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ARE DEPRESSED INDIVIDUALS MORE SUSCEPTIBLE TO COGNITIVE DISSONANCE?

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ABSTRACT

Compared to nondepressed individuals, depressed individuals generally show more guilt, more indecisiveness, and less ability to trivialize negative events, each of which predicts greater susceptibility to cognitive dissonance manipulations. Thus, depressed individuals may be more prone to dissonance effects. This study tested this depression-dissonance question using a role-playing hypocrisy-induction paradigm in which high- and low-depressed participants read about others who behaved inconsistently with their own ideals to high or low degree. Only high-depressed (and not low-depressed) participants showed the dissonance effect, that is, only high-depressed participants' feelings of discomfort rose from low- to high-inconsistency conditions. Implications are discussed for psychotherapy.

INTRODUCTION

Cognitive dissonance is the discomfort one feels when confronted with one's own inconsistency, such as between one's attitudes and behaviors (Cooper, 2007). For example, acting against one's own ideals should cause dissonance. Among ways to reduce dissonance, one might soften one's ideals or trivialize one's actions (Cooper, 2007). Cognitive dissonance theory continues to generate research after five decades and has been applied in numerous areas including mental-health and pro-social contexts (Stice, Rohde, Shaw, & Gau, 2011; Stone & Fernandez, 2008). However, relatively few have investigated individual differences in dissonance processes. More prone to dissonance effects have included those who are less attributionally complex (Stalder & Baron, 1998), less decisive (Stalder, 2010a), higher on internal locus of control (Laird & Berglas, 1975), lower on psychopathic traits (Murray, Wood, & Lilienfeld, 2012), and in some cases, lower on self-esteem (Nail, Misak, & Davis, 2004). With the exception of self-esteem, however, reviews of dissonance research fail to mention individual differences.

This article tries to bring more attention to this underrepresented area. Consideration of such individual differences can improve understanding of dissonance but might also improve large-scale applications (Stice et al., 2011; Stone & Fernandez, 2008) by suggesting different strategies to reach different people. In particular, some have suggested that psychotherapy that relies on

dissonance processes might be less effective for individuals who have certain dispositions and do not exhibit standard dissonance effects (Murray et al., 2012).

Depression and Dissonance

Compared to nondepressed individuals, depressed individuals generally experience greater negative affect (Beck & Alford, 2009), and dissonance is essentially a negative affective response to an aversive event. So it seems reasonable to predict that depressed individuals will be more prone to dissonance effects. More specifically, depressed individuals are more likely to feel threats to ego (Beck & Alford, 2009) which for many dissonance theorists are central to the experience of dissonance (Cooper, 2007). Similarly, depressed individuals are more prone to feel guilt (Kim, Thibodeau, & Jorgensen, 2011), which mimics dissonance in several respects, particularly in that both guilt and dissonance involve feelings of personal responsibility for negative behavior (Stice, 1992).

Depressed individuals are also more likely to feel indecisive (Beck & Alford, 2009), and indecisiveness predicts greater dissonance-induced attitude change (Stalder, 2010a). Moreover, in describing the depression-indecisiveness link, Beck and Alford (2009) noted that depressed individuals anticipate greater post-decisional regret which is a classic indicator of dissonance (Cooper, 2007).

Another connection between depression and dissonance theory involves trivialization. Trivialization is a primary mode of dissonance reduction (Cooper, 2007). Upon feeling dissonance, if one can downplay the importance of a dissonant element, then the dissonance should reduce. However, depressed individuals seem less able to trivialize, in that they tend to perceive greater importance in negative events (Peeters, Nicolson, Berkhof, Delespaul, & deVries, 2003). With less access to this mode of dissonance reduction, depressed individuals would generally be more susceptible to dissonance effects.

In sum, depressed individuals tend to show more guilt, more indecisiveness, and less ability to trivialize negative events, each of which is predictive of elevated feelings of dissonance. Thus, depressed individuals are likely to show a stronger emotional reaction to a dissonance manipulation.

