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# DEPRESSION, CONTROL, AND COUNTERFACTUAL THINKING: FUNCTIONAL FOR WHOM?

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The present study examined relationships among counterfactual thinking, perceived control, and depressive symptoms. Undergraduate participants, grouped according to nondepressed, mild–to–moderately depressed, and severely depressed symptom categories, described potentially repeatable negative academic events and then made upward counterfactuals about those events. Whereas participants endorsing mild–to–moderate depressive symptom levels generated more counterfactuals about controllable than uncontrollable aspects of the events they described, participants endorsing severe levels of depressive symptoms generated counterfactuals that were less controllable, less reasonable, and more characterological in nature. Furthermore, controllable (relative to uncontrollable) counterfactual thinking enhanced retrospective control perceptions for less depressed participants, but depleted control perceptions for more depressed participants. Discussion focuses on the possibility that whereas controllable counterfactual thinking may be functional for nondepressed individuals, it may be less functional, if not dysfunctional, with increasingly depressed symptoms.

Statements such as, "if only I had studied my notes more carefully, I would have passed the exam," and, "if only I had not waited until the last minute to start working on the paper, I would have handed it in on time," exemplify counterfactual thinking—the generation of imagined alternatives to reality—and a great deal of research has focused on how counterfactual thinking may be implicated in such diverse judgments as causal attribution (Wells & Gavanski, 1989), regret (Gilovich & Medvec,

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1995), and certainty–of–hindsight (Roese & Olson, 1996). In addition, researchers have adopted a functional approach toward understanding the determinants and consequences of counterfactual thinking (e.g., Markman, Gavanski, Sherman, & McMullen, 1993; Markman & McMullen, 2003, 2005; Roese, 1997; Sanna, 2000), and this conceptualization highlights a number of possible functions. One that has been identified is the preparative function, and upward (i.e., "it could have been better") counterfactuals have been most closely linked in this regard. Although upward counterfactuals may devalue the actual outcome and make us feel worse (e.g., Mellers, Schwartz, Ho, & Ritov, 1997), by simulating routes to imagined better realities we may learn to improve upon our outcomes in the future (Roese, 1994; Taylor & Schneider, 1989).

The need to render our social world predictable and controllable has long been considered a major motivation underlying human behavior and psychological functioning (e.g., Heider, 1958; Kelley, 1967), and recent work has also begun to explore the relationship between counterfactual thinking and perceived control. In particular, we have learned that counterfactuals are more likely to focus on controllable than uncontrollable event features (e.g., Girotto, Legrenzi, & Rizzo, 1991; Markman, Gavanski, Sherman, & McMullen, 1995; N'Gbala & Branscombe, 1995), that controllable situations are more likely to elicit upward than downward (i.e., "it could have been worse") counterfactuals (Roese & Olson, 1995), and that upward counterfactuals enhance retrospective control perceptions (McMullen, Markman, & Gavanski, 1995; Nasco & Marsh, 1999).

Noting that chronic control concerns have been associated with mild and moderate levels of depressive symptomatology (e.g., Weary, Elbin, & Hill, 1987; Weisz, Weiss, Wasserman, & Rintoul, 1987), Markman and Weary (1996, 1998) examined the impact of chronic control beliefs on depressed persons' counterfactual thought processes. Based on previous work indicating that persons who are mildly and moderately depressed are particularly sensitive to control–relevant social information (e.g., Edwards & Weary, 1993; Weary, Jordan, & Hill, 1985), presumably in the service of control restoration, Markman and Weary (1996) predicted and found for this group that counterfactual thoughts about repeatable negative events (i.e., those that afford an opportunity for future improvement) tend to focus on controllable relative to uncontrollable event features. In turn, for these mildly and moderately depressed individuals, controllable counterfactual thinking was found to be associated with enhanced retrospective control perceptions for repeatable events. In light of these results, Markman and Weary posited that mild–to–moderately depressed individuals may be particularly inclined to engage in controllable counterfactual thinking because doing so provides them with an

opportunity to compensate for their general perceptions of control loss by enhancing their perceptions of retrospective control over specific events (cf. Thompson, 1981).

