Cognitive Behaviour Therapy
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/sbeh20

Efficacy of Transdiagnostic Cognitive Behaviour Therapy for Anxiety Disorders: A Systematic Review and Meta-Analysis of Published Outcome Studies

Nina Reinholt[a] & Jesper Krogh[a]
[a] Mental Health Centre Copenhagen, Faculty of Health Sciences, University of Copenhagen, Copenhagen, Denmark
Published online: 19 Mar 2014.

To cite this article: Nina Reinholt & Jesper Krogh (2014): Efficacy of Transdiagnostic Cognitive Behaviour Therapy for Anxiety Disorders: A Systematic Review and Meta-Analysis of Published Outcome Studies, Cognitive Behaviour Therapy, DOI: 10.1080/16506073.2014.897367

To link to this article: http://dx.doi.org/10.1080/16506073.2014.897367

Cognitive Behaviour Therapy, 2014
http://dx.doi.org/10.1080/16506073.2014.897367

Routledge
Taylor & Francis Group

Efficacy of Transdiagnostic Cognitive Behaviour Therapy for Anxiety Disorders: A Systematic Review and Meta-Analysis of Published Outcome Studies

Nina Reinholt* and Jesper Krogh

Mental Health Centre Copenhagen, Faculty of Health Sciences, University of Copenhagen, Copenhagen, Denmark

Abstract. Transdiagnostic approaches to cognitive behaviour therapy (TCBT) of anxiety disorders have drawn increasing interest and empirical testing over the past decade. In this paper, we review evidence of the overall efficacy of TCBT for anxiety disorders, as well as TCBT efficacy compared with wait-list, treatment-as-usual, and diagnosis-specific cognitive behaviour therapy (CBT) controls. A total of 11 studies reporting 12 trials ($n = 1933$) were included in the systematic review. Results from the meta-analysis of 11 trials suggest that TCBT was generally associated with positive outcome; TCBT patients did better than wait-list and treatment-as-usual patients, and treatment gains were maintained through follow-up. The pooled estimate showed a moderate treatment effect, however with large heterogeneity suggesting differences in treatment effects between the studies. Also, all the included trials, apart from one, were judged to be associated with a high risk of bias. Only one study compared TCBT with diagnosis-specific CBT suggesting treatment effect of TCBT to be as strong as diagnosis-specific CBT. This study not only cautiously supports evidence for the efficacy of TCBT, but also suggests the need for more high-quality, large-scaled studies in this area. Transdiagnostic treatments offer great clinical promise as an affordable and pragmatic treatment for anxiety disorders and as a specialized treatment for co-morbid and other-specified anxiety disorders. *Key words: transdiagnostic; cognitive behaviour; treatment; anxiety disorders; systematic review.*

Received 28 October 2013; Accepted 19 February 2014

Correspondence address: Nina Reinholt, Bispebjerg University Hospital, DK-2400, Denmark. Tel: +45 38643864. Email: nina.reinholt@regionh.dk

Introduction

In the latest replication of the National Comorbidity Survey, anxiety disorders were found to be the most prevalent psychiatric disorder studied with lifetime and 12-month prevalence at rates of almost 30% and 18%, respectively (Kessler et al., 2005; Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Anxiety pathology represents an important public health concern due to high prevalence, chronicity, associated impairment in quality of life, and socio-economic impact (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Evidence-based pharmacological as well as psychological treatments of anxiety disorders already exist (Bandelow, Zohar, Hollander, Kasper, & Möller et al., 2002; Hofmann & Smits, 2008; Norton & Price, 2007). However, estimates suggest that less than 30% of patients with a principal diagnosis of anxiety disorder receive such evidence-based treatments in daily clinical care (Young, Klap, Sherbourne, & Wells, 2001).

Cognitive behaviour therapy (CBT) has proven to be efficacious in the treatment of various anxiety disorders (Butler, Chapman, Forman, & Beck, 2006; Hofmann & Smits, 2008; Norton & Price, 2007). Traditionally, CBT protocols are highly specialized treatment models targeting the processes hypothesized to maintain symptoms of different diagnoses specified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 2000). While tailoring treatment to a single diagnosis, CBT treatments do not take into account that anxiety patients commonly

present other anxiety, depressive, or personality disorders as well (Kessler, Chiu, Demler, Merikangas, & Walters, 2005; McLaughlin, Geissler, & Wan, 2003). In a large study ($n = 1127$), Brown, Campbell, Lehman, Grisham, and Mancill (2001) found that 43% of patients referred to an anxiety clinic had at least one co-occurring anxiety disorder, and that lifetime prevalence for meeting diagnostic criteria for another anxiety disorder was 54%. Other studies estimate lifetime prevalence of a co-occurring anxiety disorder between 40% and 80% (e.g. Kessler et al., 2005).

Co-morbidity appears to be neither well explained nor well handled within diagnosis-specific CBT. Although empirical evidence suggest that treating the primary anxiety disorder may impact the co-morbid anxiety or mood disorder, full remission of the co-morbid disorder is uncommon, and the co-morbid disorders tends to relapse over time (Borkovec, Abel, & Newman, 1995; Brown, Antony, & Barlow, 1995; Tsao, Mystkowski, Zucker, & Craske, 2002). There are no published studies on the efficacy of treating co-morbid diagnoses by applying diagnosis-specific CBT protocols sequentially, and some evidence suggest that applying more than one diagnosis-specific CBT protocol simultaneously does not enhance outcome (Craske et al., 2007).

In response, CBT models with a 'transdiagnostic' or 'unified' approach to the treatment of anxiety disorders have gained increasing interest over the last decade.

Rationale for transdiagnostic CBT

Transdiagnostic or *unified* therapy broadly refers to treatments 'that apply the same underlying treatment principles across mental disorders without tailoring the protocol to specific diagnoses' (McEvoy, Nathan, & Norton, 2009, p. 21). Transdiagnostic CBT (TCBT) for anxiety disorders holds a basic premise that all anxiety disorders share common underlying processes, a shared psychopathology of a 'negative affectivity' or 'neurotic' syndrome (Barlow, Allen, & Choate, 2004; Mansell, Harvey, Watkins, & Shafran, 2009; Wilamowska et al., 2010). Some authors suggest that this shared pathology also accounts for depressive (and perhaps other emotional) disorders (Barlow et al., 2004; Clark & Watson, 1991). 'Negative affectivity' refers to 'the extent to which a person is feeling upset or unpleasant rather than peaceful and encompasses various aversive states including upset, angry, guilty, afraid, sad, scornful, disgusted, and worried' (Clark & Watson, 1991, p. 321). Variations among the anxiety disorders are seen as superficially different manifestations of the same psychopathology with little or no clinical relevance (Harvey, 2004; Wilamowska et al., 2010). It is believed that transdiagnostic treatments targeting common underlying processes, instead of different symptoms, are more efficient in treating the root of diseases and to reduce co-morbid disorders (Barlow et al., 2004; Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010; Mansell et al., 2009; McEvoy et al., 2009). It is also believed that applying the same set of treatment principles to all anxiety disorders enhance the clinical utility of these models and lowers economic costs compared to diagnosis-specific CBT. The clinician should only be trained and supervised in one protocol, which can then be used with a wide range of patients, including co-morbid disorders and other-specified anxiety disorders (Norton & Philipp, 2008; Wilamowska et al., 2010).

