

Title: Cognitive and Emotional Processing of Pleasant and Unpleasant Experiences in Major Depression: A Matter of Vantage Point?

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Abstract

Background and Objectives: In nonclinical populations, adopting a third-person perspective as opposed to a first-person perspective while analyzing negative emotional experiences fosters understanding of these experiences and reduces negative emotional reactivity. We assessed whether this generalizes to people with major depression (MD). Additionally, we assessed whether the emotion-reducing effects of adopting a third-person perspective also occur when subjects with MD and HC subjects analyze positive experiences.

Methods: Seventy-two MD subjects and 82 HC subjects analyzed a happy and a depressing experience from either a first-person or a third-person perspective.

Results: Unexpectedly, we found no emotion-reducing effects of third-person perspective in either group thinking about depressing events. However, across groups, third-person perspective was associated with less recounting of depressing experiences and with a clearer, more coherent understanding of them. Negative affect decreased and positive affect increased in both groups analyzing happy experiences. In MD subjects, decreases in depressive affect were stronger for the third-person perspective. In both groups, positive affect increased and negative affect decreased more strongly for the third-person perspective.

Limitations: While reflecting on their positive memory, MD subjects adopted their assigned perspective for a shorter amount of time (70%) than HC subjects (78%). However, percentage of time participants adopted their assigned perspective was unrelated to the significant effects we found.

Conclusions: Both people suffering from MD and healthy individuals may benefit from processing pleasant experiences, especially when adopting a self-distant perspective.

Keywords: self-distancing, depression, perspective, memory, rumination, vantage point

1. Introduction

Reflecting on unpleasant experiences can help people cope adaptively with them (Pennebaker & Chung, 2007; Wilson & Gilbert, 2008). For example, social sharing of such experiences (Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998), and writing about them (Smyth, 1998; Pennebaker, Zeck, & Rimé, 2001) often enhance physical and psychological well-being. On the other hand, ruminating about one's negative mood can prolong it, increasing risk for depression (Nolen-Hoeksema, 1991). How, then, do people successfully process emotionally unpleasant events without getting stuck in maladaptive rumination?

Stepping back or “distancing” from one's own thoughts, beliefs, and feelings is one way to do so (Linehan, 1993; Alford & Beck, 1997; Teasdale et al., 2002). Helping people alter their perspective for thinking about unpleasant experiences can foster adaptive processing (Ayduk & Kross, 2010a). The first-person perspective entails visualizing a past event through one's own eyes, whereas the third-person perspective entails visualizing it through the eyes of another person (e.g., Nigro & Neisser, 1983). The first-person perspective encourages healthy individuals to recount the event and re-experience it emotionally, whereas the third-person perspective encourages people to view it objectively, reconstruing it in ways that diminish its negative emotional impact (see Kross & Ayduk, 2011). In the long term, reflecting on unpleasant experiences from a third-person perspective buffers against negative affect and recurrent unpleasant thoughts (Kross & Ayduk, 2008). Beneficial effects of adopting a distancing, third-person perspective also extend to children thinking about unpleasant autobiographical memories (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011) and to parents reflecting on their children's past cancer treatments (Penner et al., 2012).

Individuals with MD might benefit from adopting a third-person perspective while thinking about negative experiences as these patients tend to ruminate about negative emotional states, which can increase the duration and intensity of depressive mood, as well as the risk for future MD episodes (Nolen-Hoeksema, Morrow, & Fredrickson, 1993). In fact, among nonclinical participants, adopting the third-person perspective was especially effective in reducing negative affect for those scoring high on a depression questionnaire (Kross & Ayduk, 2009). Participants with very low depression scores did not benefit from adopting a third-person perspective, suggesting that a certain threshold of depressive symptoms must be reached for the effect to occur. Only one study has assessed effects of adopting a third-person perspective in participants with MD (Kross, Gard, Deldin, Clifton, & Ayduk, 2012). In this study, MD patients, but not healthy individuals, experienced less pronounced negative affect and accessibility of depressotypic thoughts when analyzing their feelings about an unpleasant autobiographical memory from a third-person as opposed to a first-person perspective. Furthermore, in both groups, analyzing feelings from a third-person perspective was associated with less recounting of emotional details and more reconstruing of participants' experiences, as reflected by self-ratings of closure and insight.