The Markman and Weary (1996) work, however, left open a number of intriguing questions. These authors focused on individuals exhibiting relatively mild levels of depressive symptoms, and thus did not examine the counterfactual thinking processes of individuals suffering from more severe levels of depressive symptoms. Indeed, there are good reasons to believe that individuals displaying relatively severe levels of depressive symptoms would differ from those studied by Markman and Weary with regard to the content of their counterfactual thoughts. First, research has indicated that at extreme levels of depression there is a leveling off and eventual decline in sensitivity to social information (e.g., Marsh & Weary, 1989, 1994). Secondly, Abramson and colleagues (e.g., Abramson, Alloy, Hankin, Haeffel, MacCoon, & Gibb, 2002) have theorized that stable and global (i.e., uncontrollable) event–specific inferences for negative events, including negative self–characteristics and negative expectancies, give rise to hopelessness, which then results in depression. Extending this reasoning, individuals exhibiting relatively severe levels of depressive symptoms may harbor extreme uncontrollable, characterological cognitions about a negative event (e.g., Lewinsohn, Steinmetz, Larson, & Franklin, 1981; Pagel, Becker, & Coppel, 1985). Thus, it is predicted in the present study that the counterfactuals they generate about a negative, potentially repeatable event will focus on uncontrollable and characterological features to a greater extent than will the counterfactuals of either those with nondepressive symptom levels or those with mild–to–moderately depressive symptom levels.

Recent work (e.g., Mandel, 2003; Mandel & Lehman, 1996) has indicated that counterfactual thinking and causal attribution are often divergent processes. Specifically, Mandel and Lehman (1996) found that participants who completed "If only . . . " sentence stems provided responses that focused more on controllable antecedents suggesting how an outcome could have been *prevented* rather than on how an outcome may have been caused. Causal ascriptions, on the other hand, tend to focus on sufficient (and not necessarily controllable) antecedents that played a critical role in how the *actual* outcome of an event came about (Mandel, 2003). Highlighting cognitive processes by which counterfactual thinking may lead to distress, naturalistic research with victims of traumatic events has found that chronic focus on how they might have avoided or prevented their traumas leads to exaggerated self–blame (Alicke, 2000; Davis, Lehman, Silver, Wortman, & Ellard, 1996) and depressive symptoms (Branscombe, Wohl, Owen, Allison, &

N'Gbala, 2003). This tendency among victims to disproportionately focus on what they might have done or changed to prevent an outcome may lead them to generate increasingly *unreasonable* counterfactuals—counterfactuals focusing on antecedent actions that, although by definition "controllable," could hardly have been reasonably performed by the individual (e.g., "if I was constantly aware of my body and never put myself in any kind of situation where there was the remotest chance of being hurt, I could have avoided this injury"). In light of the cognitive distortions that are known to characterize depressed thinking (Beck, 1967), it is expected that to the extent that individuals with relatively severe depressive symptom levels generate counterfactuals focusing on controllable features that (retrospectively) prevent a negative outcome, the nature of these counterfactuals should be less reasonable (e.g., "if only I had memorized my notes, I might not be such a failure"). That is, from the perspective of an outside observer, counterfactual antecedent actions described by persons in the relatively severe depressive symptom group are expected either to be unrealistic or less plausible in undoing (i.e., unlikely to constitute the sufficient cause of) the outcome. Our anticipated results would be consistent with evidence that has qualified the depressive realism hypothesis (Alloy & Abramson, 1979) by demonstrating that depression severity moderates the "sadder but wiser" effect insofar as relatively severely depressed individuals instead demonstrate a negativity bias (McKendree–Smith & Scogin, 2000).

Although Markman and Weary (1996) found that mild–to–moderately depressed individuals as compared to nondepressed individuals generated relatively more controllable counterfactuals, their reported analyses did not differentiate between nondepressed and mild–to–moderately depressed individuals with regard to the relationship between controllable counterfactual thinking and retrospective control perceptions. In the present paper, we will argue that individuals displaying low levels of depressive symptomatology (i.e., nondepressives) will show a positive relationship between controllable (relative to uncontrollable) counterfactual thinking and enhanced retrospective control perceptions (Markman & Weary, 1996), whereas individuals displaying increasingly severe levels of depressive symptomatology will demonstrate a *reduction* in control perceptions at high levels of controllable (relative to uncontrollable) counterfactual thinking. Our rationale is based in part on Alicke's (2000) culpable control model that posits, "affective reactions [are] conflated with . . . assessments of personal control" (p. 558). To the extent that individuals endorsing depressive symptoms are overwhelmed (relative to nondepressives) by negative emotionality, they may be more likely to engage in biased processing re-

