Understanding change in psychological treatments for depressive symptoms
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Mindfulness-Based Cognitive Therapy and Cognitive Therapy for depression: theoretical foundations, treatment techniques, and mechanisms of change

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WHY ARE CT AND MBCT BENEFICIAL?

Abstract
Mindfulness Based Cognitive Therapy (MBCT) combines the ideas of Cognitive Therapy (CT) with the cultivation of mindfulness. The aim of this paper is to reach a better understanding of the similarities and differences between CT and MBCT for depression. The theoretical assumptions underlying CT and MBCT as well as their treatment techniques are compared, followed by a discussion of the assumed underlying mechanisms of change in both treatments. The review reveals that the treatment techniques of CT and MBCT do not share as many similarities as their theoretical foundations. Future research on the mechanisms of change in CT and MBCT may be advanced by considering not only theory-driven mechanisms but also technique-driven mechanisms.
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For years, Cognitive Therapy (CT) (Beck et al., 1979) has been the dominant psychological treatment for depression. CT is effective in treating current depression (Butler et al., 2006; Ebmeier, Donaghey, & Steele, 2006), and protects against recurrence of depression (Hollon & Ponniah, 2010). More recently, Mindfulness Based Cognitive Therapy (MBCT) (Segal et al., 2002; Teasdale, Segal, & Williams, 1995) has become a popular alternative treatment for recurrent depression as well as for a broad range of other psychological symptoms and disorders. Several studies have shown that MBCT contributes to relapse prevention in patients who have been repeatedly depressed (e.g., Kuyken et al., 2008; Ma & Teasdale, 2004). There is also increasing evidence that MBCT is effective in reducing current depressive symptoms (Hofmann, Sawyer, Witt, & Oh, 2010).

In view of the popularity of mindfulness, it has recently been suggested that MBCT should be directly compared with other evidence-based active psychological treatments such as cognitive therapy (Fjorback, Arendt, Ørnøl, Fink, & Walach, 2011; Hofmann et al., 2010). There are yet no trials comparing MBCT with CT for preventing depressive relapse and only one randomized controlled trial has compared the effects of MBCT and CT on symptoms of depression (Manicavasgar, Parker, & Perich, 2011), showing that MBCT and CT are equally efficacious in reducing depressive symptoms. More comparative studies on CT and MBCT are necessary, not only to give more insight in the efficacy of both treatments, but also to enable the examination of the mechanisms underlying the treatment effects. In other words, which factors are responsible for the benefits of both types of treatment and to what extent are they treatment-specific or overlapping? In order to optimize future research on this issue, it should be clear for researchers which factors to consider as possible shared or treatment-specific mechanisms of change.

In general, hypotheses on mechanisms of change are based on theories regarding the factors that cause and maintain a problem (e.g., the assumption that negative cognitions enhance depression) (Kazdin & Nock, 2003). Change in these factors (e.g., negative cognitions) can be regarded as the mechanism that accounts for the effects of the treatment on the specified problem (e.g., depression). It should therefore be plausible as well that these changes are produced by the actual treatment techniques. Yet, the question that arises here is whether the actual treatment techniques have an effect on a broader range of mechanisms than only those derived from theory. In other words, it is not always clear whether change in mechanisms are related to the treatments’ theoretical underpinnings or also to the actual treatment components. In order to gain more
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insight into possible shared mechanisms underlying the effectiveness of CT and MBCT, it is thus necessary to have a clear understanding of both the theoretical underpinnings as well as the treatment techniques of both treatments. So far, an extensive review comparing the theoretical foundations, treatment components, and mechanisms of change of CT and MBCT is missing, since previous papers on mindfulness only briefly mentioned the shared and distinct aspects of MBCT and CT (Baer, 2003; Chiesa & Malinowski, 2011; Segal et al., 2002; Sipe, Walter, Eisendrath, & Stuart, 2012; Teasdale et al., 1995). Moreover, reviews on mindfulness-based treatments tend to focus on the specific aspects of mindfulness, without elaborating on the overlap between mindfulness-based treatments and other interventions (e.g., Bishop et al., 2004; Brown, Ryan, & Creswell, 2007; Chambers, Gullone, & Allen, 2009).