The primary counterpoint to this position is that, compared to nondepressed individuals, depressed individuals typically show *weaker* emotional reactions to certain aversive stimuli (Bylsma, Morris, & Rottenberg, 2008), a phenomenon labeled *emotion context insensitivity* (ECI). However, these stimuli thus far have been limited to sad films and unpleasant pictures, neither of which involves the ego threat typically elicited in dissonance manipulations. Moreover, the emotions measured thus far have been limited to sadness and general unpleasantness, which Kim et al. (2011) labeled "basic" emotions and distinguished from "self-conscious" emotions such as guilt (p. 69). Rottenberg (2005) has suggested that "other negative emotions…should be examined with equal care" (p. 170). The present study examined cognitive dissonance.

The Present Study

We compared those who scored lower versus higher on a depression measure in a role-playing hypocrisy-induction paradigm using a measure of dissonance or discomfort. Other dissonance researchers have used a similar paradigm (e.g., Nail et al., 2004; Stalder, 2010b), and many have so dichotomized depression scores (e.g., Vickers et al., 2003). First, we investigated whether high-depressed participants would show a stronger dissonance effect than low-depressed participants. Second, because depressed individuals are less likely to trivialize negative events (Peeters et al., 2003), we investigated whether high-depressed participants trivialized less than low-depressed participants in this paradigm. Third, because trivialization is a mode of dissonance reduction (Cooper, 2007), we investigated whether less trivialization among high-depressed participants might contribute to a positive depression-dissonance relation (by checking whether the depression-dissonance relation reduces after covarying trivialization).

METHOD

Participants

Undergraduates (34 men, 83 women; age $M = 21.77$, $SD = 4.62$) participated for extra credit in social psychology and statistics courses at a Midwestern United States university.

Materials and Procedure

Participants completed the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977; 20 items; alpha = .90) and the Basic Empathy Inventory (Jolliffe & Farrington, 2006; 20 items; alpha = .85). On the CES-D, with a possible range from 1.00 (lowest frequency of symptoms) to 5.00 (highest frequency), based on the mean response among 20 items, scores ranged from 1.10 to 3.75, $M = 2.15$, $SD = 0.62$, $Mdn = 1.99$, similar to other college-student samples (e.g., Vickers et al., 2003). We told participants that they would read stories "of someone else's experience" and "try to imagine how [they] would feel in this person's place." Prior to reading the stories, participants rated the importance of the focal behavior from each storyline (1 = *not at all*, 9 = *very important*): "conserving water during drought conditions" and "practicing safe sex to avoid risks like AIDS." Both topics are commonly used in hypocrisy-induction research (Stone & Fernandez, 2008). Acknowledging the importance of each behavior should increase the likelihood of feeling dissonance regarding each behavior (Cooper, 2007) and constitutes the first step in hypocrisy induction (Stone & Fernandez, 2008).

Independent Variables

Based on random assignment, participants then read stories of similar-age actors who either wasted water during a drought or had unsafe sex (each 250-300 words; modeled from Stalder, 2010b). We labeled this first independent variable "story." In the drought story, the actor wasted "hundreds of gallons of water" in a "western part" of the United States during a "mild drought" after being "distracted by a cell phone call." In the unsafe-sex story, the actor was home with a significant other, and the parents were out. "Things happened kind of fast," and the young couple "had sex without any protection."

Based on random assignment, participants read that the actor held ideals that were either highly inconsistent or not clearly inconsistent with the mistake. We labeled this second independent variable "inconsistency." For example, in the unsafe-sex story, under high inconsistency, participants read that "you had paid careful attention" in sex education classes, "you knew the risks associated with unprotected sex and never planned on taking any chances," and "when the time came, you would use protection." The corresponding sections under low inconsistency stated that "you had not really paid all that much attention" in sex education classes, "you knew the supposed risks associated with unprotected sex but didn't feel especially concerned," and "when the time came, if the moment was right, protection would not be the first thing on your mind."

