EFFECTS OF ANXIETY AND DEPRESSION ON FUNCTIONAL COUNTERFACTUAL THINKING

An Undergraduate Research Scholars Thesis

by

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ABSTRACT

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Anxiety and depression are mental disorders that are common in the United States that share one common symptom: rumination. While one may traditionally associate rumination with negative affect, some forms of rumination can have positive benefits. For example, counterfactual thinking is one type of rumination that can strengthen behavioral intentions and improve performance on subsequent tasks. In particular, functional counterfactuals enhance self-regulatory success by eliciting thoughts about better alternatives to past events and transforming these thoughts into plans for future action (Epstude & Roese, 2008). However, there is insufficient research on how anxiety and depression affects functional counterfactual thinking. The current research examines the effect of anxiety and depression on functional counterfactual thinking by examining how different judgment tasks influence participants' activation of behavioral intentions. Participants completed both anxiety and depression measures to determine whether these conditions hinder facilitation of intentions following counterfactual thinking. We found a pattern of facilitation by counterfactual relative to control judgments that varied as a function of the type of action. When the action focused on a behavior, counterfactuals produced faster behavioral intention judgments relative to control. However, when the action was focused

on a trait, counterfactuals did not facilitate behavioral intentions relative to control. Neither depression nor anxiety scores influenced this facilitation pattern.

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CHAPTER I

INTRODUCTION

Depression and anxiety

Depression and anxiety are two of the most prevalent mental health problems in United States today, with anxiety being the most common (NIMH, 2013). Generalized anxiety disorders affect about 18.1% of the U.S. adult population in a given year with 3.1% of the adult population being diagnosed for a 12-month period and 5.7% being diagnosed with anxiety for life (Kessler, Berglund et al., 2005; Kessler, Chiu, Demler, & Walters, 2005; Olatunji, Cisler, & Tolin, 2007). Depression affect about 6.7% of the U.S. adult population in a given year (NIMH, 2013).

Rumination

One common symptom of both of these mental disorders is rumination, which is defined as repeatedly thinking about one's problem instead of identifying a solution (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Rumination exacerbates depressive symptoms because ruminative thoughts negatively influence depressive mood (Response Styles Theory; Nolen-Hoeksema, 1991; Kocovski, Endler, Rector, & Flett, 2005). For example, depressed people often report persistent ruminations involving analysis of complex social problems in their lives (Andrews & Thomson, 2009). Additionally, participants high (vs. low) in social anxiety report using rumination or emotional preoccupation as a coping strategy more frequently. This only increases anxiety, while distraction coping actually decreases anxiety (Blagden & Craske, 1996; Kocovski, et al., 2005). The current study will look at one type of rumination, counterfactual

thinking to determine whether depressed or anxious individuals differentially access behavioral intentions following counterfactual thoughts.

Introduction to counterfactual thinking

Counterfactual thoughts are defined as mental representations of alternatives to past occurrences, features, and states that takes the form of "if only" (for a recent review, see Epstude & Roese, 2008). It also allows individuals to transform past mistakes into intentions for future behaviors (Smallman, 2013; Smallman & Roese, 2009). For example, after failing a test, a student might think, "If only I had studied harder, then I would have made a better grade." This counterfactual statement identifies the behavior necessary to improve performance on future tasks (i.e., studying harder), and the thought will increase the likelihood of performing this behavior in the future. Counterfactual thoughts give individuals a chance to look back on past events and change their behavior for a better outcome in the future (Galinsky, Liljenquist, Kray, & Roese, 2005; Markman & McMullen, 2003; McAdams & Albaugh, 2008).

Counterfactual direction

There are several different ways researchers can code the content of counterfactual statements. For example, counterfactual statements can be coded as either upward or downward. Upward counterfactual thoughts usually follow a negative event and focus on ways in which the situation could have turned out better. In contrast, downward counterfactual thoughts usually follow a positive event and focus on how a situation could have been worse (Kocovski et al., 2005; Roese & Olson, 1995). An example of an upward counterfactual would be "If I had studied a week before my exam, I could have done better on the test." Upward counterfactuals increase negative

affect because the better alternative to the current reality is made salient. A downward counterfactual, on the other hand, increases positive affect because the worse alternative is made salient (Roese & Olson, 1995). For example, one could think, "If I had not studied at all, I would have failed the test."