This paper aims to reach a better understanding of the differences and similarities between CT and MBCT for depression. We will specifically focus on Cognitive Therapy of depression by Beck, Rush, Shaw and Emery (1979) and Mindfulness Based Cognitive Therapy for depression by Segal, Williams and Teasdale (2002). In the first two parts, we will review and compare their theoretical background and actual treatment techniques. In the third part, we will discuss the assumed mechanisms of change according to the founders of CT and MBCT. In the last part of the review, we will evaluate the concordance between the theories, the treatment components, and the assumed mechanisms of change in order to evaluate to what extent the mechanisms correspond with the theoretical underpinnings and the actual treatment components. Based on this evaluation, the plausibility of shared and distinct change mechanisms of CT and MBCT is discussed. The paper is based on available literature until December 2012.

Theoretical assumptions

CT
Cognitive therapy (CT) of depression (Beck et al., 1979) originates from the cognitive theory that was introduced by Beck in the nineteen sixties and seventies. Beck’s cognitive theory holds that the way we think or interpret events influences the way we respond to situations (Beck, 1964; Beck et al., 1979). According to Beck’s theory, maladaptive cognitive schemas and automatic thoughts play a major role in depressive feelings and behaviors (Beck et al., 1979). Maladaptive cognitive schemas are stable cognitive patterns that consist of negative perceptions of the self, others, and the future (e.g., Beck, 1967). These negative schemas are hypothesized to develop early in life. They may be latent for some time but can be activated
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by stressful situations that are congruent with these maladaptive schemas (Beck et al., 1979). Activation of dysfunctional schemas triggers automatic ways of thinking, as well as the tendency to negatively interpret situations and biases in attention and memory (Beck & Dozois, 2011). This complex system of negative thinking is assumed to be central to depression. Therefore, the aim of CT is to adjust negative cognitions into more helpful thoughts in order to reduce depressive symptoms (Beck et al., 1979).

MBCT

MBCT mainly originates from Teasdale’s differential activation hypothesis (Teasdale & Russell, 1983; Teasdale, 1988) as well as Teasdale’s and William’s ideas about the role of rumination and information processing (Teasdale et al., 1995; Teasdale, 1999; Williams, 2008; Williams, 2010). The differential activation hypothesis aims to explain the high rates of relapse and recurrence of depression that were observed in the nineteen eighties (e.g., Berti Ceroni, Neri, & Pezzoli, 1984). Building on Beck’s cognitive theory, the differential activation hypothesis proposes that relapse and recurrence of depression arises from negative thoughts which are re-activated in a sad mood (Teasdale & Russell, 1983; Teasdale, 1988). In other words, negative ways of thinking associated with previous depressive episodes are likely to be triggered when vulnerable individuals experience a sad mood (Teasdale, 1988). Later on, Teasdale and colleagues (1995) broadened the differential activation hypothesis by stating that not only negative thoughts but also bodily sensations and feelings associated with previous depressive episodes can be reactivated.

In addition to the differential activation hypothesis, Segal, Williams and Teasdale ascribe a central role to rumination in recurrence of depression. Following the work of Nolen-Hoeksema (e.g., 1991), they propose that vulnerable individuals tend to respond to depressive feelings by repetitively thinking about their negative experiences (rumination). Rumination does not lead to a desired non-depressed state, instead, ruminative thinking enhances depressive feelings (e.g., Nolen-Hoeksema & Morrow, 1991). Therefore, Williams and colleagues assume that individuals are at risk for recurrence of depression especially when they tend to ruminate about negative thoughts and depressive feelings (Segal et al., 2002; Williams, 2008).

To clarify the process of rumination, Williams described two modes of mind in which information can be processed (Williams, 2008; Williams, 2010). One mode is the conceptual (verbal or doing) mode and the other is the perceptual (sensory or being) mode. In the conceptual mode, in-
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Information is processed by analyzing, planning, judging and remembering. Rumination can be regarded as cyclic and repetitive operation in the conceptual mode (Williams, 2010). In the perceptual mode, one focuses instead on bodily sensations in the present moment by feeling, hearing, seeing, tasting and smelling. When information is processed in the perceptual mode, there is little room for ruminative thinking. Since rumination is assumed to contribute to recurrence of depression, MBCT aims to reduce ruminative thinking by training individuals to shift attention from the conceptual to the perceptual mode (Williams, 2010).