On the other hand, other researchers assessing memory *recall*, without instructing participants to reflect on their memories, found that individuals with past (Bergouignan et al., 2008) and current MD tend to recall autobiographical memories from a third-person perspective (Kuyken & Howell, 2006; Lemogne et al., 2006). In dysphoric individuals, recall of unpleasant, intrusive memories from the third-person perspective has furthermore been linked to reduced vividness and distress of these memories (Williams & Moulds, 2008) but also to increased rumination, numbness, detachment, and cognitive avoidance, suggesting that self-initiated third-

person recall might serve as an avoidance mechanism, keeping levels of emotional arousal in a tolerable range (Williams & Moulds, 2007). In patients suffering from posttraumatic stress disorder (PTSD), spontaneous adoption of a third-person vs. first-person perspective during recall of traumatic events is associated with less emotional and anxiety provoking memories (McIsaac & Eich, 2004) and yet nevertheless predicts future PTSD (Kenny et al., 2009). Accordingly, adopting a third-person perspective may impair adequate processing of intrusive, traumatic memories and contributes to their maintenance by preventing the integration of cognitive and affective memory components (Kenny et al., 2009; Foa & Kozak, 1986; McIsaac & Eich, 2004). Given the similarities of intrusive memories in PTSD and MD (Reynolds and Brewin, 1999), third-person recall of intrusive autobiographical memories in MD may thus facilitate avoidance and, over time, impair emotional processing (Williams & Moulds, 2007). In fact, in contrast to previous findings (Kross et al., 2005; Ayduk & Kross, 2008; Kross & Ayduk, 2008), Wimalaweera and Moulds (2008) found no evidence that third-person reflection on autobiographical memories reduces negative reactivity or, in the long run, facilitates emotional processing of these memories (see, however, Ayduk & Kross, 2009). Yet, this study assessed a non-clinical sample, precluding generalizations to MD patients. Moreover, as noted above, the first study assessing emotional and cognitive effects of third-person reflection on unpleasant autobiographical memories in a clinical sample showed that in MD patients, adoption of the third-person perspective was not only associated with less pronounced negative affect but also with a higher self-rated sense of closure and insight (Kross et al., 2012).

The first aim of the present study was to replicate these initial findings (Kross et al., 2012). Second, we assessed whether beneficial effects of the third-person perspective also occur when people analyze positive experiences. Only one study has addressed this question (Gruber,

Harvey, & Johnson, 2009). This study assessed patients with bipolar disorder and healthy control (HC) participants. Both groups experienced less positive affect and fewer positive thoughts when adopting the third-person versus first-person perspective. Depressive states are associated with decreased positive affect as well as increased negative affect (Brown, Chorpita, & Barlow, 1998). Assuming that MD patients may benefit from analyzing positive experiences from a third-person perspective thus seems counterintuitive. However, although recalling positive memories boosts mood in nondepressed individuals, it can worsen mood in patients with MD (Joormann, Siemer, & Gotlib, 2007). Similarly, in depressed and formerly depressed individuals, ruminative reflection on positive memories was maladaptive in the sense that it maintained these participants' low mood (Werner-Seidler & Moulds, 2012). Possibly, recalling positive memories might thus draw the attention of MD patients to a contrast between an ideal, happy past, and an actual, unhappy present, inducing maladaptive, ruminative processes (Joormann et al., 2007; Werner-Seidler & Moulds, 2012; Conway & Ross, 1984; Martin & Tesser, 1989, 1996). When analyzing positive experiences, MD patients might thus benefit from adopting a third-person perspective as it may dampen the low mood associated with these ruminative processes.

We instructed MD and HC subjects to analyze their feelings concerning a negative and a positive autobiographical memory, following closely the procedures of Kross and Ayduk (2010b) and Kross et al. (2012). We predicted that analyzing a negative emotional memory from a third-person vs. a first-person perspective would result in less negative affect, less recounting of the event, and more reconstruing of it (Kross et al., 2012). Moreover, we expected this effect to be far less pronounced in HC relative to MD subjects (Kross & Ayduk, 2009; Kross et al., 2012; Nolen-Hoeksema, 2011). Also, we predicted that HC subjects would experience increases in positive mood and decreases in negative mood when *analyzing* positive experiences (cf. for

recalling positive experiences; Joormann et al., 2007), whereas HC subjects adopting a third-person vs. a first-person perspective would report less pronounced increases in positive mood and less pronounced decreases in negative mood (Brown, Chorpita, & Barlow, 1998).

Conversely, we expected that MD subjects would report a less pronounced decrease in positive mood and a less pronounced increase in negative mood when adopting a third-person perspective.

2. Method

2.1 Subjects

Subjects between 18 and 65 years of age were recruited from the Boston area through flyers, Craigslist advertisements, and Harvard's Department of Psychology study pool which includes individuals from the community as well as students. Exclusion criteria were learning disabilities, histories of head injury with loss of consciousness for more than two minutes, major medical disorders, alcohol or other substance abuse or dependence during the previous six months, histories of bipolar disorder, and psychotic symptoms.