Counterfactual structure

In addition to upward and downward, counterfactual statements can be coded as either additive or subtractive. Additive statements are additional acts an individual could have taken while subtractive statements involve removing an action. An example of an additive counterfactual would be "If I had gone to the movie last night, I would have done worse on the exam." A subtractive counterfactual might be "If I had not studied a week before the test, I would have done worse." Research has found that additive counterfactuals are more functional (Epstude & Roese, 2008).

Functional counterfactual thinking

Recent research shows that counterfactual thinking works as a self-regulatory mechanism (Epstude & Roese, 2008; Smallman & McCulloch, 2012). That is, some counterfactuals (i.e., functional counterfactuals) are particularly helpful to individuals because they facilitate the formation of behavioral intentions. A counterfactual is functional when it promotes an intention and connects thoughts about past mistakes to improve future behavior (Smallman, 2013; Smallman & Roese, 2009). For example, after getting into an accident, the counterfactual statement "I should have put away my phone" suggests that putting away the phone would have helped the individual avoid the negative situation. Nasco and Marsh (1999) researched test

performance in a group of college students. They found that students who generated counterfactuals following an exam showed increased performance on their subsequent exam. Another study found that participants who engage in counterfactual thinking after doing poorly on an anagram task performed better on a subsequent anagram task (Roese, 1994).

Functional counterfactual thinking, anxiety and depression

Studies have also examined the links between counterfactual thinking and mental health. For example, Markman and Weary (1998) found that increased counterfactual generation motivates depressed participants in general, assuming they lack perceived control. Also, participants high in social anxiety recorded more negative thoughts and more upward counterfactual thoughts compared to those low in social anxiety (Kocovski et al., 2005). However, redundant counterfactual thinking has been linked to negative cognitions (e.g., anxiety) and negative affect (e.g., depression). In other words, excessive upward counterfactual thinking is associated with extreme stress (Epstude & Roese, 2008). However, there are few studies examining how anxiety and depression influence functional counterfactual thinking.

The current study examined the effects of depression and anxiety on functional counterfactual thinking. Specifically, this study examined whether counterfactual thoughts differentially activate behavioral intentions in people high and low in depression and anxiety. We hypothesized that individuals high in anxiety and/or depression would not show an increase in accessibility to relevant behavior intentions following counterfactual priming.

CHAPTER II

METHODS

Participants

Undergraduate students ($N = 154$) participated for partial course credit in their psychology course. Participants ranged in age from 18 to 26 years ($M = 18.51$, $SD = .90$), 66% were women and most were Caucasian (76.6%; 23.3% Hispanic). Participants were notified of their rights as a participant and signed a written consent form to participate.

Procedures

After consenting, participants completed a sequential priming paradigm based on the one used in previous counterfactual research (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009). Participants completed 80 trials consisting of 40 trials in the counterfactual and 40 trials in the control conditions. Within each condition, 20 trials included behavioral information and 20 trials included trait information. Each trial's condition, order, and information type were fully randomized.

In each trial, participants made two judgments in succession: the prime (action) judgment and the target (intention) judgment. As the trial began, participants first saw a negative event, designed to establish context. Events were selected to be representative of the mishaps that college students encounter. A simple negative event (e.g., "argued with a friend") appeared on the screen first. Participants were asked to imagine that the event happened to them personally. Two seconds later, the prime task (a judgment related to this particular negative event) appeared. The prime judgment appeared below the event description and consisted of a judgment cue and an

action statement. There were two prime conditions, manipulated on a within-subject basis: counterfactual versus control. The manipulation hinged on the judgment cue that preceded this action statement (e.g., counterfactual vs. control). A crucial aspect of the prime task was to hold constant the main informational content of the priming judgment (e.g., the action statement) while varying only the presence of a counterfactual component. Therefore, the only thing that differed between the counterfactual and control trials was the judgment cue preceding the action statement. Thus, the cue contained either a counterfactual marker ("could have") versus a control marker focusing on factual aspects of the statement that followed.

