Research paper

The Effects of Mindfulness-Based Cognitive Therapy and Cognitive Behavioral Analysis System of Psychotherapy added to Treatment as Usual on suicidal ideation in chronic depression: Results of a randomized-clinical trial

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A R T I C L E   I N F O

Article history:
Received 8 October 2015
Received in revised form 5 January 2016
Accepted 24 January 2016
Available online 19 April 2016

Keywords:
Mindfulness-based Cognitive Therapy
Cognitive Behavioral Analysis System of Psychotherapy
Suicidal ideation
Chronic depression
Persistent depression
RCT

A B S T R A C T

Background: Suicidal ideation (SI) is common in chronic depression, but only limited evidence exists for the assumption that psychological treatments for depression are effective for reducing SI.
Methods: In the present study, the effects of Mindfulness-based Cognitive Therapy (MBCT; group version) plus treatment-as-usual (TAU: individual treatment by either a psychiatrist or a licensed psychotherapist, including medication when indicated) and Cognitive Behavioral Analysis System of Psychotherapy (CBASP; group version) plus TAU on SI was compared to TAU alone in a prospective, bi-center, randomized controlled trial. The sample consisted of 106 outpatients with chronic depression.
Results: Multivariate regression analyses revealed different results, depending on whether SI was assessed via self-report (Beck Depression Inventory suicide item) or via clinician rating (Hamilton Depression Rating Scale suicide item). Whereas significant reduction of SI emerged when assessed via clinician rating in the MBCT and CBASP group, but not in the TAU group while controlling for changes in depression, there was no significant effect of treatment on SI when assessed via self-report.
Limitations: SI was measured with only two single items.
Conclusions: Because all effects were of small to medium size and were independent of effects from other depression symptoms, the present results warrant the application of such psychotherapeutical treatment strategies like MBCT and CBASP for SI in patients with chronic depression.

1. Introduction

Suicide is among the 10 leading causes of death in most countries (WHO, 2014) and the number of suicide attempts is estimated to be up to fifteen times higher than the number of actual deaths by suicide (Borges et al., 2010). About 40% of individuals who died by suicide experienced depressive illness before their death (Arsenault-Lapierre et al., 2004). Chronic depression, which represents approximately 20–30% of all depressive disorders, is known to have a higher risk for suicide compared to acute, episodic depression (e.g. Torpey and Klein, 2008; Arnow et al., 2003). Suicidal ideation (SI) in chronic depression tends to have a chronic course, too. In a community-based cohort study, Young et al. (2008) found that 51% of all patients with a chronic depression reported persisting SI within a follow-up interval of 32 months, while only 32% received either appropriate medication or counseling.

Although it seems plausible to assume that psychological treatments for depression not only affect depressed affect but also SI, this assumption has lately been called into question (Cuijpers et al., 2013). Recent research suggests that suicidal thoughts and behavior are not merely a part or a symptom of a depressive disorder but represent a separate nosological entity (Ahrens and Linden, 1996; Ahrens et al., 2000; Forkmann et al., 2013; Kendel et al., 2010; Leboyer et al., 2005; Van Orden et al., 2011). Cuijpers...
et al. (2013) found in a recent meta-analysis only three randomized controlled studies for adult depression in which SI and suicidal behavior was used as a clearly specified outcome measure. The pooled results indicated very small and non-significant effects of psychotherapy for depression on suicidality, but there was not enough statistical power to consider this a true effect. Moreover, in a meta-regression analysis with the effect size on SI as dependent variable and the effect size on depression as predictor, they found no significant association between both, thus indicating that the effect of treatments on suicidality was independent from the effect on depression. In addition to the studies identified by Cuijpers et al. (2013) two recent studies investigated the effect of psychotherapy for depression on SI. Weitz et al. (2014) found that Interpersonal Therapy (IPT) had some effectiveness for reducing SI. However, this effect vanished when controlling for change in depression. A recent pilot study by Ducasse et al. (2014) demonstrated that Acceptance and Commitment Therapy (ACT), a “third wave” behavioral therapy including mindfulness elements might significantly reduce SI. However, its generalizability is limited due to a small sample size and the absence of a control group.