An accumulating body of empirical evidence from genetic, etiological, interventional, and psychopathological research lends support for the notion of a shared psychopathology across the anxiety disorders (see Norton, 2006; Wilamowska et al., 2010 for a review): High rates of comorbidity of other anxiety or depressive disorders in anxiety disorders are common (Brown et al., 2001; Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Common attentional, emotional, cognitive, and behavioural maintenance processes across anxiety disorders have been identified (Harvey, 2004). Treatment effects seem to be equal across the anxiety disorders (Norton & Price, 2007). Treating the primary diagnosis affects comorbid diagnoses (Borkovec et al., 1995; Brown et al., 1995; Tsao et al., 2002). In addition, etiological research shows common etiological processes as well as common features in respect of negative affectivity in the latent structure of DSM-symptomatology of anxiety and depressive disorders (Barlow, 2002; Brown, Chorpita, & Barlow, 1998; Clark & Watson, 1991). Finally, genetic

research shows evidence for a genetic, non-specific risk factor for developing anxiety and depression (e.g. Kendler, Neale, Kessler, Heath, & Eaves, 1992).

Two main approaches to TCBT for anxiety disorders could be identified (Craske, 2012). The first approach refers to models applying acceptance-based strategies across all diagnostic categories, to change one specific transdiagnostic factor, which is hypothesized to maintain various psychiatric disorders, e.g. *Acceptance and Commitment Therapy* (Twohig et al., 2010), *Meta Cognitive Therapy* (Wells, 1994), and *Mindfulness-based Stress Reduction* (Kabat-Zinn et al., 1992). The second approach, which is the focus of this review, refers to models applying traditional CBT-strategies in a generic way to various disorders within a defined diagnostic category (e.g. anxiety disorders), e.g. *Group Cognitive Behavioural Therapy* (Norton, 2012) and *Unified Protocol for Transdiagnostic Treatment of The Emotional Disorders* (Barlow, 2011). These models differ from traditional CBT mainly in the focus on common underlying mechanisms and the generic use of interventions used to change these mechanisms.

Third, promising research on acceptance-based as well as CBT-based models of TCBT delivered via the Internet has begun (e.g. Boettcher et al., 2014; Dear et al., 2011; Titov, Andrews, Johnston, Robinson, & Spence, 2010).

TCBT offers a specialized treatment for co-morbid and other-specified anxiety disorders, and potentially adds to diagnosis-specific CBT as a pragmatic, more easily disseminated, evidence-based treatment model for the full range of anxiety disorders. Hence, establishing the evidence of efficacy of these treatments is important.

In a systematic review of published outcome studies, Norton and Philipp (2008) suggested positive outcome of TCBT for anxiety disorders. In a meta-analysis of published and unpublished outcome studies, McEvoy et al. (2009) also suggested efficacy of TCBT for anxiety disorders with effect sizes similar to diagnosis-specific CBT. Though, the results of these two studies also revealed that trials were methodologically diverse, few trials had randomized controlled designs, and no trials directly compared TCBT to diagnosis-specific CBT.

Since the publication of these two studies, four new larger and more methodologically robust randomized controlled trials (RCTs) studies (Farchione et al., 2012; Norton & Barrera, 2012; Roy-Byrne et al., 2010; Schmidt et al., 2012) and one observational study (Ellard et al., 2010), including a total of 1201 participants, have been published.

The purpose of this study was to provide an updated review of evidence for the efficacy of TCBT for anxiety disorders from published outcome studies and to investigate if TCBT for anxiety disorders is efficacious on primary outcome measures compared to (1) treatments-as-usual/or wait-list controls and (2) diagnosis-specific CBT, post-treatment, and through follow-up.

Models of TCBT (described above) differ in the strategies used (acceptance-based or CBT-based), whether applied within or across diagnostic categories, and whether delivered face-to-face or via the Internet. Although a few studies have suggested comparable treatment outcomes for CBT-based and acceptance-based models of TCBT (e.g. Arch et al., 2012) and positive treatment effects and acceptability of TCBT via the Internet (e.g. Dear et al., 2011; Titov et al., 2011), the question whether acceptance-based and internet-based models of TCBT are comparable with CBT-based models of TCBT is not yet clear, though beyond the scope of this study to answer.

We were primarily interested in CBT-based models delivered face-to-face, as these strategies are commonly used in daily clinical care settings, and thus CBT-based models of TCBT are the focus of this current review.

We reviewed all available studies fulfilling the inclusion criteria, including six studies (Erickson, 2003; Erickson, Janeck, & Tallman, 2007; McEvoy & Nathan, 2007; Norton, 2008; Norton & Hope, 2005; Sanchez-Garcia, 2004) from previous meta-analysis (Norton & Philipp, 2008) and five new studies reporting six trials (Ellard et al., 2010; Farchione et al., 2012; Norton & Barrera, 2012; Roy-Byrne et al., 2010; Schmidt et al., 2012).

Methods

Data sources

Comprehensive searches were undertaken in electronic databases, PUBMED, EMBASE,

PsycInfo, and Cochrane Library using medical subject headings (MeSH) and text word terms ([anxiety disorder] or [emotional disorder]) and ([transdiagnostic]) and ([Behaviour Therapy] or [cognitive behaviour treatments] or [CBT] or [Cognitive Behaviour Therapy] or [Cognitive Behavioural Therapy]). A supplementary hand search of reference sections of retrieved papers was done in order to identify additional studies. The main search for studies was completed in October 2012 and was last updated on 28 June 2013. One author (NR) scanned all titles and abstracts to determine their relevance to the current study. Titles and abstracts clearly irrelevant for the current study were discarded, and the remaining references were retrieved as full text papers for evaluation of inclusion and exclusion criteria.

Study selection

Retrieved papers were checked against the following inclusion criteria for inclusion/exclusion of studies relevant to this review: (1) participants were adults (18–65 years) and had a principal diagnosis of anxiety disorder; (2) the protocol applied traditional CBT strategies and to multiple anxiety disorders; (3) the study was an outcome study published in English in a peer-reviewed journal; (4) the study design had a randomized, controlled, or observational design; (5) primary outcome measures assessed a global anxiety or severity construct applicable across diagnoses, had sound psychometric properties, and were regularly used in clinical and/or research settings.

One author (NR) evaluated all retrieved studies for inclusion. In case of doubt, both authors evaluated the study.