MBCT compared with CT

The theoretical underpinnings of both CT and MBCT have their roots in cognitive theories and share similar basic principles (Teasdale et al., 1995). Both Beck’s cognitive theory of depression and Teasdale’s differential activation hypothesis ascribe a central role to the activation of negative patterns of thinking in depression (Beck, 1964; Teasdale, 1983). The theories underlying MBCT elaborate on Beck’s cognitive theory by proposing that not only external events, but also internal experiences associated with previous depressive episodes, such as a sad mood, can trigger negative ways of thinking (Lau, Segal, & Williams, 2004). This theory is not in conflict with Beck’s ideas since Beck also mentioned that depressive feelings may lead to negative thoughts as well (Beck, 1963; Beck, 1964; Beck & Dozois, 2011). Yet, CT is not based on the assumption hold by the founders of MBCT that repetitive operation in the conceptual mode (by ruminating) plays a detrimental role in recurrence of depression.

Treatment Components

In the following section, we will compare the treatment techniques of CT and MBCT for depression. We take the treatment elements of CT for depression as described by Beck (see Beck et al., 1979; Beck & Dozois, 2011) as point of departure and supplement these with the treatment elements of MBCT. Following the structure of a paper by Beck and Dozois (2011), we start with the therapist’s attitude.

Therapist’s attitude

Therapists who deliver CT are expected to adopt an open, empathic, warm, and genuine attitude towards patients (Beck et al., 1979). CT therapists are encouraged to accept patients as they are and to refrain from being judgmental (Beck et al., 1979). Mindfulness trainers are instructed similarly; they are encouraged to embody acceptance and non-judging
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( Segal et al., 2002). In addition, both CT therapists and mindfulness train-
ers are trained to explore patients’ experiences by asking open questions
in a way that serves as an example for patients (Beck et al., 1979; Segal et
al., 2002).

Psycho-education
Both CT and MBCT cover psycho-education on depression and the provi-
sion of a treatment rationale (Manicavasgar et al., 2011). The treatment
rationale of MBCT is also given by means of poems (Segal et al., 2002). A
difference between CT and MBCT is the timing of the psycho-education. In
CT, the how and why of strategies and assignments are explained before
they are performed (Beck et al., 1979), whereas no explicit psycho-educa-
tion is given beforehand in MBCT (Segal et al., 2002). Information is given
after exercises and assignments in MBCT because it is assumed that the
aimed skills require experiential learning (Segal et al., 2002).

Behavioral strategies
CT often starts with behavioral activation (Beck et al., 1979), whereas this
strategy is hardly used in MBCT. Behavioral activation includes monitor-
ing, scheduling, and performing of activities, as well as recording feelings
of pleasure and mastery that come along with these activities (Beck et al.,
1979). Of these behavioral strategies, only activity monitoring is included
in MBCT. One MBCT assignment includes monitoring of activities for one
day and rating for each activity whether it evokes positive or negative feel-
ings (Segal et al., 2002). Thereafter, participants are instructed to imagine
how they could balance positive and negative activities in their daily lives.
MBCT participants are encouraged to perform activities that induce feel-
ings of mastery or pleasure when they recognize signals of depression
(Segal et al., 2002). However, MBCT participants do not actively schedule
and perform these activities as in CT.

CT also incorporates behavioral experiments, which are used to
test the evidence for and against negative automatic thoughts and as-
sumptions. For example, patients are asked to expose themselves to
situations they avoid because they expect a negative outcome (Beck et al.,
1979). Similar strategies are not included in MBCT.

Cognitive restructuring
The CT component ‘cognitive restructuring’ covers identifying and chal-
lenging automatic thoughts and negative schemas (Beck & Dozois, 2011).
Individuals are instructed to record the thoughts and feelings they have
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when they feel sad or depressed. These records are the basis for challenging negative cognitions. Automatic thoughts are challenged by evaluating their logic, helpfulness, adaptivity, and evidence (Beck et al., 1979). When it can be concluded that thoughts are irrational or unhelpful, patients are encouraged to formulate and evaluate more helpful thoughts. In addition, patients are asked to search for a consistent pattern in their negative thoughts to find underlying assumptions or general maladaptive schemas. These maladaptive schemas are challenged by techniques similar to those used to challenge automatic thoughts.