In the counterfactual trials, a counterfactual cue was paired with the action statement. For example, if the negative event was "argued with a friend" then a counterfactual cue would be paired with a relevant action (e.g., "Should have" + "listened before speaking"). Participants decided if this action (e.g., listening before speaking) was something that could have changed the outcome of the event (e.g., arguing with a friend). Participants pressed a key labeled "yes" or "no" to indicate their decision. In the counterfactual trials, one of two cues was randomly inserted prior to the action statement ("could have" or "should have"). This variation was introduced to rule out the interpretation that effects depended on particular syntax.

In the control trials, a factual cue was paired with the action statement. The control trials involved a recency judgment. For example, if the event was "argued with a friend," then a control cue would be paired with a relevant action (e.g., "In the last week have" + "listened before speaking"). Participants decided whether they had actually performed the action (e.g., listening before speaking) within the past week. As in the counterfactual trials, participants pressed a key labeled "yes" or "no" to indicate their decision.

Between the prime (action) task and the target (intention) task in each trial, a blank screen appeared, asking participants to press a key to continue. This "pause-screen" was included to eliminate the influence of motor facilitation on RTs (i.e., remove the effect of successive identical key presses).

The second judgment, the target task, was a behavioral intention judgment. Participants made a judgment about possible future actions, which were always related to the negative event included in the prime task (e.g., arguing with a friend). The target task consisted of a target cue and a future action. On each trial, the target cue "In the future I will" appeared first on the screen. After a 2 second delay, the relevant action appeared directly below the target cue (e.g., "listen before speaking"). Participants decided whether they would be likely to perform the action in the future (e.g., "In the future I will listen before speaking"), pressing a key labeled "yes" or "no" to indicate their decision. Thus, this procedure permitted a within-subject manipulation of counterfactual thinking that controlled for similarity in content across counterfactual and control trials.

The counterfactual content was manipulated such that the information in the prime and target task included either behavior or trait information. For example, when thinking about arguing with a friend, participants would either consider listening before speaking (a relevant behavior) or being more understanding (a relevant trait). Information was consistent across prime and target tasks within a trial such that a behavior in the prime (e.g., "Could have listened before speaking" or "In the past week have listened before speaking") would be paired with the same behavior in the target (e.g., "In the future I will listen before speaking"). As such, a trait in the prime (e.g., "Could have been more understanding" or "In the past week have been more

understanding") would be paired with the same trait in the target (e.g., "In the future I will be more understanding").

After completing the reaction time task, participants completed the State-Trait Anxiety Inventory for Adults (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1977) and the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1997). The 40 question STAI was used to measure anxiety and consisted of two, 20-question subscales measuring both participants' state and trait anxiety. To measure state anxiety, participants were asked to indicate how they "feel right now, that is, at this moment". Participants responded to each state anxiety item (e.g., I am presently worrying over possible misfortunes) on a 4-point Likert scale (not at all [1] to very much so [4]). To measure trait anxiety, participants indicated how they feel generally. Participants responded to each trait anxiety item (e.g., I feel nervous and restless) on a 4-point Likert scale (almost never [1] to almost always [4]). The CES-D (Radloff, 1977) was used to measure depression. Participants were asked to indicate how often they have felt a certain way (e.g., I felt that I could not shake off the blues even with help from my family) in the past week. Participants responded to each of the 20 items on a 4-point Likert scale (rarely or none of the time [1] to all of the time [4]).

CHAPTER III

RESULTS

Intention facilitation

Outlier RTs, defined on a within-subject basis as RTs > 2.5 *SD*s above the within-condition mean, RTs < 2.5 *SD*s below the within-condition mean, or RTs < 200 ms, were trimmed (5.3% of RTs). Within each type of action, outliers were distributed approximately equally between counterfactual and control conditions (behavior: 1.2% and 1.4%; trait: 1.5% and 1.2%). Data were log-transformed to correct for skewed distribution; untransformed means were presented for clarity.

To provide a more sensitive test of the hypothesis, only RTs for intentions judgments in which participants responded "yes" (86% of all trials) were examined. Because the focus was on whether counterfactuals facilitated responding to an intention, the effect depended on subject's consideration of the intention plausible and desirable. The subset of intention RTs with "yes" responses were distributed evenly across the counterfactual and control conditions within each type of action (behavior: 25% and 26%; trait: 26% and 24%).