The starting point was to include RCTs only, but after reviewing the literature, it appeared that only few RCTs had been conducted. Therefore, non-randomized, controlled, and observational studies were included in this study for additional information. We considered a study was 'randomized' when the recruitment of patients in the study was described as randomized, and 'controlled' when intervention was compared with a control group (wait-list/or treatment-as-usual/or diagnosis-specific CBT). Case studies were not included.

Studies with mixed samples including psychotic disorders or substance abuse were excluded. One study with mixed depression and anxiety disorders (McEvoy & Nathan, 2007) was included, but results from patients with a principal diagnosis of anxiety disorders were analysed only.

In order to reduce heterogeneity, we restricted the focus of this current review to CBT-based models of TCBT for anxiety disorders delivered face-to-face, and thus excluded acceptance-based and internet-based models of TCBT.

We assessed that an outcome measure had sound psychometric properties when the test had undergone satisfying statistical analyses of reliability and validity.

Data extraction

One author (NR) extracted data regarding treatment delivery, intervention details, participant details, and main conclusions. Both authors extracted results from the primary outcome measures. In case of doubt, both authors discussed study details. One author (JK) extracted data regarding reported study design characteristics to assess the risk of bias in included randomized clinical trials.

All studies fulfilling the inclusion criteria measured anxiety symptoms or severity of symptoms on a continuous scale at the end of treatment and described these as their primary outcome measure. The scales used for these measures of outcome varied from one trial to another. Therefore, we used the mean standard difference Cohen's d measured on a continuous scale for the purpose of this paper. We reported the primary outcome measure as defined by the authors of the study. As a starting point, we wanted to use a blinded clinician-rated outcome measure as our analysed outcome. A priori, we knew the material well enough to predict that this was not possible, partly due to the inclusion of observational studies. We predicted that a self-reported outcome measure was obtainable from the written report of almost all studies. For consistency, we therefore selected a self-reported outcome as our analysed outcome.

Study quality

An assessment of quality of included RCT studies was undertaken as previous studies have shown that a high risk of bias in studies

tend to overestimate intervention effects (Savović et al., 2012). Sequence generation was considered adequate if the authors described a random component (as opposed to the use of alternating days or similar), or if a minimization procedure was applied. Allocation concealment was considered adequate if it was justified that neither participants nor investigators could foresee assignment. Allocation concealment was considered inadequate if, for instance, the investigators based their allocation on an open list and therefore would be able to foresee to which arm the next participant would be allocated. Blinding of outcome assessment was considered adequate when the assessors were blinded to patient allocation. In cases where the outcome was self-reported, participants were considered outcome assessors. The judgement of inadequate blinding refers to the selected outcome only and does not rule out blinded outcome assessment of other outcomes not reported in the current study. Analyses were considered 'intention-to-treat' if missing data were handled by adequate methods (mixed models, multiple imputations or similar), or if no missing data were encountered (last observation carried forward was considered inadequate). Selective outcome reporting was considered adequate if the trial protocol was published or registered prior to publication of the trial report, and all relevant outcomes stated in the protocol were published. In cases where the specific design characteristic was adequately reported, we considered the risk of bias from this domain 'low'. In cases, where the study design on a specific domain was inadequately performed, we assessed the risk of bias as 'high'. In cases where a judgement could not be reached due to lack of information in the written report of the study, we considered the risk of bias 'unclear'. If one or more of the assessed items was judged to be 'low' or 'unclear', the trials estimate was considered with a high risk of bias (Higgins & Green, 2008).

Statistical analysis

In order to be able to include all of the studies in our meta-analysis, we estimated a standardized mean difference (SMD) for each individual study from available data reported in the included references. We contacted authors by e-mail to establish missing data from results sections of the written reports needed for calculation of SMD. SMD was calculated using the mean difference in outcome score between the intervention group and control groups divided by the pooled standard deviation (of the distribution of the score used in the study). The result is a unit less effect size measure readily comparable to other studies using other but similar measures of outcome. By convention, effect sizes of 0.2, 0.5, and 0.8 are considered small, medium, and large, respectively (Cohen, 1992). The SMD from observational studies was calculated as the difference between the post-intervention score and the pre-intervention score divided by the post-intervention standard deviation (SD). We expected large heterogeneity and decided a priori to report the results from a random-effects model for meta-analysis. The degree of heterogeneity observed in the results was quantified using the I^2 statistic (Higgins, Thompson, Deeks, & Altman, 2003), which can be interpreted as the percentage of variation observed between the trials attributable to between-trial differences rather than sampling error (chance).

Results

Study inclusion

The process of inclusion of studies for this review is summarized in Figure 1. A total of 11 references reporting 12 trials met our inclusion criteria; these studies are presented in Table 1. Six studies had randomized, controlled designs, five had observational designs, and one had controlled, but non-randomized design. Four RCT studies and three observational studies had long-term follow-up, which we defined as that extended beyond the end of treatment. The 11 studies investigated 7 different treatment protocols (presented above). Only one of these studies compared TCBT to diagnosis-specific CBT. This study was included for the systematic review, but not for the meta-analysis.

Treatments

In eight studies the treatment was delivered in groups. The duration of treatment in these studies was comparable, with a median number of sessions of 12 (range 8–12) sessions and a median duration of sessions of 120 (range 90–150) minutes. In three studies the

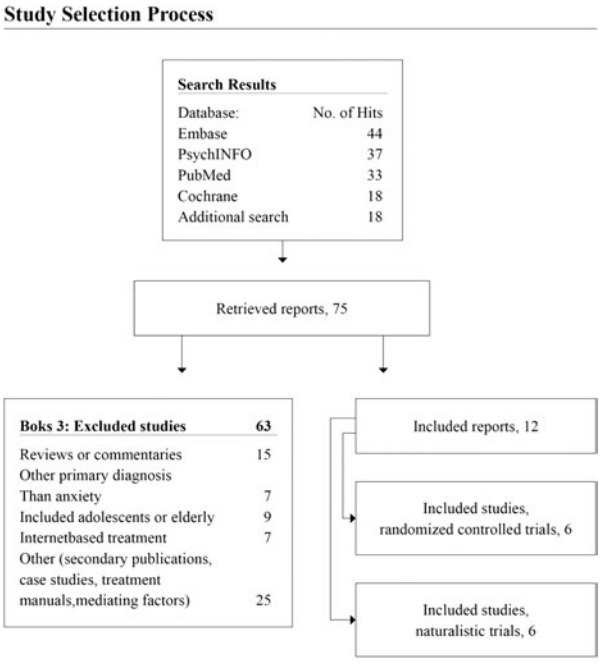

Figure 1. Study selection process.

treatment was delivered individually. Number of sessions in these studies varied from 6 sessions to 18 sessions. Treatment interventions were generally similar across all studies. Psycho-education and cognitive restructuring were part of the treatment in all studies. In all but one study (Sanchez-Garcia, 2004), exposure was also a treatment component. Four studies (Ellard et al., 2010, trial I and II; Farchione et al., 2012; Schmidt et al., 2012) used response-prevention as a treatment component. In five studies (Erickson, 2003; Erickson et al., 2007; McEvoy & Nathan, 2007; Roy-Byrne et al., 2010; Sanchez-Garcia, 2004), relaxation training was an additional intervention. Three studies (Ellard et al., 2010, trial I and II; Farchione et al., 2012) included mindfulness meditation interventions. One study added behavioural activation (McEvoy & Nathan, 2007). The coding of treatment components followed the procedure and definitions from Norton and Philipp (2008). We defined 'response prevention' as 'any behavioural strategy designed to modify safety behaviours and avoidance behaviours used by patients to reduce subjective anxiety'.

