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ORIGINAL ARTICLE

Mindfulness-Based Cognitive Therapy and Self-Discrepancy in Recovered Depressed Patients with a History of Depression and Suicidality

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Abstract Long-term vulnerability to depression is related to the presence of perceived discrepancies between the actual self and ideal self-guides. This study examined the immediate effects of an 8-week course of Mindfulness-Based Cognitive Therapy (MBCT) on self-discrepancies in individuals currently in recovery, with a history of affective disorder that included suicidal ideation and behaviour. Results indicated significant *time* × *group* interactions for both ideal self similarity and ideal self likelihood ratings, primarily accounted for by increases in self-discrepancy from pre-test to post-test in the waiting list group which were not seen in those receiving MBCT. Changes in self-discrepancy were not associated with changes in residual depressive symptoms, but in the MBCT group there was a significant association between increases in ideal self similarity and the adoption of more adaptive ideal self-guides post treatment. MBCT may protect against increases in self-discrepancy in people vulnerable to relapse to depression and may also facilitate a shift in the goals of self-regulation.

Keywords Self-discrepancy · Depression · Suicide · Mindfulness-based cognitive therapy · Relapse · Goals

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Changes in Self-Discrepancy Following Mindfulness-Based Cognitive Therapy

We are interested in the processes that determine outcomes for those people suffering recurrent episodes of affective disorder who become acutely suicidal during these episodes, as well as in how a mindfulness-based treatment may affect these processes. We are concerned about this sub-group of patients because they are at highest risk of eventual suicide or serious suicidal behaviour. Although there are many contributory factors to suicidality, depression is the key risk factor (Foster et al. 1997; Kessler et al. 2005; Yen et al. 2003), and the Population Attributable Ratio (PAR) for depression in serious suicidal behaviour (that proportion of suicidal behaviour that would be removed if depression were taken out of the picture) is 80 per cent (Beautrais et al. 1996). This study focuses on self-discrepancy; one of the key psychological processes in maintenance of depression and one of the few variables that has been found to uniquely change with psychotherapy but not with pharmacotherapy (Strauman et al. 2001).

People suffering from depression often believe themselves to be falling short of their own or other's goals or expectations. This observation is central to self-discrepancy theory (Higgins 1987), an approach which suggests that individuals possess cognitive structures which capture the relationship between their current self-concept and self-related goals ('self-guides'). These structures are thought to differ from person to person in both *availability*—the magnitude of the divergence between the internal representations of the actual self and self-guides; and *accessibility*—how readily the structures can be activated and have an impact on affect (Higgins 1987). Two types of self-guides have received the most research attention: 'ideal' self-guides, which represent desired states or qualities, and which underpin approach-related self-regulatory behaviour, and 'ought' self-guides which represent states or qualities in which salient negative outcomes are absent, and underpin avoidance-related self-regulatory behaviour (e.g. Strauman et al. 2001).

Different types of self-discrepancy have different implications for affective state. Dejected affect has been linked to higher levels of perceived discrepancy between the actual self-concept and ideal self-guides (e.g. Carver et al. 1999; Carver and Scheier 1998; Strauman 1989; Higgins 1987; Higgins et al. 1986; Pierce et al. 1999) whilst anxiety and agitation are linked to higher levels of perceived discrepancy between the actual self and ought self-guides (e.g. Scott and O'Hara 1993). Major depression is thought to arise as a consequence of more chronic perceptions of actual-ideal discrepancy (Strauman et al. 2001).

In addition to explaining depression in general, self-discrepancy theory may have particular relevance to the understanding of suicidality. This is because suicidal behaviour can be viewed as an attempt to escape or avoid unbearable situations or feelings (Williams et al. 2005), including an attempt to escape from the aversive *self-awareness*, which arises from a perceived failure to live up to internal and external standards (Baumeister 1990). Therefore in researching treatment targeting vulnerability to recurrent suicidal depression, self-discrepancies appear to be a candidate process of potentially critical importance.

In non-clinical populations levels of self-discrepancy appear to be relatively stable over time (Strauman 1996). However, in individuals who have a history of depression, levels of self-discrepancy appear to vary with the course of depression, in a similar way to other markers of cognitive vulnerability (e.g. dysfunctional attitudes). For example remitted unipolar patients show lower levels of actual-ideal discrepancy than unipolar patients who are currently depressed, but non-significantly higher levels than never depressed controls (Fairbrother and Moretti 1998). Research on patients with bipolar disorder similarly shows elevated levels of actual-ideal discrepancy in patients in the depressed phase of their illness relative to patients in remission (Bentall et al. 2005). Actual-ideal discrepancies are also more easily primed by mood challenge in remitted depressed individuals than never depressed controls (Baskerville 1999), suggesting that self-discrepancies may remain latent, or be actively suppressed, between episodes.

The aim of the current study was to explore the effects of adding Mindfulness-Based Cognitive Therapy (MBCT) to treatment as usual, on self-discrepancies in patients who had recovered from Major Depression (MDD) who had experienced severe suicidal ideation or engaged in suicidal behaviour when depressed. MBCT is a relapse prevention treatment, delivered to patients when well, which combines cognitive therapy techniques with skills training in meditation. Two previous studies have demonstrated the efficacy of MBCT in reducing risk of recurrence of MDD in people who are currently well but who have suffered from several episodes of depression in the past (Teasdale et al. 2000; Ma and Teasdale 2004). However despite the interest in the use of MBCT and other mindfulness-based approaches there is still relatively little research examining potential mechanisms of action. In particular, whilst it has been reported that people participating in mindfulness-based treatments often experience profound changes in their outlook on life (e.g. Kabat-Zinn 1990), the specific effects of MBCT on self-representation or goal pursuit have received scant attention.