garding control assessment following negative outcomes. Thus, retrospective consideration of missed control–enhancement opportunities may simply reinforce in persons suffering from depressive symptoms their perceptions that negative outcomes are virtually uncontrollable. In turn, for these individuals, controllable counterfactual thinking may paradoxically lead to a decrement in retrospective control perceptions (e.g., "because I am who I am, I clearly could not have controlled this negative outcome"). In Rothbaum, Weisz, and Snyder's (1982) terms, this process is akin to secondary control (see also Thompson, 1981), wherein, following failure, individuals attempt to accommodate their environments (e.g., adjusting expectations) in order to stave off future disappointment. Thus, we hypothesize that, for persons endorsing depressive symptoms, counterfactuals involving failed control opportunities serve as reminders of perceived negative self–characteristics, including impoverished efficacy, and should thus have the effect of depleting primary control perceptions (i.e., perceived inability to exert control over the environment; Rothbaum et al., 1982).

## METHOD

### Participants

A pool of introductory psychology students at Ohio University who participated in a mass screening session completed the Beck Depression Inventory–II, a self–report measure appropriate for detecting depressive symptoms among normal populations (BDI–II; Beck, Steer, & Brown, 1996). The BDI–II contains 21 items, each rated on a 4–point scale ranging from 0 to 3. Individuals were categorized according to nondepressed, mild–to–moderately depressed, or severely depressed symptom ranges as specified by Beck's (1967) depth of depression cutoffs for the BDI.[1] Individuals from each category were then randomly selected and recruited by telephone to participate. From this pool, 87 participants who endorsed a broad range of BDI–II scores agreed to participate in the study. Those selected were contacted approximately 1.5 months post–screening and were invited to participate in a study entitled "Thinking About Past Events."

The BDI–II was readministered to participants during the experimen-

1. Beck's (1967) depth of depression cutoffs for the BDI are 0 to 9 = no depression, 10 to 15 = mild depression symptom category, 16 to 23 = moderate depression symptom category, and 24+ = severe depression symptom category (Markman & Weary, 1996; see also Dozois, Dobson, & Ahnberg, 1998, who provided evidence for a correct correspondence rate of 88% using the BDI–II with the cutoff system from the BDI that is described above).

tal session so that current depressive symptom scores could be used in the analyses. Only those participants whose scores were stable across both sessions according to Beck's (1967) depth of depression cutoffs were included in the final analysis (i.e., participants who changed categories were excluded). The final sample consisted of 58 participants (15 men and 53 women) with a mean BDI–II score of 15.53 ($SD$ = 12.70). In all, 21 participants were categorized as nondepressed, 23 were categorized with mild–to–moderately depressed symptoms, and 14 were categorized with severely depressed symptoms.

## PROCEDURE

Participants worked at private computer stations on the experimental task. They were initially presented a screen with the following instructions, prompting them to recall a potentially repeatable negative academic event in order to engender subsequent thinking about improving upon future academic outcomes (cf. Markman et al., 1993; Markman & Weary, 1996):

> Try to recall a relatively recent event in which you experienced a negative academic outcome (i.e., an examination or a paper)—the event you recall should be one that could potentially HAPPEN AGAIN and should NOT be a FINAL examination or FINAL paper. On the screen that follows, describe the important details of the event.

Examples of events described included, "I was taking an important math test and my mind went totally blank and I couldn't remember how to do most of the problems" and, "I did not do well on my first chemistry midterm of the quarter . . . I knew that I was capable of doing better but I did not study enough." Typically, the academic event described had occurred within the last several months. After describing the negative academic event, participants were asked how negative, bad, and sad thinking about the event made them feel as well as the degree of control they felt they had had over the event (on a 1 = "not at all" to 9 = "extremely" scale).

A screen was then presented with the following prompt (Markman & Weary, 1996):

> After experiencing negative outcomes like the one you just described, people often can't help thinking, "if only . . . " and imagining how the outcome could have turned out better. On the following screen, list as many examples of "if only" thoughts that come to mind as you think about the negative outcome.

Examples of upward (i.e., "it could have been better") counterfactuals listed by participants included, "if only I had . . . studied more," "asked more questions in class," "paid better attention," and, "if only I were naturally brilliant." Following the counterfactual listing task, participants were prompted, "reflecting on it now," to consider (according to the same 9–point scales) how negative, bad, and sad thinking about the event made them feel as well as the degree of control they felt they had had over the event. Thus, pre– and post–counterfactual evaluations of the event and control perceptions were obtained. Finally, participants indicated their present mood state on four affect adjectives (i.e., "afraid," "discouraged," "agitated," and "sad") according to the same 9–point scales.