Quality assessment

As illustrated in Table 2, the included randomized clinical trials were all except for one trial (Roy-Byrne et al., 2010) generally at high risk of a biased estimate of effect. Only two (Roy-Byrne et al., 2010; Schmidt et al., 2012) of six trials had low risk of bias from sequence generation, and these two trials also had a low risk of bias from allocation concealment. Only one trial (Roy-Byrne et al., 2010) had blinded outcome assessment on the included outcome. Four trials (Farchione et al., 2012; Norton & Barrera, 2012; Roy-Byrne et al., 2010; Schmidt et al., 2012) used intention-to-treat-analysis. Only one trial (Roy-Byrne et al., 2010) had low risk of bias from selective outcome reporting. Most trials addressed issues of quality inadequately in the written reports of the trial.

Study populations

The sample of this review comprised 1933 participants representing more females than males across all studies. Participants were on average 35.4 years old. All studies included diagnostically heterogeneous samples. All, but one, trials included participants with a principal diagnosis of generalized anxiety

Table 1. *Summary of studies investigating transdiagnostic treatment for anxiety disorders included for systematic review*

	Study design				Participants					Results		
Study	Design	Control group	Intervention	Diagnostic method	*n*[a]	Diagnosis[b]	Comorbidity diagnosis	Age mean, year	Gender (%) Women	Primary outcome	Cohen's *d* (95% CI)	Cohen's *d* (95% CI) Follow-up
Norton and Hope (2005)	RCT	Wait-list	Group 12 sessions 150 minutes	ADIS-IV	19	GAD 41.7% OCD 12.5% PD/A 20.8% SAD 20.8%	Total: 70.8% Anxiety Depression	40.2 (SD = 12.9)	52.6	CSR	−1.61 (−2.64 to −0.57)	
Erickson, Janeck, and Tallman (2007)	RCT	Wait-list	Group 11 sessions 120 minutes	SCID-IV	88	GAD 20% OCD 11% PD/A 24.0% SAD 30.0%	Total not provided Anxiety Depression	40.9 (SD = 11.4)	64.0	BAI	−0.09 (−0.51 to 0.33)	0.11 (−0.40 to 0.70)
Roy-Byrne et al. (2010)	RCT	TAU	Individual Minimum 6 sessions	MINI	1004	GAD 75.3% OCD 0.0% PD/A 7.3% SAD 40.3%	Total: 53.0%–88.0% Anxiety Depression	43.5 (SD = 13.4)	71.1	BSI-12	−0.28 (−0.40 to −0.16)	−0.18 (−0.31 to −0.06)
Norton and Barrera (2012)	RCT	CBT	Group 12 sessions 120 minutes	ADIS-IV	46	GAD 21.7% OCD 0.0% PD/A 23.9% SAD 54.3%	Total: 58.7% Type not provided	31.5 (SD = 8.9)	50.0	STAI	−0.20 (−0.78 to 0.38)	
Farchione et al. (2012)	RCT	Wait-list	Individual 12–18 sessions 60 minutes	ADIS-IV-L	37	GAD 18.9% OCD 21.6% PD/A 21.6% SAD 21.6%	Total: 40.5% Anxiety Depression	29.8 (SD = 9.5)	59.5	BAI	−1.42 (−2.20 to −0.67)	−1.04 (1.45 to −0.63)
Schmidt et al. (2012)	RCT	Wait-list	Group 10 sessions 120 minutes	SCID-I/P	92	GAD 27.1% OCD 0.0% PD/A 37.5% SAD 35.4%	Total not provided Anxiety Depression	36.3 (SD = 10.8)	72.0	ASI	−1.15 (−0.60 to −0.70)	−1.34 (−1.70 to −0.10)
Erickson (2003)	Observational	None	Group 12 sessions 120 minutes	Chart review	58	GAD 10.3% OCD 0.0% PD/A 56.9% SAD 13.8%	Total: 84.5% Depression	38.0 (SD = 10.5)	76.0	BSI	−0.63 (−0.91 to −0.35)	−0.16 (−0.58 to 0.29)

(*Continued*)

Table 1. *Continued*

	Study design				Participants					Results		
Study	Design	Control group	Intervention	Diagnostic method	*n*[a]	Diagnosis[b]	Comorbidity diagnosis	Age mean, year	Gender (%) Women	Primary outcome	Cohen's *d* (95% CI)	Cohen's *d* (95% CI) Follow-up
Sanchez-Garcia (2004)	Control-led	TAU	Group 8 sessions 90 minutes	Chart review	19	GAD 20% OCD 0.0% PD/A 36% SAD 0.0%	Not provided	39.6 (SD = 11.5)	82.0	STAI	−0.80 (−1.31 to −0.28)	
McEvoy and Nathan (2007)	Observational	None	Group 10 sessions 120 minutes	MINI	143	GAD 10.3% OCD 0.0% PD/A 12% SAD 10%	Total: 64.0% Type not provided	35.4 (SD = 10.6)	59.4	BAI	−0.42 (−0.59 to −0.25)	−0.60 (−2.30 to 1.18)
Norton (2008)	Observational	None	Group 12 sessions 150 minutes	ADIS-IV	52	GAD 4% OCD 4% PD/A 42% SAD 48%	Total: 55.8% Anxiety Depression	33.1 (SD = 12.0)	56.0	STAI	−1.06 (−1.40 to −0.72)	
Ellard, Fairholme, Boisseau, Farchione, and Barlow (2010), Trial I	Observational	None	Individual 8–15 sessions 60 minutes	ADIS-IV-L	18	GAD 16.7% OCD 16.7% PD/A 22% SAD 22%	Total not provided Anxiety Depression	30.0 (SD = 10.6)	58.8	BAI	−0.60 (−1.08 to −0.08)	
Ellard, Fairholme, Boisseau, Farchione, and Barlow (2010), Trial II	Observational	None	Individual 12–18 sessions 60 minutes	ADIS-IV-L	14	GAD 20% OCD 20% PD/A 13% SAD 33%	Total not provided Anxiety Depression	29.7 (SD = 7.1)	53.3	BAI	−0.68 (−0.90 to −0.46)	−0.67 (−1.32 to −0.01)