Individuals with a history of recurrent suicidal depression are at high risk of experiencing further episodes of MDD in the absence of treatment, and suicide-related cognitions are easily reactivated by fluctuations in mood (Williams et al. 2005, 2008). The theory on which MBCT is based (Segal et al. 2002) suggests that one of the key mechanisms through which people remain at risk of further episodes of depression is the extent to which stressful events or small shifts in mood provoke self-related

discrepancy-based processing. Papadakis et al. (2006) have recently demonstrated, in a study of adolescent girls, that actual-ideal self-discrepancies interact with an individual's tendency to ruminate to predict levels of depressed affect. As Papadakis et al., and Segal et al., point out, if self-discrepancies are highly accessible and an individual responds to these self-discrepancies by attempting to reduce them through rumination, this will act to further increase the accessibility of self-discrepancies (by increasing the recency and frequency of their activation), which in turn will intensify negative affect. If self-guides are *feeling-state* focused (e.g. the ideal self-guide '*to be happy*'), as is often the case for individuals who are suicidal, (Vincent et al. 2004) a focus on self-discrepancies and attempts to reduce them ('*why aren't I happy*?'), will be likely to increase the perceived availability (magnitude) of the discrepancies as well.

It is hypothesised that MBCT may protect against reactivation of self-discrepancies and reduce risk of further depression in two ways. First MBCT encourages individuals to become an observer of their own mental processes, watching self-critical and judgmental thoughts arise and adopting an attitude of openness and acceptance, allowing them to come and go without focusing on them or trying to change them. In this way—by preventing over-engagement with self-discrepancies that are momentarily primed—MBCT may limit the extent to which the *accessibility* of self-discrepancies increases in response to mood fluctuations and external events, protecting individuals against the re-emergence of latent self-discrepancies. Second, the emphasis on self-acceptance, self-kindness and non-striving common to all mindfulness-based approaches may lead individuals to re-evaluate their goals for self-regulation. For example they may be more likely to abandon problematic or perfectionist goals or self-guides ('*to be a perfect wife and mother*', '*to be happy all the time*') in favour of more functional and realistic alternatives. Such an effect would be likely to reduce vulnerability to relapse by reducing the *availability* (magnitude) of self-discrepancies and would be related to changes in the content of self-guides.

Although to the best of our knowledge no previous studies have been conducted examining changes in self-discrepancy following MBCT in patients with a *history* of depression currently in recovery, two studies have examined changes in self-discrepancy following treatment of *acute* depression with other forms of psychotherapy (Strauman et al. 2001). The first demonstrated that successful group Cognitive Behavioural Therapy (CBT) for depression produced statistically significant reductions in patients' actual-ideal self-discrepancies, but non-significant reductions in actual-ought discrepancies. In this study no correlations were observed between changes in actual-ideal discrepancy and improvement in depressive symptoms, suggesting that changes in self-regulatory structures were not simply an epiphenomenon of improvements in mood. A second study compared the effects of individual CBT, interpersonal psychotherapy (IPT) and antidepressant medication on depressive symptoms and self-discrepancies. All individuals showed similar levels of symptomatic improvement from pre-test to post-test, but, importantly, only those receiving CBT and IPT showed reductions in actual-ideal self-discrepancy, while actual-ought discrepancies again remained unchanged. These findings reinforce the primary role of actual-ideal discrepancies in major depression and again suggest that whilst levels of self-discrepancy are linked to levels of depressed affect, changes in self-discrepancy which arise as a consequence of treatment may occur independently of changes in mood.

In the current study we were interested in examining the *immediate* effects of MBCT compared to a waitlist condition on self-discrepancies rather than exploring the long-term contribution of changes in self-discrepancy to reduced risk of relapse. Participants who were in remission from MDD, but had a history of depression accompanied by suicidal ideation or behaviour, were randomly allocated to either immediate treatment with MBCT or to a waitlist condition, and a measure of self-discrepancy was administered to participants at pre-test (pre-randomisation) and post-test (post treatment or waitlist). Since this study focused on individuals with a history of suicidal depression, at high risk of relapse, all participants were encouraged to continue with other treatment as usual during their period of involvement in the study (e.g. antidepressants) and details of such treatments were recorded.

As discussed above, depressogenic processes may only be observed when activated. This affects our

hypotheses for this study. Unlike previous research on changes in self-discrepancy, which have focused on treatment of depressed patients in *episode*, MBCT in this study followed previous trials in being offered to patients when they had recovered, as a means of staying well. Thus it is an open question whether the effect of MBCT will be to reduce discrepancies (assessed at the outset of the study in the recovered state), or to prevent deterioration that might normally occur in the absence of treatment, or both. Given the findings of previous studies that actual-ideal self-discrepancies are more relevant to individuals vulnerable to depression and that treatments targeted at the cognitive processes underlying depression tend to impact more upon the domain of ideal self-discrepancies (e.g. Strauman et al. 2001), we predicted that differential change in self-discrepancy ratings would be observed for ideal self-discrepancies, whereas no predictions were made concerning ought self-discrepancies. Next, we were interested to explore the nature of changes in self-discrepancies and association between changes in level of ideal self-discrepancy and changes in level of residual depressive symptoms. On the basis of past research into treatments for acute depression (Strauman et al. 2001) we predicted that whilst significant cross-sectional associations would be observed between level of ideal self-discrepancy and depression, that *change* in ideal self-discrepancy would be unrelated to change in residual depressive symptoms. Finally, we predicted that individuals receiving MBCT would show a shift in the goals of self-regulation, towards more adaptive ideal self-guides post treatment.

Method

Inclusion/Exclusion Criteria

People aged between 18 and 65 years were eligible for inclusion in the trial. The primary inclusion criteria were the presence of at least one past episode of MDD and a history of active suicidal ideation (not simply a wish for death) or a suicide attempt (as determined by structured clinical interview, see below). Previous research on MBCT has suggested that it is efficacious for those patients with three or more previous episodes of depression. However no previous research has focused on the efficacy of MBCT for individuals with suicidal depression, who may display high levels of cognitive reactivity from the outset. Therefore we chose to include all those with such a history in the current study. All participants met NIMH depression recovery criteria at entry to the trial (reporting no more than 1 week of minimal symptoms of MDD in the past 8 weeks; Frank et al. 1991). People who reported current substance misuse that clinical judgement suggested would preclude attendance at classes and the capacity to meditate in clear consciousness were excluded, as were those with difficulties reading, writing or speaking fluent English. Given the high rates of suicidality in individuals with bipolar disorder, and the evidence for similar self-discrepancies in unipolar and bipolar patients during the depressed phase (e.g. Bentall et al. 2005) patients with bipolar disorder were eligible to take part as long as they had not experienced a manic episode within the past 6 months. No restrictions were imposed concerning current medication usage (details below) and participants in both groups were encouraged to continue receiving treatment as usual during their period of involvement with the study. However, people who had received past CBT and been well since were excluded since effective CBT is suggested to tackle many of the same cognitive processes as MBCT and has previously been demonstrated to reduce actual-ideal discrepancies in depressed patients (Strauman, et al. 2001).