## CODING

The counterfactual statements were coded for controllability by two independent judges who were blind to participants' BDI–II scores. Consistent with the scheme employed by Markman and Weary (1996, 1998), the general guideline for coding was that if the counterfactual focused on an aspect of the event that, in the opinion of the judge, "could have been controlled by the actor at that time," it should be categorized as controllable. On the other hand, if the judge deemed that the counterfactual focused on an aspect that "could not have been controlled by the actor at that time," it should be categorized as uncontrollable (see also Anderson & Deuser, 1993; Janoff–Bulman, 1979; Weiner, 1986). For example, counterfactuals that focused on specific behaviors or failures to act (e.g., "If only I had . . . studied more . . . ") or transient qualities of the self (e.g., "If only I had been paying more attention . . .") were coded as controllable, whereas counterfactuals that focused on chronic or enduring qualities of the self (e.g., "If only I were naturally brilliant . . .") were coded as uncontrollable. In addition, each counterfactual that was coded as controllable was then further coded for how reasonably the antecedent action described in the counterfactual could have been performed by the participant and/or would have plausibly undone the outcome (from 0 = "not at all" to 3 = "very"). For example, if a participant noted in the event description that they hardly studied for an exam and later generated the counterfactual, "if only I had studied my notes . . . ," this counterfactual would have received a "reasonableness rating" of "3." On the other hand, if a participant noted that they had studied as hard as they possibly could have for an exam but subsequently generated the counterfactual, "if only I had memorized all of the book chapters . . . ", this counterfactual would have received a reasonableness rating of "0." Thus, although the latter counterfactual would have been scored as controllable, it would also have been rated as not at

all reasonable. Finally, and consistent with Janoff–Bulman's (1979) distinction, each statement was coded as indicating either behavioral self–blame (i.e., "if only" the actor had acted or behaved differently), characterological self–blame (i.e., "if only" a chronic or enduring aspect of the self had been different), or other–blame (i.e., "if only" an external force had acted differently or been different). Interrater agreement was $r = .90$ for the controllability dimension, $r = .94$ for the reasonableness dimension, and $r = .99$ for the blame dimension. Disagreements were resolved through discussion, and these resolutions were used in the analyses.

## RESULTS

### EVENT EVALUATIONS AND AFFECT

Because analyses revealed no differences on any of the key dependent variables as a function of participant gender, all reported analyses were collapsed across this variable. Ratings of how negative, sad, and bad the events made individuals feel were significantly correlated (all *r*s .65 to .83) and thus were summed to create pre–counterfactual and post–counterfactual indices. Likewise, the four mood adjectives were significantly correlated (all *r*s .28 to .75) and thus were summed to create a post–counterfactual mood index. A 3 (Depression Symptom Category) $\times$ 2 (Pre–Post Counterfactual Evaluation) mixed ANOVA, with repeated measures on the second factor, yielded a marginally significant interaction, $F(2, 52) = 2.72$, $p = .08$, $\eta^2 = .10$. To explore the nature of this interaction, separate one–way ANOVA were conducted on the pre– and post–counterfactual evaluation indices. Analyses revealed no significant differences among the three depression categories in terms of how they initially evaluated the recalled events, $F(2, 52) = 1.72$, $p = .19$, $\eta^2 = .06$, but the three groups did evaluate the events differently after listing counterfactuals, $F(2, 52) = 3.92$, $p = .03$, $\eta^2 = .13$, (see Table 1), with contrasts revealing that severe (SVDs) depressives ($M = 6.64$) evaluated the event more negatively than did nondepressives (NDs, $M = 4.96$), $t(52) = 2.76$, $p = .008$, $d = 1.27$, and mild–to–moderate (MDs) depressives ($M = 5.42$), $t(52) = 2.08$, $p = .04$, $d = .97$.[2] Overall, participants actually evaluated the event more positively after generating counterfactuals, $F(1, 52) = 33.22$, $p < .001$, $\eta^2 = .39$. Although this result may appear to contradict the common finding in the counterfactual literature that upward

2. Four participants (2 NDs, 1 MD, 1 SVD) failed to generate any codable counterfactuals and thus were excluded from these analyses.