Table 1 shows sample characteristics. To qualify for the depressed group, a subject had to meet DSM-IV criteria for current major depressive episode.¹ According to the diagnostic interview, MD subjects met current criteria for generalized anxiety disorder ($n = 29$), social phobia ($n = 27$), PTSD ($n = 14$), panic disorder with agoraphobia ($n = 10$), obsessive-compulsive disorder ($n = 7$), panic disorder without agoraphobia ($n = 2$), bulimia nervosa ($n = 3$), and agoraphobia without panic disorder ($n = 2$). Sixty-two (86%) MD subjects reported at least one

¹ Among qualifying MD subjects, 3 did not return for the second (experimental) visit, and 7 who did complete the task failed to follow instructions correctly. We excluded them from data analysis. We also excluded the data from one subject who fell asleep in the lab, and another who opted to terminate participation. Finally, of the remaining MD subjects, 5 failed to follow instructions for the positive event, and another failed to follow instructions for the negative event. We excluded their data for these events.

previous MD episode. To qualify for the HC group, subjects had to have no history of MD or other Axis I disorders.²

2.2 Procedure

Past and current major depressive episodes were diagnosed by the Structured Clinical Interview for DSM–IV (First, Spitzer, Gibbon, & Williams, 2002). Additional Axis I disorders were diagnosed by the Mini International Neuropsychiatric Interview (Sheehan, Lecrubier, Sheehan et al., 1998). Both interviews were administered by one of two interviewers (a clinical psychologist and a trained graduate student). Participants were free to complete the experimental tasks immediately after the interview or to return to the laboratory within two weeks for a second visit.

The design of the study was a 2 (Group: depressed, healthy) x 2 (Perspective: first-person, third-person) x 2 (Memory: negative, positive) mixed model with repeated measurement on the third factor.

Before completing the experimental tasks, subjects read and signed an informed consent form, a demographic questionnaire, and the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). They then completed a working memory (WM) operation span task (OSPAN; Turner & Engle, 1989). Results of this task will be reported elsewhere. Thereafter, the experimenter left the room and subjects were guided through the remaining procedures by computerized written and audio instructions adopted from Kross et al. (2012) and Kross and Ayduk (2008). Subjects were randomly assigned to one group of a 2 (adoption of first-person vs.

² Among qualifying HC subjects, 4 did not return for the second visit, and 2 others failed to follow instructions correctly, compelling us to exclude their data from analysis. Finally, another subject failed to follow instructions for the positive event, compelling us to exclude the data for this event.

third-person perspective) x 2 (recall of a positive experience, followed by recall of a negative experience vs. recall of a negative experience, followed by recall of a positive experience) experimental design³. Both experimental factors were varied between participants. Subjects were first instructed to complete baseline measures of positive, negative, and depressive affect. Depending on group assignment of recall order subjects then recalled a past event in which they either felt very sad and depressed or very happy. Depending on the experimental group, participants were then instructed to adopt a first-person or a third-person perspective and to analyze their feelings (or the feelings of their “distant self”) during the event for 1 minute (verbatim instructions are given in the Appendix). Thereafter, subjects again completed the measures of positive, negative, and depressive affect as well as a questionnaire assessing event specific emotional reactivity and the degree to which they had adopted the experimentally assigned perspective. They then used a computer to type the thoughts that had passed through their mind during the task in open-ended essays. This procedure was repeated for the second (sad and depressed or happy) event.

Recall tasks were separated by a two-minute break and subsequent word generation distraction task adapted from McFarland and Buehler (1998) designed to allow subjects’ mood to return to baseline before they recalled and analyzed their second event. Return of mood to baseline was verified by testing for mean differences in affect scores prior to recall task between the two recall groups (negative affect: $t(146) = 0.24$; $p = .81$; positive affect: $t(146) = 0.38$; $p = .70$). After completing the questionnaires referring to the second recall task, participants completed a questionnaire assessing the remaining variables of interest described below. To

³ To achieve comparable group sizes despite dropouts and missing data, we randomly assigned the last 15 HC subjects and the last 10 MD subjects with the restriction that within the MD and HC groups, the number of participants who analyzed the positive event first and who analyzed the negative event first had to be equal within each recall condition (first-person vs. third-person perspective).

reduce unpleasant feelings evoked by the recall tasks, we had participants listen to a musical piece (Felix Mendelssohn: Symphony No. 3 in A Minor, Op. 56, MWV N19 "Scottish": II. Vivace non troppo) for one minute that induced positive affect in previous research (Etzel et al., 2006). Finally, participants were debriefed and paid for their participation.

2.3 Measures

2.3.1 Depression symptom severity. Severity of depressive symptoms was assessed by the 20-item CES-D Scale (Radloff, 1977).

2.3.2 Negative and positive affect. We had subjects complete the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) to rate their emotions “right now” on a scale from 1 (very slightly or not at all) to 5 (extremely). We additionally assessed three more items (depressed, sad, and hopeless) with the answer scheme of the PANAS. These items were only used for further analyses described below. Next, participants completed the valence subscale of the Self-Assessment Manikin (SAM; Bradley & Lang, 1994), which asks participants to rate their current mood by using a series of nine faces that range from an unhappy frown (1) to a happy, broad smile (9). We calculated a single negative affect composite by collapsing across the SAM and the Negative Affect PANAS subscale items, after reverse scoring and rescaling the SAM rating to a 5-point scale (Cronbach’s $\alpha > .87^4$). A positive affect composite was calculated by collapsing across the SAM and the Positive Affect PANAS subscale items after rescaling the SAM rating to a 5-point scale (Cronbach’s $\alpha > .89$). Baseline negative and positive affect composites before the recall of negative and positive events were subtracted from negative and

⁴ Cronbach’s alpha was calculated for pre and post task and for both recall order groups separately. Minimum Cronbach’s alpha is reported.

positive affect composites after analyzing the negative and positive events, serving as measures of negative and positive affective reactivity.

