Behaviour Research and Therapy 81 (2016) 12–20

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Differential role of CBT skills, DBT skills and psychological flexibility in predicting depressive versus anxiety symptom improvement

Christian A. Webb [a, *], Courtney Beard [b], Sarah J. Kertz [c], Kean J. Hsu [b], Thröstur Björgvinsson [b]

[a] Department of Psychiatry, Harvard Medical School and Center for Depression, Anxiety and Stress Research, McLean Hospital
[b] Behavioral Health Partial Program, McLean Hospital, Harvard Medical School, 115 Mill Street, Belmont, MA 02478, USA
[c] Department of Psychology, Southern Illinois University, Carbondale, IL, USA

ARTICLE INFO

Article history:
Received 4 November 2015
Received in revised form
24 March 2016
Accepted 27 March 2016
Available online 30 March 2016

Keywords:
Depression
Behavioral activation
Cognitive restructuring
Psychological flexibility
Psychiatric hospital

ABSTRACT

Objective: Studies have reported associations between cognitive behavioral therapy (CBT) skill use and symptom improvement in depressed outpatient samples. However, little is known regarding the temporal relationship between different subsets of therapeutic skills and symptom change among relatively severely depressed patients receiving treatment in psychiatric hospital settings.
Method: Adult patients with major depression (N = 173) receiving combined psychotherapeutic and pharmacological treatment at a psychiatric hospital completed repeated assessments of traditional CBT skills, DBT skills and psychological flexibility, as well as depressive and anxiety symptoms.
Results: Results indicated that only use of behavioral activation (BA) strategies significantly predicted depressive symptom improvement in this sample; whereas DBT skills and psychological flexibility predicted anxiety symptom change. In addition, a baseline symptom severity X BA strategies interaction emerged indicating that those patients with higher pretreatment depression severity exhibited the strongest association between use of BA strategies and depressive symptom improvement.
Conclusions: Findings suggest the importance of emphasizing the acquisition and regular use of BA strategies with severely depressed patients in short-term psychiatric settings. In contrast, an emphasis on the development of DBT skills and the cultivation of psychological flexibility may prove beneficial for the amelioration of anxiety symptoms.

The efficacy of cognitive behavioral therapy (CBT) for the treatment of depression has been evaluated in numerous clinical trials (DeRubeis, Webb, Tang, & Beck, 2010; Epp & Dobson, 2010). Despite the large body of evidence supporting the overall efficacy of CBT in alleviating depressive symptoms (Cuijpers et al., 2013), the mechanisms that account for symptom improvement remain poorly understood. One hypothesis is that the acquisition and regular use of core cognitive and behavioral skills represents a central mechanism through which patients improve.

Several relatively brief patient-report measures of CBT skills have recently been developed, including the Skills of Cognitive Therapy scale (SoCT; Jarrett, Vittengl, Clark, & Thase, 2011), the Cognitive Behavioral Therapy Skills Questionnaire (CBTSQ; Jacob, Christopher, & Neuhaus, 2011) and the Competencies of Cognitive Therapy Scale (CCTS; Strunk, Hollars, Adler, Goldstein, & Braun, 2014). Studies using these measures have reported that greater depressive symptom improvement is associated with greater acquisition and use of CBT skills, as assessed by the SoCT (Jarrett et al., 2011; 2013), CBTSQ (Jacob et al., 2011; Webb, Kertz, Bigda-Peyton, & Björgvinsson, 2013) and CCTS (Strunk et al., 2014). However, causal inferences regarding the role of CBT skills in contributing to depressive symptom improvement are limited given that most of the associations reported within these studies are based on one or two concurrent assessments (e.g., only pre- and post-treatment) of CBT skills and depressive symptoms. Given the cross-sectional designs used within most studies to date, a significant association between CBT skills and symptom improvement could be due to skill use causing symptom change or vice-versa (or be the result of an unmeasured third variable confound).

In addition to the above common temporal confounds in the CBT skills literature, the bulk of studies investigating the

* Corresponding author.
E-mail address: cwebb@mclean.harvard.edu (C.A. Webb).

http://dx.doi.org/10.1016/j.brat.2016.03.006
0005-7967/

association between skills and symptom change are conducted within the context of outpatient settings or in carefully controlled clinical trials (for an exception, see Jacob et al., 2011). We know surprisingly little about the extent to which different subsets of CBT skills predict symptom improvement among more severely depressed patients receiving treatment in psychiatric hospital settings. Data from these treatment contexts are critical to informing our understanding of the mechanisms that account for symptom improvement in naturalistic settings and to complement clinical trial data. In terms of clinical implications, findings regarding which CBT skills predict symptom improvement may ultimately inform which treatment elements and interventions are emphasized by CBT therapists in different settings. Null findings may also be theoretically and clinically informative. Namely, if patient acquisition and use of core cognitive or behavioral skills fails to predict depressive symptom improvement, then it may suggest that some of these skills are either therapeutically inert, or are moderated by important patient characteristics (e.g., pretreatment depression severity [Webb et al., 2012], comorbid personality disorders [Keefe, Webb, & DeRubeis, 2016]) or treatment setting (e.g., short-term, intensive inpatient or partial hospital treatment vs. longer-term outpatient treatment involving weekly therapy sessions).