Note. *RCT, randomized controlled trials; TAU, treatment-as-usual; CBT, Cognitive Behaviour Therapy; ADIS-IV, Anxiety Disorders Interview Schedule for DSM-IV; ADIS-IV-L, Anxiety Disorders Interview Schedule for DSM-IV-Lifetime Version; SCID-IV, Structured Clinical Interview for Axis I Disorders DSM-IV; SCID-I/P, Structured Clinical Interview for Axis I DSM-IV Disorders; MINI, Mini International Neuropsychiatric Interview; BSI, Brief Symptom Inventory; BSI-12, The 12-Item Brief Symptom Inventory; BAI, Beck Anxiety Inventory; STAI, State Trait Anxiety Inventory; CSR, Clinician Severity Rating; ASI, Anxiety Sensitivity Index; PD/A, Panic Disorder with/or without Agoraphobia; GAD, Generalized Anxiety Disorder; SAD, Social Anxiety Disorder.*

[a] *Number of participants included in the final analysis of the study and used in our meta-analysis.*

[b] *The four primary DSM-IV diagnoses are presented. For clarification, it should be noted that 43% of participants in the Sanchez-Garcia (2004) study had a principal diagnosis of otherwise-specified anxiety disorder, and that 53% of participants in the McEvoy et al. (2007) study had a principal diagnosis of major depressive disorder.*

Table 2. *Risk of bias assessment in RCT studies investigating transdiagnostic treatment of anxiety disorders*

Study	Sequence generation	Allocation concealment	Blinded outcome assessment	Intention-to-treat-analysis	Selective outcome reporting
Norton and Hope (2005)	Unclear	High	High	Unclear	Unclear
Erickson, Janeck, and Tallman (2007)	Unclear	Unclear	High	High	Unclear
Roy-Byrne et al. (2010)	Low	Low	Low	Low	Low
Norton and Barrera (2012)	Unclear	Unclear	Unclear	Low	Unclear
Schmidt et al. (2012)	Low	Low	Unclear	Low	Unclear
Farchione et al. (2012)	High	High	Unclear	Low	Unclear

Note. *'Low' indicates low risk of bias for the addressed domain; 'High' indicates a high risk of bias for the addressed domain; 'Unclear' indicates that the trial report contains insufficient information to permit judgment of risk of bias. RCT, randomized controlled trials.*

disorder, panic disorder with/or without agoraphobia, and social anxiety disorder. Six trials also included participants with a principal diagnosis of obsessive-compulsive disorder. As illustrated in Table 1, the number of participants with the four primary DSM-IV anxiety disorders (GAD, PD/A, SAD, OCD) varied from each study to another. In a few studies, participants with a principal diagnosis of post-traumatic stress disorder, other-specified anxiety disorders, or specific phobia were included to a limited extent. All studies included patients with considerable co-morbidity of other anxiety and depressive disorders, ranging from 40.5%–88.0% in RCT-studies and 55.8%–84.5% in observational and controlled studies.

Efficacy of transdiagnostic CBT compared to wait-list or treatment-as-usual controls

Efficacy of TCBT is illustrated in Figure 2. Of the 11 studies, 10 reported a significant reduction on primary outcomes. Four of these trials were RCTs investigating the efficacy of TCBT compared to wait-list controls. One trial was an RCT trial comparing TCBT to treatment-as-usual. One study had a controlled design and five studies had an observational design.

Using the random-effects model, combining both observational, controlled, and RCT studies, the pooled SMD was −0.68 ([95% CI: −0.90 to −0.45]; $p < 0.001$; $I^2 = 78.4\%$). Thus, the pooled effect size was in the range

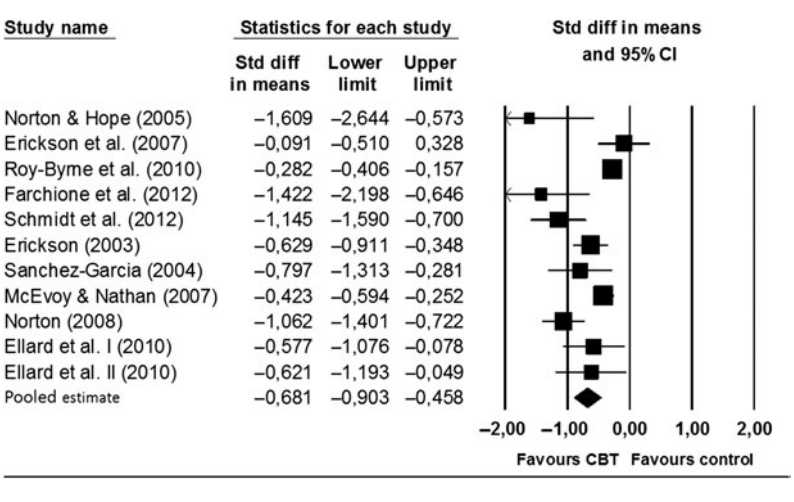

Figure 2. Random effects analysis of studies investigating transdiagnostic CBT of anxiety disorders versus controls.

considered moderate (0.5–0.8). Looking at the RCT studies only, the pooled SMD was −0.79 ([95% CI: −1.30 to −0.27]; $p = 0.003$; $I^2 = 85.62\%$) suggesting a large effect size (−0.80), whereas the pooled SMD for observational and controlled studies was −0.67 ([95% CI: −0.89 to −0.44]; $p = 0.002$; $I^2 = 57.52\%$) suggesting a moderate effect size (0.5–0.8).

An analysis of the four RCT trials using wait-list controls showed a pooled estimate of −1.00 (−1.74 to −0.26; $p = 0.008$; $I^2 = 83.4\%$). In comparison, the study using treatment-as-usual as control group showed a pooled estimate of −0.28 ([95% CI: −0.41 to −0.16]; $p < 0.001$).

Seven studies reported follow-up data and showed a pooled SMD of −0.55 ([95% CI: −0.10 to −0.10]; $p = 0.02$; $I^2 = 88.44\%$) indicating that treatment gains were maintained through follow-up.

However, there was evidence of heterogeneity between the included studies, which contributes to uncertainty about the pooled estimates. The I^2-value of 78.4% suggests that the main part of variation across studies is due to differences in effect between studies as opposed to chance due to sampling variation. When applying meta-regression methods (random-effects analysis), we found that an increase in age ($p = 0.04$) and in number of participants with a co-morbid depressive disorder ($p < 0.001$) was associated with lower effect estimates. We also found that the four studies using response prevention as a treatment component had a better outcome compared to the five studies using relaxation training as a treatment component, SMD −0.49 (−0.66 to −0.34; $p < 0.001$; $I^2 = 72.2\%$). No other variables regarding the number of female participants ($p = 0.33$), delivery of treatment (groups vs. individual) ($p = 0.64$), treatment component (relaxation vs. other) ($p = 0.15$), or study design (RCT vs. observational) ($p = 0.89$) explained heterogeneity between studies.