2.3.3 Depressive affect. In addition to general negative affect, a depressive affect score was calculated by averaging across the items “sad”, “depressed” and “hopeless” of the extended Negative Affect PANAS subscale (Cronbach’s $\alpha > .89$). Baseline depressive affect scores prior to recall of the negative event were subtracted from depressive affect scores after analyzing the negative event, serving as measure of depressive reactivity.

2.3.4 Event specific emotional reactivity. Participants rated the intensity and extent to which they reexperienced their original emotions while analyzing their experiences on a scale from 1 (not at all) to 7 (very intense, a lot). These ratings were highly correlated (negative event: $r = .81, p < .001$; positive event: $r = .76, p < .001$). We collapsed them to serve as event-specific emotional reactivity index⁵.

2.3.5 Recounting vs. reconstruing. We asked participants to rate their tendency to recount (i.e., to focus on specific chains of events) and to reconstrue (i.e., to express insight, closure, and realizations making them feel differently about the event) their past events while analyzing them by rating their agreement with the following statements on scales from 1 (strongly disagree) to 7 (strongly agree). 1. *My thoughts focused on the specific chain of events – sequence of events, what happened, what was said and done.* 2. *I had a realization that caused me to think differently about the experience.* 3. *I had a realization that made me experience a sense of closure.* 4. *Thinking about my experience led me to have a clearer and more coherent*

⁵ In contrast to Kross et al. (2012), event specific emotional reactivity indices were only moderately correlated with negative ($r = .43, p < .001$) and positive affective reactivity composite scores ($r = .33, p < .001$). We therefore analyzed event specific emotional reactivity, negative, and positive affective reactivity as separate variables, rather than collapsing across event specific emotional reactivity and negative reactivity and across event specific emotional reactivity and positive reactivity.

understanding of this experience. Scores for the first question served as a recounting index.

Averaged scores of the remaining questions and of questions 2 and 4 served as a reconstruing index for the negative ($\alpha = .82$) and for the positive event ($\alpha = .78$). In addition, two independent raters (blind to experimental condition and group) judged the extent of recounting and reconstruing statements for each essay. However, the present report focuses on the self-rating data.

2.3.6 Further potentially influencing variables. Participants rated how engaged they were in the experimental tasks (1 = not at all engaged, 7 = very engaged) and the extent to which they usually adopt a first-person vs. a third-person perspective when recalling past experiences (1 = replay through own eyes, 7 = watch unfold as observer). Participants also indicated how long ago their negative and positive experiences occurred (0 = within past month, 1 = within past 6 months, 2 = within past year, 3 = within past 2-3 years, 4 = within 4 or more years ago), and the extent to which their negative experience was an unresolved and active source of distress (1 = not at all, 7 = very). Participants furthermore rated their agreement with the statements “When prompted to think about the experience, I tried to suppress (push away) my feelings about it” and “When prompted to think about the experience, I tried to avoid thinking about it” on scales from 1 (strongly disagree) to 7 (strongly agree). These two ratings were averaged to measure avoidance ($\alpha s > .84$). To assess to what degree participants adopted the experimentally assigned perspective, we asked the following question: “What percentage of the time were you able to maintain the perspective you had been asked to adopt while thinking of your experience?”

2.4 Statistical Analyses

We used three-factorial analyses of variance (ANOVAs) with factors *group* (MD, HC), *perspective* (first-person, third-person) and *recall order* (positive event first, negative event first) to test the impact on negative and positive affective reactivity, depressive reactivity, and event specific emotional reactivity to analyzing negative and positive events. Using three-factorial ANOVAs with the identical three factors, we analyzed the set of further potentially influencing variables.

We used repeated measures ANOVAs with within-subject factor *thought content* (recounting, reconstruing) and between-subject factors *group* (MD, HC), *perspective* (first-person, third-person) and *recall order* (positive event first, negative event first) to assess effects of adopted perspective on the tendency to recount and to reconstrue past events while analyzing them.

To assess the hypothesis that HC subjects show increases in positive mood and decreases in negative mood, whereas MD subjects show decreases in positive and increases in negative mood in response to analyzing positive events, we conducted repeated measures ANOVAs with within-factor *time point* (prior to analyzing the event, after analyzing the event), between subject-factor *group* (MD, HC) and negative, depressive, and positive mood serving as dependent variables.

Outliers values (> 4 times standard deviation from the mean) were detected in five variables (range of outlier cases: $n = 1$ to $n = 4$) and were removed from the respective analysis.

3. Results

3.1 Study sample characteristics

Groups did not differ significantly in age, gender, and educational (see Table 1). MD subjects had higher levels of depression than HC subjects. The percentage of participants undergoing psychotherapy was lower in MD subjects adopting the third-person perspective recalling the negative event first than in the remaining MD subjects. MD subjects adopting the third-person perspective and recalling the negative event first also had lower CES-D scores than MD subjects adopting the first-person perspective and recalling the negative event first. The percentage of participants on psychotropic medication was higher in MD subjects adopting the third-person perspective and recalling the positive event first than in HC subjects and MD subjects adopting the first-person perspective and recalling the negative event first.