Although MBCT does not focus on challenging negative thoughts and formulating more helpful ones as in CT, recording of thoughts and feelings is covered in MBCT as well (Segal et al., 2002). In one MBCT exercise, individuals record their bodily sensations, feelings and thoughts that come along with pleasant and unpleasant events (Segal et al., 2002). These recordings are not used to challenge negative cognitions, but to make individuals aware of the way thoughts, feelings and sensations are mutually related. MBCT does not aim at labeling thoughts as unhelpful or irrational, instead, one is trained to refrain from judging thoughts (Baer, 2003). It is stressed that thoughts are not facts but merely ‘thoughts’, irrespective of their content (Teasdale et al., 1995). In contrast with this non-judging principle of mindfulness, one MBCT session does contain some strategies to challenge negative cognitions. In one homework assignment, patients are encouraged to write down negative thoughts, to challenge them by comparing the thoughts to facts and to formulate alternative interpretations (Segal et al., 2002). This strategy is very similar to CT’s cognitive restructuring.

Relapse prevention
The final treatment sessions of CT and MBCT cover relapse prevention. Both in CT and MBCT, individuals are instructed to think of strategies to cope with future symptoms of depression (Beck, 1995; Segal et al., 2002). Both treatments direct individuals towards engaging in pleasant activities for prevention of depression relapse. Relapse prevention in MBCT also holds the instruction to engage in mindfulness practice on a daily basis (Segal et al., 2002).

Mindfulness practice
In contrast with CT, yoga and meditation exercises cover the main part of the treatment sessions and homework assignments in MBCT. Prominent meditation exercises are the body-scan, sitting meditation, 3-minute
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breathing space, and mindfully performing a routine activity (Segal et al., 2002). The practiced yoga exercises are mindful stretching and mindful walking. Almost all exercises are derived from the Mindfulness Based Stress Reduction program (Segal et al., 2002; Teasdale et al., 1995). During these meditation and yoga exercises, patients are instructed to observe present moment experiences such as feelings, thoughts and physical sensations in a non-judgmental way (Segal et al., 2002). Patients are invited to acknowledge experiences as they are and to refrain from avoiding them. The instruction is to shift the attention back to the focus of attention when one is distracted by other experiences (focused attention meditation) (Lutz, Dunne, & Davidson, 2007). Mindfulness practice is a component of MBCT that is not incorporated in CT.

**MBCT compared with CT**

Although MBCT is said to be a combination of both Cognitive Therapy and mindfulness training (Teasdale et al., 1995), a large part of the MBCT sessions and homework practices consist of meditation and yoga exercises derived from the Mindfulness-Based Stress Reduction program. The core components of CT (i.e., behavioral strategies and cognitive restructuring) are included only minimally in MBCT. Individuals are directed towards these strategies in MBCT, yet, these are not practiced. The treatment aspects that MBCT and CT do share are psycho-education on depression, relapse prevention, and an empathic, non-judging attitude of the therapist.

**Change mechanisms**

**CT**

According to Beck’s cognitive theory, change in negative cognitions is the process or mechanism through which CT reduces depressive symptoms. Both cognitive and behavioral techniques are believed to change the content of maladaptive and negative cognitions (Beck et al., 1979). Change in negative cognitions has been measured with several cognitive constructs that stem from Beck’s cognitive theory and the corresponding assumptions on the mechanisms of CT. Empirical studies on the mechanisms of CT focused on cognitive constructs such as dysfunctional attitudes, automatic thoughts, attributional style, and hopelessness. *Dysfunctional attitudes* are negative assumptions and beliefs derived from dysfunctional schemas (Beck, Brown, Steer, & Weissman, 1991). *Automatic thoughts* refer to negative statements about the self (Hollon & Kendall, 1980). *Attributional style* stands for whether individuals attribute outcomes to internal/external, stable/unstable factors or global/specific factors (Seligman, Abramson,
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Semmel, & von Baeyer, 1979), whereas hopelessness refers to negative expectations about the future (Beck, Weissman, Lester, & Trexler, 1974). These cognitive constructs cover negative perceptions of the self, the future, and others, in accordance with Beck’s cognitive theory.