Transdiagnostic CBT compared to diagnosis-specific CBT

Only one RCT trial (Norton & Barrera, 2012) compared the efficacy of TCBT with well-established diagnosis-specific CBT protocols. The study included 46 participants with principal diagnoses of panic disorder with/without agoraphobia, social anxiety, and generalized anxiety disorder in a non-inferiority randomized clinical trial. The study found equivalent reduction in anxiety symptoms on primary outcome measure (State Trait Anxiety Inventory) for both groups suggesting that the effect of TCBT is non-inferior to established diagnosis-specific CBT.

Discussion

This study examined the efficacy of TCBT for anxiety disorders overall and compared to wait-list, and/or treatment-as-usual, and diagnosis-specific CBT controls. We identified 11 studies reporting 12 trials including a total of 1933 persons. Eleven trials investigated the effect of TCBT overall and compared to wait-list and/or treatment-as-usual. One trial examined the effect of TCBT versus diagnosis-specific CBT. Of the 11 trials included for meta-analysis, 10 found a significant reduction of anxiety symptoms. Pooling these 11 trials, we found a moderate treatment effect, however with large heterogeneity suggesting differences in treatment effects between the studies. Results from follow-up conditions suggested that treatment gains were maintained. The quality assessment of RCT trials showed high risk of a biased effect estimate in the majority of the included RCTs. These biases generally tend to result in an exaggeration of the true effect, which, in addition to large heterogeneity, contributes to uncertainty about the pooled estimates.

Only one study compared TCBT with diagnosis-specific CBT. This study suggested that the effect of TCBT on anxiety reduction was non-inferior compared to the effect of diagnosis-specific CBT. Due to the limited number of studies directly comparing these two treatments, no conclusions on the efficacy of TCBT versus diagnosis-specific CBT can be drawn from this study. The result highlights the need for future RCT studies addressing this issue.

Analysing heterogeneity, we found that increasing average age and number of participants with a co-morbid depressive disorder were associated with a less positive outcome. These results indicate that the degree of co-morbidity is important for treatment outcome, and that patients with a long-lasting

anxiety disorder may have developed a certain degree of chronicity, which might impair treatment outcome. Although no causal relationships can be established from this analysis, the findings are in line with existing evidence that co-morbidity may negatively impact the course and prognosis for some anxiety disorders (Olatunji, Cisler, & Tolin, 2010). However, the results are inconsistent with current studies demonstrating high rates of remission from co-morbid depressive and anxiety disorders following TCBT (e.g. Farchione et al., 2012; Norton et al., 2013; Norton, Hayes, & Hope, 2004). The ability to reduce co-morbid disorders is a central rationale for CBT, and in future, more rigorous trials addressing this issue and also including other common co-morbid disorders than depression (e.g. anxiety and personality disorders) is important. Analysing heterogeneity, we also found, that studies using response prevention as a distinct treatment component was associated with better outcome than studies using relaxation training, which suggest that focusing treatment explicitly on how individuals respond to increased emotions and altering avoidance and safety behaviours might be an important treatment component. Interestingly, these findings are in line with current research on emotion regulation suggesting that lacks in the ability to regulate emotions—that is maladaptive attempt to avoid or dampen the experience and intensity of emotions—plays an important role in anxiety and mood disorders (Brown & Barlow, 2009; Campbell-Sills & Barlow, 2007). No other analysed variables explained heterogeneity.

We included seven different treatments protocols in this current study. Although these protocols seemed very similar, the differences in treatment outcomes between the studies question if real differences between the treatment protocols exist that might explain heterogeneity. Also, the studies included for meta-analysis did not include an equal number of participants with the four primary DSM-IV anxiety diagnoses, which might explain some of the heterogeneity found in this current study. Furthermore, primary outcome measures differed from one study to another, which might add to differences in outcomes as well.

The positive treatment effects found in this study accord with positive findings in a previous meta-analysis of Norton and Philipp (2008). Though, effect sizes found in this current study were moderate compared to large effect sizes found in the Norton and Philipp (2008) study. Differences in treatment effects between studies and methodological limitations found in this current study confirm the conclusions from previous systematic review (McEvoy et al., 2009) and meta-analysis of TCBT (Norton & Philip, 2008).

Limitations of this study must be borne in mind when interpreting results. We chose a single, generic outcome measure as our primary analysed outcome. Choosing more varied outcome measures, including measures of, for example, diagnosis-specific symptoms, level of functioning and clients perceptions of treatment as well, would provide a more subtle understanding of the effect of TCBT. Additionally, our primary analysed outcome was a patient-rated outcome measure, which might have introduced biases, as the assessment of patient-rated outcome measures cannot be blinded. Choosing a clinician-rated outcome measure might have reduced this bias and might have affected the quality assessment of the 'blinding' component as well, for example in the Farchione et al. (2012) study. However, choosing a clinician-rated outcome measure was not possible in several of the studies included in this current review, which further reflects the methodological diversity and limitations in the research of TCBT.

The sample of this study was mainly patients with principal diagnoses of panic disorder with/or without agoraphobia, social anxiety disorder, and generalized anxiety disorder. The studies included in this review did not report differences in treatment outcome depending on the principal diagnosis (Farchione et al., 2012; Norton, 2008; Roy-Byrne et al., 2010; Schmidt et al., 2012). Whether the results of this study are applicable to the full range of anxiety disorders remains an open question. We focused the current review on CBT-based transdiagnostic treatments only, thereby excluding a growing number of studies on acceptance-based and internet-based TCBT (e.g. (Johnston, Titov, Andrews, Dear, & Spence, 2013; Twohig et al., 2010). Comparative studies on these models of TCBT and possible differences will be of great

value in terms of understanding how transdiagnostic treatments work, and such research has already begun (e.g. Arch et al., 2012).

The strengths of this current study are the assessment of the quality of studies, the larger sample size (1933 in the current review versus 508 participants in the Norton and Philipp [2008] study), and the inclusion of four more RCT studies than previous meta-analysis (Norton & Philipp, 2008). In this way, the current study adds value to prior findings.

In summary, the results of this study cautiously support evidence for the efficacy of TCBT for anxiety disorders. However, the available evidence is based on observational studies and RCTs with a high risk of bias. Large-scaled RCT studies are required in order to establish a more reliable/certain evidence. Such studies should adequately address the issues found in this study in respect of quality of study as well as the effect of age, co-morbid depression, and treatment components on outcome. Second, it is still not ascertained if differences between transdiagnostic protocols exist; comparing these treatments and how they operate would provide a better understanding of treatment components and change strategies imperative for the successful treatment of anxiety disorders. Third, future studies should provide evidence for the efficacy of TCBT for the full range of anxiety disorders.