Checks on Materials and Manipulations

Participants completed three items to check that participants perceived the materials or manipulations as intended (1 = *not at all*, 9 = *a great degree*). Participants rated the degree to which (a) "the story was realistic" or "could really have happened in this way"; (b) they were "able to take the perspective of the actor in the story (whether or not [the participant] agreed with the actor's views or behaviors)"; and (c) they noticed an "inconsistency between how the actor felt…and how the actor behaved."

Dependent Measures

The dependent measure of discomfort averaged six items (1 = *not at all*, 9 = *a great degree*) asking to what degree participants felt "regretful," "stupid," "hypocritical," "guilty," "ashamed," and "fine" (reverse-scored) had they committed the same mistake as the actor in the story (alpha = .93) (higher scores represent greater discomfort). A rise in discomfort scores from low- to high-inconsistency conditions constituted the dissonance effect. The dependent measure of trivialization averaged four items using the same nine-point scale asking to what degree participants felt that (a) the mistake was a "big deal," (b) the mistake was a "significant setback," (c) it was "important" to avoid the mistake, and (d) the consequences of the mistake were "serious" (alpha = .79) (we reverse-scored all items so that higher scores represent greater trivialization). (See Appendix A.)

Design

Researchers typically administer the CES-D using a 0-to-3-point scale, so that the 20 items yield a possible overall range from 0 to 60, in which researchers label participants who score $\geq$ 16 as "depressed" and < 16 as "nondepressed" (e.g., Vickers et al., 2003). To create comparison groups of similar sizes, we divided participants into low- and high-depressed groups based on the median of 1.99 (from the possible range of 1.00 to 5.00). This score closely approximated the traditional cutoff of 16 (1.99 on the 1-to-5-point scale corresponds to 14.85 in traditional scoring). Thus, we conducted 2 x 2 x 2 (Story x Inconsistency x Depression) analyses of variance (ANOVAs) using the discomfort and trivialization dependent measures.

Because of the perspective-taking nature of the task, we entered empathy as a covariate in all ANOVAs, to try to rule out a role for empathy in results. Also, we ran relevant analyses a second

time using the discomfort measure while entering trivialization as a second covariate to check if trivialization played a role in the discomfort results.

RESULTS

Checks on Materials and Manipulations

In both stories (about drought and unsafe sex), participants rated each behavior as very important (*M*s >= 7.28), rated the story as realistic (*M*s >= 6.63), and reported being able to take the perspective of the actor (*M*s >= 6.57). All means significantly exceeded the scale midpoint (5.00), *p*s < .001. In the unsafe-sex story, participants rated the ideals of the actor in the high-inconsistency condition as significantly more inconsistent with behavior ($M = 7.14$, $SD = 1.48$) than the ideals of the actor in the low-inconsistency condition ($M = 4.64$, $SD = 2.38$), $t(55) = 4.78$, $p < .001$. The drought story, however, yielded no significant difference (*M*s = 4.71 and 4.41, respectively), $t < 1$.

Main Analyses

Using the discomfort dependent measure, the 2 x 2 x 2 (Story x Inconsistency x Depression) ANOVA yielded a significant three-way interaction, $F(1, 108) = 6.16$, $p < .02$, partial eta-squared = .05. Using the drought story, the 2 x 2 (Inconsistency x Depression) ANOVA yielded no significant effects (*p*s > .15). Using the unsafe-sex story yielded a marginal main effect of inconsistency, indicating the expected dissonance effect, $F(1, 108) = 3.46$, $p < .07$, partial eta-squared = .03. Discomfort under high inconsistency ($M = 7.43$, $SD = 1.99$) exceeded that under low inconsistency ($M = 6.33$, $SD = 2.20$). We also found a significant main effect of depression, $F(1, 108) = 17.93$, $p < .001$, partial eta-squared = .14, in which high-depressed participants felt less discomfort overall ($M = 5.95$, $SD = 2.52$) compared to low-depressed participants ($M = 7.79$, $SD = 1.18$). We also found a significant inconsistency x depression interaction, $F(1, 108) = 5.91$, $p < .02$, partial eta-squared = .05. For high-depressed participants, discomfort scores significantly rose from low to high inconsistency, $F(1, 108) = 9.77$, $p < .01$, partial eta-squared = .08, but not for low-depressed participants ($F < 1$) (see Table 1).