Recruitment

Participants were recruited through posters in family practice clinics and other treatment centres, from General Practitioners and local psychologists, and through newspaper articles and features in the local media. After receiving initial information, 125 people expressed an interest in taking part in the study and underwent telephone screening to assess eligibility in terms of the study inclusion/exclusion criteria outlined above. Forty-two were excluded at this point (20 experiencing current depression/suicidal ideation, 4 experiencing current mania/hypomania, 9 due to recent CBT, 3 because they had not experienced suicidal ideation or behaviour of sufficient severity in the past and 6 for other reasons that would have made the classes or assessments unsuitable (e.g. learning difficulties). The 83 people who were judged eligible to take part on the basis of initial screening were

invited to attend a more detailed interview including the completion of other assessment measures. Of these, 11 did not attend the assessment, 2 were judged to be ineligible following the more detailed interview (one due to current psychotic symptoms, one due to aggression and current suicidal ideation) and 2 withdrew from the study before completing all the assessment measures. This left 68 people who entered the trial and were randomised to immediate or delayed treatment. Randomisation was stratified according to number of previous episodes of MDD (<3 or 3+) and history of suicidality (ideation or attempt). Randomisation envelopes were prepared and sealed by someone outside the research team and randomisation was conducted by a member of the team blind to the interpretation of the stratification numbers. Thirty-three of the participants were randomised to receive immediate treatment and 35 to receive delayed treatment. Assessors were blind to group allocation throughout the study period.

Of the 33 people randomised to immediate treatment, 23 (70%) attended 4 or more sessions of MBCT (defined as a minimum adequate dose, see Teasdale et al. 2000). Of these 23, four did not complete all measures at the follow-up session, leaving complete self-discrepancy data on 19. Of those allocated to delayed treatment, 27 returned to complete a second assessment. Of these, 4 did not complete all measures, leaving self-discrepancy data from 23 people. A comparison of the 42 people who were retained in the study (attending at least 4 or more sessions of MBCT if allocated to immediate treatment) and provided complete data on the measures of interest ('completers'), with the 26 people who dropped out or provided incomplete data ('drop-outs') indicated that those who remained in the study were significantly older than those who dropped out, but that the groups did not differ significantly in BDI, similarity to ideal self-guides at baseline, similarity to ought self-guides at baseline, likelihood of reaching ideal self-guides at baseline or likelihood of reaching ought self-guides at baseline. There was no significant difference between the groups in the number of participants who were retained in the study, χ^2 (1) = .48, $P > .50$. Logistic regressions conducted to examine whether the key baseline variables (levels of ideal and ought self-discrepancy) interacted with group allocation to predict drop-out (for example whether individuals high in ideal self-discrepancy were more likely to drop-out if allocated to MBCT versus waitlist) indicated no significant interaction effects (all Ps > .30). The focus of this study is on processes of treatment change rather than treatment efficacy. It is therefore of primary interest to explore change in individuals who received an adequate minimum dose of treatment. However given the relatively high rates of drop-out from treatment as well as incomplete data we also repeated the key analyses on an intention-to-treat basis, bringing forward baseline self-discrepancy ratings where data on self-discrepancy was missing from the follow-up assessment. These analyses yielded equivalent results and are reported in footnote 1.[1]

Design and Procedure

At entry to the trial details of psychiatric history and current psychiatric disorders were obtained using the Mini International Neuropsychiatric Interview (Sheehan et al. 1998). Due to the relationship between Borderline Personality Disorder (BPD) and deliberate self-harm, the BPD module of the SCID-II (First et al. 1997) was also administered, although participants with BPD in addition to MDD were not excluded from the study. Interviews were conducted by experienced doctoral and post-doctoral psychologists who were blind to treatment allocation. Participants also completed a number of other assessment measures during this assessment (the 'baseline' assessment) including the measures of depression, rumination and self-guides, described below. Following this, eligible participants were

[1] We repeated the analyses of the effects of treatment on ideal self similarity and ideal self likelihood carrying forward baseline data for any participants who did not have time 2 data, and additionally including participants who were allocated to immediate treatment but attended 3 or fewer sessions. A mixed between (*baseline, follow-up*), within (*MBCT, waitlist*) ANOVA for ideal self similarity revealed no significant main effects of time or group (Fs < 1), but identified a significant *time* × *group* interaction, $F(1, 63) = 7.19$, $P = .015$. A mixed between (baseline, follow-up), within (MBCT, waitlist) ANOVA for ideal self likelihood identified a trend towards a main effect of time F (1, 62) = 2.93, $P = .09$ and a significant *time* × *group* interaction F (1, 62) = 5.41, $P = .02$. The findings of these 'intention-to treat' analyses are therefore wholly consistent with the findings of analyses based on the smaller group of participants who attended an adequate dose of treatment and returned for a follow-up assessment providing complete data.

randomly allocated to immediate or delayed treatment (waitlist), with those allocated to immediate treatment beginning classes in October 2005. Following the completion of the classes / waiting period all participants who could be contacted were invited to attend a second assessment during which they completed the same measures. Follow-up interviews (the 'follow-up') took place in December 2005 and January 2006. Participants in the waiting list condition were then invited to begin treatment.