A review on cognitive processes in CT for depression (Garratt, Ingram, Rand, & Sawalani, 2007) concluded that CT indeed produces cognitive changes and that these cognitive changes are associated with changes in depression, although not all studies found an association between cognitive change and change in depression. Particularly change in dysfunctional attitudes (e.g., Barber & DeRubeis, 2001), automatic thoughts (e.g., Oei & Sullivan, 1999) and hopelessness (e.g., Kuyken, 2004) were found to covary with CT and a reduction in depressive symptoms. However, change in these cognitive constructs does not seem to be specific to CT, since other treatments for depression have also been found to associate with cognitive change. For example, it has been found that pharmacological interventions produce change in negative cognitions (see Garratt et al., 2007). Besides that, only a few studies have demonstrated that cognitive change over time is consistent with causal-agency. Some studies have found that change in negative cognitions preceded and predicted change in depressive symptoms in CT (DeRubeis et al., 1990; Kuyken, 2004), whereas others did not find this association in CT (Jarrett, Vittengl, Doyle, & Clark, 2007).

MBCT

Segal, Williams and Teasdale (2002) hypothesized that awareness of and disengagement from negative thoughts and depressive feelings are the processes through which MBCT reduces depressive relapse rates. These skills are trained in meditation and yoga exercises in which individuals are instructed to observe and acknowledge their experiences without judging them. Recognizing and disengaging from negative experiences are assumed to reduce the activation of negative thoughts and reduce ruminative thinking.

Researchers have studied different constructs that reflect the aforementioned change mechanism proposed by the founders of MBCT, including decentering (sometimes called metacognitive awareness), cognitive reactivity, and rumination. Decentering refers to the process of disengaging from negative experiences (Teasdale, 1999; Teasdale et al., 2002). Decentering has been defined as ‘the extent to which thoughts, for example, are experienced as thoughts (mental events) rather than as aspects of self or direct reflections of the truth’ (Teasdale et al., 2002). Reduced cognitive
reactivity refers to having fewer negative thoughts in a sad mood (Ingram, Miranda, & Segal, 1998; Scher, Ingram, & Segal, 2005). Rumination has been defined as thinking repetitively about the causes, meanings and consequences of negative experiences such as depressive feelings (Nolen-Hoeksema & Morrow, 1991).

The available empirical studies on mechanisms of MBCT found that MBCT is associated with an increase in decentering (Bieling et al., 2012; Teasdale et al., 2002) and with reduced ruminative thinking (Keune, Bostanov, Hautzinger, & Kotchoubey, 2011; Michalak, Hölz, & Teismann, 2011; van Aalderen et al., 2012). Some of these studies found that change in decentering and rumination is predictive of depressive relapse (Michalak et al., 2011; Teasdale et al., 2002) or current depressive symptoms (van Aalderen et al., 2012). In one study, MBCT has also been associated with reduced cognitive reactivity compared to a matched control group (Raes, Dewulf, Van Heeringen, & Williams, 2009). This association was not found in another study, although cognitive reactivity did not predict poor outcome for those who received MBCT in this study (Kuyken et al., 2010). The literature suggests that change in the assumed mechanisms of MBCT may not be specifically related to MBCT. For example, an increased capability for decentering has been associated with lower depressive relapse rates in CT as well (Fresco, Segal, Buis, & Kennedy, 2007; Teasdale et al., 2002), and reduced ruminative thinking was found to be predictive of post-treatment depressive symptoms in cognitive behaviour therapy (Manicavasagar, Perich, & Parker, 2012).