One further psychotherapeutic approach that may be a treatment option not only for depression but also for SI is Mindfulness-based Cognitive Therapy (MBCT; Segal et al., 2002) originally designed for relapse prevention of remitted patients with a Major Depressive Disorder (MDD). MBCT is a group-based program combining intensive training in meditative practices with cognitive-behavioral elements targeted at depression. MBCT as a treatment option for suicidality is based on the idea, that once a person has suffered a suicidal crisis, suicidal thoughts are likely to become reactivated as part of a suicidal mode of mind whenever sad mood reappears (Williams and Swales, 2004). MBCT may target this process by enabling people to adopt a different, more decentered relationship with their own thoughts, feelings and body sensations, thus preventing these experiences from launching a downward mood spiral that could otherwise lead to another suicidal crisis. Several studies have shown that MBCT can reduce the risk of depressive relapse/recurrence in formerly depressed patients (Piet and Hougaard, 2011). Moreover, Barnhofer et al. (2009) examined the effects of MBCT plus Treatment as Usual (TAU: continuation of current medication and appointments with mental health practitioners) in comparison to TAU alone in 28 patients suffering from chronic depression with a history of SI and suicidal behavior. Results suggested a significant effect of MBCT on depression but not on SI. The effect size for the difference between pre- and post-treatment assessments of SI in the MBCT group was $d = 0.48$. It might be that this effect would have reached significance in a larger sample with sufficient power. Furthermore, in a sample of patients with residual depressive symptoms, Forkmann et al. (2014) found a significant reduction in SI in a MBCT group ($n = 64$), whereas no significant changes occurred in a wait-list control-group ($n = 66$) by comparing baseline and post treatment assessments. This interaction effect was independent from the impact of changes in depression, rumination, and mindfulness skills. However, change in worry was a significant covariate of the specific reduction of suicidality in the MBCT group as compared to the control group. Yet, it remains unclear whether this effect holds true for a sample of chronic depressed patients.

A specific psychotherapeutic model that has been proposed as being effective for the treatment of chronic depression is the Cognitive Behavioral Analysis System of Psychotherapy (CBASP; McCullough, 2000). Concerning suicidality, the CBASP therapist received special techniques to deal and cope with suicidal behavior. With the background of the Significant Other History – a list consisting of significant persons and their impact on the patient’s life – the patient and the therapist could get a deeper understanding of the suicidal thoughts and behavior (f. ex.: Because my father wanted to perform an abortion, I am feeling unwanted and tired of life). By using the Disciplined Personal Involvement, suicidal patients can learn that their suicidal thoughts and plans are authentically real and worry the therapist (such as: That you are thinking about killing yourself, really worries and shocks me). While using the Interpersonal Discrimination Exercise suicidal patients can realize that the therapist reacts mostly different in comparison with the significant others who for example have ignored or punished suicidal behavior. In addition, by conducting Situational Analysis with situations where suicidal thoughts or behavior appear patients could learn reconstructing suicidal thoughts and behavior to overcome helplessness and hopelessness and to reach their positive desired outcomes (f. ex. instead of withdrawal and suicidal thoughts or behavior asking for help).

CBASP was originally developed for individual sessions. In recent years, it has been modified for inpatient settings and group formats (Brakemeier and Normann, 2012; Schramm et al., 2012).

In most of the outpatient studies CBASP proved to be an effective treatment, especially in combination with medication (Keller et al., 2000), in patients with childhood trauma (Nemeroff et al., 2003), early onset (Schramm et al., 2011), and with a long duration of treatment (Wiersma et al., 2014). In addition, in an open study with 70 treatment-resistant chronically depressed inpatients, the CBASP inpatient program significantly reduced depression severity between pre- and posttreatment assessments with strong effect sizes and high response rates (Brakemeier et al., 2011, 2015). In a reanalysis of this study, suicidality as measured with the respective items of the Hamilton Depression Rating Scale (HAM-D) and of the Beck Depression Inventory (BDI) was significantly reduced after the inpatient treatment and still after 6 and 12 months (Brakemeier, 2014).

The current study is a secondary analysis of a randomized controlled trial on the effect of MBCT and CBASP group treatment on depressive symptomatology in chronic depression conducted at two treatment sites (trial number NCT01065311; Michalak et al., 2015). The primary analysis has shown that in the overall sample as well as at one treatment site, MBCT was no more effective than TAU in reducing depressive symptoms, while it was significantly superior to TAU at the other treatment site. CBASP was significantly more effective than TAU in reducing depressive symptoms in the overall sample and at both treatment sites. However, it has to be noted that the analysis of differences between sites was a subsidiary question and it has to be kept in mind that statistical power for the interpretation of differences between sites is limited. The direct comparison of the effects of MBCT and CBASP revealed no significant difference but only a statistical trend favoring CBASP over MBCT. Both treatments had only small to medium effects on social functioning and quality of life.

