

Duval, S., & Tweedie, R. (2000). A nonparametric "trim and fill" method of accounting for publication bias in meta-analysis. *Journal of the American Statistical Association*, *95*(449), 89-98. http://www.scopus.com/inward/record.url?eid=2-s2.0-0442309557&partnerID=40&md5=a6a1b160f83949538cd0385f8179c37c

Fogliati, V. J., Dear, B. F., Staples, L. G., Terides, M. D., Sheehan, J., Johnston, L., Kayrouz, R., Dear, R., McEvoy, P. M., & Titov, N. (2016). Disorder-specific versus transdiagnostic and clinician-guided versus self-guided internet-delivered treatment for panic disorder and comorbid disorders: A randomized controlled trial [Article]. *Journal of Anxiety Disorders*, *39*, 88-102. https://doi.org/10.1016/j.janxdis.2016.03.005

Gentle, M., Harris, L. M., & Jones, M. K. (2014). The barriers to seeking treatment for obsessive-compulsive disorder in an Australian population. *Behaviour Change*, *31*(4), 258-278. https://doi.org/10.1017/bec.2014.20

Goetter, E. M., Frumkin, M. R., Palitz, S. A., Swee, M. B., Baker, A. W., Bui, E., & Simon, N. M. (2020). Barriers to mental health treatment among individuals with social

anxiety disorder and generalized anxiety disorder [Article]. *Psychological Services*, *17*(1), 5-12. https://doi.org/10.1037/ser0000254

Guo, S., Deng, W., Wang, H., Liu, J., Liu, X., Yang, X., He, C., Zhang, Q., Liu, B., Dong, X., Yang, Z., Li, Z., & Li, X. (2020). The efficacy of internet-based cognitive behavioural therapy for social anxiety disorder: A systematic review and meta-analysis [Review]. *Clinical Psychology and Psychotherapy*. https://doi.org/10.1002/cpp.2528

Hans, E., & Hiller, W. (2013). A meta-analysis of non-randomized studies on outpatient cognitive behavioral therapy for adult anxiety disorders. *Clinical Psychology Review*. https://doi.org/10.1016/j.cpr.2013.07.003

Hedman, E., Axelsson, E., Andersson, E., Lekander, M., & Ljótsson, B. (2016). Exposure-based cognitive-behavioural therapy via the internet and as bibliotherapy for somatic symptom disorder and illness anxiety disorder: Randomised controlled trial [Article]. *British Journal of Psychiatry*, *209*(5), 407-413. https://doi.org/10.1192/bjp.bp.116181396

Hedman, E., Furmark, T., Carlbring, P., Ljótsson, B., Rück, C., Lindefors, N., & Andersson, G. (2011). A 5-year follow-up of internet-based cognitive behavior therapy for social anxiety disorder [Article]. *Journal of Medical Internet Research*, *13*(2). https://doi.org/10.2196/jmir.1776

Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal*, *327*(7414), 557-560. http://www.scopus.com/inward/record.url?eid=2-s2.0-0041876133&partnerID=40&md5=7cae2d460b41088a106b17c030f76072

Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The Efficacy of Cognitive Behavioral Therapy: A Review of Meta-analyses. *Cognit Ther Res*, *36*(5), 427-440. https://doi.org/10.1007/s10608-012-9476-1

Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, *21*(3), 169-184. https://doi.org/10.1002/mpr.1359

Kobak, K. A., Greist, R., Jacobi, D. M., Levy-Mack, H., & Greist, J. H. (2015). Computer-assisted cognitive behavior therapy for obsessive-compulsive disorder: a randomized trial on the impact of lay vs. professional coaching. *Ann Gen Psychiatry*, *14*, 10. https://doi.org/10.1186/s12991-015-0048-0

Kohn, R., Saxena, S., Levav, I., & Saraceno, B. (2004). The treatment gap in mental health care. *Bulletin of the World Health Organization*, *82*(11), 858-866. http://www.scopus.com/inward/record.url?eid=2-s2.0-9644294286&partnerID=40&md5=24c42bd1bef1a7e94291efa7f7cba89c

Kroenke, K., Spitzer, R. L., Williams, J. B., Monahan, P. O., & Löwe, B. (2007). Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Ann Intern Med*, *146*(5), 317-325. https://doi.org/10.7326/0003-4819-146-5-200703060-00004