Treatment

Mindfulness-Based Cognitive Therapy (MBCT) is a manualised group skills training programme (Segal et al. 2002) based on an integration of aspects of CBT for depression (Beck et al. 1979) with components of the MBSR program developed by Kabat-Zinn (1990). It was designed to teach patients in remission from recurrent major depression to become more aware of, and to relate differently to, their negative thoughts, feelings, and bodily sensations, relating to them non-judgementally as passing events in the mind, rather than identifying with them or treating them as necessarily accurate read-outs on reality. The program teaches skills that allow individuals to disengage from habitual ("automatic") dysfunctional cognitive routines, in particular depression-related avoidant and ruminative thought patterns, as a way to reduce future risk of relapse and recurrence of depression. In this study, the program consisted of an individual pre-class interview followed by 8 weekly 2-h classes, plus an all-day class between weeks 6 and 7. The program was taught by JMGW (one of the original developers of MBCT) and MF (a highly experienced CT therapist trained in MBCT) and followed the original MBCT Manual (Segal et al. 2002) except for greater emphasis on (a) patterns of thoughts, feelings and body sensations that might be associated with suicidal planning or action, (b) the factors that make such patterns persist and escalate, and (c) explicit preparation for suicidal crises.

Questionnaires

Beck Depression Inventory-II (Beck et al. 1996)

The Beck Depression Inventory (BDI-II) is a well-established measure of depressive symptomatology. It contains twenty-one groups of statements, assessing symptoms of depression over the preceding 2 weeks. It has excellent reliability and validity.

Self-Description Questionnaire (Based on Carver et al. 1999)

Participants completed a questionnaire in which they were asked to describe different 'self-concepts'—their 'ought self' and their 'ideal self' (see Appendix 1). Participants identified and listed characteristics that described their 'ought' and 'ideal' self-concepts. They then copied each characteristic onto a second page and rated their current similarity to each characteristic on a scale ranging from 1 ("*presently I am the opposite of this characteristic*") to 7 ("*presently I am just like this characteristic*"). They also rated the likelihood that they would have each characteristic in the future, again on a 7-point scale ranging from 1 ('*it is very unlikely I will have this characteristic in the future*') to 7 ('*it is extremely likely I will have this characteristic in the future*'). Previous research has indicated that the first three self-guides generated by participants in each category have greater stability over time (Strauman 1996). Therefore data from the first three self-guides generated in each category were used for the current study.

In order to better understand the impact of MBCT on ideal self-guides and to examine whether treatment with MBCT or reductions in self-discrepancy were related to changes in the goals of self-regulation, we examined changes in the characteristics or attributes participants listed as ideal self-guides at baseline and follow-up. A researcher, blind to participant group, rated the ideal self-guides listed by each participant before and after treatment or waitlist. Unhelpful self-guides were identified (see below) and the difference in number of unhelpful self-guides from pre to post treatment was computed, such that a higher score represented the abandonment of a greater number of unhelpful guides at follow-up. Unhelpful self-guides were defined as those (a) which implied the need to change a characteristic that is generally regarded as stable, for example '*to be physically attractive*'; (b) which implied criticism of current state, for example '*not to be so easily hurt*'; (c) which appeared to be overly contingent on external factors, for example '*to be rich*'; (d) which implied the subjugation of own needs for others, for

example '*to be acceptable to others*'; or (e) which implied non-acceptance of 'normal' changes in mood and experience, e.g. '*to be unshakeable*', '*to always be in control*'. A second blind rater also rated the self-guides using the same criteria. There was a high degree of agreement between the two raters (Weighted Kappa = .77; Spearman's $r = .88$, $P < .001$). Where there was a disagreement between raters, the average of the two ratings was adopted for subsequent analysis.

Results

Demographics

All participants were Caucasian. Participants in the MBCT group ($M = 49.75$, $SD = 8.11$) were significantly older than participants in the waitlist group ($M = 40.44$, $SD = 9.09$), $U = 100.50$, $Z = -2.98$, $P = .003$, however none of the variables of interest correlated significantly with participant age and when key analyses were repeated including age as a covariate the results were unchanged. The groups did not differ significantly in gender distribution, $\chi^2(1) = 2.05$, $P = .20$. Twenty eight participants had some higher education, 7 some further education, and 7 left school at age 16. There was no significant difference between those allocated to MBCT and those allocated to waitlist in educational level, $\chi^2(2) = 2.36$, $P = .31$.

Psychiatric Diagnoses

All participants were in remission from depression at entry to the study, as determined by clinical interview. The median number of past depressive episodes in both groups was 4.00, (range = 1 to 30, $n = 6$ with chronic depression) and the two groups did not differ significantly, $U = 150.00$, $Z = -.323$, $P > .70$. Six of the 19 patients (32%) in the MBCT group and 9 of the 23 patients (39%) in the waitlist group had made one or more suicide attempts, with no difference between the groups in this regard, $\chi^2(1) = .26$, $P = .61$. Seven participants in the waitlist group (30%) and six in the MBCT group (32%) met criteria for lifetime bipolar I or II, with no difference between the groups in this regard, $\chi^2(1) = 0.01$, $P = .94$. Three participants in the delayed group and two in the immediate group met criteria for borderline personality disorder, with no significant difference between the groups, Fisher's exact test, $P = 1.00$.

Medication

Patients allocated to MBCT or waitlist did not differ significantly in their use of antidepressant medication at entry to the study, $\chi^2(1) = .17$, $P = .76$, with 10 of the 23 waitlist patients (43%) and 9 of the 19 MBCT patients (47%) taking antidepressants. At the follow-up assessment two of the participants in the waitlist group had discontinued their antidepressant medication and one had commenced use of antidepressants. In the MBCT group two participants had discontinued their antidepressants and two had commenced use of antidepressants, indicating a similar pattern, and low level of change, in both groups. At the baseline assessment two participants in the waitlist group were additionally taking mood stabilisers (one lithium, one sodium valproate) and one was taking an antipsychotic (olanzapine). At the follow-up assessment one of the participants was still taking lithium and none were taking antipsychotics. In the MBCT group at baseline two participants were taking mood stabilisers (both lithium), and two were taking antipsychotics (one olanzapine, one unknown). At follow-up one was taking a mood stabiliser (lithium) and one an antipsychotic (olanzapine). These data again suggest equivalent low levels of change in medication use during the participants' period of involvement in the study.