The primary aim of the present investigation was to examine the effects of MBCT and CBASP – both conducted in the format of a group therapy – on SI compared to a TAU condition in chronic depressed patients while controlling for changes in other depressive symptoms. On the supposition that suicide behavior lies on a continuum from ideation through intent and planning to action, it seems appropriate to choose SI as the dependent variable of interest.

2. Methods

2.1. Sample

All outpatients had a current major depressive episode (MDE) as defined by the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association, 2001) and experienced depressive symptoms for more than 2 years.
without remission. We included three subtypes of depressed patients: (a) patients with chronic major depression (i.e., current MDE lasting for more than two years); (b) patients meeting criteria for double depression (current MDE superimposed on an antecedent dysthymic disorder), or (c) patients with current MDE as part of a recurrent major depression with incomplete recovery between episodes during the last two years (i.e., depressive symptoms present during the entire two year period). They were recruited either by media announcements or through community health care facilities as well as private practices. Patients were recruited at two different sites in Germany: the Ruhr megalapolis and the area of Freiburg im Breisgau. Exclusion criteria that were used in previous studies on MBCT were applied (e.g., Teasdale et al., 2000): history of schizophrenia or schizoaffective disorder, current substance abuse, eating disorder, organic mental disorder, borderline personality disorder, unable to engage with treatment for physical, practical, or other reasons. Patients with borderline personality disorders were excluded because their style of interaction might be too difficult to deal with within the group format of MBCT or CBASP. Mean age of the patients was 54.0 years (SD = 15.4 years, 63.9% female) in the MBCT group, 50.2 years (SD = 10.5, N = 35, 63.9% female) in the CBASP group, and 48.4 years (SD = 11.5, N = 36, 58.2% female) in the TAU group. Further characteristics of the sample and CONSORT flow diagram illustrating patient flow are presented in detail elsewhere (Michalak et al., 2015).

2.2. Sampling procedures

All study procedures were approved by the Research Ethics Committee of the German Psychological Association (JM 720/09) and all participants signed an informed consent form. All individuals interested in participating in the study took part in a telephone screening based on the mood disorder module of the German version of the Structured Clinical Interview for DSM-IV (SCID; Wittchen et al., 1997). Patients who seemed eligible were invited for an extended diagnostic interview. Psychiatric diagnoses were assessed using SCID Axis I and Axis II disorders. All diagnostic evaluations were conducted by trained and certified clinical psychologists and were reviewed by senior study investigators (J.M. & E.S.).

2.3. Randomization

At each trial site, patients were randomly assigned to either TAU or to receive – in addition to TAU – either MBCT or CBASP. Block randomization (block size = 6) to the three conditions was performed by an independent allocator using a computer-generated list of random numbers. After patient eligibility was assessed and informed consent was obtained, patients were formally enrolled in the study. Thirty-six patients were allocated to MBCT, 35 to CBASP, and 35 to TAU.

2.4. Treatments

2.4.1. Treatment as Usual (TAU)

All patients were instructed to be in individual care of either a psychiatrist or a licensed psychotherapist (not member of the study team) during the study period. If patients were already in psychiatric/psychotherapeutic individual treatment at study intake, they continued their treatment with this psychiatrist/psychotherapist. Patients were encouraged to continue any current medication and to attend appointments with their psychiatrist/psychotherapist. There were no restrictions on other forms of supplementary treatment. Detailed information on the balance of active ingredients of TAU (medication, individual psychotherapy, appointments with psychiatrists) in all three groups is given in Michalak et al. (2015). In general, no differences between the groups were found.

2.4.2. Mindfulness-based Cognitive Therapy (MBCT)

The treatment protocol followed the MBCT manual developed by Segal et al. (2002). Some minor alterations were made to adapt the program to chronically depressed patients. More specifically, the presence of acute symptoms was addressed. The program consists of an individual pre-class interview and eight weekly 2.5-h group sessions. Group size was restricted to six patients per class in the present trial to parallel group size in both psychotherapy conditions.

