Exploring mechanisms of change in cognitive therapy and interpersonal psychotherapy for adult depression

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ABSTRACT

The present study explored the temporal relationships between change in five candidate causal mechanisms and change in depressive symptoms in a randomized comparison of individual Cognitive Therapy (CT) and Interpersonal Psychotherapy (IPT) for adult depression. Furthermore, hypotheses concerning the mediation of change in these treatments were tested. Patients were 151 depressed adult outpatients treated with either CT ($n = 76$) or IPT ($n = 75$). Depression severity was assessed with the BDI-II. Candidate mediators included both therapy-specific as well as common factors. Measures were taken multiple times over the course of treatment (baseline, mid-, and post-treatment). Pearson's correlations and Latent-Difference-Score models were used to examine the direct and indirect relationships between (change in) the candidate mediators and (subsequent) (change in) depression. Patients showed improvement on all measures. No differential effects in pre- to post-treatment changes were observed between the two conditions. However, change in interpersonal functioning occurred more rapidly in IPT. Only little empirical support for the respective theoretical models of change in CT and IPT was found. Future studies should pay special attention to the timing of assessments and within-patient variance.

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1. Introduction

The efficacy of Cognitive Therapy (CT) and Interpersonal Psychotherapy (IPT) for the treatment of Major Depressive Disorder (MDD) has been well established (Cuijpers et al., 2011; Cuijpers, van Straten, Andersson, & van Oppen, 2008; Hollon & Ponniah, 2010; Hollon, Thase, & Markowitz, 2002). Despite this proven efficacy, research has provided relatively little evidence that speaks to the mechanisms through which CT and IPT lead to symptom change, and whether they do so for reasons hypothesized in their respective theories. The psychological processes that are assumed to be responsible for therapeutic change can be represented in research by measures that are proposed to represent *mediators* (Kazdin,

2007). A mediator is a variable that (statistically) explains why and in what way a treatment has an effect on outcome, and can be seen as representing a potential mechanism (the actual process) through which therapeutic change is brought about (Baron & Kenny, 1986; Kraemer, Wilson, Fairburn, & Agras, 2002; MacKinnon, Fairchild, & Fritz, 2007).

It should be noted that statistical mediation is evidence for, but not proof of, the presence or absence of a mechanism. Various other requirements need to be met as well (e.g., Kazdin, 2007; 2009). Probably the most important addition to statistical mediation is demonstrating the direction of causality: to demonstrate that the treatment causes the mediator to change, which in turn causes change in the outcome, and not the other way around (reversed causality). In order to determine the direction of causality, it is important that both the candidate mediator and outcome are assessed at multiple time-points during treatment.

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1.1. Theorized mechanisms of CT and IPT

According to their respective theoretical models, different mechanisms are involved in CT and IPT. Cognitive theory states that depression is caused and maintained by dysfunctional beliefs and maladaptive information processing strategies (Beck, 1964). The inner life of depressed patients is said to be dominated by a set of negative (often unrealistic) assumptions about the self, the world and the future. These assumptions are further organized into large knowledge structures called schemas that influence the content and process of thinking in response to stressful life circumstances, thereby maintaining symptoms (Beck, 1987; Clark, Beck, & Alford, 1999). According to cognitive theory, depression severity can be reduced by altering the function, content and structure of cognitions and schemas associated with negative affect (Beck, Rush, Shaw, & Emery, 1979). CT therefore focuses on identification and modification of distorted thinking patterns associated with depressed mood. IPT, developed by Klerman, Weissman, Rounsaville, and Chevron (1984), is based on the idea that depression occurs in the context of social and interpersonal events. Once depressed, symptoms of the disorder further compromise interpersonal functioning, causing a downward spiral. IPT tries to understand the social and interpersonal context in which the depressive symptoms arose, and how they relate to the current social and personal context. The theorized mechanism of IPT is that as patients solve their interpersonal problems or their emotions in relation to their problems, the depression will resolve as well (Markowitz & Weissman, 2004).

The idea that cognitive change accounts for therapeutic change is a popular hypothesis that has motivated dozens of investigations of the role of cognitive change in CT and other treatments for depression (see reviews of e.g., Garrat, Ingram, Rand, & Sawalani, 2007; Longmore & Worrell, 2007; Whisman, 1993 for an overview). Unfortunately, the majority of the relevant studies do not address the aspect of temporality. As a result, it remains unclear whether changes in cognitions precede or follow from changes in depression during treatment. Only a few studies of the mechanisms of change in psychotherapy have included efforts to detect the direction of causality (e.g., DeRubeis et al., 1990; Kuyken et al., 2010; Strunk, Brotman, & DeRubeis, 2010; Warmerdam, van Straten, Jongsma, Twisk, & Cuijpers, 2010). In a recent analysis of the relevant literature, Lorenzo-Luaces, German, and DeRubeis (2014) argue that the existing research provides some support for the cognitive mediational model, but that the support is not strong. They conclude that insofar as cognitive change is a mechanism, it is likely not specific to CT.