Psychological Treatment

Those allocated to MBCT did not differ from those allocated to waitlist in the number who had received prior inpatient treatment for psychiatric problems (MBCT: $n = 4$, 22%; Waitlist $n = 5$, 22%), nor in the number who had received prior psychotherapy (MBCT: $n = 13$, 68%; Waitlist: $n = 18$, 78%). Participants were questioned at follow-up about any treatment they had received (in addition to MBCT) *during* their period of involvement in the study (participants in both groups were encouraged to continue to receive other treatments as usual). Five participants in the waitlist group and three participants in the MBCT group had visited their GP as a

result of symptoms of depression. One participant in the waitlist group and two in the MBCT group had seen a psychiatrist or community psychiatric nurse. Two participants in the waitlist group and two in the MBCT group had received other psychotherapy (*Waitlist*: 1 cognitive analytic therapy, 1 hypnotherapy; *MBCT*: 1 counselling, 1 'emotional' therapy). These data suggest a similar and relatively low level of engagement in non-study treatment in both groups.

Depression (BDI-II)

BDI scores were positively skewed and so were root transformed before analysis to improve normality. There was no significant difference between the groups in baseline BDI score, $F\ (1,\ 40) = .52$, $P = .48$, indicating that both groups had similar levels of residual symptoms. A *2* (*time*: pre-test, post-test) by *2* (*group*: MBCT, waitlist) mixed ANOVA was conducted to examine the effects of MBCT on residual depressive symptoms. This identified a significant main effect of time, $F\ (1,\ 38) = 9.31$, $P = .004$, partial $\eta^2 = .20$ and a significant *time* × *group* interaction, $F\ (1,\ 38) = 10.14$, $P = .003$, partial $\eta^2 = .21$. Bonferroni-corrected post-hoc comparisons indicated that whilst there was no significant difference between participants allocated to MBCT and those allocated to waitlist at pre-test, at post-test those allocated to MBCT reported significantly lower levels of depression than those allocated to waitlist, $Mi - j = 1.11$, $SE = .54$, $P = .05$. Additionally whilst those allocated to waitlist showed no significant change in level of depression from pre-test to post-test, those allocated to MBCT showed a significant reduction in residual depressive symptoms, $Mi - j = -1.43$, $SE = .33$, $P < .001$. Descriptive statistics for the BDI are shown in Table 1.

Self-Discrepancies

Relative Strength of Ideal and Ought Self-Discrepancies

Paired samples t-tests were conducted to examine whether ideal self-discrepancies were more pronounced than ought self-discrepancies, across the sample as a whole, at the baseline assessment. Participants reported significantly less similarity to ideal self-guides than to ought self-guides, $t\ (41) = -2.78$, $P = .008$ and a trend towards significantly less likelihood of reaching ideal self-guides than ought self-guides in the future, $t\ (41) = -1.95$, $P = .06$. These findings mirror previous research which has also identified higher levels of actual-ideal than actual-ought discrepancy in individuals vulnerable to depression.

Association Between Self-Discrepancies and Depressive Symptoms

Pearson correlation coefficients were conducted to explore cross-sectional associations between levels of ideal and ought similarity and likelihood and levels of depressive symptoms at baseline and at follow-up for the sample as a whole. These indicated significant associations between ideal self similarity and depressive symptoms as assessed at baseline, $r\ (42) = -.51$, $P = .001$ and at follow-up, $r\ (40) = -.47$, $P = .002$. None of the other associations were statistically significant.

Change in Ideal Self Similarity

A *2* (*time*: baseline, follow-up) by *2* (*group*: MBCT, waitlist) mixed ANOVA was conducted to examine

Table 1 Descriptive statistics for key study variables in individuals receiving four or more sessions of MBCT ($n = 19$) and those allocated to waitlist ($n = 23$)

	MBCT		Waitlist	
	Baseline *M* (*SD*)	Follow-up *M* (*SD*)	Baseline *M* (*SD*)	Follow-up *M* (*SD*)
BDI	16.58 (14.23)	8.40 (12.59)	12.78 (9.83)	12.90 (11.76)
Ideal self—similarity	10.89 (4.43)	12.47 (2.84)	11.87 (4.58)	10.22 (3.61)
Ideal self—likelihood	14.42 (3.91)	14.95 (2.66)	15.09 (2.66)	13.48 (3.20)
Ought self—similarity	12.00 (4.23)	11.89 (4.28)	14.00 (3.69)	13.19 (4.20)
Ought self—likelihood	14.74 (4.52)	15.37 (2.56)	16.39 (2.99)	15.33 (4.29)

change in ratings of similarity to ideal self-guides. Analyses indicated no main effects of time, $F(1, 40) = .00$, $P > .90$, or group, $F(1, 40) = .42$, $P = .52$, but, as predicted, a significant *time* × *group* interaction $F(1, 40) = 5.15$, $P = .03$, partial $\eta^2 = .11$. Bonferroni-corrected post-hoc comparisons indicated that there was no significant difference between the groups at baseline, $Mi - j = .98$, $SE = 1.34$, $P = .49$. At follow-up participants in the MBCT group reported significantly less discrepancy from ideal self-guides than participants in the waiting list group, $Mi - j = 2.26$, $SE = 1.02$, $P = .03$. Participants in the waiting list group also showed a trend towards increased discrepancy from ideal self-guides from baseline to follow-up, $Mi - j = -1.65$, $SE = .96$, $P = .09$, whereas participants in the treatment group showed a decrease in discrepancy that was non-significant but of similar magnitude, $Mi - j = 1.58$, $SE = 1.05$, $P = .14$. These results are illustrated in Fig. 1.