MBCT compared with CT
Although distinct and specific constructs are proposed as mediators of therapeutic change in CT and MBCT, both treatments are assumed to achieve their effects through change in negative ways of thinking. Whereas CT is assumed to produce changes in current negative cognitions, MBCT is assumed to result in less activation of negative cognitions in a sad mood (e.g., Teasdale et al., 1995). Furthermore, CT is assumed to adjust negative thought content by challenging them, whereas MBCT is assumed to change the relation to negative thoughts and feelings by disengaging from them (Hofmann & Asmundson, 2008; Lau & McMain, 2005). More specifically, CT aims to change negative cognitions about the self, others and the future, and MBCT aims to reduce negative repetitive thinking about negative experiences (i.e., rumination).
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Discussion
Cognitive Therapy (CT) and Mindfulness-Based Cognitive Therapy (MBCT) are well-known, evidence-based treatments for depression. At this time, there are few well-designed comparative studies on the similarities and differences regarding their effectiveness and underlying mechanisms of change. In order to contribute to future research on these fundamental theoretical and clinical topics, we set out with the aim to compare CT and MBCT for depression, with respect to their theoretical underpinnings, treatment components, and assumed change mechanisms. A key finding of our review is that, although CT and MBCT are largely based on similar theoretical assumptions on depression, both treatments include more distinct than shared treatment techniques. In the remaining part of the review, we argue that the underlying theories suggest more similar change mechanisms of CT and MBCT than the actual treatment techniques. As a result, the assumed theory-driven mechanisms of change underlying CT and MBCT may be too narrowly formulated and the consideration of a wider range of mechanisms based on the different techniques used in CT and MBCT seems to be justified.

Theory & mechanisms
The theoretical underpinnings of CT and MBCT share the basic assumption of Beck’s cognitive theory, which holds that the activation of negative thinking is central to depression (Lau et al., 2004). The theories underlying MBCT elaborate on Beck’s theory by clarifying that the high rates of depressive relapse can be explained by the re-activation of experiences associated with previous depressive episodes and reactions to these experiences such as rumination (e.g., Lau et al., 2004; Teasdale, 1999). In accordance with Beck’s cognitive theory, the assumed mechanisms of CT and MBCT both cover change in negative ways of thinking. However, there are subtle differences in the proposed mechanisms, with CT aiming to change directly the content of negative cognitions and MBCT aiming to relate to negative experiences in a disengaged manner in order to reduce rumination and re-activation of negative thoughts. Thus, it seems that the assumed change mechanisms of MBCT correspond primarily with the additional theories underlying MBCT and to a lesser extent with Beck’s cognitive theory.

Yet, bearing in mind the shared theoretical assumptions underlying CT and MBCT, it is plausible that similar change processes result from both treatments. In addition, it can be questioned whether there is a black-and-white distinction between the assumed change mechanisms of
CT and MBCT. Specifically, it can be argued that a change in the content of thoughts may also involve a change in one’s relation to these thoughts, and the other way around. Teasdale and colleagues speculate that not only MBCT, but also CT prevents depressive relapse by promoting decentering, since identifying and challenging negative thoughts requires distancing oneself from depressive thoughts and feelings (Segal, Gemar, & Williams, 1999; Teasdale, 1999; Teasdale et al., 2002). Indeed, both cognitive behavioural therapy and MBCT have been found to protect against depressive relapse by increasing decentering (Bieling et al., 2012; Fresco et al., 2007). Likewise, one could argue that the effects of MBCT on current or residual depressive symptoms are caused by cognitive processes similar to those of CT. Disengaging from negative thoughts during mindfulness practice and seeing thoughts just as ‘thoughts rather than as aspects of self or direct reflections of the truth’ (Teasdale, 1999) may weaken individual’s believe in negative thoughts and thereby serve as a way to challenge thoughts (Baer, 2003). The only difference between CT and MBCT is the way that change in negative thinking is attempted to be achieved: CT focusses on directly challenging negative cognitions, whereas MBCT trains individuals to disengage from negative cognitions and to shift attention to present moment experiences.