3.2 Affective reactivity to analyzing negative experiences

Compared to HC, MD subjects showed more pronounced event specific emotional reactivity and reactivity of depressive affect to analyzing the negative event. Event specific emotional reactivity was more pronounced in participants who analyzed the positive versus the negative event first (see Table 2).

3.3 Recounting versus reconstruing of negative experiences

We found a significant main effect of thought content ($F(1,141) = 121.66, p < .001, \eta^2 = .46, CI = .34-.56$), indicating that overall, participants recounted their negative event more than they reconstrued it. The Thought Content x Perspective interaction was also significant ($F(1,141) = 5.78, p = .02, \eta^2 = .04, CI = .00-.12$), indicating that, as expected, participants in the third-person group recounted their negative event less and reconstrued it more than did participants in the first-person group.

3.4 Affective reactivity to analyzing positive experiences

Unexpectedly, positive mood increased across groups when participants analyzed a positive event (time point main effect: $F(1,145) = 31.70, p < .001, \eta^2 = .18, CI = .08-.29$; Time Point x Group interaction: $p = .30, \eta^2 = .01, CI = .00-.06$). Furthermore, we found decreases in negative and depressive mood in response to analyzing positive events across groups (time point main effect for negative mood: $F(1,143) = 44.49, p < .001, \eta^2 = .24, CI = .12-.35$; time point main effect for depressive mood: $F(1,145) = 18.09, p < .001, \eta^2 = .11, CI = .03-.21$). Decreases in negative and depressive mood were even more pronounced in MD subjects than in HC subjects (Time Point x Group interaction for negative mood: $F(1,143) = 12.74, p < .001, \eta^2 = .08, CI = .02-.18$; Time Point x Group interaction for depressive mood: $F(1,145) = 9.74, p = .002, \eta^2 = .06, CI = .01-.15$), which is, however, likely attributable to floor effects (pre negative mood: $M(HC) = 1.22, SD = 0.25, M(MD) = 1.81, SD = 0.57$; post negative mood: $M(HC) = 1.13, SD = 0.19, M(MD) = 1.53, SD = 0.40$; pre depressive mood: $M(HC) = 1.14, SD = 0.34, M(MD) = 2.51, SD = 1.17$; post depressive mood: $M(HC) = 1.09, SD = 0.28, M(MD) = 2.16, SD = 1.21$).

Table 3 shows results of ANOVAs analyzing the effect of group, adopted perspective, and recall order on affective reactivity to analyzing the positive event. The significant group main effect for reactivity of negative affect, again, was attributable to floor effects. The significant main effects of adopted perspective on reactivity of positive and negative affect indicate that participants showed stronger increases in positive affect and decreases in negative affect when analyzing their positive event from the third-person than from the first-person perspective (see Figure 1). As shown by the significant Group x Perspective interaction for reactivity of depressive affect, MD subjects but not HC subjects showed a more pronounced decrease in depressive affect when analyzing their positive event from the third-person vs. first-

person perspective. Significant Group x Recall order interactions for reactivity of positive and negative affect, and a trend-wise significance for depressive affect indicate that positive affect increased more strongly, whereas negative and depressive affect decreased more strongly, when MD subjects but not HC subjects analyzed their positive event prior to analyzing the negative event.

3.5 Recounting versus reconstruing of positive experiences

The degree to which participants recounted and reconstrued their positive event was unaffected by adopted perspective. Overall, participants recounted their positive event more than they reconstrued it (main effect of factor thought content: $F(1,139) = 166.15, p < .001, \eta^2 = .54, CI = .43-.63$). However, as indicated by significant Thought Content x Group interactions (self-ratings: $F(1,139) = 15.03, p < .001, \eta^2 = .10, CI = .02-.20$), MD subjects recounted their positive event less and reconstrued it more than HC. Participants who analyzed the negative versus the positive event first, reconstrued their positive event more (Thought Content x Recall order interaction: $F(1,139) = 8.06, p = .001, \eta^2 = .06, CI = .00-.14$).