Change in Ideal Self Likelihood

A second *time* × *group* mixed ANOVA was conducted to examine changes in ratings of likelihood of attaining ideal self-guides in the future. Again analysis indicated no main effect of time, $F(1, 40) = 1.17$, $P = .29$, or group, $F(1, 40) = .23$, $P = .63$, but a significant *time* × *group* interaction, $F(1, 40) = 4.46$, $P = .04$, partial $\eta^2 = .10$. Post-hoc tests indicated that participants in the waiting list group and those receiving MBCT did not differ significantly from one-another either at baseline or at follow-up, but that those in the waiting list showed a significant reduction in perceived likelihood of reaching ideal self-guides, $Mi - j = -1.61$, $SE = .67$, $P = .02$ whereas those in the MBCT group showed no significant change. These results are illustrated in Fig. 2.

Change in Ought Self Similarity

A *time* × *group* mixed ANOVA examining changes in similarity to ought self-guides indicated no main effect of time, $F(1, 38) = .16$, $P = .69$, or group, $F(1, 38) = 1.61$, $P = .23$, and no *time* × *group* interaction, $F(1, 38) = .05$, $P = .82$.

Change in Ought Self Likelihood

A *time* × *group* mixed ANOVA indicated no main effect of time, $F(1, 38) = .03$, $P = .87$, or group, $F(1, 38) = .57$, $P = .46$, and no *time* × *group* interaction, $F(1, 38) = 1.17$, $P = .29$.

Descriptive statistics for ratings of ideal and ought self-discrepancy in each group at baseline and follow-up are shown in Table 1.

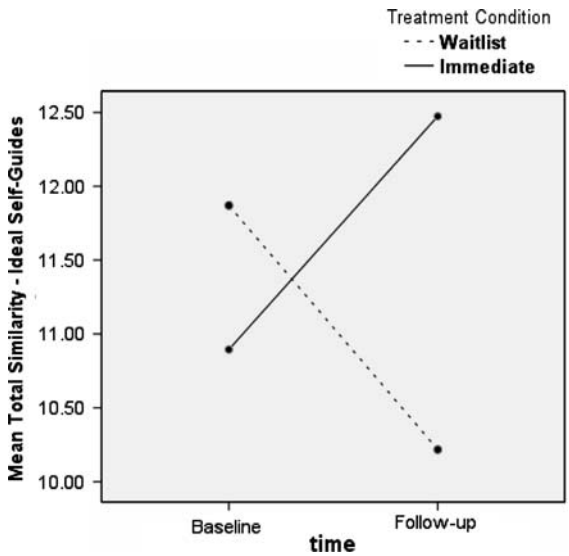

Fig. 1 Interaction between time and group for ratings of ideal self similarity (higher scores indicate decrease, lower scores an increase in discrepancy between actual and ideal self)

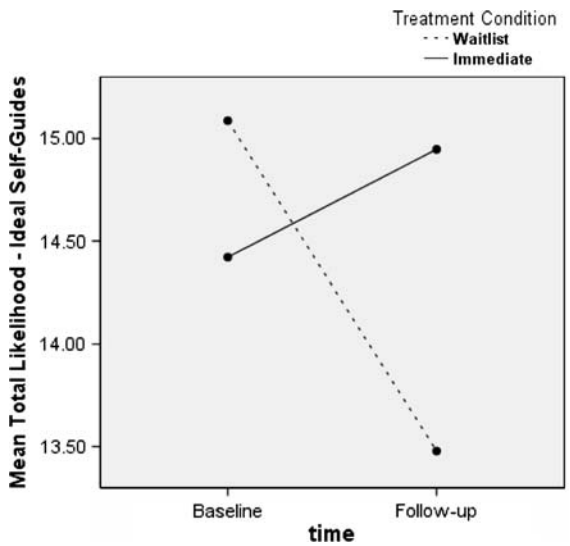

Fig. 2 Interaction between time and group for ratings of ideal self likelihood (lower scores indicate reduction in perceived likelihood of reaching ideal self-guides)

Associations Between Change in Depression and Self-Discrepancy

Spearman's rank order correlation coefficients were conducted to explore the associations between changes in BDI and changes in ideal self-discrepancy in the sample as a whole. None of the associations were statistically significant (see Table 2), suggesting that, consistent with previous studies, treatment-related effects on self-discrepancy occur independently of changes in mood.

Nature of Change in Ideal Self-Guides

A variable was computed corresponding to the abandonment ('letting go') of unhelpful ideal self-guides from baseline to follow-up assessment (higher scores indicating more adaptive self-guides at follow-up) to explore whether the two groups differed in this regard. Although the mean number of unhelpful self-guides abandoned was lower in the waitlist group ($M = .41$, $SD = .65$, median $= 0$) than in the MBCT group ($M = .71$, $SD = 1.12$, median $= 1$), a Mann-Whitney test indicated that there was no significant difference between the groups, $U = 192.50$, $Z = -.68$, $P = .50$. However, an examination of the association between abandonment of unhelpful self-guides and change in ideal self-discrepancy indicated that in the MBCT group greater abandonment of unhelpful self-guides was associated with a significant increase in perceived *similarity* to ideal self-guides from baseline to follow-up, r_s (19) $= .53$, $P = .02$ whereas in the waitlist group there was no significant association $r_s(23) = .15$, $P = .49$. Abandonment of unhelpful self-guides was unrelated to perceived *likelihood* of attaining ideal self-guides in the future in both groups: MBCT: $r_s(19) = .23$, $P = .35$, $r_s(23) = .24$, $P = .27$.

Discussion

Perceived discrepancies from ideal self-guides are associated with dejection and depression (e.g. Strauman 1989) and are primed more easily in previously depressed individuals than never depressed controls (Baskerville 1999). Previous research has demonstrated that psychotherapy (CBT & ITP) for acute depression results in reductions in actual-ideal (but not actual-ought) discrepancies (Strauman et al. 2001). This study examined the effects of Mindfulness-Based Cognitive Therapy on self-discrepancies when delivered to people in recovery from major depression who had experienced suicidal ideation or behaviour in the past. Changes in self-discrepancies in those receiving MBCT were compared to changes in those randomly allocated to a waiting list control condition. We were interested to explore whether MBCT might have a protective effect on self-regulatory processes in a participant group who are at high risk of recurrence of MDD in the absence of treatment.