Table 1. Mean Discomfort and Trivialization Scores (and Standard Deviations) as a Function of Depression and Inconsistency Level in the Unsafe-Sex Story

	Depression level			
	Low		High	
Inconsistency level	Discomfort	Trivialization	Discomfort	Trivialization
Low	7.62 (0.87)	2.66 (0.90)	5.04 (2.39)	3.79 (1.64)
High	7.94 (1.42)	3.07 (1.41)	6.87 (2.39)	3.23 (1.24)

Using the trivialization dependent measure, the 2 x 2 x 2 (Story x Inconsistency x Depression) ANOVA yielded only a main effect of story, $F(1, 107) = 45.54$, $p < .001$, partial eta-squared = .30, in which participants trivialized the wasting of water more than unsafe sex (we excluded one

participant for failing to complete one trivialization item). However, because of the failure of the inconsistency manipulation in the drought story, we conducted a planned 2 x 2 (Inconsistency x Depression) ANOVA for each story. Using the drought story yielded no significant effects (*p*s $\geq$ .15). Using the unsafe-sex story yielded no main effect of inconsistency ($F < 1$) but a marginal main effect of depression, $F(1, 51) = 3.81$, $p < .06$, partial eta-squared = .07. High-depressed participants ($M = 3.50$, $SD = 1.45$) trivialized more than low-depressed participants ($M = 2.87$, $SD = 1.19$). We also found a marginally significant inconsistency x depression interaction, $F(1, 51) = 3.00$, $p = .090$, partial eta-squared = .06. For high-depressed participants, trivialization scores decreased from low to high inconsistency, whereas for low-depressed participants, trivialization scores increased (see Table 1). However, these simple effects of inconsistency did not reach significance (*p*s > .15). Analyzed another way, the simple effect of depression reached marginal significance under low inconsistency, $F(1, 51) = 3.38$, $p < .07$, partial eta-squared = .06, but not under high inconsistency ($F < 1$). In other words, only under low (and not high) inconsistency did high-depressed participants trivialize more than low-depressed participants (see Table 1).

Using Trivialization as a Covariate

Rerunning the 2 x 2 (Inconsistency x Depression) ANOVA using the discomfort measure in the unsafe-sex condition and entering trivialization (as well as the aforementioned empathy) as a covariate removed the previously significant inconsistency x depression interaction ($p > .25$). Other findings did not change.

Supplementary Analyses

In general, dissonance between one's ideal and behavior should be greater as the importance of the ideal or behavior rises (Cooper, 2007). Thus, the more importance participants placed on safe sex, the more discomfort participants should feel when reading about unsafe sex, especially under high inconsistency. Consistent with this reasoning, perceived importance correlated positively with discomfort under low inconsistency with marginal significance, $r = .33$, $p < .09$, but with conventional significance under high inconsistency, $r = .62$, $p < .001$, although these correlations did not significantly differ, $p > .15$. However, if high-depressed participants are more susceptible to dissonance, then this pattern of a stronger correlation under high than low inconsistency should be more evident for high-depressed than low-depressed participants, which we found. For low-depressed participants, the correlation between perceived importance and discomfort did not rise from low to high inconsistency (*r*s = .23 and -.04, respectively). For high-depressed participants, the correlation significantly rose (*r*s = .20 and .90, respectively), $z = 3.01$, $p < .01$.