A 2 (prime judgment: counterfactual vs. control) x 2 (action type: behavior vs. trait) repeated-measures ANOVA revealed a main effect of prime judgment, $F(1, 151) = 14.679$, $p < .001$, and a non-significant main effect of action type, $F(1, 151) = .548$, $p = .460$. The interaction effect indicated that the pattern of facilitation by counterfactual relative to control judgments varied as a function of the type of action, $F(1, 151) = 11.718$, $p = .001$. When the action focused on a behavior, counterfactuals produced faster behavioral intention judgments relative to control,

$t(151) = -5.108$, $p < .001$. When the action was focused on a trait, however, counterfactuals did not facilitate behavioral intentions relative to control, $t(151) = -0.458$, $p = .647$.

Depression

To calculate depression, we took the sum of participants' responses to each of the twenty CES-D items ($\alpha = .91$; $M = 16.97$, $SD = 10.76$). Participants who scored 16 or greater met the criteria for clinical levels of depression. We then dummy coded depression (0 = non-depressed, 1 = depressed).

To analyze the effect of depression on facilitation of behavioral intentions, we reran the repeated-measures ANOVA described above with the dummy coded depression score as the between-subjects factors, and prime and action type as within-subjects factors.

A 2 (prime judgment: counterfactual vs. control) x 2 (action type: behavior vs. trait) x 2 (depression: depressed vs. non-depressed) repeated-measures ANOVA revealed a main effect of prime judgment, $F(1, 150) = 14.220$, $p < .001$, and a non-significant main effect of action type, $F(1, 150) = .541$, $p = .463$. We found the action by prime interaction effect indicating that the pattern of facilitation by counterfactual relative to control judgments varied as a function of the type of action, $F(1, 150) = 11.232$, $p = .001$. However, we did not find any other significant 2-way interactions either between action and depression ($F(1, 150) = .000$, $p = .998$) or prime and depression($F(1, 150) = .241$, $p = .624$. Also, the 3-way interaction was not significant, $F(1,150) = .491$, $p = .484$. For depressed participants, when the action focused on a behavior, counterfactuals produced faster behavioral intention judgments relative to control, $t(69) = -2.788$, $p = .007$. When the action was focused on a trait, however, counterfactuals did not facilitate

behavioral intentions relative to control, $t(69) = -0.404$, $p = .687$. This pattern was the same for individuals who were not clinically depressed. When the action focused on a behavior, counterfactuals produced faster behavioral intention judgments relative to control, $t(81) = -4.399$, $p < .001$. When the action was focused on a trait, however, counterfactuals did not facilitate behavioral intentions relative to control, $t(81) = -0.251$, $p = 803$.

Trait anxiety

To calculate trait anxiety, we took the sum of participants' responses to each of the twenty STAI trait items ($\alpha = .94$; $M = 41.55$, $SD = 12.14$). Trait anxiety had no well-established cut-off score, so we left it as a continuous variable. We reran the repeated-measures ANOVA described in the first analysis with trait anxiety included as a covariate, and prime and action type as within-subjects factors.

A 2 (prime judgment: counterfactual vs. control) x 2 (action type: behavior vs. trait) with trait anxiety as a control variable repeated-measures ANOVA revealed a non-significant main effect of prime judgment, $F(1, 150) = 1.821$, $p = .179$, and a non-significant main effect of action type, $F(1, 150) = 1.225$, $p = .270$. The action by prime interaction effect indicated that the pattern of facilitation by counterfactual relative to control judgments varied as a function of the type of behavioral information, $F(1, 150) = 6.266$, $p = .013$. However, no other 2-way interactions were significant. That is, there was no effect of action by trait anxiety ($F(1, 150) = .878$, $p = .350$) or prime by trait anxiety ($F(1, 150) = .084$, $p = .772$). Additionally, there was not a significant 3-way interaction ($F(1,150) = 2.570$, $p = .111$).

State anxiety

To calculate state anxiety, we took the sum of participants' responses to each of the twenty STAI state items (α = .91; M = 43.52, SD = 10.92). We reran the repeated-measures ANOVA described in the first analysis with state anxiety included as a covariate, and prime and action type as within-subjects factors.