Analysis of changes in self-discrepancies from baseline to follow-up indicated that whilst there was no difference in ideal self-discrepancies between those allocated to MBCT and those allocated to a waitlist condition at pre-test, at post-test the MBCT group reported significantly lower levels of discrepancy from their ideal self than the waitlist group. This interaction was the result of non-significant increases in self-discrepancy in the waitlist group and non-significant decreases in the MBCT group. Additionally the waitlist group showed a significant reduction in their ratings of perceived likelihood of attaining ideal self characteristics in the future whereas the MBCT group showed no significant change.

We suggest that MBCT may prevent the re-emergence of self-discrepancies in two ways, first by reducing participant's tendency to engage with

Table 2 Spearman's rank order correlation coefficients revealing a lack of significant associations between change in levels of depression and changes in ratings of ideal self similarity and likelihood

Change scores	Total sample		MBCT		Waitlist	
	Ideal self-similarity	Ideal self-likelihood	Ideal self-similarity	Ideal self-likelihood	Ideal self-similarity	Ideal self-likelihood
BDI	−.17	.07	−.05	.25	−.16	.15

self-discrepancies which were momentarily primed, and second by encouraging change in the content of self-guides. The findings suggest that MBCT does have a positive effect on self-regulatory processing in individuals who are now in recovery but have a history of recurrent suicidal depression, primarily limiting increases in self-discrepancy that occur in the absence of prophylactic treatment. However the exact mechanisms underlying the effects of MBCT on self-discrepancies require further exploration. Changes in self-discrepancy may arise because of changes in the *accessibility* of self-discrepancies or changes in their *availability*. Further experimental research is required to explore in more detail possible changes in the accessibility of self-discrepancies following treatment using methods which do not rely on self-report, for example conducting studies using mood induction to explore the ease with which self-discrepancies can be primed.

The impact of MBCT on the availability of self-discrepancies also requires further attention. Changes in availability may be a consequence of alterations in perception of the actual self (for example judging the self less harshly) or changes in ideal self-goals (abandoning unrealistic or unhelpful expectations) or both. In the current study those allocated to MBCT and those allocated to waitlist did not differ significantly in adaptive change in ideal self-guide content. The direction of association between change in perceived similarity to ideal self-guides and abandonment of unhelpful self-guides was positive in both the treatment and control groups, but somewhat more pronounced, and statistically significant in the MBCT group only. This finding suggests that changes in the goals of self-regulation may contribute to the protective effects of MBCT on ideal self-discrepancies rather than participants simply viewing themselves in a generally more positive manner following treatment. Additionally, since it is likely that changes in self-guide content occur gradually as individuals become more and more aware of the consequences of their own patterns of self-regulation through meditation practice, there may be benefit in exploring changes in self-guide content over longer periods of meditation practice and after greater intervals of follow-up.

Limitations

This study has a number of limitations which should be borne in mind when interpreting the results. First, analyses are based on data from a relatively small sample of unipolar and bipolar patients with a history of suicidal depression, a significant proportion of whom dropped out or did not provide complete data. The number of participants affected by drop-out/incomplete data did not differ between the immediate and delayed groups and comparisons between those who dropped out and those who remained in treatment, as a function of their group allocation, identified no significant interaction effects on the key variables. Further intention-to-treat analyses based on all individuals providing initial self-discrepancy data yielded equivalent results reinforcing the suggestion that the findings are not simply a consequence of differential drop-out. However the findings will require replication in a larger sample with greater power, and the generalisation of the findings to samples with a less severe history of depression cannot be assumed at this stage.

Second, it is of particular interest that, consistent with previous work by Strauman et al. (2001), change in ideal self-discrepancy over the study period was not associated with change in level of depressive symptoms, although cross-sectional associations between levels of ideal self-discrepancy (similarity ratings) and depressed affect were observed both at baseline and at follow-up. This suggests that differential changes in self-discrepancy arising following a period of treatment are likely to be distinct from mood-state effects on the accessibility of self-discrepancies. The next step for research will be to explore both whether changes in self-discrepancy mediate between treatment and subsequent risk of recurrence of MDD over a follow-up period.

Third, theoretical approaches to mindfulness suggest that MBCT should not simply alter level of self-discrepancy but also alter the way in which an individual responds to a given level of self-discrepancy once activated (e.g. by increasing patients' ability to accept or decenter from the discrepancy). Exploring in more detail exactly how patients' relationship to their self-discrepancies changes with treatment presents an experimental challenge, but one that would be well worth tackling.

Finally, the analysis examining changes in the content of participant's ideal self-guides was exploratory. Defining particular ideal self-guides as 'unhelpful' is subjective—whilst the ratings were reliable it is important to bear in mind that decisions

concerning 'unhelpfulness' were grounded in a particular theoretical perspective, influenced by the philosophy of mindfulness-based approaches. It is likely that changes in participants' self-guides reflect at least to some degree the extent to which participants absorbed the teaching and perspectives of MBCT, rather than the extent to which they changed in a direction that is unquestionably beneficial. Future research examining the relationship of self-guide change to longer-term outcome will be required in order to determine whether the changes in self-guide content observed following treatment persist or increase and whether such changes are linked to better outcome and reduced risk of recurrence of Major Depression.

Conclusions

Difficulties with goal-related processing, in particular in relation to higher-order, self-related goals, appear to contribute to the development of depression and dysphoria and to be prominent in suicidal patients (e.g. Vincent et al. 2004). Despite limitations, this study provides preliminary evidence to suggest that one effect of Mindfulness-Based Cognitive Therapy for recovered depressed patients may be to alter self-regulatory functioning, reducing the extent to which self-discrepancies associated with depression re-emerge over time. Although further research is required to explore the processes underlying these effects and the extent to which changes in self-discrepancies might mediate between treatment and subsequent risk of relapse to depression, the findings are encouraging. People who engage in prolonged periods of meditation practice report that it profoundly alters their concepts and experiences of self (e.g. Kornfield 2000). These findings suggest that there may also be benefit in examining changes in self-concept and self-regulatory functioning when exploring the mechanisms of action of short-term mindfulness-based interventions.