DISCUSSION

Depressed individuals seem more susceptible to dissonance based on two sets of results from the unsafe-sex condition. Only high-depressed participants felt greater discomfort from low to high inconsistency and showed a parallel rise in the correlation between discomfort and perceived importance of safe sex. We also found possible evidence that trivialization mediated this depression-dissonance relation. While high-depressed participants' discomfort rose from low to high inconsistency, their tendency to trivialize decreased, and covarying trivialization in the 2 x 2 (Inconsistency x Depression)

ANOVA using discomfort scores removed the interaction effect on discomfort scores. Because trivialization is a mode of dissonance reduction (Cooper, 2007), less trivialization from low to high inconsistency would allow discomfort to rise more easily. These results are consistent with the general findings that depressed individuals experience greater negative affect (such as guilt and anticipatory regret) and appear less able to trivialize negative events (Beck & Alford, 2009; Peeters et al., 2003).

However, for the unsafe-sex story, high-depressed participants felt less discomfort and showed greater trivialization overall than low-depressed participants (though driven by the low-inconsistency condition). These results go against the common understanding of depression but fit the concept of ECI in which depressed individuals exhibit weaker emotional responses to negative events compared to nondepressed individuals (Bylsma et al., 2008). Rottenberg (2005) suggested that ECI might be evolutionarily adaptive for situations in which action is futile or dangerous. However, based on the present study, ECI has a limit, namely when the negative event causes dissonance or ego threat (in the high-inconsistency condition).

A primary implication of the present results is that therapy for depressed individuals might be particularly effective if it utilizes dissonance processes. Indeed, therapies for depression may already share a common dissonance induction-reduction mechanism (Tryon & Misurell, 2008). The present study suggests that the reason for this commonality is that depressed clients are particularly sensitive to dissonance manipulations. Therapies which use dissonance induction might even be helpful in treating clients for problems beyond depression as long as the clients are also experiencing depression.

It should be addressed that the drought story showed no evidence of a depression-dissonance relation. However, the inconsistency manipulation had failed for that story. Among possible reasons for this failure, because the wasting-water mistake was partly caused by a distraction, participants might have interpreted the mistake as an accident and so not indicative of an inconsistency with ideals. In the unsafe-sex story, on the other hand, participants probably interpreted having sex as more intentional. As a limitation, the present study did not use a standard dissonance paradigm. Future research needs to extend this study's findings to other paradigms.

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APPENDIX A: DEPENDENT MEASURES

Preceding the items below, participants read the following: "Now think about how you would feel if you were the actor in the story and this experience happened to you. Try to recall all details of the experience. The following questions pertain to your perception of this experience."

Discomfort Items

1. After this experience, to what degree would you feel regretful?
2. To what degree would you feel "stupid" ?
3. To what degree would you feel hypocritical?
4. To what degree would you feel guilty?
5. To what degree would you feel ashamed?
6. To what degree would you feel fine? (reverse-scored)

Trivialization Items

1. To what degree do you think your behavior was a "big deal" in the grand scheme of things?
2. To what degree do you think your behavior was a significant setback in your life?
3. In the grand scheme of things, how important is it that you practice safe sex [conserve water during a drought].
4. In the grand scheme of things, how serious might the consequences of your behavior be?

APPENDIX B: CORRELATION MATRIX FOR ANOVAS

	Story	Inconsistency	Depression	Discomfort	Trivialization	Empathy
Story	1.00					
Inconsistency	-.01	1.00				
Depression	-.06	.03	1.00			
Discomfort	.04	.11	-.28**	1.00		
Trivialization	-.53***	.07	.15	-.50***	1.00	
Empathy	-.04	.12	-.02	.28**	-.14	1.00
M				6.81	4.13	3.82
SD				1.88	1.76	0.48

Note. $N = 129$ for all results except those involving trivialization, for which $N = 128$. For story: drought = 1, unsafe sex = 2; for inconsistency, low inconsistency = 1, high inconsistency = 2; for depression, low depression = 1, high depression = 2. Story, inconsistency, and depression refer to independent or predictor variables. Discomfort refers to a dependent variable (range of 1 to 9); trivialization refers to a dependent variable and a covariate (range of 1 to 9); empathy refers to a covariate (range of 1 to 5); higher trivialization scores represent greater trivialization.
$^{**}p < .01$. $^{***}p < .001$.

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