Lindner, P., Olsson, E. L., Johnsson, A., Dahlin, M., Andersson, G., & Carlbring, P. (2014). The impact of telephone versus e-mail therapist guidance on treatment outcomes, therapeutic alliance and treatment engagement in Internet-delivered CBT for depression: A randomised pilot trial. *Internet Interventions*, *1*(4), 182-187. https://doi.org/https://doi.org/10.1016/j.invent.2014.09.001

Lundström, L., Flygare, O., Andersson, E., Enander, J., Bottai, M., Ivanov, V. Z., Boberg, J., Pascal, D., Mataix-Cols, D., & Rück, C. (2022). Effect of Internet-Based vs Face-to-Face Cognitive Behavioral Therapy for Adults with Obsessive-Compulsive Disorder: A Randomized Clinical Trial [Article]. *JAMA Network Open*, Article e221967. https://doi.org/10.1001/jamanetworkopen.2022.1967

Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behav Res Ther*, *36*(4), 455-470. https://doi.org/10.1016/s0005-7967(97)10031-6

McCausland, J., Paparo, J., & Wootton, B. M. (2020). Treatment barriers, preferences and histories of individuals with symptoms of body dysmorphic disorder [Article]. *Behavioural and Cognitive Psychotherapy*, 1-4. https://doi.org/10.1017/S1352465820000843

McGrath, L., Oey, L., McDonald, S., Berle, D., & Wootton, B. M. (In Press). Prevalence of body dysmorphic disorder: A systematic review and meta-analysis. *Body Image*.

Newby, J. M., Mewton, L., & Andrews, G. (2017). Transdiagnostic versus disorder-specific internet-delivered cognitive behaviour therapy for anxiety and depression in primary care [Article]. *Journal of Anxiety Disorders*, *46*, 25-34. https://doi.org/10.1016/j.janxdis.2016.06.002

Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: a meta-analytic review. *Clinical Psychology Review*, *27*(5), 572-581. https://doi.org/10.1016/j.cpr.2007.01.015

Palmqvist, B., Carlbring, P., & Andersson, G. (2007). Internet-delivered treatments with or without therapist input: Does the therapist factor have implications for efficacy and

cost? *Expert Review of Pharmacoeconomics and Outcomes Research*, *7*(3), 291-297. https://doi.org/10.1586/14737167.7.3.291

Salaheddin, K., & Mason, B. (2016). Identifying barriers to mental health help-seeking among young adults in the UK: a cross-sectional survey. *Br J Gen Pract*, *66*(651), e686-692. https://doi.org/10.3399/bjgp16X687313

Shear, M. K., Jin, R., Ruscio, A. M., Walters, E. E., & Kessler, R. C. (2006). Prevalence and correlates of estimated DSM-IV child and adult separation anxiety disorder in the National Comorbidity Survey Replication. *American Journal of Psychiatry*, *163*(6), 1074-1083. https://doi.org/10.1176/appi.ajp.163.6.1074

Sijbrandij, M., Kunovski, I., & Cuijpers, P. (2016). EFFECTIVENESS OF INTERNET-DELIVERED COGNITIVE BEHAVIORAL THERAPY FOR POSTTRAUMATIC STRESS DISORDER: A SYSTEMATIC REVIEW AND META-ANALYSIS. *Depress Anxiety*, *33*(9), 783-791. https://doi.org/10.1002/da.22533

Spek, V., Cuijpers, P., NykIíček, I., Riper, H., Keyzer, J., & Pop, V. (2007). Internet-based cognitive behaviour therapy for symptoms of depression and anxiety: A meta-analysis. *Psychological Medicine*, *37*(3), 319-328. https://doi.org/10.1017/S0033291706008944

Stech, E. P., Lim, J., Upton, E. L., & Newby, J. M. (2020). Internet-delivered cognitive behavioral therapy for panic disorder with or without agoraphobia: a systematic review and meta-analysis [Article]. *Cognitive Behaviour Therapy*, *49*(4), 270-293. https://doi.org/10.1080/16506073.2019.1628808