counterfactuals evoke negative affect (e.g., Markman et al., 1993; Roese, 1994), it should be noted that the measures typically employed in the literature to examine affect following counterfactual generation tend to focus on one's present mood state or current level of satisfaction. Consistent with this notion, analyses indicated that the total number of (upward) counterfactuals generated by participants was correlated with reports of a negative mood state (i.e., employing the mood index), $r(54) = .25$, $p = .07$.[3] In contrast, the post–counterfactual event evaluation measures called for a more cognitive evaluation of the event and, as such, the tendency to evaluate the event more positively following counterfactual generation may have reflected an attempt on the part of study participants to put the event into perspective. Moreover, the instructions that preceded the post–counterfactual evaluation measures (i.e., "reflecting on it now") may have also cued participants to consider the event from an alternate point of view.

## COUNTERFACTUALS

*Curvilinear relationship between depression symptom category and controllable (relative to uncontrollable) counterfactual thinking.* In order to test our predictions regarding the relationship between depression symptom category and counterfactual generation, we performed one–way analyses of variance. Overall, there was no relationship between depression symptom category and the total number of counterfactuals generated, $F(2, 52) = 1.36$, $p = .27$, $\eta^2 = .05$, nor was there a relationship between depression symptom category and the number of controllable counterfactuals generated, $F < 1$, $\eta^2 = .02$. On the other hand, and as depicted in Table 2, depression symptom category was significantly related to the number of uncontrollable counterfactuals generated, $F(2, 52) = 4.83$, $p = .01$, $\eta^2 = .16$,[4] and planned contrasts revealed that MDs generated fewer uncontrollable counterfactuals ($M = .17$) than did NDs ($M = .84$), $t(52) = 2.21$, $p = .02$, $d = .70$, and SVDs ($M = 1.15$), $t(52) = 2.89$, $p = .006$, $d = .99$. Given our interest in examining relationships between

3. Analyses indicated that post–counterfactual mood state differed as a function of depression symptom category, $F(2, 52) = 3.95$, $p = .03$, $\eta^2 = .13$, with NDs ($M = 2.01$) reporting feeling significantly less negatively than either MDs ($M = 3.07$), $t(52) = 1.98$, $p = .05$, $d = .85$, or SVDs ($M = 3.67$), $t(52) = 2.69$, $p = .009$, $d = 1.2$.

4. Because of concerns about the non–normal distribution of the count data used in this analysis, a nonparametric (i.e., Kruskal–Wallis) test was conducted to examine the number of uncontrollable counterfactuals generated as a function of depression symptom category. This analysis was significant, $H$ (2, N = 54) = 15.74, $p < .001$.

TABLE 1. Means (and Standard Deviations) For Pre– and Post–Counterfactual Event Evaluations as a Function of Depression Symptom Category

| | Depression Symptom Category | | |
|---|---|---|---|
| | **Nondepressed** | **Mild–to–Moderate** | **Severe** |
| Pre–counterfactual evaluation | 6.14 (1.60)[a] | 6.16 (1.57)[a] | 7.03 (1.11)[a] |
| Post–counterfactual evaluation | 4.96 (1.87)[a] | 5.42 (1.67)[a] | 6.64 (1.61)[b] |

*Note*. Pre– and post–counterfactual evaluations reflect summed measures of how negative, bad, and sad thinking about the event made participants feel on a 1 = "not at all" to 9 = "extremely" scale. Row means that do not share common superscripts differ at the $p < .05$ level (one–tailed). Standard deviations are in parentheses.

counterfactual thinking and perceived control, we reasoned that it was important to focus on the number of controllable event aspects generated relative to the number of uncontrollable aspects generated because, for relatively less depressed individuals, generating controllable aspects should enhance perceived control, whereas generating uncontrollable aspects should deplete perceived control. Thus, a controllable counterfactual thought index (CCT—see Markman & Weary, 1996) was created by computing the proportion of controllable counterfactual thoughts generated relative to the total number of (controllable and uncontrollable) counterfactual thoughts generated (i.e., as based on judges' ratings). Analyses revealed the predicted curvilinear relationship between depression symptom category and CCT, $F(2, 52) = 7.16$, $p = .002$, $\eta^2 = .22$ (see Table 2). Replicating Markman and Weary (1996), MDs generated a higher proportion of controllable counterfactuals ($M = .98$) than did NDs ($M = .80$), $t(52) = 2.63$, $p = .01$, $d = .43$, and, extending their findings, SVDs ($M = .71$) generated a lower proportion of controllable counterfactuals than did MDs, $t(52) = 3.55$, $p = .001$, $d = .60$.