A 2 (prime judgment: counterfactual vs. control) x 2 (action type: behavior vs. trait) with trait anxiety as a control variable repeated-measures ANOVA revealed a non-significant main effect of prime judgment, $F(1, 150) = 1.435$, $p = .233$, and a non-significant main effect of action type, $F(1, 150) = 0.429$, $p = .513$ Additionally, we did not find any significant 2-way interactions. The prime by action interaction effect did not indicate that the pattern of facilitation by counterfactual relative to control judgments varied as a function of the type of behavioral information ($F(1, 150) = 0.405$, $p = .525$) and there was no action by state anxiety interaction ($F(1, 150) = .243$, $p = .622$) or prime by state anxiety interaction ($F(1, 150) = .088$, $p = .767$). There was also not a significant 3-way interaction ($F(1,150) = 0.033$, $p = .856$).

CHAPTER IV

CONCLUSION

The current study replicated Smallman's (2013) findings by showing that facilitation for behavioral intentions following counterfactual primes occurs when the action is a behavior but not when the action is a trait. However, our hypotheses that depressed individuals would differ in their accessibility to relevant behavior intentions following counterfactual priming was not supported. We found that both depressed and non-depressed individuals showed similar facilitation of behavioral intentions. They responded faster to intentions when the intention followed a counterfactual prime focused on a behavior than when the intention followed counterfactual prime focused on a trait. Additionally, we found no significant difference in intention facilitation based on levels of state or trait anxiety.

Because we did not find differences in the facilitation of behavioral intentions between depressed and non-depressed participants, this suggests that both depressed and non-depressed participants are equally able to activate relevant behavioral intentions. However, it is possible that depressed individuals may have problems bringing these activated intentions into awareness and translating them into subsequent future behavior change. That is, depressed people show symptoms such as sleep disturbance, fatigue, weight changes, psychomotor disturbances (e.g., retardation), increased indecision, concentration difficulty, and low self-esteem (Garber, Kouros, & Morris, 2015). Additionally, they perceive the likelihood of future success to be small because the do not believe they, as individuals, have the capabilities necessary for success and cannot change their outcomes (Beck, Rush, Shaw, & Emery, 1979; Marsh & Weary, 1994). Because depressed individuals generate similar counterfactuals in terms of structure as non-depressed individuals,

(Quelhas, Power, Juhos, & Senos, 2008), we hypothesized that facilitation for behavioral intentions might be the reason for these individuals bleak view. Quelhas et al. (2008) found that, following counterfactual thought generation, depressed individuals were less likely to: feel prepared for the future, to avoid similar negative outcomes, and show behavioral changes. Our findings suggest that, because depressed and non-depressed individuals show the same facilitation of behavioral intentions following counterfactual thoughts, these differences in behavioral change may be due to a subsequent process, such as bringing the activated behavioral intention into awareness or converting these intentions into future behavior change.

Another potential limitation of the current study could be the lack of power to detect differences between depressed and non-depressed participants. Future research should include a larger sample size and other demographic groups. The current study investigated only a college student sample, so different age groups may show different cognitive functioning or a broader range of depression scores. Additionally, we could target individuals with clinical levels of depression to increase the proportion of individuals in that condition.

Research on this topic is important due to a large number of people diagnosed with anxiety and depression today. Depression can occur at any age and co-occur with other illnesses such as cancer, heart disease, Parkinson's disease, and diabetes (NIMH, 2013). Many of these diseases involve complex treatment regimens, which depressive symptoms can make difficult to follow. In fact, most people with anxiety and depression have difficulty with perceived control (e.g., deciding whether or not to study for another hour to help one better understand the concept of what they are learning) and coming up with constructive thoughts and strategies to convert them into action to make better decisions in the future (Markman & Weary, 1998). Anxiety,

specifically, can prevent individuals from engaging in normal, daily activities and the symptoms can get worse if not treated (NIMH, 2013). Furthermore, the hope of this research is to encourage others to explore this newly researched topic on effects of anxiety and depression on functional counterfactual thinking.

REFERENCES

Andrews, P., & Thomson, Jr., J. A. (2009). The bright side of being blue: Depression as an adaptation for analyzing complex problems. *Psychological Review. 116*, 620-654.