The goal of the present study was to expand on prior research and examine the role of cognitive and behavioral skills in predicting depressive symptom improvement within the context of a naturalistic psychiatric setting treating severely depressed patients. As noted above, previous studies commonly rely on one or two (e.g., pre- and post-treatment) assessment timepoints to represent the state of patient CBT skills throughout treatment. To achieve a more fine-grained and statistically powerful test of skill-outcome associations, we included repeated assessments of CBT skills and depressive symptoms over the course of treatment. To our knowledge, the present study is the first to test whether patient-reported CBT skill use, assessed repeatedly throughout the course of therapy, predicts *subsequent* depressive symptom improvement. It should be noted that Jarrett et al. (2011; 2013) reported that their SoCT measure, assessed at one mid-treatment timepoint, prospectively predicted post-treatment depression response (controlling for pretreatment depression scores). However, the authors did not control for (1) concurrent symptoms (i.e., assessed at the time at which the SoCT was measured) or (2) prior symptom change (i.e., symptom improvement prior to the SoCT assessment), both of which represent plausible confounds. Indeed, others have noted how measures of self-reported CBT skills may inadvertently measure and be confounded with concurrent symptoms (Strunk et al., 2014). Similarly, the abovementioned studies examining the association between self-reported CBT skills and symptom change did not control for prior depressive symptom improvement. Prior symptom change may represent a third variable confound in so far as it predicts *both* subsequent symptom change and CBT skill use. For example, a patient in CBT treatment who has experienced significant depressive symptom improvement may be more likely to endorse using cognitive and/or behavioral skills (whether or not they in fact acquired and are using these skills). These two plausible symptom confounds are included as covariates in the analyses reported below.

1. Assessing both traditional and "newer generation" cognitive behavioral skills

Recent developments in transdiagnostic treatment have supported the integration of newer generation cognitive behavioral strategies for managing common depressive and anxiety symptoms. For example, there is evidence that acceptance and commitment therapy (ACT) is efficacious for both depressive and anxiety symptoms (Ost, 2014; Swain, Hancock, Hainsworth, & Bowman, 2013). Further, there is growing evidence of the therapeutic benefit of dialectical behavior therapy (DBT) skills in alleviating depression and anxiety in mixed samples of depressed and anxious adults (Neacsiu, Eberle, Kramer, Wiesmann, & Linehan, 2014; Ritschel, Cheavens, & Nelson, 2012). As such, modern cognitive behavioral treatment packages for affective disorders have moved to incorporate both traditional CBT interventions (i.e., cognitive restructuring [CR] and behavioral activation [BA] techniques) as well as those from ACT and DBT that emphasize mindfulness- and acceptance-based strategies and decreasing experiential avoidance (e.g., Unified Protocol for Emotional Disorders; Barlow et al., 2010). The expansion of traditional CBT protocols and increased utilization of a variety of interventions in the treatment of depression in real-world psychiatric settings raises the question: *What elements of treatment are most effective for different subsets of symptoms most commonly experienced by depressed patients* (*in particular, depressive versus anxiety symptoms*)? Such knowledge may ultimately help inform treatment planning and assist providers in selecting the most effective and efficient interventions for different symptom domains.

The current study examined associations between different subsets of cognitive behavioral skills (both traditional and newer generation) emphasized within the context of a multi-faceted intervention package, and depression and anxiety outcomes. Specifically, in addition to assessments of CBT (BA and CR) skills, the study included repeated assessments of DBT skills and ACT-based psychological flexibility in order to investigate differential associations with symptom change in a sample of depressed patients receiving treatment in a naturalistic psychiatric setting incorporating CBT-, DBT- and ACT-based group and individual therapy (see *Participants and Treatment Setting* below).

2. Assessing both depressive and anxiety symptom improvement as outcomes

Given the exceptionally high rates of co-occurrence between depression and anxiety (Kessler et al., 2003), we were interested in examining the specificity of CBT skills, DBT skills, and psychological flexibility in predicting depressive versus anxiety symptom improvement. Of particular interest is the relative contributions of CBT skills compared to the development of psychological flexibility, given growing evidence to support the role of experiential avoidance in anxiety and anxiety disorders. For example, a recent meta-analysis across 63 studies found a significant association between experiential avoidance and anxiety (Bluett, Homan, Morrison, Levin, & Twohig, 2014). Several reviews and meta-analyses have concluded that ACT has comparable outcomes to CBT for anxiety (A-Tjak et al., 2015; Ruiz, 2012; Swain et al., 2013). Further, there is evidence that ACT is associated with greater decreases in experiential avoidance relative to cognitive therapy (Lappalainen et al., 2007) and such decreases mediate anxiety and depression outcomes (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). Researchers have speculated that the development of greater psychological flexibility may account for the therapeutic benefits of ACT on anxiety symptoms (For a review, see Bluett et al., 2014; Forman et al., 2007). As previously noted, there is also emerging evidence that DBT skills training is effective for decreasing anxiety in adults with affective disorders (Neacsiu et al., 2014; Ritschel et al., 2012). Thus, an additional exploratory aim of the study is to examine differential effects of CBT (BA and CR) skills, DBT skills and increased psychological flexibility on anxiety symptom improvement in our depressed sample.