The importance of demonstrating efficacy of TCBT and potential benefits compared to CBT is increased by the clinically advantages of TCBT being a more affordable and pragmatic treatment, especially in smaller clinics where applying diagnosis-specific protocols is difficult. Our preliminary positive results of the efficacy of TCBT and clinically advantages suggest that TCBT is a very promising treatment for anxiety disorders, in particular as a specialized treatment for co-morbid and other-specified anxiety disorders, which appears to have been only remotely recognized in CBT.

Acknowledgements

Mental Health Centre Copenhagen, Faculty of Health Sciences, University of Copenhagen, paid salaries for the corresponding author to complete a project on implementation of TCBT for anxiety disorders in an outpatient psychiatric clinic, which also included the work of this study. We gratefully thank Francisco Alberdi, MD, Mental Health Centre Copenhagen and Stig Poulsen, PhD, Faculty of Health Sciences, University of Copenhagen, for their helpful comments.

References

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR* (4th ed.). Washington, DC: American Psychiatric Association.

Arch, J. J., Eifert, G. H., Davies, C., Plumb Vilardaga, J. C., Rose, R. D., & Craske, M. G. (2012). Randomized clinical trial of cognitive behavioral therapy (CBT) versus acceptance and commitment therapy (ACT) for mixed anxiety disorders. *Journal of Consulting and Clinical Psychology*, *80*, 750–765.

Bandelow, B., Zohar, J., Hollander, E., Kasper, S., & Möller, H. (2002). World federation of societies of biological psychiatry (WFSBP) guidelines for the pharmacological treatment of anxiety, obsessive-compulsive and posttraumatic stress disorders. *World Journal of Biological Psychiatry*, *3*, 171–199.

Barlow, D. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.). New York: Guilford Press.

Barlow, D. H. (2011). *Unified protocol for transdiagnostic treatment of emotional disorders: Therapist guide*. New York: Oxford University Press.

Barlow, D. H., Allen, L. B., & Choate, M. L. (2004). Toward a unified treatment for emotional disorders. *Behavior Therapy*, *35*, 205–230.

Boettcher, J., Aström, V., Påhlsson, D., Schenström, O., Andersson, G., & Carlbring, P. (2014). Internet-based mindfulness treatment for anxiety disorders: A randomized controlled trial. *Behavior Therapy*, *45*, 241–253. doi:10.1016/j.beth.2013.11.003

Borkovec, T. D., Abel, J. L., & Newman, H. (1995). Effects of psychotherapy on comorbid conditions in generalized anxiety disorder. *Journal of Consulting and Clinical Psychology*, *63*, 479–483.

Brown, T. A., Antony, M. M., & Barlow, D. H. (1995). Diagnostic comorbidity in panic disorder: Effect on treatment outcome and course of comorbid diagnoses following treatment. *Journal of Consulting and Clinical Psychology*, *63*, 408–418.

Brown, T. A., & Barlow, D. H. (2009). A proposal for a dimensional classification system based on the shared features of the DSM-IV anxiety and mood disorders: Implications for assessment and treatment. *Psychological Assessment*, *21*, 256–271. doi:10.1037/a0016608

Brown, T. A., Campbell, L. A., Lehman, C. L., Grisham, J. R., & Mancill, R. B. (2001).

Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *Journal of Abnormal Psychology*, *110*, 585–599.

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, *107*, 179–192.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: A review of meta-analyses. *Clinical Psychology Review*, *26*, 17–31. doi:10.1016/j.cpr.2005.07.003

Campbell-Sills, L., & Barlow, D. H. (2007). Incorporating emotion regulation into conceptualizations and treatments of anxiety and mood disorders. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 542–560). New York: Guilford Press.

Clark, L. A., & Watson, D. (1991). Tripartite model of anxiety and depression: Psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology*, *100*, 316–336. doi:10.1037/0021-843X.100.3.316

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159.

Craske, M. G. (2012). Transdiagnostic treatment for anxiety and depression. *Depression and Anxiety*, *29*, 749–753. doi:10.1002/da.21992

Craske, M. G., Farchione, T. J., Allen, L. B., Barrios, V., Stoyanova, M., & Rose, R. (2007). Cognitive behavioral therapy for panic disorder and comorbidity: More of the same or less of more? *Behaviour Research and Therapy*, *45*, 1095–1109. doi:10.1016/j.brat.2006.09.006

Dear, B., Titov, N., Schwencke, G., Andrews, G., Johnston, L., Craske, M., & McEvoy, P. (2011). An open trial of a brief transdiagnostic internet treatment for anxiety and depression. *Behaviour Research and Therapy*, *49*, 830–837. doi:http://dx.doi.org/10.1016/j.brat.2011.09.007

Ellard, K., Fairholme, C., Boisseau, C., Farchione, T., & Barlow, D. (2010). Unified protocol for the transdiagnostic treatment of emotional disorders: Protocol development and initial outcome data. *Cognitive and Behavioral Practice*, *17*, 88–101. doi:http://dx.doi.org/10.1016/j.cbpra.2009.06.002

Erickson, D. (2003). Group cognitive behavioural therapy for heterogeneous anxiety disorders. *Cognitive Behaviour Therapy*, *32*, 179–186.

Erickson, D. H., Janeck, A. S., & Tallman, K. (2007). A cognitive-behavioral group for patients with various anxiety disorders. *Psychiatric Services* (Washington, DC), *58*, 1205–1211. doi:10.1176/appi.ps.58.9.1205

Farchione, T. J., Fairholme, C. P., Ellard, K. K., Boisseau, C. L., Thompson-Hollands, J., Carl, J. R., …, & Barlow, D. H. (2012). Unified protocol for transdiagnostic treatment of emotional disorders: A randomized controlled trial. *Behavior Therapy*, *43*, 666–678. doi:http://dx.doi.org/10.1016/j.beth.2012.01.001

Harvey, A. G. (2004). *Cognitive behavioural processes across psychological disorders a transdiagnostic approach to research and treatment*. Oxford/New York: Oxford University Press.

Higgins, J., & Green, S. (2008). *Cochrane handbook for systematic reviews of interventions*. Cochrane Collaboration. Chichester/Hoboken, NJ: Wiley.

Higgins, J., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ* (Clinical Research ed.), *327*, 557–560. doi:10.1136/bmj.327.7414.557

Hofmann, S. G., & Smits, J. A. J. (2008). Cognitive-behavioral therapy for adult anxiety disorders: A meta-analysis of randomized placebo-controlled trials. *The Journal of Clinical Psychiatry*, *69*, 621–632.