3.6 Further influencing Variables

Engagement in the experimental task referring to the negative event, the perspective participants usually adopted while recalling past experiences, and time since the negative and positive events took place were unaffected by group, adopted perspective, recall order, or interactions between these factors ($ps > .09$). Regarding the positive event, MD subjects ($M = 5.04, SD = 1.43$) were less engaged in the experimental task than HC subjects were ($M = 5.56, SD = 1.12$) ($F(1,109) = 5.12, p = .03, \eta^2 = .04, CI = .00-.14$). Subjects were less engaged in the task when negative events were recalled first ($M = 5.00, SD = 1.33$) as compared to positive events ($M = 5.58, SD = 1.22$) ($F(1, 109) = 6.78, p = 0.01, \eta^2 = .06, CI = .00-.16$). The extent to

which the negative experience was reported to be an unresolved and active source of distress was higher in MD subjects ($M = 5.80$, $SD = 1.57$) than in HC subjects ($M = 2.61$, $SD = 1.65$) ($F(1,111) = 113.82$, $p < .001$, $\eta^2 = .51$, $CI = .38-.60$). MD Subjects reported more avoidance than HC subjects while analyzing the negative (MD: $M = 4.08$, $SD = 1.74$; HC: $M = 2.90$, $SD = 1.73$) and the positive event (MD: $M = 1.86$, $SD = 1.20$, HC: $M = 1.49$, $SD = 1.06$) (negative event: $F(1,141) = 16.89$, $p < .001$, $\eta^2 = .11$, $CI = .03-.21$; positive event: $F(1,139) = 4.39$, $p = .03$, $\eta^2 = .03$, $CI = .00-.10$). While analyzing their negative event, MD subjects and HC subjects adopted the experimentally assigned perspective for 72% and for 71% of the time ($F(1,146) = 0.07$, $p = .79$, $\eta^2 = .00$, $CI = .00-.02$). While analyzing the positive event, MD subjects adopted the experimentally assigned perspective for a shorter amount of time (70%) than HC subjects (78%) ($F(1,139) = 5.14$, $p = .03$, $\eta^2 = .03$, $CI = .00-.11$). In exploratory post-hoc comparisons, this group difference reached significance for adoption of the first-person ($F(1,67) = 5.44$, $p = .02$; $\eta^2 = .07$, $CI = .00-.21$) but not the third-person perspective ($p = .42$)⁶.

4. Discussion

In accordance with Kross et al. (2012), results regarding self-reported *cognitive effects* of self-reflection suggest that a third-person perspective reduces simple recounting of unpleasant experiences and helps both depressed and healthy individuals to develop a clearer, more coherent understanding of their experiences. On the other hand, neither for depressive nor for healthy individuals did we replicate previous reports of reduced *emotional reactivity* to analyzing unpleasant experiences from a self-distant perspective (Ayduk & Kross, 2010a; Kross & Ayduk, 2008, 2009, 2011; Kross et al., 2011, 2012; Penner et al., 2012). The finding that emotional

⁶ The percentage of time participants adopted the experimentally assigned perspective was not significantly correlated with the dependent variables reported in Table 3 both in the total sample and in MD and HC subjects.

reactivity of depressive individuals was unaffected by adopted perspective contrasts with prior research (Kross et al., 2012) and surprising, given earlier observations that depression severity must surpass a certain degree for people to benefit from self-distancing (Kross & Ayduk, 2009). How can differences between Kross et al. (2012) and our findings be explained? First, they might be related to methodological differences. For instance, we treated event specific reactivity and negative affective reactivity as separate variables, whereas Kross et al. (2012) collapsed across them. However, we also analyzed the collapsed score with no significant change in results. Also, we assessed affective reactivity by calculating post- versus pre-experimental mood scores, whereas Kross et al. (2012) used post-experimental affect ratings. Yet, again, when following Kross et al. (2012), results remained unchanged. Second, discrepant results might be related to sample size, sample characteristics, or both: Based on the effect sizes reported by Kross et al. (2012), we performed post-hoc statistical power analyses. For the effect of perspective on *cognitive* reactivity, our statistical power was 0.99. With 0.78, statistical power for *emotional* reactivity was lower, but still sufficient to detect small-to-medium effects. Recruitment sources are comparable, yet, on average, our participants were somewhat older and our MD subjects less frequently on psychotropic medication than those of Kross et al. (2012). MD subjects of the two studies are, however, comparable regarding questionnaire-assessed severity of depression, and regarding the percentage of subjects undergoing psychotherapy and reporting at least one prior MD episode. Finally, could the absence of an effect of adopted perspective on emotional reactivity to analyzing unpleasant experiences in our study be related to more pronounced avoidance in our participants compared to Kross et al.'s (2012) participants? Due to differing scales, this question cannot be answered directly, yet the data do not suggest a major influence of avoidance on study results: Levels of avoidance were comparable for subjects

adopting the first-person and subjects adopting the third-person perspective, both in our study and in the study by Kross et al. (2012). Thus, although a natural self-distancing tendency might serve as an avoidance mechanism (Williams & Moulds, 2007) it seems unlikely that *instructing* people to adopt a third-person perspective will increase their avoidance behavior.

