



Relative effects of cognitive and behavioral therapies on generalized anxiety disorder, social anxiety disorder and panic disorder: A meta-analysis



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ABSTRACT

Although cognitive and behavioral therapies are effective in the treatment of anxiety disorders, it is not clear what the relative effects of these treatments are. We conducted a meta-analysis of trials comparing cognitive and behavioral therapies with a control condition, in patients with social anxiety disorder (SAD), generalized anxiety disorder (GAD) and panic disorder. We included 42 studies in which generic measures of anxiety were used (BAI, HAMA, STAI-State and Trait). Only the effects of treatment for panic disorder as measured on the BAI (13.33 points; 95% CI: 10.58–16.07) were significantly ($p = 0.001$) larger than the effect sizes on GAD (6.06 points; 95% CI: 3.96–8.16) and SAD (5.92 points; 95% CI: 4.64–7.20). The effects remained significant after adjusting for baseline severity and other major characteristics of the trials. The results should be considered with caution because of the small number of studies in many subgroups and the high risk of bias in most studies.

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1. Introduction

It is well-established that cognitive and behavioral therapies are effective in the treatment of anxiety disorders, including social anxiety disorder (Acarturk, Cuijpers, van Straten, & de Graaf, 2009; Eskildsen, Hougaard, & Rosenberg, 2010), generalized anxiety disorder (Cuijpers, Sijbrandij et al., 2014; Hunot, Churchill, Silva de Lima, & Teixeira, 2007) and panic disorder (Sánchez-Meca, Rosa-Alcázar, Marín-Martínez, & Gómez-Conesa, 2010). Although some other types of treatment have been developed for the treatment of anxiety disorders, like psychodynamic (Leichsenring et al., 2009; Milrod et al., 2007) and interpersonal psychotherapies (Dagö et al., 2014; Lipsitz et al., 2008; Vos, Huibers, Diels, & Arntz, 2012), cognitive and behavioral therapies have been examined in dozens of randomized trials and have been consistently shown to be effective in the treatment of anxiety disorders with large effect sizes across disorders.

It is not clear, however, what are the relative effects of the treatment of one anxiety disorder compared to another. Most outcome instruments are specifically designed to measure the effects of each disorder separately. For example many studies examining the effects of treatments of social anxiety disorder use the Liebowitz Social Anxiety Scale (Baker, Heinrichs, Kim, & Hofmann, 2002; Liebowitz, 1987) as outcome measure, but many studies on generalized anxiety disorder use the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990), while studies on panic disorder use the frequency of panic attacks as main outcome measure. This makes it impossible to compare the relative effects of cognitive and behavioral treatments in different anxiety disorders.

The relative effects of treatments for different anxiety disorders are, however, important for several reasons. Firstly, how well a disorder can be treated is important from a public health perspective (GBD 2013 DALYs and HALE Collaborators et al., 2015). If a disorder can be treated effectively it is less important to develop new treatments that could potentially be better than existing ones since the disease burden of this disorder can be ameliorated with existing treatments. If a disorder cannot be treated effectively, it is more important to develop new or improved therapies. Understanding the relative effectiveness of a treatment is also important for clinicians and patients when deciding whether and how to treat the disorder. From a scientific perspective, differences in effectiveness may be helpful in understanding the underlying processes that lead to these disorders and in explaining how treatments work.

The relative effects of cognitive and behavioral treatments between various anxiety disorders can be assessed in meta-analyses, which delineate the relative effects by giving estimates in terms of effect sizes (standardized mean difference). However, these effect sizes are still statistical concepts, indicating the difference between a treatment and control group in terms of standard deviations, and do not say anything about the clinical effect of a treatment (Cuijpers, Turner, Koole, van Dijke, & Smit, 2014). For example, an effect size of $d = 0.1$ on mortality would by most clinicians and patients be considered a highly clinically important effect, while an effect of $d = 0.1$ on social skills would not be considered relevant by most. This implies that effect sizes cannot be directly compared across disorders, because from a clinical perspective an

effect size in one disorder may have different implications than that same effect size in another disorder.

However, in the field of anxiety there are several outcome instruments that measure general levels of anxiety and that are not related to specific anxiety disorders, such as the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the Hamilton Rating Scale for Anxiety (HAMA; Hamilton (1959)), and the State-Trait Anxiety Inventory (STAI-S state and STAI-Trait; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). These instruments may not fully capture the specific effects of treatments on a specific disorder, because they measure anxiety in general, and not the specific symptoms of particular anxiety disorders. However, they can give an indication about the relative effects of treatments across disorders because they give a generic assessment of anxiety, not attached to a specific anxiety disorder. Effect sizes based on these measures can be considered comparable across disorders, because they use exactly the same instrument, in contrast to disorder-specific outcomes whose effect sizes cannot be compared directly. These outcome instruments are used in a considerable number of trials on cognitive and behavioral therapies for anxiety disorders.

We decided to conduct a meta-analysis of trials including instruments that measure general anxiety symptoms in order to make a comparison between the outcomes of cognitive and behavioral therapies in three of the most common anxiety disorders: panic disorder, social anxiety disorder, and generalized anxiety disorder. We focused on these three disorders because these are among the most important and common anxiety disorders in adults according to the DSM-5 (American Psychiatric Association, 2013).

2. Methods

2.1. Identification and selection of studies

We searched four major bibliographical databases (PubMed, PsycInfo, Embase and the Cochrane Database of randomized trials) by combining terms (both MeSH terms and text words) indicative of social anxiety disorder (such as social phobia, social anxiety, public-speaking anxiety), generalized anxiety disorder (such as worry and generalized anxiety), and panic (such as panic, panic disorder), with filters for randomized controlled trials. We also checked the references of earlier meta-analyses of psychological treatments for the included disorders. The exact search string for PubMed is given in Appendix A. The deadline for the searches was August 14, 2015.

We included (a) randomized trials (b) in which the effects of a cognitive or behavioral treatment (c) on anxiety measured with the BAI, HAMA, STAI-Trait and/or STAI-State (d) was directly compared with a control group (waiting list, care-as-usual, placebo or other) (e) in adults (f) with a panic disorder (with or without agoraphobia), generalized anxiety disorder (GAD), or social anxiety disorder (SAD). Only studies in which subjects met diagnostic criteria for the disorder according to a structured diagnostic interview (such as the SCID, CIDI, or MINI) were included. We choose the BAI, HAMA and STAI for inclusion because these are by far the most used generic measures of anxiety in outcome studies. Cognitive and behavioral therapies were defined as therapies aimed at cognitive restructuring or at changing current anxiety behav-

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