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

Birke, D., Butter, M., & Köppe Tilmann (Eds.) (2011). Counterfactual thinking/ counterfactual writing. (pp.93). Berlin, Boston: De Gruyter. Retrieved 19 Nov. 2015, from https://books.google.com/books?id=VcgLgAedZIC&pg=PA93&lpg=PA93&dq=additive+counterfactuals+are+more+functional&source=bl&ots=gPbqGsiVC&sig=wruocUxmSVeW6JstYNTGbW9rpCo&hl=en&sa=X&ved=0CE4Q6AEwB2oVChMI_pWrqybyQIVCXgmCh207QlM#v=onepage&q=additive%20counterfactuals%20are%20more%20functional&f=false.

Blagden, J.C., & Craske, M.G. (1996). Effects of active and passive rumination and distraction: a pilot replication with anxious mood. *Journal of Anxiety Disorders, 10,* 243-252.

Epstude, K., & Roese, N.J. (2008). The functional theory of counterfactual thinking. *Personality Social Psychology Review, 12,* 168-192.

Galinsky, A. D., Liljenquist, K. A., Kray, L. J., & Roese, N. J. (2005). Finding meaning from mutability: Making sense and deriving significance through counterfactual thinking. In D. R. Mandel, D. J. Hilton, & P. Catellani (Eds.), *The Psychology of Counterfactual Thinking*, 110-126.

Kessler, R.C., Berglund, P., Demler, O., Jin, R., Merikangas, K.R., & Walters, E.E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey replication. *Archives of General Psychiatry*, *62*, 593-768.

Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey replication. *Archives of General psychiatry*, *62*, 617−709.

Kocovski, N.L., Endler, N.S., Rector, N.A., & Flett, G.L. (2005). Ruminative coping and post-event processing in social anxiety. *Behavior Research and Therapy*, *43,* 971-984.

Kouros, C. D., Morris, M. C., & Garber, J. (2015). Within-Person Changes in Individual Symptoms of Depression Predict Subsequent Depressive Episodes in Adolescents: a Prospective Study. *Journal of Abnormal Child Psychology, 44*, 483-494.

Markman, K. D., & McMullen, M. N. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Review*, *7*, 244–267.

Markman, K. D., & Weary, G. (1998). Control motivation, depression, and counterfactual thought. In M. Kofta, G. Weary, G. Sedek, M. Kofta, G. Weary, G. Sedek (Eds.), Personal control in action: Cognition and motivational mechanisms (pp. 363-390). New York, NY, US: Plenum Press.

Marsh, K.L., & Weary, G. (1994). Severity of depression and responsiveness to attributional information. Journal of Social and Clinical Psychology, 13, 15–32.

McAdams, D. P., & Albaugh, M. (2008). What if there were no God? Politically conservative and liberal Christians imagine their lives without faith. *Journal of Research in Personality*, *42*, 1668–1672.

Nasco S. A., & Marsh K. L. (1999). Gaining control through counterfactual thinking. *Personality and Social Psychology Bulletin*, *25*, 556–568.

National Institute on Drug Abuse. Mental Health Information: Generalized Anxiety Disorder. Available at: http://www.nimh.nih.gov/health/topics/generalized-anxiety-disorder-gad/index.shtml/index.shtml. Access September 26, 2015.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects in the duration of depressive episodes. *Journal of Abnormal Psychology, 100,* 569-582.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives On Psychological Science, 3,* 400-424.

Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: A meta-analytic review. *Clinical Psychology Review, 27,* 572-581.

Quelhas, A. C., Power, M. J., Juhos, C., & Senos, J. (2008). Counterfactual thinking and functional differences in depression. *Clinical Psychology and Psychotherapy*, *15*, 352-365.

Radloff, L. S. (1977). The CES-D scale: A self report depression scale for research in the general population. *Applied Psychological Measurements, 1*, 385-401.

Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology*, *66,* 805-818.

Roese, N. J., & Olson, J. M. (Eds.). (1995). What might have been*:* The social psychology of counterfactual thinking. Mahwah, NJ: Erlbaum.

Smallman, R. (2013). It's what's inside that counts: The role of counterfactual content in intention formation. *Journal of Experimental Social Psychology*, *49,* 843-851.

Smallman, R., & McCulloch, K.C. (2012). Learning from yesterday's mistakes to fix tomorrow's problems: When functional counterfactual thinking and psychological distance collide. *European Journal of Social Psychology, 42,* 383-390.

Smallman, R., & Roese, N. J. (2009). Counterfactual thinking facilitates behavioral intentions. *Journal of Experimental Social Psychology*, *45*, 845-852.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.