2.4.3. Cognitive Behavioral Analysis System for Psychotherapy (CBASP)

The CBASP treatment protocol followed the manual developed by McCullough (2000) modified for the group setting by Schramm et al. (2012). The CBASP program consisted of two individual treatment sessions and eight weekly 2.5-h group sessions. The main modifications of the individual format included the derivation of the transference hypothesis with regard to the group and to use Disciplined Personal Involvement more sparsely or replace it by using the Kiesler Circle model (Kiesler, 1983) in an educative and structuring way. In order to cover Situational Analyses of all group members, the number of participants was limited to six.

2.5. Measures

2.5.1. Depressive symptoms

Depressive symptoms were assessed using two instruments: the HAMD and the BDI. The 24-item HAMD (Hamilton, 1960, 1967) is a widely used interview-based measure of severity of depressive symptoms covering a range of affective, behavioral, and biological symptoms. It was the primary outcome measure in the main study reported on in Michalak et al. (2015). The HAMD was administered at baseline and post-treatment after the eight weeks treatment phase by five trained doctoral-level psychologists. To enhance reliability of the assessment the Structured Interview Guide for the HAMD (Moberg et al., 2001) was applied. A sample of 36 interviews from the baseline assessment were second-rated for the HAMD by an independent rater to yield an interrater correlation of r (34) = .97, p < 0.001. To maintain blindness of the raters, patients were instructed at the beginning of each rating session not to mention their treatment condition or their psychotherapist during the interviews.

The BDI (Beck et al., 1996; Hautzinger et al., 2006) was applied to assess depressive symptoms by self-report. The BDI is a widely used 21-item measure covering affective, cognitive, and biological symptoms of depression with good psychometric properties. In the current sample, the BDI showed good reliability (Cronbach’s α = 81).

The suicide items were excluded from the HAMD and the BDI sum scores to avoid overlapping and thus part-whole correlations.

2.5.2. Suicidal ideation (SI)

SI was measured by using (1.) the respective item from the interviewer based HAMD (Item 3; Hamilton, 1960) as well as (2.) the respective item from the self-ratings of the German version of the BDI (Item 9; Beck et al., 1996; Hautzinger et al., 2006). The suicide item of the HAMD and the suicide item of the BDI have both repeatedly been used to measure suicidality in clinical studies (e.g., Larsson et al., 1991; Lewinsohn et al., 1993; Weitz et al., 2014). In terms of convergent validity, the BDI and HAMD suicidality items have been shown to be highly correlated (r = .80) with the first five items of the Beck Scale for Suicide Ideation (Ballard...
et al., 2015; see also Beck et al., 1997). For the HAMD suicide item, convergent validity has also been shown with the Adult Suicide Ideation Questionnaire (Reynolds, 1991). Predictive validity of both the BDI and the HAMD suicide item for later suicidal behavior has been shown to be good (Brown et al., 2000).

2.6. Data analyses

Analyses were conducted on the intention to treat sample. Missing data was accounted for by using the last observation carried forward (LOCF). Analyses of variance (ANOVA) and $\chi^2$ tests were used to examine whether treatment groups differed on suicidality at baseline. We conducted paired-samples t-tests and calculated Cohen’s effect size $d$ to analyse whether suicidality as measured with the HAMD and BDI suicide items were lower after treatment than at baseline within each single treatment group (Cohen, 1988). In order to reduce sampling error, effect sizes have been corrected using a factor provided by Hedges and Olkin (1985). Multivariate linear regression analyses were used to test for significant differences in reduction of suicidal symptoms between the treatment groups (MBCT, CBASP) and TAU. Change in suicidal symptoms measured with the HAMD and the BDI suicide items were the dependent variables. For the predictor variables, dummy variables were used for the MBCT and the CBASP groups with TAU as reference condition. Analyses were controlled for changes in depression (measured with the HAMD and BDI total scores exclusive of the respective suicide items) (model 1). In a secondary set of multivariate linear regression analyses, we compared the treatment conditions MBCT and CBASP directly to each other. MBCT was the reference condition.

All analyses were performed using IBM SPSS statistics 20.

3. Results

3.1. Primary outcome analyses

According to the HAMD suicide item, 61.1% of the participants showed any kind of SI in the MBCT group, 65.7% in the CBASP group and 62.9% in the TAU group ($\chi^2 = 16.16, p = 0.92$). According to the BDI suicide item, 77.8% of the participants in the MBCT group reported any kind of SI, 47.1% in the CBASP group and 75.8% in the TAU group ($\chi^2 = 9.15, p = 0.01$). In the MBCT group, 5 participants reported one or more past suicide attempt, in the CBASP group 8 and in the TAU group 6 ($\chi^2 = 7.5, p = 0.69$).