*Reasonableness and blame locus of counterfactuals.* Analyses were also conducted on the reasonableness of participants' controllable counterfactuals. Importantly, depression symptom category demonstrated the predicted association with reasonableness, $F(2, 48) = 3.49$, $p = .04$, $\eta^2 = .13$ (see Table 2). Contrasts revealed that the controllable counterfactuals generated by SVDs were rated as less reasonable ($M = 1.72$) than those of NDs ($M = 2.42$), $t(48) = 2.56$, $p = .01$, $d = .84$, and the counterfactuals of NDs were rated as more reasonable than those of MDs ($M = 2.01$), $t(48) = 1.76$, $p = .08$, $d = .50$. Finally, depression symptom category was not significantly related to the number of behavioral–blame or other–blame counterfactuals generated, $F < 1$, $\eta^2 = .02$, for the former, $F(2, 49) = 1.13$, $p = .33$, $\eta^2 = .04$, for the latter (see Table 2). However, analyses revealed a significant effect for characterological–blame counterfactuals,

TABLE 2. Means (and Standard Deviations) For Controllability, Reasonableness, and Blame Locus of Counterfactuals as a Function of Depression Symptom Category

| | Depression Symptom Category | | |
|---|---|---|---|
| | **Nondepressed** | **Mild–to–Moderate** | **Severe** |
| Counterfactuals | | | |
| Controllable | 3.21 (1.65)[a] | 3.65 (1.67)[a] | 3.69 (1.93)[a] |
| Uncontrollable | .84 (1.01)[a] | .17 (.83)[b] | 1.15 (1.14)[a] |
| CCT | .80 (.26)[a] | .98 (.09)[b] | .71 (.32)[a] |
| Reasonableness | 2.42 (.65)[a] | 2.01 (.77)[b] | 1.72 (.72)[b] |
| Behavioral | 3.21 (1.65)[a] | 3.65 (1.67)[a] | 3.85 (1.99)[a] |
| Characterological | .26 (.45)[a] | .00 (.00)[b] | .62 (.65)[c] |
| Other | .58 (1.02)[a] | .17 (.83)[a] | .50 (.85)[a] |

*Note.* "Controllable," "Uncontrollable," "Behavioral," "Characterological," and "Other" refer to the mean number of counterfactuals in each of these categories. "CCT" is the proportion of controllable counterfactuals generated relative to the total number of controllable and uncontrollable counterfactuals generated. "Reasonableness" ratings were made on a 0 = "not at all" to 3 = "very" scale. Row means that do not share common superscripts differ at the $p < .05$ level (one–tailed). Standard deviations are in parentheses.

$F(2, 52) = 9.40$, $p < .001$, $\eta^2 = .27$. As predicted, SVDs generated more characterological counterfactuals ($M = .62$) than did NDs ($M = .26$), $t(52) = 2.38$, $p = .02$, $d = .49$, and MDs ($M = .00$), $t(52) = 4.32$, $p < .001$, $d = .77$.[5] In addition, NDs generated more characterological counterfactuals than did MDs, $t(52) = 2.07$, $p = .04$, $d = .39$.

## RELATIONSHIPS AMONG DEPRESSION SYMPTOM LEVEL, COUNTERFACTUALS, AND PERCEIVED CONTROL

One of our major hypotheses was that controllable counterfactual thinking (i.e., based on *judges'* ratings) would enhance retrospective control perceptions (i.e., based on *participants'* ratings) for individuals endorsing relatively less depressed symptoms, but would deplete control perceptions for individuals endorsing relatively more depressed symptoms. To test this hypothesis, analyses were conducted employing continuous measures of depression symptom level and CCT—the pro-

5. Once again because of concerns about the non–normal distribution of the count data used in this analysis, a Kruskal–Wallis test was conducted to examine the number of characterological counterfactuals generated as a function of depression symptom category. This analysis was also significant, $H(2, N = 54) = 14.43$, $p = .001$.