Sterne, J. A. C., Savović, J., Page, M. J., Elbers, R. G., Blencowe, N. S., Boutron, I., Cates, C. J., Cheng, H. Y., Corbett, M. S., Eldridge, S. M., Emberson, J. R., Hernán, M. A., Hopewell, S., Hróbjartsson, A., Junqueira, D. R., Jüni, P., Kirkham, J. J., Lasserson,

T., Li, T., McAleenan, A., Reeves, B. C., Shepperd, S., Shrier, I., Stewart, L. A., Tilling, K., White, I. R., Whiting, P. F., & Higgins, J. P. T. (2019). RoB 2: A revised tool for assessing risk of bias in randomised trials [Article]. *The BMJ*, *366*, Article l4898. https://doi.org/10.1136/bmj.l4898

Terpstra, J. A., van der Vaart, R., van Beugen, S., van Eersel, R. A., Gkika, I., Erdős, D., Schmidt, J., Radstake, C., Kloppenburg, M., van Middendorp, H., & Evers, A. W. M. (2022). Guided internet-based cognitive-behavioral therapy for patients with chronic pain: A meta-analytic review [Review]. *Internet Interventions*, *30*, Article 100587. https://doi.org/10.1016/j.invent.2022.100587

Titov, N., Andrews, G., Choi, I., Schwencke, G., & Johnston, L. (2009). Randomized controlled trial of web-based treatment of social phobia without clinician guidance. *Australian and New Zealand Journal of Psychiatry*, *43*(10), 913-919. https://doi.org/10.1080/00048670903179160

Titov, N., Andrews, G., Choi, I., Schwencke, G., & Mahoney, A. (2008). Shyness 3: Randomized controlled trial of guided versus unguided Internet-based CBT for social phobia. *Australian and New Zealand Journal of Psychiatry*, *42*(12), 1030-1040. https://doi.org/10.1080/00048670802512107

Titov, N., Dear, B. F., Johnston, L., Lorian, C., Zou, J., Wootton, B., Spence, J., McEvoy, P. M., & Rapee, R. M. (2013). Improving Adherence and Clinical Outcomes in Self-Guided Internet Treatment for Anxiety and Depression: Randomised Controlled Trial. *PLoS ONE*, *8*(7), Article e62873. https://doi.org/10.1371/journal.pone.0062873

Trenoska Basile, V., Newton-John, T., & Wootton, B. M. (2022). Remote cognitive-behavioral therapy for generalized anxiety disorder: A preliminary meta-analysis [Review]. *Journal of Clinical Psychology*. https://doi.org/10.1002/jclp.23360

van Dis, E. A. M., van Veen, S. C., Hagenaars, M. A., Batelaan, N. M., Bockting, C. L. H., van den Heuvel, R. M., Cuijpers, P., & Engelhard, I. M. (2020). Long-term Outcomes of Cognitive Behavioral Therapy for Anxiety-Related Disorders: A Systematic Review and Meta-analysis. *JAMA Psychiatry*, *77*(3), 265-273. https://doi.org/10.1001/jamapsychiatry.2019.3986

Wang, H., Zhao, Q., Mu, W., Rodriguez, M., Qian, M., & Berger, T. (2020). The effect of shame on patients with social anxiety disorder in internet-based cognitive behavioral therapy: Randomized controlled trial [Article]. *JMIR Mental Health*, *7*(7), Article e15797. https://doi.org/10.2196/15797

Wootton, B. M. (2016). Remote cognitive–behavior therapy for obsessive–compulsive symptoms: A meta-analysis. *Clinical Psychology Review*, *43*, 103-113. https://doi.org/https://doi.org/10.1016/j.cpr.2015.10.001

Wootton, B. M., Bragdon, L. B., Steinman, S. A., & Tolin, D. F. (2015). Three-year outcomes of adults with anxiety and related disorders following cognitive-behavioral therapy in a non-research clinical setting. *Journal of Anxiety Disorders*, *31*, 28-31. https://doi.org/10.1016/j.janxdis.2015.01.007

Wootton, B. M., Karin, E., Titov, N., & Dear, B. F. (2019). Self-guided internet–delivered cognitive behavior therapy (ICBT) for obsessive-compulsive symptoms: A randomized controlled trial [Article]. *Journal of Anxiety Disorders*, *66*, Article 102111. https://doi.org/10.1016/j.janxdis.2019.102111