Means and standard deviations of the HAMD and the BDI suicide items and the HAMD and BDI total scores without the inclusion of the suicide items pre and post treatment are displayed in Table 1. Baseline scores on the HAMD suicide item did not differ between treatment groups ($F(2103) = 0.48; p = 0.62$). However, as can also be seen in Fig. 1, significant differences between treatment groups at baseline were found for the BDI suicide item ($F(2100) = 4.30; p = 0.02$).

Paired-samples t-tests revealed that both MBCT and CBASP reduced suicidal symptoms if measured with the HAMD suicide item. Suicidality as measured with the BDI suicide item was significantly reduced by MBCT but not by CBASP. Effect sizes (Cohen’s $d$) showed medium effects of MBCT on SI both measured with the HAMD suicide item ($d = 0.30$) and the BDI suicide item ($d = 0.34$). Moreover, MBCT reduced depression both measured with the HAMD ($d = 0.38$) and BDI ($d = 0.52$). CBASP affected SI only when measured with the HAMD suicide item ($d = 0.50$) but not when measured with the BDI suicide item ($d = 0.07$). However, due to significantly lower scores on the BDI suicide item in the CBASP group than in the MBCT group at baseline, this could be due to a floor effect in the CBASP group. Again, effects on depression were of medium size (HAMD: $d = 0.78$; BDI: $d = 0.60$). TAU showed virtually no effects on suicidality but on depression when measured with the HAMD ($d = 0.35$; Table 1).

3.2. Incremental effects of treatment conditions compared to TAU; dependent variable: HAMD suicide item

Dummy-coded multivariate linear regression analyses were conducted with dummy variables for the MBCT and the CBASP groups with TAU as reference condition. Significant effects of these dummy variables on the dependent variable indicated that the respective treatment condition had a significantly larger effect on SI than TAU. Differential effects of treatment conditions were found if SI was measured with the HAMD suicide item ($F(3102) = 12.14; p < 0.001$; Table 2). Both MBCT (model 1: $\beta = 0.24; p = 0.02$) and CBASP (model 1, $\beta = 0.27; p = 0.01$) reduced SI significantly as compared to TAU while controlling for changes in depression (model 1). When comparing MBCT and CBASP directly to each other with MBCT as reference condition, no significantly different effect of CBASP ($\beta = 0.07; p = 0.56$) compared to MBCT was found (model 2: $F(268) = 5.64, p < 0.01$) (Fig. 2).

3.3. Incremental effects of treatment conditions compared to TAU; dependent variable: BDI suicide item

There was no differential effect of the treatment conditions as compared to TAU on suicidal symptoms when assessed with the BDI suicide item while controlling for changes in depression (model 1) (Table 2). Neither MBCT (model 1: $\beta = 0.04; p = 0.72$) nor CBASP (model 1: $\beta = -0.10; p = 0.32$) showed an incremental effect on the reduction of SI as assessed with the BDI suicide item compared to TAU. However, when compared to each other with MBCT as reference condition, CBASP showed a significantly smaller effect on suicidality ($\beta = -0.25; p = 0.03$) compared to MBCT (model

<table>
<thead>
<tr>
<th></th>
<th>MBCT</th>
<th>CBASP</th>
<th>TAU</th>
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<tbody>
<tr>
<td><strong>Pre</strong></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>BDI suicide item</td>
<td>0.86</td>
<td>0.59</td>
<td>0.64</td>
</tr>
<tr>
<td>HAMD suicide item</td>
<td>0.83</td>
<td>0.81</td>
<td>0.81</td>
</tr>
<tr>
<td>HAMD total</td>
<td>23.03</td>
<td>6.27</td>
<td>19.69</td>
</tr>
<tr>
<td>BDI total</td>
<td>31.31</td>
<td>9.55</td>
<td>25.40</td>
</tr>
</tbody>
</table>

* Missing data was accounted for by using the last observation carried forward (LOCF); MBCT: Mindfulness-based Cognitive Therapy; CBASP: Cognitive Behavioral Analysis System of Psychotherapy; TAU: Treatment as usual; BDI: Beck Depression Inventory; HAMD: Hamilton Depression Rating Scale; M: mean; SD: standard deviation.
The results of the present study showed that both MBCT added to TAU and CBASP added to TAU have an additional effect on suicidality when measured with the HAMD suicide item. This effect was robust when controlling for changes in other depression symptoms. Sizes of the effects of MBCT and CBASP on suicidality were similar to those reported in prior studies (Barnhofer et al., 2009; Forkmann et al., 2014). However, it has to be noted that despite being robust, these effects of MBCT and CBASP on suicidality were not large and it remains an open question whether both treatments have similar effects on suicidal behavior. Furthermore, future research must show whether MBCT and CBASP aids in preventing suicidal relapse.