Techniques & mechanisms
In contrast to the close association between theory and the assumed mechanisms, the formulated mechanisms correspond only partially with the actual treatment techniques of CT and MBCT. Both treatments include techniques that may be associated with change in a broader range of factors than only those based on theory. With regard to MBCT, most of the treatment sessions include techniques such as meditation and yoga adopted from Mindfulness Based Stress Reduction (MBSR) (Teasdale et al., 1995). Mindfulness mediation has its origin in Buddhism rather than in cognitive theories. The central aim of mindfulness exercises is to promote a variety of mindfulness skills such as awareness, acceptance, and non-judging (Baer, 2007; Bishop et al., 2004; Dunn, Hartigan, & Mikulas, 1999). Based on the practice and cultivation of mindfulness, a large number of additional processes underlying the effects of MBCT can be hypothesized, including exposure, self-management, experiential avoidance, relaxation, nonattachment, and insight (Baer, 2003; Brown et al., 2007; Chambers et al., 2009). If we take the treatment components as a point of departure, the benefits of MBCT for depression might as well be explained by change in these mindfulness-skills and the aforementioned change processes.
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Similarly, based on the techniques included in CT, there may be other mechanisms than cognitive change underlying the treatment’s effectiveness. CT also covers behavioral activation, which has been found to play an important role on its own in the efficacy of CT. Two studies have shown that behavioral activation as a stand-alone treatment is equally effective in reducing depressive symptoms as CT, (Dimidjian et al., 2006; Jacobson et al., 1996) and behavioral activation was found to be even more efficacious among patients with a more severe depression (Dimidjian et al., 2006). In Beck’s cognitive theory, behavioral strategies are mainly mentioned as a tool to change negative cognitions or to motivate individuals (Beck et al., 1979). However, behavioral activation has its roots in the behavioral theory of operant conditioning (see the works of e.g., Skinner, 1963; Thorndike, 1905) and is assumed to increase feelings of pleasure and mastery, which, in turn, would counteract depressive symptoms (Lewinsohn & Graf, 1973). Therefore, improvements in behavioral activation and enhanced feelings of pleasure and mastery might, besides cognitive change, also account for CT’s effects on depression.

In sum, if we take the treatment techniques as a point of departure for formulating hypotheses about change mechanisms, rather than the theoretical foundations, a broader range of mechanisms may be at work. Based on this assumption, it is plausible that CT and MBCT achieve their effects through different change processes because both treatments include mainly different treatment techniques.

Conclusion and future directions

The article reveals that the ideas on mechanisms of change of CT and MBCT are mainly theory-driven. There seems to be less focus on the contribution of treatment techniques to the process of change, which may imply change in other variables besides the factors based on theory. Bearing in mind the shared theoretical foundations of CT and MBCT, it seems plausible that similar mechanisms account for the effectiveness of both treatments for depression. Yet, we could also argue that the differential treatment techniques applied in CT and MBCT result in distinct change processes.

Future studies comparing CT and MBCT could be strengthened by investigating both theory-driven and technique-driven factors as possible mechanisms, such as mindfulness-skills, behavioral activation, and feelings of pleasure and mastery. Furthermore, future studies may also consider factors that are not plausible as a mechanism, neither based on theory nor based on treatment components, hereby trying to discriminate ‘true’
mechanisms from factors that are not supposed to explain the treatment effects.

More optimal research designs are needed to compare CT and MBCT with regard to their mechanisms of change. Specifically, more insight is needed into the temporal associations between assumed mechanisms and treatment outcome. Most studies only adopt pre-treatment and post-treatment measures. Such a design does not yield clarity on whether change in the assumed mechanism really leads to change in treatment outcomes, because it cannot be ruled out that change in the assumed mechanism is a result of depressive symptom improvement, rather than a causal agent (Garratt et al., 2007; Whisman, 1993). More insight in change processes may be achieved by studying the temporal order of change in assumed mechanisms and outcomes by taking multiple assessments during treatment (e.g., Laurenceau, Hayes, & Feldman, 2007).

In sum, the review reveals that the treatment techniques of CT and MBCT do not share as many similarities as their theoretical foundations. A next step should be taken by empirically comparing the effectiveness of MBCT and CT and evaluating their unique and overlapping mechanisms of change. With such an investigation, a greater understanding can be reached regarding why and how MBCT and CT work. This is not only of theoretical importance, but is also necessary for identifying characteristics that may moderate the treatments’ effects (Kazdin & Nock, 2003) in order to gain insight into for whom CT and MBCT may be most beneficial.