Unexpectedly, both groups showed increased positive and decreased negative and depressive affect after analyzing pleasant experiences. Thus, while healthy people respond positively to both, merely *recalling* pleasant events (Joormann, Siemer, & Gotlib, 2007) and *analyzing* associated feelings, the situation seems more complex for people suffering from MD: When they are merely asked to think of positive events, and to write down descriptions of these events, *recalling* pleasant events can increase negative affect (Joormann, Siemer, & Gotlib, 2007). Yet, when at the same time adopting a concrete processing mode, i.e., when focusing on sensory aspects such as visual details of the event or bodily sensations experienced during the event, this can improve their mood (Werner-Seidler & Moulds, 2012). In contrast, adoption of an abstract processing mode maintained depressed individuals' low mood (Werner-Seidler & Moulds, 2012). At first sight, this seems to contradict our findings as our participants adopted an abstract processing mode as well. However, whereas Werner-Seidler & Moulds (2012) explicitly instructed their participants to make ruminative comparisons between their current life and their happy memory, we asked participants to think about the causes and reasons for the feelings associated with their positive memories, without asking them to focus on the contrast between their happy events and their current emotional state. This suggests that in depressed individuals, beneficially dealing with pleasant experiences may require a cognitive, analytical approach but that caution is warranted to prevent maladaptive, ruminative processes. Similarly, simple recall will likely backfire. If replicated, our findings may have implications for clinical practice: When

using behavioral activation treatment for depression (Cuijpers et al, 2007), patients could, for example, be encouraged to systematically reflect on positive emotional reactions to daily activities.

Interestingly, depressed subjects reported a greater decline in depressive affect and both study groups reported a greater increase in positive affect and a greater decline in negative affect when analyzing positive memories from the third-person perspective. The mechanisms mediating the beneficial effects of reflecting on pleasant experiences and that, according to our findings, might be augmented by self-distancing still need to be uncovered. A potential mechanism could be an increased “sense of the self” and of one’s life goals (Burton & King, 2004).

A weakness of this study is the lack of a clinical comparison group, prohibiting conclusions regarding the specificity of the effects to individuals suffering from MD. Furthermore, we did not record the content of the memories participants recalled and analyzed. We therefore cannot assess if the type of analyzed memories affected participants’ cognitive and emotional responses to the experimental task and the degree to which they were able to adopt their assigned perspective. For example, 38% of our MD subjects suffered from comorbid social phobia and may thus have recalled socially anxious events. As patients with social phobia tend to recall socially anxious events from a third-person perspective (Wells, Clark & Ahmad, 1998), this may have affected our findings. Another limitation is that one of the MD subgroups adopting the third-person perspective had somewhat lower depression scores and was less frequently undergoing psychotherapy than the remaining MD subjects were. This subgroup may have been relatively inexperienced and therefore less able in stepping back and analyzing feelings from a self-distant perspective – processes that are part of many psychotherapeutic approaches (e.g.,

Beck, 1970). A reduced ability to adopt a third-person perspective may have diminished potential effects of our experimental intervention. However, such confounding effects were likely small, as in MD subjects, psychotherapy status was unrelated to the percentage of time participants adopted the experimentally assigned perspective while analyzing negative ($p = .28$) and positive feelings ($p = .47$). Psychotherapy status in MD subjects was furthermore unrelated to emotional reactivity to analyzing negative ($ps > .26$) and positive feelings ($ps > .39$). While reflecting on their positive memory, MD subjects adopted their assigned perspective for a shorter amount of time than HC subjects did. Yet, in post-hoc comparisons, this group difference only reached significance for the first-person perspective. Furthermore, the fact that participants did not adopt their assigned perspective for up to 30% of the time does not necessarily imply that our experimental manipulation failed. In fact, memories are often recalled from more than one perspective (Rice & Rubin, 2009). Importantly, however, percentage of time participants adopted their assigned perspective was unrelated to the significant effects in Table 3. This provides strong evidence against the interpretation that the significant effects are confounded by the amount of time subjects adopted their assigned perspective. Finally, while differences between study groups may be attributed to the effects of our experimental manipulations, they could also reflect differences in the types of event that depressed vs. non-depressed participants recalled and analyzed. The degree to which the negative event was an unresolved and active source of distress was higher in MD subjects than in HC. This may, for example, have contributed to the more pronounced emotional reactivity to analyzing the negative event in MD subjects.

We draw two conclusions from this study: First, further research is needed to clarify the conditions under which people with MD and other mental disorders benefit from self-distancing while analyzing unpleasant emotional experiences. Second, not only healthy individuals but also

individuals with MD seem to benefit from analyzing pleasant emotional experiences, in particular when adopting a self-distant perspective.

Declaration of Conflicting Interest

The Authors declare that there is no conflict of interest.

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Table 1. Demographic and psychometric characteristics [means (SD) or percentages] for MD participants and HC, separately for each experimental condition