A different picture emerged when suicidality was assessed via self-report (BDI suicidality item). In the MBCT group, a significant reduction in suicidality was found. However, this effect vanished by controlling for changes in depression. One might speculate whether this could potentially be caused by multiple testing or whether it could be interpreted in line with the common assumption that suicidality is just an epiphenomenon of depression. In the CBASP group, no significant change in suicidality was found when assessed with the BDI suicidality item. This might be at least partly due to a floor effect. In the CBASP group, suicidality was significantly lower than in the MBCT group at baseline which might have precluded significant effects in the CBASP group. When comparing both treatments directly to each other no different effect on suicidality was found when suicidality was measured with the HAMD suicide item. However, when the BDI suicide item was chosen as dependent variable, MBCT showed a significantly larger effect on suicidality than CBASP.

The divergence between results of HAMD and BDI is noteworthy. Several reasons are conceivable. Generally, prior research has repeatedly shown that the HAMD appears to be more sensitive to change than the BDI (see e.g., Schneibel et al., 2012; Sayer et al., 1993). Moreover, Schneibel et al. (2012) found that low extraversion and high neuroticism were associated with higher endorsement of depressive symptoms on the BDI as compared to the HAMD. In our own data, the discrepancy between HAMD and BDI might be associated with a potential floor effect. For both HAMD and BDI suicide items the mean ratings at baseline were < 1. However, as Table 1 shows, HAMD data had slightly larger variance than BDI data. This larger variance could have facilitated finding a slightly larger effect of treatments. Second, verbal anchors of the steps of the rating scales differ. For the BDI item, step 1 refers to SI without concrete intent or plans to commit suicide. However, for the HAMD item step 1 refers to more general feelings that life is not worth living. Step 2 of the BDI item refers to the wish to commit suicide, whereas step 2 of the HAMD item refers to the wish to be dead without the concrete implication of suicide. Thus, steps 1 and 2 of the HAMD item might have been slightly easier, i.e., probability to endorse this answer option might have been higher than for the corresponding answer option of the BDI item. Indeed, at baseline, for a total of n = 20 participants option two of the HAMD item was endorsed and only n = 3 participants endorsed option two of the BDI item. A third explanation for the divergent results is that effects of social desirability could have been more

Table 2
Effects of MBCT and CBASP on change in HAMD and BDI suicide scores compared to TAU (model 1) and compared to each other (model 2).

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Intercept</th>
<th>B</th>
<th>SD</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>change in depression</td>
<td>0.05</td>
<td>0.01</td>
<td>0.40</td>
<td>4.50</td>
<td>0.00</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>MBCT vs. TAU</td>
<td>0.39</td>
<td>0.16</td>
<td>0.24</td>
<td>2.46</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>CBASP vs. TAU</td>
<td>0.44</td>
<td>0.17</td>
<td>0.27</td>
<td>2.66</td>
<td>0.01</td>
<td>-0.13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2</th>
<th>Intercept</th>
<th>B</th>
<th>SD</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>adj. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>change in depression</td>
<td>0.04</td>
<td>0.01</td>
<td>0.36</td>
<td>3.07</td>
<td>0.00</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>CBASP vs. MBCT</td>
<td>0.09</td>
<td>0.16</td>
<td>0.07</td>
<td>0.58</td>
<td>0.56</td>
<td>-0.27</td>
</tr>
</tbody>
</table>

Note: MBCT: Mindfulness-based Cognitive Therapy; CBASP: Cognitive Behavioral Analysis System of Psychotherapy; TAU: Treatment as usual; HAMD: Hamilton Depression Rating Scale; BDI: Beck Depression Inventory.
powerful in the clinician rated HAMD than in the self-rated BDI. This effect could have led to an artificial reduction of reported symptom burden at post assessment in the HAMD, because participants could have suspected that the interviewer expected them to have benefited from treatment. However, this supposition is undermined by the fact that for the total HAMD treatment effects were not larger than for the total BDI (see Table 1). In sum, the divergence between results in clinician rated and self-reported suicidality should be further investigated. Generally, the application of both self-report and clinician rated instruments should be recommended.