TABLE 3. Summary of Hierarchical Regression Analysis Predicting Post–Counterfactual Control

| Variable | β | $R^2$ change | *F* change |
|---|---|---|---|
| Pre–Counterfactual Control | .85 | .64 | $F(1, 52) = 92.92$, $p < .001$ |
| BDI | –.03 | .005 | $F < 1$ |
| CCT | –.04 | .004 | $F < 1$ |
| BDI × CCT | –.24 | .05 | $F(1, 49) = 7.52$, $p = .008$ |

*Note.* "BDI" refers to scores on the BDI–II at the experimental session. "CCT" refers to the index of controllable counterfactual thinking.

portion of controllable counterfactual thoughts generated relative to the total number of (controllable and uncontrollable) counterfactual thoughts generated—as predictors of post–counterfactual control. Specifically, CCT and BDI–II scores (i.e., the re–administration that followed the measure of all other study variables) were centered (Aiken & West, 1991) and then multiplied to create a Depression Symptom Level × CCT interaction term. The two main effect and interaction terms, along with the ratings of pre–counterfactual control, were then entered into a hierarchical multiple regression analysis predicting post–counterfactual control (see Table 3). Importantly, a significant Depression Symptom Level × CCT interaction was obtained, $\beta = -.24$, $t = 2.74$, $p = .008$. To examine the nature of the interaction, regression lines were plotted using values lying 1 SD above and 1 SD below the mean of the Depression Symptom Level (low = 1.9; high = 28.4) and CCT (low = .60; high = 1.00) variables. Inspection of the resulting predicted scores reveals support for our hypothesis (see Figure 1). Whereas relatively nondepressed individuals perceived that they had more control over the event to the extent that they generated a greater proportion of controllable relative to uncontrollable counterfactuals (Markman & Weary, 1996), individuals with relatively severe depression symptoms perceived that they had less control over the event to the extent that they generated proportionately more controllable counterfactuals.

## DISCUSSION

Markman and Weary (1996) found that mildly–to–moderately depressed persons were more likely than nondepressives to engage in controllable relative to uncontrollable counterfactual thinking (i.e., CCT), and that engaging in CCT was associated, in general, with increases in perceived control over repeatable events. The results of the present

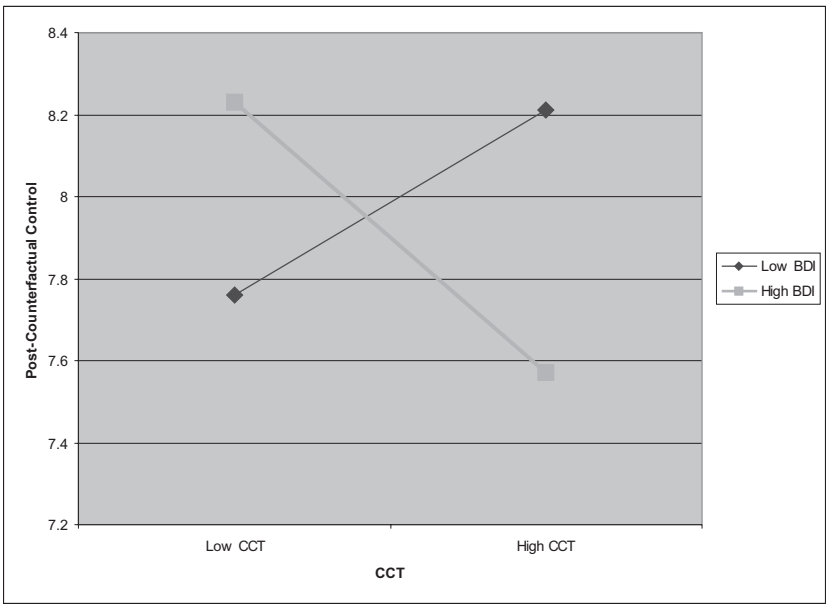


FIGURE 1. Relationship between post-counterfactual control and high and low levels of CCT at high and low levels of depression symptoms (BDI).

study extend and clarify these findings by indicating that: (a) individuals endorsing relatively severe depressive symptom levels generate counterfactuals that are more uncontrollable, less reasonable, and more characterological in nature than those generated by less depressed individuals; (b) a curvilinear relationship exists between depression symptom category and controllable (relative to uncontrollable) counterfactual thinking; and (c) controllable counterfactual thinking enhances control perceptions for less depressed individuals, but depletes control perceptions for those with relatively severe depressed symptoms.