Johnston, L., Titov, N., Andrews, G., Dear, B. F., & Spence, J. (2013). Comorbidity and internet-delivered transdiagnostic cognitive behavioural therapy for anxiety disorders. *Cognitive Behaviour Therapy*, *42*, 180–192. doi:10.1080/16506073.2012.753108

Kabat-Zinn, J., Massion, A. O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., … & Santorelli, S. F. (1992). Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *The American Journal of Psychiatry*, *149*, 936–943.

Kendler, K. S., Neale, M. C., Kessler, R. C., Heath, A. C., & Eaves, L. J. (1992). Major depression and generalized anxiety disorder: Same genes, (partly) different environments? *Archives of General Psychiatry*, *49*, 716–722.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 593–602. doi:10.1001/archpsyc.62.6.593

Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 617–627. doi:10.1001/archpsyc.62.6.617

Mansell, W., Harvey, A., Watkins, E., & Shafran, R. (2009). Conceptual foundations of the transdiagnostic approach to CBT. *Journal of Cognitive Psychotherapy*, *23*, 6–19.

McEvoy, P. M., & Nathan, P. (2007). Effectiveness of cognitive behavior therapy for diagnostically heterogeneous groups: A benchmarking study. *Journal of Consulting and Clinical Psychology*, *75*, 344–350. doi:10.1037/0022-006X.75.2.344

McEvoy, P. M., Nathan, P., & Norton, P. J. (2009). Efficacy of transdiagnostic treatments: A review of published outcome studies and future research directions. *Journal of Cognitive Psychotherapy*, *23*, 20–33. doi:http://dx.doi.org/10.1891/0889-8391.23.1.20

McLaughlin, T., Geissler, E. C., & Wan, G. J. (2003). Comorbidities and associated treatment

charges in patients with anxiety disorders. *Pharmacotherapy*, *23*, 1251–1256.
Norton, P. (2006). Toward a clinically-oriented model of anxiety disorders. *Cognitive Behaviour Therapy*, *35*, 88–105.
Norton, P. (2008). An open trial of a transdiagnostic cognitive-behavioral group therapy for anxiety disorder. *Behavior Therapy*, *39*, 242–250. doi:http://dx.doi.org/10.1016/j.beth.2007.08.002
Norton, P. (2012). *Group cognitive-behavioral therapy of anxiety: A transdiagnostic treatment manual*. New York: Guildford Press.
Norton, P., & Barrera, T. L. (2012). Transdiagnostic versus diagnosis-specific CBT for anxiety disorders: A preliminary randomized controlled noninferiority trial. *Depression and Anxiety*, *29*, 874–882. doi:10.1002/da.21974
Norton, P., Barrera, T. L., Mathew, A. R., Chamberlain, L. D., Szafranski, D. D., Reddy, R., & Smith, A. H. (2013). Effect of transdiagnostic CBT for anxiety disorders on comorbid diagnoses. *Depression and Anxiety*, *30*, 168–173. doi:10.1002/da.22018
Norton, P., Hayes, S. A., & Hope, D. A. (2004). Effects of a transdiagnostic group treatment for anxiety on secondary depression. *Depression and Anxiety*, *20*, 198–202. doi:10.1002/da.20045
Norton, P., & Hope, D. A. (2005). Preliminary evaluation of a broad-spectrum cognitive-behavioral group therapy for anxiety. *Journal of Behavior Therapy and Experimental Psychiatry*, *36*, 79–97.
Norton, P., & Philipp, L. (2008). Transdiagnostic approaches to the treatment of anxiety disorders: A quantitative review. *Psychotherapy: Theory, Research, Practice, Training*, *45*, 214–226. doi:http://dx.doi.org/10.1037/0033-3204.45.2.214
Norton, P., & Price, E. C. (2007). A meta-analytic review of adult cognitive-behavioral treatment outcome across the anxiety disorders. *The Journal of Nervous and Mental Disease*, *195*, 521–531. doi:10.1097/01.nmd.0000253843.70149.9a
Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2010). A meta-analysis of the influence of comorbidity on treatment outcome in the anxiety disorders. *Clinical Psychology Review*, *30*, 642–654. doi:10.1016/j.cpr.2010.04.008
Roy-Byrne, P., Craske, M. G., Sullivan, G., Rose, R. D., Edlund, M. J., Lang, A. J., …, & Ste\in, M. B. (2010). Delivery of evidence-based treatment for multiple anxiety disorders in primary care: A randomized controlled trial. *The Journal of the American Medical Association*, *303*, 1921–1928. doi:10.1001/jama.2010.608
Sanchez-Garcia, M. (2004). Effectiveness of cognitive-behavioural group therapy in patients with anxiety disorders. *Psychology in Spain*, *8*, 89–97.
Savović, J., Jones, H. E., Altman, D. G., Harris, R. J., Jüni, P., Pildal, J., … & Sterne, J. A. C. (2012). Influence of reported study design characteristics on intervention effect estimates from randomized, controlled trials. *Annals of Internal Medicine*, *157*, 429–438. doi:10.7326/0003-4819-157-6-201209180-00537
Schmidt, N., Buckner, J., Pusser, A., Woolaway-Bickel, K., Preston, J., & Norr, A. (2012). Randomized controlled trial of false safety behavior elimination therapy: A unified cognitive behavioral treatment for anxiety psychopathology. *Behavior Therapy*, *43*, 518–532.
Titov, N., Andrews, G., Johnston, L., Robinson, E., & Spence, J. (2010). Transdiagnostic internet treatment for anxiety disorders: A randomized controlled trial. *Behaviour Research and Therapy*, *48*, 890–899. doi:10.1016/j.brat.2010.05.014
Titov, N., Dear, B. F., Schwencke, G., Andrews, G., Johnston, L., Craske, M. G., & McEvoy, P. (2011). Transdiagnostic internet treatment for anxiety and depression: A randomised controlled trial. *Behaviour Research and Therapy*, *49*, 441–452.
Tsao, J. C. I., Mystkowski, J. L., Zucker, B. G., & Craske, M. G. (2002). Effects of cognitive-behavioral therapy for panic disorder on comorbid conditions: Replication and extension. *Behavior Therapy*, *33*, 493–509.
Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology*, *78*, 705–716. doi:10.1037/a0020508
Wells, A. (1994). *Attention and emotion: A clinical perspective*. Hove: Lawrence Erlbaum.
Wilamowska, Z., Thompson-Hollands, J., Fairholme, C., Ellard, K., Farchione, T., & Barlow, D. (2010). Conceptual background, development, and preliminary data from the unified protocol for transdiagnostic treatment of emotional disorders. *Depression and Anxiety*, *27*, 882–890. doi:http://dx.doi.org/10.1002/da.20735
Young, A. S., Klap, R., Sherbourne, C. D., & Wells, K. B. (2001). The quality of care for depressive and anxiety disorders in the United States. *Archives of General Psychiatry*, *58*, 55–61.