A common mechanism of action that could have accounted for the incremental effects on suicidality of both MBCT and CBASP in addition to TAU compared to TAU alone is peer support. MBCT and CBASP consisted of eight weekly group sessions and one or two additional individual sessions. TAU contained no formal group-based intervention but only regular psychiatric / psychotherapeutic treatments. Social isolation is one of the strongest risk factors for SI and in contrast, marriage, children, and a greater number of friends are associated with decreased suicide risk (Van Orden et al., 2010). Additionally, according to contemporary theories on the development of SI and suicidal behavior – such as the Interpersonal Theory of Suicide (Joiner, 2005), or the Integrated Motivational-volitional Model of Suicidal Behavior (O’Connor, 2011) – the absence of reciprocal care is one key component of a sense of thwarted belongingness that may act as a motivational moderator or even direct predictor of increases in SI. Thus, the treatments delivered in groups – such as in this case MBCT and CBASP – may have reduced SI by increasing the feeling of social belongingness of the participants. However, results of a meta-analysis by Tarrier et al. (2008) suggest that for cognitive-behavioral interventions for suicidal thoughts and behavior generally even larger effects for individual than for group-based treatments could be found. Thus, the effects of MBCT and CBASP on suicidality as reported in the present study are probably not reducible to a simple effect of the group-setting that would have been found in any other group-based treatment, too.

In all models investigated, change in depression was a significant predictor of change in SI. This is in line with the assumption that depression and suicidality are closely related psychopathological syndromes. However, our results also show that both MBCT and CBASP can have an additional effect on suicidality above that of change in depression. This result corroborates the view that it cannot be assumed that depression focused interventions will be effective in reducing suicidal thoughts and behavior (Cuijpers et al., 2013) and that suicidal thoughts and behavior are not merely a part or a symptom of a depressive disorder but represent a separate nosological entity (Ahrens and Linden, 1996; Ahrens et al., 2000; Forkmann et al., 2013; Kendel et al., 2010; Leboyer et al., 2005; Van Orden et al., 2011).

4.1. Strengths and limitations

Some strengths and limitations should be kept in mind when appreciating the results of the present study. Treatments were delivered mostly group-based and with limited duration which might have had an impact on outcome. Patients were encouraged to continue any current medication and to attend appointments with their psychiatrist/psychotherapist. There were no restrictions on other forms of supplementary treatment. Suicidality was measured with two single items. Although this is common practice in this area of research (Ladwig et al., 2010; Weitz et al., 2014; Krajniak et al., 2013), use of psychometric scales for SI would be desirable and may improve reliability of assessments in future investigations. However, it has to be noted that in contrast to prior studies (e.g., Forkmann et al., 2014; Ladwig et al., 2010) we included two single items, one self- and one clinician-rated item. Power of analyses was reasonable for the comparison of the group therapy conditions (MBCT + TAU and CBASP + TAU) with TAU alone, but might have been insufficient for the direct comparison of CBASP to MBASP (secondary analysis). Although some effort has been invested to maintain blindness of the raters (i.e., patients were instructed not to mention their treatment condition or their psychotherapist during the interviews, ratings and therapy were conducted in different buildings) there was no direct measure of blindness. Strengths of the study are the randomized-controlled design, the inclusion of a control group, and two active treatments.

4.2. Summary and conclusion

In conclusion, results of the present randomized-controlled trial suggest that both MBCT and CBASP may be successful psychotherapeutic approaches for the group-based treatment of SI in chronically depressed patients. Incremental effects of both treatments above the effect of TAU were dependent on the way suicidality was assessed (self- vs. clinician-rated) but were independent from changes in depression. Future research should try to reveal variables that mediate or moderate the effects of MBCT and CBASP on SI in order to facilitate a deeper understanding of the clinical mechanisms of action. Because all effects were of small to medium size and were independent of effects from other depression symptoms, the present results warrant the application of such psychotherapeutical treatment strategies like MBCT and CBASP for SI in patients with chronic depression.

Trial registration and funding

This trial was registered (NCT01065311) and was funded by the German Science Foundation (DFG: Mi 700/4-1).

References


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