The present study addresses a growing debate between those who argue that upward counterfactual thinking is largely functional in that it has preparative and control–enhancing benefits (e.g., Markman & McMullen, 2003; Nasco & Marsh, 1999; Roese, 1997) and those who argue that upward counterfactual thinking is largely dysfunctional in that it engenders unnecessary negative affect, guilt, and self–blame (e.g., Branscombe, Wohl, Owen, Allison, & N'Gbala, 2003; Davis et al., 1996; Sherman & McConnell, 1995). Our results suggest that the resolution to

this debate might focus less on the question of *whether* upward counterfactuals are functional and more on the question of *when* they are functional and *for whom*. Individuals endorsing relatively mild–to–moderately depressive symptom levels are particularly likely to engage in controllable counterfactual thinking. Although these individuals seem to have the ability to "take a step back" and put the negative event in perspective after generating counterfactuals (note their responses to the pre– and post–counterfactual evaluation indices), they do not appear to experience a concomitant boost in retrospective control perceptions following controllable counterfactual thinking. In a sense then, such individuals may be "spinning their wheels" by focusing so ardently on how they could have prevented an outcome without experiencing any clear psychological benefit from doing so. Furthermore, it seems that persons experiencing severe depressive symptom levels might be better served by not making upward counterfactuals at all. The counterfactuals they generate appear to be dysfunctional in nature—more uncontrollable, and more characterological—and to the extent that persons with relatively severe depressed symptoms do engage in controllable counterfactual thinking, subsequent control perceptions appear to be further depleted. Moreover, the controllable counterfactuals generated by persons experiencing severe depression levels are less reasonable and feasible than are those generated by persons experiencing less severe depression levels, a thought process that should only serve to further exacerbate self–blame and worsen depressive symptoms.

The choice of a nonclinical sample for the present study highlights the importance of the results for the counterfactual literature. That is, to the extent that depressive symptoms are distributed throughout the normal population, including the undergraduate population that is disproportionately the focus of social psychological research, the findings underscore that individual difference variables must increasingly be considered in the forwarding of elegant counterfactual models of functionality and in the advancement of social–cognitive models more generally. In our study, undergraduates endorsing higher depressive symptom levels were not served by upward counterfactual thinking in the way that contemporary functionality models might predict, a finding that calls into question the basic assumption of behavioral uniformity among normal populations.

We believe that the primary import of the present study is to underscore the significance of individual difference variables for forthcoming functionality–based models of counterfactual thinking. Secondarily, however, it is worthwhile to extrapolate from our findings to consider implications of potential clinical significance. For example, our data suggest that symptom level may be a critical index according to which de-

pression subtypes are developed, given that symptom severity appears to interact with cognitive processes related to control perceptions and counterfactual thinking. Although no participants in our study were evaluated for clinically significant distress, our findings regarding depressed persons' cognitive processes emphasize the potential utility in future investigations of discriminating established diagnostic sets such as Major Depressive Disorder from proposed research sets such as Minor Depressive Disorder (DSM–IV–TR, American Psychiatric Association, 2000). Moreover, our results are generally consistent with clinical investigations highlighting the importance of adjusting treatment interventions with regard to depression severity. For example, Elkin et al. (1989) reported in the National Institute of Mental Health Treatment of Depression Collaborative Research Program study (NIMH TDCRP) that cognitive behavior therapy (CBT) was ineffective (i.e., equal to placebo) in the treatment of severe depression.

Dismantling studies by adding or removing specific ingredients during the provision of a treatment in order to consider whether they are in fact therapeutic (Wampold, 2001) might elucidate whether a particular aspect of cognitive therapy mismatches severely depressive thinking. One possibility hinted at by the results of the present research is that, for persons endorsing relatively severe depressive symptoms, the process of counterfactual thinking—inherent in challenging negative attributions (e.g., "if only I weren't incompetent, I would have received a higher score on my test")—highlights both uncontrollable (e.g., "I really am incompetent") and controllable (though unreasonable) factors (e.g., "I could have memorized my notes") that are control–depleting. Although a therapeutic focus on imagining how negative outcomes might have been avoided may increase control perceptions and, thus, be therapeutically indicated for nondepressed patients, such treatment may be contraindicated and perhaps even deleterious to perceived control for patients with severe depression. Ironically, cognitive strategies traditionally theorized to augment control perceptions (e.g., restructuring negative attributions about an outcome) could serve as menacing reinforcers of depressed persons' perceptions that they exert little control over negative life events. Although replication and extension of the present findings with a clinical sample would be necessary to directly affirm this hypothesis, the present results at the least suggest that fine–tuned treatment should take precise account of symptom severity.

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