	Depressed				HC				Overall group difference (<i>p</i>)
	First-person		Third-person		First-person		Third-person		
	Positive event first (<i>n</i> = 20)	Negative event first (<i>n</i> = 18)	Positive event first (<i>n</i> = 17)	Negative event first (<i>n</i> = 17)	Positive event first (<i>n</i> = 19)	Negative event first (<i>n</i> = 19)	Positive event first (<i>n</i> = 23)	Negative event first (<i>n</i> = 21)	
Demographics									
Age	39.55 (15.05)	34.65 (13.28)	35.13 (16.48)	38.29 (12.97)	34.32 (13.63)	36.68 (13.24)	36.70 (14.47)	31.76 (12.09)	.37
% Female	70%	41%	82%	53%	53%	47%	52%	67%	.38
% Associate or Bachelor’s degree or higher education	50%	70%	53%	71%	63%	63%	83%	57%	.48
CES-D	37.55 ^{a,b} (9.71)	38.76 ^a (8.92)	37.12 ^{a,b} (8.85)	31.58 ^b (12.97)	3.32 ^c (4.32)	2.47 ^c (3.39)	4.0 ^{c,d} (5.12)	5.81 ^d (5.25)	<.001*
% Undergoing psychotherapy	30% ^a	29% ^a	35% ^a	6% ^b	0% ^b	0% ^b	0% ^b	0% ^b	<.001*
% On psychotropic medications	20% ^{a,b}	7% ^a	38% ^b	13% ^{a,b}	0% ^a	0% ^a	0% ^a	7% ^a	.001*

Note. * $p < .007$. Significant overall group differences in listed variables were followed by single comparisons between all eight groups. Values of the same row that do not share superscripts differ significantly ($p < .05$)

Table 2. Results of ANOVAs analyzing the effect of group (MD subjects vs. HC), adopted perspective (first-person vs. third-person), and recall order on affective reactivity to analyzing the negative event

	Event specific emotional reactivity			Reactivity of negative affect			Reactivity of depressive affect		
	<i>F</i> (1,142)	<i>p</i>	partial η^2 (95% CI)	<i>F</i> (1,144)	<i>p</i>	partial η^2 (95% CI)	<i>F</i> (1,144)	<i>p</i>	partial η^2 (95% CI)
Group	10.88	.001*	.07 (.01-.16)	3.78	.06	.03 (.00-.09)	85.20	<.001*	.37 (.25-.47)
Perspective	0.12	.73	.01 (.00-.03)	0.00	.95	.00 (.00-.00)	0.17	.68	.00 (.00-.04)
Recall order	4.15	.04*	.03 (.00-.10)	2.13	.15	.01 (.00-.07)	0.03	.87	.00 (.00-.00)
Group x Perspective	0.84	.36	.00 (.00-.05)	1.29	.26	.01 (.00-.06)	0.11	.74	.00 (.00-.03)
Group x Recall order	0.08	.78	.00 (.00-.02)	1.84	.17	.01 (.00-.07)	0.19	.66	.00 (.00-.04)
Perspective x Recall order	0.19	.67	.01 (.00-.04)	0.48	.49	.00 (.00-.04)	0.33	.56	.00 (.00-.04)
Group x Perspective x Recall order	0.87	.35	.01 (.00-.05)	0.29	.59	.00 (.00-.04)	2.24	.14	.01 (.00-.08)

* $p < .05$

Table 3. Results of ANOVAs analyzing the effect of group (MD subjects vs. HC), adopted perspective (first-person vs. third-person), and recall order (positive vs. negative event first) on affective reactivity to analyzing the positive event

	Event specific emotional reactivity			Reactivity of positive Affect			Reactivity of negative affect			Reactivity of depressive affect		
	<i>F</i> (1,140)	<i>p</i>	partial η^2 (CI)	<i>F</i> (1,138)	<i>p</i>	partial η^2 (CI)	<i>F</i> (1,135)	<i>P</i>	partial η^2 (CI)	<i>F</i> (1,136)	<i>p</i>	partial η^2 (CI)
Group	0.98	.32	.00 (.00-.06)	0.34	.56	.00 (.00-.04)	10.72	.001*	.07 (.01-.17)	6.30	.01*	.04 (.00-.13)
Perspective	0.02	.88	.00 (.00-.01)	5.77	.02*	.04 (.00-.12)	4.13	.04*	.03 (.00-.10)	4.38	.04*	.03 (.00-.11)
Recall order	0.06	.81	.00 (.00-.02)	2.36	.13	.02 (.00-.08)	1.10	.30	.00 (.00-.06)	0.25	.62	.00 (.00-.04)
Group x Perspective	0.52	.47	.01 (.00-.05)	0.27	.60	.00 (.00-.04)	3.16	.08	.03 (.00-.09)	9.60	.002*	.07 (.01-.16)
Group x Recall order	1.041	.31	.01 (.00-.06)	7.14	.01*	.05 (.00-.13)	4.52	.03*	.03 (.00-.11)	3.64	.06	.03 (.00-.10)
Perspective x Recall order	0.42	.84	.00 (.00-.04)	1.99	.16	.01 (.00-.07)	0.53	.82	.00 (.00-.05)	0.96	.33	.01 (.00-.06)
Group x Perspective x Recall order	1.89	.17	.01 (.00-.07)	0.37	.54	.00 (.00-.04)	0.39	.53	.00 (.00-.05)	1.53	.22	.01 (.00-.07)

* $p < .05$

Figure 1. Reactivity of (a) positive, (b) negative and (c) depressive affect (means, SE) to analyzing the positive event in MD subjects and HC subjects adopting a first-person vs. third-person perspective. Note that scales in panel b and c are inverted.