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Appendix

In the current study the 'ought self' was described as "*the kind of person you believe you have a duty or obligation to be, or that you believe people think you should be. It's defined by the personality characteristics you think you ought to possess, or feel obligated to possess. It's not necessary that you have these characteristics now, only that you believe you ought to have them*".

The 'ideal self' was described as "*The kind of person you'd really like to be. It's defined by the personality characteristics you would ideally like to have. It's not necessary that you have these characteristics now, only that you believe you want to have them.*"

References

Baskerville, S. L. (1999). *Self-discrepancies, depression proneness and current mood state: A test of Higgins' and Ogilvie's theories*. Unpublished Doctoral Thesis, University of Saskatchewan.

Baumeister, R. F. (1990). Suicide as escape from self. *Psychological Review, 97*, 90–113.

Beautrais, A. L., Joyce, P. R., Mulder, R. T., Fergusson, D. M., Deavoll, B. J., & Nightingale, S. K. (1996). Prevalence and comorbidity of mental disorders in persons making serious suicide attempts: A case-control study. *American Journal of Psychiatry, 153*, 1009–1014.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: The Guilford Press.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the BDI-II*. San Antonio, TX: Psychological Corporation.

Bentall, R. R., Kinderman, P., & Mason, K. (2005). Self-discrepancies in bipolar disorder: Comparison of manic, depressed, remitted and normal participants. *British Journal of Clinical Psychology, 44*, 457–473.

Carver, C. S., Lawrence, J. W., & Scheier, M. F. (1999). Self-discrepancy and affect: Incorporating the role of feared selves. *Personality and Social Psychology Bulletin, 25*, 783–792.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge, UK.: Cambridge University Press.

Fairbrother, N., & Moretti, M. (1998). Sociotropy, autonomy and self-discrepancy: Status in depressed, remitted depressed and control participants. *Cognitive Therapy & Research, 22*, 279–296.

First, M. B., Gibbon, M., Spitzer, R. L., & Williams, J. B. W. (1997). *Structured clinical interview for DSM-IV axis II personality disorders (SCID-II)*. American Psychiatric Association.

Foster, T., Gillespie, K., & McClelland, R. (1997). Mental disorders and suicide in Northern Ireland. *British Journal of Psychiatry, 170*, 447–452.

Frank, E., Prien, R. F., Jarrett, R. B., Keller, M. B., Kupfer, D. J., Lavori, P. W., et al. (1991). Conceptualization and rationale for consensus definitions of terms in major depressive disorder—Remission, recovery, relapse, and recurrence. *Archives of General Psychiatry, 48*, 851–855.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review, 3*, 319–340.

Higgins, E. T., Bond, R. N., Klein, R., & Strauman, T. (1986). Self-discrepancy and emotional vulnerability: How magnitude, accessibility and type of discrepancy influence affect. *Journal of Personality & Social Psychology, 51*, 5–15.

Kabat-Zinn, J. (1990). *Full catastrophe living: How to cope with stress, pain and illness using mindfulness meditation*. New York: Dell Publishing.

Kessler, R. C., Berglund, P., Borges, G., Nock, M., & Wand, P. S. (2005). Trends in suicide ideation, plans gestures and attempts in the United Stayes. 1990–1992 to 2001–2003. *JAMA: Journal of the American Medical Association, 293*, 2487–2495.

Kornfield, J. (2000). *After the ecstasy the laundry: How the heart grows wise on the spiritual path*. New York: Bantam Books.

Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting & Clinical Psychology, 72*, 30–40.

Papadakis, A. A., Prince, R. P., Jones, N. P., & Strauman, T. (2006). Self-regulation, rumination and vulnerability to depression in adolescent girls. *Development and Psychopathology, 18*, 815–829.

Pierce, K. M., Strauman, T. J., & Lowe Vandell, D. (1999). Self-discrepancy, negative life events, and social support in relation to dejection in mothers of infants. *Journal of Social & Clinical Psychology, 18*, 490–501.

Scott, L., & O'Hara, M. W. (1993). Self-discrepancies in clinically anxious and depressed university students. *Journal of Abnormal Psychology, 102*, 282–287.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.

Sheehan, D. V., Lecrubier, Y., Sheehan, K., Harnett, A. P., Janavs, J., Weiller, E., et al. (1998). The mini-international neuropsychiatric interview (M.I.N.I.). The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychology, 59*, 22–33.

Strauman, T. J. (1989). Self-discrepancies in clinical depression and social phobia: Cognitive structures that underlie emotional disorders? *Journal of Abnormal Psychology, 98*, 14–22.

Strauman, T. J. (1996). Stability within the self: A longitudinal study of the structural implications of self-discrepancy theory. *Journal of Personality and Social Psychology, 71*, 1142–1153.

Strauman, T. J., Kolden, G. G., Stromquist, V., Davis, N., Kwapil, L., Heerey, E., et al. (2001). The effects of treatments for depression on perceived failure in self-regulation. *Cognitive Therapy & Research, 25*, 693–712.

Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). The prevention of relapse/recurrence of major depression by mindfulness-based cognitive therapy. *Journal of Consulting & Clinical Psychology, 68*, 615–623.

Vincent, P., Boddana, P., & MacLeod, A. (2004). Positive life goals and plans in parasuicide. *Clinical Psychology and Psychotherapy, 11*, 90–99.

Williams, J. M. G., Barnhofer, T., Crane, C., & Beck, A. T. (2005). Problem solving deteriorates following mood challenge in formerly depressed patients with a history of suicidal ideation. *Journal of Abnormal Psychology, 114*, 421–431.

Williams, J. M. G., Van der Does, W., Barnhofer, T., Crane, C., Segal, Z. (2008). Cognitive reactivity and suicidal behavior: Investigating a differential activation theory of suicidality. *Cognitive Therapy and Research, 32*, 88–104.

Yen, S., Shea, M. T., Pagano, M., Sanislow, C. A., Grilo, C. M., McGlashan, T. H., et al. (2003). Axis I and axis II disorders as predictors of prospective suicide attempts: Gindins from the collaborative longitudinal personality disorders study. *Journal of Abnormal Psychology, 112*, 375–381.