Few investigations of the processes of change in IPT have been published. In 2013, Toth et al. examined mediators of sustained treatment effects of IPT in a sample of economically disadvantaged mothers with MDD. They found that changes in perceived stress and social support mediated treatment outcome eight months after treatment termination. However, no studies so far have examined whether changes in interpersonal functioning during the acute phase of treatment for depression mediate outcomes. Nonetheless, in several studies, the relation between changes in various theorized processes of IPT have been found to correlate with outcome. More specifically, Bernecker (2012) concluded in her summary of this literature that reduction or resolution of interpersonal problems, reduction of attachment-anxiety and avoidance, and improved marital adjustment were associated with treatment outcome. Although informative, these findings do not speak to mechanisms, since the studies were unable to differentiate between cause and effect. As a result, alternative explanations for the relation between theorized processes of IPT and outcome cannot be ruled out. For example, it may well be that IPT leads to initial symptom relief which, in turn, causes the patient to reach out to family and friends, hereby improving interpersonal functioning. In addition, a more recent study by the same group found that changes in interpersonal functioning to were unrelated to outcome (Bernecker, Constantino, Pazzaglia, Ravitz, & McBride, 2014).

1.2. Common factors

Contrary to the view that treatments exert beneficial effects through their own (specific) theorized mechanisms is the idea that treatments work through common factors. One of the most frequently investigated common factor is the therapeutic alliance (Castonguay, Constantino, & Holtforth, 2006). Therapeutic alliance refers to the collaborative and affective bond between patient and therapist (e.g., Bordin, 1979). It is believed that a strong alliance in which patient and therapist agree on the goals and tasks of the therapy, and feel safe, secure and understood, is associated with change in depressive symptomatology. The (development of the) quality of the alliance throughout treatment is seen to facilitate symptom change. Research has consistently found that a good alliance is indeed associated with better treatment outcomes in various types of psychological treatment, including CT and IPT (see e.g., Horvath, Del Re, Flückiger, & Symonds, 2011). However, it is premature to conclude that the quality of the alliance plays a causal role. Effect sizes reported in the literature have been relatively small (overall relation of $r = 0.28$ in the most recent meta-analysis by Horvath et al., 2011), and − similar to studies examining the specific mechanisms of CT and IPT − few studies have controlled for temporal confounds (Barber, 2009). For both CT and IPT, studies in which the temporal priority has been accounted for have produced mixed results. Some studies have found support for the notion that the quality of (early) alliance does facilitate subsequent symptom change (e.g., Webb et al., 2011; Zuroff & Blatt, 2006), whereas others have not (e.g., Constantino et al., 2017; DeRubeis & Feeley, 1990; Feeley, DeRubeis, & Gelfand, 1999; Gaston, Marmar, Gallagher, & Thompson, 1991; Strunk et al., 2010). Future research should therefore further examine the causal influence of alliance on symptom change in both interventions. In addition, other common factors have so far been largely overlooked as potential mechanisms of change.

1.3. Challenges in the field of mechanism research

Apart from the issue of temporality and conflicting hypotheses about which candidate mediators should be investigated, progress in research on therapeutic mechanisms has been impeded by small sample sizes, and little consensus concerning the statistical approaches and specific methods to be used in tests of mediation (see Lemmens, Müller, Arntz, and Huibers (2016) for more information). Furthermore, because many of the studies have lacked a comparison group, they have not allowed for a direct comparison of mediation patterns between interventions. As a result, there is a need for additional studies with designs suitable for mechanism research. More specifically, RCT's are needed that examine the mediational role of multiple specific- and non-specific candidate mediators, in large, longitudinal studies using up-to-date statistical analyses techniques.

Thus far, there is only one randomized comparison of CT and IPT in which mediation has been a focus (Quilty, McBride, & Bagby, 2008). Quilty and colleagues examined evidence for the cognitive mediational model and found that CT produced greater change in dysfunctional attitudes than did IPT. Furthermore, they concluded that change in dysfunctional attitudes mediated the effect of CT on depression. However, given their pre-to post-treatment design they could not address the issue of temporal precedence. In addition,